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BEDLAM, or Bethlehem Hospital, the first English lunatic asylum, originally founded by Simon FitzMary, sheriff of London, in 1247, as a priory for the sisters and brethren of the order of the Star of Bethlehem. It had as one of its special objects the housing and entertainment of the bishop and canons of St Mary of Bethlehem, the mother-church, on their visits to England. Its first site was in Bishopsgate Street. It is not certain when lunatics were first received in Bedlam, but it is mentioned as a hospital in 1330 and some were there in 1403. In 1547 it was handed over by Henry VIII. with all its revenues to the city of London as a hospital for lunatics. With the exception of one such asylum in Granada, Spain, the Bethlehem Hospital was the first in Europe. It became famous and afterwards infamous for the brutal ill-treatment meted out to the insane (see Insanity: *Hospital Treatment*). In 1675 it was removed to new buildings in Moorfields and finally to its present site in St George's Fields, Lambeth. The word "Bedlam" has long been used generically for all lunatic asylums.

BEDLINGTON, an urban district of Northumberland, England, within the parliamentary borough of Morpeth, 5 m. S.E. of that town on a branch of the North Eastern railway. Pop. (1901) 18,766. It lies on high ground above the river Blyth, 2½ m. above its mouth. The church of St Cuthbert shows good transitional Norman details. Its dedication recalls the transportation of the body of the saintly bishop of Lindisfarne from its shrine at Durham by the monks of that foundation to Lindisfarne, when in fear of attack from William the Conqueror. They rested here with the coffin. The modern growth of the town is attributable to the valuable collieries of the neighbourhood, and to manufactures of nails and chains. It is one of the most populous mining centres in the county. On the south bank of the river is the township and urban district of Cowpen (pop. 17,879), with collieries and glass works; coal is shipped from this point by river.

Bedlington (Betlingtun) and the hamlets belonging to it were bought by Cutheard, bishop of Durham, between 900 and 915, and although locally situated in the county of Northumberland became part of the county palatine of Durham over which Bishop Walcher was granted royal rights by William the Conqueror. When these rights were taken from Cuthbert Tunstall, bishop of Durham, in 1536, Bedlington among his other property lost its special privileges, but was confirmed to him in 1541 with the other property of his predecessors. Together with the other lands of the see of Durham, Bedlington was made over to the ecclesiastical commissioners in 1866. Bedlingtonshire was made part of Northumberland for civil purposes by acts of parliament in 1832 and 1844.

BEDLOE, WILLIAM (1650-1680), English informer, was born at Chepstow on the 20th of April 1650. He appears to have been well educated; he was certainly clever, and after coming to London in 1670 he became acquainted with some Jesuits and was occasionally employed by them. Calling himself now Captain Williams, now Lord Gerard or Lord Newport or Lord Cornwallis, he travelled from one part of Europe to another; he underwent imprisonments for crime, and became an expert in all kinds of duplicity. Then in 1678, following the lead of Titus Gates, he gave an account of a supposed popish plot to the English government, and his version of the details of the murder of Sir E.B. Godfrey was rewarded with £500. Emboldened by his success he denounced various Roman Catholics, married an Irish lady, and having become very popular lived in luxurious fashion. Afterwards his fortunes waned, and he died at Bristol on the

20th of August 1680. His dying depositions, which were taken by Sir Francis North, chief justice of the common pleas, revealed nothing of importance. Bedloe wrote a *Narrative and impartial discovery of the horrid Popish Plot* (1679), but all his statements are extremely untrustworthy.

See J. Pollock, *The Popish Plot* (1903).

BEDMAR, ALPHONSO BELLA CUEVA, Marquis of (1572-1655), Spanish diplomatist, became ambassador to the republic of Venice in 1667. This was a very important position owing to the amount of information concerning European affairs which passed through the hands of the representative of Spain. When Bedmar took up this appointment, Venice had just concluded an alliance with France, Switzerland and the Netherlands, to counterbalance the power of Spain, and the ambassador was instructed to destroy this league. Assisted by the duke of Ossuna, viceroy of Naples, he formed a plan to bring the city into the power of Spain, and the scheme was to be carried out on Ascension Day 1618. The plot was, however, discovered; and Bedmar, protected by his position from arrest, left Venice and went to Flanders as president of the council. In 1622 he was made a cardinal, and soon afterwards became bishop of Oviedo, a position which he retained until his death, which occurred at Oviedo on the 2nd of August 1655. The authorship of an anonymous work, *Squitinio della libertà Veneta*, published at Mirandola in 1612, has been attributed to him.

Some controversy has arisen over the Spanish plot of 1618, and some historians have suggested that it only existed in the minds of the Venetian senators, and was a ruse for forcing Bedmar to leave Venice. From what is known, however, of the policy of Spain at this time, it is by no means unlikely that such a scheme was planned.

See C.V. de Saint-Réal, *Œuvres*, tome iv. (Paris, 1745); P.J. Grosley, *Discussion historique et critique sur la conjuration de Venise* (Paris, 1756); P.A.N.B. Daru, *Histoire de la république de Venise* (Paris, 1853); A. Baschet, *Histoire de la chancellerie secrète à Venise* (Paris, 1870).

BED-MOULD, in architecture, the congeries of mouldings which is under the projecting part of almost every cornice, of which, indeed, it is a part.

BEDOUINS (*Ahl Bedu*, “dwellers in the open land,” or *Ahl el beit*, “people of the tent,” as they call themselves), the name given to the most important, as it is the best known, division of the Arab race. The Bedouins are the descendants of the Arabs of North Arabia whose traditions claim Ishmael as their ancestor (see Arabs). The deserts of North Arabia seem to have been their earliest home, but even in ancient times they had migrated to the lowlands of Egypt and Syria. The Arab conquest of northern Africa in the 7th century A.D. caused a wide dispersion, so that to-day the Arab element is strongly represented in the Nile Valley, Saharan, and Nubian peoples. Among the Hamitic-Negroid races the Bedouins have largely lost their nomadic character; but in the deserts of the Nile lands they remain much what their ancestors were. Thus the name has suffered much ethnic confusion, and is often incorrectly reserved to describe such pastoral peoples as the Bisharin, the Hadendoa and the Ababda. This article treats solely of the Arabian Bedouin, as affording the purest type of the people. They are shepherds and herdsmen, reduced to an open-air, roving life, partly by the nature of their occupations, partly by the special characteristics of the countries in which they dwell. For, while land, unsuited to all purposes except pasture, forms an unusually large proportion of the surface in the Arabian territory, the prolonged droughts of summer render considerable portions of it unfit even for that, and thus continually oblige the herdsmen to migrate from one spot to another in search of sufficient herbage and water for their beasts. The same causes also involve the Bedouins in frequent quarrels with each other regarding the use of some particular well or pasture-ground, besides reducing them not unfrequently to extreme want, and thus making them plunderers of others in self-support. Professionally, the Bedouins are shepherds and herdsmen; their raids on each

other or their robbery of travellers and caravans are but occasional exceptions to the common routine. Their intertribal wars (they very rarely venture on a conflict with the better-armed and better-organized sedentary population) are rarely bloody; cattle-lifting being the usual object. Private feuds exist, but are usually limited to two or three individuals at most, one of whom has perhaps been ridiculed in satirical verse, to which they are very sensitive, or had a relation killed in some previous fray. But bloodshed is expensive, as it must be paid for either by more bloodshed or by blood-money—the *diya*, which varies, according to the importance of the person killed, from ten to fifty camels, or even more. Previous to Mahomet's time it was optional for the injured tribe either to accept this compensation or to insist on blood for blood; but the Prophet, though by his own account despairing of ever reducing the nomad portion of his countrymen to law and order, succeeded in establishing among them the rule, that a fair *diya* if offered must be accepted. Instances are, however, not wanting in Arab history of fiercer and more general Bedouin conflicts, in which the destruction, or at least the complete subjugation, of one tribe has been aimed at by another, and when great slaughter has taken place. Such were the wars of Pekr and Thagleb in the 6th century, of Kelb and Howazin in the 8th, of Harb and Ateba in the 18th.

The Bedouins regard the plundering of caravans or travellers as in lieu of the custom dues exacted elsewhere. The land is theirs, they argue, and trespassers on it must pay the forfeit. Hence whoever can show anything equivalent to a permission of entrance into their territory has, in the regular course of things, nothing to fear. This permission is obtained by securing the protection of the nearest Bedouin sheik, who, for a politely-worded request and a small sum of money, will readily grant the pass, in the shape of one or two or more men of his tribe, who accompany the wayfarers as far as the next encampment on their road, where they hand their charge over to fresh guides, equally bound to afford the desired safeguard. In the interior of Arabia the passport is given in writing by one of the town governors, and is respected by the Bedouins of the district; for, however impudent and unamenable to law these nomads may be on the frontiers of the impotent Ottoman government in Syria or the Hejaz, they are submissive enough in other and Arab-governed regions. But the traveller who ventures on the desert strip without such precautions will be robbed and perhaps killed.

Ignorant of writing and unacquainted with books, the Bedouins trust to their memory for everything; where memory fails, they readily eke it out with imagination. Hence their own assertions regarding the antiquity, numbers, strength, &c., of their clans are of little worth; even their genealogies, in which they pretend to be eminently versed, are not to be much depended on; the more so that their own family names hardly ever exceed the limits of a patronymic, whilst the constantly renewed subdivisions of a tribe, and the temporary increase of one branch and decrease of another, tend to efface the original name of the clan. Few tribes now preserve their ancient, or at least their historical titles; and the mass of the Bedouin multitude resembles in this respect a troubled sea, of which the substance is indeed always the same, but the surface is continually shifting and changing. As, however, no social basis or ties are acknowledged among them except those of blood and race, certain broad divisions are tolerably accurately kept up, the wider and more important of which may here be noted. First, the Aneza clan, who extend from Syria southward to the limits of Jebel Shammar. It is numerous, and, for a Bedouin tribe, well armed. Two-thirds of the Arab horse trade, besides a large traffic in sheep, camels, wool, and similar articles, are in their hands. Their principal subdivisions are the Sebaá on the north, the Walid Ali on the west, and the Ruála on the south; these are generally on bad terms with each other. If united, they could muster, it is supposed, about 30,000 lances. They claim descent from Rabi'a. Second, the Shammar Bedouins, whose pasturages lie conterminous to those of the Aneza on the east. Their numbers are about the same. Thirdly, in the northern desert, the Huwetat and Sherarat, comparatively small and savage tribes. There is also the Solibi clan, which, however, is disowned by the Arabs, and seems to be of gipsy origin. Next follow, in the western desert, the Beni-Harb, a powerful tribe, supposed to muster about 20,000 fighting men. They are often troublesome to the Meccan pilgrims. In the eastern desert are the Muter, the Beni-Khalid, and the Ajmans, all numerous clans, often at war with each other. To the south, in Nejd itself or on its frontiers, are the Hodeil, Ateba, and others. These all belong to the "Mustareb," or northern Arabs.

The Bedouins of southern or "pure Arab" origin are comparatively few in number, and are, with few exceptions, even poorer and more savage than their northern brethren. Al-Morrah, on the confines of Oman, Al-Yam and Kahtan, near Yemen, and Beni-Yas, between Harik and the Persian Gulf, are the best known. The total number of the Bedouin or pastoral population throughout Arabia, including men, women, and children, appears not to exceed a million and a half, or about one fifth of the total population. The only tribal authority is the "elder," or "sheik," a title not necessarily implying advanced age, but given to any one who, on account of birth, courage, wealth, liberality or some other quality, has been chosen to the leadership. Descent has something to do with rank, but not much, as every individual of the tribe considers himself equal to the others; nor are the distinctions of relative riches and poverty greatly taken into account. To the "sheik" all disputes are referred; he is consulted, though not necessarily obeyed, on every

question which regards the general affairs of the tribe, whether in peace or war; there is no other magistrate, and no law except what he and the other chief men may consider proper. But in fact, for most personal and private affairs, every man does pretty much what is right in his own eyes.

All the Bedouins, with the exception of certain tribes in Syria, are nominally Mahommedans, but most pay but slight attention to the ceremonial precepts of the Koran; the five daily prayers and the annual fast of Ramadan are not much in favour among them; and however near a tribe may be to Mecca, few of them visit it as pilgrims. The militant Wahhabi have, however, from time to time enforced some degree of Islamitic observance among the Bedouins of Nejd and the adjoining districts: elsewhere Mahommedanism is practically confined to the profession of the Divine Unity; among the remoter and wilder tribes sun-worship, tree-worship, and no worship at all, are not uncommon. Some clans even omit the rite of circumcision altogether; others, like the tribe of Hodeil, south of Mecca, perform it after a fashion peculiar to themselves.

Though polygamy is not common among Bedouins, marriages are contracted without any legal intervention or guarantee; the consent of the parties, and the oral testimony of a couple of witnesses, should such be at hand, are all that are required; and divorce is equally easy. Nor is mutual constancy much expected or observed either by men or women; and the husband is rarely strict in exacting from the wife a fidelity that he himself has no idea of observing. Jealousy may indeed occasionally bring about tragic results, but this rarely occurs except where publicity, to which the Bedouins, like all other Arabs, are very sensitive, is involved. Burckhardt writes: “The Bedouins are jealous of their women, but do not prevent them from laughing and talking with strangers. It seldom happens that a Bedouin strikes his wife; if he does so she calls loudly on her *wasy* or protector, who pacifies the husband and makes him listen to reason.... The wife and daughters perform all domestic business. They grind the wheat in the handmill or pound it in the mortar; they prepare the breakfast and dinner; knead and bake the bread; make butter, fetch water, work at the loom, mend the tent-covering ... while the husband or brother sits before the tent smoking his pipe.” A maiden’s honour is, on the other hand, severely guarded; and even too openly avowed a courtship, though with the most honourable intentions, is ill looked on. But marriage, if indeed so slight and temporary a connexion as it is among Bedouins deserves the name, is often merely a passport for mutual licence. In other respects Bedouin morality, like that of most half-savage races, depends on custom and public feeling rather than on any fixed code or trained conscience, and hence admits of the strangest contradictions. Not only are lying and exaggeration no reproach in ordinary discourse, but even deliberate perjury and violation of the most solemn engagements are frequent occurrences. Not less frequent, however, are instances of prolonged fidelity and observance of promise carried to the limits of romance. “The wind,” “the wood,” and “the honour of the Arabs” are the most ordinary oaths in serious matters; but even these do not give absolute security, while a simple verbal engagement will at other times prove an inviolable guarantee. Thus, too, the extreme abstemiousness of a Bedouin alternates with excessive gorgings; and, while the name and deeds of “robber” are hardly a reproach, those of “thief” are marked by abhorrence and contempt. In patience, or rather endurance, both physical and moral, few Bedouins are deficient; wariness is another quality universally developed by their mode of life. And in spite of an excessive coarseness of language, and often of action, gross vice, at least of the more debasing sorts that dishonour the East, is rare.

Most Bedouins, men and women, are rather undersized; their complexion, especially in the south, is dark; their hair coarse, thick and black; their eyes dark and oval; the nose is generally aquiline, and the features well formed; the beard and moustache are usually scanty. The men are active, but not strong; the women are generally plain. The dress of the men consists of a long cotton shirt, open at the breast, often girt with a leathern girdle; a black or striped cloak of hair is sometimes thrown over the shoulders; a handkerchief, folded once, black, or striped yellow and red, covers the head, round which it is kept in its place by a piece of twine or a twisted hairband. To this costume a pair of open sandals is sometimes added. Under the shirt, round the naked waist, a thin strip of leather plait is wound several times, not for any special object, but merely out of custom. In his hand a Bedouin almost always carries a slight crooked wand, commonly of almond-wood. Among the Bedouins of the south a light wrapper takes the place of the handkerchief on the head, and a loin-cloth that of the shirt. The women usually wear wide loose drawers, a long shirt, and over it a wide piece of dark blue cloth enveloping the whole figure and head, and trailing on the ground behind. Very rarely does a Bedouin woman wear a veil, or even cover her face with her overcloak, contenting herself with narrowing the folds of the latter over her head on the approach of a stranger. Her wrists and ankles are generally adorned with bracelets and rings of blue glass or copper or iron, very rarely of silver; her neck with glass beads; ear-rings are rare, and nose-rings rarer. Boys, till near puberty, usually go stark naked; girls also wear no clothes up to the age of six or seven.

On a journey a Bedouin invariably carries with him a light, sharp-pointed lance, the stem of which is made of Persian or African cane; the manner in which this is carried or trailed often

indicates the tribe of the owner. The lance is the favourite and characteristic weapon of the Arab nomad, and the one in the use of which he shows the greatest skill. An antiquated sword, an out-of-date musket, an ornamented dagger or knife, a coat of mail, the manufacture of Yemen or Bagdad, and a helmet, a mere iron head-piece, without visor or crest, complete his military outfit.

A Bedouin's tent consists of a few coverings of the coarsest goat-hair, dyed black, and spread over two or more small poles, in height from 8 to 9 ft., gipsy fashion. If it be the tent of a sheik, its total length may be from 30 to 40 ft.; if of an ordinary person, less than 20 ft. Sometimes a partition separates the quarters of the women and children; sometimes they are housed under a lower and narrower covering. A rough carpet or mat is spread on the ground; while camel-saddles, ropes, halters, two or three cooking pots, one or two platters, a wooden drinking bowl, the master's arms at one side of the tent, and his spear stuck in the ground at the door, complete the list of household valuables. On striking camp all these are fastened on the backs of camels; the men mount their saddles, the women their litters; and in an hour the blackened stones that served for a cooking hearth are the only sign of the encampment. For food the Bedouin relies on his herds, but rice, vegetables, honey, locusts and even lizards are at times eaten.

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BEDSORE, a form of ulceration or sloughing, occasioned in people who, through sickness or old age, are confined to bed, resulting from pressure or the irritation of sweat and dirt. Bedsores usually occur when there is a low condition of nutrition of the tissues. The more helpless the patient the more liable he is to bedsores, and especially when he is paralysed, delirious or insane, or when suffering from one of the acute specific fevers. They may occur wherever there is a pressure, more especially when any moisture is allowed to remain on the bedding; and thus lack of cleanliness is an important factor in the production of this condition. In large hospitals a bedsore is now a great rarity, and this, considering the helplessness of many of the patients treated, shows what good nursing can do. The bed must be made with a firm smooth mattress; the undersheet and blanket must be changed whenever they become soiled; the drawsheet is spread without creases, and changed the moment it becomes soiled. Preventive treatment must be followed from the first day of the illness. This consists in the most minute attention to cleanliness, and constant variation in the position of the patient. All parts subjected to pressure or friction must be frequently washed with soap and hot water, then thoroughly dried with a warm soft towel. The part should next be bathed in a solution of corrosive sublimate in spirits of wine, and finally dusted with an oxide of zinc and starch powder. This routine should be gone through not less than four times in the twenty-four hours in any case of prolonged illness. The pressure may be relieved over bony prominences by a water-pillow or by a piece of thick felt cut into a ring. Signs of impending bedsores must constantly be watched for. Where one threatens, the skin loses its proper colour, becoming either a deadly white or a dusky red, and the redness does not disappear on pressure. The surrounding tissues become oedematous, and pain is often severe, except in a case of paralysis. As the condition progresses further the pain ceases. The epidermis now becomes raised as in a blister, and finally becomes detached, forming an excoriation and exposing the papillae. Even at this late stage an actual ulceration can still be prevented if proper care is taken; but failing this, the skin sloughs and an ulcer forms. In treating this, the position of the patient must be such that no pressure is ever allowed on the sloughing tissue. A hot boracic pad under oil-silk should be applied, the affected part being first dusted with iodoform. If, however, the slough is very large, it is safer to avoid wet applications, and the parts should be dusted with animal charcoal and iodoform, and protected with a dry dressing. When the slough has separated and the sore is clean, friar's balsam will hasten the healing process. In any serious illness the formation of a bedsore makes the prognosis far more grave, and may even bring about a fatal issue, either directly or indirectly.

BEDWORTH, a manufacturing town in the Nuneaton parliamentary division of Warwickshire, England; on the Nuneaton-Coventry branch of the London & North Western railway, 100 m. north-west from London. Pop. (1900) 7169. A tramway connects with Coventry, and the Coventry canal passes through. Coal and ironstone are mined; there are iron-works, and bricks, hats, ribbons and tape and silk are made. Similar industries are pursued in the populous district (including the villages of Exhall and Foleshill) which extends southward towards Coventry.

BEE (Sanskrit *bha*, A S. *beó*, Lat. *apis*), a large and natural family of the zoological order *Hymenoptera*, characterized by the plumose form of many of their hairs, by the large size of the basal segment of the foot, which is always elongate and in the hindmost limb sometimes as broad as the shin, and by the development of a "tongue" for sucking liquid food; this organ has been variously interpreted as the true insectan tongue (hypo-pharynx) or as a ligula formed by fused portions of the second maxillae (probably the latter).

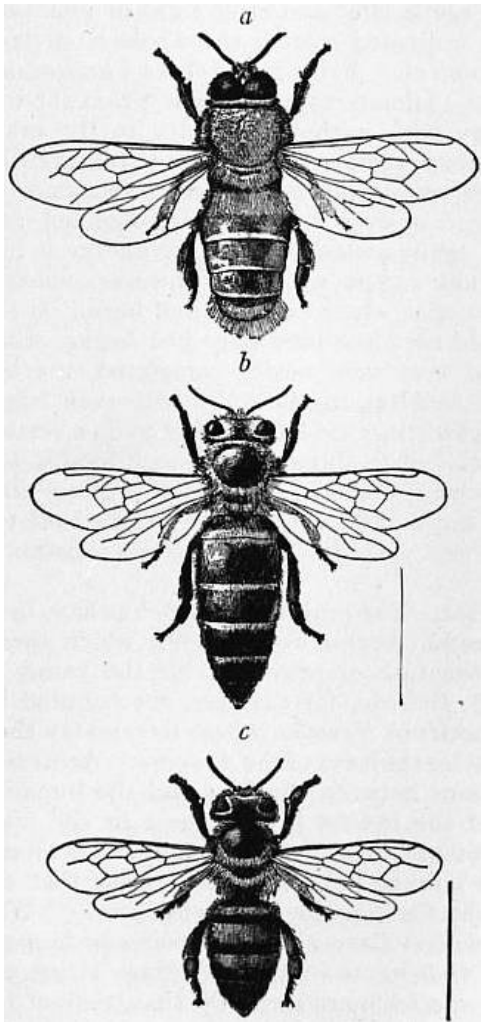

FIG. 1.—Honeybee (*Apis mellifica*). *a*, male (drone); *b*, queen, *c*, worker.

(After Benton, *Bull.* 1 (n.s.) *Div. Ent.*, U.S. Dept. Agr.).

Bees are specialized in correspondence with the flowers from which they draw the bulk of their food supply, the flexible tongue being used for sucking nectar, the plumed hairs and the modified legs (fig. 7) for gathering pollen. These floral products which form the food of bees and of their larvae, are in most cases collected and stored by the industrious insects; but some genera of bees act as inquilines or "cuckoo-parasites," laying their eggs in the nests of other bees, so that their larvae may feed at the expense of the rightful owners of the nest. In a few cases, the parasitic bee-grub devours not only the food-supply, but also the larva of its host.

Solitary and Social Bees.—Many genera of bees are represented, like most other insects, by ordinary males and females, each female constructing a nest formed of several chambers ("cells") and storing in each chamber a supply of food for the grub to be hatched from the egg that she lays therein. Such bees, although a number of individuals often make their nests close together, are termed "solitary," their communities differing in nature from those of the "social" bees, among which there are two kinds of females—the normal fertile females or "queens," and those specially modified females with undeveloped ovaries (see fig. 6) that are called "workers" (fig. 1). The workers are the earliest developed offspring of the queen, and it is their associated work which renders possible the rise of an insect state—a state which evidently has its origin in the family. It is interesting to trace various stages in the elaboration of the bee-society. Among the humble-bees (*Bombus*) the workers help the queen, who takes her share in the duties of the nest; the distinction between queen and workers is therefore less absolute than in the hive-bees (*Apis*), whose queen, relieved of all nursing and building cares by the workers, devotes her whole energies to egg-laying. The division of labour among the two castes of female becomes therefore most complete in the most highly organized society.

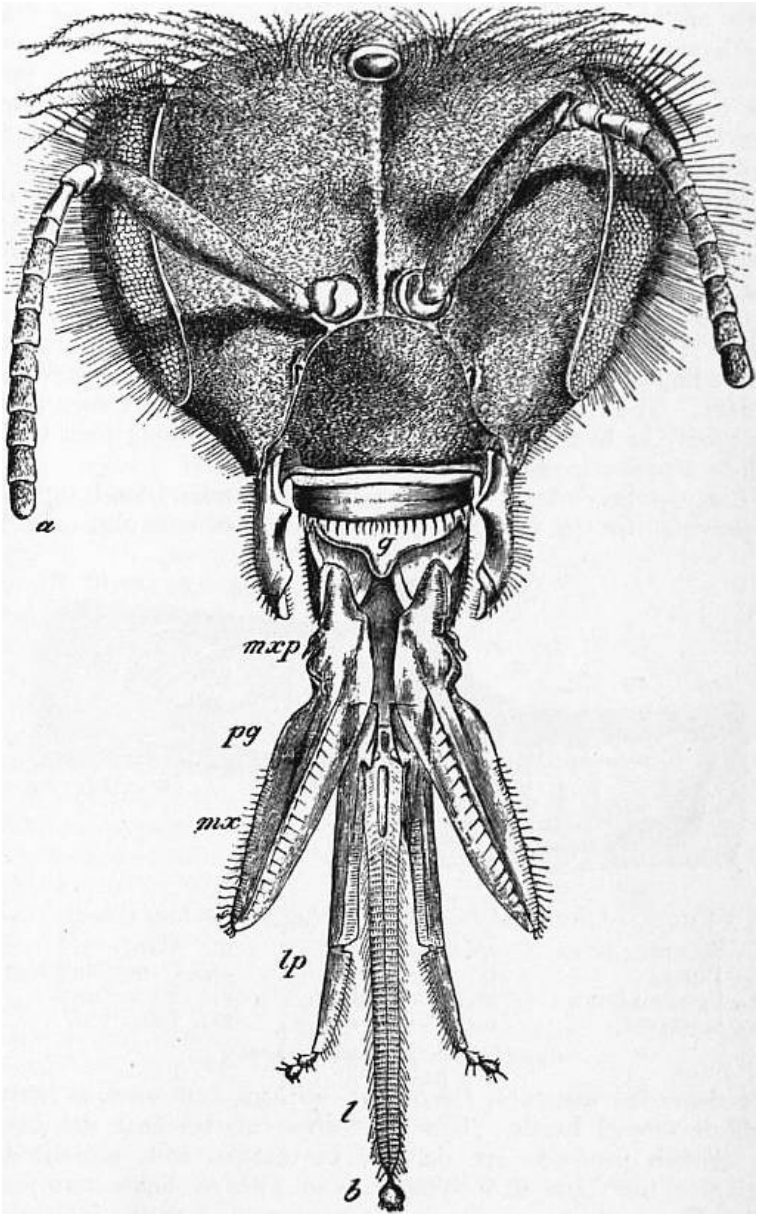

FIG. 2.—Head and Appendages of Honey-bee (Apis).

a, Antenna or feeler.
g, Epipharynx.
mxp, Maxillary palp.
pg, Opposite to galeae of 2nd maxillae (labium).
mx, 1st maxilla.
lp, Labial palp.
l, Ligula or "tongue."
b, Bouton or spoon of the ligula.

(From Frank R. Cheshire's *Bees and Bee-keeping*.)

Structure.—Details of the structure of bees are given in the article HYMENOPTERA. The feelers (fig. 2, *a*) are divided into "scape" and "flagellum" as in the ants, and the mandibles vary greatly in size and sharpness in different genera. The proboscis or "tongue" (fig. 2, *l*) is a hollow organ enclosing an outgrowth of the body-cavity which is filled with fluid, and with its flexible under-surface capable of invagination or protrusion. Along this surface stretches a groove which is surrounded by thickened cuticle and practically formed into a tube by numerous fine hairs. Along this channel the nectar is drawn into the pharynx and passes, mixed with saliva, into the crop or "honey-bag"; the action of the saliva changes the saccharose into dextrose and levulose, and the nectar becomes honey, which the bee regurgitates for storage in the cells or for the feeding of the grubs. The sting (fig. 6, *pg, st.*) of female bees is usually highly specialized, but in a few genera it is reduced and useless.

Many modifications in details of structure may be observed within the family. The tongue is bifid at the tip in a few genera; usually it is pointed and varies greatly in length, being comparatively short in *Andrena*, long in the humble-bees (*Bombus*), and longest in *Euglossa*, a tropical American genus of solitary bees. The legs, which are so highly modified as pollen-carriers in the higher bees, are comparatively simple in certain primitive genera. The hairy covering, so notable in the hive-bee and especially in humble-bees, is greatly reduced among bees that follow a parasitic mode of life.

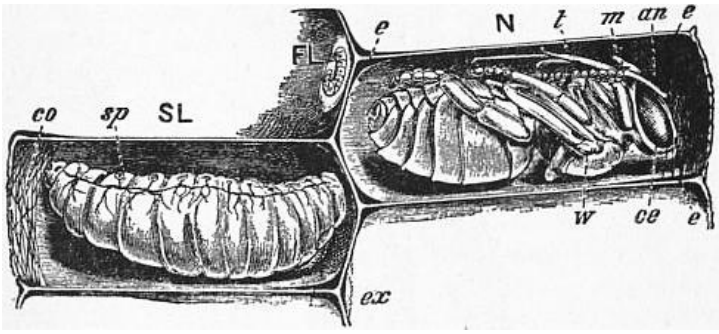

FIG. 3.—Larva and Pupa of Apis.

SL, Spinning larva.	*sp*, Spiracles.	*w*, Wing.
N, Pupa.	*t*, "Tongue."	*ce*, Compound Eye.
FL, Feeding larva.	*m*, Mandible.	*e*, Excrement.
co, Cocoon.	*an*, Antenna	*ex*, Exuvium.

(From Cheshire's *Bees and Bee-keeping*.)

Early stages.—As is usual where an abundant food supply is provided for the young insects, the larvae of bees (fig. 3, SL.) are degraded maggots; they have no legs, but possess fairly well-developed heads. The successive cuticles that are cast as growth proceeds are delicate in texture and sometimes separate from the underlying cuticle without being stripped off. The maggots may pass no excrement from the intestine until they have eaten all their store of food. When fully grown the final larval cuticle is shed, and the "free" pupa (fig. 3, N) revealed. The larvae of some bees spin cocoons (fig. 3, *co*) before pupation.

Nests of Solitary Bees.—Bees of different genera vary considerably in the site and arrangement of their nests. Many—like the common "solitary" bees *Halictus* and *Andrena*—burrow in the ground; the holes of species of *Andrena* are commonly seen in springtime opening on sandy banks, grassy lawns or gravel paths. Our knowledge of such bees is due to the observations of F. Smith, H. Friese, C. Verhoeff and others. The nest may be simple, or, more frequently, a complex excavation, cells opening off from the entrance or from a main passage. Sometimes the passage is the conjoint work of many bees whose cells are grouped along it at convenient distances apart. Other bees, the species of *Osmia* for example, choose the hollow stem of a bramble or other shrub, the female forming a linear series of cells in each of which an egg is laid and a supply of food stored up. J.H. Fabre has found that in the nests of some species of *Osmia* the young bee developed in the first-formed cell, if (as often happens) she emerges from her cocoon before the inmates of the later cells, will try to work her way round these or to bite a lateral hole through the bramble shoot; should she fail to do this, she will wait for the emergence of her sisters and not make her escape at the price of injury to them. But when Fabre substituted dead individuals of her own species or live larvae of another genus, the *Osmia* had no scruple in destroying them, so as to bite her way out to air and liberty.

The leaf-cutter bees (*Megachile*)—which differ from *Andrena* and *Halictus* and agree with *Osmia*, *Apis* and *Bombus* in having elongate tongues—cut neat circular disks from leaves, using them for lining the cells of their underground nests. The carpenter-bees (*Xylocopa* and allied genera), unrepresented in the British Islands, though widely distributed in warmer countries, make their nests in dry wood. The habits of *X. violacea*, the commonest European species, were minutely described in the 18th century in one of R.A.F. de Réaumur's memoirs. This bee excavates several parallel galleries to which access is gained by a cylindrical hole. In the galleries are situated the cells, separated from one another by transverse partitions, which are formed of chips of wood, cemented by the saliva of the bee.

Among the solitary bees none has more remarkable nesting habits than the mason bee (*Chalicodoma*) represented in the south of France and described at length by Fabre. The female constructs on a stone a series of cells, built of cement, which she compounds of particles of earth, minute stones and her own saliva. Each cell is provided with a store of honey and pollen beside which an egg is laid; and after eight or nine cells have been successively built and stored, the whole is covered by a dome-like mass of cement. Fabre found that a *Chalicodoma* removed to a distance of 4 kilometres from the nest that she was building, found her way back without difficulty to the exact spot. But if the nest were removed but a few yards from its former position, the bee seemed no longer able to recognize it, sometimes passing over it, or even into the unfinished cell, and then leaving it to visit again uselessly the place whence it had been moved. She would accept willingly, however, another nest placed in the exact spot where her own had been. If the unfinished cell in the old nest had been only just begun, while that in the substituted nest were nearly completed, the bee would add so much material as to make the cell much larger than the normal size, her instinct evidently being to do a certain amount of building

work before filling the cell with food. The food, too, is always placed in the cell after a fixed routine—first honey disgorged from the mouth, then pollen brushed off the hairs beneath the body (fig. 7, *c*) after which the two substances are mixed into a paste.

Inquilines and Parasites.—The working bees, such as have been mentioned, are victimized by bees of other genera, which throw upon the industrious the task of providing for the young of the idle. The nests of *Andrena*, for example, are haunted by the black and yellow species of *Nomada*, whose females lay their eggs in the food provided for the larva of the *Andrena*. According to H. Friese, the relations between the host and the inquiline are quite friendly, and the insects if they meet in the nest-galleries courteously get out of each other's way. D. Sharp, in commenting on this strange behaviour, points out that the host can have no idea why the inquiline haunts her nest. "Why then should the *Andrena* feel alarm? If the species of *Nomada* attack the species of *Andrena* too much, it brings about the destruction of its own species more certainly than that of the *Andrena*."

More violent in its methods is the larva of a *Stelis*, whose operations in the nest of *Osmia leucomelana* have been studied by Verhoeff. The female *Stelis* lays her eggs earlier than the *Osmia*, and towards the bottom of the food-mass; the egg of the *Osmia* is laid later, and on the surface of the food. Hence the two eggs are at opposite ends of the food, and both larvae feed for a time without conflict, but the *Stelis*, being the older, is the larger of the two. Finally the parasitic larva attacks the *Osmia*, and digging its mandibles into its victim's head kills and eats it, taking from one to two days for the completion of the repast.

Social Bees.—The bees hitherto described are "solitary," all the individuals being either males or unmodified females. The most highly developed of the long-tongued bees are "social" species, in which the females are differentiated into egg-laying queens and (usually) infertile "workers" (fig. 6). Verhoeff has discussed the rise of the "social" from the "solitary" condition, and points out that for the formation of an insect community three conditions are necessary—a nest large enough for a number of individuals, a close grouping of the cells, and an association between mother and daughters in the winged state. For the fulfilment of this last condition, the older insects of the new generation must emerge from the cells while the mother is still occupied with the younger eggs or larvae. One species of *Halictus* nearly reaches the desired stage; but the first young bees to appear in the perfect state are males, and when the females emerge the mother dies.

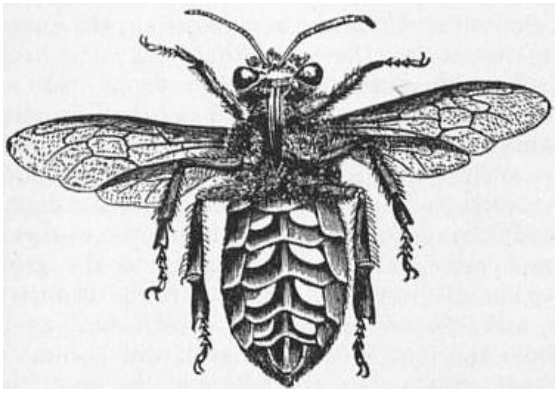

FIG. 4.—Under Side of Worker, carrying Wax Scales.

(From Cheshire's *Bees and Bee-keeping*.)

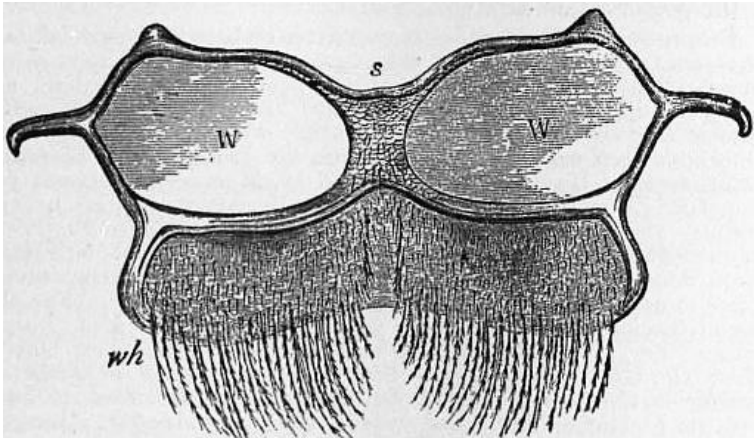

FIG. 5.—Abdominal Plate (worker of *Apis*), under side, third segment. W, wax-yielding surface, covering true gland; *s*, septem, or carina; *wh*, webbed hairs.

(From Cheshire's *Bees and Bee-keeping*.)

Among the social bees the mother and daughter-insects co-operate, and they differ from the "solitary" groups in the nature of their nest, the cells (fig. 25) of which are formed of wax secreted by special glands (fig. 5) in the bee's abdomen, the wax being pressed out between the segmental sclerites in the form of plates (fig. 4), which are worked by the legs (fig. 7) and jaws into the requisite shape. In our well-known hive-bee (*Apis*) and humble-bees (*Bombus*) the wax glands are ventral in position, but in the "stingless" bees of the tropics (*Trigona* and *Melipona*)

they are dorsal. A colony of humble-bees is started in spring by a female “queen” which has survived the winter. She starts her nest underground or in a surface depression, forming a number of waxen cells, roughly globular in shape and arranged irregularly. The young females (“workers”) that develop from the eggs laid in these early cells assist the queen by building fresh cells and gathering food for storage therein. The queen may be altogether relieved of the work of the nest as the season advances, so that she can devote all her energies to egg-laying, and the colony grows rapidly. The distinction between queen and worker is not always clear among humble-bees, the female insects varying in size and in the development of their ovaries. If any mishap befall the queen, the workers can sometimes keep the community from dying out. In autumn males are produced, as well as young queens. The community is broken up on the approach of winter, the males and workers perish, and the young queens after hibernation start fresh nests in the succeeding year.

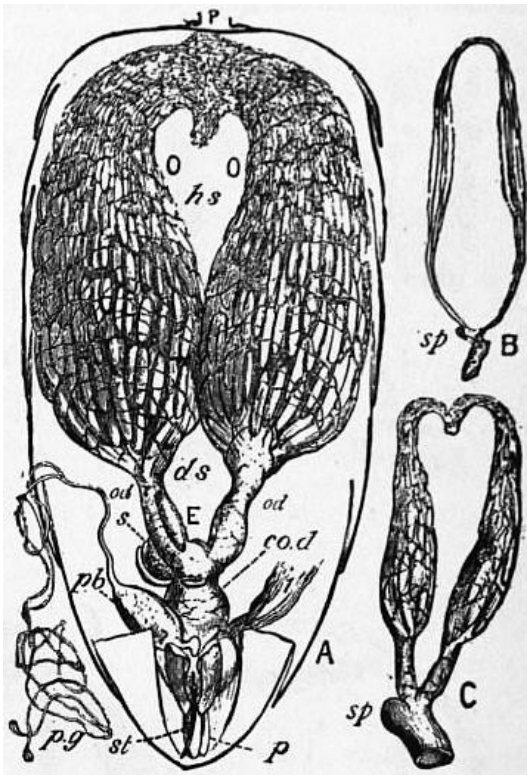

Fig. 6.—Ovaries of Queen and Workers (*Apis*).

A, Abdomen of queen, under side.
P, Petiole.
o, o, Ovaries.
hs, Position filled by honey-sack.
ds, Position through which digestive system passes.
od, Oviduct.
co.d, Vagina.
E, Egg-passing oviduct.
s, Spermatheca.
i. Intestine.
pb, Poison bag.
pg, Poison gland.
st, Sting.
p, “Palps” or “feelers” of sting.
B, Rudimentary ovaries of ordinary worker.
sp, Rudimentary spermatheca.
C, Partially developed ovaries of fertile worker.
sp, Rudimentary spermatheca.

(From Cheshire’s *Bees and Bee-keeping*.)

The appearance of the heavy-bodied hairy *Bombi* is well known. They are closely “mimicked” by bees of the genus *Psithyrus*, which often share their nests. These *Psithyri* have no pollen-carrying structures on the legs and their grubs are dependent for their food-supply on the labours of the *Bombi*, though, according to E. Hoffer’s observations, it seems that the female *Psithyrus* builds her own cells. The colonies of *Bombus* illustrate the rise of the inquiline habit. Many of the species are very variable and have been differentiated into races or varieties. F.W.L. Sladen states that a queen belonging to the *virginalis* form of *Bombus terrestris* often invades a nest belonging to the *lucorum* form, kills the rightful queen, and takes possession of the nest, getting the *lucorum* workers to rear her young. In the nests of *Bombi* are found various beetle larvae that live as inquilines or parasites, and also maggots of drone-flies (*Volucella*), which act as scavengers; the Volucella-fly is usually a “mimic” of the *Bombus*, whose nest she invades.

The “stingless” bees (*Trigona*) of the tropics have the parts of the sting reduced and useless for piercing. As though to compensate for the loss of this means of defence, the mandibles are very powerful, and some of the bees construct tubular entrances to the nest with a series of constrictions easy to hold against an enemy. The habits of the Brazilian species of these bees have been described in detail by H. von Jhering, who points out that their wax glands are dorsal in position, not ventral as in *Bombus* and *Apis*.

With *Apis*, the genus of the hive-bee, we come to the most highly-specialized members of the family—better known, perhaps than any other insects, on account of the long domestication of many of the species or races. In *Apis* the workers differ structurally from the queen, who neither builds cells, gathers food, nor tends brood, and is therefore without the special organs adapted for those functions which are possessed in perfection by the workers. The differentiation of queen and workers is correlated with the habit of storing food supplies, and the consequent permanence of the community, which finds relief for its surplus population by sending off a swarm, consisting of a queen and a number of workers, so that the new community is already specialized both for reproduction and for labour.

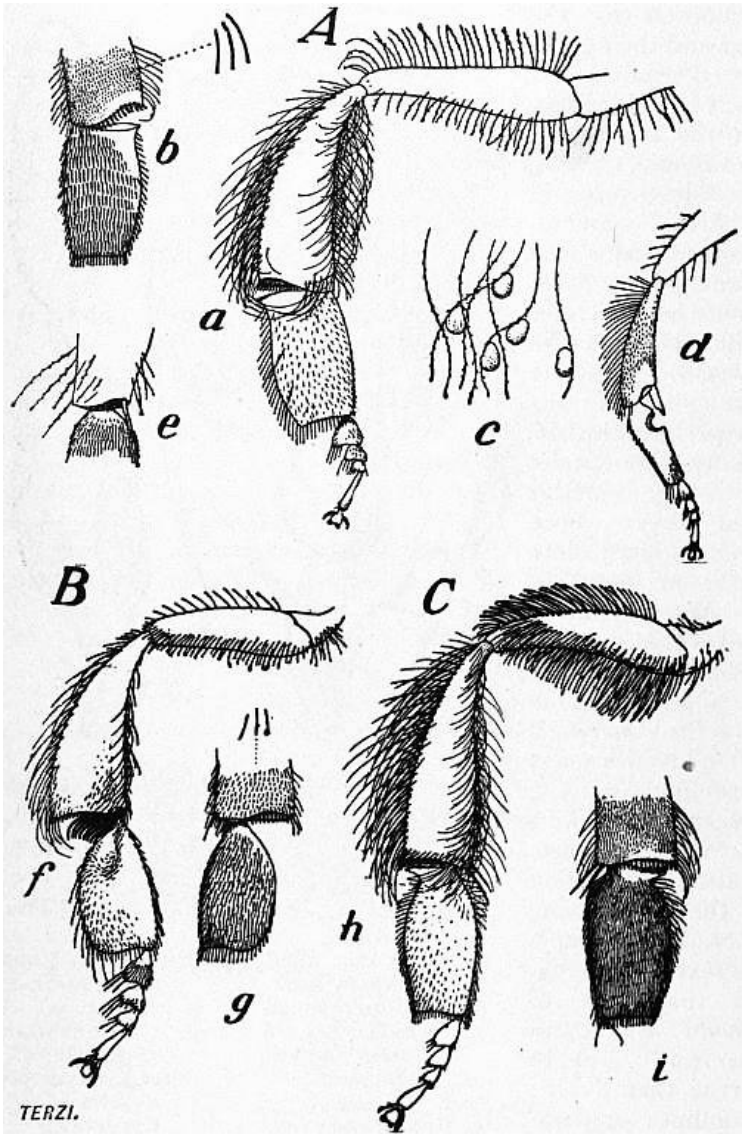

Fig. 7.—Modifications in the Legs of Bees.

A. *a-d*, Hive-bee (*Apis*).
B. *f-g*, Stingless bee (*Melipona*).
C. *h-i*, Humble-bee (*Bombus*).
a, f, h, Outer view of hind-leg.
b, g, i, Inner view.
d, Fore-leg of *Apis* showing notch in tarsal segment for cleaning feeler.
e, Tip of intermediate shin with spur.
c, Feathered hairs with pollen grains, magnified.

(After Riley, *Insect Life* (U.S. Dept. Agr.), vol. 6.)

The workers of *Apis* may be capable (fig. 6, C) of laying eggs—necessarily unfertilized—which always give rise to males (“drones”), and, since the researches of J. Dzierzon (1811-1906) in 1848, it has been believed that the queen bee lays fertilized eggs in cells appropriate for the rearing of queens or workers, and unfertilized eggs in “drone-cells,” virgin reproduction or parthenogenesis being therefore a normal factor in the life of these insects. F. Dickel and others

have lately claimed that fertilized eggs can give rise to either queens, workers or males, according to the food supplied to the larvae and the influence of supposed “sex-producing glands” possessed by the nurse-workers. Dickel states that a German male bee mated with a female of the Italian race transmits distinct paternal characters to hybrid male offspring. A. Weismann, however, doubts these conclusions, and having found a spermaster in every one of the eggs that he examined from worker-cells, and in only one out of 272 eggs taken from drone-cells, he supports Dzierzon’s view, explaining the single exception mentioned above as a mistake of the queen, she having laid inadvertently this single fertilized egg in a drone instead of in a worker cell.

The cells of the honeycomb of *Apis* are usually hexagonal in form, and arranged in two series back to back (figs. 3, 25). Some of these cells are used for storage, others for the rearing of brood. The cells in which workers are reared are smaller than those appropriate for the rearing of drones, while the “royal cells,” in which the young queens are developed, are large in size and of an irregular oval in form (fig. 25). It is believed that from the nature of the cell in which she is ovipositing, the queen derives a reflex impulse to lay the appropriate egg—fertilized in the queen or worker cell, unfertilized in the drone cell, as previously mentioned. Whether the fertilized egg shall develop into a queen or a worker depends upon the nature of the food. All young grubs are at first fed with a specially nutritious food, discharged from the worker’s stomach, to which is added a digestive secretion derived from special salivary glands in the worker’s head. If this “royal jelly” continue to be given to the grub throughout its life, it will grow into a queen; if the ordinary mixture of honey and digested pollen be substituted, as is usually the case from the fourth day, the grub will become a worker. The workers, who control the polity of the hive (the “queen” being exceedingly “limited” in her monarchy), arrange if possible that young queens shall develop only when the population of the hive has become so congested that it is desirable to send off a swarm. When a young queen has emerged, she stings her royal sisters (still in the pupal stage) to death. Previous to the emergence of the young queen, the old queen, prevented by the workers from attacking her daughters, has led off a swarm to find a new home elsewhere. The young queen, left in the old home, mounts high into the air for her nuptial flight, and then returns to the hive and her duties of egg-laying. The number of workers increases largely during the summer, and so hard do the insects work that the life of an individual may last only a few weeks. On the approach of winter the males, having no further function to perform for the community, are refused food-supplies by the workers, and are either excluded or banished from the hive to perish. Such ruthless habits of the bee-commonwealth, no less than the altruistic labours of the workers, are adapted for the survival and dominance of the species. The struggle for life may deal hardly with the individual, but it results—to quote Darwin’s well-known title—in “the preservation of favoured races.”

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(G. H. C.)

BEE-KEEPING

Bee-keeping, or the cultivation of the honey-bee as a source of income to those who practise it, is known to have existed from the most ancient times. Poets, philosophers, historians and naturalists (among whom may be mentioned Virgil, Aristotle, Cicero and Pliny) have eulogized the bee as unique among insects, endowed by nature with wondrous gifts beneficial to mankind in a greater degree than any other creature of the insect world. We are told that some of these ancient scientists passed years of their lives studying the wonders of bee-life, and left accurate records of their observations, which on many points agree with the investigations of later

FIG. 8.—Sign of the king of Lower Egypt;

observers. As a forcible illustration of the manner in which a colony of bees was recognized as the embodiment of government by a chief or ruler, in the earliest times of which there is any existing record, it may be mentioned that on the sarcophagus containing the mummified remains of Mykerinos (now in the British Museum and dating back 3633 years B.C.) will be found a hieroglyphic bee, (fig. 8) representing the king of Lower Egypt.

from the coffin of Mykerinos, 3633 B.C. (British Museum).

In dealing with the practical side of bee-keeping as now understood, it may be said that, compared with the methods in vogue during the first decade of the 19th century, or even within the memory of men still living at the beginning of the 20th, it is as the modern locomotive to the stagecoach of a previous generation. Almost everything connected with bee-craft has been revolutionized, and apiculture, instead of being classed with such homely rural occupations as that of the country housewife who carries a few eggs weekly to the market-town in her basket, is to-day regarded in many countries as a pursuit of considerable importance. Remarkable progress has also been made in the art of queen-rearing, and in improving the common or native bee by judicious crossing with the best foreign races, selected mainly for hardiness, working qualities and the prolific capacity of their queens. American bee-breeders are conspicuous in this respect, extensive apiaries being exclusively devoted to the business of rearing queens by the thousand for sale and export.

Queen-rearing.

On the European continent queen-rearing apiaries are plentiful, but less attention is paid there to hybridizing than to keeping the respective races pure. In England also, some bee-keepers include queen-rearing as part of their business, while one large apiary on the south coast is exclusively devoted to the rearing of queen bees on the latest scientific system, and to breeding by selection from such races as are most suited to the exceptional climatic conditions of the country.

Extensive apiaries have been established on the American continent, some containing from 2000 to 3500 colonies of bees, and in these honey is harvested in hundreds of tons yearly. The magnitude of the bee industry in the United States may be judged from the fact of a single bee-farmer located in California having harvested from 150,000 ℔ of honey in one year from 2000 stocks of bees, and, as an instance of the enormous weight of honey obtainable from good hives in that favoured region, the same farmer secured 60,000 ℔ of comb-honey in one season from his best 300 colonies. This is probably the maximum, and the hives were necessarily located in separate apiaries some few miles apart in order to avoid the evils of overstocking, but all in the midst of thousands of acres of honey-yielding flowers. Results like the above compared with those of the skeppist bee-keeper of former days, who was well pleased with an average of 20 to 25 ℔ per hive, may be regarded as wonderful, but they are matters of fact. The consumption of honey as an article of food has also largely increased of late years; a recent computation shows that from 100 to 125 million ℔ of honey, representing a money value of from eight to ten million dollars, is consumed annually in the United States alone. Many of the larger bee-farmers of the United States of America and Canada harvest from 50,000 to 60,000 ℔ of honey in a single season, and some of them sell the whole crop direct to consumers.

Honey as food.

It is a notable fact that in the United States, Canada, Australia, New Zealand, and indeed all English-speaking countries outside the United Kingdom, honey is far more extensively used than it is there as an article of daily food. The natural result of this is that the trade in honey is conducted, in those countries, on entirely different lines from those followed in the British Isles, where honey production as an occupation has, until quite recent years, been regarded as too insignificant for official notice in any form. The value of the bee industry is now recognized, however, by the British government as worthy of state aid, in the promotion of technical instruction connected with agriculture. On the American continent apiculture is officially recognized by the respective states' governments; and by the federal government at Washington it is taken into account as a section of the Agricultural Department, with fully equipped experimental apiaries and qualified professors engaged therein for educational work. In several Canadian provinces also, the public funds are used in promoting the bee industry in various ways, mainly in combating the bee-disease known as "foul brood." In New Zealand the government of the colony has displayed the most praiseworthy earnestness and vigour in promoting apiculture. State-aided apiaries have been established under the supervision of a skilled bee-keeper, who travels over the colony giving instruction in practical bee-work at the public schools, and forming classes at various centres where pupils are taught bee-keeping in all its branches.

State aid for bee-keeping.

In Europe similar progress is observable; technical schools, with well-equipped apiaries attached, are supported by the state, and in them the science and practice of modern bee-keeping is taught free by scientists and practical experts. Institutions of this kind have been established in Germany, Russia, Switzerland and elsewhere, all tending in the same direction, viz. the cultivation of the honey-bee as an appreciable source of income to the farmer, the

peasant cultivator, and dwellers in districts where bee-forage is abundant and, if unvisited by the bee, lies wasting its sweetness on the desert air. It may be safely said that the value of the bee to the fruit-grower and the market-gardener has been proved beyond dispute; and the technical instruction now afforded by county councils in the rural districts of England has an appreciable effect. In proof thereof, we may quote the case of an extensive grower in the midland counties—sending fruit to the London market in tons—whose crop of gooseberries increased nearly fourfold after establishing a number of stocks of bees in close proximity to the gooseberry bushes. The fruit orchards and raspberry fields of Kent are also known to be greatly benefited by the numerous colonies of bees owned by more than 3000 bee-keepers in the county. The important part played by the bee in the economy of nature as a fertilizer is shown in fig. 9.

Value of bees as fertilizers.

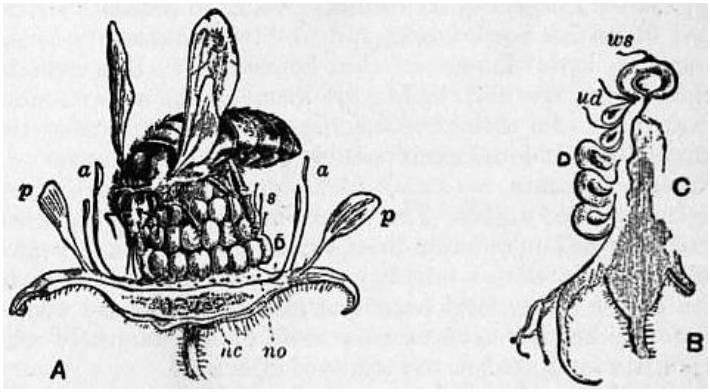


FIG. 9.—A, Raspberry (*Rubus idaeus*, order *Rosaceae*), being fertilized. B, Cross section.

A, Flower.
p, p, Petals.
a, a, Anthers.
s, Stigma.
no, Nectary openings.
nc, Nectar cells.
D, Drupels.

B, Section through core, or torus (C) and drupels (D).
ud, Unfertilized drupel.
ws, Withered stigma.

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

In the United Kingdom the prevailing conditions, climatic and otherwise, with regard to apiculture—as well as the lack of sufficient natural bee-forage for large apiaries—are such as to preclude the possibility of establishing apiaries on a scale comparable with those located in less confined lands. On the other hand, even in England the value of bee-keeping is worthy of recognition as a minor industry connected with such items of agriculture as fruit-growing, market-gardening or poultry-raising. The fact that British honey is second to none for quality, and that the British market is eagerly sought by the bee-keepers of other nationalities, has of late impressed itself on the minds of thinking men. Moreover, their views are confirmed by the constant references to bees and the profits obtainable from bee-keeping in the leading papers on all sides. This newly-aroused interest in the subject is no doubt to a large extent fostered by the grants in aid of technical instruction afforded by county councils in rural districts. The British Bee-keepers' Association (instituted in 1874) has been untiring in its efforts to raise the standard of efficiency among those who are desirous of qualifying as experts and teachers of bee-keeping on modern methods. This body had for its first president the distinguished naturalist Sir John Lubbock (Lord Avebury). Subsequently the baroness Burdett-Coutts accepted the office in the year 1878, and was re-elected annually until her death in 1906. During this time she presided at its meetings and took an active part in its work, until advancing years prevented her attendance, but her interest in the welfare of the association was maintained to the last. Branch societies of bee-keepers were established throughout the English counties, mainly by the efforts of the parent body in London, with the object of securing co-operation in promoting the sale of honey, and showing the most modern methods of producing it in its most attractive form at exhibitions held for the purpose. Nearly the whole of these county societies affiliated with the central association, paying an affiliation fee yearly, and receiving in return the silver medal, bronze medal and certificate of the association, to be offered as prizes for competition at the annual county shows. Other advantages are given in connexion with the qualifying of experts, &c., while nearly all the county associations in the United Kingdom employ qualified men who visit members in spring and autumn for the purpose of examining hives and giving advice on bee management to those needing it. Another advantage of membership is the use of a "county label" for affixing to each section of honey in comb, or jar of extracted honey, offered for

Bee-keepers' associations.

Bee and honey shows.

Honey labels.

sale by members. These labels are numbered consecutively, and thus afford a guarantee of the genuineness and quality of the honey, the label enabling purchasers to trace the producer if needed. The British Bee-keepers' Association is an entirely philanthropic body, the only object of its members being to promote all that is good in British bee-keeping, and to "teach humanity to that industrious little labourer, the honey-bee." Bee-appliance manufacturers are not eligible for membership of its council, nor are those who make bee-keeping their main business; thus no professional jealousies can possibly arise. In this respect the association appears to stand alone among the bee-keepers' societies of the world. There are many equally beneficial societies, framed on different lines, existing in Germany, France, Russia and Switzerland, but they are mainly co-operative bodies instituted for the general benefit of members, who are without exception either bee-keepers on a more or less extensive scale, or scientists interested in the study of insect life.

The bee-keepers' associations of the United States, Canada and most of the British colonies, are—like those last mentioned above—formed for the sole and laudable purpose of promoting the business interests of their members, the latter being either bee-farmers or bee-appliance manufacturers. Thus they make no pretension of any but business discussions at their conferences, and much benefit to all concerned follows as a matter of course. In fact, we find enthusiastic bee-men and women travelling several hundreds of miles and devoting time, money and labour in attending conferences of bee-keepers in America, while the proceedings usually last for several days and are largely attended. The extent of the industry compared with that of Great Britain is so great that it fully accounts for the difference in procedure of the respective associations.

The bee-appliance trade.

As a natural consequence of this activity, the trade in bee-appliance making has assumed enormous proportions in the United States, where extensive factories have been established; one firm—employing over 500 hands, and using electric-power machinery of the most modern type—being devoted entirely to the manufacture of bee-goods and apiarian requisites. From this establishment alone the yearly output is about 25,000 bee-hives, and upwards of 100 millions of the small wooden boxes used for holding comb-honey. The most generally approved form of this box is known as the "1-lb section," made from a strip of wood ½ in. thick, 2 in. wide, and of such length that when folded by joining the morticed and tenoned ends A B (fig. 10) it forms the section of box C, measuring 4¼″ × 4½″ × 2″ when complete, and holds about 1 lb of comb-honey when filled by the bees and ready for table use. The V-shaped groove D (cut across and partly through the wood) shows the joint when in the flat, and E the same joint when closed for use. All the section boxes used in the United Kingdom are made in the U.S.A or in Canada from the timber known as basswood, no native wood being suitable for the purpose.

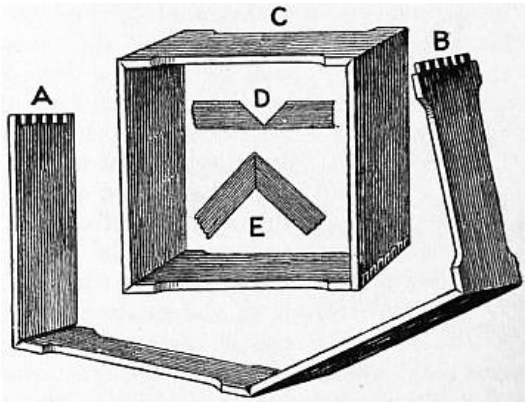


FIG. 10.—"1-lb section" wooden box for holding Comb-honey.

(Redrawn from the *A B C of Bee Culture*, published by the A. I. Root Co. Medina, Ohio, U.S.A.)

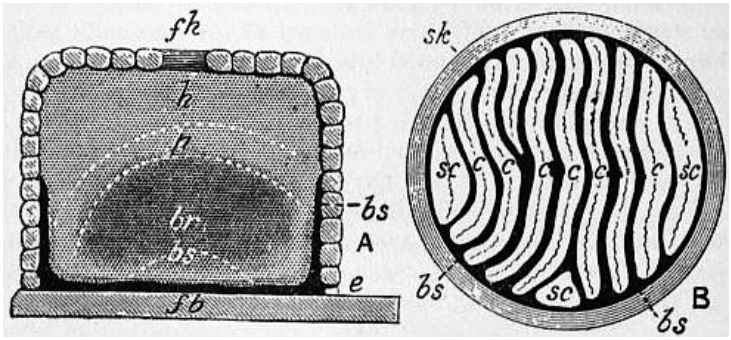


FIG. 11.—Straw skep in section, showing arrangement of Combs.

A, Vertical section.
fb, Floor board.
e, Entrance.
br, Brood
p, Pollen.
h, Honey.
fh, Feeding hole.
bs, bs, Bee spaces.
B, Horizontal section.
sk, Skep-side.
c, c, Combs.
sc, sc, Store combs.
bs, bs, Bee spaces.

(from Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

Development of the Movable-frame Hive—The dome-shaped straw skep of our forefathers may be regarded as the typical bee-hive of all time and of all civilized countries; indeed, it may with truth be said that as a healthy and convenient home for the honey-bee it has no equal. A swarm of bees hived in a straw skep, the picturesque little domicile known the world over as the personification of industry, will furnish their home with waxen combs in form and shape so admirably adapted to their requirements as to need no improvement by man. Why the circular form was chosen for the skep need not be inquired into, beyond saying that its shape conforms to that of a swarm, as the bees usually hang clustered on the branch of a neighbouring tree or bush after issuing from the parent hive. Fig 11 shows a straw skep in section, and explains itself as illustrating the admirable way in which the bees furnish their dwelling. The vertical section (A) shows the lower portion of the combs devoted to brood-rearing, the higher and thicker combs being reserved for honey, and midway between the brood and food is stored the pollen required for mixing with honey in feeding the larvae. It will be seen how well the upper part of the combs are fitted for bearing the weight of stores they contain, and how the lower portion allows the bees to cluster around the tender larvae and thus maintain the warmth necessary during its metamorphosis from the egg to the perfect insect. The horizontal section (B) with equal clearness demonstrates the bee's ingenuity in economizing space, showing how the outer combs are used exclusively for stores, and, as such, may be built of varying thickness as more or less storage room is required.

The straw skep.

The straw skep has, however, the irredeemable fault of fixed combs, and the gradual development of the movable-frame hive of today may be said to have first appeared in 1789 with the leaf-hive of Huber, so called from its opening like the leaves of a book. Prior to that date wooden box-hives of various shapes had been adopted by advanced bee-masters anxious to increase their output of honey, and by enthusiastic naturalists desirous of studying and investigating the wonders of bee-life apart from the utilitarian standpoint. Foremost among the latter was the distinguished Swiss naturalist and bee-keeper, François Huber, who was led to construct the leaf-hive bearing his name after experimenting with a single comb observatory hive recommended by Réaumur. Huber found that although he could induce swarms to occupy the glass-sided single frame advised by Réaumur, if the frame was fitted with ready-built pieces of comb patched together before hiving the swarm, the experiment was successful, while if left to themselves the bees built small combs across the space between the sheets of glass, and the desired inspection from the outside was thus rendered impossible. He also gathered that the abnormal conditions forced upon the bees by a ready-built single comb might so turn aside their natural instincts as to render his investigations less trustworthy than if conducted under perfectly natural conditions; so, in order to remove all doubt, he decided to have a series of wooden frames made, measuring 12 in. sq., each of rather more than the ordinary width allowed for brood-combs. These frames were numbered consecutively 1 to 12, and hinged together as shown in fig. 12 (*h*, A). In this way the frames of comb could be opened for inspection like a book, while when closed the bees clustered together as in an ordinary hive. Ten of these frames had a small piece of comb fixed to the top-bar in each, supported (temporarily) by a thin lath wedged up with pegs at side, the latter being removed when the comb had been made secure by the bees. When closed, the ten frames, together with the two outside ones (fitted with squares of glass for inspection), which represent the covers of the book, were tied together with a couple of stout strings. In a subsequent form of the same hive Huber was enabled—with the help of very long thumb-screws at each side (fig. 13)—to raise up any frame between two sheets of glass which confined the bees and allowed him to study the process of comb-building better than any hive we know of today. By means of the leaf-hive and using the entrances (fig. 12, *e, e*, A) Huber made artificial swarms by dividing and the use of division-boards, though not in quite the same fashion as is practised at the present day. On the other hand, it must be admitted that Huber's hive was defective in many respects; the parting of each frame, thus letting loose the whole colony, caused much trouble at times, but it remained the only movable-comb hive till 1838, when Dr Dzierzon—whose theory of parthenogenesis has made his name famous—devised a box-hive with a loose top-bar on which the bees built their combs and a movable side or door, by means of which the frames could be lifted out for inspection. This improvement was at once appreciated, and in the year 1852 Baron Berlepsch added side-bars and a bottom-bar, thus completing the movable frame.

The movable-frame hive.

Huber's observatory hive.

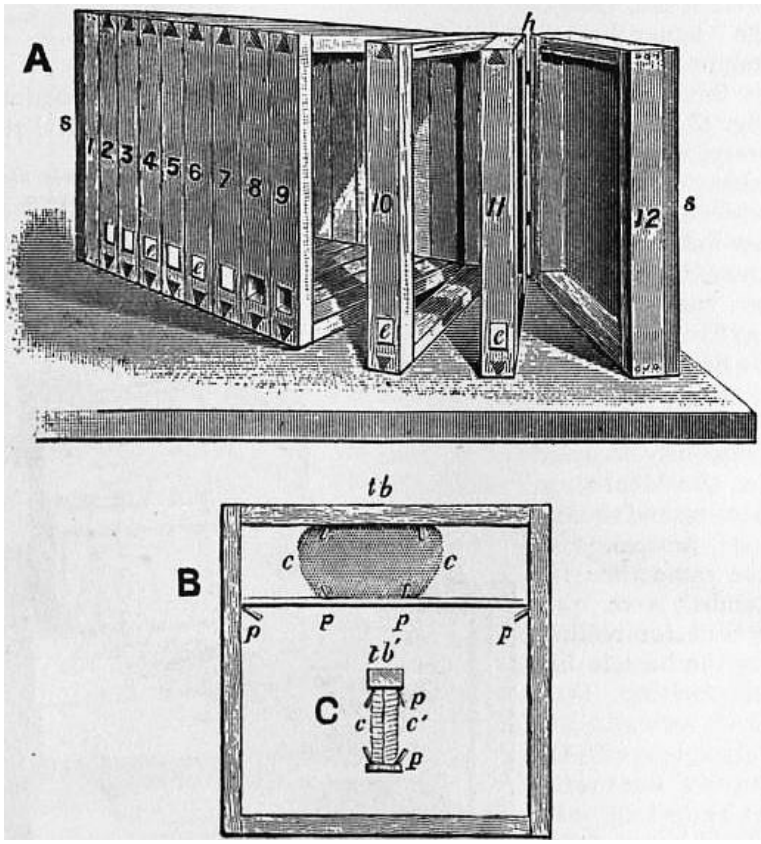


FIG. 12.—Huber's book or leaf hive.

A, Book hive.
e, e, Entrances.
s, s, Side leaves.
h, Hinges.

B, Side view of frame or leaf.
tb, Top-bar
c, Comb.
p, p, Pegs.

C, Part of bin, cross section, lettering as before.

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

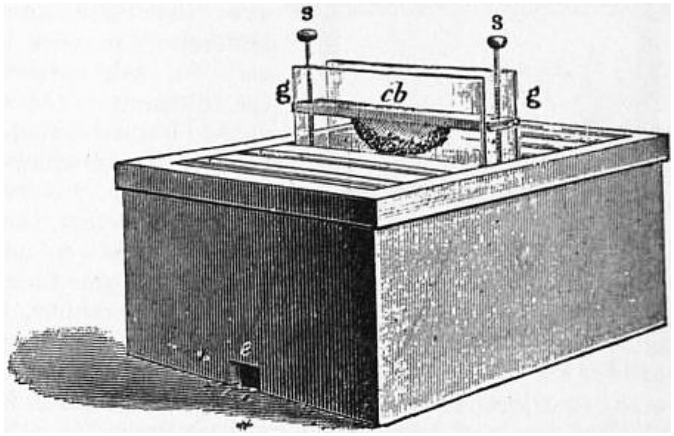


FIG. 13.—Huber's bar-hive, showing how comb is built, *cb*, Comb bar; *g, g*, glass sheets; *s, s*, screws; *e*, entrance

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

Laagstroth's hive.

About the same time the Rev. L.L. Langstroth was experimenting on the same lines in America, and in 1852 his important invention was made known, giving to the world of bee-keepers a movable frame which in its most important details will never be excelled. We refer to the respective distances left between the side-bars and hive walls on each side, and between the lower edge of the bottom-bars and the floor-board. Langstroth, in his measurements, hit upon the happy mean which keeps bees from propolizing or fastening the frames to the hive body, as they assuredly would do if sufficient space had not been allowed for free passage round the side-bars; it is equally certain that if too much space had been provided, they would fill it with comb and thus render the frame immovable. In addition to these benefits, Langstroth's frame and hive possessed the enormous advantage over Dzierzon's of being manipulated from above, so that any single frame could be raised for inspection without disturbing the others. Langstroth's space-measurements have remained practically unaltered notwithstanding the many improvements in hive-making, and in the various sizes of movable frames, since introduced and used in different parts of the world.

In the United States of America Langstroth's frame and hive are the acknowledged "standards" among the great body of bee-keepers, although about a dozen different frames, varying more or less in size, have their adherents. Among these may be named the American, Adair, Danzenbaker, Gallup, Heddon, Langstroth and Quinby. Three of these, the American, Adair and Gallup, may be termed square frames, the others being oblong, but the latter shape appears to possess the most all-round advantages to the modern bee-keeper. Amid the different climatic conditions of so vast a continent as America, variation in size, and in the capacity of frames used, is in some measure accounted for.

Size of frames in the U.S.A.

In the British Isles, though the conditions are variable enough, they are less extreme, and, fortunately for those engaged in the pursuit, only one size of frame is acknowledged by the great majority of bee-keepers, viz. the British Bee-keepers' Association "Standard" (fig. 14). This frame, the outside measurement of which is 14 by 8½ in., was the outcome of deliberations extending over a considerable time on the part of a committee of well-known bee-keepers, specially appointed in 1882 to consider the matter. In this way, whatever type or form of hive is used, the frames are interchangeable. Differences in view may, and do, exist regarding the thickness of the wood used in frame-making, but the *outside* measurement never varies. Notwithstanding this fact, the advancement of apiculture and the continuous development of the modern frame-hive and methods of working have proceeded with such rapidity, both in England and in America, that hives and appliances used prior to 1885 are now obsolete.

British "Standard" frame.

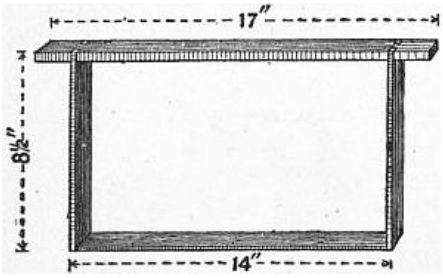


Fig. 14.—Standard Frame.

It may, therefore, be useful to compare the progress made in the United States of America and in Great Britain in order to show that, while the industry is incomparably larger and of more importance in America and Canada than in Great Britain, British bee-keepers have been abreast of the times in all things apicultural. The original Langstroth hive was single-walled, held ten frames (size 17¾ by 9 in.), and had a deep roof, made to cover a case of small honey boxes like the sections now in use; but the cumbersome projecting porch and sides, made to support the roof, are now dispensed with, and the number of frames reduced to eight. Although various modifications have since been made in minor details—all tending to improvement— its main features are unaltered. The typical hive of America is the *improved* Langstroth (fig. 15), which has no other covering for the frame tops but a flat roof-board allowing ¼ in. space between the roof and top-bars for bees to pass from frame to frame. Consequently, on the roof being raised the bees can take wing if not prevented from doing so. This feature finds no favour with British bee-keepers, nevertheless the "improved Langstroth" is a useful and simple hive, moderate in price, and no doubt efficient, but not suitable for bees wintered on their summer stands, as nearly all hives are in Great Britain.

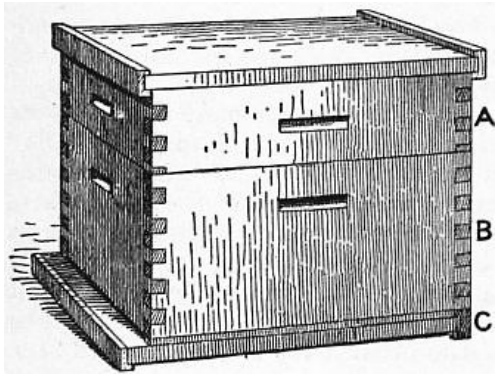


Fig. 15.—Langstroth Hive.

(Redrawn from the *A B C of Bee-Culture*, published by the A. I. Root Co., Medina, Ohio, U.S.A.)

American bee-keepers, therefore, find it necessary to provide underground cellars, into which the bees are carried in the fall of each year, remaining there till work begins in the following spring. Those among them who cannot, for various reasons, adopt the cellar-wintering plan are obliged to provide what are termed "chaff-covers" for protecting their bees in winter. Of late years they have also introduced, as an improvement, the plan long followed in England of using double-walled chaff-packed hives. The difference here is that packing is now dispensed with, it being found that bees winter equally well with an outer case giving 1½ in. of free space on all sides of the hive proper, but with no packing in between. Thus no change is needed in winter or summer, the air-space protecting the bees from cold in winter and heat in summer. Another point of difference between the English and American hive is the roof, which being gable-shaped in the former allows warm packing to be placed directly on the frame tops, so that the bees are covered in when the roof is removed and may be examined or fed with very little disturbance. Again, the American hive is, as a general rule, set close down on the ground, while stands or short legs are invariably used in Great Britain. One of the best-known hives in England is that known as the W.B.C. hive, devised in 1890 by W. Broughton Carr.

Winter cellars for bees.

Figs. 16 and 17 explain its construction and, as will be seen, it is equally suitable when working for comb or for extracted honey.

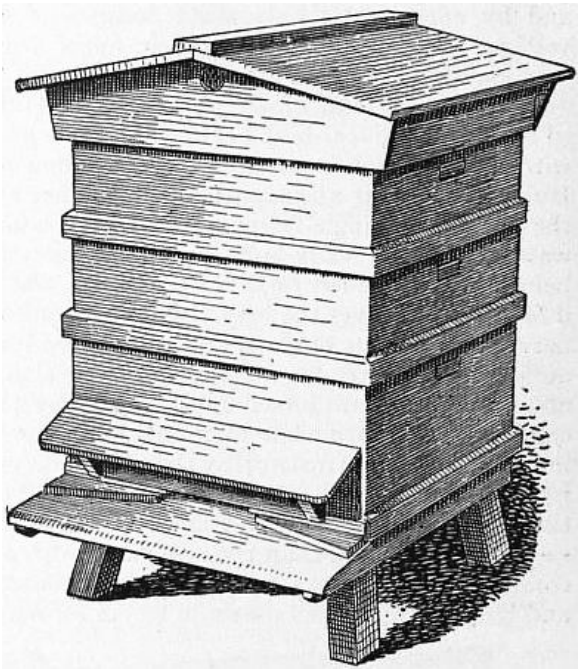


FIG. 16.—Exterior, W.B.C. Hive.

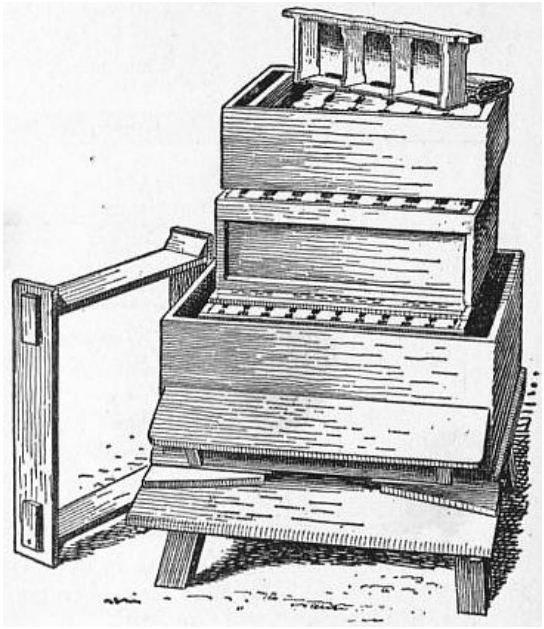


FIG. 17.—Interior, W.B.C. Hive.

Honey extractors.

Various causes have contributed to the development of the modern hive, the most important of which are the improvements in methods of extracting honey from combs, and in the manufacture of comb-foundation. Regarding the first of these, it cannot be said that the honey extractor, even in its latest form, differs very much from the original machine (fig. 18) invented by Major Hruschka, an officer in the Italian army, who in later life became an enthusiastic apiculturist. Hruschka's extractor, first brought to public notice in 1865, may be said to have revolutionized the bee-industry as a business. It enabled the honey producer to increase his output considerably by extracting honey from the cells in most cleanly fashion without damaging the combs, and in a fraction of the time previously occupied in the draining, heating and squeezing process. At the same time the combs were preserved for refilling by the bees, in lieu of melting them down for wax. The principle of the honey extractor (throwing the liquid honey out of the cells by centrifugal force) was discovered quite by accident. Major Hruschka's little son chanced to have in his hand a bit of unsealed comb-honey in a basket to which was attached a piece of string, and, as the boy playfully whirled the basket round in the air, his father noticed a few drops of honey, thrown out of the comb by the centrifugal force employed to keep the basket suspended. The value of the idea at once struck him, he set to work on utilizing the principle involved, and ere long had constructed a machine admirably adapted to serve its purpose. Since that time changes, of more or less value, have been introduced to meet present-day requirements. One of the first to take advantage of Hruschka's invention was Mr A. I. Root, who in 1869 perfected a machine on similar lines to the Hruschka one but embodying various improvements. This appliance, known as the "Novice Honey Extractor," became very popular in the United States of America, but it had the fault of wasting time in removing the combs for reversing after one side had been emptied of its contents. A simple form of machine for extracting honey by centrifugal force was brought to notice in England in 1875, and was soon improved upon, as will be seen in fig. 19, which shows a section of one of the best English machines at that time. Various plans were tried in America to improve on the "Novice" machine, and Mr T.W. Cowan, who was experimenting in the same direction in England, invented in the year 1875 a machine called the "Rapid," in which, the combs were reversed without removal of the cages (fig. 20). The frame-cases—wired on both sides—are hung at the angles of a revolving ring of iron, and the reversing process is so simple and effective that the "Cowan" reversible frame has been adopted in all the best machines both in Great Britain and in America.

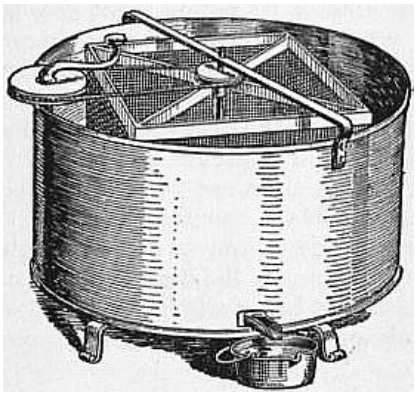


FIG. 18.—Hruschka Extractor.

Redrawn from *The A B C of Bee Culture*, published by the A. I. Root Co, Medina, Ohio, U.S.A.)

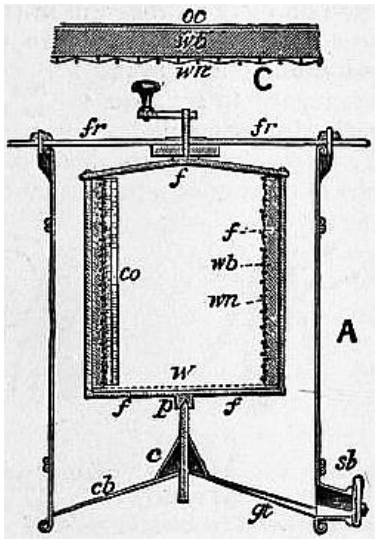


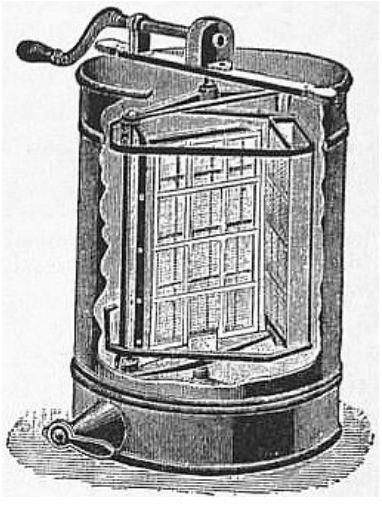
FIG. 19.—Diagram of the Raynor Extractor.

A, Section of extractor.
fr, Fixing rail
ffr, Frame for cage.
wb, Metal webbing.
wn, Wire netting.
co, Comb
w, Wire bottom.
p, Pivot.
c, Stiffening cone.
cb, Coned bottom.
gt, Gutter.
st, Syrup tap.
C, Perpendicular section of side of cage enlarged.
oc, Outer casing
wb, Metal webbing
wn, Wire netting
(From Cheshire's *Bees and Bee keeping, Scientific and Practical*.)

The latest form of honey extractor used in America is that known as the "Four-frame Cowan." Fig. 21 shows the working part or inside of the appliance. In this, and indeed in all extractors used in large apiaries, the "Cowan" or reversible frame principle is used. Each of the four cages in which the combs are placed is swung on a pivot attached to the side, and when the outer faces of the combs are emptied the cages are reversed without removal from the machine for emptying the opposite sides of combs. The further development of the honey extractor has of late been limited to an increase in the size of machine used, in order to save time and manual labour, and thus meet the requirements of the largest honey producers, who extract honey by the car load. Some of the largest machines—propelled by motor power—are capable of taking eight or more frames at one time. It may also be claimed for the honey extractor that it does away with the objection entertained by many persons to the use of honey, by enabling the apiarist to remove his produce from the honey-combs in its purest form untainted by crushed brood and untouched by hand.

Comb foundation.

Next in importance, to bee-keepers, is the enormous advance made in late years through the invention of a machine for manufacturing the impressed wax sheets known as "comb foundation," aptly so named, because upon it the bees build the cells wherein they store their food. We need not dwell upon the evolution from the crude idea, which first took form in the endeavour to compel bees to build straight combs in a given direction by offering them a guiding line of wax along the under side of each top-bar of the frame in which the combs were built; but we may glance at the more important improvements which gradually developed as time went on. In 1843 a German bee-keeper, Krechner by name, conceived the idea of first dipping fine linen into molten wax, then pressing the



sheets so made between rollers, and thus forming a waxen midrib on which the bees would build their combs. This experiment was partially successful, but the instinctive dislike of bees to anything of a fibrous nature caused them completely to spoil their work of comb-building in the endeavour to tear or gnaw away the linen threads whenever they got in touch with them. In 1857 Mehring (also a German) made a further advance by the use of wooden moulds for casting sheets of wax impressed with the hexagonal form of the bee-cell. These sheets were readily accepted by the bees, and afterwards plates cast from metal were employed, with so good a result as to give to the bees as perfect a midrib as that of natural comb with the deep cell walls cut away. Fig. 22 shows a portion of one of these metal plates with worker-cells of natural size, *i.e.* five cells to the inch. Thus Mehring is justly claimed as the originator of comb-foundation, though the value of his invention was less eagerly taken advantage of even in Germany than its merits deserved. Probably it was ahead of the times, for not until nearly twenty years later was any prominence given to it, when Samuel Wagner, founder and editor of the *American Bee Journal*, became impressed with Mehring's invention and warmly advocated it in his paper. Mr Wagner first conceived the idea of adding slightly raised side walls to the hexagonal outlines of the cells, by means of which the bees are supplied with the material for building out one-half or more of the complete cell walls or sides. The manifest advantage of this was at once realized by practical American apiarists as saving labour to the bees and money to the bee-keeper. One of the first to recognize its value was Mr A I. Root, of Medina, Ohio, who suggested the substitution of embossed rollers in lieu of flat plates, in order to increase the output of foundation and lessen its cost to the bee-keeper. He lost no time in giving practical shape to his views, and mainly through the inventive genius of a skilled machinist (Mr A. Washburn) the A. I. Root Co. constructed a roller press (fig 23) for producing foundation in sheets. This form of machine came into extensive use in the United States of America and afterwards in Great Britain. The first roller press was made by the A.I. Root Co. and imported by Mr William Raitt, a Scottish bee-keeper of repute in Perthshire, N.B. In all roller machines used at that time the plain sheets of wax were first made by the "dipping" process, *i.e.* by repeated dippings of damped boards in molten wax (kept in liquid condition in tanks immersed in hot water) until the sheet was of suitable thickness for the purpose. The prepared sheets were then passed through the rollers, and after being cut out and trimmed were ready for use.

FIG. 20.—Cowan's rapid Extractor.

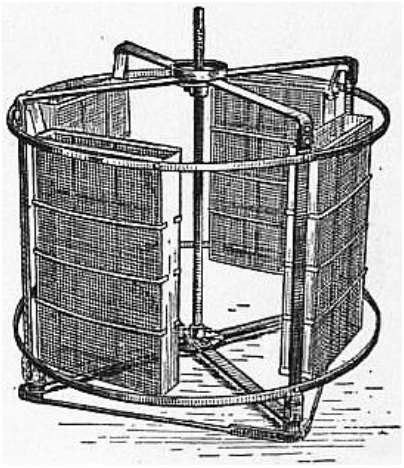


FIG. 21.—Cowan's four-frame Extractor; interior.

(Redrawn from *The A B C of Bee Culture*, published by the A. I. Root Co, Medina, Ohio, U.S.A.)

Owing to the enormous demand for comb-foundation at that time various devices were tried with the view of securing (1) more rapid production, and (2) a foundation thin enough to be used in surplus chambers when working for comb-honey intended for table use. Foremost among the able men who experimented in this latter direction was Mr F.B. Weed, a skilful American machinist, who, after some years of strenuous effort, succeeded in devising and perfecting special rollers and dies, by the use of which foundation was produced with a midrib so thin as to compare favourably with natural comb built by the bees. "Dipping," however, proved not only a stumbling-block to speed but to the production of continuous sheets of wax; and in the end Mr Weed, acting in concert with Mr A.I. Root (who placed the resources of his enormous factory at his disposal), devised and perfected machinery—driven by motor power—for manufacturing foundation by what is known as the "Weed" process. By this process "dipping" is abolished, and in its latest form sheets of wax of any length are produced, passed between engraved rollers 6 in in diameter, cut to given lengths, trimmed, counted and paper-tissued ready for packing, at a rate of speed previously undreamt of.

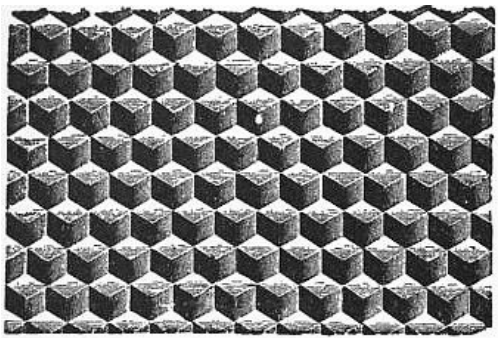


FIG. 22.—Portion of a type-metal plate—*i.e.* form of Comb Midrib (five cells to the inch).

(From Cheshire's *Bees and Bee-keeping Scientific and Practical*.)

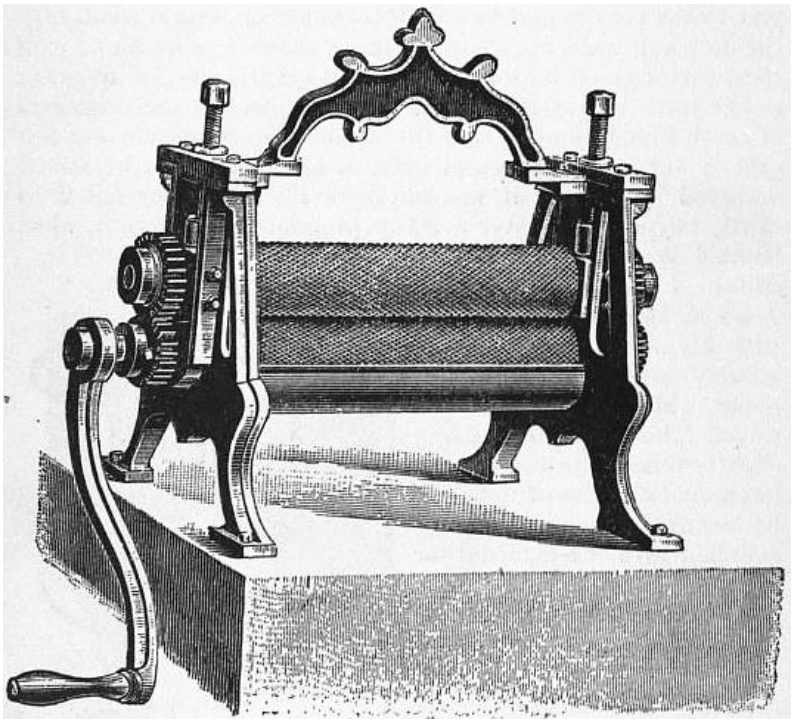


FIG. 23.—Foundation Machine.

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

Practical Management of Bees.—Among the world of insects the honey-bee stands pre-eminent as the most serviceable to mankind; from the day on which the little labourer leaves its home for the first time in search of food, its mission is undoubtedly useful. Launched upon an unknown world, and guided by unerring instinct to the very flowers it seeks, the bee fertilizes fruit and flowers while winging its happy flight among the blossoms, gathering pollen for the nurslings of its own home and honey for the use of man. Nothing seems to be lost, nor can any part of the bee's work be accounted labour in vain; the very wax from which the insect builds the store-combs for its food and the cells in which its young are hatched and reared is valuable to mankind in many ways, and is regarded today no less than in the past ages as an important commercial product. The hive bee is, moreover, the only insect known to be capable of domestication, so far as labouring under the direct control of the bee-master is concerned, its habits being admirably adapted for embodying human methods of working for profit in our present-day life.

In dealing with the practical side of apiculture it will not be necessary to do more than mention the salient points to be considered by those desirous of acquiring more complete knowledge of the subject. Authoritative text-books specially written for the guidance of bee-keepers are numerous and cheap, and on no account should any one engage in an attempt to manage bees on modern lines without a careful perusal of one or more of these. Bearing this in mind the reader will understand that so much of the natural history of the honey-bee as is necessary for elucidating the practical part of our subject may be comprised in (1) the life of the insect, (2) its mission in life, and (3) utilizing to the utmost the brief period during which it can labour before being worn out with toil.

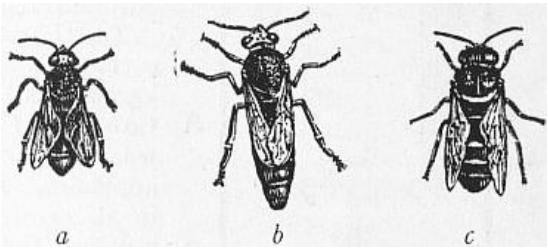


FIG. 24.—Hive bee (*Apis mellafica*). *a*, Worker; *b*, queen; *c*, drone.

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

A prosperous bee-colony managed on modern lines will in the height of summer consist of three kinds of bees: a queen or mother-bee, a certain number of drones, and from 80,000 to 100,000 workers. With regard to sex, the queen is a fully-developed female, the drones are males and the workers may be termed neuters or partially developed females. These last possess ovaries like the queen, but shrunken and aborted so as to render the insect normally incapable of egg-production. The relative importance of the three kinds of bees, differs greatly in a degree and in somewhat curious fashion. For instance, the queen (or "king" of the hives as it was termed by our forefathers) is of paramount importance at certain seasons, her death or disablement during the period when the male element is absent meaning extinction of the whole colony. Fecundation would under such

Sex of bees.

Loss of queens.

conditions be impossible, and without this the eggs of a resultant queen will produce nothing but drones. During the summer season, however (from May to July), when drones are abundant, the loss of a queen is of comparatively little moment, as the workers can transform eggs (or young larvae not more than three days old), which would in the ordinary course produce worker bees, into fully-developed queens, capable of fulfilling all the maternal duties of a mother-bee. The value of this wonderful provision of nature to the bee-keeper of today may be estimated from the fact that bees managed according to modern methods are necessarily subject to so much manipulating or handling, that fatal accidents are as likely to happen in bee life as among human beings.

Authorities differ with regard to the age during which the queen bee is useful to the bee-keeper who works for profit. Under normal conditions the insect will live for three, four or sometimes five years, but the stimulation given together with the high-pressure system followed in modern bee-management, exhausts the period of her greatest fecundity in two years, so that queens are usually superseded after their second season has expired and egg-production gradually decreases. This can hardly cause wonder if it is borne in mind that for many weeks during the height of the season a prolific queen will deposit eggs at the rate of from two to three thousand every twenty-four hours.

The drone.

Drones (or male bees) are more or less numerous in hives according to the skill of the bee-keeper in limiting their production. It is admitted by those best able to judge that the proportion of about a hundred drones in each hive is conducive to the prosperity of the colony, but beyond that number they are worse than useless, being non-producers and heavy consumers. Thus in times of scarcity, which are not infrequent during the early part of the season, they become a heavy tax upon the food-supply of the colony at the critical period when brood-rearing is accelerated by an abundance of stores, while shortness of food means a falling-off in egg-production. The modern bee-keeper, therefore, allows just so much drone comb in the hive as will produce a sufficient number of drones to ensure queen-mating, while affording to the bees the satisfaction of dwelling in a home equipped according to natural conditions, and containing all the elements necessary to bee-life. The action of the bees themselves makes this point clear, for when the season of mating is past the drone is no longer needed, the providing of winter stores taking first place in the economy of the hive. So long as honey is being gathered in plenty drones are tolerated, but no sooner does the honey harvest show signs of being over than they are mercilessly killed and cast out of the hive by the workers, after a brief idle life of about four months' duration. Thus the "lazy yawning drone," as Shakespeare puts it, has a short shrift when his usefulness to the community is ended.

The worker-bee.

Finally we have the aptly named worker-bee, on whom devolves the entire labour of the colony. The worker-bee is incapable of egg-production and can therefore take no part in the perpetuation of its species, so that individually its value to the community is infinitesimal. Yet it forms an item in a commonwealth, the members of which are in all respects equally well endowed. They are in turn skilled scientists, architects, builders, artisans, labourers and even scavengers; but collectively they are the rulers on whom the colony depends for the wonderful condition of law and order which has made the bee-community a model of good government for all mankind. Then so far as regards longevity, the period of a worker-bee's existence is not measured by numbering its days but simply by wear and tear, the marvellous intricacy and wonderful perfection of its framework being so delicate in construction that after six or seven weeks of strenuous toil, such as the bee undergoes in summer time, the little creature's labour is ended by a natural death. On the other hand, worker-bees hatched in the autumn will seven months later be strong with the vigour of lusty youth, able to take their full share in the labour of the hive for six weeks or more in the early spring, which is the most critical period in the colony's existence; hence the value to the apiarist of bees hatched in the autumn.

Longevity in bees.

The mission of the worker-bee is *work*; not so much for itself as for the younger members of the community to which it belongs. We cannot claim for it the virtue of strict honesty with regard to the stranger, but for its own "kith and kin" it is a model of socialism in an ideal form, possessing nothing of its own yet toiling unceasingly for the good of all. The increasing warmth of each recurring spring finds the bee awake, and full of eagerness to be up and doing; its sole mission being apparently to accomplish as much work as possible while life lasts. The earliest pollen is sought out from far and near, and has its immediate effect upon the mother bee of the colony. If healthy and young she begins egg-laying at once, and brood-rearing proceeds at an ever-increasing rate as each week passes, until the hive is brimming over with bees in time for the first honey flow. Then comes the almost human foresight with which the bee prevents the inevitable chaos created by an overcrowded home. There is no cell-room either for storing the abundant supply of food constantly being brought in, or for the thousands of eggs which a prolific queen will produce daily as a consequence of general prosperity; therefore unless help comes from without an exodus is prepared for, and what is known as "swarming" takes place.

It would be difficult to imagine anything more exhilarating to a beginner in bee-keeping than the sight of his first hive in the act of swarming. The little creatures are seen rushing in frantic haste from the hive like a living stream, filling the air with ever-increasing thousands of bees on the wing. The incoming workers returning pollen-laden from the fields, carried away by the prevailing excitement, do not stop to unload their burdens in the old home, but join the enthusiastic emigrants, tumbling over each other pell-mell in the outrush; among them the queen of the colony will in due course have taken her place, bound like her children for a new home. It soon becomes apparent to the onlooker when the queen has joined the flying multitude of bees in the air, for they are seen to be closing up their ranks, and in a few moments begin to form a solid cluster, usually on the branch of a small tree or bush close to the ground. When this stage of swarming is reached the bee-keeper has but to take his hiving skep, hold it under the swarm, and shake the bees into it, preparatory to transferring them into a frame-hive already prepared for their reception. The process of hiving a swarm is very simple and need not occupy many moments of time under ordinary conditions, but so many unlooked-for contingencies may arise that the apiarist would do well to prepare himself beforehand by carefully reading the directions in his text-book.

Swarming.

Hiving swarms.

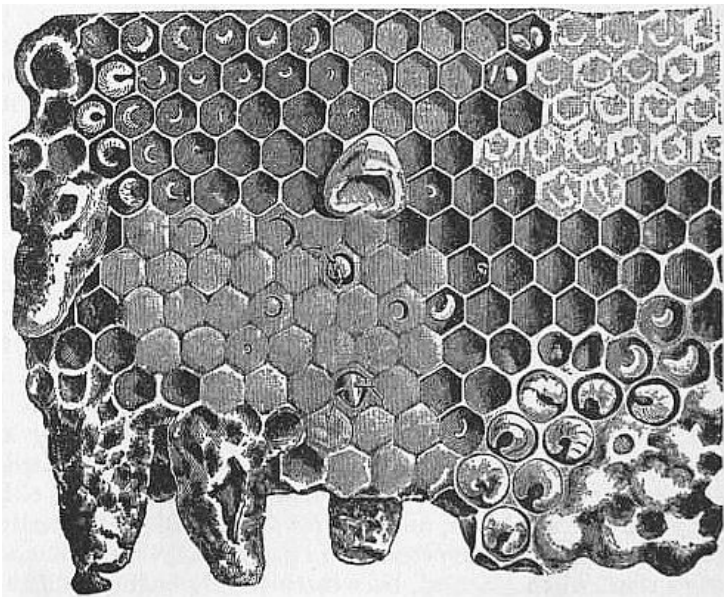


FIG. 25.—Honeycomb, Metamorphoses of the Honey Bee.

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical*.)

The illustration given in fig. 25 will serve more readily than words to enlighten the would-be bee-keeper. It shows a portion of honeycomb (natural size) not precisely as it appears when the frame containing it is lifted out of the hive, but as would be seen on two or more combs in the same hive, namely, the various cells built for—and occupied by—queens, drones and workers; also the larvae or grubs in the various stages of transformation from egg to perfect insect, with the latter biting their way out of sealed cells. It also shows sealed honey and pollen in cells, &c. To familiarize himself with the various objects depicted, all of which are drawn from nature, will not only help the reader to understand the different phases of bee-life during the swarming season, but tend to increase the interest of beginners in the pursuit. "Early drones, early swarms" was the ancient bee-man's favourite adage, and the skilled apiarist of to-day experiences the same pleasurable thrill as did the skeppist of old at the sight of the first drone of the year, which betokens an early swarm. As the drones increase in number queen-cells are formed, unless steps be taken to turn aside the swarming impulse by affording additional room beforehand in the hive. The above brief outline of the guiding principles of natural swarming is merely intended as introductory to the fuller information given in a good text-book.

Management of an Apiary.—The main consideration in establishing an apiary is to secure a favourable location, which means a place where honey of good marketable quality may be gathered from the bee-forage growing around without any planting on the part of the bee-keeper himself. It is impossible to deal here with the varying conditions under which apiculture is carried on in all parts of the world, but, as a rule, the same principle applies everywhere. The bee industry prospers greatly in America, where amid the vast stretches of mountain and canyon in California the bee-forage extends for miles without a break, and the climatic conditions are so generally favourable as to reduce to a minimum the chances of the honey crop failing through adverse weather.

Bee-forage in U.S.A.

The bee-keeper's object is to utilize to the utmost the brief space of a worker-bee's life in

summer, by adopting the best methods in vogue for building up stocks to full strength before the honey-gathering time begins, and preparing for it by the exercise of skill and intelligence in carrying out this work.

In the United Kingdom there is a difference of several weeks in the honey season between north and south. Swarming usually begins in May in the south of England, and in mid-July in the north of Scotland, the issue of swarms coinciding with the early part of the main honey flow. The weather is naturally more precarious in autumn than earlier in the year, and chances of success proportionately smaller for northern bee-men, but the disadvantage to the latter is more than compensated for by the heather season, which extends well into September. With regard to the British bee-keeper located in the south, the early fruit crop is what concerns him most, and where pollen (the fertilizing dust of flowers) is plentiful his bees will make steady progress. If pollen is scarce, a substitute in the form of either pea-meal or wheaten flour must be supplied to the bees, as brood-rearing cannot make headway without the nitrogenous element indispensable in the food on which the young are reared. But the main honey-crop of both north and south is gathered from the various trifoliums, among which the white Dutch or common clover (*Trifolium repens*) is acknowledged to be the most important honey-producing plant wherever it grows. In the United States, Canada, Australia, New Zealand and in many other parts of the world honey of the finest quality is obtained from this "queen of bee-plants," and in lesser degree from other clovers such as sainfoin, alsike (a hybrid clover), trefoil, &c.

Value of pollen.

The queen of bee-plants.

Before undertaking the management of a modern apiary, the bee-keeper should possess a certain amount of aptitude for the pursuit, without which it is hardly possible to succeed. He must also acquire the ability to handle bees judiciously and well under all imaginable conditions. In doing this it is needful to remember that bees resent outside interference with either their work or their hives, and will resolutely defend themselves when aroused even at the cost of life itself. Experience has also proved that, when alarmed, bees instinctively begin to fill their honey-sacs with food from the nearest store-cells as a safeguard against contingencies, and when so provided they are more amenable to interference. The bee-keeper, therefore, by the judicious application of a little smoke from smouldering fuel, blown into the hive by means of an appliance known as a bee-smoker, alarms the bees and is thus able to manipulate the frames of comb with ease and almost no disturbance. The smoker (fig. 26) devised by T.F. Bingham of Farwell, Michigan, U.S.A., is the one most used in America and in the United Kingdom. No other protection is needed beyond a bee-veil of fine black net, which slipped over a wide-brimmed straw hat protects the face from stings when working among bees; as experience is gained the veil is not always used. The man who is hasty and nervous in temperament, who fears an occasional sting, and resents the same by viciously killing the bee that inflicts it will rarely make a good apiarist. The methods of handling bees vary in different countries, this being in a great measure accounted for by the number of hives kept. Very few apiaries in the United Kingdom contain more than a hundred hives; consequently the British bee-keeper has no need for employing the forceful or "hustling" methods found necessary in America, where the honey-crop is gathered in car-loads and the hives numbered by thousands. It naturally follows that bee-life is there regarded very slightly by comparison, and the bee-garden in England becomes the "bee-yard" in America, where the apiarist when at work must thoroughly protect himself from being stung, and, safe in his immunity from damage, cares little for bee-life in getting through his task, the loss of a few hundred bees being considered of no account. There are, however, other reasons, apart from humanity, to account for the difference in handling bees as advocated in the United Kingdom. The great majority of apiaries owned by British bee-keepers are located in close proximity to neighbours; consequently a serious upset among the bees would in many cases involve an amount of trouble which should if possible be avoided; therefore quietness and the exercise of care when manipulating are always recommended by teachers, and practised by those who wisely take their lessons to heart.

British and American methods.

Having made himself proficient in practical bee-work and chosen a suitable location for his apiary, the bee-keeper should carefully select the particular type of hive most suited to his means and requirements. This point settled, uniformity is secured, and all loose parts of the hives being interchangeable time will be saved during the busy season when time means money. Beginning with not too many stocks he can test the capabilities of his location before investing much capital in the undertaking, so that by utilizing the information already given and adopting the wise adage "make haste slowly" he will realize in good time whether it will pay best to work for honey in comb or extracted honey in

Chosing a location.

bulk; not only so, but the knowledge gained will enable him to select such appliances as are suited to his needs. As a rule, it may be said that the man content to start with an apiary of moderate size—say fifty stocks—may realize a fair profit from comb-honey only; but so limited a venture would need to be supplemented by some other means before an adequate income could be secured. On the other hand, the owner of one or two hundred colonies would find it more lucrative to work for extracted honey and send it out to wholesale buyers in that form. By so doing a far greater weight of surplus per hive may be secured, and extracted honey will keep in good condition for years, while comb-honey must be sold before granulation sets in. At the same time it is but fair to say that bee-culture in the United Kingdom, if limited to honey-production alone, is not sufficiently safe for entire reliance to be placed on it for obtaining a livelihood. The uncertain climate renders it necessary to include either other branches of the craft less dependent on warmth and sunshine, or to combine it with fruit-growing, poultry-rearing, &c. Under such conditions the bees will usually occupy a good position in the balance-sheet.

Bee-keeping for profit.

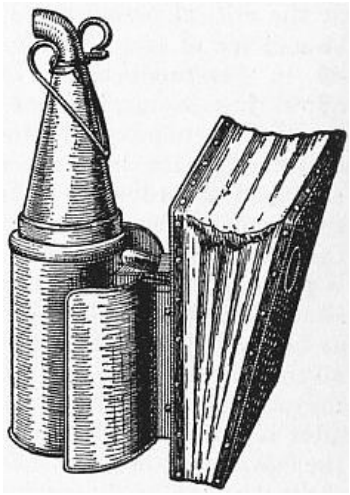


FIG. 26.—Bee-Smoker.

(Redrawn from the *A B C of Bee-Culture*, published by the A.I. Root Co, Medina, Ohio, U.S.A.)

Another indispensable feature of good bee-management is "forethought," coupled with order and neatness; the rule of "a place for everything and everything in its place" prepares the bee-keeper for any emergency; constant watchfulness is also necessary, not only to guard against disease in his hives, but to overlook nothing that tends to be of advantage to the bees at all seasons. Among the many ways of saving time nothing is more useful than a carefully-kept note-book, wherein are recorded brief memoranda regarding such items as condition of each stock when packed for winter, amount of stores, age and prolific capacity of queen, strength of colony, healthiness or otherwise, &c., all of which particulars should be noted and the hives to which they refer plainly numbered. It also enables the bee-keeper to arrange his day's work indoors while avoiding disturbance to such colonies as do not need interference. In the early spring stores must be seen to and replenished where required; breeding stimulated when pollen begins to be gathered, and appliances cleaned and prepared for use during the busy season.

Need of forethought.

The main honey-gathering time (lasting about six or seven weeks) is so brief that in no pursuit is it more important to "make hay while the sun shines," and if the bee-keeper needs a reminder of this truism he surely has it in the example set by his bees. As the season advances and the flowers yield nectar more freely, visible signs of comb-building will be observed in the whitened edges of empty cells in the brood-chambers; the thoughtful workers are lengthening out the cells for honey-storing, and the bee-master takes the hint by giving room in advance, thus lessening the chance of undesired swarms. In other words, order and method, combined with the habit of taking time by the forelock, are absolutely necessary to the bee-keeper, seeing that the enormous army of workers under his control is multiplying daily by scores of thousands. As spring merges into summer, sunny days become more frequent; the ever-increasing breadth of bee-forage yields still more abundantly, and the excitement among the labourers crowding the hives increases, rendering room in advance, shade and ventilation, a *sine qua non*. It requires a level head to keep cool amongst a couple of hundred strong stocks of bees on a hot summer's day in a good honey season. Moreover, it will be too late to think of giving ventilation at noontide, when the temperature has risen to 80° F. in the shade; the necessary precautions for swarm prevention must therefore be taken in advance, for when what is known as the "swarming fever" once starts it is most difficult to overcome.

Length of bee season.

Swarm prevention.

The well-read and intelligent bee-keeper, content to work on orthodox lines, will be able to manage an apiary—large or small—by guiding and controlling the countless army he commands in a way that will yield him both pleasure and profit. All he needs is good bee weather and an apiary free from disease to make him appreciate bee-craft as one of the most remunerative of rural industries; affording a wholesome open-air life conducive to good health and yielding an abundance of contentment.

Diseases of Bees.—It is quite natural that bees living in colonies should be subject to diseases, and only since the introduction of movable-comb hives has it been possible to learn something about these ailments. The most serious disease with which the bee-keeper has to contend is that commonly known as "bee-pest" or "foul brood," so called because of the young brood dying and rotting in the cells. This disease has been known from the earliest ages, and is probably the

same as that designated by Pliny as *blapsigonia (Natural History*, bk. xi. ch. xx.). Coming to later times, Della Rocca minutely describes a disease to which bees were subject in the island of Syra, between the years 1777 and 1780, and through which nearly every colony in the island perished. From the description given it was undoubtedly foul brood, and the bee-keepers of the island became convinced, after bitter experience, that it was extremely contagious. Schirach also mentioned and described the disease in 1769, and was the first to give it the name of "foul brood." Still later, in 1874, Dr Cohn, after the most exhaustive experiments and bacteriological research, realized that the disease was caused by a bacillus, and—nine years later—the name *Bacillus alvei* was given to it by Cheyne and Cheshire, whose views were in agreement with those of Dr Cohn.

The illustration (fig. 27) shows a portion of comb affected with foul brood in its worst form. The sealed cells are dark-coloured and sunken, pierced with irregular holes, and the larvae in all stages from the crescent-shaped healthy condition to that in which the dead larvae are seen lying at the bottom of the cells, flaccid and shapeless. The remains then change to buff colour, afterwards turning brown, when decomposition sets in, and as the bacilli present in the dead larvae increase and the nutrient matter is consumed, the mass in some cases becomes sticky and ropy in character, making its removal impossible by the bees. In course of time it dries up, leaving nothing but a brown scale adhering to the bottom or side of the cell. In the worst cases the larvae even die after the cells are sealed over; a strong characteristic and offensive odour being developed in some phases of the disease, noticeable at times some distance away from the hive.

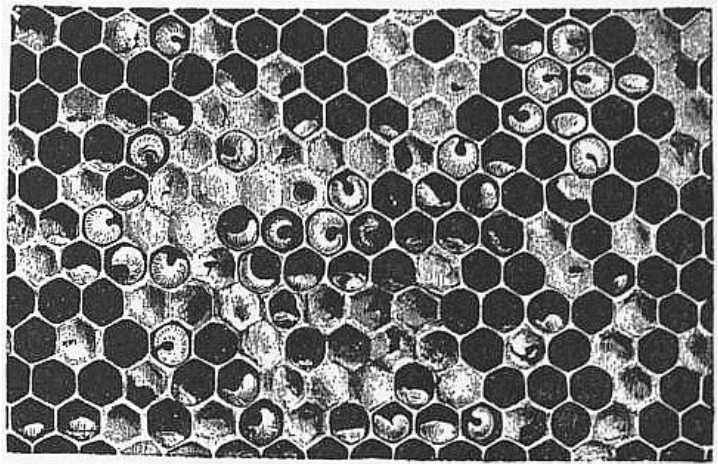


FIG. 27.—Foul Brood (*Bacillus alvei*).

(From Cheshire's *Bees and Bee-keeping, Scientific and Practical.*)

Two forms of foul brood have been long known, one foul smelling, the other odourless; and investigations made during 1906 and 1907 showed that the etiology of the disease is not by any means simple, but that it is produced by different microbes, two others in addition to *Bacillus alvei* playing an important part. These are *Bacillus brandenburgiensis*, Maassen (syn. *B. burri*, Burri: *B. larvae*, white), and *Streptococcus apis*, Maassen (syn. *B. Guntheri*, Burri). The first two are found in both forms of foul brood, whereas the last is only present with *B. alvei* in the strong-smelling form of the disease, in which the larvae are attacked prior to the cells being sealed over.

The brood of bees, when healthy, lies in the combs in compact masses, the larvae being plump and of a pearly whiteness, and when quite young curled up on their sides at the base of the cells. When attacked by the disease, the larva moves uneasily, stretches itself out lengthwise in the cell, and finally becomes loose and flabby, an appearance which plainly indicates death.

When the disease attacks the larvae before they are sealed over *Bacillus alvei* is present, usually associated with *Streptococcus apis*, which latter imparts a sour smell to the dead brood. In cases where the disease is odourless the larvae are attacked after the cells are sealed over, and just before they change to pupae, when they become slimy, sputum-like masses, difficult to remove from the cells. Under these conditions *Bacillus brandenburgiensis* is found, although *Bacillus alvei* may also be present. The two bacilli are antagonistic, each striving for supremacy, first one then the other predominating. Various other microbes are also present in large numbers, but are not believed to be pathogenic or disease-producing in character.

It is, therefore, seen that at least three different microbes play an important part in the same disease. The danger of contagion lies in the wonderful vitality of the spores, and their great resistance to heat and cold. Dr Maassen records a case where he had no difficulty in obtaining cultures from spores removed from combs after being kept dry for twenty years. It should be

borne in mind that the disease is much easier to cure in the earlier stages while the bacilli are still rod-shaped than when the rods have turned to spores.

Since the bacterial origin of foul brood has been established, the efforts of some bacteriologists have been employed in finding a simple remedy by means of which the disease may be checked in its earliest stages, and in this an appreciable amount of success has been attained. Nor has foul brood in its more advanced forms been neglected, all directions for treatment being found in text-books written by distinguished writers on apiculture in the United Kingdom, America and throughout the European continent.

The only other disease to which reference need be made here is dysentery, which sometimes breaks out after the long confinement bees are compelled to undergo during severe winters. This trouble may be guarded against by feeding the bees in the early autumn with good food made from cane sugar, and housing them in well-ventilated hives kept warm and dry by suitable coverings. When bees are wintered on thin, watery food not sealed over, and are unable for months to take cleansing flights, they become weak and involuntarily discharge their excrement over the combs and hive, a state of things never seen in a healthy colony under normal conditions. The stocks of bee-keepers who attend to the instructions given in text-books are rarely visited by this disease.

The above embraces all that is necessary to be said in relation to diseases, though bees have been subject to other ailments such as paralysis, constipation, &c.

In the Isle of Wight a serious epidemic broke out in 1906 which caused great destruction to bee-life in the following year. The malady was of an obscure character, but its cause has been under investigation by the British Board of Agriculture and Fisheries, and by European bacteriologists in 1908.

AUTHORITIES.—Though in modern times a great deal has appeared in the daily newspapers on the subject, it is a notable fact that not a tithe of the wonderful things published in such articles about bees and bee-keeping is worthy of credence or possesses any real value. Indeed, a pressman possessing any technical knowledge of the subject—beyond that obtainable from books—would be a *rara avis*. The account given above is the result of forty years' practical experience with bees in England, the writer having for a great portion of the time been connected editorially with the only two papers in that country entirely devoted to bees and bee-keeping, *The British Bee Journal* (weekly, founded 1873), and *Bee-keepers' Record* (monthly, founded 1882), the former being the only weekly journal in the world. The following books on the subject may be consulted for further details:—François Huber, *New Observations on the Natural History of Bees*; T.W. Cowan, *British Bee-keepers' Guide-Book, The Honey Bee, its Natural History, Anatomy and Physiology; Langstroth on the Honey Bee*, revised by C. Dadant & Son; A.I. Root, *A B C and X Y Z of Bee-culture*; F.R. Cheshire, *Bees and Bee-keeping*; Dr Dzierzon, *Rational Bee-keeping*; E. Bertrand, *Conduite du rucher*; A.J. Cook, *Manual of the Apiary*; Dr C.C. Miller, *Forty Years among the Bees*; F.W.L. Sladen, *Queen-rearing in England*; S. Simmins, *A Modern Bee Farm*.

(W. B. CA.)

BEECH, a well-known tree, *Fagus sylvatica*, a member of the order Fagaceae to which belong the sweet-chestnut (*Castanea*) and oak. The name beech is from the Anglo-Saxon *boc, bece* or *beoce* (Ger. *Buche*, Swedish, *bok*), words meaning at once a book and a beech-tree. The connexion of the beech with the graphic arts is supposed to have originated in the fact that the ancient Runic tablets were formed of thin boards of beech-wood. "The origin of the word," says Prior (*Popular Names of British Plants*), "is identical with that of the Sanskrit *bōkō*, letter, *bōkōs*, writings; and this correspondence of the Indian and our own is interesting as evidence of two things, viz. that the Brahmins had the art of writing before they detached themselves from the common stock of the Indo-European race in Upper Asia, and that we and other Germans have received alphabetic signs from the East by a northern route and not by the Mediterranean." Beech-mast, the fruit of the beech-tree, was formerly known in England as buck; and the county of Buckingham is so named from its fame as a beech-growing country. Buckwheat (*Bucheweizen*) derives its name from the similarity of its angular seeds to beech-mast. The generic name Fagus is derived from φάγειν to eat; but the φηγός of Theophrastus was probably the sweet chestnut (*Aesculus*) of the Romans. Beech-mast has been used as food in times of distress and famine; and in autumn it yields an abundant supply of food to park-deer and other game, and to pigs, which are turned into beech-woods in order to utilize the fallen mast. In France it is used for feeding pheasants and domestic poultry. Well-ripened beech-mast yields from 17 to 20% of non-drying oil, suitable for illumination, and said to be used in some parts of

France and other European countries in cooking, and as a substitute for butter.

The beech is one of the largest British trees, particularly on chalky or sandy soils, native in England from Yorkshire southwards, and planted in Scotland and Ireland. It is one of the common forest trees of temperate Europe, spreading from southern Norway and Sweden to the Mediterranean. It is found on the Swiss Alps to about 5000 ft. above sea-level, and in southern Europe is usually confined to high mountain slopes; it is plentiful in southern Russia, and is widely distributed in Asia Minor and the northern provinces of Persia.

It is characterized by its sturdy pillar-like stem, often from 15 to 20 ft. in girth, and smooth olive-grey bark. The main branches rise vertically, while the subsidiary branches spread outwards and give the whole tree a rounded outline. The slender brown pointed buds give place in April to clear green leaves fringed with delicate silky hairs. The flowers which appear in May are inconspicuous and, as usual with our forest trees, of two kinds; the male, in long-stalked globular clusters, hang from the axils of the lower leaves of a shoot, while the female, each of two or three flowers in a tiny cup (cupule of bracts), stand erect nearer the top of the shoot. In the ripe fruit or mast the four-sided cupule, which has become much enlarged, brown and tough, encloses two or three three-sided rich chestnut-brown fruits, each containing a single seed. It is readily propagated by its seeds. It is a handsome tree in every stage of its growth, but is more injurious to plants under its drip than other trees, so that shade-bearing trees, as holly, yew and thuja, suffer. Its leaves, however, enrich the soil. The beech has a remarkable power of holding the ground where the soil is congenial, and the deep shade prevents the growth of other trees. It is often and most usefully mixed with oak and Scotch fir. The timber is not remarkable for either strength or durability. It was formerly much used in mill-work and turnery; but its principal use at present is in the manufacture of chairs, bedsteads and a variety of minor articles. It makes excellent fuel and charcoal. The copper-beech is a variety with copper-coloured leaves, due to the presence of a red colouring-matter in the sap. There is also a weeping or pendulous-branched variety; and several varieties with more or less cut leaves, are known in cultivation.

The genus *Fagus* is widely spread in temperate regions, and contains in addition to our native beech, about 15 other species. A variety (*F. sylvatica* var. *Sieboldi*) is a native of Japan, where it is one of the finest and most abundant of the deciduous-leaved forest trees. *Fagus americana* is one of the most beautiful and widely-distributed trees of the forests of eastern North America. It was confounded by early European travellers with *F. sylvatica*, from which it is distinguished by its paler bark and lighter green, more sharply-toothed leaves. Several species are found in Australia and New Zealand, and in the forests of southern Chile and Patagonia. The dense forests which cover the shore of the Straits of Magellan and the mountain-slopes of Tierra del Fuego consist largely of two beeches—one evergreen, *Fagus betuloides*, and one with deciduous leaves, *F. antarctica*.

BEECHER, CHARLES EMERSON (1856-1904), American palaeontologist, was born at Dunkirk, New York, on the 9th of October 1856. He graduated at the university of Michigan in 1878, and then became assistant to James Hall in the state museum at Albany. Ten years later he was appointed to the charge of the invertebrate fossils in the Peabody Museum, New Haven, under O.C. Marsh, whom he succeeded in 1899 as curator. Meanwhile in 1889 he received the degree of Ph.D. from Yale University for his memoir on the *Brachiospongidae*, a remarkable group of Silurian sponges; later on he did good work among the fossil corals, and other groups, being ultimately regarded as a leading authority on fossil crustacea and brachiopoda; his researches on the development of the brachiopoda, and on the Trilobites *Triarthrus* and *Trinudeus*, were especially noteworthy. In 1892 he was appointed professor of palaeontology in Yale University. He died on the 14th of February 1904.

Memoir by C. Schuchert in *Amer. Journ. Science*, vol. xvii., June 1904 (with portrait and bibliography).

BEECHER, HENRY WARD (1813-1887), American preacher and reformer, was born in Litchfield, Connecticut, on the 24th of June 1813. He was the eighth child of Lyman and Roxana Foote Beecher, and brother of Harriet Beecher Stowe. Entering Amherst College in 1830, and graduating four years later, he gave more attention to his own courses of reading than to college

studies, and was more popular with his fellows than with the faculty. With a patience foreign to his impulsive nature, he submitted to minute drill in elocution, and became a fluent extemporaneous speaker. Reared in a Puritan atmosphere, he has graphically described the mystical experience which, coming to him in his early youth, changed his whole conception of theology and determined his choice of the ministry. “I think,” he says, “that when I stand in Zion and before God, the highest thing that I shall look back upon will be that blessed morning of May when it pleased God to reveal to my wondering soul the idea that it was His nature to love a man in his sins for the sake of helping him out of them.” In 1837 he graduated from Lane Theological Seminary in Ohio, of which his father was president, and entered upon his work as pastor of a missionary Presbyterian church at Lawrenceburg, Indiana, a village on the Ohio, about 20 m. below Cincinnati. The membership numbered nineteen women and one man. Beecher was sexton as well as preacher. Two years later he accepted a call to Indianapolis. His unconventional preaching shocked the more staid members of the flock, but filled the church to overflowing with people unaccustomed to churchgoing. He studied men rather than books; became acquainted with the vices in what was then a pioneer town; and in his *Seven Lectures to Young Men* (1844) treated these with genuine power of realistic description and with youthful and exuberant rhetoric. Eight years later (1847) he accepted a call to the pastorate of Plymouth Church (Congregational), then newly organized in Brooklyn, New York. The situation of the church, within five minutes’ walk of the chief ferry to New York, the stalwart character of the man who had organized it, and the peculiar eloquence of Beecher, combined to make the pulpit a national platform. The audience-room of the church, capable of seating 2000 or 2500 people, frequently contained 500 or 1000 more.

Beecher at once became a recognized leader. On the all-absorbing question of slavery he took a middle ground between the pro-slavery or peace party, and abolitionists like William Lloyd Garrison and Wendell Phillips, believing, with such statesmen as W.H. Seward, Salmon P. Chase, and Abraham Lincoln, that slavery was to be overthrown under the constitution and in the Union, by forbidding its growth and trusting to an awakened conscience, enforced by an enlightened self-interest. He was always an anti-slavery man, but never technically an abolitionist, and he joined the Republican party soon after its organization. In the earlier days of the agitation, he challenged the hostility which often mobbed the anti-slavery gatherings; in the later days he consulted with the political leaders, inspiring the patriotism of the North, and sedulously setting himself to create a public opinion which should confirm and ratify the emancipation proclamation whenever the president should issue it. When danger of foreign intervention cast its threatening shadow across the national path, he went to England, and by his famous addresses did what probably no other American could have done to strengthen the spirit in England favourable to the United States, and to convert that which was doubtful and hostile. In 1861-1863 he was the editor-in-chief of the *Independent*, then a Congregational journal; and in his editorials, copied far and wide, produced a profound impression on the public mind by clarifying and defining the issue. Later (in 1870), he founded and became editor-in-chief of the *Christian Union*, afterwards the *Outlook*, a religious undenominational weekly. His lectures and addresses had the spirit if not the form of his sermons, just as his sermons were singularly free from the homiletical tone. Yet his work as a reformer was subsidiary to his work as a preacher. He was not indeed a parish pastor; he inspired church activities which grew to large proportions, but trusted the organization of them to laymen of organizing abilities in the church; and for acquaintance with his people he depended on such social occasions as were furnished in the free atmosphere of this essentially New England church at the close of every service. But during his pastorate the church grew to be probably the largest in membership in the United States.

It was in the pulpit that Beecher was seen at his best. His mastery of the English tongue, his dramatic power, his instinctive art of impersonation, which had become a second nature, his vivid imagination, his breadth of intellectual view, the catholicity of his sympathies, his passionate enthusiasm, which made for the moment his immediate theme seem to him the one theme of transcendent importance, his quaint humour alternating with genuine pathos, and above all his simple and singularly unaffected devotional nature, made him as a preacher without a peer in his own time and country. His favourite theme was love: love to man was to him the fulfilment of all law; love of God was the essence of all Christianity. Retaining to the day of his death the forms and phrases of the New England theology in which he had been reared, he poured into them a new meaning and gave to them a new significance. He probably did more than any other man in America to lead the Puritan churches from a faith which regarded God as a moral governor, the Bible as a book of laws, and religion as obedience to a conscience to a faith which regards God as a father, the Bible as a book of counsels, and religion as a life of liberty in love. The later years of his life were darkened by a scandal which Beecher’s personal, political and theological enemies used for a time effectively to shadow a reputation previously above reproach, he being charged by Theodore Tilton, whom he had befriended, with having had improper relations with his (Tilton’s) wife. But in the midst of these accusations (February 1876), the largest and most representative Congregational council ever held in the United

States gave expression to a vote of confidence in him, which time has absolutely justified. Not a student of books nor a technical scholar in any department, Beecher's knowledge was as wide as his interests were varied. He was early familiar with the works of Matthew Arnold, Charles Darwin and Herbert Spencer; he preached his *Bible Studies* sermons in 1878, when the higher criticism was wholly unknown to most evangelical ministers or known only to be dreaded; and his sermons on *Evolution and Religion* in 1885, when many of the ministry were denouncing evolution as atheistic. He was stricken with apoplexy while still active in the ministry, and died at Brooklyn on the 8th of March 1887, in the seventy-fourth year of his age.

The principal books by Beecher, besides his published sermons, are: *Seven Lectures to Young Men* (1844); *Plymouth Collection of Hymns and Tunes* (1855); *Star Papers, Experiences of Art and Nature* (1855); *Life Thoughts* (1858); *New Star Papers; or Views and Experiences of Religious Subjects* (1859); *Plain and Pleasant Talks about Fruits, Flowers, and Farming* (1859); *American Rebellion, Report of Speeches delivered in England at Public Meetings in Manchester, Glasgow, Edinburgh, Liverpool, and London* (1864); *Prayers from Plymouth Pulpit* (1867); *Norwood: A Tale of Village Life in New England* (1867); *The Life of Jesus the Christ* (1871), completed in 2 vols. by his sons (1891); and *Yale Lectures on Preaching* (3 vols., 1872-1874).

The prinipal lives are: Noyes L. Thompson, *The History of Plymouth Church* (1847-1872); Thomas W. Knox, *The Life and Work of Henry Ward Beecher* (Hartford, Conn., 1887); Frank S. Child, *The Boyhood of Henry Ward Beecher* (Pamphlet, New Creston, Conn., 1887); Joseph Howard, Jr., *Life of Henry Ward Beecher* (Philadelphia, 1887); T.W. Hanford, *Beecher: Christian Philosopher, Pulpit Orator, Patriot and Philanthropist* (Chicago, 1887); Lyman Abbott and S.B. Halliday, *Henry Ward Beecher: A Sketch of his Career* (New York, 1887); William C. Beecher, Rev. Samuel Scoville and Mrs. H.W. Beecher, *A Biography of Henry Ward Beecher* (New York, 1888); John R. Howard, *Henry Ward Beecher: A Study* (1891); John Henry Barrows, *Henry Ward Beecher* (New York, 1893); and Lyman Abbott, *Henry Ward Beecher* (Boston, 1903).

(L. A.)

BEECHER, LYMAN (1775-1863), American clergyman, was born at New Haven, Connecticut, on the 12th of October 1775. He was a descendant of one of the founders of the New Haven colony, worked as a boy in an uncle's blacksmith shop and on his farm, and in 1797 graduated from Yale, having studied theology under Timothy Dwight. He preached in the Presbyterian church at East Hampton, Long Island (1798-1810, being ordained in 1799); in the Congregational church at Litchfield, Connecticut (1810-1826), in the Hanover Street church of Boston (1826-1832), and in the Second Presbyterian church of Cincinnati, Ohio (1833-1843); was president of the newly established Lane Theological Seminary at Walnut Hills, Cincinnati, and was professor of didactic and polemic theology there (1832-1850), being professor emeritus until his death. At Litchfield and in Boston he was a prominent opponent of the growing "heresy" of Unitarianism, though as early as 1836 he was accused of being a "moderate Calvinist" and was tried for heresy, but was acquitted. Upon his resignation from Lane Theological Seminary he lived in Boston for a short time, devoting himself to literature; but he broke down, and the last ten years of his life were spent at the home of his son, Henry Ward Beecher, in Brooklyn, New York, where he died on the both of January 1863. Magnetic in personality, incisive and powerful in manner of expression, he was in his prime one of the most eloquent of American pulpit orators. In 1806 he preached a widely circulated sermon on duelling, and about 1814 a series of six sermons on intemperance, which were reprinted frequently and greatly aided temperance reform. Thrice married, he had a large family, his seven sons becoming Congregational clergymen, and his daughters, Harriet Beecher Stowe (*q.v.*) and Catherine Esther Beecher, attaining literary distinction.

Lyman Beecher's published works include: *A Plea for the West* (1835), *Views in Theology* (1836), and various sermons; his *Collected Works* were published at Boston in 1852 in 3 vols. Consult his *Autobiography and Correspondence* (2 vols., New York, 1863-1864), edited by his son Charles; D.H. Alien, *Life and Services of Lyman Beecher* (Cincinnati, 1863); and James C. White, *Personal Reminiscences of Lyman Beecher* (New York, 1882).

His daughter, Catherine Esther (1800-1878), was born at East Hampton, Long Island, on the 6th of September 1800. She was educated at Litchfield Seminary, and from 1822 to 1832 conducted a school for girls at Hartford, Connecticut, with her sister Harriet's assistance, and from 1832 to 1834 conducted a similar school in Cincinnati. She wrote and lectured on women's education and in behalf of better primary schools, and radically opposed woman suffrage and college education for women, holding woman's sphere to be domestic. The National Board of Popular Education, a charitable society which she founded, sent hundreds of women as teachers into the South and West. She died on the 12th of May 1878 in Elmira, New York. She published

An Essay on Slavery and Abolition with Reference to the Duty of American Females (1837), *A Treatise on Domestic Economy* (1842), *The True Remedy for the Wrongs of Women* (1851), *Letters to the People on Health and Happiness* (1855), *The Religious Training of Children* (1864), and *Woman's Profession as Mother and Educator* (1871).

His son, Edward Beecher (1803-1895), was born at East Hampton, Long Island, on the 27th of August 1803, graduated at Yale in 1822, studied theology at Andover, and in 1826 became pastor of the Park Street church in Boston. From 1830 to 1844 he was president of Illinois College, Jacksonville, Illinois, and subsequently filled pastorates at the Salem Street church, Boston (1844-1855), and the Congregational church at Galesburg, Illinois (1855-1871). He was senior editor of the *Congregationalist* (1849-1855), and an associate editor of the *Christian Union* from 1870. In 1872 he settled in Brooklyn, New York, where in 1885-1889 he was pastor of the Parkville church and where he died on the 28th of July 1895. He wrote *Addresses on the Kingdom of God* (1827), *History of the Alton Riots* (1837), *Statement of Anti-Slavery Principles* (1837), *Baptism, its Import and Modes* (1850), *The Conflict of Ages* (1853), *The Papal Conspiracy Exposed* (1855), *The Concord of Ages* (1860), and *History of Opinions on the Scriptural Doctrine of Future Retribution* (1878).

Charles Beecher (1815-1900), another of Lyman's sons, was born at Litchfield, Connecticut, on the 7th of October 1815. He graduated at Bowdoin College in 1834, and subsequently held pastorates at Newark, New Jersey (1851-1857), and Georgetown, Massachusetts; and from 1870 to 1877 lived in Florida, where he was state superintendent of public instruction in 1871-1873. He died at Georgetown, Massachusetts, on the 21st of April 1900. He was an accomplished musician, and assisted in the selection and arrangement of music in the *Plymouth Collection of Hymns and Tunes*. He wrote *David and His Throne* (1855), *Pen Pictures of the Bible* (1855), *Redeemer and Redeemed* (1864), and *Spiritual Manifestations* (1879).

Thomas Kinnicutt Beecher (1824-1900), another son, born at Litchfield, Connecticut, on the 10th of February 1824, was pastor of the Independent Congregational church (now the Park church), at Elmira, New York, one of the first institutional churches in the country, from 1854 until his death at Elmira on the 14th of March 1900. He wrote Our *Seven Churches* (1870).

BEECHEY, FREDERICK WILLIAM (1796-1856), English naval officer and geographer, son of Sir William Beechey, R.A., was born in London on the 17th of February 1796. In 1806 he entered the navy, and saw active service during the wars with France and America. In 1818 he served under Lieutenant (afterwards Sir) John Franklin in Buchan's Arctic expedition, of which at a later period he published a narrative; and in the following year he accompanied Lieutenant W.E. Parry in the "Hecla." In 1821 he took part in the survey of the Mediterranean coast of Africa under the direction of Captain, afterwards Admiral, William Henry Smyth. He and his brother Henry William Beechey, made an overland survey of this coast, and published a full account of their work in 1828 under the title of *Proceedings of the Expedition to Explore the Northern Coast of Africa from Tripoly Eastward in 1821-1822*. In 1825 Beechey was appointed to command the "Blossom," which was intended to explore Bering Strait, in concert with Franklin and Parry operating from the east. He passed the strait and penetrated as far as 71° 23′ 31″ N., and 156° 21′ 30″ W., reaching a point only 146 m. west of that reached by Franklin's expedition from the Mackenzie river. The whole voyage lasted more than three years; and in the course of it Beechey discovered several islands in the Pacific, and an excellent harbour near Cape Prince of Wales. In 1831 there appeared his *Narrative of a Voyage to the Pacific and Bering's Strait to Co-operate with the Polar Expeditions, 1825-1828*. In 1835 and the following year Captain Beechey was employed on the coast survey of South America, and from 1837 to 1847 carried on the same work along the Irish coasts. He was appointed in 1850 to preside over the Marine Department of the Board of Trade. In 1854 he was made rear-admiral, and in the following year was elected president of the Royal Geographical Society. He died on the 29th of November 1856.

BEECHEY, SIR WILLIAM (1753-1839), English portrait-painter, was born at Burford. He was originally meant for a conveyancer, but a strong love for painting induced him to become a pupil at the Royal Academy in 1772. Some of his smaller portraits gained him considerable

reputation; he began to be employed by the nobility, and in 1793 became associate of the Academy. In the same year he was made portrait-painter to Queen Charlotte. He painted the portraits of the members of the royal family, and of nearly all the most famous or fashionable persons of the time. What is considered his finest production is a review of cavalry, a large composition, in the foreground of which he introduced portraits of George III., the prince of Wales and the duke of York, surrounded by a brilliant staff on horseback. It was painted in 1798, and obtained for the artist the honour of knighthood, and his election as R.A.

BEECHING, HENRY CHARLES (1859-), English clergyman and author, was born on the 15th of May 1859, and educated at the City of London school and at Balliol College, Oxford. He took holy orders in 1882, and after three years in a Liverpool curacy he was for fifteen years rector of Yattendon, Berkshire. From 1900 to 1903 he lectured on pastoral and liturgical theology at King's College, London, and was chaplain of Lincoln's Inn, where he became preacher in 1903. He became a canon of Westminster in 1902, and examining chaplain to the bishop of Carlisle in 1905. As a poet he is best known by his share in two volumes—*Love in Idleness* (1883) and *Love's Looking Glass* (1891)—which contained also poems by J.W. Mackail and J. Bowyer Nichols. He was a sympathetic editor and critic of the works of many 16th and 17th century poets, of Richard Crashaw (1905), of Herrick (1907), of John Milton (1900), of Henry Vaughan (1896). Under the pseudonym of "Urbanus Sylvan" he published two successful volumes of essays, *Pages from a Private Diary* (1898) and *Provincial Letters and other Papers* (1906). His works also include numerous volumes of sermons and essays on theological subjects.

BEECHWORTH, a town of Bogong county, Victoria, Australia, 172 m. by rail N.E. of Melbourne. Pop. (1901) 7359. The town is the centre of the Ovens goldfields, and the district is mainly devoted to mining with both alluvial and reef working, but much of the land is under cultivation, yielding grain and fruit. The water supply is derived from Lake Kerferd in the vicinity, which is a favourite resort of visitors; the scenery near the town, which lies at an elevation of 1805 ft. among the May Day Hills, being singularly beautiful. The industries of Beechworth include tanning, ironfounding and coach-building.

BEEF (through O. Fr. *boef*, mod. *boeuf*, from Lat. *bos, bovis*, ox, Gr. βοῦς, which show the ultimate connexion with the Sanskrit *go, gāus*, ox, and thus with "cow"), the flesh of the ox, cow or bull, as used for food. The use of the French word for the meat, while the Saxon name was retained for the animal, has been often noticed, and paralleled with the use of veal, mutton and pork. "Beef" is also used, especially in the plural "beeves," for the ox itself, but usually in an archaic way. "Corned" or "corn" beef is the flesh cured by salting, *i.e.* sprinkling with "corns" or granulated particles of salt. "Collared" beef is so called from the roll or collar into which the meat is pressed, after extracting the bones. "Jerked" beef, *i.e.* meat cut into long thin slices and dried in the sun, like "biltong" (*q.v.*), comes through the Spanish-American *charque*, from *echarqui*, the Peruvian word for this species of preserved meat. For "Beefeater" see YEOMEN OF THE GUARD.

BEEFSTEAK CLUB, the name of several clubs formed in London during the 18th and 19th centuries. The first seems to have been that founded in 1709 with Richard Estcourt, the actor, as steward. Of this the chief wits and great men of the nation were members and its badge was a gridiron. Its fame was, however, entirely eclipsed in 1735 when "The Sublime Society of Steaks" was established by John Rich at Covent Garden theatre, of which he was then manager. It is said

that Lord Peterborough supping one night with Rich in his private room, was so delighted with the steak the latter grilled him that he suggested a repetition of the meal the next week. From this started the Club, the members of which delighted to call themselves "The Steaks." Among them were Hogarth, Garrick, Wilkes, Bubb Doddington and many other celebrities. The rendezvous was the theatre till the fire in 1808, when the club moved first to the Bedford Coffee House, and the next year to the Old Lyceum. In 1785 the prince of Wales joined, and later his brothers the dukes of Clarence and Sussex became members. On the burning of the Lyceum, "The Steaks" met again in the Bedford Coffee House till 1838, when the New Lyceum was opened, and a large room there was allotted the club. These meetings were held till the club ceased to exist in 1867. Thomas Sheridan founded a Beefsteak Club in Dublin at the Theatre Royal in 1749, and of this Peg Woffington was president. The modern Beefsteak Club was founded by J.L. Toole, the actor, in 1876.

See J. Timbs, *Clubs and Club Life in London* (1873); Walter Arnold, *Life and Death of the Sublime Society of Steaks* (1871).

BEELZEBUB, Beelzebul, Baalzebub. In 2 Kings i. we read that Ahaziah ben Ahab, king of Israel, fell sick, and sent to inquire of Baalzebub, the god of the Philistine city Ekron, whether he should recover. There is no other mention of this god in the Old Testament. *Baal*, "lord," is the ordinary title or word for a deity, especially a local deity, cf. such place names as Baal Hazor (2 Sam. xiii. 23), Baal Hermon (Judges iii. 3), which are probably contractions of fuller forms, like Beth Baal Meon (Josh. xiii. 17), the House or Temple of the Baal of Meon. According to these analogies we should expect *Zebub* to be a place. No place *Zebub*, however, is known; and it has been objected that the Baal of some other place would hardly be the god of Ekron. These objections are hardly conclusive.

Usually *Zebub* is identified with a Hebrew common noun *zebub* = flies,[1] occurring twice in the Old Testament,[2] so that Baalzebub "is the Baal to whom flies belong or are holy. As children of the summer they are symbols of the warmth of the sun, to which ... Baal stands in close relation. Divination by means of flies was known at Babylon."[3] There are other cases of names compounded of Baal and an element equivalent to a descriptive epithet, *e.g.* Baalgad, the Baal of Fortune.[4] For the "Fly-god," sometimes interpreted as the "averter of insects," cf Ζεὺς ἀπόμυιος, μυίαγρος, and the Hercules μυίαγρος. Clemens Alexander speaks of a Hercules ἀπόμυιος as worshipped at Rome. It has been suggested that Baalzebub was the dung-beetle, *Scarabaeus pillularius*, worshipped in Egypt.

A name of a deity on an Assyrian inscription of the 12th century B.C. has been read as *Baal-zabubi*, but this reading has now been abandoned in favour of *Baal-sapunu* (Baal-Zephon).[5] Cheyne considers that Baalzebub is a "contemptuous uneuphonic Jewish modification of the true name Baalzebul."[6]

In the New Testament we meet with Beelzebul,[7] which some of the versions, especially the Vulgate and Syriac, followed by the Authorized Version, have changed to Beelzebub, under the influence of 2 Kings. In Matt. x. 25, Christ speaks of men calling the master of the house, *i.e.* Himself, Beelzebul.[8] In Mark iii 22-27,[9] the scribes explain that Jesus is possessed by Beelzebul[10] and is thus enabled to cast out devils. The passage speaks of Beelzebul as Satan and as the prince of the demons.

The origin of the name Beelzebul is variously explained. (*a*) It is "a phonetic corruption, perhaps a softening of the original word"; as Bab-el-mandel is a corruption of Bab-el-mandeb. (*b*) *Zebul* is from *zebel*, a word found in the Targums in the sense of "dung," so that Beelzebul would mean "Lord of Dung," a term of contempt. The further suggestion has been made that *zebul* itself in the sense of "dung" is a term for a heathen deity, cf. the Old Testament use of "abomination" &c. for heathen deities, so that Beelzebul would mean "Chief of false gods," and so arch-fiend. (*c*) *Zebul* is found in 1 Kings viii. 13 in the sense of "height," *beth-sebul*—lofty house, and in Rabbinical writings in the sense of "house" or "temple," or "the fourth heaven";[11] and Beelzebul may equal "Lord of the High House" or "Lord of Heaven." This view is perhaps favoured by Matt. x. 25, "if they have called the lord of the house Beelzebul." It appears, however, that Rabbinical writings use *yōm* (day-of) *zebul* for the festival of a heathen deity; and Jastrow connects this usage with the meaning "house" or "temple," so that the meaning "Lord of the False Gods" might be arrived at in a different way.

The names *Zebulun, 'Izebel* (Jezebel), suggest that *Zebul* may be an ancient name of a deity; cf. the names בעל אזבל (B'L 'ZBL), שמזבל (ShMZBL) in Punic and Phoenician inscriptions.[12] The

substitution of Beelzebub for Beelzebul by the Syriac, Vulgate and other versions implies the identification of the New Testament arch-fiend with the god of Ekron; this substitution, however, may be due to the influence of the Aramaic *B'el-debaba*, "adversary," sometimes held to be the original of these names.

There is no trace of Beelzebul or Beelzebub outside of the Biblical passages mentioned, and the literature dependent on them. If we assume a connexion between the two names, there is nothing to show how the god became in later times the devil.

In *Paradise Lost*, Book ii., Beelzebub appears as second only to Satan himself.

BIBLIOGRAPHY.—Lightfoot, *Horae Hebraicae et Talmudicae*, Works, vol. ii. pp. 188 f., 429, ed. Strype (1684); Baethgen, *Beitrage zur semitischen Religionsgeschichte*, pp. 25, 65, 261. Commentaries on the Biblical passages especially Burney and Skinner on *Kings*, Meyer and A.B. Bruce on the *Synoptic Gospels*, and Swete on *Mark*. Articles on "Baal," "Baalzebub," "Beelzebub," "Beelzebul," in Hastings' *Bible Dict.*, Black and Cheyne's *Encycl. Bibl.*, and Hauck's *Realencyklopädie*; on בעל זבב in Clarendon Press *Hebr. Lex.*; and on זבל and זבול in Jastrow's *Dict. of the Targumim, &c.*

(W. H. BE.)

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1 So Clarendon Press, *Hebrew Lexicon*, p. 127, with LXX.

2 Eccl. x. 1; Isaiah vii. 18.

3 Baethgen, *Beitrage zur semitischen Religionsgeschichte*, p. 25, cf. pp. 65, 261.

4 Josh, xii. 7.

5 Art. "Baalzebub," Black and Cheyne's *Ency. Bibl.*

6 With various spellings (*e.g.* Belzebul, and in XB, Beezebul), all variants of Beelzebul. Cf. Deissmann, *Bible Studies*, 332.

7 There is a variation of reading, which has been held to support the view that the passage means that men reproached Jesus with His supposed connexion with Beelzebul; cf. A.B. Bruce, *in loco*.

8 And in the parallel passages, Matt. xii. 22-29; Luke xi. 14-22.

9 Cf. John vii. 20, viii. 48, 52, x. 20.

10 Swete, *in loco*.

11 Jastrow, *Dict. of the Targumim.* &c., sub voce.

12 Lidzbarski, *Handbuch der nordsemitischen Epigraphik*, i. pp. 240, 377.

BEER, a beverage obtained by a process of alcoholic fermentation mainly from cereals (chiefly malted barley), hops and water. The history of beer extends over several thousand years. According to Dr Bush, a beer made from malt or red barley is mentioned in Egyptian writings as early as the fourth dynasty. It was called  or *heqa*. Papyri of the time of Seti I. (1300 B.C.) allude to a person inebriated from over-indulgence in beer. In the second book (*c.* 77) of Herodotus (450 B.C.) we are told that the Egyptians, being without vines, made wine from barley (cf. Aesch. *Suppl.* 954); but as the grape is mentioned so frequently in Scripture and elsewhere as being most abundant there, and no record exists of the vine being destroyed, we must conclude that the historian was only partially acquainted with the productions of that most fertile country. Pliny (*Natural History*, xxii. 82) informs us that the Egyptians made wine from corn, and gives it the name of *sythum*, which, in the Greek, means drink from barley. The Greeks obtained their knowledge of the art of preparing beer from the Egyptians. The writings of Archilochus, the Parian poet and satirist who flourished about 650 B.C., contain evidence that the Greeks of his day were acquainted with the process of brewing. There is, in fact, little doubt that the discovery of beer and its use as an exhilarating beverage were nearly as early as those of the grape itself, though both the Greeks and the Romans despised it as a barbarian drink. Dioscorides mentions two kinds of beer, namely ζῦθος and κοῦρμι, but he does not describe them sufficiently to enable us to distinguish them. Sophocles and other Greek writers, again, styled it βρῦτον. In the time of Tacitus (1st century after Christ), according to him, beer was the usual drink of the Germans, and there can be little doubt that the method of malting barley was then known to them. Pliny (*Nat. Hist.* xxii. 82) mentions the use of beer in Spain under the name of *celia* and *ceria* and in Gaul under that of *cerevisia*; and elsewhere (xiv. 29) he says:—"The natives who inhabit the west of Europe have a liquid with which they intoxicate themselves, made from corn and water. The manner of making this liquid is somewhat different in Gaul,

Spain and other countries, and it is called by different names, but its nature and properties are everywhere the same. The people in Spain in particular brew this liquid so well that it will keep good a long time. So exquisite is the cunning of mankind in gratifying their vicious appetites that they have thus invented a method to make water itself produce intoxication."

The knowledge of the preparation of a fermented beverage from cereals in early times was not confined to Europe. Thus, according to Dr H.H. Mann, the Kaffir races of South Africa have made for ages—and still make—a kind of beer from millet, and similarly the natives of Nubia, Abyssinia and other parts of Africa prepare an intoxicating beverage, generally called *bousa*, from a variety of cereal grains. The Russian *quass*, made from barley and rye, the Chinese *samshu*, made from rice, and the Japanese *saké* (*q.v.*) are all of ancient origin. Roman historians mention the fact that the Britons in the south of England at the time of the Roman invasion brewed a species of ale from barley and wheat. The Romans much improved the methods of brewing in vogue among the Britons, and the Saxons—among whom ale had long been a common beverage—in their turn profited much by the instruction given to the original inhabitants of Great Britain by the Romans. We are informed by William of Malmesbury that in the reign of Henry II. the English were greatly addicted to drinking, and by that time the monasteries were already famous, both in England and on the continent, for the excellence of their ales. The waters of Burton-on-Trent began to be famous in the 13th century. The secret of their being so especially adapted for brewing was first discovered by some monks, who held land in the adjacent neighbourhood of Wetmore. There is a document dated 1295 in which it is stated that Matilda, daughter of Nicholas de Shoben, had re-leased to the abbot and convent of Burton-on-Trent certain tenements within and without the town; for which re-lease they granted her, daily for life, two white loaves from the monastery, two gallons of conventual beer, and one penny, besides seven gallons of beer for the men. The abbots of Burton apparently made their own malt, for it was a common covenant in leases of mills belonging to the abbey that the malt of the lords of the manor, both spiritual and temporal, should be ground free of charge. Robert Plot, in his *Natural History of Staffordshire* (1686), refers to the peculiar properties of the Burton waters, from which, he says, "by an art well known in this country good ale is made, in the management of which they have a knack of fining it in three days to that degree that it shall not only be potable, but is clear and palatable as we could desire any drink of this kind to be." In 1630 Burton beer began to be known in London, being sold at "Ye Peacocke" in Gray's Inn Lane, and according to the *Spectator* was in great demand amongst the visitors in Vauxhall. Until tea and coffee were introduced, beer and ale (see Ale) were, practically speaking, the only popular beverages accessible to the general body of consumers. Since the advent of tea, coffee, cocoa and mineral waters, the character of British beers has undergone a gradual modification, the strongly alcoholic, heavily hopped liquids consumed by the previous generation slowly giving place to the lighter beverages in vogue at the present time. The old "stock bitter" has given way to the "light dinner ale," and "porter" (so called from the fact that it was the popular drink amongst the market porters of the 18th century) has been largely replaced by "mild ale." A certain quantity of strong beer—such as heavy stouts and "stock" and "Scotch" ales—is still brewed nowadays, but it is not an increasing one. The demand is almost entirely for medium beers such as mild ale, light stout, and the better class of "bitter" beers, and light beers such as the light "family ales," "dinner ales" and lager.

The general run of beers contain from 3 to 6% of alcohol and 4 to 7% of solids, the remainder being water and certain flavouring and preservative matters derived from the malt, hops and other materials employed in their manufacture. The solid, *i.e.* non-volatile, matter contained in solution in beer consists mainly of maltose or malt sugar, of several varieties of dextrin (see Brewing), of substances which stand in an intermediate position between the sugars and the dextrins proper, and of a number of bodies containing nitrogen, such as the non-coagulable proteids, peptones, &c. In addition there is an appreciable quantity of mineral matter, chiefly phosphates and potash. Dietetically regarded, therefore, beer possesses considerable food value, and, moreover, the nutritious matter in beer is present in a readily assimilable form.

It is probable that the average adult member of the British working classes consumes not less than two pints of beer daily. A reasonable calculation places the total proteids and carbohydrates consumed by the average worker at 140 and 400 grammes respectively. Taking the proteid content of the average beer at 0.4% and the carbohydrate content at 4%, a simple calculation shows that about 3% of the total proteid and 11% of the total carbohydrate food of the average worker will be consumed in the shape of beer.

The chemical composition of beers of different types will be gathered from the following tables.

A. English Beers.
(Analyses by J.L. Baker, Hulton & P. Schidrowitz.)
I. *Mild Ales.*

Number.	Original Gravity.	Alcohol %.	Extractives (Solids) %.
1.[1]	1055.13	4.17	6.1
2.[1]	1055.64	4.47	5.7
3.[2]	1071.78	5.57	7.3

II. *Light Bitters and Ales.*

Number.	Original Gravity.	Alcohol %.	Extractives (Solids) %.
1.	1046.81	4.15	4.0
2.	1047.69	4.23	4.1
3.	1047.79	4.61	3.2
4.	1050.30	4.53	4.2
5.	1038.31	3.81	3.5

III. *Pale and Stock Ales.*

Number.	Original Gravity.	Alcohol %.	Extractives (Solids) %.
1.[3]	1059.01	4.77	5.8
2.[4]	1068.58	5.48	7.1
3.[4]	1076.80	6.68	5.9

IV. *Stouts and Porter.*

Number.	Original Gravity.	Alcohol %.	Extractives (Solids) %.
1.[5]	1072.92	6.14	6.3
2.[6]	1054.26	4.73	4.5
3.[6]	1081.62	6.02	8.8
4.[7]	1054.11	3.90	6.5

The figures in the above tables are very fairly representative of different classes of British and Irish beers. It will be noticed that the *Mild Ales* are of medium original gravity[8] and alcoholic strength, but contain a relatively large proportion of solid matter. The *Light Bitters and Ales* are of a low original gravity, but compared with the Mild Ales the proportion of alcohol to solids is higher. The *Pale and Stock Ales*, which represent the more expensive bottle beers, are analytically of much the same character as the Light Bitters, except that the figures all round are much higher. The *Stouts*, as a rule, are characterized by a high gravity, and contain relatively more solids (as compared with alcohol) than do the heavy beers of light colour. With regard to the proportions of the various matters constituting the extractives (solids) in English beers, roughly 20-30% consists of maltose and 20-50% of dextrinous matter. In mild ales the proportion of maltose to dextrin is high (roughly 1:1), thus accounting for the full sweet taste of these beers. Pale and stock ales, on the other hand, which are of a “dry” character, contain relatively more dextrin, the general ratio being about 1:1½ or 1:2. The mineral matter (“ash”) of beers is generally in the neighbourhood of 0.2 to 0.3%, of which about one-fourth is phosphoric acid. The proteid (“nitrogenous matters”) content of beers varies very widely according to character and strength, the usual limits being 0.3 to 0.8%, with an average of roughly 0.4%.

B. Continental Beers.
(Analyses by A. Doemens.)

Description.	Original Gravity.	Alcohol %.	Extractives (Solids) %.
Munich Draught Dark	1056.4	3.76	6.58
” ” ”	1052.6	3.38	6.45
Munich Draught Light	1048.0	3.18	5.55
” ” ”	1048.1	4.05	3.92
Munich Export	1054.3	3.68	6.32
” ”	1059.5	4.15	7.48
Munich Bock Beer[9]	1076.6	4.53	10.05
Pilsener Bottle	1047.7	3.47	4.90
Pilsener Draught	1044.3	3.25	4.58
Berlin Dark	1055.2	3.82	6.17

Berlin Light	1056.5	4.36	5.46
Berlin Weissbier	1033.1	2.644	3.01

It will be seen that, broadly speaking, the original gravity of German and Austrian beers is lower than that of English beers, and this also applies to the alcohol. On the other hand, the foreign beers are relatively very rich in solids, and the extractives: alcohol ratio is high. (See Brewing.)

C. American Beers and Ales.
(Analyses by M. Wallerstein.)

Description.		Original Gravity.	Alcohol %.	Extractives (Solids) %.
Bottom Fermentation Beers (Lager Type).	1.	1046.7	3.48	5.08
	2.	1055.6	3.56	6.50
	3.	1063.4	4.12	7.43
	4.	1046.0	2.68	5.96
	5.	1051.7	3.42	5.86
Top Fermentation Ales (British Type).	1.	1084.2	5.89	8.60
	2.	1073.5	6.46	5.69
	3.	1068.0	5.50	5.53

It will be noted that the American *beers* (*i.e.* bottom fermentation products of the lager type) are very similar in composition to the German beers, but that the ales are very much heavier than the general run of the corresponding British products.

Production and Consumption.—(For manufacture of beer, see Brewing.) Germany is the greatest beer-producing nation, if liquid bulk be taken as a criterion; the United States comes next, and the United Kingdom occupies the third place in this regard. The consumption per head, however, is slightly greater in the United Kingdom than in Germany, and very much greater than is the case in the United States. The 1905 figures with regard to the total production and consumption of the three great beer-producing countries, together with those for 1885, are as under:—

Country.	Total Production (Gallons).		Consumption per Head of Population (Gallons).	
	1905.	1885.	1905.	1885
German Empire.	1,538,240,000	932,228,000	23.3	19.8
United States.	1,434,114,180	494,854,000	19.9	8.8
United Kingdom.	1,227,933,468[10]	993,759,000	27.90[10]	27.1

The chief point of interest in the preceding table is the enormous increase in the United States. In considering the figures, the character of the beer produced must be taken into consideration. Thus, although Germany produces roughly 25% more beer in liquid measurement than the United Kingdom, the latter actually uses about 50% more malt than is the case in the German breweries. According to a Viennese technical journal, the quantities of malt employed for the production of one hectolitre (22 gallons) of beer in the respective countries is 0.40 cwt. in the German empire, 0.72 cwt. in the United States, and 0.81 cwt. in the United Kingdom. In a sense, therefore, England may still claim pre-eminence as a beer-producing nation. Large as the *per capita* consumption in the United Kingdom may seem, it is considerably less than is the case in Bavaria, which stands at the head of the list with over 50 gallons, and in Belgium, which comes second with 47.7 gallons. In the city of Munich the consumption is actually over 70 gallons, that is to say, about 1½ pints a day for every man, woman and child. It is curious to note that in Germany, which is usually regarded as a beer-drinking country *par excellence*, the consumption per head of this article is slightly less than in England, and that inversely the average German consumes more alcohol in the shape of spirits than does the inhabitant of the British Islands (consumption of spirits per head: Germany, 1.76 gallons; United Kingdom, 0.99 gallons). This is accounted for by the fact that the peasantry of the northern and eastern portions of the German empire consume spirits almost exclusively. In the British colonies beer is generally one of the staple drinks, but if we except Western Australia, where about 25 gallons per head of population are consumed, the demand is much smaller than in the United Kingdom. In Australia generally, the *per capita* consumption amounts to about 12 gallons, in New Zealand to 10 gallons, and in Canada to 5 gallons.

(P. S.)

1 London Ales.

2 Strong Burton Mild Ale.

3 Fairly representative of “Pale Ales.”

4 Heavy Stock Ales.

5 Irish Stout.

6 Nos. 2 and 3 are respectively “single” and “double” London Stouts from the same brewery.

7 London Porter or Cooper.

8 The specific gravity, or “gravity” as it is always termed in the industry, of the brewer is 1000 times the specific gravity of the physicist. This is purely a matter of convention and convenience. Thus when a brewer speaks of a wort of a “gravity” of 1045 (ten-forty-five) he means a wort having a specific gravity of 1.045. Each unit in the brewer’s scale of specific gravity is termed a “degree of gravity.” The wort referred to above, therefore, possesses forty-five *degrees* of gravity. The “original gravity,” it may here be mentioned, represents the specific gravity of the wort (see BREWING) before fermentation. The solids in the original wort may be ascertained by dividing the excess of the gravity over 1000 by 3.86. Thus in the case of Mild Ale No. 1 the excess of the original gravity over 1000 is 1055.13 − 1000 = 55.13. Dividing this by 3.86 we get 14.28, which indicates that the wort from which the beer was manufactured contained 14.28% of solids. In the trade the gravity of a beer (or rather of the wort from which it is derived) is generally expressed in pounds per barrel. This means the excess in weight of a barrel of the wort over the weight of a barrel of water. The weight of a barrel (36 gallons) of water is 360 ℔; in the above example the weight of a barrel of the beer wort is 360 × 1.05513 = 379.8. The gravity of the wort in ℔ is therefore 379.8 − 360 = 19.8. The beer which is made from this wort would also be called a 19.8 ℔ beer, the reference in all cases being to the original wort.

9 A particularly heavy beer, only brewed at certain times in the year.

10 The maxima of production and consumption were reached in 1899/1900, when the production amounted to 1,337,509,116 gallons (at the standard gravity) and consumption to 32.28 gallons per head.

BEERSHEBA, a place midway between Gaza and Hebron (28 m. from each), frequently referred to in the Bible as the southern limit of Palestine (“Dan to Beersheba,” Judg. xx. i, &c.) Its foundation is variously ascribed to Abraham and Isaac, and different etymologies for its name are suggested, in the fundamental documents of Genesis (xxi. 22, xxvi. 26). It was an important holy place, where Abraham planted a sacred tree (Gen. xxi. 23), and where divine manifestations were vouchsafed to Hagar (Gen. xxi. 17), Isaac (xxvi. 24), Jacob (xlvi. 2) and Elijah (1 Kings xix. 5). Amos mentions it in connexion with the shrines of Bethel and Gilgal (Amos v. 5) and denounces oaths by its *numen* (viii. 14). The most probable meaning of the name is “seven wells,” despite the non-Semitic construction involved in this interpretation. Seven ancient wells still exist here, though two are stopped up. Eusebius and Jerome mention the place in the 4th century as a large village and the seat of a Roman garrison. Extensive remains of this village exist, though they are being rapidly quarried away for building; some inscriptions of great importance have been found here. Later it appears to have been the site of a bishopric; remains of its churches were still standing in the 14th century. Some fine mosaics have been here unearthed and immediately destroyed, in sheer wantonness, by the natives quarrying building-stone. The Biblical Beersheba probably exists at Bir es-Seba‘, 2 m. distant.

BEESLY, EDWARD SPENCER (1831-), English historian and positivist, son of the Rev. James Beesly, was born at Feckenham, Worcestershire, on the 23rd of January 1831. He was educated at Wadham College, Oxford, which may be regarded as the original centre of the English positivist movement. Richard Congreve (*q.v.*) was tutor at Wadham from 1849 to 1854, and three men of that time, Frederic Harrison (*q.v.*), Beesly and John Henry Bridges (1832-1906), became the leaders of Comtism in England. Beesly left Oxford in 1854 to become assistant-master at Marlborough College. In 1859 he was appointed professor of history at University College, London, and of Latin at Bedford College, London, in 1860. He resigned these appointments in 1893 and 1889, and in 1893 became the editor of the newly-established *Positivist Review*. He collaborated in the translation of Comte’s system of *Positive Polity* (4 vols., 1875-1879), translated his *Discourse on the Positive Spirit* (1903), and wrote a biography of

Comte for a translation of the first two chapters of his *Cours de philosophie positive*, entitled *Fundamental Principles of Positive Philosophy* (1905). Professor Beesly stood unsuccessfully as Liberal candidate for Westminster in 1885 and for Marylebone in 1886, and is the author of numerous review articles on social and political topics, treated from the positivist standpoint, especially on the Irish question. His works also include a series of lectures on Roman history, entitled *Catiline, Clodius, Tiberius* (1878), in which he rehabilitates in some degree the character of each of his subjects, and *Queen Elizabeth* (1892), in the "Twelve English Statesmen" series.

BEET, a cultivated form of the plant *Beta vulgaris* (natural order Chenopodiaceae), which grows wild on the coasts of Europe, North Africa and Asia as far as India. It is a biennial, producing, like the carrot, a thick, fleshy tap-root during the first year and a branched, leafy, flowering stem in the following season. The small, green flowers are borne in clusters. A considerable number of varieties are cultivated for use on account of their large fleshy roots, under the names of mangel-wurzel or mangold, field-beet and garden-beet. The cultivation of beet in relation to the production of sugar, for which purpose certain varieties of beet stand next in importance to the sugar cane, is dealt with under SUGAR. The garden-beet has been cultivated from very remote times as a salad plant, and for general use as a table vegetable. The variety most generally grown has long, tapering, carrot-shaped roots, the "flesh" of which is of a uniform deep red colour throughout, and the leaves brownish red. It is boiled and cut into slices for being eaten cold; and it is also prepared as a pickle, as well as in various other forms. Beet is in much more common use on the continent of Europe as a culinary vegetable than in Great Britain, where it has, however, been cultivated for upwards of two centuries. The white beet, *Beta cicla*, is cultivated for the leaves, which are used as spinach. The midribs and stalks of the leaves are also stewed and eaten as sea-kale, under the name of Swiss chard. *B. cicla* is also largely used as a decorative plant for its large, handsome leaves, blood red or variegated in colour.

The beet prospers in a rich deep soil, well pulverized by the spade. If manure is required, it should be deposited at the bottom of the trench in preparing the ground. The seeds should be sown in drills 15 ins. asunder, in April or early in May, and the plants are afterwards to be thinned to about 8 in. apart in the lines, but not more, as moderate-sized roots are preferable. The plants should grow on till the end of October or later, when a portion should be taken up for use, and the rest laid in in a sheltered corner, and covered up from frost. The roots must not be bruised and the leaves must be twisted off—not closely cut, as they are then liable to bleed. In the north the crop may be wholly taken up in autumn, and stored in a pit or cellar, beyond reach of frost. If it is desired to have fresh roots early, the seeds should be sown at the end of February or beginning of March; and if a succession is required, a few more may be sown by the end of March.

BEETHOVEN, LUDWIG VAN (1770-1827), German musical composer, was baptized (probably, as was usual, the day after birth) on the 17th of December 1770 at Bonn. His family is traceable to a village near Louvain, in Belgium, in the 17th century. In 1650 a lineal ancestor of the composer settled in Antwerp. Beethoven's grandfather, Louis, quarrelled with his family, came to Bonn in 1732, and became one of the court musicians of the archbishop-elector of Cologne. He was a genial man of estimable character, and though Ludwig van Beethoven was only four years old when his grandfather died, he never forgot him, but cherished his portrait to the end of his life. Beethoven's father, a tenor singer at the archbishop-elector's court, was of a rough and violent temper, not improved by his passion for drink, nor by the dire poverty under which the family laboured. He married Magdelina Leim or Laym, the widow of a *vâlet-de-chambre* of the elector of Trier and daughter of the chief cook at Ehrenbreitstein. Beethoven's father wished to profit as early as possible by his son's talent, and accordingly began to give him a severe musical training, especially on the violin, when he was only five years old, at about which time they left the house in which he was born (515 Bonngasse, now preserved as a Beethoven museum, with a magnificent collection of manuscripts and relics). By the time Beethoven was nine his father had no more to teach him, and he entered upon a perhaps healthier course of clavier lessons under a singer named Pfeiffer. A little general education was

also edged in by a certain Zambona. Van den Eeden, the court organist, and an old friend of his grandfather, taught him the organ and the pianoforte, and so rapid was Beethoven's progress that when C.G. Neefe succeeded to Van den Eeden's post in 1781, he was soon able to allow the boy to act as his deputy. With his permission Beethoven published in 1783 his earliest extant composition, a set of variations on a march by Dressler. The title-page states that they were written in 1780 "*par un jeune amateur Louis van Beethoven âgé de dix ans*." Beethoven's father was very clumsy in his unnecessary attempts to make an infant prodigy of his son; for the ante-dating of this composition, implying the correct date of birth, contradicts the post-dating of the date of birth by which he tried to make out that the three sonatas Beethoven wrote in the same year were by a boy of eleven. (Beethoven for a long time believed that he was born in 1772, and the certificate of his baptism hardly convinced him, because he knew that he had an elder brother named Ludwig who died in infancy.) In the same year, 1783, Beethoven was given the post of cembalist in the Bonn theatre, and in 1784 his position of assistant to Neefe became official. In a *catalogue raisonné* of the new archbishop Max Franz's court musicians we find "No. 14, Ludwig Beethoven" described "as of good capacity, still young, of good, quiet behaviour and poor," while his father (No. 8) "has a completely worn-out voice, has long been in service, is very poor, of fairly good behaviour, and married."

In the spring of 1787 Beethoven paid a short visit to Vienna, where he astonished Mozart by his extemporizations and had a few lessons from him. How he was enabled to afford this visit is not clear. After three months the illness of his mother, to whom he was devoted, brought him back. She died in July, leaving a baby girl, one year old, who died in November. For five more years Beethoven remained at Bonn supporting his family, of which he had been since the age of fifteen practically the head, as his father's bad habits steadily increased until in 1789 Ludwig was officially entrusted with his father's salary. He had already made several lifelong friends at Bonn, of whom the chief were Count Waldstein and Stephan Breuning; and his prospects brightened as the archbishop-elector, in imitation of his brother the emperor Joseph II., enlarged the scale of his artistic munificence. By 1792 the archbishop-elector's attention was thoroughly aroused to Beethoven's power, and he provided for Beethoven's second visit to Vienna. The introductions he and Count Waldstein gave to Beethoven, the prefix "van" in Beethoven's name (which looked well though it was not really a title of nobility), and above all the unequalled impressiveness of his playing and extemporization, quickly secured his footing with the exceptionally intelligent and musical aristocracy of Vienna, who to the end of his life treated him with genuine affection and respect, bearing with all the roughness of his manners and temper, not as with the eccentricities of a fashionable genius, but as with signs of the sufferings of a passionate and noble nature.

Beethoven's life, though outwardly uneventful, was one of the most pathetic of tragedies. His character has had the same fascination for his biographers as it had for his friends, and there is probably hardly any great man in history of whom more is known and of whom so much of what is known is interesting. Yet it is all too much a matter of detail and anecdote to admit of chronological summarizing here, and for the disentangling of its actual incidents we must refer the reader to Sir George Grove's long and graphic article, "Beethoven," in the *Dictionary of Music and Musicians*, and to the monumental biography of Thayer, who devoted his whole life to collecting materials. These two biographical works, read in the spirit in which their authors conceived them, will reveal, beneath a mass of distressing, grotesque and sometimes sordid detail, a nobility of character and unswerving devotion to the highest moral ideas throughout every distress and temptation to which a passionate and totally unpractical temper and the growing shadow of a terrible misfortune could expose a man.

The man is surpassed only by his works, for in them he had that mastery which was denied to him in what he himself calls his attempt to "grapple with fate." Such of his difficulties as lay in his own character already showed themselves in his studies with Haydn. Haydn, who seems to have heard of him on his first visit to Vienna in 1787, passed through Bonn in July 1792, and was so much struck by Beethoven that it was very likely at his instigation that the archbishop sent Beethoven to Vienna to study under him. But Beethoven did not get on well with him, and found him perfunctory in correcting his exercises. Haydn appreciated neither his manners nor the audacity of his free compositions, and abandoned whatever intentions he may have had of taking Beethoven with him to England in 1794. Beethoven could do without sympathy, but a grounding in strict counterpoint he felt to be a dire necessity, so he continued his studies with Albrechtsberger, a mere grammarian who had the poorest opinion of him, but who could, at all events, be depended on to attend to his work. Almost every comment has been made upon the relations between Haydn and Beethoven, except the perfectly obvious one that Mozart died at the age of thirty-six, just at the time Beethoven came to Vienna, and that Haydn, as is perfectly well known, was profoundly shocked by the untimely loss of the greatest musician he had ever known. At such a time the undeniable clumsiness of Beethoven's efforts at academic exercises would combine with his general tactlessness to confirm Haydn in the belief that the sun had set for ever in the musical world, and would incline him to view with disfavour those bold features of style and form which the whole of his own artistic development should naturally have

predisposed him to welcome. It is at least significant that those early works of Beethoven in which Mozart's influence is most evident, such as the Septet, aroused Haydn's open admiration, whereas he hardly approved of the compositions like the sonatas, *op.* 2 (dedicated to him), in which his own influence is stronger. Neither he nor Beethoven was skilful in expressing himself except in music, and it is impossible to tell what Haydn meant, or what Beethoven thought he meant, in advising him not to publish the last and finest of the three trios, *op*. 1. But even if he did not mean that it was too daring for the public, it can hardly be expected that he never contrasted the meteoric career of Mozart, who after a miraculous boyhood had produced at the age of twenty-five some of the greatest music Haydn had ever seen, with the slow and painful development of his uncouth pupil, who at the same age had hardly a dozen presentable works to his credit. It is not clear that Haydn ever came to understand Beethoven, and many years passed before Beethoven realized the greatness of the master whose teaching had so disappointed him.

From the time Beethoven settled permanently in Vienna, which he was soon induced to do by the kindness of his aristocratic friends, the only noteworthy external features of his career are the productions of his compositions. In spite of the usual hostile criticism for obscurity, exaggeration and unpopularity, his reputation became world-wide and by degrees actually popular; nor did it ever decline, for as his later works became notorious for their extravagance and unintelligibility his earlier works became better understood. He was no man of business, but, in a thoroughly unpractical way, he was suspicious and exacting in money matters, which in his later years frequently turned up in his conversation as a grievance, and at times, especially during the depreciation of the Austrian currency between 1808 and 1815, were a real anxiety to him. Nevertheless, with a little more skill his external prosperity would have been great. He was always a personage of importance, as is testified by more than one amusing anecdote, like those of his walks with Goethe and his half-ironical comments on the hats which flew off more for him than for Goethe; and in 1815 it seemed as if the summit of his fame was reached when his 7th 646
symphony was performed, together with a hastily-written cantata, *Der glorreiche Augenblick* and the blazing piece of descriptive fireworks entitled *Wellingtons Sieg oder die Schlacht bei Vittoria*, once popular in England as the *Battle Symphony*. The occasion for this performance was the congress of Vienna; and the government placed the two halls of the Redouten-Saal at his disposal for two nights, while he himself was allowed to invite all the sovereigns of Europe. In the same year he received the freedom of the city, an honour much valued by him. After that time his immediate popularity, as far as new works were concerned, became less eminent, as that of his more easy-going contemporaries began to increase. Yet there was, not only in the emotional power of his earlier works, but also in the known cause of his increasing inability to appear in public, something that awakened the best popular sensibilities; and when his two greatest and most difficult works, the 9th symphony and parts of the *Missa Solemnis*, were produced at a memorable concert in 1824, the storm of applause was overwhelming, and the composer, who was on the platform in order to give the time to the conductor, had to be turned round by one of the singers in order to *see* it.

Signs of deafness had given him grave anxiety as early as 1708. For a long time he successfully concealed it from all but his most intimate friends, while he consulted physicians and quacks with eagerness; but neither quackery nor the best skill of his time availed him, and it has been pointed out that the root of the evil lay deeper than could have been supposed during his lifetime. Although his constitution was magnificently strong and his health was preserved by his passion for outdoor life, a post-mortem examination revealed a very complicated state of disorder, evidently dating almost from childhood (if not inherited) and aggravated by lack of care and good food. The touching document addressed to his brothers in 1802, and known as his "will," should be read in its entirety, as given by Thayer (iv. 4). No verbal quotation short of the whole will do justice to the overpowering outburst which runs almost in one long unpunctuated sentence through the whole tragedy of Beethoven's life, as he knew it then and foresaw it. He reproaches men for their injustice in thinking and calling him pugnacious, stubborn and misanthropical when they do not know that for six years he has suffered from an incurable condition, aggravated by incompetent doctors. He dwells upon his delight in human society, from which he has had so early to isolate himself, but the thought of which now fills him with dread as it makes him realize his loss, not only in music but in all finer interchange of ideas, and terrifies him lest the cause of his distress should appear. He declares that, when those near him had heard a flute or a singing shepherd while he heard nothing, he was only prevented from taking his life by the thought of his art, but it seemed impossible for him to leave the world until he had brought out all that he felt to be in his power. He requests that after his death his present doctor, if surviving, shall be asked to describe his illness and to append it to this document in order that at least then the world may be as far as possible reconciled with him. He leaves his brothers his property, such as it is, and in terms not less touching, if more conventional than the rest of the document, he declares that his experience shows that only virtue has preserved his life and his courage through all his misery.

And, indeed, his art and his courage rose far above any level attainable by those artists who are slaves to the "personal note," for his chief occupation at the time of this document was his

2nd symphony, the most brilliant and triumphant piece that had ever been written up to that time. On a smaller scale, in which mastery was the more easily attainable as experiment was more readily tested, Beethoven was sooner able to strike a tragic note, and hence the process of growth in his style is more readily traceable in the pianoforte works than in the larger compositions which naturally represent a series of crowning results. Only in his last period does the pianoforte cease to be Beethoven's normal means of expression. Accordingly, if in the discussion of Beethoven's works, with which we close this article, we dwell rather more on the pianoforte sonatas than on his greater works, it is not only because they are more easily referred to by the general reader, but because they are actually a key to his intellectual development, such as is afforded neither by his life nor by the great works which are themselves the crowning mystery and wonder of musical art.

Deafness causes inconvenience in conversation long before it is noticeable in music, and in 1806 Beethoven could still conduct his opera *Fidelio* and be much annoyed at the inattention to his nuances; and his last appearance as a player was not until 1814, when he made a great impression with his B flat trio, *op*. 97. At the end of November 1822 an attempt to conduct proved disastrous. The touching incident in 1824 has been described, but up to the last Beethoven seems to have found or imagined that ear-trumpets (of which a collection is now preserved at Bonn) were of use to him in playing to himself, though his friends were often pained when the pianoforte was badly out of tune, and were overcome when Beethoven in soft passages did not make the notes sound at all. The instrument sent him by Broadwood in 1817-1818 gave him great pleasure and he answered it with a characteristically cordial and quaint letter in the best of bad French. His fame in England was often a source of great comfort to him, especially in his last illness, when the London Philharmonic Society, for which the 9th symphony was written and a 10th symphony projected, sent him £100 in advance of the proceeds of a benefit concert which he had begged them to give, being in very straitened circumstances, as he would make no use of the money he had deposited in the bank for his nephew.

This nephew was the cause of most of his anxiety and distress in the last twelve years of his life. His brother, Kaspar Karl, had often given him trouble; for example, by obtaining and publishing some of Beethoven's early indiscretions, such as the trio-variations, *op*. 44, the sonatas, *op*. 49, and other trifles, of which the late *opus* number is thus explained. In 1815, after Beethoven had quarrelled with his oldest friend, Stephan Breuning, for warning him against trusting his brother in money matters, Kaspar died, leaving a widow of whom Beethoven strongly disapproved, and a son, nine years old, for the guardianship of whom Beethoven fought the widow through all the law courts. The boy turned out utterly unworthy of his uncle's persistent devotion, and gave him every cause for anxiety. He failed in all his examinations, including an attempt to learn some trade in the polytechnic school, whereupon he fell into the hands of the police for attempting suicide, and, after being expelled from Vienna, joined the army. Beethoven's utterly simple nature could neither educate nor understand a human being who was not possessed by the wish to do his best. His nature was passionately affectionate, and he had suffered all his life from the want of a natural outlet for it. He had often been deeply in love and made no secret of it; but Robert Browning had not a more intense dislike of "the artistic temperament" in morals, and though Beethoven's attachments were almost all hopelessly above him in rank, there is not one that was not honourable and respected by society as showing the truthfulness and self-control of a great man. Beethoven's orthodoxy in such matters has provoked the smiles of Philistines, especially when it showed itself in his objections to Mozart's *Don Giovanni*, and his grounds for selecting the subject of *Fidelio* for his own opera. The last thing that Philistines will ever understand is that genius is far too independent of convention to abuse it; and Beethoven's life, with all its mistakes, its grotesqueness and its pathos, is as far beyond the shafts of Philistine wit as his art.

At the beginning of 1827 Beethoven had projects for a 10th symphony, music to Goethe's *Faust*, and (under the stimulus of his newly acquired collection of Handel's works) any amount of choral music, compared to which all his previous compositions would have seemed but a prelude. But he was in bad health; his brother Johann, with whom he had been staying, had not allowed him a fire in his bedroom, and had sent him back to Vienna in an open chaise in vile weather; and the chill which resulted ended in a fatal illness. Within a week of his death Beethoven was still full of his projects. Three days before the end he added a codicil to his will, and saw Schubert, whose music had aroused his keen interest, but was not able to speak to him, though he afterwards spoke of the Philharmonic Society and the English, almost his last words being "God bless them." On the 26th of March 1827, during a fierce thunderstorm, he died.

Beethoven's Music.—The division of Beethoven's work into three styles has become proverbial, and is based on obvious facts. The styles, however, are not rigidly separated, either in themselves or in chronology. Nor can the popular description of Beethoven's first manner as "Mozartesque" be accepted as doing justice to a style which differs more radically from Mozart's than Mozart's differs from Haydn's. The style of Beethoven's third period is no longer regarded as "showing an obscurity traceable to his deafness," but we have, perhaps, only recently

outgrown the belief that his later treatment of form is revolutionary. The peculiar interest and difficulty in tracing Beethoven's artistic development is that the changes in the materials and range of his art were as great as those in the form, so that he appears in the light of a pioneer, while the art with which he started was nevertheless already a perfectly mature and highly organized thing. And he is perhaps unique among artists in this, that his power of constructing perfect works of art never deserted him while he revolutionized his means of expression. No doubt this is in a measure true of all the greatest artists, but it is seldom obvious. In mature art vital differences in works of similar form are generally more likely to be overlooked than to force themselves on the critic's attention. And when they become so great as to make a new epoch it is generally at the cost of a period of experiment too heterogeneous and insecure for works of art to attain great permanent value. But in Beethoven's case, as we have said, the process of development is so smooth that it is impossible to separate the periods clearly, although the ground covered is, as regards emotional range, at least as great as that between Bach and Mozart. No artist has ever left more authoritative documentary evidence as to the steps of his development than Beethoven. In boyhood he seems to have acquired the habit of noting down all his musical ideas exactly as they first struck him. It is easy to see why in later years he referred to this as a "bad habit," for it must often take longer to jot down a crude idea than to reject it; and by the time the habit was formed Beethoven's powers of self-criticism were unparalleled, and he must often have felt hampered by the habit of writing down what he knew to be too crude to be even an aid to memory. Such first intuitions, if not written down, would no doubt be forgotten; but the poetic mood, the *Stimmung*, they attempt to indicate, would remain until a better expression was forthcoming. Beethoven had acquired the habit of recording them, and thereby he has, perhaps, misled some critics into over-emphasizing the contrast between his "tentative" self-critical methods and the quasi-extempore outpourings of Mozart. This contrast is probably not very radical; indeed, we may doubt whether in every thoughtful mind any apparently sudden inspiration is not preceded by some anticipatory mood in which the idea was sought and its first faint indications tested and rejected so instantaneously as to leave no impression on the memory.

The number and triviality of Beethoven's preliminary sketches should not, then, be taken as evidence of a timid or vacillating spirit. But if we regard his sketches as his diary their significance becomes inestimable. They cover every period of Beethoven's career, and represent every stage of nearly all his important works, as well as of innumerable trifles, including ideas that did not survive to be worked out. And the type of self-criticism is the same from beginning to end. There is no tendency in the middle or last period, any more than in the first, to "subordinate form to expression," nor do the sketches of the first period show any lack of attention to elements that seem more characteristic of the third. The difference between Beethoven's three styles appears first in its full proportions when we realize this complete continuity of his method and art. We have ventured to cast doubts upon the Mozartesque character of his early style, because that is chiefly a question of perspective. While he was handling a range of ideas not, in a modern view, glaringly different from Mozart's, he had no reason to use a glaringly different language. His contemporaries, however, found it more difficult to see the resemblance; and, though their criticism was often violently hostile, they saw with prejudice a daring originality which we may as well learn to appreciate with study. Beethoven himself in later years partly affected and partly felt a lack of sympathy with his own early style. But he had other things to do than to criticize it. Modern prejudice has not his excuse, and the neglect of Beethoven's early works is no less than the neglect of the key to the understanding of his later. It is also the neglect of a mass of mature art that already places Beethoven on the same plane as Mozart, and contains perhaps the only traces in all his work of a real struggle between the forces of progress and those of construction. We will therefore give special attention to this subject here.

The truth is that there are several styles in Beethoven's first period, in the centre of which, "proving all things," is the true and mature Beethoven, however wider may be the scope of his later maturity. And he did not, as is often alleged, fail to show early promise. The pianoforte quartets he wrote at the age of fifteen are, no doubt, clumsy and childish in execution to a degree that contrasts remarkably with the works of Mozart's, Mendelssohn's or Schubert's boyhood; yet they contain material actually used in the sonatas, *op*. 2, No. 1, and *op*. 2, No. 3. And the passage in *op*. 2, No. 3, is that immediately after the first subject, where, as Beethoven then states it, it embodies one of his most epoch-making discoveries, namely, the art of organizing a long series of apparently free modulations by means of a systematic progression in the bass. In the childish quartet the principle is only dimly felt, but it is nevertheless there as a subconscious source of inspiration; and it afterwards gives inevitable dramatic truth to such passages as the climax of the development in the sonata, *op*. 57 (commonly called *Appassionata*), and throughout the chaos of the mysterious introduction to the C major string-quartet, *op*. 59, No. 3, prepares us for the world of loveliness that arises from it.

Although with Beethoven the desire to express new thoughts was thus invariably both stimulated and satisfied by the discovery of the necessary new means of expression, he felt

deeply the danger of spoiling great ideas by inadequate execution; and his first work in a new form or medium is, even if as late as the Mass in C, *op*. 89, almost always unambitious. His teachers had found him sceptical of authority, and never convinced of the practical convenience of a rule until he had too successfully courted disaster. But he appreciated the experience, though he may have found it expensive, and traces of crudeness in such early works as he did not disown are as rare as plagiarisms. The first three pianoforte sonatas, *op*. 2. show the different elements in Beethoven's early style as clearly as possible. Sir Hubert Parry has aptly compared the opening of the sonata, *op*. 2, No. 1, with that of the finale of Mozart's G minor symphony, to show how much closer Beethoven's texture is. The slow movement well illustrates the rare cases in which Beethoven imitates Mozart to the detriment of his own proper richness of tone and thought, while the finale in its central episode brings a misapplied and somewhat diffuse structure in Mozart's style into direct conflict with themes as "Beethovenish" in their terseness as in their sombre passion. The second sonata is flawless in execution, and entirely beyond the range of Haydn and Mozart in harmonic and dramatic thought, except in the finale. And it is just in the adoption of the luxurious Mozartesque rondo form as the crown of this work that Beethoven shows his true independence. He adopts the form, not because it is Mozart's, but because it is right and because he can master it. The opening of the second subject in the first movement is a wonderful application of the harmonic principle already mentioned in connexion with the early piano quartets. In all music nothing equally dramatic can be found before the D minor sonata, *op*. 31, No. 2, which is rightly regarded as marking the beginning of Beethoven's second period. The slow movement, like those of *op*. 7 and a few other early works, shows a thrilling solemnity that immediately proves the identity of the pupil of Haydn with the creator of the 9th symphony. The little *scherzo* no less clearly foreshadows the new era in music by the fact that in so small and light a movement a modulation from A to G sharp minor can occur too naturally to excite surprise. If the later work of Beethoven were unknown there would be very little evidence that this sonata was by a young man, except, perhaps, in the remarkable abruptness of style in the first movement, an abruptness which is characteristic, not of immaturity, but of art in which problems are successfully solved for the first time. This abruptness is, however, in a few of Beethoven's early works carried appreciably too far. In the sonata in C minor, *op*. 10, No. 1, for example, the more vigorous parts of the first movement lose in breadth from it, while the finalé is almost stunted.

But Beethoven was not content to express his individuality only in an abrupt epigrammatic style. From the outset breadth was also his aim, and while he occasionally attempted to attain a greater breadth than his resources would properly allow (as in the first movement of the sonata, *op*. 2, No. 3, and that of the violoncello sonata, *op*. 5, No. 1, in both of which cases a kind of extempore outburst in the coda conceals the collapse of his peroration), there are many early works in which he shows neither abruptness of style nor any tendency to confine himself within the limits of previous art. The C minor trio, *op*. 1, No. 3, is not more remarkable for the boldness of thought that made Haydn doubtful as to the advisability of publishing it, than for the perfect smoothness and spaciousness of its style. These qualities Beethoven at first naturally found easier to retain with less dramatic material, as in the other trios in the same *opus*, but the C minor trio does not stand alone. It represents, perhaps, the most numerous, as certainly the noblest, class of Beethoven's early works. Certainly the smallest class is that in which there is unmistakable imitation of Mozart, and it is significant that almost all examples of this class are works for wind instruments, where the technical limitations narrowly determine the style and discourage the composer from taking things seriously. Such works are the beautiful and popular septet, the quintet for pianoforte and wind instruments (modelled superficially, yet closely and with a kind of modest ambition, on Mozart's wonderful work for the same combination) and, on a somewhat higher level, the trio for pianoforte, clarinet and violoncello, *op*. 11.

It is futile to discuss the point at which Beethoven's second manner may be said to begin, but he has himself given us excellent evidence as to when and how his first manner (as far as that is a single thing) became impossible to him. Through quite a large number of works, beginning perhaps with the great string quintet, *op*. 29, new types of harmonic and emotional expression had been assimilated into a style at least intelligible from Mozart's point of view. Indeed, Beethoven's favourite way of enlarging his range of expression often seems to consist in allowing the Titanic force of his new inventions and the formal beauty of the old art to indicate by their contrast a new world grander and lovelier than either. Sometimes, as in the C major quintet, the new elements are too perfectly assimilated for the contrast to appear. The range of key and depth of thought is beyond that of Beethoven's first manner, but the smoothness is that of Mozart. In the three pianoforte sonatas, *op*. 31, the struggle of the transition is as manifest as its accomplishment is triumphant. The first movement of the first sonata (in G major) deals with widely separated keys on new principles. These are embodied in a style which for abruptness and jocular paradox is hardly surpassed by Beethoven's most nervous early works. The exceptionally ornate and dilatory slow movement reads almost like a protest; while the finale begins as if to show that humour should be beautiful, and ends by making fun of the beauty. The second sonata (in D minor) is the greatest work Beethoven had as yet written. Its first

movement, already cited above in connexion with the dramatic sequences in *op*. 2, No. 2, is, like that of the *Sonata Appassionata*, a *locus classicus* for such powerful means of expression. And it is worth noting that the only sketch known of this movement is a sketch in which nothing but its sequential plan is indicated. In the third sonata Beethoven enjoys on a higher plane an experience he had often indulged in before, the attainment of smoothness and breadth by means of a delicately humorous calm which gives scope to the finer subtleties of his new thoughts.

Beethoven himself wrote to his publisher that these three sonatas represented a new phase in his style; but when we realize his artistic conscientiousness it is not surprising that they should be contemporary with larger works like the 2nd symphony, which are far more characteristic of his first manner. His whole development is entirely ruled by his determination to let nothing pass until it has been completely mastered, and long before this his sketch-books show that he had many ambitious ideas for a 1st symphony, and that it was a deliberate process that made his ambitions dwindle into something that could be safely realized in the masterly little comedy with which he began his orchestral career. The easy breadth and power of the 2nd symphony represents an amply sufficient advance, and leaves his forces free to develop in less expensive forms those vast energies for which afterwards the orchestra and the string-quartet were to become the natural field.

In the “Waldstein” sonata, *op*. 53, we see Beethoven’s second manner literally displacing his first; that is to say, we reach a state of things at which the two can no longer form an artistic contrast. The work, as we know it, is not only perfect, but has all the qualities of art in which the newest elements have long been familiar. The opening is on the same harmonic train of thought as that of the sonata, *op*. 31, No. 1, but there is no longer the slightest need for a paradoxical or jocular manner. On the contrary, the harmonies are held together by an orderly sequence in the bass, and the onrush is that of some calm diurnal energy of nature. The short introduction to the finale is harmonically and emotionally the most profound thing in the sonata, while the finale itself uses every new resource in the triumphant attainment of a leisure more splendid than any conceivable in the most spacious of Mozart’s rondos. Yet it is well known that Beethoven originally intended the beautiful *andante* in F, afterwards published separately, to be the slow movement of this sonata. That andante is, like the finale, a spacious and gorgeous rondo, which probably Beethoven himself could not have written at an earlier period. The modulation to D flat in its principal theme, and that to G flat near the end, are its chief harmonic effects and stand out in beautiful relief within its limits. After the first movement of the Waldstein sonata they would be flat and colourless. The sketch-books show that Beethoven, when he first planned the sonata, was by no means inattentive to the balance of harmonic colour in the whole scheme, but that at first he did not realize how far that scheme was going to carry him. He originally thought of the slow movement as in E major, a remote key to which, however, he soon assigned the more intimate position of complementary key in the first movement. He then worked at the slow movement in F with such zest that he did not discover until the whole sonata was finished that he had raised the first and last movements to an altogether higher plane of thought, though the redundancy of the two rondos in juxtaposition and the unusual length of the sonata were so obvious that his friends ventured to point them out. Beethoven’s revision of his earliest works is now known to have been extensive and drastic; but this is the first instance, and *Fidelio* and the quartet in B flat, *op*. 131, are the only other instances, of any later work needing important alteration after it was completely executed. From this point up to *op*. 101 we may study Beethoven’s second manner entirely free from any survivals of his first, even as a legitimate contrast; though it is as impossible to fix a point before which his third manner cannot be traced as it is to ignore the premonitions of his second manner in his early works. The distinguishing features in Beethoven’s second style are the result of a condition of art in which enormous new possibilities have become so well known that there is no need for stating them abruptly, paradoxically or emphatically, but also no need for working them out to remote conclusions. Hence these works have become for most people the best-known and best-loved type of classical music. In their perfect fusion of untranslatable dramatic emotion with every beauty of musical design and tone they have never been equalled, nor is it probable that any other art can show a wider range of thought embodied in a more perfect form. In music itself there is nothing else of so wide a range without grave artistic defects from which Beethoven is entirely free. Wagnerian opera aims at an ideal as truly artistic, and in so far of wider range than Beethoven’s that it passes beyond the bounds of pure music altogether. Within those bounds Beethoven remained, and even the apparent exceptions (such as *Fidelio* and his two great examples of “programme music,” the *Pastoral Symphony* and the sonata, *Les Adieux*) only show how universal his conception of pure music is. Extraneous ideas had here struck him as magnificent material for instrumental music, and he never troubled to argue whether instrumental music is the better or worse for expressing extraneous ideas. To describe the works of Beethoven’s second period here would be to describe a library of well-known classics, and we must refer the reader for further details to the articles on Sonata Forms, Contrapuntal Forms, Harmony and Instrumentation. It remains for us to attempt to indicate the essential features of his third style, and to conclude with a survey of his influence on the history of music.

Beethoven's third style arose imperceptibly from his second. His deafness had very little to do with it, for all his epoch-making discoveries in orchestral effect date from the time when he was already far too much inconvenienced to test them in a way which would satisfy any one who depended more upon his ear than upon his imagination. It is indeed highly probable that there are no important features in Beethoven's latest style that may not be paralleled by the tendencies of all great artists who have handled their material until it contains nothing that has not been long familiar with them. Such tendencies lead to an extreme simplicity of form, underlying an elaboration of detail which may at first seem bewildering until we realize that it is purely the working out to its logical conclusions of some idea as simple and natural as the form itself. The form, however, will be not merely simple, but individual. Different works will show such striking external differences of form that a criticism which applies merely *a priori* or historic standards will be tempted by the fallacy that there is less form in a number of such markedly different works than in a number of works that have one scheme in common. All this is eminently the case with Beethoven's last works. The extreme simplicity of the themes of the first two movements of the quartet in B flat, *op*. 131, and the tremendous complexity of the texture into which they are woven, at first impress us as something mysterious and intangible rather than astonishing. The boldness with which the slow introduction is blended in broad statement and counter-statement with the *allegro*, is directly impressive, as is also the entry of the second subject with its dark harmony and tone, but the work needs long familiarity before its vast mass of thought reveals itself to us in its true lucidity. Such works are "dark with excessive bright." When we enter into them they are transparent as far as our vision extends, and their darkness is that of a depth that shines as we penetrate it. In all probability only a veil of familiarity prevents our finding the same kind of difficulty in Beethoven's earlier works. What is undoubtedly newest in the last works is the enormous development of those polyphonic elements which are always essential to the life of a composition, but which have very different functions and degrees of prominence in different forms and stages of the art. Polyphony inevitably draws attention to detail, and thus Beethoven in his middle period found its more obvious manifestations but little conducive to the breadth of designs which were not as yet sufficiently familiar to take any but the foremost place. Hence, among other interesting features of that second period, his marked preference for themes founded on rhythmic figures of one note, *e.g*. the famous "four taps" in the C minor symphony; an identical rhythm in a melodious theme of very different character in the G major concerto; a similar figure in the *Sonata Appassionata*; the first theme of the *scherzo* of the F major quartet, *op*. 59, No. 1, and the drum-beats in the violin concerto. Such rhythms give thematic life to an inner part without causing it to assume such melodic interest as might distract the attention from the flow of the surface. But in proportion as polyphony loses its danger so does the prominence of such rhythmic figures decrease, until in Beethoven's last works they are no more noticeable than other kinds of simplicity. The impression of crowded detail is naturally more prominent the smaller the means with which Beethoven works and the less outwardly dramatic his thought. Thus those most gigantic of all musical designs, the 9th symphony, and the Mass in D, are, but for the mechanical difficulties of the choral writing, almost like works of the second period as far as direct impressiveness is concerned; and in the same way the enormous pianoforte sonata, *op*. 106, is in its first three movements easier to follow than the extremely terse and subtle works on a smaller scale that preceded it (sonata in A major, 101, and the two sonatas for violoncello, *op*. 102).

His enormous development of polyphonic interest soon led Beethoven to employ the fugue, not only, as in previous works, by way of episodic contrast to passages and designs in which the form and not the texture is the main object of interest, but as the culminating expression of a condition or art in which the unity of form and texture is so perfect that the mind is free to concentrate itself on the texture alone. This union was not effected without a struggle, the traces of which present a close parallel to that abrupt emphasis which we noticed in some of Beethoven's early works. In his fugue-writing the notion that the chief interest lies in the texture is as yet so difficult to hold together with the perception that these fugues are based on a modern firmness and range of form, that the texture is forced upon the listener's attention by a continual series of ruthlessly logical bold strokes of harmony. From this and from the notorious violence of Beethoven's choral writing, and also from his well-known technical struggles in his years of pupilage, the easy inference has been drawn that Beethoven never was a great master of counterpoint, an inference that is absolutely irreconcilable with such plain facts as, to take but one early example, the brilliant piece of triple counterpoint in the *andante* of the string quartet in C minor, *op*. 18, No. 4, and the complete absence of anything like crudeness in his handling of harmonics, basses or inner parts at any period of his career. Beethoven may have mastered some things with difficulty, but he mastered nothing incompletely; and where he is not orthodox it is safest to conclude that orthodoxy is wrong. Had he lived for another ten years he would certainly have produced an immense amount of choral work, and with it many other great instrumental works in which this last remaining element of conflict between texture and form would have dwindled away. But while this would doubtless result in such work being easier to follow and might even have given us a version of the great fugue, *op*. 133 (discarded from the string-quartet, *op*. 131), that did not surpass the bounds of practical performance, it would yet

be no sound criterion by which to stigmatize as an immaturity the roughness of the polyphonic works that we know. That roughness is, like the abrupt epigrammatic manner of some of his early works, the necessary condition in which such material realizes mature expression. Without it that material could receive but the academic handling of a dead language. And by it was created that permanent reconciliation of polyphony and form from which has arisen almost all that is true in "Romantic" music, all that is peculiar to the thematic technique of Wagnerian opera, and all the perfect smoothness of Brahms's polyphony.

The incalculable depth of thought and closeness of texture in Beethoven's later works are, of course, the embodiment of a no less incalculable emotional power. If we at times feel that the last quartets are more introspective than dramatic, that is only because Beethoven's dramatic sense is higher than we can realize. The subject is too large and too subtle for dogmatism to be profitable; and we cannot in Beethoven's case, as we can in Bach's, cite a complete series of illustrations of his musical ideas from his treatment in choral music of words which themselves 650
interpret the intention of the composer. There is so little but the music itself by which one can express Beethoven's thought, that the utmost we can do here is to refer the reader, as before, to the articles on Sonata Forms, Harmony, Instrumentation, Opera and Music, where he will find further attempts to indicate in what sense pure music can be described as dramatic and expressive of emotion.

As our range of investigation widens, and thoroughness of analysis and study increases, so we shall surely find in ourselves an ever-deepening conviction that Beethoven, whether in range, depth and truth of thought, perfect sense of beauty, or absolute conscientiousness of execution, is the greatest musician, perhaps the greatest artist, that ever lived. There is no means of measuring Beethoven's influence upon subsequent music. Every composer of every school claims it. The immense changes he brought about in the range of music have their most obvious effect in the possibilities of emotional expression; and so any outbreak of vulgarity or sentimentality can with impunity claim descent from Beethoven, though its ancestry may be no higher than Meyerbeer. Again, we have already referred to that confusion of thought which regards a series of works markedly different in form as containing less form than any number of works cast in one mould. Hence the works of Beethoven's third period have been cited in defence of more than one "revolution," attempted in a form which never existed in any true classic, for the purpose of setting up something the revolutionist has not yet succeeded in inventing. To measure Beethoven's influence is like measuring Shakespeare's. It is an influence either too vaguely universal to name or too profoundly artistic to analyse. Perhaps the truest account of it would be that which ignored its presence in the works of ill-balanced artists, or even in the works of those who profited merely by an increase of technical and harmonic resource which, though effected by Beethoven, would, after the French Revolution and the Napoleonic wars, almost certainly have to some extent arisen from sheer necessity of finding expression for the new experience of humanity, if Beethoven had never existed. Setting aside, then, all instances of mere domination, and of a permanently established new world of musical thought, and omitting Schubert and Weber as contemporaries, the one attracted and the other partly repelled, we may, perhaps, take three later composers, Schumann, Wagner and Brahms, as the leading examples of the way in which Beethoven's influence is definitely traceable as a creative force. The depth and solemnity of Beethoven's melody and later polyphonic richness is a leading source of Schumann's inspiration, though Schumann's artistic schemes exclude any high degree of formal organization on a large scale. Beethoven's late polyphony is carried on by Brahms to the point at which perfect smoothness of style is once more possible, and there is no aspect of his form which Brahms neglects or fails to realize with that complete originality which has nothing to fear from its ancestry. Wagner does not handle the same art-forms; his task is different, but Beethoven was the inspiring source, not only of his purely musical sense, but also of his whole sense of dramatic contrast and fitness. When he had shaken off the influence of Meyerbeer, which has so often been confused with that of Beethoven, there remained to him, pre-eminently in his music and more imperfectly realized in his drama, a power of combining contrasted emotions such as is the privilege of only the very greatest dramatic artists. Bach and Beethoven are the sources of the polyphonic means of expression by which he attains this. Beethoven alone is the extraneous source of his knowledge that it was possible. And it is as certain as anything in the history of art that there will never be a time when Beethoven's work does not occupy the central place in a sound musical mind.

Annotated List of Beethoven's Works

Up to 1823 we give in most cases the dates of publication, the date of composition being generally from one to three years earlier. Beethoven seldom had less than a dozen projects in hand at once, and their immediate chronology is inextricable; whereas publication generally means final revision. This list is purposely incomplete in order that unimportant works may not distract attention, even when they are late and on a large scale.

Sonata = Pianoforte sonata.
Violin or violoncello sonata = for pianoforte, V. or Vc.
Pianoforte trio = Pfte., V., Vc.
Pianoforte quartet = Pfte., V., viola and Vc.
String trio = V., Va., Vc.
String quartet = VV., Va. and Vc.
Pianoforte or violin concerto = Concerto with orchestra.

1785. 3 pfte. quartets, of which the third contains important material for the sonatas, *op.* 2, Nos. 1 and 3.

(Thayer's attribution of the masterly bagatelles, *op.* 33, published 1803, to this period can only be rationalized by some similar rough first idea.)

1790. 24 variations on an air by Righini (published 1801). A very remarkable work, anticipating Schumann's *Papillons* in its humorous close. It was Beethoven's chief early *tour-de-force* in pianoforte playing.

1795. 3 pfte. trios, *op.* 1 (E♭, G, C minor).

1796. 3 pfte. sonatas, *op.* 2 (F minor, A and C, dedicated to Haydn).

1797. String trio, *op.* 3, 2 violoncello sonatas, *op.* 5, F and G mi., sonata, *op.* 7, E♭.

1798. 3 string trios, *op.* 9; G, D, C mi., 3 sonatas, *op.* 10 (C mi., F, D). Trio for pfte., clarinet and violoncello in B♭, *op.* 11.

1799. 3 violin sonatas (D, A, E♭), *op.* 12. Pfte. sonata (*Pathétique* not Beethoven's title) C mi., *op.* 13, 2 pfte. sonatas, *op.* 14, E, G (the first arranged by the composer as a string quartet in F).

1801. Pianoforte concertos, *op.* 15 in C, *op.* 19 in B♭ (the latter composed first). Quintet for pianoforte and wind instruments, *op.* 16 (also arranged, with new details, as quartet for pianoforte and strings), composed 1797. 6 string quartets, *op.* 18 (F, G, D, C mi., A, B♭). 1st symphony (C), *op.* 21. 2 violin sonatas, A mi., *op.* 23; F ma., *op.* 24 (made into two opus-numbers by an accident in the *format* of the volumes).

1802. Pianoforte score of the *Prometheus* ballet, *op.* 24 (ousted by the F ma. violin sonata, and reissued as *op.* 43). Sonata in B♭, *op.* 22. Sonata in A♭, *op.* 26 (with the funeral march). 2 sonatas ("quasi fantasia"), *op.* 27, E♭, C♯ mi. Sonata in D, *op.* 28 (*Pastorale* not Beethoven's title). String quintet in C, *op.* 29.

1803. 3 violin sonatas, *op.* 30 (A, C mi., G). 3 sonatas, *op.* 31, G, D mi., E♭ (the last appearing in 1804).

Variations, *op.* 34. 15 variations and fugue on theme from *Prometheus*, *op.* 35.

1804. 2nd symphony (D), *op.* 36 (1802). 3rd pfte. concerto (C mi.), *op.* 37 (1800).

1805. The "Kreutzer" sonata, *op.* 47, for pfte. and violin (A) (finale at first intended for *op.* 30, No. 1).

"Waldstein" sonata for pfte., *op.* 53 (C). First version of opera *Leonore* in three acts (with overture "No. 2").

1806. Sonata in F, *op.* 54. *Eroica Symphony*, No. 3, *op.* 55 (E♭), written in 1804 in honour of Napoleon Bonaparte. It was just finished when news arrived that Napoleon had made himself emperor, and Beethoven was with difficulty restrained from destroying the score. It is still the longest extant perfect design in instrumental music. The finale glorifies the material (and much of the form) of the variations, *op.* 35. The *scherzo* is the first full-sized example of Beethoven's special type.

Leonore reproduced in two acts with overture No. 3. 32 variations in C mi. (no opus-number, but a very important work on the lines of a modernized *chaconne*).

1807. Triple concerto (pfte., V. and Vc.), *op.* 56, chiefly interesting as a study for the true concerto-form which had given Beethoven difficulty. Sonata, *op.* 57 (F mi., *Appassionata*, not Beethoven's title). New overture, *Leonore*, "No. 1," composed for projected performance of the opera at Prague (posthumously published as *op.* 138).

1808. 4th pfte. concerto, *op.* 58 (G). 3 string quartets, *op.* 59, F, E mi., C (dedicated to Count Rasoumovsky, in compliment to whom Russian tunes appear in the finale of No. 1 and the *scherzo* of No. 2). Overture to *Coriolanus*, *op.* 62.

1809. 4th symphony, *op.* 60 (B♭). Violin concerto (D), *op.* 61 (also arranged by the composer for pianoforte). 5th symphony, *op.* 67 (C mi.) (1806), the first in which trombones appear. 6th symphony (Pastorale), *op.* 68; violoncello sonata, *op.* 69 (A). 2 pianoforte trios, *op.* 70 (D, E♭).

1810. Pianoforte score of *Leonore* (2nd version) published. String quartet, *op.* 74 (E♭, called "Harp" because of *pizzicato* passages in first movement). Fantasia, *op.* 77, interesting as consisting of a long and capricious series of dramatic beginnings and breakings off of themes, as if in search for a firm idea, which is at last found and developed as a set of variations. This scheme thus foreshadows the choral finale of the 9th symphony even more significantly than the Choral Fantasia.

Sonata, *op.* 78, F♯ (extremely terse and subtle, and a great favourite with Beethoven, who preferred it to the C♯ mi.).

1811. 5th pfte. concerto, *op.* 73, E♭ (*The Emperor* not Beethoven's title). Fantasia for pfte., orchestra and chorus, *op.* 80. Sonata, *op.* 81a (*Les Adieux, l'absence, et le retour*), first movement written when the archduke Rudolph had to leave Vienna (4th May 1809), and the rest on his return on the 30th of January 1810. It was an anxious time both for Beethoven and his excellent royal friend, for whom he had great affection. (Battle of Wagram, 6th July 1809.) (We may here note that *op.* 81b is an unimportant and very early sextet.) The overture to *Egmont*, *op.* 84; *Christus am Oelberge* (the Mount of Olives), *op.* 85, oratorio (probably composed between 1800 and its first performance in 1803).

1812. The rest of the *Egmont* music, *op.* 84. 1st mass, *op.* 87 (C) (first performance, 1807).

1814. Final version of *Leonore*, performed as *Fidelio* with great alterations, skilful revision of the libretto, very important new material in the music and a new overture.

1815. Sonata, *op.* 90 (E mi.).

1816. 7th symphony, *op.* 92 (A); 8th symphony, *op.* 93 (F) (Beethoven was planning a group of three of which the last was to be in D mi., which we shall find significant). String quartet, *op.* 95 (F mi.). Violin sonata, *op.* 96 (G). Pianoforte trio, *op.* 97 (B♭); *Liederkreis*, *op.* 98.

1817. Sonata, *op.* 101 (the first indisputably in Beethoven's "third manner"). 2 violoncello sonatas, *op.* 102 (C, D, the second containing Beethoven's first modern instrumental strict fugue).

1819. Arrangement for string quintet, *op.* 104, of C mi. trio, *op.* 1, No. 3 (a wonderful study in translation, comparable only to Bach's arrangements and very unlike Beethoven's former essays of the kind). Sonata, *op.* 106 (B♭), the largest and most symphonic pianoforte work extant, surpassed in length only by Bach's *Goldberg* variations and Beethoven's 33 variations on Diabelli's waltz.

1821. 25 Scotch songs accompanied by pfte., V. and Vc., *op.* 108 (the first set of a large and much neglected collection, mostly posthumous, many of great interest and beauty and very Beethovenish, which has shocked persons who expect sympathetic insight into folk-music to prevail over Beethoven's artistic impulse). Sonata, *op.* 109 (E).

1822. Sonata, *op.* 110 (A♭). Overture, *Die Weihe des Hauses*, *op.* 124 (C), a magnificent essay in orchestral free fugue, published 1825.

1823. Sonata, *op.* 111 (C mi., the last pianoforte sonata). 33 variations on a waltz by Diabelli, who sent his waltz round to fifty-one musicians in Austria asking each to contribute a variation; the whole to be published for the benefit of the widows and orphans left by the war. Beethoven answered with the greatest set ever written, and it was published in a separate volume. Among the other fifty composers were Schubert and an infant prodigy of eleven, Franz Liszt!

The mass in D (*Missa Solemnis*), *op.* 123, begun in 1818 for the installation of the archduke Rudolph as archbishop of Olmutz, was not finished until 1826, two years after the installation.

The 9th symphony, *op.* 125 D mi. (see note on 7th and 8th symphonies); sketches begun 1817; project of setting Schiller's *Freude* already in Beethoven's mind before he left Bonn.

6 bagatelles, *op.* 126, Beethoven's last pianoforte work a very remarkable and unaccountably neglected group of carefully contrasted lyric pieces.

1824. String quartet, *op.* 127 (E♭, published 1826).

1825. String quartet, *op.* 130 (B♭), with finale, *op.* 133 (grand fugue); string quartet, *op.* 132 (A mi., with slow movement in Lydian mode, a *Heiliger Dankgesang* on recovery from illness. Theme of finale first thought of as for instrumental finale to 9th symphony).

1826. String quartet, *op.* 131 (C♯, mi.). String quartet, *op.* 135 (F). New finale to *op.* 130, Beethoven's last composition.

(D. F. T.)

AUTHORITIES.—A.W. Thayer, *Beethovens Leben* (1866-1879); L. Nohl, *Life of Beethoven* (Eng.

trans., 1884), and *Letters* (Eng. trans., 1866); Sir G. Grove, *Beethoven and his Symphonies* (1896), and in Grove's *Dictionary of Music*.

BEETLE (O. Eng. *bityl*; connected with "bite"), a name commonly applied to those insects which possess horny wing-cases; it is used to denote the cockroaches (*q.v.*) (black beetles), as well as the true beetles or *Coleoptera* (*q.v.*), the two belonging to different orders of *Insecta*.

The adjective "beetle-browed," and similarly "beetling" (of a cliff), are derived from the name of the insect. From another word (O. Eng. *betel*, connected with "beat") comes "beetle" in the sense of a mallet, and the "beetling-machine," which subjects fabrics to a hammering process.

BEETS, NIKOLAAS (1814-1903), Dutch poet, was born at Haarlem on the 13th of September 1814; constant references in his poems and sketches show how deeply the beauty of that town and its neighbourhood impressed his imagination. He studied theology in Leiden, but gave himself early to the cultivation of poetry. In his youth Beets was entirely carried away on the tide of Byronism which was then sweeping over Europe, and his early works—*Jose* (1834), *Kuser* (1835) and *Guy de Vlaming* (1837)—are gloomy romances of the most impassioned type. But at the very same time he was beginning in prose the composite work of humour and observation which has made him famous, and which certainly had nothing that was in the least Byronic about it. This was the celebrated *Camera Obscura* (1839), the most successful imaginative work which any Dutchman of the 18th century produced. This work, published under the pseudonym of "Hildebrand," goes back in its earliest inception to the year 1835, when Beets was only twenty-one. It consists of complete short stories, descriptive sketches, studies of peasant life—all instinct with humour and pathos, and written in a style of great charm; it has been reprinted in countless editions. Beets became a professor at the university of Leiden, and the pastor of a congregation in that city. In middle life he published further collections of verse—*Cornflowers* (1853) and *New Poems* (1857)—in which the romantic melancholy was found to have disappeared, and to have left in its place a gentle sentiment and a depth of religious feeling. In 1873-1875 Beets collected his works in three volumes. In April 1883 the honorary degree of LL.D. Edin. was conferred upon him. He died at Utrecht on the 13th of March 1903.

BEFANA (Ital., corrupted from *Epifania*, Epiphany), the Italian female counterpart of Santa Claus, the Christmas benefactor (St Nicholas). On Epiphany, or Twelfth Night, she plays the fairy godmother to the children, filling their stockings with presents. Tradition relates that she was too busy with house duties to come to the window to see the Three Wise Men of the East pass on their journey to pay adoration to the Saviour, excusing herself on the ground that she could see them on their return. They went back another way, and Befana is alleged to have been punished by being obliged to look for them for ever. Her legends seem to be rather mixed, for in spite of her Santa Claus character, her name is used by Italian mothers as a bogey to frighten the babies. It was the custom to carry her effigy through Italian towns on the eve of the Epiphany.

BEFFROY DE REIGNY, LOUIS ABEL (1757-1811), French dramatist and man of letters, was born at Laon on the 6th of November 1757. Under the name of "Cousin Jacques" he founded a periodical called *Les Lunes* (1785-1787). The *Courrier des planètes ou Correspondance du Cousin Jacques avec le firmament* (1788-1792) followed. *Nicodème dans la lune, ou la révolution pacifique* (1790) a three-act farce, is said to have had more than four hundred representations.

In spite of his protests against the evils of the Revolution he escaped interference through the influence of his brother, Louis Étienne Beffroy, who was a member of the Convention. Of *La Petite Nanette* (1795) and several other operas he wrote both the words and the music. His *Dictionnaire néologique* (3 vols., 1795-1800) of the chief actors and events in the Revolution was interdicted by the police and remained incomplete. Beffroy spent his last years in retirement, dying in Paris on the 17th of December 1811.

BEGAS, KARL (1794-1854), German historical painter, was born at Heinsberg near Aix-la-Chapelle. His father, a retired judge, destined him for the legal profession, but the boy's tastes pointed definitely in another direction. Even at school he was remarked for his wonderful skill in drawing and painting, and in 1812 he was permitted to visit Paris in order to perfect himself in his art. He studied for eighteen months in the atelier of Gros and then began to work independently. In 1814 his copy of the Madonna della Sedia was bought by the king of Prussia, who was attracted by the young artist and did much to advance him. He was engaged to paint several large Biblical pictures, and in 1825, after his return from Italy, continued to produce paintings which were placed in the churches of Berlin and Potsdam. Some of these were historical pieces, but the majority were representations of Scriptural incidents. Begas was also celebrated as a portrait-painter, and supplied to the royal gallery a long series of portraits of eminent Prussian men of letters. At his death he held the post of court painter at Berlin. His son Oskar (1828-1883) was also a painter and professor of painting at Berlin. Reinhold, the sculptor, is noticed below.

BEGAS, REINHOLD (1831-), German sculptor, younger son of Karl Begas, the painter, was born at Berlin on the 15th of July 1831. He received his early education (1846-1851) in the ateliers of C.D. Rauch and L. Wichmann. During a period of study in Italy, from 1856 to 1858, he was influenced by Böcklin and Lenbach in the direction of a naturalistic style in sculpture. This tendency was marked in the group "Borussia," executed for the façade of the exchange in Berlin, which first brought him into general notice. In 1861 he was appointed professor at the art school at Weimar, but retained the appointment only a few months. That he was chosen, after competition, to execute the statue of Schiller for the Gendarmen Markt in Berlin, was a high tribute to the fame he had already acquired; and the result, one of the finest statues in the German metropolis, entirely justified his selection. Since the year 1870, Begas has entirely dominated the plastic art in Prussia, but especially in Berlin. Among his chief works during this period are the colossal statue of Borussia for the Hall of Glory; the Neptune fountain in bronze on the Schlossplatz; the statue of Alexander von Humboldt, all in Berlin; the sarcophagus of the emperor Frederick III. in the mausoleum of the Friedenskirche at Potsdam; and, lastly, the national monument to the emperor William (see Berlin), the statue of Bismarck before the Reichstag building, and several of the statues in the Siegesallee. He was also entrusted with the execution of the sarcophagus of the empress Frederick.

See A.G. Meyer, "Reinhold Begas" in *Künstler-Monographien*, ed. H. Knackfuss, Heft xx. (Bielefeld, 1897; new ed., 1901).

BEGGAR, one who begs, particularly one who gains his living by asking the charitable contributions of others. The word, with the verbal form "to beg," in Middle English *beggen*, is of obscure history. The words appear first in English in the 13th century, and were early connected with "bag," with reference to the receptacle for alms carried by the beggars. The most probable derivation of the word, and that now generally accepted, is that it is a corruption of the name of the lay communities known as Beguines and Beghards, which, shortly after their establishment, followed the friars in the practice of mendicancy (see Beguines). It has been suggested, however, that the origin of "beg" and "beggars" is to be found in a rare Old English word, *bedecian*, of the same meaning, which is apparently connected with the Gothic *bidjan*, cf. German *betteln*; but

between the occurrence of *bedecian* at the end of the 9th century and the appearance of "beggar" and "beg" in the 13th, there is a blank, and no explanation can be given of the great change in form. For the English law relating to begging and its history, see CHARITY, POOR LAW and VAGRANCY.

BEGGAR-MY-NEIGHBOUR, a simple card-game. An ordinary pack is divided equally between two players, and the cards are held with the backs upwards. The first player lays down his top card face up, and the opponent plays his top card on it, and this goes on alternately as long as no court-card appears; but if either player turns up a court-card, his opponent has to play four ordinary cards to an ace, three to a king, two to a queen, one to a knave, and when he has done so the other player takes all the cards on the table and places them under his pack; if, however, in the course of this playing to a court-card, another court-card turns up, the adversary has in turn to play to this, and as long as neither has played a full number of ordinary cards to any court-card the trick continues. The player who gets all the cards into his hand is the winner.

BEGONIA (named from M. Begon, a French patron of botany), a large genus (natural order, Begoniaceae) of succulent herbs or undershrubs, with about three hundred and fifty species in tropical moist climates, especially South America and India. About one hundred and fifty species are known in cultivation, and innumerable varieties and hybrid forms. Many are tuberous. The flowers are usually showy and large, white, rose, scarlet or yellow in colour; they are unisexual, the male containing numerous stamens, the female having a large inferior ovary and two to four branched or twisted stigmas. The fruit is a winged capsule containing numerous minute seeds. The leaves, which are often large and variegated, are unequal-sided.

Cuttings from flowering begonias root freely in sandy soil, if placed in heat at any season when moderately firm; as soon as rooted, they should be potted singly into 3-in. pots, in sandy loam mixed with leaf-mould and sand. They should be stopped to keep them bushy, placed in a light situation, and thinly shaded in the middle of very bright days. In a few weeks they will require another shift. They should not be overpotted, but instead assisted by manure water. The pots should be placed in a light pit near the roof glass. The summer-flowering kinds will soon begin blooming, but the autumn and winter flowering sorts should be kept growing on in a temperature of from 55° to 60° by night, with a few degrees more in the day. The tuberous-rooted sorts require to be kept at rest in winter, in a medium temperature, almost but not quite dry. In February they should be potted in a compost of sandy loam and leaf-mould, and placed in a temperate pit until May or June, when they may be moved to the greenhouse for flowering. If they afterwards get at all pot-bound, weak manure should be applied. After blooming, the supply of water must be again slackened; in winter the plants should be stored in a dry place secure from frost; they are increased by late summer and autumn cuttings, after being partially cut down.

BEGUINES (Fr. *béguine*, Med. Lat. *beguina, begina, beghina*), at the present time the name of the members of certain lay sisterhoods established in the Netherlands and Germany, the enclosed district within which they live being known as a beguinage (Lat. *beginagium*). The equivalent male communities, called also Beguines (Fr. *béguins*, Lat. *beguini*), but more usually Beghards (Lat. *baghardi, beggardi, begehardi*, &c., O. Fr. *bégard-i*, Flem. *beggaert*), have long ceased to exist. The origin of the names Beguine and Beghard has been the subject of much controversy. In the 15th century a legend arose that both name and organization were traceable to St Begga, daughter of Pippin of Landen, who consequently in 1630 was chosen by the Beguines as the patron saint of their association. In 1630 a professor of Louvain, Erycius Puteanus (van Putte), published a treatise, *De Begginarum apud Belgas instituto et nomine suffragium*, in which he produced three documents purporting to date from the 11th and 12th centuries, which seemed conclusively to prove that the Beguines existed long before Lambert le

Bègue. For two centuries these were accepted as genuine and are admitted as such even in the monumental work of Mosheim. In 1843, however, they were conclusively proved by the German scholar Hallmann, from internal evidence, to be forgeries of the 14th and 15th centuries. It is now universally admitted that both the institution and the name of the Beguines are derived from Lambert le Bègue, who died about the year 1187. The confusion caused by the spurious documents of Puteanus, however, led, even when the legend of St Begga was rejected, to other suggestions for the derivation of the name, *e.g.* from an imaginary old Saxon word *beggen*, "to beg" or "pray," an explanation adopted even by Mosheim, or from *bègue*, "stammering," a French word of unknown origin, which only brings us back to Lambert again, whose name of Le Bègue, as the chronicler Aegidius, a monk of Orval (Aureae Vallis), tells us, simply means "the stammerer," *quia balbus erat* (*Gesta pontificum Leodiensium*, *c.* A.D. 1251). Doubtless this coincidence gave a ready handle to the scoffing wits of the time, and among the numerous popular names given to the Beghards—*bons garçons, boni pueri, boni valeti* and the like—we find also that of Lollards (from Flemish *löllen*, "to stammer").

About the year 1170 Lambert le Bègue, a priest of Liége, who had devoted his fortune to founding the hospital and church of St Christopher for the widows and children of crusaders, conceived the idea of establishing an association of women, who, without taking the monastic vows, should devote themselves to a life of religion. The effect of his preaching was immense, and large numbers of women, many of them left desolate by the loss of their husbands on crusade, came under the influence of a movement which was attended with all the manifestations of what is now called a "revival." About the year 1180 Lambert gathered some of these women, who had been ironically styled "Beguines" by his opponents, into a semi-conventual community, which he established in a quarter of the city belonging to him around his church of St Christopher. The district was surrounded by a wall within which the Beguines lived in separate small houses, subject to no rule save the obligation of good works, and of chastity so long as they remained members of the community. After Lambert's death (*c.* 1187?) the movement rapidly spread, first in the Netherlands and afterwards in France—where it was encouraged by the saintly Louis IX.—Germany, Switzerland and the countries beyond. Everywhere the community was modelled on the type established at Liége. It constituted a little city within the city, with separate houses, and usually a church, hospital and guest-house, the whole being under the government of a mistress (*magistra*). Women of all classes were admitted; and, though there was no rule of poverty, many wealthy women devoted their riches to the common cause. The Beguines did not beg; and, when the endowments of the community were not sufficient, the poorer members had to support themselves by manual work, sick-nursing and the like.

The Beguine communities were fruitful soil for the missionary enterprise of the friars, and in the course of the 13th century the communities in France, Germany and upper Italy had fallen under the influence of the Dominicans and Franciscans to such an extent that in the Latin-speaking countries the tertiaries of these orders were commonly called *beguini* and *beguinae*. The very looseness of their organization, indeed, made it inevitable that the Beguine associations should follow very diverse developments. Some of them retained their original character; others fell completely under the dominion of the friars, and were ultimately converted into houses of Dominican, Franciscan or Augustinian tertiaries; others again fell under the influence of the mystic movements of the 13th century, turned in increasing numbers from work to mendicancy (as being nearer the Christ-life), practised the most cruel self-tortures, and lapsed into extravagant heresies that called down upon them the condemnation of popes and councils.[1] All this tended to lower the reputation of the Beguines. During the 14th century, indeed, numerous new beguinages were established; but ladies of rank and wealth ceased to enter them, and they tended to become more and more mere almshouses for poor women. By the 15th century in many cases they had utterly sunk in reputation, their obligation to nurse the sick was quite neglected, and they had, rightly or wrongly, acquired the reputation of being mere nests of beggars and women of ill fame. At the Reformation the communities were suppressed in Protestant countries, but in some Catholic countries they still survive. The beguinages found here and there in Germany are now simply almshouses for poor spinsters, those in Holland (*e.g.* at Amsterdam and Breda) and Belgium preserve more faithfully the characteristics of earlier days. The beguinage of St Elizabeth at Ghent has some thousand sisters, and occupies quite a distinct quarter of the city, being surrounded by a wall and moat. The Beguines wear the old Flemish head-dress and a dark costume, and are conspicuous for their kindness among the poor and their sick nursing.

It is uncertain whether the parallel communities of men originated also with Lambert le Bègue. The first records are of communities at Louvain in 1220 and at Antwerp in 1228. The history of the male communities is to a certain extent parallel with the female, but they were never so numerous and their degeneration was far more rapid. The earliest Flemish Beghard communities were associations mainly of artisans who earned their living by weaving and the like, and appear to have been in intimate connexion with the craft-gilds; but under the influence

of the mendicant movement of the 13th century these tended to break up, and, though certain of the male beguinages survived or were incorporated as tertiaries in the orders of friars, the name of Beghard became associated with groups of wandering mendicants who made religion a cloak for living on charity; *béguigner* becoming in the French language of the time synonymous with "to beg," and *beghard* with "beggar," a word which, according to the latest authorities, was probably imported into England in the 13th century from this source (see BEGGAR). More serious still, from the point of view of the Church, was the association of these wandering mendicants with the mystic heresies of the Fraticelli, the Apostolici and the pantheistic Brethren of the Free Spirit. The situation was embittered by the hatred of the secular clergy for the friars, with whom the Beguines were associated. Restrictions were placed upon them by the synod of Fritzlar (1269), by that of Mainz (1281) and Eichstätt (1281). and by the synod of Béziers (1299) they were absolutely forbidden. They were again condemned by a synod held at Cologne in 1306; and at the synod of Trier in 1310 a decree was passed against those "who under a pretext of feigned religion call themselves Beghards ... and, hating manual labour, go about begging, holding conventicles and posing among simple people as interpreters of the Scriptures." Matters came to a climax at the council of Vienne in 1311 under Pope Clement V., where the "sect of Beguines and Beghards" were accused of being the main instruments of the spread of heresy, and decrees were passed suppressing their organization and demanding their severe punishment. The decrees were put into execution by Pope John XXII., and a persecution raged in which, though the pope expressly protected the female Beguine communities of the Netherlands, there was little discrimination between the orthodox and unorthodox Beguines. This led to the utmost confusion, the laity in many cases taking the part of the Beguine communities, and the Church being thus brought into conflict with the secular authorities. In these circumstances the persecution died down; it was, however, again resumed between 1366 and 1378 by Popes Urban V. and Gregory XI., and the Beguines were not formally reinstated until the pontificate of Eugenius IV. (1431-1447). The male communities did not survive the 14th century, even in the Netherlands, where they had maintained their original character least impaired.

See J.L. von Mosheirn, *De beghardis et beguinabus commentarius* (Leipzig, 1790); E. Hallmann, *Die Geschichte des Ursprungs der belgischen Beghinen* (Berlin, 1843); J.C.L. Giesclcr, *Eccles. Hist.* (vol. iii., Eng. trans., Edinburgh, 1853), with useful excerpts from documents; Du Cange, *Glossarium*; Herzog-Haurk, *Realencyklopädie* (3rd ed., 1897) s. "Beginen," by Herman Haupt, where numerous further authorities are cited.

(W. A. P.)

1 In the year 1287 the council of Liége decreed that "all Beguinae desiring to enjoy the Beguine privileges shall enter a Beguinage, and we order that all who remain outside the Beguinage shall wear a dress to distinguish them from the Beguinae."

BEHAIM (or BEHEM), **MARTIN** (1436?-1507), a navigator and geographer of great pretensions, was born at Nuremberg, according to one tradition, about 1436; according to Ghillany, as late as 1459. He was drawn to Portugal by participation in Flanders trade, and acquired a scientific reputation at the court of John II. As a pupil, real or supposed, of the astronomer "Regiomontanus" (*i.e.* Johann Müller of Königsberg in Franconia) he became (*c.* 1480) a member of a council appointed by King John for the furtherance of navigation. His alleged introduction of the cross-staff into Portugal (an invention described by the Spanish Jew, Levi ben Gerson, in the 14th century) is a matter of controversy; his improvements in the astrolabe were perhaps limited to the introduction of handy brass instruments in place of cumbrous wooden ones; it seems likely that he helped to prepare better navigation tables than had yet been known in the Peninsula. In 1484-1485 he claimed to have accompanied Diogo Cão in his second expedition to West Africa, really undertaken in 1485-86, reaching Cabo Negro in 15° 40′ S. and Cabo Ledo still farther on. It is now disputed whether Behaim's pretensions here deserve any belief; and it is suggested that instead of sharing in this great voyage of discovery, the Nuremberger only sailed to the nearer coasts of Guinea, perhaps as far as the Bight of Benin, and possibly with José Visinho the astronomer and with João Affonso d'Aveiro, in 1484-86. Martin's later history, as traditionally recorded, was as follows. On his return from his West African exploration to Lisbon he was knighted by King John, who afterwards employed him in various capacities; but, from the time of his marriage in 1486, he usually resided at Fayal in the Azores, where his father-in-law, Jobst van Huerter, was governor of a Flemish colony. On a visit to his native city in 1492, he constructed his famous terrestrial globe, still preserved in Nuremberg, and often reproduced, in which the influence of Ptolemy is strongly apparent, but wherein some attempt is also made to incorporate the discoveries of the later middle ages (Marco Polo, &c.). The antiquity of this globe and the year of its execution, on the eve of the

discovery of America, are noteworthy; but as a scientific work it is unimportant, ranking far below the *portolani* charts of the 14th century. Its West Africa is marvellously incorrect; the Cape Verde archipelago lies hundreds of miles out of its proper place; and the Atlantic is filled with fabulous islands. Blunders of 16° are found in the localization of places the author claims to have visited: contemporary maps, at least in regard to continental features, seldom went wrong beyond 1°. It is generally agreed that Behaim had no share in Transatlantic discovery; and though Columbus and he were apparently in Portugal at the same time, no connexion between the two has been established. He died at Lisbon in 1507.

See C.G. von Murr, *Diplomatische Geschichte des berühmten Ritters Behaim* (1778); A. von Humboldt, *Kritische Untersuchungen* (1836); F.W. Ghillany, *Geschichte des Seefahrers Martin Behaim* (1853); O. Peschel, *Geschichte der Erdkunde*, 214-215, 226, 251, and *Zeitalter der Entdeckungen*, esp. p. 90; Breusing, *Zur Geschichte der Geographie* (1869); Eugen Gelcich in the *Mittheilungen* of the Vienna Geographical Society, vol. xxxvi. pp. 100, &c.; E.G. Ravenstein, *Martin de Bohemia*, (Lisbon, 1900), *Martin Behaim, His Life and His Globe* (London, 1909), and *Voyages of Diogo Cão and Bartholomeu Dias*, 1482-1488, in *Geographical Journal*, Dec. 1900; see also *Geog. Journal*, Aug. 1893, p. 175, Nov. 1901, p. 509; Jules Mees in *Bull. Soc. Geog.*, Antwerp, 1902, pp. 182-204; A. Ferreira de Serpa in *Bull. Soc. Geog.*, Lisbon, 1904, pp. 297-307.

(C. R. B.)

BEHAR, or BIHAR, a town of British India, in the Patna district of Bengal, which gives its name to an old province, situated on the right bank of the river Panchana. Pop. (1901) 45,063. There are still some manufactures of silk and muslin, but trade has deserted Behar in favour of Patna and other places more favourably situated on the river Ganges and the railway, while the indigo industry has been ruined by the synthetic products of the German chemist, and the English colony of indigo planters has been scattered abroad.

The old province, stretching widely across the valley of the Ganges from the frontier of Nepal to the hills of Chota Nagpur, corresponds to the two administrative divisions of Patna and Bhagalpur, with a total area of 44,197 sq. m. and a population of 24,241,305. It is the most densely populated tract in India, and therefore always liable to famine; but it is now well protected almost everywhere by railways. It is a country of large landholders and formerly of indigo planters. The vernacular language is not Bengali, but a dialect of Hindu; and the people likewise resemble those of Upper India. The general aspect of the country is flat, except in the district of Monghyr, where detached hills occur, and in the south-east of the province, where the Rajmahal and Santal ranges abut upon the plains.

Behar abounds in great rivers, such as the Ganges, with its tributaries, the Ghagra, Gandak, Kusi, Mahananda and Sone. The Ganges enters the province near the town of Buxar, flows eastward and, passing the towns of Dinajpur, Patna, Monghyr and Colgong, leaves the province at Rajmahal. It divides the province into two almost equal portions; north of the river lie the districts of Saran, Champaran, Tirhoot, Purnea, and part of Monghyr and Bhagalpur, and south of it are Shahabad, Patna, Gaya, the Santal parganas, and the rest of Monghyr and Bhagalpur. The Ganges and its northern tributaries are navigable by country boats of large burden all the year round. The cultivation of opium is a government monopoly, and no person is allowed to grow the poppy except on account of government. The Behar Opium Agency has its headquarters at the town of Patna. Annual engagements are entered into by the cultivators, under a system of pecuniary advances, to sow a certain quantity of land with poppy, and the whole produce in the form of opium is delivered to government at a fixed rate.

Saltpetre is largely refined in Tirhoot, Saran and Champaran, and is exported both by rail and river to Calcutta. The manufactures of less importance are tussore-silk, paper, blankets, brass utensils, firearms, carpets, coarse cutlery and hardware, leather, ornaments of gold and silver, &c. Of minerals—lead, silver and copper exist in the Bhagalpur division, but the mines are not worked. One coal-mine is worked in the parganas. Before the construction of railways in India, the Ganges and the Grand Trunk road afforded the sole means of communication from Calcutta to the North-Western Provinces. But now the railroad is the great highway which connects Upper India with Lower Bengal. The East Indian railway runs throughout the length of the province. The climate of Behar is very hot from the middle of March to the end of June, when the rains set in, which continue till the end of September. The cold season, from October to the first half of March, is the pleasantest time of the year.

History.—The province of Behar corresponds to the ancient kingdom of Magadha, which comprised the country now included in the districts of Patna, Gaya and Shahabad, south of the Ganges. The origin of this kingdom, famous alike in the political and religious history of India, is

lost in the mists of antiquity; and though the Brahmanical *Puranas* give lists of its rulers extending back to remote ages before the Christian era, the first authentic dynasty is that of the Saisunaga, founded by Sisunaga (*c.* 600 B.C.), whose capital was at Rajagaha (Rajgir) in the hills near Gaya; and the first king of this dynasty of whom anything is known was Bimbisara (*c.* 528 B.C.), who by conquests and matrimonial alliances laid the foundations of the greatness of the kingdom. It was in the reign of Bimbisara that Vardhamana Mahavira, the founder of Jainism, and Gautama, the founder of Buddhism, preached in Magadha, and Buddhist missionaries issued thence to the conversion of China, Ceylon, Tibet and Tatary. Even to this day Behar, where there are extensive remains of Buddhist buildings, remains a sacred spot in the eyes of the Chinese and other Buddhist nations.

Bimbisara was murdered by his son Ajatasatru, who succeeded him, and whose bloodthirsty policy reduced the whole country between the Himalayas and the Ganges under the suzerainty of Magadha. According to tradition, it was his grandson, Udaya, who founded the city of Pataliputra (Patna) on the Ganges, which under the Maurya dynasty became the capital not only of Magadha but of India. The remaining history of the dynasty is obscure; according to Mr Vincent Smith, its last representative was Mahanandin (417 B.C.), after whose death the throne was usurped, under obscure circumstances, by Mahapadma Nanda, a man of low caste (*Early Hist. of India*, p. 36). It was a son of this usurper who was reigning at the time of the invasion of Alexander the Great; and the conqueror, when his advance was arrested at the Hyphasis (326 B.C.), meditating an attack on Pataliputra (the Palimbothra of the Greeks), was informed that the king of Magadha could oppose him with a force of 20,000 cavalry, 200,000 infantry, 2000 chariots, and 3000 or 4000 elephants. The Nanda dynasty seems to have survived only for two generations, when (321 B.C.) Chandragupta Maurya, the founder of the great Maurya dynasty, seized the throne. This dynasty, of which the history belongs to that of India (*q.v.*), occupied the throne for 137 years. After the death of the great Buddhist king, Asoka (*c.* 231), the Maurya empire began to break up, and it was finally destroyed about fifty years later when Pushyamitra Sunga murdered the Maurya king Brihadratha and founded the Sunga dynasty. Descendants of Asoka continued, however, to subsist in Magadha as subordinate rajas for many centuries; and as late as the 8th century A.D. petty Maurya dynasties are mentioned as ruling in Konkan. The reign of Pushyamitra, who held his own against Menander and succeeded in establishing his claim to be lord paramount of northern India, is mainly remarkable as marking the beginning of the Brahmanical reaction and the decline of Buddhism; according to certain Buddhist writers the king, besides reviving Hindu rites, indulged in a savage persecution of the monks. The Sunga dynasty, which lasted 112 years, was succeeded by the Kanva dynasty, which after 45 years was overthrown (*c.* 27 B.C.) by the Andhras or Satavahanas. In A.D. 236 the Andhras were overthrown, and, after a confused and obscure period of about a century, Chandragupta I. established his power at Pataliputra (A.D. 320) and founded the famous Gupta empire (see GUPTA), which survived till it was overthrown by the Ephthalites (*q.v.*), or White Huns, at the close of the 5th century. In Magadha itself the Guptas continued to rule as tributary princes for some centuries longer. About the middle of the 8th century Magadha was conquered by Gopala, who had made himself master in Bengal, and founded the imperial dynasty known as the Palas of Bengal. They were zealous Buddhists, and under their rule Magadha became once more an active centre of Buddhist influence. Gopala himself built a great monastery at Udandapura, or Otantapuri, which has been identified by Sir Alexander Cunningham with the city of Behar, where the later Pala kings established their capital. Under Mahipala (*c.* 1026), the ninth of his line, and his successor Nayapala, missionaries from Magadha succeeded in firmly re-establishing Buddhism in Tibet.

In the 11th century the Pala empire, which, according to the Tibetan historian Taranath, extended in the 9th century from the Bay of Bengal to Delhi and Jalandhar (Jullundur) in the north and the Vindhyan range in the south, was partly dismembered by the rise of the “Sena” dynasty in Bengal; and at the close of the 12th century both Palas and Senas were swept away by the Mahommedan conquerors, the city of Behar itself being captured by the Turki free-lance Mahommed-i-Bakhtyar Khilji in 1193, by surprise, with a party of 200 horsemen. “It was discovered,” says a contemporary Arab historian, “that the whole of that fortress and city was a college, and in the Hindi tongue they call a college Bihar.” Most of the monks were massacred in the first heat of the assault; those who survived fled to Tibet, Nepal and the south. Buddhism in Magadha never recovered from this blow; it lingered in obscurity for a while and then vanished.

Behar now came under the rule of the Mahommedan governors of Bengal. About 1330 the southern part was annexed to Delhi, while north Behar remained for some time longer subject to Bengal. In 1397 the whole of Behar became part of the kingdom of Jaunpur; but a hundred years later it was annexed by the Delhi emperors, by whom—save for a short period—it continued to be held. The capital of the province was established under the Moguls at the city of Behar, which gave its name to the province. From the middle of the 14th to the middle of the 16th century a large part of Behar was ruled by a line of Brahman tributary kings; and in the 15th century another Hindu dynasty ruled in Champaran and Gorakhpur. Behar came into the possession of the East India Company with the acquisition of the Diwani in 1765, when the province was united with Bengal. In 1857 two zemindars, Umar Singh and Kumar Singh,

rebelled against the British government, and for some months held the ruinous fort of Rohtas against the British.

See *Imperial Gazetteer of India* (Oxford, 1908), *s.v.* “Bihar” and “Bengal”; V.A. Smith, *Early History of India* (2nd ed., Oxford, 1908).

BEHĀ UD-DĪN [Abū-l-maḥāsin Yūsuf Ibn Rāfī‘ Ibn Shaddād Behā Ud Dīn] (1145-1234), Arabian writer and statesman, was born in Mosul and early became famous for his knowledge of the Koran and of jurisprudence. Before the age of thirty he became teacher in the great college at Bagdad known as the Nizāmiyya, and soon after became professor at Mosul. In 1187, after making the pilgrimage to Mecca, he visited Damascus. Saladin, who was at the time besieging Kaukab (a few miles south of Tiberias), sent for him and became his friend. Behā ud-Dīn observed that the whole soul of the monarch was engrossed by the war which he was then engaged in waging against the enemies of the faith, and saw that the only mode of acquiring his favour was by urging him to its vigorous prosecution. With this view he composed a treatise on *The Laws and Discipline of Sacred War*, which he presented to Saladin, who received it with peculiar favour. From this time he remained constantly attached to the person of the sultan, and was employed on various embassies and in departments of the civil government. He was appointed judge of the army and judge of Jerusalem. After Saladin’s death Behā-ud-Din remained the friend of his son Malik uz-Zāhir, who appointed him judge of Aleppo. Here he employed some of his wealth in the foundation of colleges. When Malik uz-Zāhir died, his son Malik ul-‘Aziz was a minor, and Behā ud-Dīn had the chief power in the regency. This power he used largely for the patronage of learning. After the abdication of Malik ul-‘Aziz, he fell from favour and lived in retirement until his death in 1234. Behā ud-Dīn’s chief work is his *Life of Saladin* (published at Leiden with Latin translation by A. Schultens in 1732 and 1755). An English translation was published by the Palestine Pilgrims’ Text Society, London, 1897.

For list of other extant works see C. Brockelmann, *Geschichte der arabischen Litteratur* (Weimar, 1898), vol. i. pp. 316 f.

(G. W. T.)

BEHĀ UD-DĪN ZUHAIR (Abū-l Faḍl Zuhair Ibn Maḥommed Al-Muhallabī) (1186-1258), Arabian poet, was born at or near Mecca, and became celebrated as the best writer of prose and verse and the best calligraphist of his time. He entered the service of Malik uṣ-Sāliḥ Najm ud-Dīn in Mesopotamia, and was with him at Damascus until he was betrayed and imprisoned. Behā ud-Dīn then retired to Nablūs (Shechem) where he remained until Najm ud-Dīn escaped and obtained possession of Egypt, whither he accompanied him in 1240. There he remained as the sultan’s confidential secretary until his death, due to an epidemic, in 1258. His poetry consists mostly of panegyric and brilliant occasional verse distinguished for its elegance. It has been published with English metrical translation by E.H. Palmer (2 vols., Cambridge, 1877).

His life was written by his contemporary Ibn Khallikan (see M‘G. de Slane’s trans. of his *Biographical Dictionary*, vol. i. pp. 542-545).

(G. W. T.)

BEHBAHAN, a walled town of Persia in the province of Fars, pleasantly situated in the midst of a highly cultivated plain, 128 m. W.N.W. of Shiraz and 3 m. from the left bank of the river Tab, here called Kurdistan river. It is the capital of the Kuhgilu-Behbahan sub-province of Fars and has a population of about 10,000. The walls are about 3 m. in circumference and a Narinj Kalah (citadel) stands in the south-east corner. At a short distance north-west of the city are the ruins of Arrajan, the old capital of the province.

BEHEADING, a mode of executing capital punishment (*q.v.*). It was in use among the Greeks and Romans, and the former, as Xenophon says at the end of the second book of the *Anabasis*, regarded it as a most honourable form of death. So did the Romans, by whom it was known as *decollatio* or *capitis amputatio*. The head was laid on a block placed in a pit dug for the purpose, —in the case of a military offender, outside the intrenchments, in civil cases outside the city walls, near the *porta decumana*. Before execution the criminal was tied to a stake and whipped with rods. In earlier years an axe was used; afterwards a sword, which was considered a more honourable instrument of death, and was used in the case of citizens (*Dig.* 48, 19, 28). It was with a sword that Cicero's head was struck off by a common soldier. The beheading of John the Baptist proves that the tetrarch Herod had adopted from his suzerain the Roman mode of execution. Suetonius (*Calig. c.* 32) states that Caligula kept a soldier, an artist in beheading, who in his presence decapitated prisoners fetched indiscriminately for that purpose from the gaols.

Beheading is said to have been introduced into England from Normandy by William the Conqueror. The first person to suffer was Waltheof, earl of Northumberland, in 1076. An ancient MS. relating to the earls of Chester states that the serjeants or bailiffs of the earls had power to behead any malefactor or thief, and gives an account of the presenting of several heads of felons at the castle of Chester by the earl's serjeant. It appears that the custom also attached to the barony of Malpas. In a roll of 3 Edward II., beheading is called the "custom of Cheshire" (Lysons' *Cheshire*, p. 299, from Harl. MS. 2009 fol. 34*b*). The liberty of Hardwick, in Yorkshire, was granted the privilege of beheading thieves. (See GUILLOTINE.)

But with the exceptions above stated beheading was usually reserved as the mode of executing offenders of high rank. From the 15th century onward the victims of the axe include some of the highest personages in the kingdom: Archbishop Scrope (1405); duke of Buckingham (1483); Catherine Howard (1542); earl of Surrey (1547); duke of Somerset (1552); duke of Northumberland (1553); Lady Jane Grey (1554), Lord Guildford Dudley (1554); Mary queen of Scots (1587); earl of Essex (1601); Sir Walter Raleigh (1618); earl of Strafford (1641); Charles I. (1649); Lord William Russell (1683); duke of Monmouth (1685); earl of Derwentwater (1716); earl of Kenmure (1716); earl of Kilmarnock and Lord Balmerino (1746); and the list closes with Simon, Lord Lovat, who (9th of April 1747) was the last person beheaded in England. The execution of Anne Boleyn was carried out not with the axe, but with a sword, and by a French headsman specially brought over from Calais. In 1644 Archbishop Laud was condemned to be hanged, and the only favour granted him, and that reluctantly, was that his sentence should be changed to beheading. In the case of the 4th Earl Ferrers (1760) his petition to be beheaded was refused and he was hanged.

Executions by beheading usually took place on Tower Hill, London, where the scaffold stood permanently during the 15th and 16th centuries. In the case of certain state prisoners, *e.g.* Anne Boleyn and Lady Jane Grey, the sentence was carried out within the Tower on the green by St Peter's chapel.

Beheading was only a part of the common-law method of punishing male traitors, which was ferocious in the extreme. According to Walcot's case (1696), 1 *Eng. Rep.* 89, the proper sentence was "quod ... ibidem super bigam (herdillum) ponatur et abinde usque ad furcas de [Tyburn] trahatur, et ibidem per collum suspendatur et vivus ad terram prosternatur et quod secreta membra ejus amputentur, et interiora sua intra ventrem suum capiantur et in ignem ponantur et ibidem *ipso vivente* comburantur, et quod caput ejus amputetur, quodque corpus ejus in quatuor partes dividatur et illo ponantur ubi dominus rex eas assignare voluit." There is a tradition that Harrison the regicide after being disembowelled rose and boxed the ears of the executioner.

In Townley's case (18 Howell, *State Trials*, 350, 351) there is a ghastly account of the mode of executing the sentence; and in that case the executioner cut the traitor's throat. In the case of the Cato Street conspiracy (1820, 33 Howell, *State Trials*, 1566), after the traitors had been hanged as directed by the act of 1814, their heads were cut off by a man in a mask whose dexterity led to the belief that he was a surgeon.

Female traitors were until 1790 liable to be drawn to execution and burnt alive. In that year hanging was substituted for burning.

In 1814 so much of the sentence as related to disembowelling and burning the bowels was abolished and the king was empowered by royal warrant to substitute decapitation for hanging, which was made by that act the ordinary mode of executing traitors. But it was not till 1870 that the portions of the sentence as to drawing and quartering were abolished (Forfeiture Act 1870).

The more barbarous features of the execution were remitted in the case of traitors of high rank, and the offender was simply decapitated.

The block usually employed is believed to have been a low one such as would be used for beheading a corpse. C.H. Firth and S.R. Gardiner incline to the view that such a block was the

one used at Charles I.'s execution. The more general custom, however, seems to have been to have a high block over which the victim knelt. Such is the form of that preserved in the armoury of the Tower of London. This is undoubtedly the block upon which Lord Lovat suffered, but, in spite of several axe-cuts on it, probably not one in early use. The axe which stands beside it was used to behead him and the other Jacobite lords, but no certainty exists as to its having been previously employed. On the ground floor of the King's House, at the Tower, is preserved the processional axe which figured in the journeys of state prisoners to and from their trials, the edge turned from them as they went, but almost invariably turned towards them as they returned to the Tower. The axe's head is peculiar in form, 1 ft. 8 in. high by 10 in. wide, and is fastened into a wooden handle 5 ft. 4 in. long. The handle is ornamented by four rows of burnished brass nails.

In Scotland they did not behead with the axe, nor with the sword, as under the Roman law, and formerly in Holland and France, but with the maiden (*q.v.*).

Capital punishment is executed by beheading in France, and in Belgium by means of the guillotine.

In Germany the instrument used varies in different states: in the old provinces of Prussia the axe, in Saxony and Rhenish Prussia the guillotine. Until 1851 executions were public. They now take place within a prison in the presence of certain specified officials.

Beheading is also the mode of executing capital punishment in Denmark and Sweden. The axe is used. In Sweden the execution takes place on the order of the king within a prison in the presence of certain specified officials and, if desired, of twelve representatives of the commune within which the prison is situate (Code 1864, s. 2, Royal Ordinance 1877).

In the Chinese empire decapitation is the usual mode of execution. By an imperial edict (24th of April 1905) certain attendant barbarities have been suppressed: viz. slicing, cutting up the body, and exhibiting the head to public view (32 Clunet, 1175).

BEHEMOTH (the intensive plural of the Hebrew *b'hemah*, a beast), the animal mentioned in the book of Job (ch. xl. 15), probably the hippopotamus, which in ancient times was found in Egypt below the cataracts of Syene. The word may be used in Job as typical of the primeval king of land animals, as leviathan of the water animals. The modern use expresses the idea of a very large and strong animal.

BEHISTUN, or Bisitun, now pronounced *Bisutum*, a little village at the foot of a precipitous rock, 1700 ft. high, in the centre of the Zagros range in Persia on the right bank of the Samas-Ab, the principal tributary of the Kerkha (Choaspes). The original form of the name, Bagistana, "place of the gods" or "of God" has been preserved by the Greek authors Stephanus of Byzantium, and Diodorus (ii. 13), the latter of whom says that the place was sacred to Zeus, *i.e.* Ahuramazda (Ormuzd). At its foot passes the great road which leads from Babylonia (Bagdad) to the highlands of Media (Ecbatana, Hamadan). On the steep face of the rock, some 500 ft. above the plain, Darius I., king of Persia, had engraved a great cuneiform inscription (11 or 12 ft. high), which recounts the way in which, after the death of Cambyses, he killed the usurper Gaumata (in Justin Gometes, the pseudo-Smerdis), defeated the numerous rebels, and restored the kingdom of the Achaemenidae. Above the inscription the picture of the king himself is graven, with a bow in his hand, putting his left foot on the body of Gaumata. Nine rebel chiefs are led before him, their hands bound behind them, and a rope round their necks: the ninth is Skunka, the chief of the Scythians (Sacae) whom he defeated. Behind the king stand his bow-bearer and his lance-bearer; in the air appears the figure of the great god Ahuramazda, whose protection led him to victory.[1] The inscriptions are composed in the three languages which are written with cuneiform signs, and were used in all official inscriptions of the Achaemenian kings: the chief place is of course given to the Persian language (in four columns); the three Susian (Elamitic) columns lie to the left, and the Babylonian text is on a slanting boulder above them; a part of the Babylonian has been destroyed by a torrent, which has made its way over it. In former times the second language has often been called Scythian, Turanian or Median; but we now know from numerous inscriptions of Susa that it is the language of Elam which was spoken

in Susa, the capital of the Persian empire.

In 1835 the difficult and almost inaccessible cliff was first climbed by Sir Henry Rawlinson, who copied and deciphered the inscriptions (1835-1845), and thus completed the reading of the old cuneiform text and laid the foundation of the science of Assyriology. Diodorus ii. 13 (cf. xvii. 110), probably following a later author who wrote the history of Alexander's campaigns, mentions the sculptures and inscriptions, but attributes them to Semiramis. At the foot of the rock are the remainders of some other sculptures (quite destroyed), the fragments of a Greek inscription of the Parthian prince Gotarzes (A.D. 40; text in Dittenberger, *Orientis graeci inscr. selectae*, no. 431), and of an Arabic inscription.

See Sir Henry Rawlinson in the *Journ. R. Geog. Soc.* ix., 1839; *J. R. Asiatic Soc.* x. 1866, xiv., 1853, xv., 1855; *Archaeologia*, xxxiv., 1852; Sir R. Ker Porter, *Travels*, ii. 149 ff.; Flandin and Coste, *Voyage en Perse*, i. pl. 16; and the modern editions of the inscriptions, the best of which, up to the end of the 19th century, were: Weissbach and Bang, *Die altpersischen Keilinschriften* (1893); Weissbach, *Die Achaemenideninschriften zweiter Art* (1890); Bezold, *Die (babylonischen) Achaemenideninschriften* (1882). A description of the locality, with comments on the present state of the inscriptions and doubtful passages of the Persian text, was given by Dr A.V. Williams Jackson in the *Journal of the American Oriental Society*, xxiv., 1903, and in his *Persia, Past and Present* (1906). Dr Jackson in 1903 climbed to the ledge of the rock and was able to collate the lower part of the four large Persian columns; he thus convinced himself that Foy's conjecture of *ārštām* ("righteousness") for Rawlinson's *abištām* or *abaštām* was correct. A later investigation was carried out in 1904 on the instructions of the British Museum Trustees by Messrs. L.W. King and R.C. Thompson, who published their results in 1907 under the title, *The Inscription of Darius the Great at Behistûn*, including a full illustrated account of the sculptures and the inscription, and a complete collation of the text.

(ED. M.)

1 A passage in the inscription runs:—"Thus saith Darius the king: That which I have done I have done altogether by the grace of Ahuramazda. Ahuramazda, and the other gods that be, brought aid to me. For this reason did Ahuramazda, and the other gods that be, bring aid to me, because I was not hostile, nor a liar, nor a wrongdoer, neither I nor my family, but according to Rectitude (*ārštam*) have I ruled." (A.V. Williams Jackson, *Persia, Past and Present*)

BEHN, APHRA (otherwise AFRA, APHARA or AYFARA) (1640-1689), British dramatist and novelist, was baptized at Wye, Kent, in 1640. Her father, John Johnson, was a barber. While still a child she was taken out to Surinam, then an English possession, from which she returned to England in 1658, when it was handed over to the Dutch. In Surinam Aphra learned the history, and acquired a personal knowledge of the African prince Oroonoko and his beloved Imoinda, whose adventures she has related in her novel, *Oroonoko*. On her return she married Mr Behn, a London merchant of Dutch extraction. The wit and abilities of Mrs Behn brought her into high estimation at court, and—her husband having died by this time—Charles II. employed her on secret service in the Netherlands during the Dutch war. At Antwerp she successfully accomplished the objects of her mission; and in the latter end of 1666 she wormed out of one Van der Aalbert the design formed by De Ruyter, in conjunction with the DeWitts, of sailing up the Thames and burning the English ships in their harbours. This she communicated to the English court, but although the event proved her intelligence to have been well founded, it was at the time disregarded. Disgusted with political service, she returned to England, and from this period she appears to have supported herself by her writings. Among her numerous plays are *The Forced Marriage, or the Jealous Bridegroom* (1671); *The Amorous Prince* (1671); *The Town Fop* (1677); and *The Rover, or the Banished Cavalier* (in two parts, 1677 and 1681); and *The Roundheads* (1682). The coarseness that disfigures her plays was the fault of her time; she possessed great ingenuity, and showed an admirable comprehension of stage business, while her wit and vivacity were unfailing. Of her short tales, or novelettes, the best is the story of *Oroonoko*, which was made the basis of Thomas Southerne's popular tragedy. Mrs Behn died on the 16th of April 1689, and was buried in the cloisters of Westminster Abbey.

See *Plays written by the Late Ingenious Mrs Behn* (1702; reprinted, 1871); also "Aphra Behn's Gedichte und Prosawerke," by P. Siegel in *Anglia* (Halle, vol. xxv., 1902, pp. 86-128,329-385); and A.C. Swinburne's essay on "Social Verse" in *Studies in Prose and Poetry* (1894).

BEHR, WILLIAM JOSEPH (1775-1851), German publicist and writer, was born at Salzheim on the 26th of August 1775. He studied law at Würzburg and Göttingen, became professor of public law in the university of Würzburg in 1799, and in 1819 was sent as a deputy to the *Landtag* of Bavaria. Having associated himself with the party of reform, he was regarded with suspicion by the Bavarian king Maximilian I. and the court party, although favoured for a time by Maximilian's son, the future King Louis I. In 1821 he was compelled to give up his professorship, but he continued to agitate for reform, and in 1831 the king refused to recognize his election to the *Landtag*. A speech delivered by Behr in 1832 was regarded as seditious, and he was arrested. In spite of his assertion of loyalty to the principle of monarchy he was detained in custody, and in 1836 was found guilty of seeking to injure the king. He then admitted his offence; but he was not released from prison until 1839, and the next nine years of his life were passed under police supervision at Passau and Regensburg. In 1848 he obtained a free pardon and a sum of money as compensation, and was sent to the German national assembly which met at Frankfort in May of that year. He passed his remaining days at Bamberg, where he died on the 1st of August 1851. Behr's chief writings are: *Darstellung der Bedürfnisse, Wünsche und Hoffnungen deutscher Nation* (Aschaffenburg, 1816); *Die Verfassung und Verwaltung des Staates* (Nuremberg, 1811-1812); *Von den rechtlichen Grenzen der Einwirkung des Deutschen Bundes auf die Verfassung, Gesetzgebung, und Rechtspflege seiner Gliederstaaten* (Stuttgart, 1820).

BEIRA, a seaport of Portuguese East Africa, at the mouth of the Pungwe river, in 19° 50′ S., 34° 50′ E., 488 m. N. of Delagoa Bay, in communication by railway with Cape Town via Umtali, Salisbury and Bulawayo. Pop. about 4000, of whom a third are Europeans, and some 300 Indians. The town is built on a tongue of sand extending into the river, and is comparatively healthy. The sea front is protected by a masonry wall, and there are over 13,000 ft. of wharfage. Vessels drawing 24 ft. can enter the port at high tide. Between the customs house and the railway terminus is the mouth of a small river, the Chiveve, crossed by a steel bridge, the centre span revolving and giving two passages each of 40 ft. The town is without any architectural pretensions, but possesses fine public gardens. It is the headquarters of the Companhai de Moçambique, which administers the Beira district under charter from the Portuguese crown. The business community is largely British.

Beira occupies the site of a forgotten Arab settlement. The present port sprang into being as the result of a clause in the Anglo-Portuguese agreement of 1891 providing for the construction of a railway between Rhodesia and the navigable waters of the Pungwe. The railway at first began at Fontesvilla, about 50 m. by river above Beira, but was subsequently brought down to Beira. The completion in 1902 of the line connecting Salisbury with Cape Town adversely affected the port of Beira, the long railway route from the Cape being increasingly employed by travellers to and from Mashonaland. Moreover, the high freights on goods by the Beira route enabled Port Elizabeth to compete successfully for the trade of Rhodesia. In October 1905 a considerable reduction was made in railway rates and in port dues and customs, with the object of re-attracting to the port the transit trade of the interior, and in 1907 a branch of the Rhodesian customs was opened in the town. In that year goods valued at £647,000 passed through the port to Rhodesia. Efforts were also made to develop the agricultural and mineral resources of the Beira district itself. The principal exports are rubber, sugar, ground-nuts and oil seeds, beeswax, chromite (from Rhodesia), and gold (from Manica). The imports are chiefly rice (from India) and cotton goods for local use, and food stuffs, machinery, hardware and manufactured goods for Rhodesia. For the three years, 1905-1907, the average annual value of the imports and exports, excluding the transit trade with Rhodesia, was, imports £200,000, exports £90,000. Direct steamship communication with Europe is maintained by German and British lines.

See PORTUGUESE EAST AFRICA; also the reports issued yearly by the British Foreign Office on the trade of Beira.

BEIRA, an ancient principality and province of northern and central Portugal; bounded on the N. by Entre Minho e Douro and by Traz os Montes, E. by the Spanish provinces of Leon and Estremadura, S. by Alemtejo and Portuguese Estremadura, and W. by the Atlantic Ocean. Pop.

(1900) 1,515,834; area, 9208 sq. m. Beira is administratively divided into the districts of Aveiro, Coimbra, Vizeu, Guarda and Castello Branco, while it is popularly regarded as consisting of the three sections— Beira Alta or Upper Beira (Vizeu), north and west of the Serra da Estrella; Beira Baixa or Lower Beira (Guarda and Castello Branco), south and east of that range; and Beira Mar or Maritime Beira (Aveiro and Coimbra), coinciding with the former coastal province of Douro. The coast line, about 72 m. long, is uniformly flat, with long stretches of sandy pine forest, heath or marshland bordered by a wide and fertile plain. Its most conspicuous features are the lagoon of Aveiro (*q.v.*) and the bold headland of Cape Mondego; in the south Aveiro, Murtosa, Ovar and Figueira da Foz are small seaports. Except along the coast, the surface is for the most part mountainous,—the highest point in the Serra da Estrella, which extends from north-east to south-west through the centre of the province, being 6532 ft. The northern and south-eastern frontiers are respectively marked by the two great rivers Douro and Tagus, which rise in Spain and flow to the Atlantic. The Agueda and Côa, tributaries of the Douro, drain the eastern plateaus of Beira; the Vouga rises in the Serra da Lapa, and forms the lagoon of Aveiro at its mouth; the Mondego springs from the Serra da Estrella, passes through Coimbra, and enters the sea at Figueira da Foz; and the Zezere, a tributary of the Tagus, rises north-north-east of Covilhã and flows south-west and south.

Beira has a warm and equable climate, except in the mountains, where the snowfall is often heavy. The soil, except in the valleys, is dry and rocky, and large stretches are covered with heath. The principal agricultural products are maize, wheat, garden vegetables and fruit. The olive is largely cultivated, the oil forming one of the chief articles of export; good wine is also produced. In the flat country between Coimbra and Aveiro the marshy land is laid out in rice-fields or in pastures for herds of cattle and horses. Sheep farming is an important industry in the highlands of Upper Beira; while near Lamego swine are reared in considerable numbers, and furnish the well-known Lisbon hams. Iron, lead, copper, coal and marble are worked to a small extent, and millstones are quarried in some places. Salt is obtained in considerable quantities from the lagoons along the coast. There are few manufactures except the production of woollen cloth, which occupies a large part of the population in the district of Castello Branco. Three important lines of railway, the Salamanca-Oporto, Salamanca-Lisbon and Lisbon-Oporto, traverse parts of Beira; the two last named are also connected by the Guarda-Figueira da Foz railway, which has a short branch line going northwards to Vizeu. The chief towns, Aveiro (pop. 1900, 9979), Castello Branco (7288), Coimbra (18,144), Covilhã (15,469), Figueira da Foz (6221), Guarda (6124), Ilhavo (12,617), Lamego (9471), Murtosa (9737), Ovar (10,462) and Vizeu (8057), with the frontier fortress of Almeida (2330), are described in separate articles. There is a striking difference of character between the inhabitants of the highlands, who are grave and reserved, hardy and industrious, and those of the lowlands, who are more sociable and courteous, but less energetic. The heir-apparent to the throne of Portugal has the title of prince of Beira.

BEIRUT or Beyrout. (1) A vilayet of Syria, constituted as recently as 1888, which stretches along the sea-coast from Jebel el-Akra, south of the Orontes, to the Nahr Zerka, south of Mount Carmel, and towards the south extends from the Mediterranean to the Jordan. It includes five *sanjaks*, Latakia, Tripoli, Beirut, Acre and Buka'a. (2) The chief town of the vilayet (anc. *Berytus*), the most important seaport town in Syria, situated on the south side of St George's Bay, on rising ground at the foot of Lebanon. Pop. 120,000 (Moslems, 36,000; Christians, 77,000; Jews, 2500; Druses, 400; foreigners, 4100). Berytus, whether it is to be identified with Hebrew *Berothai* or not (2 Sam. viii. 8; Ezek. xlvii. 16), was one of the most ancient settlements on the Phoenician coast; but nothing more than the name is known of it till B.C. 140, when the town was taken and destroyed by Tryphon in his contest with Antiochus VII. for the throne of the Seleucids. It duly passed under Rome, was much favoured by the Herods and became a *colonia*. It was famous for its schools, especially that of law, from the 4th century A.D. onwards. Justinian recognized it as one of the three official law schools of the empire (A.D. 533), but within a few years, as the result of a disastrous earthquake (551), the students were transferred to Sidon. In the following century it passed to the Arabs (635), and was not again a Christian city till 1111, when Baldwin captured it. Saladin retook it in 1187, and thenceforward, for six centuries and a half, whoever its nominal lords may have been, Saracen, Crusader, Mameluke or (from the 16th century) Turk, the Druse emirs of Lebanon dominated it (see Druses). One of these, Fakr ed-Din Maan II., fortified it early in the 17th century; but the Turks asserted themselves in 1763 and occupied the place. During the succeeding epoch of rebellion at Acre under Jezzar and Abdullah pashas, Beirut declined to a small town of about 10,000 souls, in dispute between the Druses, the Turks and the pashas,—a state of things which lasted till Ibrahim Pasha captured Acre in 1832. When the powers moved against the Egyptians in 1840, Beirut had recently been occupied

in force by Ibrahim as a menace to the Druses; but he was easily driven out after a destructive bombardment by Admiral Sir Robert Stopford (1768-1847). Since the pacification of the Lebanon after the massacre of the Christians in 1860 (for later history, see LEBANON), Beirut has greatly increased in extent, and has become the centre of the transit trade for all southern Syria. In 1894 a harbour, constructed by a French company, was opened, but the insecurity of the outer roadstead militates against its success. Nevertheless trade is on the increase. In 1895 a French company completed a railway across the Lebanon to Damascus, and connected it with Mezerib in the Hauran, whence now starts the line to the Hejaz. Since 1907 it has also had railway communication with Aleppo; and a narrow-gauge line runs up the coast to Tripoli. The steepness of the Lebanon railway, and the break of gauge at Rayak, the junction for Aleppo, have prevented the diversion of much of the trade of North Syria to Beirut. The town has been supplied with water, since 1875, by an English company, and with gas, since 1888, by a French company. There are many American and European institutions in the city: the American Presbyterian mission, with a girls' school and a printing office, which published the Arabic translation of the Bible, and now issues a weekly paper and standard works in Arabic; the Syrian Protestant college with its theological seminary, medical faculty, training college and astronomical observatory; the Scottish mission, and St George's institute for Moslem and Druse girls; the British Syrian mission schools; the German hospital, orphanage and boarding school; the French hospital and schools, and the Jesuit "Université de St Joseph" with a printing office. In summer most of the richer residents reside on the Lebanon, and in winter the governor of the Lebanon and many Lebanon notables inhabit houses in Beirut. The town has many fine houses, but the streets are unpaved and the bazaars mean. The Moslem inhabitants, being in a minority, have often shown themselves fanatical and turbulent. There are several fairly good hotels for tourists.

(C. W. W.; D. G. H.)

BEIT, ALFRED (1853-1906), British South African financier, was the son of a well-to-do merchant of Hamburg, Germany, and in 1875, after a commercial education at home, was sent out to Kimberley, South Africa, to investigate the diamond prospects. He had relatives, the Lipperts, out there in business, and in conjunction with Mr (afterwards Sir) Julius Wernher (b. 1850) he rapidly acquired a leading position on the diamond fields, and became closely allied with the ideals of Cecil Rhodes (*q.v.*). In 1889 Rhodes and Beit effected the amalgamation of various interests in the De Beers Consolidated Mines Limited. It was largely owing to the capital and enterprise of Beit that the deep-level mining in the Witwatersrand district of the Transvaal was started, and he had a large share in the principal company, the Rand Mines Limited. The firm of Wernher, Beit & Co. gradually transferred the centre of their financial operations to London, where they became the leading house in the dealings in South African mines. The rapid progress made in developing the diamond and gold output made Beit a man of enormous wealth, and he utilized it lavishly in pursuit of Rhodes's South African policy. He was one of the original directors of the British South Africa company, and was included with Rhodes in the censure passed by the House of Commons Commission of Inquiry on the Jameson Raid (1896). He was subsequently one of Rhodes's trustees. Personally of a modest, gentle, generous and retiring disposition, and strongly imbued with Rhodes's ideas of British imperialism, he was one of the South African millionaires of German birth against whom the anti-imperialist section in England were never tired of employing their sarcastic invective. But though shrinking from ostentation in any form, his purse was continually opened for public objects, notably his support of the Imperial Light Horse and Imperial Yeomanry in the South African War of 1899-1902, and his endowment of the professorship of colonial history at Oxford (1905). He gave £100,000 to establish a university in his native city of Hamburg and £200,000 for a university in Johannesburg. He built a fine house in Park Lane, London, but was never prominent in social life. He died, unmarried, on the 16th of July 1906.

BEJA (or BĪJA), the name under which is comprised a widespread family of tribes, usually classed as Hamitic. They may, however, represent very early Semitic immigrants (see HAMITIC RACES). When first recorded the Beja occupied the whole region between the Nile and the Red Sea from the border of Upper Egypt to the foot of the Abyssinian plateau. They were known to the ancient Egyptians, upon whose monuments they are represented. They are the Blemmyes of

Strabo (xvii. 53), and have also been identified with the Macrobii of Herodotus, “tallest and finest of men” (iii. 17). It has been suggested, though on insufficient grounds, that the Beja, rather than the Abyssinians, are the “Ethiopians” of Herodotus, the civilized people who built the city of Meroë and its pyramids. During the Roman period the Beja were much what they are to-day, nomadic and aggressive, and were constantly at war. In 216 A.H. (A.D. 832) the Moslem governor of Assuan made a treaty with the Beja chief, by which the latter undertook to guard the road to Aidhab and pay an annual tribute of one hundred camels. This is the earliest record of a government engagement with the northern section of the Beja, now the Abābda. Ibn Batuta, early in the 14th century, mentions a king of Beja, El Hadrabi, who received two-thirds of the revenue of Aidhab, the other third going to the king of Egypt. The Beja territory contained gold and emerald mines. The tribesmen were the usual escort for pilgrims to Mecca from Kus to Aidhab. According to Leo Africanus, at the close of the 14th or very early in the 15th century their rich town of Zibid (Aidhab?) on the Red Sea was destroyed. This seems to have broken up the tribal cohesion. Leo Africanus describes the Beja as “most base, miserable and living only on milk and camels’ flesh.” In the middle ages the Beja, partially at any rate, were Christians. The kingdom of Meroë was succeeded by that of “Aloa,” the capital of which, Soba, was on the Blue Nile, about 13 m. above Khartum. The country was conquered by the Funj (*q.v.*), a negroid people who subsequently became Mahommedan and compelled the Beja to adopt that religion. Until the invasion of the Egyptians, under Ismail, son of Mehemet Ali (1820), the Funj remained in possession.

All the Beja are now Mahommedans, but generally only so in name, though some of the tribes enthusiastically fought for Mahdiism (1883-99). As a race the Beja are remarkable for physical beauty, with a colour more red than black, and of a distinctly Caucasic type of face. The chiefs are, as a rule, of much fairer complexion than the tribesmen. In spite of their claim to Arab origin, the tribes have preserved many negro customs in the matter of costume and scarring the body. Their hair-dressing is very characteristic. The hair, worn thick as a protection against the sun, is parted in a circle round the head on a level with the eyes, above which the hair, saturated with mutton fat or butter, is trained straight up like a mop, with separate tufts at sides and back. Most of the tribes are nomadic shepherds, driving their cattle from pasture to pasture; some few are occupied in agriculture.

They are polygynous, but, unlike the Arabs, great independence is granted their women. Among most of the Beja peoples the wife can return to her mother’s tent whenever she likes, and after a birth of a child she can repudiate the husband, who must make a present to be re-accepted. Cases are said to have occurred where the woman has thus obtained all her husband’s possessions. The whole social position of the Beja women points, indeed, to an earlier matriarchal system. Among some of the tribes the custom of the “fourth day free” is observed, by which the women are only considered married for so many days a week, forming what liaisons they please on the odd day. The chief Beja tribes are the Abābda, Bishārïn, Hadendoa, Beni-Amer, Amarar, Shukuria, Hallenga and Hamran.

BEJA (probably the ancient *Pax Julia*), the capital of an administrative district formerly included in the province of Alemtejo, Portugal; situated 95 m. S.S.E. of Lisbon by the Lisbon-Faro railway, and at the head of a branch line to Pias e Orada (3855), 26 m. E. Pop. (1900) 8885. Beja is an episcopal city, built on an isolated hill, and partly enclosed by walls of Roman origin; on the south it has a fine Roman gateway. Its cathedral is modern, but the citadel, with its beautiful Gothic tower of white marble, was founded by King Diniz (1279-1325). The city is surrounded by far-reaching plains, known as the Campo de Beja, and devoted partly to the cultivation of grain and fruit, partly to the breeding of cattle and pigs; copper, iron and manganese are also mined to a small extent, and Beja is the central market for all these products. Cloth, pottery and olive oil are manufactured in the city.

The administrative district of Beja, the largest and most thinly-populated district in Portugal, coincides with the southern part of Alemtejo (*q.v.*); pop. (1900) 163,612; area, 3958 sq. m.; 41.3 inhabitants per sq. m.

BEJAN (Fr. *béjaune*, from *bec jaune*, “yellow beak,” in allusion to unfledged birds; the

equivalent to Ger. *Gelbschnabel*, Fr. *blanc-bec*, a greenhorn), a term for freshmen, or undergraduates of the first year, in the Scottish universities. The phrase was introduced from the French universities, where the levying of *bejaunium* "footing-money" had been prohibited by the statutes of the university of Orleans in 1365 and by those of Toulouse in 1401. In 1493 the election of an *Abbas Bejanorum* (Abbot of the Freshmen) was forbidden in the university of Paris. In the German and Austrian universities the freshman was called *beanus*. In Germany the freshman was anciently called a *Pennal* (from Med. Lat. *pennale*, a box for pens), in allusion to the fact that the newly-arrived student had to carry such for the older pupils. Afterwards *Fuchs* (fox) was substituted for *Pennal*, and then *Goldfuchs* because he is supposed still to have a few gold coins from home.

BÉJART, the name of several French actors, children of Marie Hérve and Joseph Béjart (d. 1643), the holder of a small government post. The family—there were eleven children— was very poor and lived in the Marais, then the theatrical quarter of Paris. One of the sons, Joseph Béjart (*c.* 1617-1659), was a strolling player and later a member of Molière's first company (l'Illustre Théâtre), accompanied him in his theatrical wanderings, and was with him when he returned permanently to Paris, dying soon after. He created the parts of Lélie in *L'Étourdie*, and Eraste in *Le Dépit amoureux*. His brother Louis BÉJART (*c.* 1630-1678) was also in Molière's company during the last years of its travels. He created many parts in his brother-in-law's plays—Valère in *Le Dépit amoureux*, Dubois in *Le Misanthrope*, Alcantor in *Le Mariage forcé*, and Don Luis in *Le Festin de Pierre*—and was an actor of varied talents. In consequence of a wound received when interfering in a street brawl, he became lame and retired with a pension—the first ever granted by the company to a comedian—in 1670.

The more famous members of the family were two sisters.

Madeleine Béjart (1618-1672) was at the head of the travelling company to which her sister Geneviève (1631-1675)—who played as Mlle Hervé—and her brothers belonged, before they joined Molière in forming l'Illustre Théâtre (1643). With Molière she remained until her death on the 17th of February 1672. She had had an illegitimate daughter (1638) by an Italian count, and her conduct on her early travels had not been exemplary, but whatever her private relations with Molière may have been, however acrimonious and violent her temper, she and her family remained faithful to his fortunes. She was a tall, handsome blonde, and an excellent actress, particularly in soubrette parts, a number of which Molière wrote for her. Among her creations were Marotte in *Les Précieuses ridicules*, Lisette in *L'École des maris*, Dorine in *Tartuffe*.

Her sister, Armande Grésinde Claire Elizabeth Béjart (1645-1700), seems first to have joined the company at Lyons in 1653. Molière directed her education and she grew up under his eye. In 1662, he being then forty and she seventeen, they were married. Neither was happy; the wife was a flirt, the husband jealous. On the strength of a scurrilous anonymous pamphlet, *La Fameuse Comédienne, ou histoire de la Guérin* (1688), her character has been held perhaps unduly low. She was certainly guilty of indifference and ingratitude, possibly of infidelity; they separated after the birth of a daughter in 1665 and met only at the theatre until 1671. But the charm and grace which fascinated others, Molière too could not resist, and they were reconciled. Her portrait is given in a well-known scene (Act iii., sc. 9) in *Le Bourgeois gentilhomme*. Mme Molière's first appearance on the stage was in 1663, as Élise in the *Critique de l'école des femmes*. She was out of the cast for a short time in 1664, when she bore Molière a son—Louis XIV. and Henrietta of England standing sponsors. But in the spring, beginning with the fêtes given at Versailles by the king to Anne of Austria and Maria Theresa, she started her long list of important roles. She was at her best as Celimène—really her own highly-finished portrait—in *Le Misanthrope*, and hardly less admirable as Angélique in *Le Malade imaginaire*. She was the Elmire at the first performance of *Tartuffe*, and the Lucile of *Le Bourgeois gentilhomme*. All these parts were written by her husband to display her talents to the best advantage and she made the most of her opportunities. The death of Molière, the secession of Baron and several other actors, the rivalry of the Hôtel de Bourgogne and the development of the Palais Royal, by royal patent, into the home of French opera, brought matters to a crisis with the *comédiens du roi*. Well advised by La Grange (Charles Varlet, 1639-1692), Armande leased the Théâtre Guénégaud, and by royal ordinance the residue of her company were combined with the players from the Théâtre du Marais, the fortunes of which were at low ebb. The combination, known as the *troupe du roi*, at first was unfortunate, but in 1679 they secured Mlle du Champmeslé, later absorbed the company of the Hôtel de Bourgogne, and in 1680 the Comédie Française was born. Mme Molière in 1677 had married Eustache François Guérin (1636-1728), an actor, and by him she had one son (1678-1708). She continued her successes at the theatre

until she retired in 1694, and she died on the 30th of November 1700.

BEK, ANTONY (d. 1311), bishop of Durham, belonged to a Lincolnshire family, and, having entered the church, received several benefices and soon attracted the attention of Edward I., who secured his election as bishop of Durham in 1283. When, after the death of King Alexander III. in 1285, Edward interfered in the affairs of Scotland, he employed Bek on this business, and in 1294 he sent him on a diplomatic errand to the German king, Adolph of Nassau. Taking part in Edward's campaigns in Scotland, the bishop received the surrender of John de Baliol at Brechin in 1296, and led one division of the English army at the battle of Falkirk in 1298. Soon after his return to England he became involved in a quarrel with Richard de Hoton, prior of Durham. Deposed and excommunicated by Bek, the prior secured the king's support; but the bishop, against whom other complaints were preferred, refused to give way, and by his obstinacy incurred the lasting enmity of Edward. In 1302, in obedience to the command of Pope Boniface VIII., he visited Rome on this matter, and during his absence the king seized and administered his lands, which, however, he recovered when he returned and submitted to Edward. He continued, however, to pursue Richard with unrelenting hostility, and was in his turn seriously harassed by the king. Having been restored to the royal favour by Edward II. who made him lord of the Isle of Man, the bishop died at Eltham on the 3rd of March 1311. A man of great courage and energy, chaste and generous, Bek was remarkable for his haughtiness and ostentation. Both as a bishop and as a private individual he was very wealthy, and his household and retinue were among the most magnificent in the land. He was a soldier and a hunter rather than a bishop, and built castles at Eltham and elsewhere.

Bek's elder brother, Thomas Bek (d. 1293), bishop of St David's, was a trusted servant of Edward I. He obtained many important and wealthy ecclesiastical positions, was made treasurer of England in 1279, and became bishop of St David's in 1280. He was a benefactor to his diocese and died on the 12th of May 1293.

Another Thomas Bek (1282-1347), who was bishop of Lincoln from 1341 until his death on the 2nd of February 1347, was a member of the same family.

Antony Bek must not be confused with his kinsman and namesake, Antony Bek (1279-1343), who was chancellor and dean of Lincoln cathedral, and became bishop of Norwich after a disputed election in 1337. He was a quarrelsome man, and after a stormy episcopate, died on the 19th of December 1343.

See Robert of Graystanes, *Historia de statu ecclesiae Dunelmensis*, edited by J. Raine in his *Historiae Dunelmensis scriptores* (London, 1839); W. Hutchinson, *History of Durham* (Newcastle, 1785-1794); J.L. Low, *Diocesan History of Durham* (London, 1881); and M. Creighton in the *Dictionary of National Biography*, vol. iv. (London, 1885).

BEKE, CHARLES TILSTONE (1800-1874), English traveller, geographer and Biblical critic, was born in Stepney, Middlesex, on the 10th of October 1800. His father was a merchant in London, and Beke engaged for a few years in mercantile pursuits. He afterwards studied law at Lincoln's Inn, and for a time practised at the bar, but finally devoted himself to the study of historical, geographical and ethnographical subjects. The first-fruits of his researches appeared in his work entitled *Origines Biblicae, or Researches in Primeval History*, published in 1834. An attempt to reconstruct the early history of the human race from geological data, it raised a storm of opposition on the part of defenders of the traditional readings of the book of Genesis; but in recognition of the value of the work the university of Tübingen conferred upon him the degree of Ph.D. For about two years (1837-1838) Beke held the post of acting British consul in Saxony. From that time till his death his attention was largely given to geographical studies, chiefly of the Nile valley. Aided by private friends, he visited Abyssinia in connexion with the mission to Shoa sent by the Indian government under the leadership of Major (afterwards Sir) William Cornwallis Harris, and explored Gojam and more southern regions up to that time unknown to Europeans. Among other achievements, Beke was the first to determine, with any approach to scientific accuracy, the course of the Abai (Blue Nile). The valuable results of this journey, which occupied him from 1840 to 1843, he gave to the world in a number of papers in scientific publications, chiefly in the *Journal* of the Royal Geographical Society. On his return to

London, Beke re-engaged in commerce, but devoted all his leisure to geographical and kindred studies. In 1848 he planned an expedition from the mainland opposite Zanzibar to discover the sources of the Nile. A start was made, but the expedition accomplished little. Beke's belief that the White Nile was the main stream was, however, shown to be accurate by subsequent exploration. In 1856 he endeavoured, unsuccessfully, to establish commercial relations with Abyssinia through Massawa. In 1861-1862 he and his wife travelled in Syria and Palestine, and went to Egypt with the object of promoting trade with Central Africa and the growth of cotton in the Sudan. In 1865 he again went to Abyssinia, for the purpose of obtaining from King Theodore the release of the British captives. On learning that the captives had been released, Beke turned back, but Theodore afterwards re-arrested the party. To the military expedition sent to effect their release Beke furnished much valuable information, and his various services to the government and to geographical research were acknowledged by the award of £500 in 1868 by the secretary for India, and by the grant of a civil list pension of £100 in 1870. In his seventy-fourth year he undertook a journey to Egypt for the purpose of determining the real position of Mount Sinai. He conceived that it was on the eastern side of the Gulf of Akaba, and his journey convinced him that his view was right. It has not, however, commended itself to general acceptance. Beke died at Bromley, in Kent, on the 31st of July 1874.

Beke's writings are very numerous. Among the more important, besides those already named, are: *An Essay on the Nile and its Tributaries* (1847), *The Sources of the Nile* (1860), and *The British Captives in Abyssinia* (1865). He was a fellow of the Royal Geographical Society, and for his contributions to the knowledge of Abyssinia received its gold medal, and also that of the Geographical Society of France. As a result of a controversy over the statements of another Abyssinian explorer, Antoine Abbadie, Beke returned the medal awarded him by the French Society.

See *Summary of the late Dr Beke's published works and ... public services*, by his widow (Tunbridge Wells, 1876).

BÉSKÉSCSABA, a market-town of Hungary, 123 m. S.E. of Budapest by rail. Pop. (1900) 37,108, mostly Slovaks and Lutherans, who form the largest Lutheran community in Hungary. The town is situated near the White Körös, with which it is connected by a canal, and is an important railway-junction in central Hungary. Békéscsaba possesses several large milling establishments, while the weaving of hemp and the production of hemp-linen is largely pursued as a home industry. The town carries on an active trade in cereals, wines and cattle.

BEKKER, AUGUST IMMANUEL (1785-1871), German philologist and critic, was born on the 21st of May 1785. He completed his classical education at the university of Halle under F.A. Wolf, who considered him as his most promising pupil. In 1810 he was appointed professor of philosophy in the university of Berlin. For several years, between 1810 and 1821, he travelled in France, Italy, England and parts of Germany, examining classical manuscripts and gathering materials for his great editorial labours. He died at Berlin on the 7th of June 1871. Some detached fruits of his researches were given in the *Anecdota Graeca*, 1814-1821; but the full result of his unwearied industry and ability is to be found in the enormous array of classical authors edited by him. Anything like a complete list of his works would occupy too much space, but it may be said that his industry extended to nearly the whole of Greek literature with the exception of the tragedians and lyric poets. His best known editions are: Plato (1816-1823), Oratores Attici (1823-1824), Aristotle (1831-1836), Aristophanes (1829), and twenty-five volumes of the Corpus Scriptorum Historiae Byzantinae. The only Latin authors edited by him were Livy (1829-1830) and Tacitus (1831). Bekker confined himself entirely to textual recension and criticism, in which he relied solely upon the MSS., and contributed little to the extension of general scholarship.

See Sauppe, *Zur Erinnerung an Meineke und Bekker* (1872); Haupt, "Gedächtnisrede auf Meineke und Bekker," in his *Opuscula*, iii.; E.I. Bekker, "Zur Erinnerung an meinen Vater," in the *Preussisches Jahrbuch*, xxix.

BEKKER, BALTHASAR (1634-1698), Dutch divine, was born in Friesland in 1634, and educated at Groningen, under Jacob Alting, and at Franeker. He was pastor at Franeker, and from 1679, at Amsterdam. An enthusiastic disciple of Descartes, he wrote several works in philosophy and theology, which by their freedom of thought aroused considerable hostility. His best known work *Die Betooverde Wereld* (1691), or *The World Bewitched* (1695; one volume of an English translation from a French copy), in which he examined critically the phenomena generally ascribed to spiritual agency, and attacked the belief in sorcery and "possession" by the devil, whose very existence he questioned. The book is interesting as an early study in comparative religion, but its publication in 1692 led to Bekker's deposition from the ministry. He died at Amsterdam.

BEKKER (or WOLFF), **ELIZABETH** (1738-1804), Dutch novelist, was married to Adrian Wolff, a Reformed clergyman, but is always known under her maiden name. After the death of her husband in 1777, she resided for some time in France, with her close friend, Agatha Deken. She was exposed to some of the dangers of the French Revolution, and, it is said, escaped the guillotine only by her great presence of mind. In 1795 she returned to Holland, and resided at the Hague till her death. Her novels were written in conjunction with Agatha Deken, and it is somewhat difficult to determine the exact qualities contributed by each. The *Historie van William Levend* (1785), *Historie van Sara Burgerhart* (1790), *Abraham Blankaart* (1787), *Cornelie Wildschut* (1793-1796), were extremely popular.

BEL, the name of a chief deity in Babylonian religion, the counterpart of the Phoenician Baal (*q.v.*) ideographically written as En-lil. Since Bel signifies the "lord" or "master" *par excellence*, it is, therefore, a title rather than a genuine name, and must have been given to a deity who had acquired a position at the head of a pantheon. The real name is accordingly to be sought in En-lil, of which the first element again has the force of "lord" and the second presumably "might," "power," and the like, though this cannot be regarded as certain. En-lil is associated with the ancient city of Nippur, and since En-lil with the determinative for "land" or "district" is a common method of writing the name of the city, it follows, apart from other evidence, that En-lil was originally the patron deity of Nippur. At a very early period—prior to 3000 B.C.—Nippur had become the centre of a political district of considerable extent, and it is to this early period that the designation of En-lil as Bel or "the lord" reverts. Inscriptions found at Nippur, where extensive excavations were carried on during 1888-1900 by Messrs Peters and Haynes, under the auspices of the University of Pennsylvania, show that Bel of Nippur was in fact regarded as the head of an extensive pantheon. Among the titles accorded to him are "king of lands," "king of heaven and earth" and "father of the gods." His chief temple at Nippur was known as E-Kur, signifying "mountain house," and such was the sanctity acquired by this edifice that Babylonian and Assyrian rulers, down to the latest days, vied with one another in embellishing and restoring Bel's seat of worship, and the name itself became the designation of a temple in general. Grouped around the main sanctuary there arose temples and chapels to the gods and goddesses who formed his court, so that E-Kur became the name for an entire sacred precinct in the city of Nippur. The name "mountain house" suggests a lofty structure and was perhaps the designation originally of the staged tower at Nippur, built in imitation of a mountain, with the sacred shrine of the god on the top. The tower, however, also had its special designation of "Im-Khar-sag," the elements of which, signifying "storm" and "mountain," confirm the conclusion drawn from other evidence that En-lil was originally a storm-god having his seat on the top of a mountain. Since the Euphrates valley has no mountains, En-lil would appear to be a god whose worship was carried into Babylonia by a wave of migration from a mountainous country—in all probability from Elam to the east.

When, with the political rise of Babylon as the centre of a great empire, Nippur yielded its prerogatives to the city over which Marduk presided, the attributes and the titles of En-lil were transferred to Marduk, who becomes the "lord" or Bel of later days. The older Bel did not, however, entirely lose his standing. Nippur continued to be a sacred city after it ceased to have any considerable political importance, while in addition the rise of the doctrine of a triad of gods symbolizing the three divisions—heavens, earth and water—assured to Bel, to whom the earth was assigned as his province, his place in the religious system. The disassociation from his local

origin involved in this doctrine of the triad gave to Bel a rank independent of political changes, and we, accordingly, find Bel as a factor in the religion of Babylonia and Assyria to the latest days. It was no doubt owing to his position as the second figure of the triad that enabled him to survive the political eclipse of Nippur and made his sanctuary a place of pilgrimage to which Assyrian kings down to the days of Assur-baui-pal paid their homage equally with Babylonian rulers.

See also BELIT and BAAL. For the apocryphal book of the Bible, *Bel and the Dragon*, see DANIEL: *Additions to Daniel*.

(M. JA.)

BELA III. (d. 1196), king of Hungary, was the second son of King Géza II. Educated at the Byzantine court, where he had been compelled to seek refuge, he was fortunate enough to win the friendship of the brilliant emperor Manuel who, before the birth of his own son Alexius, intended to make Bela his successor and betrothed him to his daughter. Subsequently, however, he married the handsome and promising youth to Agnes of Châtilion, duchess of Antioch, and in 1173 placed him, by force of arms, on the Hungarian throne, first expelling Bela's younger brother Géza, who was supported by the Catholic party. Initiated from childhood in all the arts of diplomacy at what was then the focus of civilization, and as much a warrior by nature as his imperial kinsman Manuel, Bela showed himself from the first fully equal to all the difficulties of his peculiar position. He began by adopting Catholicism and boldly seeking the assistance of Rome. He then made what had hitherto been an elective a hereditary throne by crowning his infant son Emerich his successor. In the beginning of his reign he adopted a prudent policy of amity with his two most powerful neighbours, the emperors of the East and West, but the death of Manuel in 1180 gave Hungary once more a free hand in the affairs of the Balkan Peninsula, her natural sphere of influence. The attempt to recover Dalmatia, which involved Bela in two bloody wars with Venice (1181-88 and 1190-91), was only partially successful. But he assisted the Rascians or Serbs (see HUNGARY: *History*) to throw off the Greek yoke and establish a native dynasty, and attempted to made Galicia an appanage of his younger son Andrew. It was in Bela's reign that the emperor Frederick I., in the spring of 1189, traversed Hungary with 100,000 crusaders, on which occasion the country was so well policed that no harm was done to it and the inhabitants profited largely from their commerce with the German host. In his last years Bela assisted the Greek emperor Isaac II. Angelus against the Bulgarians. His first wife bore Bela two sons, Emerich and Andrew. On her death he married Margaret of France, sister of King Philip Augustus. Bela was in every sense of the word a great statesman, and his court was accounted one of the most brilliant in Europe.

For an account of his internal reforms see HUNGARY. Though the poet Ede Szigligeti has immortalized his memory in the play *Bela III.*, we have no historical monograph of him, but in Ignacz Acsády, *History of the Hungarian Realm* (Hung.), i. 2 (Budapest, 1903), there is an excellent account of his reign.

(R. N. B.)

BELA IV. (1206-1270), king of Hungary, was the son of Andrew II., whom he succeeded in 1235. During his father's lifetime he had greatly distinguished himself by his administration of Transylvania, then a wilderness, which, with incredible patience and energy, he colonized and christianized. He repaired as far as possible the ruinous effects of his father's wastefulness, but on his accession found everything in the utmost confusion, "the great lords," to cite the old chronicler Rogerius (*c.* 1223-1266), "having so greatly enriched themselves that the king was brought to naught." The whole land was full of violence, the very bishops storming rich monasteries at the head of armed retainers. Bela resolutely put down all disorder. He increased the dignity of the crown by introducing a stricter court etiquette, and its wealth by recovering those of the royal domains which the magnates had appropriated during the troubles of the last reign. The pope, naturally on the side of order, staunchly supported this regenerator of the realm, and in his own brother Coloman, who administered the district of the Drave, Bela also found a loyal and intelligent co-operator. He also largely employed Jews and Ishmaelites,[1] the financial specialists of the day, whom he rewarded with lands and titles. The salient event of Bela's reign was the terrible Tatar invasion which reduced three-quarters of Hungary to ashes. The terror of their name had long preceded them, and Bela, in 1235 or 1236, sent the Dominican

monk Julian, by way of Constantinople, to Russia, to collect information about them from the "ancient Magyars" settled there, possibly the Volgan Bulgarians. He returned to Hungary with the tidings that the Tatars contemplated the immediate conquest of Europe. Bela did his utmost to place his kingdom in a state of defence, and appealed betimes to the pope, the duke of Austria and the emperor for assistance; but in February and March 1241 the Tatars burst through the Carpathian passes; in April Bela himself, after a gallant stand, was routed on the banks of the Sajó and fled to the islands of Dalmatia; and for the next twelve months the kingdom of Hungary was merely a geographical expression. The last twenty-eight years of Bela's reign were mainly devoted to the reconstruction of his realm, which he accomplished with a single-minded thoroughness which has covered his name with glory. (See HUNGARY: *History*.)

Perhaps the most difficult part of his task was the recovery of the western portions of the kingdom (which had suffered least) from the hands of Frederick of Austria, who had seized them as the price of assistance which had been promised but never given. First Bela solicited the aid of the pope, but was compelled finally to resort to arms, and crossing the Leitha on the 15th of June 1246, routed Frederick, who was seriously wounded and trampled to death by his own horsemen. With him was extinguished the male line of the house of Babenberg. In the south Bela was less successful. In 1243 he was obliged to cede to Venice, Zara, a perpetual apple of discord between the two states; but he kept his hold upon Spalato and his other Dalmatian possessions, and his wise policy of religious tolerance in Bosnia enabled Hungary to rule that province peaceably for many years. The new Servian kingdom of the Nemanides, on the other hand, gave him much trouble and was the occasion of many bloody wars. In 1261 the Tatars under Nogai Khan invaded Hungary for the second time, but were defeated by Bela and lost 50,000 men. Bela reached the apogee of his political greatness in 1264 when, shortly after his crushing defeat of the Servian king, Stephen Urosh, he entertained at his court, at Kalocsa, the ambassadors of the newly restored Greek emperor, of the kings of France, Bulgaria and Bohemia and three Tatar *mirzas*. For a time Bela was equally fortunate in the north-west, where the ambitious and enterprising Pøemyslidae had erected a new Bohemian empire which absorbed the territories of the old Babenbergers and was very menacing to Hungary. With Ottakar II. in particular, Bela was almost constantly at war for the possession of Styria, which ultimately fell to the Bohemians. The last years of Bela's life were embittered by the ingratitude of his son Stephen, who rebelled continuously against his father and ultimately compelled him to divide the kingdom with him, the younger prince setting up a capital of his own at Sárospatak, and following a foreign policy directly contrary to that of his father. Bela died on the 3rd of May 1270 in his sixty-fourth year. With the people at large he was popular to the last; his services to his country had been inestimable. He married, while still crown-prince, Maria, daughter of the Nicaean emperor, Theodore Lascaris, whom his own father brought home with him from his crusade. She bore him, besides his two sons Stephen and Bela, seven daughters, of whom St Margaret was the most famous.

No special monograph for the whole reign exists. For the Tatar invasion see the contemporary Rogerius, *Epistolae super destructione Regni Hungarias per Tartaros facta* (Budapest, 1885). A vivid but somewhat chauvinistic history of Bela's reign will be found in Acsády's *History of the Hungarian Realm* (Hung.), i. 2 (Budapest, 1903).

(R. N. B.)

1 Mahommedan itinerant chapmen, from the Volga.

BELA, LAS BELA, or LUS BEYLA, situated in 26° 27′ 30″ N. lat. and 66° 45′ 0″ E. long., 350 ft. above sea level, capital of the small independent state of Las Bela to the south of Kalat (Baluchistan), ruled by the Jam (or Cham), who occupies the position of a protected chief under the British Raj. To the east lies Sind, and to the west Makran, and from time immemorial the great trading route between Sind and Persia has passed through Las Bela. The area of Las Bela is 6357 sq. m., and its population in 1901 was 56,109, of which 54,040 were Mussulmans. The low-lying, alluvial, hot and malarial plains of Las Bela, occupying about 6000 sq. m. on the north-east corner of the Arabian Sea, are highly irrigated and fertile—two rivers from the north, the Purali and the Kud, uniting to provide a plentiful water supply. The bay of Sonmiani once extended over most of these plains, where the Purali delta is now growing with measurable strides. The hill ranges to the east, parting the plains from Sind (generally known locally as the Mor and the Kirthar), between which lies the long narrow line of the Hab valley, strike nearly north and south, diminishing in height as they approach the sea and allowing of a route skirting the coast between Karachi and Bela. To the west they are broken into an infinity of minor ridges massing themselves in parallel formation with a strike which curves from south to west till they

form the coast barrier of Makrān. The Persian route from India, curving somewhat to the north, traverses this waste of barren ridges almost at right angles, but on dropping into the Kolwah valley its difficulty ceases. It then becomes an open road to Kej and Persia, with an easy gradient. This was undoubtedly one of the greatest trade routes of the medieval days of Arab ascendancy in Sind, and it is to this route that Bela owes a place in history which its modern appearance and dimensions hardly seem to justify. Bela is itself rather prettily situated on a rocky site above the banks of the Purali. About four miles to the south are the well-kept gardens which surround the tomb of Sir Robert Sandeman; which is probably destined to become a "ziarat," or place of pilgrimage, of even greater sanctity than that of General Jacob at Jacobabad. The population of the town numbers about 5000. The Jam's retinue consists of about 300 infantry, 50 cavalry, and 4 guns. Liability to assist on active service is the only acknowledgment of the suzerainty which is paid by the Jam to the Khan of Kalat. The Jam, Mir Kamal Khan, succeeded his father, Sir Mir Khan, in 1895, and was formally invested with powers in 1902.

From very early times this remote corner of Baluchistan has held a distinct place in history. There are traces of ancient Arab (possibly Himyaritic) occupation to be found in certain stone ruins at Gondakeha on the Kud river, 10 m. to the north-west of Bela, whilst the Greek name "Arabis" for the Purali is itself indicative of an early prehistoric connexion with races of Asiatic Ethiopians referred to by Herodotus. On the coast, near the village of Sonmiani (a station of the Indo-Persian telegraph line) may be traced the indentation which once formed the bay of Morontobara, noted in the voyage of Nearchus; and it was on the borders of Makrān that the Turanian town of Rhambakia was situated, which was once the centre of the trade in "bdellium." In the 7th century A.D. Las Bela was governed by a Buddhist priest, at which time all the province of Gandava was Buddhist, and Sind was ruled by the Brahman, Chach. Buddhist caves are to be found excavated in the conglomerate cliffs near Gondakeha, at a place called Gondrani, or Shahr-i-Rogan. With the influx of Arabs into Makran, Bela, under the name of Armel (or Armabel), rose to importance as a link in the great chain of trading towns between Persia and Sind; and then there existed in the delta such places as Yusli (near the modern Uthal) and Kambali (which may possibly be recognized in the ruins at Khairokot), and many smaller towns, each of which possessed its citadel, its caravanserai and bazaar, which are not only recorded but actually mapped by one of the medieval Arab geographers, Ibn Haukal. It is probable that Karia Pir, 1½ m. to the east of the modern city, represents the site of the Armabel which was destroyed by Mahommed Kasim in his victorious march to Sind in 710. There is another old site 5 m. to the west of the modern town. The ruins at Karia Pir, like those of Tijarra Pir and Khairokot, contain Arab pottery, seals, and other medieval relics. The Lumris, or Lasis, who originate the name Las as a prefix to that of Bela, are the dominant tribe in the province. They are comparatively recent arrivals who displaced the earlier Tajik and Brahui occupants. It is probable that this influx of Rajput population was coincident with the displacement of the Arab dynasties in Sind by the Mahommedan Rajputs in the 11th century A.D. Some authorities connect the Lumris with the Sumras.

There are no published accounts of Bela, excepting those of the Indian government reports and gazetteers. This article is compiled from unpublished notes by the author and by Mr Wainwright, of the Indian Survey department.

(T. H. H.*)

BELA, a town of British India, administrative headquarters of the Partabgarh district of the United Provinces, with a railway station 80 m. from Benares. Pop. (1901) 8041. It adjoins the village of Partabgarh proper, and the civil station sometimes known as Andrewganj. Bela, which was founded in 1802 as a cantonment, became a district headquarters after the mutiny. It has trade in agricultural produce. There is a well-known hospital for women here.

BELAY (from the same O. Eng. origin as "lay"; cf. Dutch *beleggen*), a nautical term for making ropes fast round a pin. In earlier days the word was synonymous with "waylay" or "surround."

BELCHER, SIR EDWARD (1799-1877), British naval officer, entered the navy in 1812. In 1825 he accompanied Frederick William Beechey's expedition to the Pacific and Bering Strait, as a surveyor. He subsequently commanded a surveying ship on the north and west coasts of Africa and in the British seas, and in 1836 took up the work which Beechey left unfinished on the Pacific coast of South America. This was on board the "Sulphur," which was ordered to return to England in 1839 by the Trans-Pacific route. Belcher made various observations at a number of islands which he visited, was delayed by being despatched to take part in the war in China in 1840-1841, and reached home only in 1842. In 1843 he was knighted, and was now engaged in the "Samarang," in surveying work in the East Indies, the Philippines, &c., until 1847. In 1852 he was given command of the government Arctic expedition in search of Sir John Franklin. This was unsuccessful; Belcher's inability to render himself popular with his subordinates was peculiarly unfortunate in an Arctic voyage, and he was not wholly suited to command vessels among ice. This was his last active service, but he became K.C.B. in 1867 and an admiral in 1872. He published a *Treatise on Nautical Surveying* (1835), *Narrative of a Voyage round the World performed in H.M.S. "Sulphur," 1836-1842* (1843), *Narrative of the Voyage of H.M.S. "Samarang" during 1843-1846* (1848; the *Zoology of the Voyage* was separately dealt with by some of his colleagues, 1850), and *The Last of the Arctic Voyages* (1855); besides minor works, including a novel, *Horatio Howard Brenton* (1856), a story of the navy. He died in London on the 18th of March 1877.

BELDAM (like "belsire," grandfather, from the Fr. *bel*, good, expressing relationship; cf. the Fr. *belle-mère*, mother-in-law, and *dame*, in Eng. form "dam," mother), strictly a grandmother or remote ancestress, and so an old woman; generally used contemptuously as meaning an old hag.

BELESME, ROBERT OF (fl. 1100), earl of Shrewsbury. From his mother Mabel Talvas he inherited the fief of Belesme, and from his father, the Conqueror's companion, that of Shrewsbury. Both were march-fiefs, the one guarding Normandy from Maine, and the other England from the Welsh; consequently their lord was peculiarly powerful and independent. Robert is the typical feudal noble of the time, circumspect and politic, persuasive and eloquent, impetuous and daring in battle, and an able military engineer; in person, tall and strong; greedy for land, an oppressor of the weak, a systematic rebel and traitor, and savagely cruel. He first appears as a supporter of Robert's rebellion against the Conqueror (1077); then as an accomplice in the English conspiracy of 1088 against Rufus. Later he served Rufus in Normandy, and was allowed to succeed his brother Hugh in the earldom of Shrewsbury (1098). But at the height of his power, he revolted against Henry I (1102). He was banished and deprived of his English estate; for sometime after he remained at large in Normandy, defying the authority of Robert and Henry alike. He betrayed Robert's cause at Tinchebrai; but in 1112 was imprisoned for life by Henry I.

See E.A. Freeman's *William Rufus* and his *Norman Conquest*, vol. iv.; and J.M. Lappenberg's *History of England under the Norman Kings*, trans. B. Thorpe (1857).

BELFAST, a city, county and parliamentary borough, the capital of the province of Ulster, and county town of county Antrim, Ireland. Pop. (1901) 349,180. It is a seaport of the first rank, situated at the entrance of the river Lagan into Belfast Lough, 112¾ m. north of Dublin by rail, on the north-east coast of the island. It is an important railway centre, with terminal stations of the Great Northern, Northern Counties (Midland of England), and Belfast & County Down railways, and has regular passenger communication by sea with Liverpool, Fleetwood, Heysham, Glasgow, and other ports of Great Britain. It is built on alluvial deposit and reclaimed land, mostly not exceeding 6 ft. above high water mark, and was thus for a long period subject to inundation and epidemics, and only careful drainage rendered the site healthy. The appearance of the city plainly demonstrates the modern growth of its importance, and evidence is not

wanting that for a considerable period architectural improvement was unable to keep pace with commercial development. Many squalid districts, however, have been improved away to make room for new thoroughfares and handsome buildings. One thoroughfare thus constructed at the close of the 19th century is the finest in Belfast—Royal Avenue. It contains, among several notable buildings, the post office, and the free public library, opened in 1888 and comprising a collection of over 40,000 volumes, as well as an art gallery and a museum of antiquities especially rich in remains of the Neolithic period. The architect was Mr W.H. Lynn. The magnificent city hall, from designs of Mr (afterwards Sir) Brumwell Thomas, was opened in 1906. The principal streets, such as York Street, Donegall Street, North Street, High Street, are traversed by tramways. Four bridges cross the Lagan; the Queen's Bridge (1844, widened in 1886) is the finest, while the Albert Bridge (1889) replaces a former one which collapsed. Other principal public buildings, nearly all to be included in modern schemes of development, are the city hall, occupying the site of the old Linen Hall, in Donegall Square, estimated to cost £300,000; the commercial buildings (1820) in Waring Street, the customhouse and inland revenue office on Donegall Quay, the architect of which, as of the court house, was Sir Charles Lanyon, and some of the numerous banks, especially the Ulster Bank. The Campbell College in the suburb of Belmont was founded in 1892 in accordance with the will of Mr W.J. Campbell, a Belfast merchant, who left £200,000 for the building and endowment of a public school. Other educational establishments are Queen's University, replacing the old Queen's College (1849) under the Irish Universities Act 1908; the Presbyterian and the Methodist Colleges, occupying neighbouring sites close to the extensive botanical gardens, the Royal Academical Institution, and the Municipal Technical Institute. In 1897 the sum of £100,000 was subscribed by citizens to found a hospital (1903) to commemorate the Diamond Jubilee of Queen Victoria, and named after her. It took the place of an institution which, under various names, had existed since 1797. Public monuments are few, but include a statue of Queen Victoria (1903) and a South African War memorial (1905) in front of the city hall; the Albert Memorial (1870), in the form of a clock-tower, in Queen Street; a monument to the same prince in High Street; and a statue in Wellington Place to Dr Henry Cooke, a prominent Presbyterian minister who died in 1868. The corporation controls the gas and electric and similar undertakings. The water supply, under the control of the City and District Water Commissioners (incorporated 1840), has its sources in the Mourne Mountains, Co. Down, 40 m. distant, with a service reservoir at Knockbreckan; also in the hilly district near Carrickfergus. There are several public parks, of which the principal are the Ormeau Park (1870), the Victoria, Alexandra, and Falls Road parks. There is a Theatre Royal in Arthur Square. There are also several excellent clubs and societies, social, political, scientific, and sporting; including among the last the famous Royal Ulster Yacht Club.

In 1899 was laid the foundation stone of the Protestant cathedral in Donegall Street, designed by Sir Thomas Drew and Mr W.H. Lynn to seat 3000 worshippers, occupying the site of the old St Anne's parish church, part of the fabric of which the new building incorporates. The diocese is that of Down, Connor, and Dromore. The first portion (the nave) was consecrated on the 2nd of June 1904. The plan is a Latin cross, the west front rising to a height of 105 ft., while the central tower is 175 ft. The pulpit was formerly used in the nave of Westminster Abbey, being presented to Belfast cathedral by the dean and chapter of that foundation.

Most of the older churches are classical in design, and the most notable are St George's, in High Street, and the Memorial church of Dr Cooke in May Street. For the more modern churches the Gothic style has frequently been used. Amongst these are St James, Antrim Road; St Peter's Roman Catholic chapel, with its Florentine spire; Presbyterian churches in Fitzroy Avenue, and Elmwood Avenue, and the Methodist chapel, Carlisle Circus. The Presbyterians and Protestant Episcopalians each outnumber the Roman Catholics in Belfast, and these three are the chief religious divisions.

Environs.—The country surrounding Belfast is agreeable and picturesque, whether along the shores of the Lough or towards the girdle of hills to the west; and is well wooded and studded with country seats and villas. In the immediate vicinity of the city are several points of historic interest and natural beauty. The Cave Hill, though exceeded in height by Mount Divis, Squire's Hill, and other summits, is of greatest interest for its caves, in the chalk, from which early weapons and other objects have been recovered. The battle in 1408, which was fought along the base of the cliffs here between the Savages of the Ards and the Irish, is described in Sir Samuel Ferguson's "Hibernian Nights Entertainment." Here also are McArt's Fort and other earthworks, and from here the importance of the physical position of Belfast may be appreciated to the full. At Newtonbreda, overlooking the Lagan, was the palace of Con O'Neill, whose sept was exterminated by Deputy Mountjoy in the reign of Queen Elizabeth. Belfast Lough is of great though quiet beauty; and the city itself is seen at its best from its seaward approach, with its girdle of hills in the background. On the shores of the lough several villages have grown into residential towns for the wealthier classes, whose work lies in the city. Of these Whitehouse and White Abbey are the principal on the western shore, and on the eastern, Holywood, which ranks practically as a suburb of Belfast, and, at the entrance to the lough, Bangor.

Harbour and Trade.—The harbour and docks of Belfast are managed by a board of harbour commissioners, elected by the ratepayers and the shipowners. The outer harbour is one of the safest in the kingdom. By the Belfast Harbour Acts the commissioners were empowered to borrow more than £2,500,000 in order to carry out several new works and improvements in the port. Under the powers of these acts a new channel, called the Victoria Channel, several miles in length, was cut about 1840 leading in a direct line from the quays to the sea. This channel affords 20 ft. of water at low tide, and 28 ft. at full tide, the width of the channel being 300 ft. The Alexandra Dock, which is 852 ft. long and 31 ft. deep, was opened in 1889, and the extensive improvements (including the York Dock, where vessels carrying 10,000 tons can discharge in four to six days) have been effected from time to time, making the harbour one of the most commodious in the United Kingdom. The provision of a new graving dock adjoining the Alexandra was delayed in October 1905 by a subsidence of the ground during its construction. Parliamentary powers were obtained to construct a graving dock capable of accommodating the largest class of warships. The growth and development of the shipbuilding industry has been immense, the firm of Harland & Wolff being amongst the first in the trade, and some of the largest vessels in the world come from their yards. The vast increase of the foreign trade of Belfast marks its development, like Liverpool, as a great distributing port. The chief exports are linen, whisky, aerated waters, iron ore and cattle.

Belfast is the centre of the Irish linen industry, machinery for which was introduced by T. & A. Mulholland in 1830, a rapid extension of the industry at once resulting. It is also the headquarters and business centre for the entire flax-spinning and weaving industry of the country. Distilling is extensively carried on. Several firms are engaged in the manufacture of mineral waters, for which the water of the Cromac Springs is peculiarly adapted. Belfast also has some of the largest tobacco works and rope works in the world.

Administration.—In conformity with the passing of the Municipal Corporations Act of 1840 the constitution of the corporation was made to consist of ten aldermen and thirty councillors, under the style and title of “The Mayor, Aldermen, and Burgesses of the Borough of Belfast.” In 1888 the rank of a city was conferred by royal charter upon Belfast, with the incidental rank, liberties, privileges, and immunities. In 1892 Queen Victoria conferred upon the mayor of the city the title of lord mayor, and upon the corporation the name and description of “The Lord Mayor, Aldermen, and Citizens of the city of Belfast.” By the passing of the Belfast Corporation Act of 1896, the boundary of the city was extended, and the corporation made to consist of fifteen aldermen and forty-five councillors, and the number of wards was increased from five to fifteen. By virtue of the Local Government (Ireland) Act 1898, Belfast became a county borough on the 1st of April 1899. By the Local Government (Ireland) Act 1898, Belfast became for assize purposes “the county of the city of Belfast,” with a high sheriff. It is divided into four parliamentary divisions north, south, east and west, each returning one member. The total area is 16,594 acres.

History.—The etymology of the name (for which several derivations have been proposed) and the origin of the town are equally uncertain, and there is not a single monument of antiquarian interest upon which to found a conjecture. About 1177 a castle is said to have been built by John de Courcy, to be destroyed by Edward Bruce in 1316. It may be noted here that Belfast Castle was finally burnt in 1708; but a modern mansion, on Cave Hill, outside the city, bears that name. About the beginning of the 16th century, Belfast is described as a town and fortress, but it was in reality a mere fishing village in the hands of the house of O’Neill. In the course of the wars of Gerald Fitzgerald, 8th earl of Kildare, Belfast was twice attacked by him, in 1503 and 1512. The O’Neills, always opposed to the English, had forfeited every baronial right; but in 1552 Hugh O’Neill of Clandeboye promised allegiance to the reigning monarch, and obtained the castle of Carrickfergus, the town and fortress of Belfast, and all the surrounding lands. Belfast was then restored from the half ruined state into which it had fallen, and the castle was garrisoned. The turbulent successors of O’Neill having been routed by the English, the town and fortress were obtained by grant dated the 16th of November 1571 by Sir Thomas Smith, a favourite of Queen Elizabeth, but were afterwards forfeited by him to the lord deputy Sir Arthur Chichester, who, in 1612, was created Baron Chichester of Belfast. At this time the town consisted of about 120 houses, mostly built of mud and covered with thatch, while the castle, a two-storeyed building, was roofed with shingles. A charter was now granted to the town by James I. (April 27, 1613) constituting it a corporation with a chief magistrate and 12 burgesses and commonalty, with the right of sending two members to parliament. In 1632 Thomas Wentworth, Earl Strafford, was appointed first lord deputy of Ireland, and Belfast soon shared largely in the benefits of his enlightened policy, receiving, among other favours, certain fiscal rights which his lordship had purchased from the corporation of Carrickfergus. Two years after the rebellion of 1641 a rampart was raised round the town, pierced by four gates on the land side. In 1662, as appears by a map still extant, there were 150 houses within the wall, forming five streets and as many lanes; and the upland districts around were one dense forest of giant oaks and sycamores, yielding an unfailing supply of timber to the woodmen of Carrickfergus.

Throughout the succeeding fifty years the progress of Belfast surpassed that of most other towns in Ireland. Its merchants in 1686 owned forty ships, of a total carrying power of 3300 tons, and the customs collected were close upon £20,000. The old charter was annulled by James II. and a new one issued in 1688, but the old was restored in 1690 by William III. When the king arrived at Belfast in that year there were only two places of worship in the town, the old corporation church in the High Street, and the Presbyterian meeting-house in Rosemary Lane, the Roman Catholics not being permitted to build their chapels within the walls of corporate towns.

At the beginning of the 18th century Belfast had become known as a place of considerable trade, and was then thought a handsome, thriving and well-peopled town, with many new houses and good shops. During the civil commotions which so long afflicted the country, it suffered less than most other places; and it soon afterwards attained the rank of the richest commercial town in the north of Ireland. James Blow and Co. introduced letterpress printing in 1696, and in 1704 issued the first copy of the Bible produced in the island. In September 1737, Henry and Robert Joy started the *Belfast News Letter*. Twenty years afterwards the town contained 1800 houses and 8549 inhabitants, 556 of whom were members of the Church of Rome. It was not, however, till 1789 that Belfast obtained the regular communication, which towns of less importance already enjoyed, with Dublin by stage coach, a fact which is to be explained by the badness of the roads and the steepness of the hills between Newry and Belfast.

The increased freedom of trade with which Ireland was favoured, the introduction of the cotton manufacture by Robert Joy and Thomas M’Cabe in 1777, the establishment in 1791 of shipbuilding on an extensive scale by William Ritchie, an energetic Scotsman, combined with the rope and canvas manufacture already existing, supplied the inhabitants with employments and increased the demand for skilled labour. The population now made rapid strides as well by ordinary extension as by immigration from the rural districts. Owing to the close proximity of powerful opposed religious sects, the modern history of the city is not without its record of riot and bloodshed, as in 1880 and 1886, and in August 1907 serious rioting followed upon a strike of carters; but the prosperity of the city has been happily unaffected.

See George Benn, *History of Belfast* (Belfast, 1877); Robert M. Young, *Historical Notices of Old Belfast* (Belfast, 1896).

BELFAST, a city, port of entry, and the county-seat of Waldo county, Maine, U.S.A., on Belfast Bay (an arm of the Penobscot), and about 32 m. south-south-west of Bangor. Pop. (1890) 5294; (1910) 4618. It is served by the Belfast branch of the Maine Central railway (connecting with the main line at Burnham Junction, 33 m. distant), and by the coasting steamers (from Boston) of the Eastern Steamship Co. The city, a summer resort, lies on an undulating hillside, which rises from the water’s edge to a height of more than 150 ft., and commands extensive views of the picturesque islands, headlands, and mountains of the Maine coast. It has a public library. Among the industries of Belfast are trade with the surrounding country, the manufacture of shoes, leather boards, axes, and sashes, doors and blinds, and the building and repairing of boats. Its exports in 1908 were valued at $285,913 and its imports at $10,313. Belfast was first settled (by Scottish-Irish) in 1769, and in 1773 was incorporated as a town under its present name (from Belfast, Ireland). The town was almost completely destroyed by the British in 1779, but its rebuilding was begun in the next year. It was held by a British force for five days in September 1814. Belfast was chartered as a city in 1850.

BELFORT, Territory of, administrative division of eastern France, formed from the southern portion of the department of Haut-Rhin, the rest of which was ceded to Germany by the treaty of Frankfort (1871). It is bounded on the N.E. and E. by German Alsace, on the S.E. and S. by Switzerland, on the S.W. by the department of Doubs, on the W. by that of Haute-Saône, on the N. by that of Vosges. Pop. (1906), 95,421.

With an area of only 235 sq. m., it is, next to that of Seine, the smallest department of France. The northern part is occupied by the southern offshoots of the Vosges, the southern part by the northern outposts of the Jura. Between these two highlands stretches the Trouée (depression) de Belfort, 18½ m. broad, joining the basins of the Rhine and the Rhone, traversed by the canal

from the Rhone to the Rhine and by several railways. A part of the natural highway open from Frankfort to the Mediterranean, the Trouée has from earliest times provided the route for the migration from north to south, and is still of great commercial and strategical value. The northern part, occupied by the Vosges, rises to 4126 ft. in the Ballon d'Alsace, the northern termination and the culminating point of the department; to 3773 ft. in the Planche des Belles-Filles; to 3579 ft. in the Signal des Plaines; to 3534 ft. in the Bärenkopf; and to numerous other lesser heights. South of the Trouée de Belfort, there rise near Delle limestone hills, in part wooded, on the frontiers of France, Alsace, and Switzerland, attaining 1680 ft. in the Forêt de Florimont. The territory between Lachapelle-sous-Rougemont (in the north-east), Belfort and Delle does not rise above 1300 ft. The line of lowest altitude follows the river St Nicolas and the Rhone-Rhine canal. The chief rivers are the Savoureuse, 24 m. long, running straight south from the Ballon d'Alsace, and emptying into the Allaine; the Allaine, from Switzerland, entering the territory a little to the south of Delle, and leaving it a little to the west of Morvillars; the St Nicolas, 24 m. long, from the Bärenkopf, running southwards and then south-west into the Allaine. The climate to the north of the town of Belfort is marked by long and rigorous winters, sudden changes of temperature, and an annual rainfall of 31 in. to 39 in. retained by an impervious subsoil; farther south it is milder and more equable with a rainfall of 23 in. to 31 in., quickly absorbed by the soil or evaporated by the sun. About one-third of the total area is arable land; wheat, oats and rye are the chief cereals; potatoes come next in importance. Forest covers another third of the surface; the chief trees are firs, pines, oak and beech; cherries are largely grown for the distillation of kirsch. Pasture and forage crops cover the remaining third of the Territory; only horned cattle are raised to any extent. There is an unworked concession of copper, silver and lead at Giromagny; and there are also quarries of stone. The Territory is an active industrial region. The two main branches of manufacture are the spinning and weaving of cotton and wool, and the production of iron and iron-goods (wire, railings, nails, files, &c.) and machinery. Belfort has important locomotive and engineering works. Hoisery is manufactured at Delle, watches, clocks, agricultural machinery, petrol motors, ironware and electrical apparatus at the flourishing centre of Beaucourt, and there are numerous saw-mills, tile and brick works and breweries. Imports consist of raw materials for the industries, dyestuffs, coal, wine, &c., and the exports of manufactured goods.

Belfort is the capital of the Territory, which comprises one arrondissement, 6 cantons and 106 communes, and falls within the circumscriptions of the archbishopric, the court of appeal and the académie (educational division) of Besançon. It forms the 7th subdivision of the VII. army corps. Both the Eastern and the Paris-Lyon-Méditerranée railways traverse the Territory, and the canal from the Rhone to the Rhine accompanies the river St Nicolas for about 6 m.

BELFORT, a town of eastern France, capital of the Territory of Belfort, 275 m. E.S.E. of Paris, on the main line of the Eastern railway. Pop. (1906), town, 27,805; commune, 34,649. It is situated among wooded hills on the Savoureuse at the intersection of the roads and railway lines from Paris to Basel and from Lyons to Mülhausen and Strassburg, by which it maintains considerable trade with Germany and Switzerland. The town is divided by the Savoureuse into a new quarter, in which is the railway station on the right bank, and the old fortified quarter, with the castle, the public buildings and monuments, on the left bank. The church of St Denis, a building in the classical style, erected from 1727 to 1750, and the hôtel de ville (1721-1724) both stand in the Place d'Armes opposite the castle. The two chief monuments commemorate the defence of Belfort in the war of 1870-1871. "The Lion of Belfort," a colossal figure 78 ft. long and 52 ft. high, the work of F.A. Bartholdi, stands in front of the castle; and in the Place d'Armes is the bronze group "Quand Même" by Antonin Mercié, in memory of Thiers and of Colonel Pierre Marie Aristide Denfert-Rochereau (1823-1878), commandant of the place during the siege. Other objects of interest are the Tour de la Miotte, of unknown origin and date, which stands on the hill of La Miotte to the N.E. of Belfort, and the Port de Brisach, a gateway built by Vauban in 1687. Belfort is the seat of a prefect; its public institutions include tribunals of first instance and of commerce, a chamber of commerce, a lycée, a training-college and a branch of the Bank of France. The construction of locomotives and machinery, carried on by the Société Alsacienne, wire-drawing, and the spinning and weaving of cotton are included among its industries, which together with the population increased greatly owing to the Alsacian immigration after 1871. Its trade is in the wines of Alsace, brandy and cereals. The town derives its chief importance from its value as a military position.

After the war of 1870-1871, Belfort, which after a diplomatic struggle remained in French hands, became a frontier fortress of the greatest value, and the old works which underwent the siege of 1870-1871 (see below) were promptly increased and re-modelled. In front of the

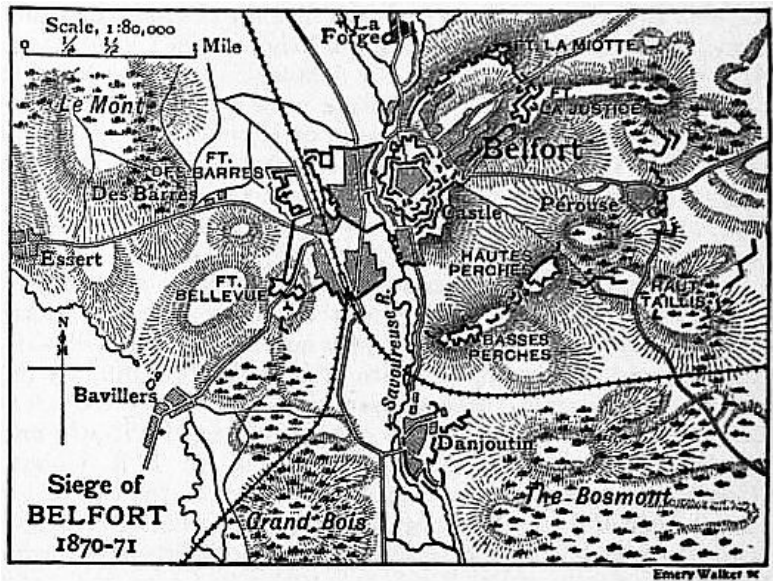
Perches redoubts, the Bosmont, whence the Prussian engineers began their attack, is now heavily fortified with continuous lines called the *Organisation défensive de Bosmont*. The old Bellevue redoubt (now Fort Denfert-Rochereau) is covered by a new work situated likewise on the ground occupied by the siege trenches in the war. Pérouse, hastily entrenched in 1870, now possesses a permanent fort. The old entrenched camp enclosed by the castle, Fort La Miotte, and Fort Justice, is still maintained, and part even of the enceinte built by Vauban is used for defensive purposes. Outside this improved inner line, which includes the whole area of the attack and defence of 1870, lies a complete circle of detached forts and batteries of modern construction. To the north, Forts Salbert and Roppe form the salients of a long defensive line on high ground, at the centre of which, where the Savoureuse river divides it, a new work was added later. Two works near Giromagny, about 8 m. from Belfort itself, connect the fortress with the right of the defensive line of the Moselle (Fort Ballon d'Alsace). In the eastern sector of the defences (from Roppe to the Savoureuse below Belfort) the forts are about 3 m. from the centre, the works near the Belfort-Mülhausen railway being somewhat more advanced, and in the western (from Salbert to Fort Bois d'Oyé on the lower Savoureuse) they are advanced to about the same distance. The fort of Mont Vaudois, the westernmost, overlooks Héricourt and the battlefield of the Lisaine: farther to the south Montbéliard is also fortified. The perimeter of the Belfort defences is nearly 25 m.

History.—Gallo-Roman remains have been discovered in the vicinity of Belfort, but the place is first heard of in the early part of the 13th century, when it was in the possession of the counts of Montbéliard. From them it passed by marriage to the counts of Ferrette and afterwards to the archdukes of Austria. By the treaty of Westphalia (1648) the town was ceded to Louis XIV. who gave it to Cardinal Mazarin.

In the Thirty Years' War Belfort was twice besieged, 1633 and 1634, and in 1635 there was a battle here between the duke of Lorraine and the allied French and Swedes under Marshal de la Force. The fortifications of Vauban were begun in 1686. Belfort was besieged in 1814 by the troops of the allies and in 1815 by the Austrians.

The most famous episode of the town's history is its gallant and successful defence in the war of 1870-1871.

The events which led up to the siege are described under Franco-German War. Even before the 667
investment Belfort was cut off from the interior of France, and the German corps of von Werder was, throughout the siege, between the fortress and the forces which might attempt its relief. The siege corps was commanded by General von Tresckow and numbered at first 10,000 men with twenty-four field guns—a force which appeared adequate for the reduction of the antiquated works of Vaubau. Colonel Denfert-Rochereau was, however, a scientific engineer of advanced ideas as well as a veteran soldier of the Crimea and Algeria, and he had been stationed at Belfort for six years. He was therefore eminently fitted for the command of the fortress. He had as a nucleus but few regular troops, but the energy of the military and civil authorities enabled his force to be augmented by national guards, &c., to 17,600 men. The artillery was very numerous, but skilled gunners were not available in any great strength and ammunition was scarce. Perhaps the most favourable circumstance from a technical point of view was the bomb-proof accommodation of the enceinte.



The old fortress consisted of the town enceinte, the castle (situated on high ground and

fortified by several concentric envelopes), and the entrenched camp, a hollow enclosed by continuous lines, the salients of which were the castle, Fort La Justice and Fort La Miotte. These were planned in the days of short-range guns, and were therefore in 1870 open to an overwhelming bombardment by the rifled cannon of the attack. Denfert-Rochereau, however, understood better than other engineers of the day the power of modern artillery, and his plan was to utilize the old works as a keep and an artillery position. The Perches ridge, whence the town and suburbs could be bombarded, he fortified with all possible speed. On the right bank of the Savoureuse he constructed two new forts, Bellevue in the south-west and Des Barres to the west, and, further, he prepared the suburb on this side for a hand-to-hand defence. His general plan was to maintain as advanced a line as possible, to manoeuvre against the investing troops, and to support his own by the long range fire of his rifled guns. With this object he fortified the outlying villages, and when the Germans (chiefly Landwehr) began the investment on the 3rd of November 1870, they encountered everywhere a most strenuous resistance. Throughout the month the garrison made repeated sorties, and the Germans were on several occasions forced by the long range fire of the fortress to evacuate villages which they had taken. Under these circumstances, and also because of their numerical weakness and the rigour of the weather, the Germans advanced but slowly. On the 2nd of December, when at last von Tresckow broke ground for the construction of his batteries, the French still held Danjoutin, Bosmont, Pérouse and the adjacent woods, and, to the northward (on this side the siege was not pressed) La Forge. Thus the first attack of the siege artillery was confined to the western side of the river between Essert and Bavillers. From this position the bombardment opened on the 3rd of December. Some damage was done to the houses of Belfort, but the garrison was not intimidated, and their artillery replied with such spirit that after some days the German commander gave up the bombardment. On this occasion the distant forts La Miotte and La Justice fired with effect at a range of 4700 yds., affording a conspicuous illustration of the changed conditions of siege-craft. The German batteries, as more guns arrived, were extended from left to right, and on the 13th of December the Bosmont was captured, ground being also gained in front of Bellevue. The difficulties under which the siege corps laboured were very great, and it was not until the 7th of January 1871 that the rightmost battery opened fire. The formal siege of the Perches redoubts had now been decided upon, and as an essential preliminary to further operations, Danjoutin, now isolated, was stormed by the Landwehr on the night of the 7th-8th January. In the meanwhile typhus and smallpox had broken out amongst the French, many of the national guards were impatient of control, and the German trenches, in spite of difficulties of ground and weather, made steady progress towards the Perches. A week after the fall of Danjoutin the victory of von Werder and the XIV. army corps at the Lisaine, in which a part of the siege corps bore a share, put an end to the attempt to relieve Belfort, and the siege corps was promptly increased to a strength of 17,600 infantry, 4700 artillery and 1100 engineers, with thirty-four field-guns besides the guns and howitzers of the siege train. The investment was now more strictly maintained even on the north side. On the night of the 20th of January the French lines about Pérouse were carried by assault, and, both flanks being now cleared, the formal siege of the Perches forts was opened, the first parallel extending from Danjoutin to Haut Taillis. In the early morning of the 27th a determined but premature attempt was made to storm the Perches redoubts, which cost the besiegers nearly 500 men. After this failure Tresckow once more resorted to the regular method of siege approaches, and on the 2nd of February the second parallel was thrown up. La Justice was now bombarded by two new batteries near Pérouse, the Perches were of course subjected to an “artillery attack,” and henceforward the besiegers fired 1500 shells a day into the works of the French. But the besiegers were still weak in numbers and their labours were very exhausting. Bellevue and Des Barres became very active in hindering the advance of the siege works, and the German battalions were so far depleted by losses and sickness that they could often muster but 300 men for duty. Still, the guns of the attack were now steadily gaining the upper hand, and at last on the 8th of February the Germans entered the two Perches redoubts. This success, and the arrival of German reinforcements, decided the siege. The Perches ridge was crowned with a parallel and numerous batteries, which in the end mounted ninety-seven guns. The attack on the castle now opened, but operations were soon afterwards suspended by the news that Belfort was now included in the general armistice (February 15th). A little later Denfert-Rochereau received a direct order from his own government to surrender the fortress, and the garrison, being granted free withdrawal, marched out with its arms and trains. “The town had suffered terribly ... nearly all the buildings were damaged ... the guns in the upper batteries could only be reached by ladders. The garrison, of its original strength of 17,700 officers and men, had lost 4750, besides 336 citizens. The place was no longer tenable” (Moltke, *Franco-German War*). Nevertheless, “the defence was by no means at its last stage” at the time of the formal surrender (British *Text-Book of Fortification*, 1893). The total loss of the besiegers was about 2000 men.

See J. Liblin, *Belfort et son territoire* (Mülhausen, 1887).

BELFRY (Mid. Eng. *berfrey*, through Med. Lat. *berefredus*, from Teut. *bergfrid* or *bercvrit*, which, according to the *New Eng. Dict.*, is a combination of *bergen*, to protect, and *frida*, safety or peace; the word thus meaning a shelter; the change from *r* to *l*,—cf. *almery* for *armarium*,—wrongly associated the origin of the word with "bell," and aided the restriction in meaning), a word in medieval siege-craft for a movable wooden tower of several stages, protected with raw hides, used for purposes of attack; also a watch-tower, particularly one with an alarm bell; hence any detached tower or campanile containing bells, as at Evesham, but more generally the ringing room or loft of the tower of a church (see Tower). 668

BELGAE, a Celtic people first mentioned by Caesar, who states that they formed the third part of Gaul, and were separated from the Celtae by the Sequana (Seine) and Matrona (Marne). On the east and north their boundary was the lower Rhine, on the west the ocean. Whether Caesar means to include the Leuci, Treviri and Mediomatrici among the Belgian tribes is uncertain. According to the statement of the deputation from the Remi to Caesar (*Bell. Gall.* ii. 4), the Belgae were a people of German origin, who had crossed the Rhine in early times and driven out the Galli. But Caesar's own statement (*B.G.* i. 1) that the Belgae differed from the Celtae in language, institutions and laws, is too sweeping (see Strabo iv. p. 176), at least as regards language, for many words and names are common to both. In any case, only the eastern districts would have been affected by invaders from over the Rhine, the chief seat of the Belgae proper being in the west, the country occupied by the Bellovaci, Ambiani and Atrebates, to which it is probable (although the reading is uncertain) that Caesar gives the distinctive name Belgium (corresponding to the old provinces of Picardy and Artois). The question is fully discussed by T.R. Holmes (*Caesar's Conquest of Gaul*, 1899), who comes to the conclusion that "when the Reman delegates told Caesar that the Belgae were descended from the Germans, they probably only meant that the ancestors of the Belgic conquerors had formerly dwelt in Germany, and this is equally true of the ancestors of the Gauls who gave their name to the Celtae; but, on the other hand, it is quite possible that in the veins of some of the Belgae flowed the blood of genuine German forefathers." W. Ridgeway (*Early Age of Greece, 1901*) considers that the Belgic tribes were Cimbri, "who had moved directly across the Rhine into north-eastern Gaul." No definite number of Belgian tribes is given by Caesar; according to Strabo (iv. p. 196) they were fifteen in all. The Belgae had also made their way over to Britain in Caesar's time (*B.G.* ii. 4, v. 12), and settled in some of the southern counties (Wilts, Hants and Somerset). Among their towns were *Magnus Portus* (Portsmouth) and *Venta Belgarum* (Winchester).

In 57 B.C., after the defeat of Ariovistus, the Belgae formed a coalition against Caesar, and in 52 took part in the general rising under Vercingetorix. After their final subjugation, Caesar combined the territory of the Belgae, Celtae and Aquitani into a single province (Gallia Comata). Augustus, however, finding it too unwieldy, again divided it into three provinces, one of which was Belgica, bounded on the west by the Seine and the Arar (Saône); on the north by the North Sea; on the east by the Rhine from its mouth to the Lacus Brigantinus (Lake Constance). Its southernmost district embraced the west of Switzerland. The capital and residence of the governor of the province was Durocortorum Remorum (Reims). Under Diocletian, Belgica Prima (capital, Augusta Trevirorum, Trier) and Secunda (capital, Reims) formed part of the "diocese" of Gaul.

See A.G.B. Schayes, *La Belgique et les Pays-Bas avant et pendant la domination romaine* (2nd ed., Brussels, 1877); H.G. Moke, *La Belgique ancienne* (Ghent, 1855); A. Desjardins, *Géographie historique de la Gaule*, ii. (1878); T.R. Holmes, *Caesar's Conquest of Gaul* (1899); M. Ihm in Pauly-Wissowa's *Realencyclopädie*, iii. pt. 1 (1897); J. Jung, "Geographie von Italien und dem Orbis romanus" (2nd ed., 1897) in I. Müller's *Handbuch der klassischen Altertumswissenschaft*.

BELGARD, a town of Germany, in the Prussian province of Pomerania, at the junction of the rivers Leitznitz and Persante, 22 m. S.E. of Kolberg by rail. Pop. (1900) 8047. Its industries consist of iron founding and cloth weaving, and there are considerable horse and cattle markets.

BELGAUM, a town and district of British India, in the southern division of Bombay. The town is situated nearly 2500 ft. above sea-level; it has a station on the Southern Mahratta railway, 245 m. S. of Poona. It has an ancient fortress, dating apparently from 1519, covering about 100 acres, and surrounded by a ditch; within it are two interesting Jain temples. Belgaum contains a cantonment which is the headquarters of a brigade in the 6th division of the western army corps. It is also a considerable centre of trade and of cotton weaving. There are cotton mills. Pop. (1901) 36,878.

The district of Belgaum has an area of 4649 sq. m. To the north and east the country is open and well cultivated, but to the south it is intersected by spurs of the Sahyadri range, thickly covered in some places with forest. In 1901 the population was 993,976, showing a decrease of 2% compared with an increase of 17% in the preceding decade. The principal crops are millet, rice, wheat, other food-grains, pulse, oil-seeds, cotton, sugar-cane, spices and tobacco. There are considerable manufactures of cotton-cloth. The town of Gokak is known for its dyes, its paper and its wooden and earthenware toys. The West Deccan line of the Southern Mahratta railway runs through the district from north to south. Two high schools at Belgaum town are maintained by government and by the London Mission. The Kurirs, a wandering and thieving tribe, the Kamais, professional burglars, and the Baruds, cattle-stealers and highwaymen, are notorious among the criminal classes.

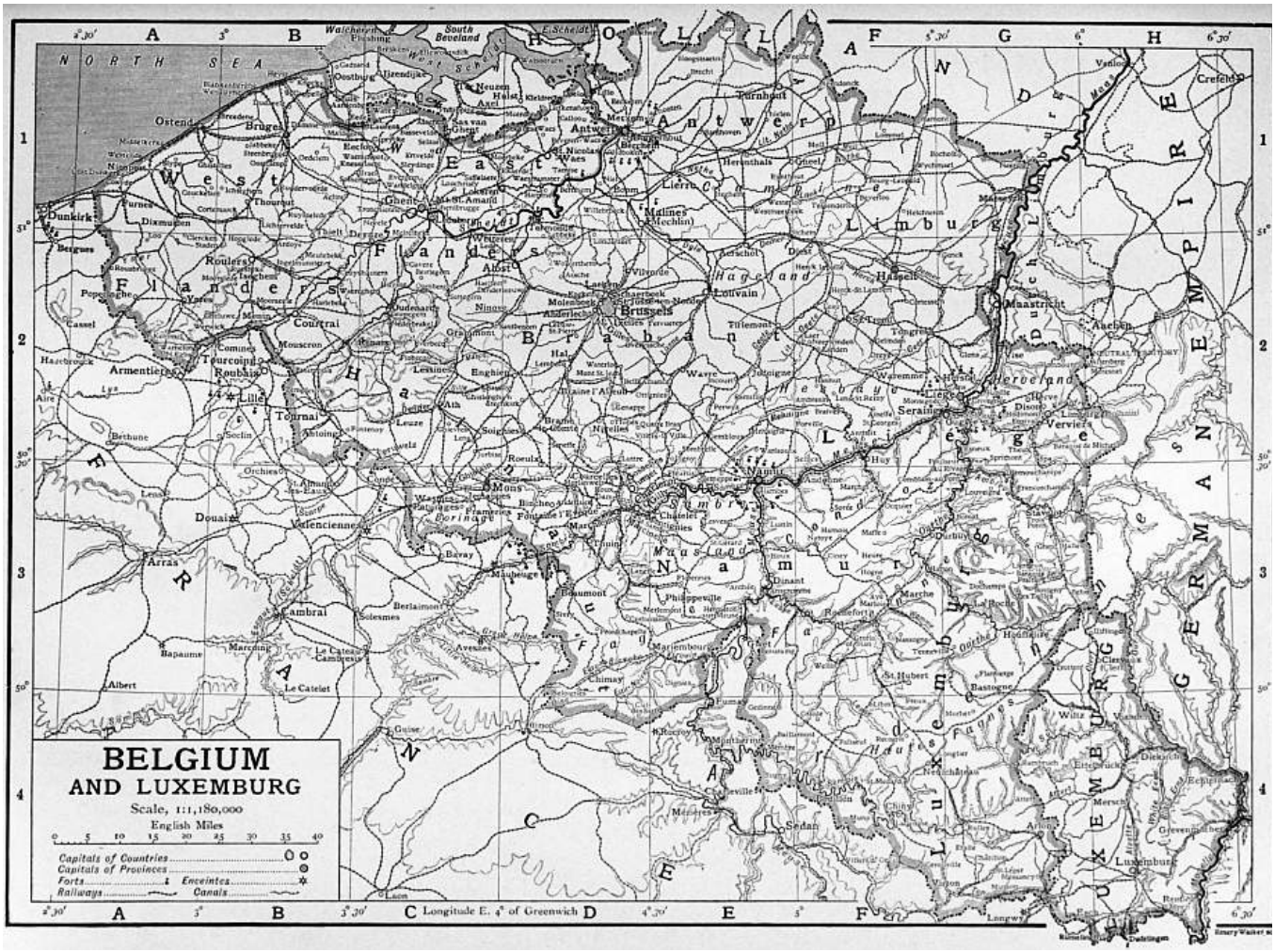
History.—The ancient name of the town of Belgaum was Venugrama, which is said to be derived from the bamboos that are characteristic of its neighbourhood. The most ancient place in the district is Halsi; and this, according to inscriptions on copper plates discovered in its neighbourhood, was once the capital of a dynasty of nine Kadamba kings. It appears that from the middle of the 6th century A.D. to about 760 the country was held by the Chalukyas, who were succeeded by the Rashtrakutas. After the break-up of the Rashtrakuta power a portion of it survived in the Rattas (875-1250), who from 1210 onward made Venugrama their capital. Inscriptions give evidence of a long struggle between the Rattas and the Kadambas of Goa, who succeeded in the latter years of the 12th century in acquiring and holding part of the district. By 1208, however, the Kadambas had been overthrown by the Rattas, who in their turn succumbed to the Yadavas of Devagiri in 1250. After the overthrow of the Yadavas by the Delhi emperor (1320), Belgaum was for a short time under the rule of the latter; but only a few years later the part south of the Ghatprabha was subject to the Hindu rajas of Vijayanagar. In 1347 the northern part was conquered by the Bahmani dynasty, which in 1473 took the town of Belgaum and conquered the southern part also. When Aurungzeb overthrew the Bijapur sultans in 1686, Belgaum passed to the Moguls. In 1776 the country was overrun by Hyder Ali, but was retaken by the Peshwa with British assistance. In 1818 it was handed over to the East India Company and was made part of the district of Dharwar. In 1836 this was divided into two parts, the southern district continuing to be known as Dharwar, the northern as Belgaum.

See *Imp. Gazetteer of India* (Oxford, ed. 1908), *s.v.*

BELGIAN CONGO, a Belgian colony in Equatorial Africa occupying the greater part of the basin of the Congo river. Formerly the Independent State of the Congo, it was annexed to Belgium in 1908. (See Congo Free State.)

BELGIUM (Fr. *Belgique*; Flem. *Belgie*), an independent, constitutional and neutral state occupying an important position in north-west Europe. It was formerly part of the Low Countries or Netherlands (*q.v.*). Although the name Belgium only came into general use with the foundation of the modern kingdom in 1830, its derivation from ancient times is clear and incontrovertible. Beginning with the Belgae and the Gallia Belgica of the Romans, the use of the adjective to distinguish the inhabitants of the south Netherlands can be traced through all stages of subsequent history. During the Crusades, and in the middle ages, the term *Belgicae principes* is of frequent occurrence, and when in 1790 the Walloons rose against Austria during what was called the Brabant revolution, their leaders proposed to give the country the name of Belgique. Again in 1814, on the expulsion of the French, when there was much talk of founding an independent state, the same name was suggested for it. It was not till sixteen years later, on the collapse of the united kingdom of the Netherlands, that the occasion presented itself for

giving effect to this proposal. For the explanation of the English form of the name it may be mentioned that Belgium was a canton of what had been the Nervian country in the time of the Roman occupation.



(Click to enlarge.)

Topography, &c.—Belgium lies between 49° 30′ and 51° 30′ N., and 2° 32′ and 6° 7′ E., and on the land side is bounded by Holland on the N. and N.E., by Prussia and the grand duchy of Luxemburg on the E. and S.E., and by France on the S. Its land frontiers measure 793 m., divided as follows:—with Holland 269 m., with Prussia 60 m., with the grand duchy 80 m. and with France 384 m. In addition it has a sea-coast of 42 m. The western portion of Belgium, consisting of the two Flanders, Antwerp and parts of Brabant and Hainaut, is flat, being little above the level of the sea; and indeed at one point near Furnes it is 7 ft. below it. The same description applies more or less to the north-east, but in the south of Hainaut and the greater part of Brabant the general level of the country is about 300 ft. above the sea, with altitudes rising to more than 600 ft. South of the Meuse, and in the district distinguished by the appellation “Between Sambre and Meuse,” the level is still greater, and the whole of the province of Luxemburg is above 500 ft., with altitudes up to 1650 ft. In the south-eastern part of the province of Liége there are several points exceeding 2000 ft. The highest of these is the Baraque de Michel close to the Prussian frontier, with an altitude of 2190 ft. The Baraque de Fraiture, north-east of La Roche, is over 2000 ft. While the greater part of western and northern Belgium is devoid of the picturesque, the Ardennes and the Fagnes districts of “Between Sambre and Meuse” and Liége contain much pleasant and some romantic scenery. The principal charm of this region is derived from its fine and extensive woods, of which that called St Hubert is the best known. There are no lakes in Belgium, but otherwise it is exceedingly well watered, being traversed by the Meuse for the greater part of its course, as well as by the Scheldt and the Sambre. The numerous affluents of these rivers, such as the Lys, Dyle, Dender, Ourthe, Amblève, Vesdre, Lesse and Semois, provide a system of waterways almost unique in Europe. The canals of Belgium are scarcely less numerous or important than those of Holland, especially in Flanders, where they give a distinctive character to the country. But the most striking feature in Belgium, where so much is modern, utilitarian and ugly, is found in the older cities with their relics of medieval greatness, and their record of ancient fame. These, in their order of interest, are Bruges, Antwerp, Louvain, Brussels, Ghent, Ypres, Courtrai, Tournai, Furnes, Oudenarde and Liége. It is to them rather than to the sylvan scenes of the Ardennes that travellers and

tourists flock.

The climate may be described as temperate and approximating to that of southern England, but it is somewhat hotter in summer and a little colder in winter. In the Ardennes, owing to the greater elevation, the winters are more severe.

Geology.—Belgium lies upon the northern side of an ancient mountain chain which has long been worn down to a low level and the remnants of which rise to the surface in the Ardennes, and extend eastward into Germany, forming the Eifel and Westerwald, the Hunsrück and the Taunus. Westward the chain lies buried beneath the Mesozoic and Tertiary beds of Belgium and the north of France, but it reappears in the west of England and Ireland. It is the "Hercynian chain" of Marcel Bertrand, and is composed entirely of Palaeozoic rocks. Upon its northern margin lie the nearly undisturbed Cretaceous and Tertiary beds which cover the greater part of Belgium. The latest beds which are involved in the folds of this mountain range belong to the Coal Measures, and the final elevation must have taken place towards the close of the Carboniferous period. The fact that in Belgium Jurassic beds are found upon the southern and not upon the northern margin indicates that in this region the chain was still a ridge in Jurassic times. In the Ardennes the rocks which constitute the ancient mountain chain belong chiefly to the Devonian System, but Cambrian beds rise through the Devonian strata, forming the masses of Rocroi, Stavelot, &c., which appear to have been islands in the Devonian sea. The Ordovician and Silurian are absent here, and the Devonian rests unconformably upon the Cambrian; but along the northern margin of the Palaeozoic area, Ordovician and Silurian rocks appear, and beds of similar age are also exposed farther north where the rivers have cut through the overlying Tertiary deposits. Carboniferous beds occur in the north of the Palaeozoic area. Near Dinant they are folded amongst the Devonian beds, but the most important band runs along the northern border of the Ardennes. In this band lie the coalfields of Liége, and of Mons and Charleroi. It is a long and narrow trough, which is separated from the older rocks of the Ardennes by a great reversed fault, the *faille du midi*. In the southern half of the trough the folding of the Coal Measures is intense; in the northern half it is much less violent. The structure is complicated by a thrust-plane which brings a mass of older beds upon the Coal Measures in the middle of the trough. Except along the southern border of the Ardennes, and at one or two points in the middle of the Palaeozoic massif, Triassic and Jurassic beds are unknown in Belgium, and the Palaeozoic rocks are directly and unconformably overlaid by Cretaceous and Tertiary deposits. The Cretaceous beds are not extensive, but the Wealden deposits of Bernissart, with their numerous remains of Iguanodon, and the chalk of the district about the Dutch frontier near Maastricht, with its very late Cretaceous fauna, are of special interest.

Exclusive of the Ardennes the greater part of Belgium is covered by Tertiary deposits. The Eocene, consisting chiefly of sands and marls, occupies the whole of the west of the country. The Oligocene forms a band stretching from Antwerp to Maastricht, and this is followed towards the north by a discontinuous strip of Miocene and a fairly extensive area of Pliocene. The Tertiary deposits are similar in general character to those of the north of France and the south of England. Coal and iron are by far the most important mineral productions of Belgium. Zinc, lead and copper are also extensively worked in the Palaeozoic rocks of the Ardennes.

Area and Population.—The area comprises 2,945,503 hectares, or about 11,373 English sq. m., and the total population in December 1904 was 7,074,910, giving an average of 600 per sq. m.

The Nine Provinces.	Area in English sq. m.	Population at end of 1904.	Population per sq. m. 1904.
Antwerp	1093	888,980	813.3
Brabant	1268	1,366,389	1077.59
Flanders E.	1158	1,078,507	931.35
Flanders W.	1249	845,732	677.8
Hainaut	1437	1,192,967	830.18
Liége	1117	863,254	772.8
Limburg	931	255,359	274.28
Luxemburg	1706	225,963	132.45
Namur	1414	357,759	253
Total	11,373	7,074,910	622

The population was made up of 3,514,491 males and 3,560,419 females. The rate at which the population has increased is shown as follows:—From 1880 to 1890 the increase was at the rate annually of 54,931, from 1890 to 1900 at the rate of 62,421, and for the five years from 1900 to 1904 at the rate of 66,200. In 1831 the population of Belgium was 3,785,814, so that in 75 years it had not quite doubled. The following table gives the total births and deaths in certain years since 1880:—

Year.	Total births.	Total deaths.	Excess of births.
1880.	171,864	123,323	48,541
1895.	183,015	125,148	57,867
1900.	193,789	129,046	64,743
1904.	191,721	119,506	72,215

These figures show that the births were 23,674 more in 1904 than in 1880, while the deaths were nearly 4000 fewer, with a population that had increased from 5½ to 7 millions. Of 191,721 births in 1904, 12,887 or 6.7% were illegitimate. Statistics of recent years show a slight increase in legitimate and a slight decrease in illegitimate births.

The emigration of Belgians from their country is small and reveals little variation. In 1900, 13,492 emigrated, and in 1904 the total rose only to 14,752. Of Belgians living abroad it is estimated that 400,000 reside in France, 15,000 in Holland, 12,000 in Germany and 4600 in Great Britain. The number of Belgians in the Congo State in 1904 was 1505. The number of foreigners resident in Belgium in 1900 with their nationalities were Germans, 42,079; English, 5096; French, 85,735; Dutch, 54,491; Luxemburgers, 9762; and all other nationalities, 14,411.

With regard to the languages spoken by the people of Belgium the following comparative table gives the return for the three censuses of 1880, 1890 and 1900:—

	1880	1890	1900
French only	2,230,316	2,485,072	2,574,805
Flemish only	2,485,384	2,744,271	2,822,005
German only	39,550	32,206	28,314
French and Flemish	423,752	700,997	801,587
French and German	35,250	58,590	66,447
Flemish and German	2,956	7,028	7,238
The three languages	13,331	13,185	42,885

Constitution and Government.—The Belgian constitution, drafted by the national assembly in 1830-1831 after the provisional government had announced that “the Belgian provinces detached by force from Holland shall form an independent state,” was published on the 7th of February 1831, and the modifications introduced into it subsequently, apart from the composition of the electorate, have been few and unimportant. The constitution originally contained one hundred and thirty-nine articles, and decreed in the first place that the government was to be “a constitutional, representative and hereditary monarchy.” Having decided in favour of a monarchy, the provisional government first offered the throne to the due de Nemours, son of Louis-Philippe, but this offer was promptly withdrawn on the discovery that Europe would not endorse it. It was then offered to Prince Leopold of Saxe-Coburg, widower of the princess Charlotte of England, and accepted by him. The prince was proclaimed on the 4th of June 1831 as Leopold I., king of the Belgians, and on the 21st of July 1831 he was solemnly inaugurated in Brussels. The succession is vested in the heirs male of Leopold I., and should they ever make complete default the throne will be declared vacant, and a national assembly composed of the two chambers elected in double strength will make a fresh nomination. In 1894 a new article numbered 61 was inserted in the constitution providing that “in default of male heirs the king can nominate his successor with the assent of the two chambers, and if no such nomination has been made the throne shall be vacant,” when the original procedure of the constitution would be followed. The Belgian national assembly assumed that its constitution would extend over the whole of the Belgic or south Netherlands, but the powers decreed otherwise. The limits of Belgium are fixed by the London protocol of the 15th of October 1831—also called the twenty-four articles—which cut off what is now termed the grand duchy of Luxemburg, and also a good portion of the duchy of Limburg. These losses of territory held by a brother people are still felt as a grievance by many Belgians. The Belgian constitution stipulates for “freedom of conscience, of education, of the press and also of the right of meeting,” but the sovereign must be a member of the Church of Rome. The government was to consist of the king, the senate and the chamber of representatives. The functions of the king are those that appertain everywhere to the sovereign of a constitutional state. He is the head of the army and has the exclusive right of dissolving the chambers as preliminary to an appeal to the country.

The senate is composed of seventy-six elected members and twenty-six members nominated by the provincial councils. A senator sits for eight years unless a dissolution is ordered, and no one is eligible until he is forty years of age. Half the seventy-six elected senators retire for re-election every four years. There is no payment or other privilege, except a pass on the state railways, attached to the rank of senator. The chamber of representatives contained one hundred and fifty-two members until 1899, when the number was increased to one hundred and sixty-six. Deputies are elected for four years, but half the house is re-elected every two years. A deputy must be twenty-five years of age, and the members of both houses must be of Belgian

nationality, born or naturalized. A deputy receives an annual honorarium of 4000 francs and a railway pass. Down to 1893 the electorate was exceedingly small. Property and other qualifications kept the voting power in the hands of a limited class. This may be judged from the fact that in the year named there were only 137,772 voters out of a population of 65 millions. In April 1894 the new electoral law altered the whole system. The property qualification was removed and every Belgian was given one vote on attaining twenty-five years of age and after one year's residence in his commune. At the same time the principle of multiple votes for certain qualifications was introduced. The Belgian citizen on reaching the age of thirty-five, providing he is married or is a widower with legitimate offspring and pays five francs of direct taxes, gets a second vote. Two extra votes are given for qualifications of property, official status or university diplomas. The maximum voting power of any individual is three votes. In 1904 there were 1,581,649 voters, possessing 2,467,966 votes. This system of plural voting has proved a success. It does not, however, satisfy the Socialists, whose formula is one man, one vote. The final change in the system of parliamentary elections was made in 1899-1900, when proportional representation was introduced. Proportional representation aims at the protection of minorities, and its working out is a little intricate, or at all events difficult to describe. The following has been accepted as a clear definition of what proportional representation is:—"Each electoral district has the number of its members apportioned in accordance with the total strength of each party or political programme in that district. As a rule there are only the three chief parties, viz. Catholic, Liberal and Socialist, but the presence of Catholic-Democrats or some other new faction may increase the total to four or even five. The number of seats to be filled is divided by the number of parties or candidates, and then they are distributed in the proportion of the total followers or voters of each. The smallest minority is thus sure of one seat." An illustration may make this clearer. In an electoral district with 32,000 votes which returns eight deputies, four parties send up candidates, let us say, eight Catholics, eight Liberals, eight Socialists and one Catholic-Democrat. The result of the voting is, 16,000 Catholic votes, 9000 Liberal, 4500 Socialist, and 2500 Catholic-Democrat. The seats would, therefore, be apportioned as follows: four Catholic, two Liberal, one Socialist and one Catholic-Democrat.

Administration.

The king has one right which other constitutional rulers do not possess. He can initiate proposals for new laws (*projets de loi*). He is also charged with the executive power which he delegates to a cabinet composed of ministers chosen from the party representing the majority in the chamber. Down to 1884 the Liberal party had held power with very few intervals since 1840. The Catholic party succeeded to office in 1884. The ministers represent departments for finance, foreign affairs, colonies, justice, the interior, science and arts, war, railways, posts and telegraphs, agriculture, public works, and industry and labour. The minister for war is generally a soldier, the others are civilians. Ministers may be members of either chamber and enjoy the privilege of being allowed to speak in both. Sometimes one minister will hold several portfolios at the same time, but such cases are rare.

Provinces and communes.

The kingdom is divided into nine provinces which are subdivided into 342 cantons and 2623 communes. The provinces are governed by a governor nominated by the king, the canton is a judicial division for marking the limit of the jurisdiction of each *juge de paix*, and the commune is the administrative unit, possessing self-government in all local matters. For each commune of 5000 inhabitants or over, a burgomaster is appointed by the communal council which is chosen by the electors of the commune. As three years' residence is required these electors are fewer in number than those for the legislature. In 1902 there were 1,146,482 voters with 2,007,704 votes, the principles of multiple votes, with, however, a maximum of four votes and proportional representation, being in force for communal as for legislative elections.

Religion.—The constitution provides for absolute liberty of conscience and there is no state religion, but the people are almost to a man Roman Catholics. It is computed that there are 10,000 Protestants (half English) and 5000 Jews, and that all the rest are Catholics. The government in 1904 voted nearly 7,000,000 francs in aid of the religious establishments of, and the benevolent institutions kept up by, the Roman Church. The grant to other cults amounted to 118,000 francs, but small as this sum may appear it is in due proportion to the relative numbers of each creed. The hierarchy of the Church of Rome in Belgium is composed of the archbishop of Malines, and the bishops of Liége, Ghent, Bruges, Tournai and Namur. The archbishop receives £800, and the bishops £600 apiece from the state yearly. The pay of the village *curé* averages £80 a year and a house. Besides the regular clergy there are the members of the numerous monastic and conventual houses established in Belgium. They are engaged principally in educational and eleemosynary work, and the development in such institutions is considerable.

Education.—Education, though not obligatory, is free for those who cannot pay for it. In the primary schools instruction in reading, writing, arithmetic, history and geography is obligatory. In 1904 there were 7092 primary schools with 859,436 pupils of both sexes. Of these 807,383 did not pay. Primary education is supposed to continue till the age of fourteen, but in practice it

stops at twelve for all who do not intend to pass through the middle schools, which is essential for all persons seeking state employment of any kind. The middle schools have one privilege. They can give a certificate qualifying scholars for a mastership in the primary schools, which are under the full control of the communes. These appointments are always bestowed on local favourites. The pay of a schoolmaster in a small commune is only £48, and in a large town £96, with a maximum ranging from £80 to £152 after twenty-four years' service. It is therefore clear that no very high qualifications could be expected from such a staff. The control of the state comes in to the extent of providing district inspectors who visit the schools once a year, and hold a meeting of the teachers in their district once a quarter. In each province there is a chief inspector who is bound to visit each school once in two years, and reports direct to the minister of public instruction. With regard to the middle schools, the government has reserved the right to appoint the teaching staff, and to prescribe the books that are to be used. The results of the middle schools are fairly satisfactory. Still better are the Athénées Royaux, twenty in number, which are quite independent of the commune and subject to official control under the superior direction of the king. Mathematics and classics are taught in them and the masters are allowed to take boarders. The expenditure of the state on education amounts to about a million sterling. In 1860 the grants were only for little over one-eighth of the total in 1903. In 1900 31.94% of the toal population was illiterate. Considerable progress in the education of the people is made visible by a comparison of the figures of three decennial censuses. In 1880 the illiterate were 42.25% and in 1890 37.63, so that there was a further marked improvement by 1900. Among the provinces Walloon Belgium is better instructed than Flemish, Luxemburg coming first, followed by Namur, Liége and Brabant in their order.

Higher instruction is given at the universities and in the schools attached thereto. Those at Ghent and Liége are state universities; the two others at Brussels and Louvain are free. At Louvain alone is there a faculty of theology. The number of students inscribed for the academical year 1904-1905 at each university was Ghent 899, Liége 1983, Brussels 1082, and Louvain 2134, or a grand total of 6098. Liége is specially famed for the technical schools attached to it. There are also a large number of state-aided schools for special purposes; (1) for military instruction, there are the *École Militaire* at Brussels, the school of cadets at Namur, and army schools at different stations, *e.g.* Bouillon, &c. For officers in the army, there are the *École de Guerre* or staff college at Brussels with an average attendance of twenty, a riding school at Ypres where a course is obligatory for the cavalry and horse artillery, and for soldiers in the army there are regimental schools and evening classes for illiterate soldiers. (2) For education in the arts, there is the Royal Academy of Fine Arts at Antwerp, and besides this famous school of painting there are eighty-four academies for teaching drawing throughout the kingdom. In music, there are royal conservatoires at Brussels, Antwerp, Ghent, and Liége. Besides these there are sixty-nine minor conservatoires. (3) For commercial and professional education, there are 181 schools. The Commercial Institute of Antwerp deserves special notice as an excellent school for clerks. (4) Among special schools may be named the three schools of navigation at Antwerp, Ostend and Nieuport. Since the wreck of the training-ship "Comte de Smet de Naeyer" in 1906, it has been decided that a stationary training-ship shall be placed in the Scheldt like the "Worcester" on the Thames. Among the numerous learned societies may be mentioned the Belgian Royal Academy founded in 1769 and revived in 1818. For the encouragement of research and literary style the government awards periodical prizes which are very keenly contested.

Justice.—The administration of justice is very fully organized, and in the Code Belge, which was carefully compiled between 1831 and 1836 from the old laws of the nine provinces leavened by the Code Napoleon and modern exigencies, the Belgians claim that they possess an almost perfect statute-book. The courts of law in their order are *Cour de Cassation*, *Cour d'Appel*, *Cour de Première Instance*, and the *Juge de Paix* courts, one for each of the 342 cantons. The *Cour de Cassation* has a peculiar judicial sphere. It works automatically, examining every judgment to see if it is in strict accord with the code, and where it is not the decision or verdict is simply annulled. There is only one judge in this court, but he has the assistance of a large staff of revisers. The *Cour de Cassation* never tries a case itself except when a minister of state is the accused. The president of this tribunal is the highest legal functionary in Belgium. There are three courts of appeal, viz. at Brussels, Ghent and Liége. At Brussels there are four separate chambers or tribunals in the appeal court. Judges of appeal are appointed by the king for life from lists of eligible barristers prepared by the senate and the courts. Judges can only be removed by the unanimous vote of their brother judges. There are twenty-six courts of first instance distributed among the principal towns of the kingdom, and in Antwerp, Ghent and Liége there are besides special tribunals for the settlement of commercial cases. Of course there is the right of appeal from the decisions of these tribunals as well as of the regular courts. Finally the 342 *Juge de Paix* courts resemble British county courts. Criminal cases are tried by (1) the *Tribunaux de Police*, (2) *Tribunaux Correctionnels*, (3) and the *Cours d'Assises*. The last are held as the length of the calendar requires. Capital punishment is retained on the statute, but is never enforced, the prisoner on whom sentence of death is passed in due form in open

court being relegated to imprisonment for life in solitary confinement and perpetual silence. The chief prisons are at Louvain, Ghent and St Gilles (Brussels), and the last named serves as a house of detention. At Merxplas, near the Dutch frontier, is the agricultural criminal colony at which an average number of two thousand prisoners are kept employed in comparative liberty within the radius of the convict settlement.

Pauperism.—For the relief of pauperism there are a limited number of houses of mendicity, in which inmates are received, and houses of refuge for night shelter. At the *béguinages* of Ghent and Bruges women and girls able to contribute a specified sum towards their support are given a home.

National Finance.—The budget is submitted to the chambers by the minister of finance and passed by them. The revenue and expenditure were in the years stated as follows:—

Year.	Revenue.	Expenditure.
1880.	394,215,932 francs	382,908,429 francs
1895.	395,730,445 ”	410,383,402 ”
1903.	632,416,810 ”	627,975,568 ”

The revenue is made up from taxes, including customs, tolls, including returns from railway traffic, &c., and the balance comes from various revenues, return of capital, loans, &c. The following are the principal items of expenditure (1903):—

Service of debt	143,065,352	francs
Sovereign, senate, chamber, &c.	5,289,087	”
Departments, foreign office	3,751,636	”
” agriculture	12,253,957	”
” railways	165,086,019	”
” finance	34,479,674	”
” industry	19,905,589	”
” war	63,972,473	”
” public instruction	31,799,105	”
” justice	27,168,032	”
Minor items	4,179,046	”
Total	510,949,970	”

The difference is made up of “special expenditure.” The total debt in English money may be put at 126 millions sterling, which requires for interest, sinking fund and service about 5¾ millions sterling annually. The rate of interest on all the loans extant is 3%, except on one loan of 219,959,632 francs, which pays only 2½%.

Army and National Defence.—The army is divided into the regular army, the gendarmerie, and the *garde civique*. The Belgian regular army is thus composed: infantry, one regiment of carabiniers, one of grenadiers, three of *chasseurs à pied*, and fourteen of the line, all these regiments having 3 or 4 active and 3 or 4 reserve battalions apiece; cavalry, two regiments of guides, two of *chasseurs à cheval*, and four of lancers, all light cavalry; artillery, four horse, thirty field, and seventy siege batteries on active service; engineers, 140 officers and 2000 men. The train or commissariat has only 30 officers and 600 men on the permanent establishment. Belgium retains the older form of conscription, and has not adopted the system of “universal service.” The annual levy is small and substitution is permitted. In 1904 the number inscribed for service was 64,042. Of these only 12,525 were enrolled in the army, and of that number 1421 were volunteers, who took an engagement on receipt of a premium. The effective strength of the army in 1904 with the colours was 3406 officers and 40,382 men. To this total has to be added the men on the active list, but either absent on leave or allowed to return to civil life, numbering 70,043. It is assumed that on mobilization these men are immediately available. The reserve consists of 181 officers and 58,014 men, so that the total strength of the Belgian army is 3587 officers and 168,439 men. The field force in war is organized in four infantry and two cavalry divisions, the total strength being about 100,000. The peace effective has not varied much since 1870, but the total paper strength is 75,000 more than in that year. In the years 1900-1904 it increased by 8000 men. The gendarmerie is a mounted force composed of men picked for their physique and divided into three divisions. It numbers 67 officers and 3079 men, but has no reserve. It is in every sense a *corps d’élite*, and may be classed as first-rate heavy cavalry. The total strength of the *garde civique* in 1905 was 35,102, to which have to be added 8532 volunteers belonging to the corps of older formation, service in which counts on a par with the *garde civique*. Some of the latter regiments, especially the artillery, would rank with British

volunteers, but the mass of the *garde civique* does not pretend to possess military value. It is a defence against sedition and socialism. The defence of Belgium depends on five fortified positions. The fortified position and camp of Antwerp represents the true base of the national defence. Its detached forts shelter the city from bombardment, and so long as sea communication is open with England, Antwerp would be practically impregnable. Liége with twelve forts and Namur with nine forts are the fortified *têtes de pont* protecting the two most important passages of the Meuse. The forts are constructed in concrete with armoured cupolas. Termonde on the Scheldt and Diest on the Dender are retained as nominally fortified positions, but neither, could resist a regular bombardment for more than a few hours, as their casemates are not bomb-proof.

The training camp of the Belgian army is at Beverloo in the province of Limburg, and at Braschaet not far from Antwerp are ranges for artillery as well as rifle practice. The Belgian officer is technically as well trained and educated as any in Europe, but he lacks practical experience in military service.

Mines and Industry.—The principal mineral produced in Belgium is coal. This is found in the Borinage district near Mons and in the neighbourhood of Liége, but the working of an entirely new coal-field, which promises to attain vast dimensions, was commenced in 1906 in the Campine district of the province of Limburg. The coal mines of Belgium give employment to nearly 150,000 persons, and for some years the average output has exceeded 22,000,000 tons. Other minerals are iron, manganese, lead and zinc. The iron mines produce much less than formerly, and the want of iron is a grave defect in Belgian prosperity, as about £5,000,000 sterling worth of iron has to be imported annually, chiefly from French Lorraine. The chief metal industry of the country is represented by the iron and steel works of Charleroi and Liége. Belgium is particularly rich in quarries of marble, granite and slate. Ghent is the capital of the textile industry, and all the towns of Flanders are actively engaged in producing woollen and cotton materials and in lace manufacture. The bulk of the population is, however, engaged in agriculture, and the extent of land under cultivation of all kinds is about 6½ million acres.

Commerce.—The trade returns for 1904 were as follows:—

Imports—	
General Commerce	4,426,400,000 francs
Special Commerce (included in General Commerce)	2,782,200,000 ”
Exports—	
General Commerce	3,849,100,000 ”
Special Commerce (included in General Commerce)	2,183,300,000 ”

The general commerce includes goods in transit across Belgium, the special commerce takes into account only the produce and the consumption of Belgium itself. The trade of Belgium has more than trebled as regards both imports and exports since 1870. The following table shows the amount of exports and imports between Belgium and the more important foreign states:—

	Imports.		Exports.	
France	465,684,000	francs	346,670,000	francs
Germany	351,025,000	”	505,473,000	”
England	335,404,000	”	392,324,000	”
Holland	240,873,000	”	268,781,000	”
United States	222,301,000	”	86,324,000	”
Russia	212,119,000	”	26,671,000	”
Argentina	198,913,000	”	41,508,000	”
British India	141,669,000	”	25,860,000	”
Rumani	102,174,000	”	3,949,000	”
Australia	58,190,000	”	12,087,000	”
Congo State	53,100,000	”	14,049,000	”
China	8,770,000	”	25,546,000	”

In the relative magnitude of the annual value of its commerce, excluding that in transit, Belgium stands sixth among the nations of the world, following Great Britain, the United States, Germany, France and Holland. The principal imports are food supplies and raw material such as cotton, wool, silk, flax, hemp and jute. Among minerals, iron ore, sulphur, copper, coal, tin, lead and diamonds are the most imported. The exports of greatest value are textiles, lace, coal, coke, briquettes, glass, machinery, railway material and fire arms.

Shipping and Navigation.—Belgium has no state navy, although various proposals have been made from time to time to establish an armed flotilla in connexion with the defence of Antwerp.

The state, however, possesses a certain number of steamers. In 1904 they numbered sixty-five of 99,893 tons. These steamers are chiefly employed on the passenger route between Ostend and Dover. The total number of vessels entering the only two ports of Belgium which carry on ocean commerce, namely Antwerp and Ostend, in 1904 was 7650 of a tonnage of 10,330,127. Among inland ports that of Ghent is the most important, 1127 ships of a tonnage of 786,362 having entered the port in 1904. The corresponding figures for ships sailing from the two ports first named were in the same year 7642 and tonnage 10,298,405. The figures from Ghent were 1128 and 787,173 tons. Whereas the lines of steamers from Ostend are chiefly with Dover and London, those from Antwerp proceed to all parts of the world. A steam service was established in 1906 from Hull to Bruges by Zeebrugge and the ship canal.

Internal Communications.—The internal communications of Belgium of every kind are excellent. The roads outside the province of Luxemburg and Namur are generally paved. In the provinces named, or in other words, in the region south of the Meuse, the roads are macadamized. The total length of roads is about 6000 m. When Belgium became a separate state in 1830 they were less than one-third of this total. There are about 2900 m. of railways, of which upwards of 2500 m. are state railways. It is of interest to note that the state railways derived a revenue of 249,355 francs (or nearly £10,000) from the penny tickets for the admission of non-travellers to railway stations. Besides the main railways there are numerous light railways (*chemins de fer vicinaux*), of a total length approaching 2500 m. There are also electric and steam tramways in all the principal cities. The total of navigable waterways is given as 1360 m. Posts, telegraphs and telephones are exclusively under state management and form a government department.

Banks and Money.—The principal banking institution is the Banque Nationale which issues the bank-notes in current use. In 1904 the average value of notes in circulation was 645,989,100 francs. The rate of discount was 3% throughout the whole of the year.

The mintage of Belgian money is carried out by a *directeur de la fabrication* who is nominated by and responsible to the government. The gold coins are for 10 and 20 francs, silver for half francs, francs, 2 francs and 5 francs. Nickel money is for 5, 10 and 20 centimes, and the copper coinage has been withdrawn from circulation.

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(D. C. B.)

HISTORY[1]

The political severance of the northern and southern Netherlands may be conveniently dated from the opening of the year 1579. By the signing of the league of Arras (5th of January) the Walloon "Malcontents" declared their adherence to the cause of Catholicism and their loyalty to the Spanish king, and broke away definitely from the northern provinces, who bound themselves by the union of Utrecht (29th of January) to defend their rights and liberties, political and religious, against all foreign potentates. Brabant and Flanders were still indeed under the control of the prince of Orange and through his influence accepted in 1582 the duke of Anjou as their sovereign. The French prince was actually inaugurated duke of Brabant at Antwerp (February 1582) and count of Flanders at Bruges (July), but his misconduct speedily led to his withdrawal from the Netherlands, and even before the assassination of Orange (July 1584) the authority of Philip had been practically restored throughout the two provinces. This had been achieved by the military skill and statesmanlike abilities of Alexander Farnese, prince of Parma, appointed governor-general on the death of Don John of Austria, on the 1st of October 1578. Farnese first won by promises and blandishments the confidence of the Walloons, always jealous of the predominance of the "Flemish" provinces, and then proceeded to make himself master of Brabant and Flanders by force of arms. In succession Ypres, Mechlin, Ghent, Brussels, and finally Antwerp

Final separation of the northern and southern Netherlands.

Alexander Farnese, prince of Parma, governor-general. Successes of Parma.

(17th of August 1585) fell into his hands. Philip had in the southern Netherlands attained his object, and Belgium was henceforth Catholic and Spanish, but at the expense of its progress and prosperity. Thousands of its inhabitants, and those the most enterprising and intelligent, fled from the Inquisition, and made their homes in the Dutch republic or in England. All commerce and industry was at a standstill; grass grew in the streets of Bruges and Ghent; and the trade of Antwerp was transferred to Amsterdam. On Parma's death (3rd of December 1592) the archduke Ernest of Austria was appointed governor-general, but he died after a short tenure of office (20th of February 1595) and was at the beginning of 1596 succeeded by his younger brother the cardinal archduke Albert. Philip was now nearing his end, and in 1598 he gave his eldest daughter Isabel in marriage to her cousin the archduke Albert, and erected the Netherlands into a sovereign state under their joint rule. The advent of the new sovereigns, officially known as "the archdukes," though greeted with enthusiasm in the Belgic provinces, was looked upon with suspicion by the Dutch, who were as firmly resolved as ever to uphold their independence. The chief military event of the early years of their reign was the battle of Nieuport (2nd of July 1600), in which Maurice of Nassau defeated the archduke Albert, and the siege of Ostend, which after a three years' heroic defence was surrendered (20th of September 1604) to the archduke's general, Spinola. The Dutch, however, being masters of the sea, kept the coast closely blockaded, and through sheer exhaustion the king of Spain and the archdukes were compelled to agree to a truce for twelve years (9th of April 1609) with the United Provinces "in the capacity of free states over which Albert and Isabel made no pretensions." During the period of the truce the archdukes, who were wise and statesmanlike rulers, did their utmost to restore prosperity to their country and to improve its internal condition. Unfortunately they were childless, and the instrument of cession of 1598 provided that in case they should die without issue, the Netherlands should revert to the crown of Spain. This reversion actually took place. Albert died in 1621, just before the renewal of the war with the Dutch, and Isabel in 1633. The Belgic provinces therefore passed under the rule of Philip IV., and were henceforth known as the Spanish Netherlands.

Albert and Isabel, sovereigns of the Netherlands.

The twelve years' truce. The rule of the archdukes.

Reversion of the southern Netherlands to Spain, 1633.

This connexion with the declining fortunes of Spain was disastrous to the well-being of the Belgian people, for during many years a close alliance bound together France and the United Provinces, and the Southern Netherlands were exposed to attack from both sides, and constantly suffered from the ravages of hostile armies. The cardinal archduke Ferdinand, governor-general from 1634-1641, was a capable ruler, and by his military skill prevented in a succession of campaigns the forces of the enemy from overrunning the country. On the 30th of January 1648, Spain concluded a separate peace at Münster with the Dutch, by which Philip IV. finally renounced all his claims and rights over the United Provinces, and made many concessions to them. Among these was the closing of the Scheldt to all ships, a clause which was ruinous to the commerce of the Belgic provinces, by cutting them off from their only access to the ocean. Thus they remained for a long course of years without a sea-port, and in the many wars that broke out between Spain and France were constantly exposed, as an outlying Spanish dependency, to the first attack, and peace when it came was usually purchased at the cost of some part of Belgian territory. By the treaty of the Pyrenees (1659) Artois (except St Omer and Aire) and a number of towns in Flanders, Hainaut, and Luxemburg were ceded to France. Subsequent French conquests, confirmed by the peace of Aix-la-Chapelle (1668), took away Lille, Douai, Charleroi, Oudenarde, Coutrai and Tournai. These were, indeed, partly restored to Belgium by the peace of Nijmwegen (1679); but on the other hand it lost Valenciennes, Nieuport, St Omer, Ypres and Charlemont, which were only in part recovered by the peace of Ryswick (1697).

Peace of Münster.

Ruinous consequences of the closing of the Scheldt.

Successive cession of Belgian territory to France.

The internal history of the Belgic provinces has little to record during this long period in which the ambition of Louis XIV. to possess himself of the Netherlands, in right of his wife the infanta Maria Theresa (see Spanish Succession), led to a series of invasions and desolating wars. The French king managed to incorporate a large slice of territory upon his northern frontier, but his main object was baffled by the steady resistance and able statesmanship of William III. of England and Holland. Meanwhile from 1692 onwards brighter prospects were opened out to the unfortunate Belgians by the nomination by the Spanish king of Maximilian Emanuel, elector of Bavaria, to be governor-general with well-nigh sovereign powers. The elector had himself a claim to the inheritance as the husband of an Austrian archduchess, whose mother, the infanta Margaret, was the younger sister of the French queen. Maximilian Emanuel was an able man, who did his utmost to improve the condition of the country. He attempted to promote trade and restore prosperity to the impoverished land by the introduction of new customs laws and other measures, and particularly by the construction of canals to counteract the damage done to Belgian

Efforts of the elector of Bavaria to promote trade.

commerce by the closing of the Scheldt. The position of the elector was greatly strengthened by the partition treaty of the 19th of August 1698. Under this instrument the signatory powers—England, France and Holland—agreed that on the demise of Charles II. the crown prince of Bavaria under his father's guardianship should be sovereign of Spain, Belgium and Spanish America. Charles II. himself shortly afterwards by will appointed the Bavarian prince heir to all his dominions. The death of the infant heir a few months later (6th of February 1699) unfortunately destroyed any prospects of a peaceable settlement of the Spanish Succession. Charles II. was persuaded to name as his sole successor, Philip duke of Anjou, the second son of the dauphin, and on his death (on the 1st November 1700) Louis XIV. took immediate steps to support his grandson's claims, in spite of his formal renunciation of such claims under the treaty of the Pyrenees. England and Holland were determined to prevent, however, at all costs the acquisition of Belgium by a French prince, and a coalition, known as the Grand Alliance, was formed between these two powers and the empire to uphold the claims of the archduke Charles, second son of the emperor.

The Spanish succession.

The Grand Alliance.

One of the first steps of Louis was to take possession of the Netherlands. The hereditary feud between the houses of Austria and Bavaria induced the elector to take the side of France, and he was nominated by Philip V. vicar-general of the Netherlands. The unhappy Belgic provinces were again doomed for a number of years to be the battle-ground of the contending forces, and it was on Belgic soil that Marlborough won the great victories of Ramillies (1706) and of Oudenarde (1708), by which he was enabled to drive the French armies out of the Netherlands and to carry the war into French territory. At the general peace concluded at Utrecht (11th of April 1713) the long connexion between Belgium and Spain was severed, and this portion of the Burgundian inheritance of Charles V. placed under the sovereignty of the Habsburg claimant, who had, by the death of his brother, become the emperor Charles VI. The Belgic provinces now came for a full century to be known as the Austrian Netherlands. Yet such was the dread of France and the enfeebled state of the country that Holland retained the privilege, which had been conceded to her during the war, of garrisoning the principal fortresses or Barrier towns, on the French frontier, and her right to close the navigation on the Scheldt was again ratified by a European treaty. The beginnings of Austrian sovereignty were marked by many collisions between the representatives of the new rulers and the States General, and provincial "states." Despite their troubled history and long subjection, the Belgic provinces still retained to an unusual degree their local liberties and privileges, and more especially the right of not being taxed, except by the express consent of the states. The marquis de Prié, who (as deputy for Prince Eugene) was the imperial governor from 1719 to 1726, encountered on the part of local authorities and town gilds vigorous resistance to his attempt to rule the Netherlands as an Austrian dependency, and he was driven to take strong measures to assert his authority. He selected as his victim a powerful popular leader at Brussels, Francis Anneesens, syndic of the gild of St Nicholas, who was beheaded on the 19th of September 1719. His name is remembered in Belgian annals as a patriot martyr to the cause of liberty. The administration of de Prié was not, however, without its redeeming features. He endeavoured to create at Ostend a seaport, capable in some measure to take the place of Antwerp, and in 1722 a Chartered Company of Ostend was erected for the purpose of trading in the East and West Indies (see OSTEND). The determined hostility of the Dutch rendered the promising scheme futile, and after a precarious struggle for existence, Charles VI., in order to gain the assent of the United Provinces and Great Britain to the Pragmatic Sanction (*q.v.*), suppressed the Company in 1731.

Marlborough's successes.

Peace of Utrecht. The Austrian Netherlands.

Marquis de Prié in Belgium.

Execution of Francis Anneesens.

Chartered Company of Ostend.

For sixteen years (1725-1741) the archduchess Mary Elizabeth, sister of the emperor, filled the post of governor-general. Her rule was marked by the restoration of the old form of administration under the three councils, and was a period of general tranquillity. She died (1741) in the Netherlands, and the empress-queen, Maria Theresa, who had succeeded under the Pragmatic Sanction to the Burgundian domains of her father about a year before, appointed her brother-in-law, Charles of Lorraine, to be governor-general in her aunt's place, and he retained that post, to the great advantage of Belgium, for nearly forty years. He was deservedly known as the "Good Governor." The first years of his administration were stormy. During the Austrian War of Succession the country was conquered by the French, and for two years Marshal Saxe bore the title of governor-general, but it was restored to Austria by the peace of Aix-la-Chapelle (1748). Belgium was undisturbed by the Seven Years' War (1756-1763), and during the long peace which followed enjoyed considerable prosperity. Charles of Lorraine thoroughly identified himself with the best interests of the country, and was the champion of its liberties, and though he had at times to make a stand against the imperialistic tendencies of the chancellor Kaunitz, he was able to rely

Archduchess Mary Elizabeth.

Charles of Lorraine.

on the steady support of the empress, who appreciated the wise and liberal policy of her brother-in-law. Although the Scheldt was still closed, Charles endeavoured by a large extension of the canal system to facilitate commercial intercourse, he encouraged agriculture, and was successful in restoring the prosperity of the country. He also did much for the advancement of learning, founding, among other institutions, the Academy of Science, and he consistently restrained the undue intervention of the church in secular affairs, and placed restrictions upon the accumulation of property in the hands of religious bodies.

The death of Charles of Lorraine preceded only by a few months that of Maria Theresa, whose son Joseph II. not only appointed his sister, the archduchess Maria Christine, governor-general, but visited Belgium in person and showed a great and active interest in its affairs. Here as elsewhere in his dominions his intentions were excellent, but his reforming zeal outran discretion, and his hasty and self-opinionated interferences with treaty rights and traditional privileges ended in provoking opposition and disaster. Finding the United Provinces hampered by a war with England, he seized the opportunity to try to get rid of the impediments placed upon Belgian development by the Barrier and other treaties with Holland. He was able to compel the Dutch to withdraw their garrisons from the Barrier towns, but was wholly unsuccessful in his high-handed attempt to free the navigation of the Scheldt. These efforts to coerce the Dutch, though marred by partial failure, were, however, calculated to win for Joseph II. popularity with his Belgian subjects; but it was far otherwise with his policy of internal reform. He offended the states by seeking to sweep away many of their inherited privileges and to change the time-honoured, if somewhat obsolete, system of civil government. He further excited the religious feelings of the people against him, by his edict of Tolerance (1780), and his later attempts at the reform of clerical abuses, which were pronounced to be an infraction of the Joyous Entry (see Joyeuse Entrée). Fierce opposition was aroused. Numbers of malcontents left the country and organized themselves as a military force in Holland. As the discontent became more general, the insurgents returned, took several forts, defeated the Austrians at Turnhout, and overran the country. On the 11th of December 1789, the people of Brussels rose against the Austrian garrison, and compelled it to capitulate, and, on the 27th, the states of Brabant declared their independence. The other provinces followed and, on the 11th of January 1790, the whole formed themselves into an independent state, under the name of the “Belgian United States.” A few weeks later, on the 20th of February, Joseph II. died, his end hastened by chagrin at the utter failure of his well-meant efforts, and was succeeded by Leopold II.

Reforming zeal of Joseph II.

The Brabancon revolt.

The new emperor at once took steps to re-assert, if possible, his authority in Belgium without having recourse to armed force. He offered the states, if the people would return to their allegiance, the restoration of their ancient constitution and a general amnesty. This, however, did not suit views of the popular party, who, under the leadership of an advocate named Van der Noot, had possession of the reins of power, and were uplifted by their success. The terms offered in an imperial proclamation were rejected, and preparations were made to resist coercion by the *levée en masse* of a national army. When, however, in November 1790, a powerful Austrian force entered the country, there was practically little opposition to its advance. The popular leaders fled, the form of government, as it existed at the end of the reign of Maria Theresa, and an amnesty for past offences was proclaimed; a superficial pacification of the revolted provinces was effected, and Austrian rule re-established. It was destined to be short-lived. In 1792 the armies of revolutionary France assailed Austria at her weakest point by an invasion of Belgium. The battle of Jemappes (7th of November) made the French masters of the southern portion of the Austrian Netherlands; the battle of Fleurus (26th of June 1794) put an end to the rule of the Habsburgs over the Belgic provinces. The treaty of Campo Formio (1797) and the subsequent treaty of Lunéville (1801) confirmed the conquerors in the possession of the country, and Belgium became an integral part of France, being governed on the same footing, receiving the *Code Napoléon*, and sharing in the fortunes of the Republic and the Empire. After the fall of Napoleon and the conclusion of the first peace of Paris (30th of May 1814) Belgium was indeed for some months placed under the administration of an Austrian governor-general, but it was shortly afterwards united with Holland to form the kingdom of the Netherlands. The sovereignty of the newly formed state was given to the prince of Orange, who mounted the throne (23rd of March 1815) under the title of William I. The congress of Vienna (31st of May 1815) determined the relations and fixed the boundaries of the kingdom; and the new constitution was promulgated on the 24th of August following, the king taking the oath at Brussels on the 27th of September.

Leopold II. pacifies the country.

Conquest of Belgium by the French.

Union of Holland and Belgium under William I.

From this date until the Belgian revolt of 1830, the history of Holland and Belgium is that of two portions of one political entity, but in the relations of those two portions were to be found from the very outset fundamental causes tending to disagreement and

separation. The Dutch and Belgian provinces of the Netherlands had for one hundred and thirty years passed through totally different experiences, and had drifted farther and farther apart from one another in character, in habits, in ideas and above all in religion. In the south the policy of Alva and Philip II. had been wholly successful, and the Belgian people, Flemings and Walloons alike, were perhaps more devoted to the Catholic faith than any other in Europe. On the other hand the incorporation of the country for two decades in the French republic and empire had left deep traces on a considerable section of the population, the French language was commonly spoken and was exclusively used in the law courts and in all public proceedings, and French political theories had made many converts. The Fundamental Law promulgated by William I. aroused strong opposition among both the Catholic and Liberal parties in Belgium. The large powers granted to the king under the new constitution displeased the Liberals, who saw in its provision only a disguised form of personal government. The principle of liberty of worship and of the press, which it laid down, was so offensive to the Catholics that the bishops condemned it publicly, and in the Doctrinal Judgment actually forbade their flocks to take the oath. The "close and complete union," which was stipulated under the treaty of 1814, began under unfavourable auspices. Nevertheless the difficulties might have been smoothed away in the course of time, had the Belgians felt that the Dutch were treating them in a fair and conciliatory spirit. This, despite the undoubtedly good intentions of the king, was far from being the case. Belgium was regarded too much in the light of an annexed territory, handed over to Holland as compensation for the losses sustained by the Dutch in the revolutionary and Napoleonic wars. The idea that Holland was the predominant partner in the kingdom of the Netherlands was firmly rooted in the north and naturally provoked in the south the feeling that Belgium was being exploited for the benefit of the Dutch. The grievances of the Belgians were indeed very substantial. The seat of government was in Holland, the king was a Dutchman by birth and training, and a Calvinistic protestant by religion. Though the population of Belgium was 3,400,000 and that of Holland only a little more than 2,000,000 the two countries had equal representation in the second chamber of the states-general. Practically in all important legislative measures affecting the interests of the two countries the Dutch government were able to command a small but permanent majority. The use of the term "the Dutch Government" is strictly accurate, for the great majority of the public offices were filled by northerners. In 1830, of the seven members of the ministry only one was a Belgian; in the home department out of 117 officials 11 only were Belgians; in the ministry of war 3 were Belgians out of 102; of the officers of the army 288 out of 1967. All the public establishments, the Bank, the military schools, were Dutch. That such was the case must not be entirely charged to partiality, still less to deliberate unfairness on the part of William I. The conduct of the king proves that he had a most sincere regard for the welfare of his Belgian subjects, and in his choice of measures and men his aim was to secure the prosperity of his new kingdom by a policy of unification. This was the object he had in view in his attempt to make Dutch, except in the Walloon districts, the official language for all public and judicial acts, and a knowledge of Dutch a necessary qualification for every person entering the public service. That the fierce opposition which this attempt aroused in the Flemish-speaking provinces was ill-considered and unwise, is shown by the fact that in recent years there has been a patriotic movement in these same provinces which has been successful in forcing the Belgian government to adopt Flemish (*i.e.* Dutch) as well as French for official usage. This Flemish movement is all in favour of establishing close relations with the sister people of the north. Moreover it cannot be gainsaid that Belgium during her union with Holland enjoyed a degree of prosperity that was quite remarkable. The mineral wealth of the country was largely developed, the iron manufactures of Liége made rapid advance, the woollen manufactures of Verviers received a similar impulse, and many large establishments were formed at Ghent and other places, where cotton goods were produced which rivalled those of England and surpassed those of France. The extensive colonial and foreign trade of the Dutch furnished them with markets, while the opening of the navigation of the Scheldt raised Antwerp once more to a place of high commercial importance. The government also did much in the way of improving the internal communications of the country, in repairing the roads and canals, in forming new ones, in deepening and widening rivers, and the like. Nor was the social and intellectual improvement of the people by any means neglected. A new university was formed at Liége, normal schools for the instruction of teachers were instituted, and numerous elementary schools and schools for higher instruction were established over the country. These measures for the furthering of education among the people on the part of a government mainly composed of Protestants were received with suspicion and disfavour by the priests, and still more the attempts subsequently made to regulate the education of the priests themselves. The establishment under the auspices of the king in 1825 of the Philosophical College at Louvain, and the requirement that every priest before ordination should spend two years in study there, gave great offence to the clerical party, and some of the bishops were prosecuted for the

Causes of disagreement between Holland and Belgium.

Attitude of the king.

Language question.

Belgian prosperity during the union.

violence of their denunciations at this intrusion of the secular arm into the religious domain. With the view of terminating these differences the king in 1827 entered into a *concordat* with the pope, and an agreement was reached with regard to nominations to bishoprics, clerical education and other questions, which should have satisfied all reasonable men. But in 1828 the two extreme parties, the Catholic Ultramontanes and the revolutionary Liberals, in their common hatred to the Dutch régime, formed an alliance, the *union*, for the overthrow of the government. Petitions were sent in setting forth the Belgian grievances, demanding a separate administration for Belgium and a full concession of the liberties guaranteed by the constitution.

Matters were in this state when the news of the success of the July revolution of 1830 at Paris reached Brussels, at this time a city of refuge for the intriguing and discontented of almost every country of Europe. The first outbreak took place on the 25th of August, the anniversary of the king's accession. An opera called *La Muette*, which abounds in appeals to liberty, was played, and the audience were so excited that they rushed out into the street crying, "Imitons les Parisiens!" A mob speedily gathered together, who proceeded to destroy or damage a number of public buildings and the private residences of unpopular officials. The troops were few in number and offered no opposition to the mob, but a burgher guard was enrolled among the influential and middle-class citizens for the protection of life and property. The intelligence of these events in the capital soon spread through the provinces; and in most of the large towns similar scenes were enacted, beginning with plunderings and outrages, followed by the institution of burgher guards for the maintenance of peace. The leading men of Brussels were most anxious not to push matters to extremities. They demanded the dismissal of the specially obnoxious minister, Van Maanen, and a separate administration for Belgium. The government, however, could not make up their minds what course to pursue, and by allowing things to drift ended by converting a popular riot into a national revolt. The heir apparent, the prince of Orange (see William II. of the Netherlands), was sent on a peaceful mission to Brussels, but furnished with such limited powers, as under the circumstances were utterly inadequate. He did his best to get at the real facts, and after a number of conferences with the leaders became so convinced that nothing but a separate administration of the two countries would restore tranquillity that he promised to use his influence with his father to bring about that object—on receiving assurances that the personal union under the house of Orange would be maintained. The king summoned an extraordinary session of the states-general, which met at the Hague on the 13th of September and was opened by a speech from the throne, which was firm and temperate, but by no means definite. The proceedings were dilatory, and the attitude of the Dutch deputies exceedingly exasperating. The result was that the moderate party in Belgium quickly lost their influence, and those in favour of violent measures prevailed. Meanwhile although the states were still sitting at the Hague, an army of 14,000 troops under the command of Prince Frederick, second son of the king, was gradually approaching Brussels. It was hoped that the inhabitants would welcome the prince and that a display of armed force would speedily restore order. After much unnecessary delay, at a time when prompt action was required, the prince on the 23rd of September entered Brussels and, with little opposition, occupied the upper or court portion of it, but when they attempted to advance into the lower town the troops found the streets barricaded and defended by citizens in arms. Desultory fighting between the soldiers and the insurgents continued for three days until, finding that he was making no headway, the prince ordered a retreat. The news spread like wildfire through the country, and the principal towns declared for separation. A provisional government was formed at Brussels, which declared Belgium to be an independent state, and summoned a national congress to establish a system of government. King William now did his utmost to avoid a rupture, and sent the prince of Orange to Antwerp to promise that Belgium should have a separate administration; but it was too late. Antwerp was the only important place that remained in the hands of the Dutch, and the army on retreating from Brussels had fallen back on this town. At the end of October an insurgent army had arrived before the gates, which were opened by the populace to receive them, and the troops, under General Chassé, retired within the citadel. The general ordered a bombardment of the town for two days, destroying a number of houses and large quantities of merchandize. This act served still further to inflame the minds of the Belgians against the Dutch.

Brussels outbreak of 1830.

A convention of the representatives of the five great powers met in London in the beginning of November, at the request of the king of the Netherlands, and both sides were brought to consent to a cessation of hostilities. On the 10th of November the National Congress, consisting of 200 deputies, met at Brussels and came to three important decisions: (1) the independence of the country—carried unanimously; (2) a constitutional hereditary monarchy—174 votes against 13; (3) the perpetual exclusion of the Orange-Nassau family—161 votes against 28. On the 20th of December the conference of London proclaimed the dissolution of the kingdom of the Netherlands, but claimed the right of regulating the conditions under which it should take place. On the 28th of January 1831, the congress proceeded to the election of a king, and out of a number of candidates the choice fell on the duke of Nemours, second son of Louis Philippe, but

Meeting of the National Congress.

he declined the office. The congress then elected Baron Surlet de Chokier to the temporary post of regent, and proceeded to draw up a constitution on the British parliamentary pattern. The constitution expressly declared that the king has no powers except those formally assigned to him. Ministers were to be appointed by him, but be responsible to the chambers. The legislature was composed of two chambers—the senate and the chamber of deputies. Both chambers were elected by the same voters, but senators required a property qualification,—the payment of at least 2000 florins in taxes. Senators and deputies received salaries. The franchise was for that time a low one—every one who paid at least 20 florins in taxes had a vote. The choice of a king was more difficult than that of drawing up a constitution. It was desirable that the new sovereign should be able to count upon the friendly support of the great powers, and yet not be actually a member of their reigning dynasties. It was from fear of arousing the susceptibilities of neighbouring states, especially Great Britain, that Louis Philippe had refused to sanction the election of his son. It was for this reason that the name of Leopold of Saxe-Coburg, the widower of Princess Charlotte of England, had not been placed among the candidates in January. Overtures were, however, made to him, as soon as it was understood that, as the result of private negotiations at the London conference, the selection of this prince would be favourably received both by Great Britain and France. Leopold signified his readiness to accept the crown after having first ascertained that he would have the support of the great powers in bringing about a satisfactory settlement with Holland on those points which he considered essential to the security and welfare of the new kingdom. The election took place on the 4th of June, when 152 votes out of 196, four being absent, determined that Leopold should be proclaimed king of the Belgians, under the express condition that he "would accept the constitution and swear to maintain the national independence and territorial integrity." Leopold made his public entry into Brussels, on the 21st, and subsequently visited other parts of the kingdom, and was everywhere received with demonstrations of loyalty and respect.

The new constitution.

Leopold I., king of the Belgians.

At this juncture news suddenly arrived that the Dutch were preparing to invade the country with a large army. It comprised 45,000 infantry and 6000 cavalry with 72 pieces of artillery, while Leopold could scarcely bring forward 25,000 men to oppose it. On the 2nd of August the whole of the Dutch army had crossed the frontier; Leopold collected his forces, such as they were, near Louvain in order to cover his capital. The two armies met on the 9th of August. The undisciplined Belgians, despite the personal efforts of their king, were speedily routed, and Leopold and his staff narrowly escaped capture. He, however, made good his retreat to the capital, and, on the advance of a French army, the prince of Orange did not deem it prudent to push on farther. A convention was concluded between him and the French general, in consequence of which he returned to Holland and the French likewise recrossed the frontier. Leopold now proceeded with vigour to strengthen his position and to restore order and confidence. French officers were selected for the training and disciplining of the army, the civil list was arranged with economy and order, and reforms were introduced into the public service and system of administration. He kept on the best of terms, though a Protestant, with the Roman Catholic clergy and nobility, and his subsequent marriage with the daughter of the French king (9th of August 1832), and the contract that the children of the marriage should be brought up in the Roman Catholic faith, did much to inspire confidence in his good intentions.

Meanwhile the conference in London had drawn up the project of a treaty for the separation of Holland and Belgium, which was declared "to be final and irrevocable." The conditions were far less favourable to Belgium than had been hoped, and it was not without much heart-burning and considerable opposition, that the senate and chamber of deputies gave their assent to them. The treaty, which contained 24 articles, was signed on the 15th of November 1831. By these articles the grand-duchy of Luxemburg was divided, but the king of Holland retained possession of the fortress of Luxemburg, and also received a portion of Limburg to compensate him for the part of Luxemburg assigned to Belgium. The district of Maestricht was likewise partitioned, but the fortress remained Dutch. The Scheldt was declared open to the commerce of both countries. The national debt was divided. The powers recognized the independence of Belgium, "as a neutral state."

The treaty of separation.

This agreement was ratified by the Belgian and French sovereigns on the 20th and 24th of November, by the British on the 6th of December, but the Austrian and Prussian and Russian governments, whose sympathies were with the "legitimate" King William rather than with a prince who owed his crown to a revolution, did not give their ratification till some five months later. Even then King William remained obdurate, refused to sign and continued to keep possession of Antwerp. After fruitless efforts on the part of the great powers to obtain his acquiescence, France and Great Britain resolved to have recourse to force. On the 5th of November their combined fleets sailed for the coast of Holland, and, on the 18th, a French army of 60,000 men, under the command of Marshal Gérard, crossed the Belgian frontier to besiege Antwerp. The Dutch garrison capitulated on the 23rd of

The French besiege Antwerp.

December, and on the 31st the town was handed over to the Belgians, and the French troops withdrew across the frontier. The Dutch, however, still held two forts, which enabled them to command the navigation of the Scheldt, and these they stubbornly refused to yield. Belgium therefore kept possession of Limburg and Luxemburg, except the fortress of Luxemburg, which as a fortress of the German confederation was, under the terms of the treaty of Vienna, garrisoned by Prussian troops. These territories were treated in every way as a part of Belgium, and sent representatives to the chambers. Great indignation was therefore felt at the idea of giving them up, when Holland (14th of March 1838) signified its readiness to accept the conditions of the treaty. The chambers argued that Belgium had been induced to agree to the twenty-four articles in 1832 in the hope of thereby at once terminating all harassing disputes, but as Holland refused then to accept them, the conditions were no longer binding and the circumstances were now quite changed. They urged that Luxemburg in fact formed an integral part of Belgium and that the people were totally opposed to a union with Holland. They offered to pay for the territory in dispute, but the treaty gave them no right of purchase, and the proposal was not entertained. Addresses were unanimously voted urging the king to resist separation, great excitement was aroused throughout the country and preparations were made for war. But the firmness of the allied powers and their determination to uphold the condtions of the treaty compelled the king most reluctantly to submit to the inevitable. The treaty was signed in London on the 19th of April 1839. It saddled Belgium with a portion of Holland's debt, and a severe financial crisis followed.

The Luxemburg question.

Final settlement between Holland and Belgium.

The Belgian revolution owed its success to the union of the Catholic and Liberal parties; and the king had been very careful to maintain the alliance between them. This continued to be the character of the government till 1840, but by degrees it had been growing more and more conservative, and was giving rise to dissatisfaction. A ministry was formed on more liberal principles, but it clashed with the Catholic aristocracy, who had the majority in the senate. A neutral ministry under M. Charles Nothomb was then formed. In 1842 it carried a new law of primary instruction, which aroused the dislike of the anti-clerical Liberals. The Nothomb ministry retired in 1845. In March 1846 the king formed a purely Catholic ministry, but it was fiercely attacked by the Liberals, who had for several years been steadily organizing. A congress was summoned to meet at Brussels (14th of June 1846) composed of delegates from the different Liberal associations throughout the country. Three hundred and twenty delegates met and drew up an Act of Federation and a programme of reforms. The election of 1847 gave a majority to the Liberals and a purely Liberal ministry was formed, and from this date onwards it has been the constitutional practice in Belgium to choose a homogeneous ministry from the party which possesses a working majority in the chamber. In 1848 a new electoral law was passed, which lowered the franchise to 20 florins' worth of property and doubled the number of electors. Hence it came to pass that Belgium passed safely through the crisis of the French revolution of 1848. The extreme democratic and socialistic party made with French aid some spasmodic efforts to stir up a revolutionary movement, but they met with no popular sympathy; the throne of Leopold stood firmly based upon the trust and respect of the Belgian nation for the wisdom and moderation of their king.

Struggle between the Catholics and Liberals.

Electoral reform.

The attention of the government was now largely directed to the stimulating of private industry and the carrying out of public works of great practical utility, such as the extension of railways and the opening up of other internal means of communication. Commercial treaties were also entered into with various countries with the view of providing additional outlets for industrial products. The king also sought as much as possible to remove from the domain of politics every irritating question, believing that a union of the different parties was most for the advantage of the state. In 1850 the question of middle-class education was settled. In 1852 the Liberal cabinet was overthrown and a ministry of conciliation was formed. A bill was passed authorizing the army to be raised to 100,000 men including reserve. The elections of 1854 modified the parliamentary situation by increasing the strength of the Conservatives; the ministry resigned and a new one was formed, under Pierre de Decker, of moderate Catholics and Progressives. In 1857 the government of M. de Decker brought in a bill to establish "the liberty of charity," but in reality to place the administration of charities in the hands of the priesthood. This led to a violent agitation throughout the kingdom and the military had to be called out. Eventually the bill was withdrawn, the ministers resigned and a Liberal ministry was formed under M. Charles Rogier. In 1860 the communal *octrois* or duties on articles of food brought into the towns was abolished; in 1863 the navigation of the Scheldt was made free, and a treaty of commerce established with England. The elections of July 1864 gave a majority to the Liberals, and M. Rogier continued in office.

On the 10th of December 1865, King Leopold died, after a reign of thirty-four years. He was

greatly beloved by his people, and to him Belgium owed much, for in difficult circumstances and critical times he had managed its affairs with great tact and judgment. He was succeeded by his eldest son Leopold II., who was immediately proclaimed king and took the oath to the constitution on the 17th of December. On the outbreak of war between France and Germany in 1870, Belgium saw the difficulty and danger of her position, and lost no time in providing for contingencies. A large war credit was voted, the strength of the army was raised and strong bodies of troops were moved to the frontier. The feeling of danger to Belgium also caused great excitement in England. The British government declared its intention to maintain the integrity of Belgium in accordance with the treaty of 1839, and it induced the two belligerent powers to agree not to violate the neutrality of Belgian territory. A considerable portion of the French army routed at Sedan did indeed seek refuge across the frontier; but they laid down their arms according to convention, and were duly "interned."

Accession of Leopold II.

In 1870 the Liberal party, which had been in power for thirteen years, was overthrown by a union of the Catholics with a number of Liberal dissentients to whom the policy of the government had given offence, and a Catholic cabinet, at the head of which was Baron Jules Joseph d'Anethan, took office. At the election of August 1870, the Catholics obtained a majority in both chambers. They increased their power considerably by reducing the voting qualification for electors to provincial councils to 20 frs., and to communal councils to 10 frs., and also by recognizing the importance of what was styled "the Flemish Movement." Hitherto French had been the official language of the states. The use of Flemish in public documents, in judicial procedure and in official correspondence was hereafter required in the Flemish provinces, and Belgium became officially bi-lingual. It was, as has been already pointed out, a reversion to the policy of the Dutch king, which in 1830 had been so strongly denounced by the leaders of the Belgian revolution, and its object was the same, *i.e.* to prevent *frenchification* of a population that was Teutonic by race and speech. In 1871 M. Malou had become the head of a cabinet of moderate Catholics, and he retained office till 1878. This was the period of the struggle between the pope and the Italian government, and the German *Kulturkampf*. The Belgian Ultramontanes agitated strongly in favour of the re-establishment of the temporal power and against the policy of Bismarck. Though discountenanced by the ministry, the violence of the Ultra-clericals compassed its downfall. They passed a law adopting the ballot in 1877, but at the election of the following year a Liberal majority was returned.

The Flemish Movement.

The new cabinet, under M. Frère-Orban, devoted itself solely to the settlement of the educational system. Hitherto since 1842 in all primary schools instruction by the clergy in the Catholic faith was obligatory, children belonging to other persuasions being dispensed from attendance. In 1879 a bill was passed for the secularization of primary education; but an attempt was made to conciliate the clergy by Art. 4, which enacted—"religious instruction is relegated to the care of families and the clergy of the various creeds. A place in the school may be put at their disposal where the children may receive religious instruction," at hours other than those set apart for regular education. The bill likewise provided for a rigorous inspection of the communal schools. The passing of this law was met by the clergy by uncompromising resistance. The bishops ordered that absolution be refused to teachers in the schools "sans Dieu," and to the parents who sent their children to them, and urged the establishment of private Catholic schools. All over Belgium the agitation spread, and the clergy, who were practically independent of state control, gained the victory. In November 1879 it was calculated that there were but 240,000 scholars in the secularized schools against 370,000 in the Catholic schools. In Flanders over 80% of the children attended the Catholic schools. The government appealed to the pope, but the Holy See declined to take any action, and so great was the embitterment that the Belgian minister at the Vatican and the papal nuncio at Brussels were recalled, and in 1880 the clergy refused to associate themselves with the fêtes of the national jubilee. In order to emerge victorious in such a struggle the Liberal party had need of all their strength, but a split took place between the sections known as the *doctrinaires* and the *progressists*, on the question of an extension of the franchise, and at the election of 1884 the Catholics carried all before them at the polls. From 1884 up to the present time the clerical party have maintained their supremacy.

School law of 1879.

A Catholic administration under M. Malou at once took in hand the schools question. A law was passed, despite violent protests from the Liberals, which enacted that the communes might maintain the private Catholic schools established since 1879 and suppress unsectarian schools at their pleasure. They might retain at least one unsectarian or adopt one Catholic school, where 25 heads of families demanded it. The state subsidized all the communal schools, Catholic and unsectarian alike. Under this law in all districts under clerical control the unsectarian schools were abolished. In October 1884, M. Beernaert replaced M. Malou as prime minister, and retained that post for the following ten years. He had in 1886 a troublous and dangerous situation to deal with. Socialism had become a political force in the land. Socialism of a German type had taken deep root among the working men of the Flemish towns,

Social outbreak in 1886.

especially at Ghent and Brussels; socialism of a French revolutionary type among the Walloon miners and factory hands. On the 18th of March 1886, a socialist rising suddenly burst out at Liége, on the occasion of the anniversary of the Paris Commune, and rapidly spread in other industrial centres of the Walloon districts. Thousands of workmen went on strike, demanding better wages and the suffrage. The ministry acted promptly and with vigour, the outbreak was suppressed by the employment of the military and order was restored. But as soon as this was accomplished the government opened a comprehensive enquiry into the causes of dissatisfaction, which served as the basis of numerous social laws, and led eventually to the establishment of universal suffrage and the substitution in Belgium of a democratic for a middle-class régime. It was not effected till several years had been spent in long parliamentary discussions, by demonstrations on the part of the supporters of franchise revision and by strikes of a political tendency. At last the senate and chamber declared, May 1892, that the time for a revision of certain articles of the constitution had come. As prescribed by the constitution, a dissolution took place and two new chambers were elected. The Catholics had a majority in both, but not enough to enable them to dispense with the assistance of the Liberals, the constitution requiring for every revision a two-thirds majority. The bills proposed for extending the franchise were all rejected (April 11th and 12th). Thereupon the council of the Labour party proclaimed a general strike. Fifty thousand workmen struck, in Brussels there were violent demonstrations, and the agitation assumed generally a dangerous aspect. Both the government and the opposition in the chambers saw that delay vas impossible, and that revision must be carried out. Agreement was reached by the acceptance of a compromise proposed by M. Albert Nyssens, Catholic deputy and professor of penal procedure and commercial law at the university of Louvain, and on the 18th of April the chamber adopted an electoral system until then unknown—*le suffrage universel plural*. The citizen in order to possess a vote for the election of representatives to the chambers was to be of a *minimum* age of twenty-five years, and of thirty years for the election of senators and provincial and communal councillors. For the four categories of elections a supplementary vote was given to (*a*) citizens who having attained the age of thirty-five years, and being married or widowers with children, paid at least 5 f. income tax, and (*b*) to citizens of the age of twenty-five years possessing real estate to the value of 2000 f. or Belgian state securities yielding an income of at least 100 f. Two supplementary votes were bestowed upon citizens having certain educational certificates, or discharging functions or following professions implying their possession. This elaborate system was only carried into law after considerable and violent opposition in the sessions of 1894 and 1895. It was chiefly the work of the ministry of M. de Burlet, who succeeded to the place of M. Beernaert in March 1894.

Agitation for a revision of the constitution.

The Nyssens compromise.

The composition of the elected bodies for the years 1894-1895 was:—for the chamber of representatives 1,354,891 electors with 2,085,605 votes, for the senate and provincial councils 1,148,433 electors with 1,856,838 votes. The result of the first election in October 1894 was to give the Catholic party an overwhelming majority. The old Liberal party almost disappeared, while the Walloon provinces returned a number of Socialists. In February 1896 M. de Burlet, being in bad health, transferred the direction of the government to M. Smet de Naeyer. The election of 1894 had given the Liberals a much smaller number of seats than they ought to have had according to the number of votes they polled, and a cry arose for the establishment of proportional representation. Both sides felt that reform was again necessary, but the Catholic majority disagreed among themselves as to the form it should take. In 1899 M. Smet de Naeyer gave place as head of the ministry to M. van den Peereboom. But the proposals of the latter met with organized obstruction on the part of the Socialist deputies, and after a few months' tenure of office he gave way to M. Smet de Naeyer once more. The new cabinet at once (August 1899) introduced a bill giving complete proportional representation in parliamentary elections to all the arrondissements, and it was passed despite the defection of a number of Catholic deputies led by M. Woeste. The election in May 1900 resulted in the return of a substantial (though reduced) Catholic majority in both chambers.

Catholic majority of 1894.

Proportional representation.

During this period of Catholic ascendancy social legislation was not neglected. Among the enactments the following are the most important:—the institution of industrial and labour councils, composed of employers and employés, and of a superior council, formed of officials, workmen and employers (1887); laws assisting the erection of workmen's dwellings and supervising the labour of women and children (1889); laws for ameliorating the system of Friendly Societies (1890); laws regulating workshops (1896); conferring corporate rights on trades' unions (1898); guaranteeing the security and health of working men during hours of labour (1899). In 1900 laws were passed regulating the contract of labour, placing the workman on a footing of perfect equality with his employer, assuring the married woman free control of her savings, and

Social legislation.

organizing a system of old-age pensions. Primary education was dealt with in 1895 by a law, which made religious instruction obligatory, and extended state support to all schools that satisfied certain conditions. In 1899 there were in Belgium 6674 subsidized schools, having 775,000 scholars out of a total of 950,000 children of school age. Only 68,000 did not receive religious instruction. The Catholic party also strove to mitigate the principle of obligatory military service by encouraging the system of volunteering and by a reduction of the time of active service and of the number with the colours.

Politics in 1905.

In 1905 the 75th anniversary of Belgian independence was celebrated, and there was a great manifestation of loyalty to King Leopold II. for the wisdom and prudence shown by him during his long reign. Owing to dissensions among the Catholic and Conservative party on the subject of military service and the fortification of Antwerp, their majority in the chamber in 1904 fell from 26 to 20, that in the senate from 16 to 12. The partial election in 1906 reduced the majority in the chamber to 12, while the partial election in 1908 brought the majority down to 8. The Smet de Naeyer ministry which had held office since 1900 was defeated in April 1907 in a debate on the mining law over the proposal concerning the length of the working day. A new cabinet was formed on the 2nd of May following under the presidency of M. de Trooz, who had been minister of the interior under M. Smet de Naeyer, and who retained that portfolio in conjunction with the premiership. M. de Trooz died on the 31st of December 1907, and was succeeded by M. Schollaert, president of the chamber. The count of Flanders, brother of the king, died on the 17th of November 1905, leaving his son Albert heir to the throne.

Belgium and the Congo.

The Congo question had meanwhile become an acute one in Belgium. The personal interest taken by Leopold II. in the exploration and commercial development of the equatorial regions of Africa had led, in the creation of the Congo Free State, to results which had originally not been anticipated. The *Comité des Études du Haut Congo*, formed in 1878 at the instance of the king and mainly financed by him had developed into the International Association of the Congo, of which a Belgian officer, Colonel M. Strauch, was president. Through the efforts in Africa of H.M. Stanley a rudimentary state was created, and through the efforts of King Leopold in Europe the International Association was recognized during 1884-1885 by the powers as an independent state. Declarations to this effect were exchanged between the Belgian government and the Association on the 23rd of February 1885. In April of the same year the Belgian chambers authorized the king to be the chief of the state founded by the Association, which had already taken the name of *État Indépendent du Congo*. The union between Belgium and the new state was declared to be purely personal, but its European headquarters were in Brussels, its officials, in the course of time, became almost exclusively Belgian, and financially and commercially the connexion between the two countries became increasingly close. In 1889 King Leopold announced that he had by his will bequeathed the Congo state to Belgium, and in 1890 the Belgian government, in return for financial help, acquired the right of annexing the country under certain conditions. At later dates definite proposals for immediate annexation were considered but not adopted, the king showing a strong disinclination to cede the state, while among the mass of the Belgians the disinclination to annex was equally strong. It was not until terrible reports as to the misgovernment of the Congo created a strong agitation for reform in Great Britain, America and other countries responsible for having aided in the creation of the state, that public opinion in Belgium seriously concerned itself with the subject. The result was that in November 1907 a new treaty of cession was presented to the Belgian chambers, while in March 1908 an additional act modified one of the most objectionable features of the treaty—a clause by which the king retained control of the revenue of a vast territory within the Congo which he had declared to be his private property. A colonial law, also submitted to the chambers, secured for Belgium in case of annexation complete parliamentary control over the Congo state, and the bill for annexation was finally passed in September 1908.

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(G. E.)

LITERATURE

Belgian literature, taken in the widest sense of the term, falls into three groups, consisting of works written respectively in Flemish, Walloon and French. The earlier Flemish authors are

treated under Dutch Literature; the revival of Flemish Literature (*q.v.*) since the separation of Belgium from the Netherlands in 1830, and Walloon Literature (*q.v.*), are each separately noticed. The earlier French writers born on what is now Belgian territory—*e.g.* Adenès le Rois, Jean Froissart, Jean Lemaire des Belges and others—are included in the general history of French Literature (*q.v.*). It remains to consider the literature written by Belgians in French during the 19th century, and its rapid development since the revolution of 1831.

Belgian writers were commonly charged with provincialism, but the prejudice against them has been destroyed by the brilliant writers of 1870-1880. It was also asserted that Belgian French literature lacked a national basis, and was merely a reflection of Parisian models. The most important section of it, however, has a distinctive quality of its own. Many of its most distinguished exponents are Flemings by birth, and their writings reflect the characteristic Flemish scenery; they have the sensuousness, the colour and the realism of Flemish art; and on the other hand the tendency to mysticism, to abstraction, is far removed from the lucidity and definiteness associated with French literature properly so-called. This profoundly national character disengaged itself gradually, and has been more strikingly evident since 1870. The earlier writers of the century were content to follow French tradition.

The events of 1830-1831 gave a great stimulus to Belgian letters, but the country possessed writers of considerable merit before that date. Adolphe Mathieu (1802-1876) belongs to the earlier half of the century, although the tenth and last volume of his *Œuvres en vers* was only printed in 1870. His later works show the influence of the Romantic revival. Auguste Clavareau (1787-1864), a mediocre poet, an imitator of the French and Dutch, produced some successful comedies, but he ceased to write plays before 1830. Édouard Smits (1789-1852) showed romantic tendencies in his tragedies of *Marie de Bourgogne* (1823), *Elfrida* (1825), and *Jeanne de Flandre* (1828). The first of these had a great success, partly no doubt because of its patriotic subject. For four years before 1830 André van Hasselt (*q.v.*) had been publishing his verses in the *Sentinelle des Pays-Bas*, and from 1829 onwards he was an ardent romanticist. A burst of literary and artistic activity followed the Revolution; and van Hasselt's house became a centre of poets, artists and musicians of the romantic school. The best work of the Belgian romanticists is in the rich and picturesque prose of the 16th century romance of Charles de Coster (see De Coster), and in the melancholy and semi-philosophical writings of the moralist Octave Pirmez (*q.v.*). The *Poésies* (1841) and the *Chansons* (1866) of Antoine Clesse (1816-1889), have been compared with the work of Béranger; and the Catholic party found a champion against the liberals and revolutionists in the satirical poet, Benoît Quinet (b. 1819). Among the famous dramatic pieces of this epoch was the *André Chénier* (1843) of Édouard Wacken (1819-1861), who was a lyric rather than a dramatic poet; also the comedies of Louis Labarre (1810-1892) and of Henri Delmotte (1822-1884). Charles Potvin (1818-1902), a poet and a dramatist, is best known by a patriotic *Histoire des lettres en Belgique*, forming vol. iv. of the Belgian compilation, *Cinquante ans de liberté* (1882), and by his essays in literary history. Eugène van Bemmel (1824-1880) established an excellent historical tradition in his *Histoire de la Belgique* (1880), reproducing textually the original authorities, and also edited a Belgian Encyclopaedia (1873-1875), the *Patria Belgica*. Baron E.C. de Gerlache (1785-1871) wrote the history of the Netherlands from the ultramontane standpoint. The romanticists were attacked in an amusing satire, *Les Voyages et aventures de M. Alfred Nicolas* (1835), by François Grandgagnage (1797-1877), who was a nationalist in the narrowest sense, and regarded the movement as an indefensible invasion of foreign ideas. The best of the novelists of this period, excluding Charles de Coster, was perhaps Estelle Ruelens (*née* Crèvecœur; 1821-1878); she wrote under the pseudonym of "Caroline Gravière." Her tales were collected by the bibliophile "P.L. Jacob" (Paris, 1873-1874).

The whole of this literature derived more or less from foreign sources, and, with the exception of Charles de Coster and Octave Pirmez, produced no striking figures. De Coster died in 1879, and Pirmez in 1883, and the new movement in Belgian literature dates from the banquet given in the latter year to Camille Lemonnier (*q.v.*) whose powerful personality did much to turn "Young Belgium" into a national channel. Lemonnier himself cannot be exclusively claimed by any of the conflicting schools of young writers. He was by turns naturalist, lyrist and symbolist; and it has been claimed that the germs of all the later developments in Belgian letters may be traced in his work. The quinquennial prize of literature had been refused to his *Un mâle*, and the younger generation of artists and men of letters gave him a banquet which was recognized as a protest against the official literature, represented by Louis Hymans (1829-1884), Gustave Frédérix (b. 1834), the literary critic of *L'Indépendance belge*, and others. The centres around which the young writers were grouped were two reviews, *L'Art moderne* and *La Jeune Belgique*. *L'Art moderne* was founded in 1882 by Edmond Picard, who had as his chief supporters Victor Arnould and Octave Maus. The first editor of *La Jeune Belgique* was M. Warlomont (1860-1889), known under the pen-name of "Max Waller." This review, which owed much of its success to Waller's energy, defended the intense preoccupation of the new writers with questions of style, and became the depository of the Parnassian tradition in Belgium. It had among its early contributors Georges Eekhoud, Albert Giraud, Iwan Gilkin and Georges Rodenbach. Edmond

Picard (b. 1836) was one of the foremost in the battle. He was well known as an advocate in Brussels, and made a considerable contribution to jurisprudence as the chief writer of the *Pandectes belges* (1886-1890). His *Pro arte* (1886) was a kind of literary code for the young Belgian writers. His novels, of which *La Forge Roussel* (1881) is a good example, were succeeded in 1902-1903 by two plays, *Jéricho* and *Fatigue de vivre*.

Georges Eekhoud, born at Antwerp on the 27th of May 1854, was in some ways the most passionately Flemish of the whole group. He described the life of the peasants of his native Flanders with a bold realism, making himself the apologist of the vagabond and the outcast in a series of tragic stories:—*Kees Doorik* (1883), *Kermesses* (1883), *Nouvelles Kermesses* (1887), *Le Cycle patibulaire* (1892), *Mes Communions* (1895), *Escal Vigor* (1899) and *La Faneuse d'amour* (1900), &c. *Nouvelle Carthage* (1888) deals with modern Antwerp. In 1892 he produced a striking book on English literature entitled *Au siècle de Shakespeare*, and has written French versions of Beaumont and Fletcher's *Philaster* (1895) and of Marlow's *Edward II.* (1896).

The earlier work of "Young Belgium" in poetry was experimental in character, and was marked by extravagances of style and a general exuberance which provoked much hostile criticism. The young writers of 1870 to 1880 had not long to wait, however, for recognition both at home and in Paris, where many of them found hospitality in the pages of the *Mercure de France* from 1890 onwards. They divided their allegiance between the leaders of the French Parnassus and the Symbolists.

The most powerful of the Belgian poets, Émile Verhaeren (*q.v.*), is the most daring in his technical methods of expressing bizarre sensation, and has been called the "poet of paroxysm." His reputation extends far beyond the limits of his own country.

Many of the Belgian poets adhere to the classical form. Albert Giraud (born at Louvain in 1860) was faithful to the Parnassian tradition in his *Pierrot lunaire* (1884), *Pierrot narcisse* (1891) and *Hors du siècle* (1886). In the earlier works of Iwan Gilkin (born at Brussels in 1858) the influence of Charles Baudelaire is predominant. He wrote *Damnation de l'artiste* (1890), *Ténèbres* (1892), *Stances dorées* (1893), *La Nuit* (1897) and *Prométhée* (1899). The poems of Valère Gille (born at Brussels in 1867), whose *Cithare* was crowned by the French Academy in 1898, belong to the same group. Émile van Arenberghe (born at Louvain in 1854) is the author of some exquisite sonnets. Fernand Severin (b. 1867) in his *Poèmes ingénus* (1900) aims at simplicity of form, and seems to have learnt the art of his musical verse direct from Racine. With Severin is closely associated Georges Marlow (b. 1872), author of *L'Âme en exil* (1895).

Georges Rodenbach (1855-1898) spent most of his life in Paris and was an intimate of Edmond de Goncourt. He produced some Parisian and purely imitative work; but the best part of his production is the outcome of a passionate idealism of the quiet Flemish towns in which he had passed his childhood and early youth. In his best known work, *Bruges la Morte* (1892), he explains that his aim is to evoke the town as a living being, associated with the moods of the spirit, counselling, dissuading from and prompting action.

The most famous of all modern Belgian writers, Maurice Maeterlinck (*q.v.*), made his début in a Parisian journal, the *Pléiade*, in 1886. He succeeded more nearly than any of his predecessors in expressing or suggesting ideas and emotions which might have been supposed to be capable of translation only in terms of music. "The unconscious self, or rather the sub-conscious self," says Émile Verhaeren, "recognized in the verse and prose of Maeterlinck its language or rather its stammering attempt at language." Maeterlinck was a native of Ghent, and the first poems of two of his fellow-townsmen also appeared in the *Pléiade*. These were Grégoire le Roy (b. 1862), author of *La Chanson d'un soir* (1886), and *Mon Cœur pleure d'autrefois* (1889); and Charles van Lerberghe (b. 1861), author of a play, *Les Flaireurs* (1890) and a collection of *Poèmes* (1897).

Max Elskamp (born at Antwerp in 1862) is the author of some volumes of religious poetry —*Dominical* (1892), *Salutations, dont d'angéliques* (1893), *En symbole vers l'apostolat* (1895)— for which he has devised as background an imaginary city. Eugène Demolder (b.1862) also created a mythical city as a setting for his prose *contes* in the *Légende d'Yperdamme* (1897).

Belgian literary activity extends also to historical research. Baron Kervyn de Lettenhove (1817-1891) wrote a *Histoire de Flandre* (7 vols., 1847-1855), and a number of monographs on separate points in Flemish and English history. Though an accurate historian, he allowed himself lo be prejudiced by his extreme Catholic views. He was a vehement defender of Mary Stuart. Louis Gachard (1800-1885) wrote many valuable works on 16th century history; Mgr. Namèche (1810-1893) completed the 29th volume of his *Cours d'histoire nationale* before his death; Charles Piot (b. 1812) edited the correspondence of Cardinal de Granvelle; Alphonse Wauters (1818-1898), archivist of Brussels, published many archaeological works; and Charles Rahlenbeck (1823-1903) wrote enthusiastically of the history of Protestantism in Belgium. One of the most masterly writers of French in Belgium was the economist Émile de Laveleye (*q.v.*). In aesthetics should be noted the historian of music, François Joseph Fétis (1784-1871); F.A.

Gevaert (1828-1908), author of *Histoire et théorie de la musique d'antiquité* (2 vols., 1875-1881); and Victor Mahillon (b. 1841) for his work in acoustics and his descriptive catalogue (1893-1900) of the museum of musical instruments belonging to the Brussels conservatoire. In psychology Joseph Delboeuf (1831-1896) enjoyed a great reputation outside Belgium; Elisée Reclus (b. 1830), though a Frenchman by birth, completed his *Géographie universelle* (1875-1894) in exile at Brussels; and Ernest Nys has written many standard works on international law. In the history of literature an important work is compiled by Ferdinand van der Haeghen and others in the *Bibliotheca Belgica* (1880, &c.), comprising a description of all the books printed in the Netherlands in the 15th and 16th centuries. The vicomte de Spoelberch de Lovenjoul (1836-1907) was well known in France as the author of *Sainte-Beuve inconnu* (1901), *La Genèse d'un roman de Balzac* (1901), *Une Page perdue de H. de Balzac* (1903), and of numerous bibliographical works.

See F.V. Goethals, *Histoire des lettres, des sciences et des arts en Belgique* (4 vols., 1840-1844); Fr. Masoin, *Histoire de la littèrature française en Belgique de 1815 à 1830* (1903); F. Nautet, *Histoire des lettres belges d'expression française* (3 vols., 1892 et seq.), written from the point of view of young Belgium, and by no means impartial; A. de Koninck, *Bibliographie nationale* brought down to 1880; *Biographie nationale de Belgique* (1866, &c.) in progress; see also articles by Émile Verhaeren in the *Revue des revues* (15th June 1896), by Albert Mockel in the *Revue encyclopédique* (24th July 1897); a collection of criticisms chiefly on Belgian writers by Eugène Gilbert, *France et Belgique; études litteraires* (1905); Frédéric Faber, *Histoire du théâtre français en Belgique* (5 vols., 1878-1880). An excellent anthology of Belgian poets was published by K. Pol de Mont with the title of *Modernités* (1898).

(E. G.)

1 See for earlier history NETHERLANDS, FLANDERS, BRABANT, LIÉGE, &c.

BELGRADE (Servian, *Biograd* or *Beograd*, *i.e.* "White Castle"), the capital of Servia. Pop. (1900) 69,097. Belgrade occupies a triangular ridge or foreland, washed on the north-west by the Save, and on the north-east by the Danube; these rivers flowing respectively from the south-west and north-west. The sides of the triangle slope down abruptly towards the west, more gradually towards the east; at the base stands the cone of Avala Hill, the last outpost of the Rudnik Mountains, which extend far away to the south; and, at the apex, a cliff of Tertiary chalk, 200 ft. high, overlooks the confluence of the two rivers, the large, flat island of Veliki Voyn and several smaller islets. This cliff is crowned by the walls and towers of the citadel, once white, but now maroon with age, and, though useful as a prison and barracks, no longer of any military value. Behind the citadel, and along its *glacis* on the southern side, are the gardens of Kalemegdan, commanding a famous view across the river; behind Kalemegdan comes Belgrade itself, a city of white houses, among which a few great public buildings, like the high school, national bank, national theatre and the so-called New Palace, stand forth prominently. The town was formerly divided into three parts, namely, the Old town, the Russian town (*Sava-Makhala* or Save district), and the Turkish town (*Dorčol*, or Cross-road). A great change, however, took place in the course of the 19th century, and the old divisions are only partially applicable, while there has to be added the Tirazia, an important suburban extension along the line of the aqueduct or *Tirazi*. A few old Turkish houses, built of plaster, with red-tiled roofs, are left among the ill-paved and insanitary districts bordering upon the rivers, but as the royal residence, the seat of government, and the centre of the import trade, Belgrade was, after 1869, rapidly 682
transformed into a modern European town, with wide streets, electric tramways and electric lighting. Only the multitude of small gardens, planted with limes, acacias and lilacs, and the bright costumes of the Servian or Hungarian peasants, remain to distinguish it from a western capital. For a town of such importance, which is also the seat of the metropolitan of Servia, Belgrade has very few churches, and these are of a somewhat modest type. There were, in 1900, four Servian Orthodox churches, including the cathedral, one Roman Catholic chapel, one Evangelical chapel (German), two synagogues and one mosque. This last is kept up entirely at the expense of the Servian government.

The highest educational establishments are to be found in Belgrade: the *Velika Shkola* (a small university with three faculties), the military academy, the theological seminary, the high school for girls, a commercial academy, and several schools for secondary education on German models. A commercial tribunal, a court of appeal and the court of cassation are also in Belgrade. There is a fine monument to Prince Michael (1860-1868) who succeeded in removing the Turkish garrison from the Belgrade citadel and obtaining other Turkish fortresses in Servia by skilful diplomacy. There are also an interesting national museum, with Roman antiquities and numismatic collections, a national library with a wealth of old Servian MSS. among its 40,000

volumes, and a botanical garden, rich in specimens of the Balkan flora. To promote commerce there are a stock and produce exchange (*Berza*), a national bank, privileged to issue notes, and several other banking establishments. The insurance work is done by foreign companies.

The bulk of the foreign trade of Servia passes through Belgrade, but the industrial output of the city itself is not large, owing to the scarcity both of labour and capital. The principal industries are brewing, iron-founding and the manufacture of cloth, boots, leather, cigarettes, matches, pottery, preserved meat and confectionery. The railway from Budapest to Constantinople crosses the Save by a fine bridge on the south-west, above the landing-place for steamers. Farther south is the park of *Topchider*, with an old Turkish kiosk built for Prince Milosh (1818-1839) in the beautifully laid-out grounds. In the adjoining forest of lime-trees, called *Koshutnyak* or the "deer-park," Prince Michael was assassinated in 1868. Just opposite the citadel, in a north-westerly direction, half-an-hour by steamer across the Danube, lies the Hungarian town of Semlin. For administrative purposes, Belgrade forms a separate department of the kingdom.

The first fortification of the rock, at the confluence of the Save and the Danube, was made by the Celts in the 3rd century B.C. They gave it the name of *Singidunum*, by which Belgrade was known until the 7th century A.D. The Romans took it from the Celts, and replaced their fort by a regular Roman *castrum*, placing in it a strong garrison. Roman bricks, dug up in the fortress, bear the inscription, *Legio IV. Flavia Felix*. From the 4th to the beginning of the 6th century A.D. it often changed its masters (Huns, Sarmatians, Goths, Gepids); then the emperor Justinian brought it once more under Roman rule and fortified and embellished it. Towards the end of the 8th century it was taken by the Franks of Charlemagne. In the 9th century it was captured by the Bulgarians, and held by them until the beginning of the 11th century, when the Byzantine emperor Basil II. reconquered it for the Greek empire. The Hungarians, under king Stephen, took it from the Greeks in 1124. From that time it was constantly changing hands—Greeks, Bulgarians, Hungarians, replacing each other in turn. The city was considered to be the key of Hungary, and its possession was believed to secure possession of Servia, besides giving command of the traffic between the Upper and the Lower Danube. It has, in consequence, seen more battles under its walls than most fortresses in Europe. The Turks used to call it *Darol-i-Jehad*, "the home of wars for faith." During the 14th century it was in the hands of the Servian kings. The Servian prince George Brankovich ceded it to the Hungarians in 1427. The Turkish forces unsuccessfully besieged the city in 1444 and 1456, on which last occasion a glorious victory was obtained by the Christian garrison, led by the famous John Hunyady and the enthusiastic monk John Capistran. In 1521 Sultan Suleiman took it from the Hungarians, and from that year it remained in Turkish possession until 1688, when the Austrians captured it, only to lose it again in 1690. In 1717 Prince Eugene of Savoy conquered it for Austria, which kept it until 1739, improving the fortifications and giving great impulse to the commercial development of the town. From 1739 to 1789 the Turks were again its masters, when, in that last year, the Austrians under General Laudon carried it by assault, only to lose it again in 1792. In 1807 the Servians, having risen for their independence, forced the Turkish garrison to capitulate, and became masters of Belgrade, which they kept until the end of September 1813, when they abandoned it to the Turks. Up to the year 1862 not only was the fortress of Belgrade garrisoned by Turkish troops, but the Danubian slope of the town was inhabited by Turks, living under a special Turkish administration, while the modern part of the town (the plateau of the ridge and the western slope) was inhabited by Servians living under their own authorities. This dual government was a constant cause of friction between the Servians and the Turks, and on the occasion of one conflict between the two parties the Turkish commander of the fortress bombarded the Servian part of the town (June 1862). The indirect consequence of this incident was that in 1866, on the categoric demand of Prince Michael of Servia, and under the diplomatic pressure of the great powers, the sultan withdrew the Turkish garrison from the citadel and delivered it to the Servians.

(C. Mi.)

BELHAVEN AND STENTON, JOHN HAMILTON, 2nd Baron (1656-1708), was the eldest son of Robert Hamilton, Lord Presmennan (d. 1696), and was born on the 5th of July 1656. Having married Margaret, granddaughter of John Hamilton, 1st Baron Belhaven and Stenton, who had been made a peer by Charles I. in 1647, he succeeded to this title in 1679. In 1681 he was imprisoned for opposing the government and for speaking slightingly of James, duke of York, afterwards James II., in parliament, and in 1689 he was among those who asked William of Orange to undertake the government of Scotland. Belhaven was at the battle of Killiecrankie; he was a member of the Scottish privy council, and he was a director of the Scottish Trading

Company, which was formed in 1695 and was responsible for the Darien expedition. He favoured the agitation for securing greater liberty for his country, an agitation which culminated in the passing of the Act of Security in 1705, and he greatly disliked the union of the parliaments, a speech which he delivered against this proposal in November 1706 attracting much notice and a certain amount of ridicule. Later he was imprisoned, ostensibly for favouring a projected French invasion, and he died in London on the 21st of June 1708. Belhaven is chiefly famous as an orator, and two of his speeches, one of them the famous one of November 1706, were printed by D. Defoe in an appendix to his *History of the Union* (1786).

Belhaven's son, John, who fought on the English side at Sheriffmuir, became the 3rd baron on his father's death. He was drowned in November 1721, whilst proceeding to take up his duties as governor of Barbados, and was succeeded by his son John (d. 1764). After the death of John's brother James in 1777 the title was for a time dormant; then in 1799 the House of Lords declared that William Hamilton (1765-1814), a descendant of John Hamilton, the paternal great-grandfather of the 2nd baron, was entitled to the dignity. William, who became the 7th baron, was succeeded by his son Robert (1793-1868), who was created a peer of the United Kingdom as Baron Hamilton of Wishaw in 1831. He died without issue in December 1868, when the barony of Hamilton became extinct; in 1875 the House of Lords declared that his cousin, James Hamilton (1822-1893) was rightfully Baron Belhaven and Stenton, and the title descended to his kinsman, Alexander Charles (b. 1840), the 10th baron.

BELISARIUS (*c.* 505-565), one of the most famous generals of the later Roman empire, was born about A.D. 505, in "Germania," a district on the borders of Thrace and Macedonia. His name is supposed to be Slavonic. As a youth he served in the bodyguard of Justinian, who appointed him commander of the Eastern army. He won a signal victory over the Persians in 530, and successfully conducted a campaign against them, until forced, by the rashness of his soldiers, to join battle and suffer defeat in the following year. Recalled to Constantinople, he married Antonina, a clever, intriguing woman, and a favourite of the empress Theodora. During the sedition of the "green" and "blue" parties of the circus (known as the Nika sedition, 532) he did Justinian good service, effectually crushing the rebels who had proclaimed Hypatius emperor. In 533 the command of the expedition against the Vandal kingdom in Africa, a perilous office, which the rest of the imperial generals shunned, was conferred on Belisarius. With 15,000 mercenaries, whom he had to train into Roman discipline, he took Carthage, defeated Gelimer the Vandal king, and carried him captive, in 534, to grace the first triumph witnessed in Constantinople. In reward for these services Belisarius was invested with the consular dignity, and medals were struck in his honour. At this time the Ostrogothic kingdom, founded in Italy by Theodoric the Great, was shaken by internal dissensions, of which Justinian resolved to avail himself. Accordingly, Belisarius invaded Sicily; and, after storming Naples and defending Rome for a year against almost the entire strength of the Goths in Italy, he concluded the war by the capture of Ravenna, and with it of the Gothic king Vitiges. So conspicuous were Belisarius's heroism and military skill that the Ostrogoths offered to acknowledge him emperor of the West. But his loyalty did not waver; he rejected the proposal and returned to Constantinople in 540. Next year he was sent to check the Persian king Chosroes (Anushirvan); but, thwarted by the turbulence of his troops, he achieved no decisive result. On his return to Constantinople he lived under a cloud for some time, but was pardoned through the influence Of Antonina with the empress. The Goths having meanwhile reconquered Italy, Belisarius was despatched with utterly inadequate forces to oppose them. Nevertheless, during five campaigns he held his enemies at bay, until he was removed from the command, and the conclusion of the war was entrusted to the eunuch Narses. Belisarius remained at Constantinople in tranquil retirement until 559, when an incursion of Bulgarian savages spread a panic through the metropolis, and men's eyes were once more turned towards the neglected veteran, who placed himself at the head of a mixed multitude of peasants and soldiers, and repelled the barbarians with his wonted courage and adroitness. But this, like his former victories, stimulated Justinian's envy. The saviour of his country was coldly received and left unrewarded by his suspicious sovereign. Shortly afterwards Belisarius was accused of complicity in a conspiracy against the emperor (562); his fortune was confiscated, and he was confined as a prisoner in his palace. He was liberated and restored to favour in 563, and died in 565.

The fiction of Belisarius wandering as a blind beggar through the streets of Constantinople, which has been adopted by Marmontel in his *Bélisaire*, and by various painters and poets, is first heard of in the 10th century. Gibbon justly calls Belisarius the Africanus of New Rome. He was merciful as a conqueror, stern as a disciplinarian, enterprising and wary as a general; while his courage, loyalty and forbearance seem to have been almost unsullied. He was the idol of his

soldiers, a good tactician, but not a great strategist.

AUTHORITIES.—Procopius, *De Bellis* and *Historia Arcana* (best edition by J. Haury, 1905, 1907); see Gibbon, *Decline and Fall* (ed. Bury, vol. 4); T. Hodgkin, *Italy and her Invaders* (vol. 4); J.B. Bury, *Later Roman Empire*, vol. i.; Diehl, *Justinien* (Paris, 1901).

(J. B. B.)

BELIT (signifying the "lady," *par excellence*), in the Babylonian religion, the designation of the consort of Bel (*q.v.*). Her real name was Nin-lil, *i.e.* the "lady of power," if the explanation suggested in BEL for the second element is correct. She is also designated as Nin-Khar-sag, "Lady of the mountain," which name stands in some relationship to Im-Khar-sag, "storm mountain"—the name of the staged tower or sacred edifice to Bel at Nippur. As the consort of En-lil, the goddess Nin-lil or Belit belongs to Nippur and her titles as "ruler of heaven and earth," and "mother of the gods" are all due to her position as the wife of Bel. While recognized by a temple of her own in Nippur and honoured by rulers at various times by having votive offerings made in her honour and fortresses dedicated in her name, she, as all other goddesses in Babylonia and Assyria with the single exception of Ishtar, is overshadowed by her male consort. The title Belit was naturally transferred to the great mother-goddess Ishtar after the decline of the cult at Nippur, and we also find the consort of Marduk, known as Sarpanit, designated as Belit, for the sufficient reason that Marduk, after the rise of the city of Babylon as the seat of his cult, becomes the Bel or "lord" of later days.

(M. JA.)

BELIZE, or BALIZE, the capital and principal seaport of British Honduras, on the Caribbean Sea, in 17° 29′ N. and 88° 11′ W. Pop. (1904) 9969. Belize occupies both banks of the river Belize, at its mouth. Its houses are generally built of wood, with high roofs and wide verandahs shaded by cocoanut or cabbage palms. The principal buildings are the court house, in the centre of the town, government house, at the southern end, Fort George, towards the north, the British bank of Honduras, the hospital, the Roman Catholic convent, and the Wesleyan church, which is the largest and handsomest of all. Mangrove swamps surround the town and epidemics of cholera, yellow fever and other tropical diseases have been frequent; but the unhealthiness of the climate is mitigated to some extent by the high tides which cover the marshes, and the invigorating breezes which blow in from the sea. Belize is connected by telegraph and telephone with the other chief towns of British Honduras, but there is no railway, and communication even by road is defective. The exports are mahogany, rosewood, cedar, logwood and other cabinet-woods and dye-woods, with cocoanuts, sugar, sarsaparilla, tortoiseshell, deerskins, turtles and fruit, especially bananas. Breadstuffs, cotton fabrics and hardware are imported.

Belize probably derives its name from the French *balise*, "a beacon," as no doubt some signal or light was raised here for the guidance of the buccaneers who once infested this region. Local tradition connects the name with that of Wallis or Wallace, a Scottish buccaneer, who, in 1638, settled, with a party of logwood cutters, on St George's Cay, a small island off the town. In the 18th century the names Wallis and Belize were used interchangeably for the town, the river and the whole country. The history of Belize is inextricably bound up with that of the rest of British Honduras (*q.v.*).

BELJAME, ALEXANDRE (1842-1906), French writer, was born at Villiers-le-Bel, Seine-et-Oise, on the 26th of November 1842. He spent part of his childhood in England and was a frequent visitor in London. His lectures on English literature at the Sorbonne, where a chair was created expressly for him, did much to promote the study of English in France. In 1905-1906 he was Clark lecturer on English literature at Trinity College, Cambridge. He died at Domont (Seine-et-Oise) on the 19th of September 1906. His best known book was a masterly study of the conditions of literary life in England in the 18th century illustrated by the lives of Dryden, Addison and Pope. This book, *Le Public et les hommes de lettres en Angleterre au XVIII^{e} siècle*

(1881), was crowned by the French Academy on the appearance of the second edition in 1897. He was a good Shakespearian scholar, and his editions of Macbeth, Othello and Julius Caesar also received an academic prize in 1902.

BELKNAP, JEREMY (1744-1798), American author and clergyman, was born at Boston on the 4th of June 1744, and was educated at Harvard College, where he graduated in 1762. In 1767 he became minister of a Congregational church at Dover, New Hampshire, remaining there until 1787, when he removed to Federal Street church, Boston. He is recognized as the founder of the Massachusetts Historical Society, and in 1792 became an overseer of Harvard. He died at Boston on the 20th of June 1798. Belknap's chief works are: *History of New Hampshire* (1784-1792); *An Historical Account of those persons who have been distinguished in America*, generally known as *American Biography* (1792-1794); *The Foresters* (1792), &c.

BELKNAP, WILLIAM WORTH (1820-1890), American soldier and politician, was born at Newburgh, N.Y., on the 22nd of September 1829. Entering the Union army in 1861, he took part in the battles of Shiloh, Corinth and Vicksburg, as major of the 15th Iowa volunteers. In the Atlanta campaign under Sherman he gained considerable distinction, rising successively to the rank of brigadier-general in 1864 and major-general in 1865. During the four years that followed he was collector of internal revenue for Iowa, leaving that post in 1869 to become secretary of war. In 1876, in consequence of unproved accusations of corruption, he resigned. He died at Washington, D.C., on the 13th of October 1890.

BELL, ALEXANDER GRAHAM (1847-), American inventor and physicist, son of Alexander Melville Bell, was born in Edinburgh, Scotland, on the 3rd of March 1847. He was educated at the university of Edinburgh and the university of London, and removed with his father to Canada in 1870. In 1872 he became professor of vocal physiology in Boston University. In 1876 he exhibited an apparatus embodying the results of his studies in the transmission of sound by electricity, and this invention, with improvements and modifications, constitutes the modern commercial telephone. He was the inventor also of the photophone, an instrument for transmitting sound by variations in a beam of light, and of phonographic apparatus. Later, he interested himself in the problem of mechanical flight. He published many scientific monographs, including a memoir on the formation of a deaf variety in the human race.

BELL, ALEXANDER MELVILLE (1819-1905), American educationalist, was born at Edinburgh, Scotland, on the 1st of March 1819. He studied under and became the principal assistant of his father, Alexander Bell, an authority on phonetics and defective speech. From 1843 to 1865 he lectured on elocution at the university of Edinburgh, and from 1865 to 1870 at the university of London. In 1868, and again in 1870 and 1871, he lectured in the Lowell Institute course in Boston. In 1870 he became a lecturer on philology at Queen's College, Kingston, Ontario; and in 1881 he removed to Washington, D.C., where he devoted himself to the education of deaf mutes by the "visible speech" method of orthoepy, in which the alphabetical characters of his own invention were graphic diagrams of positions and motions of the organs of speech. He held high rank as an authority on physiological phonetics (*q.v.*) and was the author of numerous works on orthoepy, elocution and education, including *Steno-Phonography* (1852); *Letters and Sounds* (1858); *The Standard Elocutionist* (1860); *Principles of Speech and Dictionary of Sounds* (1863); *Visible Speech: The Science of Universal Alphabetics* (1867); *Sounds and their Relations* (1881); *Lectures on Phonetics* (1885); *A Popular Manual of*

Visible Speech and Vocal Physiology (1889); *World English: the Universal Language* (1888); *The Science of Speech* (1897); *The Fundamentals of Elocution* (1899).

See John Hitz, *Alexander Melville Bell* (Washington, 1906).

BELL, ANDREW (1753-1832), British divine and educationalist, was born at St Andrews on the 27th of March 1753. He graduated at the university there, and afterwards spent some years as a tutor in Virginia, U.S.A. On his return he took orders, and in 1787 sailed for India, where he held eight army chaplaincies at the same time. In 1789 he became superintendent of the male orphan asylum at Madras, and having been obliged from scarcity of teachers to introduce the system of mutual tuition by the pupils, found the scheme answer so well that he became convinced of its universal applicability. In 1797, after his return to London, he published a small pamphlet explaining his views on education. Little public attention was drawn towards the "monitorial" plan till Joseph Lancaster (*q.v.*), the Quaker, opened a school in Southwark, conducting it in accordance with Bell's principles, and improving on his system. The success of the method, and the strong support given to Lancaster by the whole body of Nonconformists gave immense impetus to the movement. Similar schools were established in great numbers; and the members of the Church of England, becoming alarmed at the patronage of such schools resting entirely in the hands of dissenters, resolved to set up similar institutions in which their own principles should be inculcated. In 1807 Bell was called from his rectory of Swanage in Dorset to organize a system of schools in accordance with these views, and in 1811 became superintendent of the newly formed "National Society for Promoting the Education of the Poor in the Principles of the Established Church." For his valuable services he was in some degree recompensed by his preferment to a prebend of Westminster, and to the mastership of Sherburn hospital, Durham. He tried, but without success, to plant his system in Scotland and on the continent. He died on the 27th of January 1832, at Cheltenham, and was buried in Westminster Abbey. His great fortune was bequeathed almost entirely for educational purposes. Of the £120,000 given in trust to the provost of St Andrews, two city ministers and the professor of Greek in the university, half was devoted to the founding of the important school, called the Madras College, at St Andrews; £10,000 was left to each of the large cities, Edinburgh, Glasgow, Leith, Inverness and Aberdeen, for school purposes; and £10,000 was also given to the Royal Naval School.

Southey's *Life of Dr Bell* (3 vols.) is very tedious; J.D. Meiklejohn's *An Old Educational Reformer* is concise and accurate.

BELL, SIR CHARLES (1774-1842), Scottish anatomist, was born at Edinburgh in November 1774, the youngest son of the Rev. William Bell, a clergyman of the Episcopal Church of Scotland; among his brothers were the anatomist, John Bell, and the jurist, G.J. Bell. After attending the high school and the university of Edinburgh, he embraced the profession of medicine, and devoted himself chiefly to the study of anatomy, under the direction of his brother John. His first work, entitled *A System of Dissections, explaining the anatomy of the human body, the manner of displaying the parts, and their varieties in disease*, was published in Edinburgh in 1798, while he was still a pupil, and for many years was considered to be a valuable guide to the student of practical anatomy. In 1802 he published a series of engravings of original drawings, showing the anatomy of the brain and nervous system. These drawings, which are remarkable for artistic skill and finish, were taken from dissections made by Bell for the lectures or demonstrations he gave on the nervous system as part of the course of anatomical instruction of his brother. In 1804 he wrote the third volume, containing the anatomy of the nervous system and of the organs of special sense, of *The Anatomy of the Human Body*, by John and Charles Bell. In November of the same year he migrated to London, and from that date, for nearly forty years, he kept up a regular correspondence with his brother George, much of which was published in the *Letters of Sir Charles Bell*, &c., 1870. The earlier letters of this correspondence show how rapidly he rose to distinction in a field where success was difficult, as it was already occupied by such men as John Abernethy, Sir Astley Cooper and Henry Cline. Before leaving Edinburgh, he had written his work on the *Anatomy of Expression*, which was published in London soon after his arrival and at once attracted attention. His practical knowledge of anatomy and his skill as an artist qualified him in an exceptional manner for such a

work. The object of this treatise was to describe the arrangements by which the influence of the mind is propagated to the muscular frame, and to give a rational explanation of the muscular movements which usually accompany the various emotions and passions. One special feature was the importance attributed to the respiratory arrangements as a source of expression, and it was shown how the physician and surgeon might derive information regarding the nature and extent of important diseases by observing the expression of bodily suffering. This work, apart from its value to artists and psychologists, is of interest historically, as there is no doubt the investigations of the author into the nervous supply of the muscles of expression induced him to prosecute inquiries which led to his great discoveries in the physiology of the nervous system.

In 1811 Bell published his *New Idea of the Anatomy of the Brain*, in which he announced the discovery of the different functions of the nerves corresponding with their relations to different parts of the brain; his latest researches were described in *The Nervous System of the Human Body* (1830), a collection of papers read by him before the Royal Society. He discovered that in the nervous trunks there are special sensory filaments, the office of which is to transmit impressions from the periphery of the body to the sensorium, and special motor filaments which convey motor impressions from the brain or other nerve centre to the muscles. He also showed that some nerves consist entirely of sensory filaments and are therefore sensory nerves, that others are composed of motor filaments and are therefore motor nerves, whilst a third variety contains both kinds of filaments and are therefore to be regarded as sensory-motor. Furthermore, he indicated that the brain and spinal cord may be divided into separate parts, each part having a special function—one part ministering to motion, the other to sensation, and that the origin of the nerves from one or other or both of those sources endows them with the peculiar property of the division whence they spring. He also demonstrated that no motor nerve ever passes through a ganglion. Lastly, he showed, both from theoretical considerations and from the result of actual experiment on the living animal, that the anterior roots of the spinal nerves are *motor*, while the posterior are *sensory*. These discoveries as a whole must be regarded as the greatest in physiology since that of the circulation of the blood by William Harvey. They were not only a distinct and definite advance in scientific knowledge, but from them flowed many practical results of much importance in the diagnosis and treatment of disease. It is not surprising that Bell should have viewed his results with exultation. On the 26th of November 1807, he wrote to his brother George:—“I have done a more interesting *nova anatomia cerebri humani* than it is possible to conceive. I lectured it yesterday. I prosecuted it last night till one o’clock; and I am sure it will be well received.” On the 31st of the same month he wrote:—“I really think this new anatomy of the brain will strike more than the discovery of the lymphatics being absorbents.”

In 1807 he produced a *System of Comparative Surgery*, in which surgery is regarded almost wholly from an anatomical and operative point of view, and there is little or no mention of the use of medicinal substances. It placed him, however, in the highest rank of English writers on surgery. In 1809 he relinquished his professional work in London, and rendered meritorious services to the wounded from Coruña, who were brought to the Haslar hospital at Portsmouth. In 1810 he published a series of *Letters concerning the Diseases of the Urethra*, in which he treated of stricture from an anatomical and pathological point of view. In 1812 he was appointed surgeon to the Middlesex hospital, a post he retained for twenty-four years. He was also professor of anatomy, physiology and surgery to the College of Surgeons of London, and for many years teacher of anatomy in the school which used to exist in Great Windmill Street. In 1815 he went to Brussels to treat the wounded of the battle of Waterloo. In 1816, 1817 and 1818, he published a series of *Quarterly Reports of Cases in Surgery*; in 1821 a volume of coloured plates with descriptive letterpress, entitled *Illustrations of the great operations of Surgery, Trepan, Hernia, Amputation and Lithotomy*, and in 1824 *Observations on Injuries of the Spine and of the Thigh Bone*. On the formation of University College, Gower Street, he was for a short time head of the medical department. In 1832 he wrote a paper for the Royal Society of London on the “Organs of the Human Voice,” in which he gave many illustrations of the physiological action of these parts, and in 1833 a Bridgewater treatise, *The Hand: its Mechanism and Vital Endowments as evincing Design*. Along with Lord Brougham he annotated and illustrated an edition of Paley’s *Natural Theology*, published in 1836. The Royal Society of London awarded to him in 1829 the first annual medal of that year given by George IV. for discoveries in science; and when William IV. ascended the throne, Charles Bell received the honour of knighthood along with a few other men distinguished in science and literature.

In 1836 the chair of surgery in the university of Edinburgh was offered to him. He was then one of the foremost scientific men in London, and he had a large surgical practice. But his opinion was “London is a place to live in, but not to die in”; and he accepted the appointment. In Edinburgh he did not earn great local professional success; and, it must be confessed, he was not appreciated as he deserved. But honours came thick upon him. On the continent of Europe he was spoken of as greater than Harvey. It is narrated that one day P.J. Roux, a celebrated French physiologist, dismissed his class without a lecture, saying “*C’est assez, messieurs, vous avez vu Charles Bell.*” During his professorship he published the *Institutes of Surgery, arranged*

in the order of the lectures delivered in the university of Edinburgh (1838); and in 1841 he wrote a volume of *Practical Essays*, two of which, “On Squinting,” and “On the action of purgatives,” are of great value. He died at Hallow Park near Worcester on the 28th of April 1842.

BELL, GEORGE JOSEPH (1770-1843), Scottish jurist, was born at Edinburgh on the 20th of March 1770. He was an elder brother of Sir Charles Bell. At the age of eight he entered the high school, but he received no university education further than attending the lectures of A.F. Tytler, Dugald Stewart and Hume. He became a member of the Faculty of Advocates in 1791, and was one of the earliest and most attached friends of Francis Jeffrey. In 1804 he published a *Treatise on the Law of Bankruptcy* in Scotland, which he subsequently enlarged and published in 1826 under the title of *Commentaries on the Law of Scotland and on the principles of Mercantile Jurisprudence*— an institutional work of the very highest excellence, which has had its value acknowledged by such eminent jurists as Joseph Story and James Kent. In 1821 Bell was elected professor of the law of Scotland in the university of Edinburgh; and in 1831 he was appointed to one of the principal clerkships in the supreme court. He was placed at the head of a commission in 1833 to inquire into the Scottish bankruptcy law; and in consequence of the reports of the commissioners, chiefly drawn up by himself, many beneficial alterations were made. He died on the 23rd of September 1843. Bell’s smaller treatise, *Principles of the Law of Scotland*, became a standard text-book for law students. The *Illustrations of the Principles* is also a work of high value.

BELL, HENRY (1767-1830), Scottish engineer, was born at Torphichen, Linlithgowshire, in 1767. Having received the ordinary education of a parish school, he was apprenticed to his uncle, a millwright, and, after qualifying himself as a ship-modeller at Bo’ness, went to London, where he found employment under John Rennie, the celebrated engineer. Returning to Scotland in 1790, he first settled as a carpenter at Glasgow and afterwards removed to Helensburgh, on the Firth of Clyde where he pursued his mechanical projects, and also found occasional employment as an engineer. In January 1812 he placed on the Clyde a steamboat (which he named the “Comet”) of about 25 tons, propelled by an engine of three horse power, at a speed of 7 m. an hour. Although the honour of priority is admitted to belong to the American engineer Robert Fulton, there appears to be no doubt that Fulton had received very material assistance in the construction of his vessel from Bell and others in Great Britain. A handsome sum was raised for Bell by subscription among the citizens of Glasgow; and he also received from the trustees of the river Clyde a pension of £100 a year. He died at Helensburgh on the 14th of November 1830. A monument to his memory stands on the banks of the Clyde, at Dunglass, near Bowling.

BELL, HENRY GLASSFORD (1803-1874), a Scottish lawyer and man of letters, was born at Glasgow on the 8th of November 1803. He received his education at the Glasgow high school and at Edinburgh University. He became intimate with “Delta” Moir, James Hogg, John Wilson (Christopher North), and others of the brilliant staff of *Blackwood’s Magazine*, to which he was drawn by his political sympathies. In 1828 he became editor of the *Edinburgh Literary Journal*, which was eventually incorporated in the *Edinburgh Weekly Chronicle*. He was admitted to the bar in 1832. In 1839 he was appointed sheriff-substitute of Lanarkshire, and in 1867 he succeeded Sir Archibald Alison in the post of sheriff-principal of the county, an office which he filled with distinguished success. In 1831 he published *Summer and Winter Hours*, a volume of poems, of which the best known is that on Mary, queen of Scots. He further defended the cause of the unfortunate queen in a prose *Life* (2 vols., 1828-1831). Among his other works may be mentioned a preface which he wrote to Bell and Bains’s edition (1865) of the works of Shakespeare, and *Romances and Minor Poems* (1866). He figures in the society of the *Noctes Ambrosianae* as “Tallboys.” He died on the 7th of January 1874.

BELL, JACOB (1810-1859), British pharmaceutical chemist, was born in London on the 5th of March 1810. On the completion of his education, he joined his father in business as a chemist in Oxford Street, and at the same time attended the chemistry lectures at the Royal Institution, and those on medicine at King's College. Always keenly alive to the interests of chemists in general, Bell conceived the idea of a society which should at once protect the interests of the trade, and improve its status, and at a public meeting held on the 15th of April 1841, it was resolved to found the Pharmaceutical Society of Great Britain. Bell carried his scheme through in the face of many difficulties, and further advanced the cause of pharmacy by establishing the *Pharmaceutical Journal*, and superintending its publication for eighteen years. The Pharmaceutical Society was incorporated by royal charter in 1843. One of the first abuses to engage the attention of the new body was the practice of pharmacy by unqualified persons, and in 1845 Bell drew up the draft of a bill to deal with the matter, one of the provisions of which was the recognition of the Pharmaceutical Society as the governing body in all questions connected with pharmacy. For some time after this the question of pharmaceutical legislation was widely discussed. In 1850 Bell successfully contested the borough of St Albans in order that he might be able to advocate his proposals for reform more effectually in parliament. In 1851 he brought forward a bill embodying these proposals. It passed its second reading, but was considerably whittled down in committee, and when eventually it became law it only partially represented its sponsor's intentions. Bell was the author of an *Historical Sketch of the Progress of Pharmacy in Great Britain*. He died on the 12th of June 1859.

BELL, JOHN (1691-1780), Scottish traveller, was born at Antermony in Scotland in 1691, and educated for the medical profession, in which he took the degree of M.D. In 1714 he set out for St Petersburg, where, through the introduction of a countryman, he was nominated medical attendant to Valensky, recently appointed to the Persian embassy, with whom he travelled from 1715 to 1718. The next four years he spent in an embassy to China, passing through Siberia and the great Tatar deserts. He had scarcely rested from this last journey when he was summoned to attend Peter the Great in his perilous expedition to Derbend and the Caspian Gates. The narrative of this journey he enriched with interesting particulars of the public and private life of that remarkable prince. In 1738 he was sent by the Russian government on a mission to Constantinople, to which, accompanied by a single attendant who spoke Turkish, he proceeded in the midst of winter and all the horrors of war, returning in May to St Petersburg. It appears that after this he was for several years established as a merchant at Constantinople, where he married in 1746. In the following year he retired to his estate of Antermony, where he spent the remainder of his life. He died in 1780. His travels, published at Glasgow in 1763, were speedily translated into French, and widely circulated in Europe.

BELL, JOHN (1763-1820), Scottish anatomist and surgeon, an elder brother of Sir Charles Bell, was born at Edinburgh on the 12th of May 1763. After completing his professional education at Edinburgh, he carried on from 1790 in Surgeons' Square an anatomical lecture-theatre, where, in spite of much opposition, due partly to the unconservative character of his teaching, he attracted large audiences by his lectures, in which he was for a time assisted by his younger brother Charles. In 1793-1795 he published *Discourses on the Nature and Cure of Wounds*, and in 1800 he became involved in an unfortunate controversy with James Gregory (1753-1821), the professor of medicine at Edinburgh. Gregory in 1800 attacked the system whereby the fellows of the Royal College of Surgeons of Edinburgh acted in rotation as surgeons at the Royal Infirmary, with the result that the younger fellows were excluded. Bell, who was among the number, composed an *Answer for the Junior Members* (1800), and ten years later published a collection of *Letters on Professional Character and Manners*, which he had addressed to Gregory. After his exclusion from the infirmary he ceased to lecture and devoted himself to study and practice. In 1816 he was injured by a fall from his horse and in the following year went to Italy for the benefit of his health. He died at Rome on the 15th of April

1820. His works also included *Principles of Surgery* (1801), *Anatomy of the Human Body*, which went through several editions and was translated into German, and *Observations on Italy*, published by his widow in 1825.

BELL, JOHN (1797-1869), American political leader, was born near Nashville, Tennessee, on the 15th of February 1797. He graduated at the university of Nashville in 1814, and in 1817 was elected to the state senate, but retiring after one term, he devoted himself for ten years to the study and the practice of the law. From 1827 until 1841 he was a member of the national House of Representatives, of which from June 1834 to March 1835 he was the speaker, and in which he was conspicuous as a debater and a conservative leader. Though he entered political life as a Democrat, he became estranged from his party's leader, President Jackson, also a Tennessean, and after 1835 was one of the leaders of the Whig party in the South. In March 1841 he became the secretary of war in President Harrison's cabinet, but in September, after the death of Harrison and the rupture between the Whig leaders and President Tyler, he resigned this position. From 1847 until 1859 he was a member of the United States Senate, and attracted attention by his ability in debate and his political independence, being one of two Southern senators to vote against the Kansas-Nebraska Bill of 1854 and against the admission of Kansas with the Lecompton or pro-slavery constitution in 1858. Strongly conservative by temperament and devoted to the Union, he ardently desired to prevent the threatened secession of the Southern states in 1860, and was the candidate, for the presidency, of the Constitutional Union Party, often called from the names of its candidates for the presidency and the vice-presidency (Edward Everett) the "Bell and Everett Party," which was made up largely of former Whigs and Southern "Know-Nothings," opposed sectionalism, and strove to prevent the disruption of the union. The party adopted no platform, and discarding all other issues, resolved that "it is both the part of patriotism and of duty to recognize no political principle other than the constitution of the country, the union of the states, and the enforcement of the laws." Bell was defeated, but received a popular vote of 587,830 (mostly cast in the Southern states), and obtained the electoral votes of Virginia, Kentucky and Tennessee—39 altogether, out of a total of 303. Bell tried earnestly to prevent the secession of his own state, but after the issue of President Lincoln's proclamation of the 15th of April 1861 calling on the various states for volunteers, his efforts were unavailing, and when Tennessee joined the Confederacy Bell "went with his state." He took no part in the Civil War, and died on the 10th of September 1869.

BELL, ROBERT (1800-1867), Irish man of letters, was born at Cork on the 16th of January 1800. He was educated at Trinity College, Dublin, where he was one of the founders of the Dublin Historical Society. In 1828 he settled in London, where he edited a weekly paper, the *Atlas*, and until 1841 was engaged in journalism; and afterwards in miscellaneous literary work. He died on the 12th of April 1867. His most important work is his annotated edition of the *English Poets* (24 vols., 1854-1857; new ed., 29 vols., 1866), the works of each poet being prefaced by a memoir. For Lardner's *Cabinet Cyclopaedia* he wrote: *History of Russia* (3 vols., 1836-1838); *Lives of English Poets* (2 vols., 1839); a continuation, with W. Wallace, of Sir James Mackintosh's *History of England* (vols. iv.-x., 1830-1840); and the fifth volume (1840) of the *Lives of the British Admirals*, begun by R. Southey. He was a director of the Royal Literary Fund, and well known for his open-hearted generosity to fellow men of letters.

BELL a hollow metallic vessel used for making a more or less loud noise (A.S. *bellan*, to bellow; Mid. Eng. "to bell"; cf. "As loud as belleth, winde in helle," in Chaucer, *House of Fame*, iii. 713). Bells are usually cup-like in shape, and are constructed so as to give one fundamental note when struck. The term does not strictly include gongs, cymbals, metal plates, resonant bars of metal or wood, or tinkling ornaments, such as *e.g.* the "bells" upon the Jewish high priest's dress (Exodus xxviii. 32); nor is it necessary here to deal with the common useful varieties of sheep or cow bells, or bells on sledges or harness. For house bells see the end of this article. A

"diving-bell" (see DIVERS) is only so called from the analogy of its shape.

The main interest of bells and bell-ringing has reference to church or tower bells, their history, construction and uses.

Early Bells.—Of bells before the Christian era there is no trustworthy evidence. The instruments which summoned the Romans to public baths or processions, or that which Lucian (A.D. 180) describes as set in motion by a water-clock (*clepsydra*) to measure time, were probably cymbals or resonant plates of metal, like the timbrels (*corybantia aera*, Virg. *Aen.* iii. 111) used in the worship of Cybele, or the Egyptian *sistrum*, which seems to have been a sort of rattle. The earliest Latin word for a bell (*campana*) is late Latin of the 4th or 5th century A.D.; and the first application of bells to churches has been ascribed to Paulinus, bishop of Nola in Campania about A.D. 400. There is, however, no confirmation of this story, which may have arisen from the words *campana* and *nola* (a small bell); and in a letter from Paulinus to the emperor Severus, describing very fully the decoration of his church, the bishop makes no mention of bells. It has been maintained with somewhat more reason that Pope Sabinianus (604) first used church bells; but it seems clear that they were introduced into France as early as 550. In the 7th century Bede mentions a bell brought from Italy by Benedict Biscop for his abbey at Wearmouth, and speaks of the sound of a bell being well known at Whitby Abbey at the time of St Hilda's death (680). St Dunstan hung many in the 10th century; and in the 11th they were not uncommon in Switzerland and Germany. It is said that the Greek Christians were unacquainted with bells till the 9th century; but it is known that for political reasons, after the taking of Constantinople by the Turks in 1453, their use was forbidden lest they should provide a popular signal for revolt.

Several old bells are extant in Scotland, Ireland and Wales; the oldest are often quadrangular, made of thin iron plates hammered and riveted together. A well-known specimen is St Patrick's bell preserved at Belfast, called *Clog an eadhachta Phatraic*, "the bell of St Patrick's will." It is 6 in. high, 5 broad, 4 deep, adorned with gems and gold and silver filigree-work; it is inscribed 1091 and 1105, but it is probably alluded to in Ulster annals in 552. (For Scottish bells, see *Illustrated Catalogue of Archaeological Museum*, Edinburgh, for 1856.)

The four-sided bell of the Irish missionary St Gall (646) is preserved at the monastery of St Gall, Switzerland. In these early times bells were usually small; even in the 11th century a bell presented to the church at Orleans weighing 2600 ℔ was thought large. In the 13th century larger bells were cast. The bell Jacqueline of Paris, cast in 1400, weighed 15,000 ℔; another Paris bell of 1472, 25,000 ℔; and the famous Amboise bell at Rouen (1501) 36,364 ℔

To these scanty records of the early history of bells may be added the enumeration of different kinds of bells by Hieronymus Magius, in his work *De Tintinnabulis*:—1. *Tintinnabulum*, a little bell, otherwise called *tinniolum*, for refectory or dormitory, according to Joannes Belethus, but Guillaume Durand names *squilla* for the refectory; 2. *Petasius*, or larger "broad-brimmed hat" bell; 3. *Codon*, orifice of trumpet, a Greek hand-bell; 4. *Nola*, a very small bell, used in the choir, according to Durand; 5. *Campana*, a large bell, first used in the Latin churches in the steeple (Durand), in the tower (Belethus); 6. *Squilla*, a shrill little bell. We read of *cymbalum* for the cloister (Durand) or *campanella* for the cloister (Belethus); *nolula* or *dupla* in the clock; *signum* in the tower (*e.g.* in the *Excerptions* of St Egbert, 750); the Portuguese still call a bell *sino.*

Bell-founding.—The earliest bells were probably not cast, but made of plates riveted together, like the bells of St Gall or Belfast above mentioned. The bell-founder's art, originally practised in the monasteries, passed gradually into the hands of a professional class, by whom, in England and the Low Countries especially, were gradually worked out the principles of construction, mixture of metals, lines and proportions, now generally accepted as necessary for a good bell. In England some of the early founders were peripatetic artificers, who travelled about the country, setting up a temporary foundry to cast bells wherever they were wanted. Miles Graye (*c.* 1650), a celebrated East Anglian founder, carried on his work in this fashion, and in old churchwardens' accounts are sometimes found notices of payment for the casting of bells at places where no regular foundry is known to have existed. The chief centres of the art in medieval times were London, York, Gloucester and Nottingham; and bells by *e.g.* "John of York" (14th century), Samuel Smith, father and son, of York (1680-1730), Abraham Rudhall and his descendants of Gloucester (1684-1774), Mot (16th century), Lester and Pack (1750), Christopher Hodson of London (who cast "Great Tom" of Oxford, 1681) and Richard Phelps (1716) are still in high repute. The Whitechapel Bell Foundry (now Mears and Stainbank), established by Robert Mot in 1570, incorporated the business of the Rudhalls, Lester and Pack, Phelps, Briant and others, and is now one of the leading firms of bell-founders; others being Warner and Sons of Spitalfields and Taylor & Co., Loughborough, the founders of "Great Paul" for St Paul's cathedral (1881). Of Dutch and Flemish founders the firms of van den Gheyn (1550), Hemony (1650), Aerschodt & Wagheven at Louvain and others have a great reputation in the Low Countries, especially for "carillons," such as those at Antwerp or Bruges, a form of bell-music which has not taken much root in England, despite the advocacy of the Rev. H.R. Haweis, who proclaimed its superiority to English change-ringing.

Bell-metal is a mixture of copper and tin in the proportion of 4 to 1. In Henry III.'s reign it was 2 to 1. In Layard's Nineveh bronze bells, it was 10 to 1. Zinc and lead are used in small bells. The thickness of the bell's edge is about one-tenth of its diameter, and its height is twelve times its thickness.

Bells, like viols, have been made of every conceivable shape within certain limits. The long narrow bell, the quadrangular, and the mitre-shaped in Europe at least indicate antiquity, and the graceful curved-inwardly-midway and full trumpet-mouthed bell indicates an age not earlier than the 16th century.

The bell is first designed on paper according to the scale of measurement. Then the crook is made, which is a kind of double wooden compass, the legs of which are respectively curved to the shape of the inner and outer sides of the bell, a space of the exact form and thickness of the bell being left betwixt them. The compass is pivoted on a stake driven into the bottom of the casting-pit. A stuffing of brickwork is built round the stake, leaving room for a fire to be lighted inside it. The outside of this stuffing is then padded with fine soft clay, well mixed and bound together with calves' hair, and the inner leg of the compass run round it, bringing it to the exact shape of the inside of the bell. Upon this *core*, well smeared with grease, is fashioned the false clay bell, the outside of which is defined by the outer leg of the compass. Inscriptions are now moulded in wax on the outside of the clay-bell; these are carefully smeared with grease, then lightly covered with the finest clay, and then with coarser clay, until a solid mantle is thickened over the outside of the clay bell. A fire is now lighted, and the whole baked hard; the grease and wax inscriptions steam out through holes at the top, leaving the sham clay bell baked hard and tolerably loose, between the *core* and the *cope* or *mantle*. The cope is then lifted, the clay bell broken up, the *cope* let down again, enclosing now between itself and the *core* the exact shape of the bell. The metal is then boiled and run molten into the mould. A large bell will take several weeks to cool. When extricated it ought to be scarcely touched and should hardly require tuning. This is called its maiden state, and it used to be so sought after that many bells were left rough and out of tune in order to claim it.

Bell Tones and Tuning.—A good bell, fairly struck, should give out three distinct notes—a "fundamental" note or "tonic"; the octave above, or "nominal"; and the octave below, or "hum-note." (It also gives out the "third" and "fifth" above the fundamental; but of these it is less necessary to take notice.) Very few bells, however, have any two of these notes, and hardly any all three, in unison—the "hum-notes" being generally a little sharper, and the "fundamentals" a little flatter, than their respective "nominals." In tuning a "ring" or series of bells, the practice of founders has hitherto been to take one set of notes (in England usually the nominals, on the continent the fundamentals) and put these into tune, leaving the other tones to take care of themselves. But in different circumstances different tones assert themselves. Thus, when bells are struck at considerable intervals, the fundamental notes being fuller and more persistent are more prominent; but when struck in rapid succession (as in English change-ringing or with the higher bells of a Belgian "carillon," which take the "air") the higher tone of the "nominal" is more perceptible. The inharmonious character of many Belgian carillons, and of certain Belgian and French rings in England, is ascribed by Canon A.B. Simpson (in his pamphlet, *Why Bells sound out of Tune*, 1897) to neglect of the "nominals," the fundamentals only being tuned to each other. To tune a series of bells properly, the fundamental tone of each bell must be brought into true octave with its nominal, and the whole series of bells, thus rectified, put into tune with each other. The "hum-note" of each, which is the tone of the whole mass of metal, should also be in tune with the others. If flatter than the nominal, it cannot be sharpened; but if sharper (as is more usual), it may be flattened by thinning the metal near the crown of the bell. The great bell ("Great Paul") cast by Messrs Taylor for St Paul's cathedral, London, has all its tones in true harmony, except that the tone next above the fundamental (E♭) is a "fourth" (A♭) instead of a "third" (G or G♭). The great bell cast by the same founders for Beverley Minster is in perfect tune; and with the improved machinery now in use, there is no reason why this should not henceforth be the case with all church bells.

The quality of a bell depends not only on the casting and the fineness and mixture of metals, but upon the due proportion of metal to the calibre of the bell. The larger the bell the lower the tone; but if we try to make a large E bell with metal only enough for a smaller F bell, the E bell will be puny and poor. It has been calculated that for a peal of bells to give the pure chord of the ground tone or key-note, third, fifth and octave, the diameters are required to be as thirty, twenty-four, twenty, fifteen, and the weights as eighty, forty-one, twenty-four and ten.

History and Uses of Bells.—The history of bells is full of romantic interest. In civilized times they have been intimately associated, not only with all kinds of religious and social uses, but with almost every important historical event. Their influence upon architecture is not less remarkable, for to them indirectly we probably owe most of the famous towers in the world. Church towers at first, perhaps, scarcely rose above the roof, being intended as lanterns for the admission of light, and addition to their height was in all likelihood suggested by the more

common use of bells.

Bells early summoned soldiers to arms, as well as Christians to church. They sounded the alarm in fire or tumult; and the rights of the burghers in their bells were jealously guarded. Thus the chief bell in the cathedral often belonged to the town, not to the cathedral chapter. The curfew, the Carolus and St Mary's bell in the Antwerp tower all belong to the town; the rest are the property of the chapter. He who commanded the bell commanded the town; for by that sound, at a moment's notice, he could rally and concentrate his adherents. Hence a conqueror commonly acknowledged the political importance of bells by melting them down; and the cannon of the conquered was in turn melted up to supply the garrison with bells to be used in the suppression of revolts. Many a bloody chapter in history has been rung in and out by bells.

On the third day of Easter 1282, at the ringing of the Sicilian vespers (which have given their name to the affair), 8000 French were massacred in cold blood by John of Procida, who had thus planned to free Sicily from Charles of Anjou. On the 24th of August, St Bartholomew's day, 1571, bells ushered in the massacre of the Huguenots in France, to the number, it is said, of 100,000. Bells have rung alike over slaughtered and ransomed cities; and far and wide throughout Europe in the hour of victory or irreparable loss. At the news of Nelson's triumph and death at Trafalgar, the bells of Chester rang a merry peal alternated with one deep toll, and similar incidents could be multiplied.

There are many old customs connected with the use of church bells, some of which have died out, while others remain here and there. The best known and perhaps oldest of these is the "Curfew" (*couvre-feu*), first enforced (though not perhaps introduced) by William the Conqueror in England as a signal for all lights and fires to be extinguished at 8 P.M.—probably to prevent nocturnal gatherings of disaffected subjects. In many towns it survived into the 19th century as a signal for closing shops at 8 or 9; and it is still kept up in various places as an old custom; thus at Oxford the familiar boom of "Tom's" 101 strokes is still the signal for closing college gates at 9. The largest and heaviest bells were used for the Curfew, to carry the sound as far as possible, as it did to Milton's ear, suggesting the descriptive lines in *Il Penseroso* (74-75):—

> "Oft, on a plot of rising ground,
> I hear the far-off curfew sound
> Over some wide-watered shore,
> Swinging slow with sullen roar."

Gray's allusion in the *Elegy* is well known; as also are those of Shakespeare to the elves "that rejoice to hear the solemn curfew" (*Tempest*), or the fiend that "begins at curfew and walks till the first cock" (*King Lear*); or Milton's in *Comus* to the ghost "that breaks his magic chains at curfew time."

Among secular uses connected with church bells are the "Mote" or "Common" bell, summoning to municipal or other meetings, as *e.g.* the 7th at St Mary's, Stamford, tolled for quarter sessions, or the bell at St Mary's, Oxford, for meetings of Convocation. In some places one of the bells is known as the "Vestry Bell." The "Pancake Bell," still rung here and there on Shrove Tuesday, was originally a summons to confession before Lent; the "Harvest Bell" and "Seeding Bell" called labourers to their work; while the "Gleaning Bell" fixed the hours for beginning or leaving off gleaning, so that everyone might start fair and have an even chance. The "Oven Bell" gave notice when the lord of the manor's oven was ready for his tenants to bake their bread; the "Market Bell" was a signal for selling to begin; and in some country districts a church bell is still rung at dinner time. The general diffusion of clocks and watches has rendered bells less necessary for marking the events of daily life; and most of these old customs have either disappeared or are fast disappearing. At Strassburg a large bell of eight tons weight, known as the "Holy Ghost Bell," is only rung when two fires are seen in the town at once; a "storm-bell" warns travellers in the plain of storms approaching from the mountains, and the "Thor Glocke" (gate bell) gives the signal for opening or shutting the city gates. On the European continent, especially in countries which, like Belgium and Holland, were distracted by constant war, bells acquired great public importance. They were formally baptized with religious ceremonies (as also in England in pre-Reformation days), the notabilities of a town or church standing as sponsors; and they were very generally supposed to have the power of scaring away evil spirits.

Other old customs are naturally connected with the ecclesiastical uses of bells. The "Passing Bell," rung for the dying, is now generally rung after death; the ancient mode of indicating the sex of the deceased, viz. two pulls for a woman and three for a man being still very common, with many varying customs as regards the interval after death or the bell to be used, *e.g.* smaller bells for children and females, and larger ones for aged men; the tenor bell being sometimes reserved for the death of the incumbent, or of a bishop or member of the royal family. "Burial Peals," once common at or after funerals to scare away the evil spirits from the

soul of the departed, though discouraged by bishops as early as the 14th century, were kept alive by popular superstition, and only finally checked in Puritan times; but they have been revived, since the spread of change-ringing, in the “muffled peals” now frequently rung as a mark of respect to deceased persons of public or local importance, or the short “touches” on hand-bells sometimes rung at the grave by the comrades of a deceased ringer. The “Sermon-Bell,” rung in pre-Reformation times to give notice that a sermon was to be preached (cf. Shakespeare, *Henry IV.*, Pt. II. iv. 2. 4-7), survives in some places in a custom of ringing the tenor bell before a service with a sermon; and a similar custom before a celebration of the Holy Communion preserves the memory of the “Sacrament Bell.” The ancient “Sanctus” or “Sance” bell, hung on the rood-screen or in a small bell cot on the chancel gable, and sounded three times when the priest said the *Tersanctus* (Holy, Holy, Holy) in the office of mass, was specially obnoxious to Puritan zeal, and few of them survived the Reformation. An early morning bell, rung in many places for no apparent reason, is probably a relic of the *Ave Maria* or *Angelus* bell. The inscription on some old bells, *Lectum fuge, discute somnum* (“Away from bed, shake off sleep”), points to this use, as also does the name “Gabriel” applied to the bell used for ringing the Angelus. In old times bells were generally named at their baptism, after the Virgin Mary or saints, or their donors; thus the bells at Oseney Abbey in the 13th century were called Hautclere, Doucement, Austyn, Marie, Gabriel and John; sometimes they were known by mere nicknames, such as “Great (or “Mighty”) Tom” at Oxford, or “Big Ben,” “Great Paul,” &c., in recent times.

Bell Inscriptions.—The names of bells were often stamped upon them in the casting; whence arose inscriptions upon church bells, giving in monkish Latin the name of some saint, a prayer to the Virgin, or for the soul of the donor, or a distich upon the function of the bell itself; *e.g.*—

> “Funera plango, fulgura frango, Sabbata pango,
> Excito lentos, dissipo ventos, paco cruentos.”

(I mourn for death, I break the lightning, I fix the Sabbath, I rouse the lazy, I scatter the winds, I appease the cruel.)

The character of the lettering and the foundry marks upon old bells, are of great assistance in determining their date. Sometimes a set of bells has each a separate verse, *e.g.* on a ring of five in Bedfordshire:—

1st. “Hoc signum Petri pulsatum nomine Christi.”
(This emblem of Peter is struck in the name of Christ.)

2nd. “Nomen Magdalene campana sonat melode.”
(This bell named Magdalen sounds melodiously.)

3rd. “Sit nomen Domini benedictum semper in eum.”
(May the name of the Lord always be blessed upon him, *i.e.* on the bell when struck.)

4th. “Musa Raphaelis sonat auribus Immanuelis.”
(The music of Raphael sounds in the ear of Immanuel.)

5th. “Sum Rosa pulsata mundique Maria vocata.”
(I, Maria, am struck and called the Rose of the world.)

The names of these five bells were thus:—Peter, Magdalen, (?) Jesus, Raphael and Mary.

Other inscriptions take the form of an invocation or prayer for the bell itself, its donor or those who hear it, *e.g.*—

“Augustine tuam campanam protege sanam.”
(Augustine, protect thy bell and keep it sound.)

“Sancte Johannes, ora pro animabus Johannis Pudsey, militis, et Mariae, consortae suae.”
(St John, pray for the souls of John Pudsey, knight, and Mary his wife.)

“Protege pura via quos convoco virgo Maria.”
(Guard in the way those whom I pure Virgin Mary call.)

The “Mittags Glocke” (mid-day bell) at Strassburg, taken down at the time of the French Revolution, bore the legend:

“Vox ego sum vitae; voco vos; orate venite.”
(I am the voice of life: I call you: come and pray.)

A bell in Rouen cathedral, melted down in 1793, was inscribed:

"Je suis George d'Ambois,
Qui trente cinque mille pois;
Mais lui qui me pesera
Trente six mille me trouvera."

(I am George d'Ambois, weighing 35,000 lb; but he who weighs me will find me 36,000.)

A similar inscription is said to have been cast on the largest of the bells placed by Edward III. in a "clocher" or bell hut in the Little Cloisters at Westminster:

"King Edward made mee thirty thousand weight and three,
Take mee down and wey mee and more you shall find mee."

On the "Thor Glocke" at Strassburg above mentioned are the words:—

"Dieses Thor Glocke das erst mal schallt
Als man 1618 sahlt
Dass Mgte jahr regnet man
Nach doctor Luther Jubal jahr
Das Bös hinaus das Gut hinein
Zu läuten soll igr arbeit seyn."

The reference is to the year 1517, when Luther began his crusade, and the verse may be Englished as follows:—

When first ringeth this Gate Bell
1618 years we tell.
We reckon this a year to be
From Dr Luther's jubilee.
To ring out ill, the good ring in,
Its daily task shall now begin.

Large Bells.—There are a few bells of world-wide renown, and several others more or less celebrated. The great bell at Moscow, "Tsar Kolokol," which, according to the inscription, was cast in 1733, was in the earth 103 years and was raised by the emperor Nicholas in 1836. The present bell seems never to have been actually hung or rung, having been cracked in the furnace; and it now stands on a raised platform in the middle of a square. It is used as a chapel. It weighs about 180 tons, height 19 ft. 3 in., circumference 60 ft. 9 in., thickness 2 ft., weight of broken piece 11 tons. The second Moscow bell, the largest in the world in actual use, weighs 128 tons. In a pagoda in Upper Burma hangs a bell 16 ft. in diameter, weighing about 80 tons. The great bell at Peking weighs 53 tons; Nanking, 22 tons; Olmutz, 17 tons; Vienna (1711), 17 tons; Notre Dame (1680), 17 tons; Erfurt, 13 tons; Great Peter, York Minster, recast in 1845, 12½ tons; Great Paul, at St Paul's cathedral, 16¾ tons; Great Tom at Oxford, 7½ tons; Great Tom at Lincoln, 5½ tons. Big Ben of the Westminster Clock Tower weighs 13½ tons; it was cast by George Mears under the direction of the first Lord Grimthorpe (E. Beckett Denison) in 1858. Its four quarters were cast by Warner in 1856. The "Kaiserglocke" of Cologne cathedral, recast in 1875, with metal from French cannon captured in 1870-1871, weighs 27½ tons.

These large bells are either not moved at all, or only slightly swung to enable the clapper to touch their side; in some cases they are struck by a hammer or beam from outside. The heaviest *ringing* peals in England are those at Exeter and St Paul's cathedrals, tenors 72 cwt. and 62 cwt. respectively.

Bell-ringing.—The science and art of bell-ringing, as practised upon church and tower bells, falls under two main heads:—(1) Mechanical ringing, in connexion with the machinery of a clock or "carillon"; (2) Ringing by hand, by means of ropes attached to the fittings of the bells, whereby the bell itself is either moved as it hangs mouth downwards sufficiently for the clapper just to touch its side (called technically "chiming"); or is swung round nearly full circle with its mouth uppermost (technically "ringing"), in which case the impact of the clapper is much heavier, and the sound produced is consequently louder and more far-reaching. Mechanical ringing is more common on the continent of Europe, especially in Belgium and Flanders; ringing by hand is more common in England, where the development of change-ringing (see below) has brought it into prominence.

(1) Mechanical ringing is effected by a system of wires connected with small hammers striking the bells, usually on their outside, and worked either by connexion with the machinery of a clock, so as to play tunes or artificially arranged chimes at definite intervals; or with a key-board

resembling that of an organ. The first of these methods is familiar in the chimes (Cambridge, Westminster, &c.) heard from many towers at the striking of the hours and quarters; or in hymn tunes played at intervals (*e.g.* of three hours) upon the church bells. The second method is peculiar to the "carillon" (*q.v.*), as found everywhere in Belgium, where with a set of from 20 or 30 to 60 or 70 bells a much wider scope for tunes and harmonies is provided than in English belfries, few of which have more than one octave of bells in one key only and none more than 12 bells. The carillons at Louvain and Bruges contain 40 bells, and that of Mechlin 44, while in the tower of Antwerp cathedral there are upwards of 90 bells, for the largest of which, cast in 1507, Charles V. stood sponsor at its consecration.

(2) *Ringing by Hand.*—Church bells may be "chimed" or "rung" (see above). One man can, as a rule, chime three bells, with a rope in each hand and one foot in the loop of another; but by the use of an "Ellacombe" or other chiming apparatus one man can work six, eight or ten bells. Some prefer the quieter sound of chiming as an introduction to divine service, but where a band of ringers is available and change-ringing is practised the bells as a rule are rung. The practice of "clocking" a bell, in which the clapper, by means of a cord attached to it and pulled from below, is allowed to swing against the bell at rest, is often employed to save trouble; but the jar is very likely to crack the bell. In ringing, or in true chiming, the bell is in motion when struck.

For ringing, a bell is pulled up and "set" mouth uppermost. She (to ringers a bell is feminine) is then pulled off, first at "handstroke" (*i.e.* with the hands on the "sally" or tufted portion of the rope, a few feet from its lower end) and then at "back-stroke" in the reverse direction (with the hands nearer the lower end, the rope having at the previous pull coiled round three-quarters of the wheel's circumference), describing at each pull almost a full circle till she comes back to the upright position. At each revolution the swing is chiefly done by the weight of the bell, the ringer giving a pull of just sufficient strength to bring the bell back into the upright position; otherwise its swing would become gradually shorter till it remained at rest mouth downwards.

Change-ringing.—When a given number of bells are rung over and over again in the same order, from the highest note, or "treble," to the lowest, or "tenor"—1, 2, 3, 4, 5, 6, 7—they are said to be rung in "rounds." "Changes" are variations of this order—*e.g.* 2 1 3 5 4 7 6, 2 3 1 4 5 6 7; and "change-ringing" is the art of ringing bells in "changes," so that a different "change" or rearrangement of order is produced at each pull of the bell-ropes, until, without any repetition of the same change, the bells come back into "rounds." The general principle of all methods of change-ringing is that each bell, after striking in the first place or "lead," works gradually "up" to the last place or "behind," and "down" again to the first, and that no bell ever shifts more than one place in each change. Thus the ringer of any bell knows that whatever his position in one change, his place in the next will be either the same, or the place before or the place after. He does not have to learn by heart the different changes or variations of order; nor need he, unless he is the "conductor," know the exact order of any one change. He has to bear in mind, first, which way his bell is working, viz. whether "up" from first to last place, or "down" from last to first; secondly, in what place his bell is striking; thirdly, what bell or bells are striking immediately before or after him—this being ascertained chiefly by "rope-sight," *i.e.* the knack, acquired by practice, of seeing which rope is being pulled immediately before and after his own. He must also remember and apply the rules of the particular "method" which is being rung. The following table representing the first twenty changes of a "plain course" of "Grandsire Triples" (for these terms, see below) illustrates the subject-matter of this section:—

1 2 3 4 5 6 7	"Rounds."	7 5 6 1 4 2 3	(10th change.)
2 1 3 5 4 7 6	(1st change.)	5 7 1 6 2 4 3	
2 3 1 4 5 6 7		5 1 7 2 6 3 4	
3 2 4 1 6 5 7		1 5 2 7 3 6 4	
3 4 2 6 1 7 5		1 2 5 3 7 4 6	
4 3 6 2 7 1 5	(5th change.)	2 1 5 7 3 6 4	(15th change.)
4 6 3 7 2 5 1		2 5 1 3 7 4 6	
6 4 7 3 5 2 1		5 2 3 1 4 7 6	
6 7 4 5 3 1 2		5 3 2 4 1 6 7	
7 6 5 4 1 3 2		3 5 4 2 6 1 7	
		3 4 5 6 2 7 1	(20th change.)

It will be observed that at the 1st change the third bell and at the 15th the fifth bell, according to the rule of this "method," strikes a second blow in the third place ("makes third's place"). This stops the regular work of the bells which at the previous change were in the 4th, 5th, 6th and 7th places ("in 4, 5, 6, 7"), causing them to take a step backwards in their course "up" or "down," or as it is technically called, to "dodge." Were it not for this, the bells would come back into "rounds" at the 14th change. It is by the use of "place-making" and "dodging," according to the rules of various "methods," that the required number of changes, upon any number of bells, can be produced. But in order that this may be done, without the bells coming back into

"rounds" (as, *e.g.* in the "plain course" of Grandsire Triples, above given, they will do in seventy changes), further modifications of the "coursing order," called technically "Bobs" and "Singles," must be introduced. In ringing, notice of these alterations as they occur is given by one of the ringers, who acts as "conductor," calling out "Bob" or "Single" at the right moment to warn the ringers of certain bells to make the requisite alteration in the regular work of their bells. (Hence, in ringing language, to "call" a peal or touch = to conduct it.) Particulars of these, as of other details of change-ringing, may be gathered from books dealing with the technique of the art; but they are best mastered in actual practice. The term "single," applied to five-bell ringing meant that, as the first three bells remained unchanged, only a single pair of bells changed places, *e.g.* 1 5 4 3 2, 1 5 4 2 3. On larger numbers of bells it loses this meaning; but the effect of this "call" is that the "coursing order" of a single pair of bells is inverted. The origin of "Bob" is unknown. As a "call" it was perhaps adopted as a short, sharp sound, easily uttered and easily heard by the ringers. As applied to a "method" or system of ringing it may refer to the evolution of "dodging," *e.g.* in "Treble Bob" to the zigzag "dodging" path of the treble bell; but none of the old writers attempts to explain it.

The number of *possible* "changes" on any given series of bells may be ascertained, according to the mathematical formula of "permutations," by multiplying the number of the bells together. Thus on three bells, only 6 changes or variations of order (1 × 2 × 3) can be produced; on four bells, 1 × 2 × 3 × 4 = 24; on five, 24 × 5 = 120; on six, 120 × 6 = 720; on seven, 720 × 7 = 5040. A "peal" on any such number of bells is in ordinary language the ringing of all the possible changes. But technically, only the full extent of changes upon seven bells, usually rung with a "tenor behind," is called a "peal"; a shorter performance upon seven or more bells, or the full extent upon less than seven, being, in ringing parlance, a "touch." On six bells the full extent of changes must be repeated continuously seven times (720 × 7 = 5040), and on five bells forty-two times (l20 × 42 = 5040) to rank as a "peal." On eight or more bells 5000 changes in round numbers is accepted as the *minimum* standard for a peal; and on such numbers of bells up to twelve (the largest number used in change-ringing), peals are so arranged that the bells come into rounds at, or at some point beyond, 5000 changes. As many as 16,000 changes, occupying from nine to ten hours, have been rung upon church bells. But the great physical strain upon the ringers—to say nothing of the effect upon those who are within hearing—makes such performances exceptional. The word "peal" is often, though incorrectly, used (1) for a set of church bells ("a peal of six," "a peal of eight"), for which the correct term is "a ring" of bells; (2) for any shorter performance than a full peal (*e.g.* "wedding-peal," "muffled peal," &c.), called in ringing language a "touch." Its use as equivalent for "method," found in old campanological works, is now obsolete.

Change-ringing upon five bells is called "Doubles," upon seven bells "Triples," upon nine "Caters" (Fr. *quatre*), and upon eleven "Cinques," from the fact that at each change two, three, four or five pairs of bells change places with each other. "Doubles" can be and are rung when there are only five bells; but as a rule these "odd-bell" systems are rung with a "tenor behind," *i.e.* struck at the end of each change; the number of bells in a tower being usually an even number—six, eight, ten or twelve. In "even-bell" systems the tenor is "rung in" or "turned in," *i.e.* changes with the other bells, and a different terminology is employed; change-ringing on six bells being called "Minor"; on eight bells, "Major"; on ten bells, "Royal"; and on twelve, "Maximus." The principal "methods" of change-ringing, each of which has its special rules, are—(1) "Grandsire"; (2) "Plain Bob"; (3) "Treble Bob"; (4) "Stedman," from the name of its inventor, Fabian Stedman, about 1670. In "Grandsire" the treble and one other bell, in "Plain Bob" the treble alone, has a "plain hunt," *i.e.* works from the first place, or "lead," to the last place, or "behind," and back again, without any dodging; in "Treble Bob" the treble has a uniform but zigzag course, dodging in each place on its way up and down. This is called a "Treble Bob hunt"; and under these two heads, according to the work of the treble, are classified a variety of "plain methods" and "Treble Bob methods," among the latter being the so-called "Surprise" methods, the most complicated and difficult of all. "Stedman's principle," which is *sui generis*, consists in the three front bells ringing their six possible changes, while the remaining pair or pairs of bells dodge. It is thus an "odd-bell" method adapted to five, seven, nine or eleven bells; as also is "Grandsire," though occasionally rung on even numbers of bells. "Treble Bob" is always, and "Plain Bob" generally, rung on even numbers—six, eight, ten or twelve. In ringing, whenever the treble has a uniform course, unaffected by "Bobs" or "Singles," it serves as a guide to the other changing bells, according to the place in which they meet and cross its path from "behind" to the "lead." The order in which the different dodges occur, and the "course bell," *i.e.* the bell which he follows from behind to lead, are also useful, and on large numbers of bells indispensable, guides to the ringer.

Quite distinct from the art of change-ringing is the science of "composing," *i.e.* arranging and uniting by the proper "calls," subject to certain fixed laws and conditions, a number of groups of changes, so that no one change, or series of changes represented in those groups, shall be repeated. A composition, long or short, is said to be "true" if it is free from, "false" if it involves, such repetition; and the body of ascertained laws and conditions governing true composition in

any method constitutes the test or “proof” to be applied to a composition in that method to demonstrate its truth or falseness. Many practical ringers know little or nothing of the principles of composition, and are content with performing compositions received from composers, or published in ringing books and periodicals. An elaborate statement of the principles of composition in the “Grandsire” method may be found in an appendix to Snowdon’s *Grandsire* (1888), by the Rev. C.D.P. Davies. Those which apply to “Treble Bob” are explained in Snowdon’s *Treatise on Treble Bob*, Part I. But, so far as can be ascertained, there is no treatise dealing with the science of composition as a whole; nor is it possible here to attempt a popular exposition of its principles.

One of the objects kept in view by composers is musical effect. Certain sequences or contrasts of notes strike the ear as more musical than others; and an arrangement which brings up the more musical changes in quicker succession improves the musical effect of the “peal” or “touch.” On seven bells all the possible changes must be inserted in a true peal; but on larger numbers of bells, where the choice is from an immense number of possible changes, the composer is free to select those which are most musical. Unless, however, the bells of any given “ring” are in perfect tune and harmony with each other, their musical effect must be impaired, however well they are rung. This gives importance to the science and art of bell-tuning, in which great progress has been made (see above).

The art of scientific change-ringing, peculiar to England, does not seem to have been evolved before the middle of the 17th century. Societies or gilds of ringers, however, existed much earlier. A patent roll of 39 Henry III. (1255) confirms the “Brethren of the Guild of Westminster, who are appointed to ring the great bells there,” in the enjoyment of the “privileges and free customs which they have enjoyed from the time of Edward the Confessor.” In 1602 (as appears from a MS. in the library of All Souls’ College, Oxford) was founded a society called the “Scholars of Cheapside.” In 1637 began the “Ancient Society of College Youths,” so called from their meeting to practise on the six bells at St Martin’s, College Hill, a church destroyed in the Great Fire of London, 1666. At first only “rounds” and “call-changes” were rung, till about 1642, when 120 “Bob Doubles” were achieved; but slow progress was made till 1677, when Fabian Stedman of Cambridge published his *Campanologia*, dedicating it to this society, his method being first rung about this time by some of its members. Before the end of the 17th century was founded the “Society of London Scholars,” the name of which was changed in 1746 to “Cumberland Youths” in compliment to the victor of Culloden. These two metropolitan societies still exist, and include in their membership most of the leading change-ringers of England: one of the oldest provincial societies being that of Saffron Walden in Essex, founded in 1623, and still holding an annual ringing festival. In the latter half of the 18th and first half of the 19th century change-ringing, which at first seems to have been an aristocratic pastime, degenerated in social repute. Church bells and their ringers, neglected by church authorities, became associated with the lower and least reputable phases of parochial life; and belfries were too often an adjunct to the pothouse. In the last half of the 19th century there was a great revival of change-ringing, leading to improvements in belfries and in ringers, and to their gradual recognition as church workers. Diocesan or county associations for the promotion of change-ringing and of belfry reform spread knowledge of the art and aroused church officials to greater interest in and care for their bells. A Central Council of Church Bell Ringers, consisting of delegates from these various societies, meets annually in London or at some provincial centre to discuss ringing matters, and to collect and formulate useful knowledge upon practical questions —*e.g.* the proper care of bells and the means of preventing annoyance from their use in the neighbourhood of houses, rules for the conduct of belfries, &c. It is now less likely than ever that the Belgian carillons will be preferred in England to the peculiarly English system of ringing bells in peal; by which, whatever its difficulties, the musical sound of bells is most fully brought out, and their scientific construction best stimulated.

Authorities.—The literature of bell-lore (or campanology) consists chiefly of scattered treatises or pamphlets upon the technique of different methods of change-ringing, or upon the bells of particular counties or districts. The earliest that deal with the science and art of change-ringing are *Campanologia or the Art of Ringing Improved* (1677), and a chapter of “Advice to a Ringer” in the *School of Recreations, or Gentleman’s Tutor* (1684), showing that in its early days bell-ringing was a fashionable pastime. Then follow *Campanologia, or the Art of Ringing made Easy* (1766), *Clavis Campanologia, a Key to Ringing* (1788), and Shipway’s *Campanologia* (1816). The revival of change-ringing in recent years has produced many manuals: *e.g.* Snowdon’s *Rope-Sight* (explaining the “Plain Bob” method), *Grandsire, Treatise on Treble Bob, Double Norwich Court Bob Major*, and *Standard Methods* (with a book of diagrams); Troyte on *Change-Ringing*; *The Duffield Method*, by Sir A.P. Heywood, Bart., its inventor. Somewhat prior to these are various works by the Rev. H.T. Ellacombe, inventor of a chiming apparatus which bears his name, and a pioneer in belfry reform. Among these are accounts of the church bells of Devon, Somerset and Gloucester, and pamphlets on *Belfries and Ringers, Chiming, &c.*; much of their contents being summarized in *The Ringer’s Guide to the Church Bells of Devon*, by C. Pearson (1888). A *Glossary of Technical Terms* used in connexion with church bells and change-ringing

was published (1901) under the auspices of the Central Council of Church Bell Ringers. On the history of church bells and customs connected with them much curious information is given in North's *English Bells and Bell Lore* (1888). By the same author are monographs on the church bells of Leicestershire, Northamptonshire, Lincolnshire and Hertfordshire. There are similar works on the church bells of Suffolk and Cambridgeshire, by Dr Raven; of Huntingdonshire, by the Rev. T.M.N. Owen; and on the church bells of Essex, by the Rev. C. Deedes. A compilation and summary of many data of bell-lore will be found in *A Book about Bells*, by the Rev. G.S. Tyack; and in a volume by Dr Raven in the "Antiquary's Books" series (Methuen, 1906), entitled *The Bells of England*, which deals with the antiquarian side of bell-lore. See also *Quarterly Review*, No. cxc. (September 1854); *Windsor Magazine* (December 1896); Lord Rayleigh's paper "On the Tones of Bells" in the *Phil. Mag.* for January 1890; and a series of articles from the *Guardian*, reprinted as a pamphlet under the title, *Church Bells and Bell-ringing*.

(T. L. P.)

House Bells.—Buildings are commonly provided with bells, conveniently arranged so as to enable attendants to be summoned to the different rooms. In the old system, which has been largely superseded by pneumatic and still more by electric bells, the bells themselves are of the ordinary conical shape and are provided with clappers hung loosely inside them. Being supported on springs they continue to swing, and therefore to give out sound as the clapper knocks against the sides, for some time after they have been set in motion by means of the strings or wires by which each is connected to a bell-pull in the rooms. These wires are generally placed out of sight inside the walls, and bell-cranks are employed to take them round corners and to change the direction of motion as required. A lightly poised pendulum is often attached to each bell, to show by its motion when it has been rung. In pneumatic bells the wires are replaced by pipes of narrow bore, and the current of air which is caused to flow along these by the pressing of a push-button actuates a small hammer which impinges rapidly against a bell or gong. An electric bell consists of a small electro-magnet acting on a soft iron armature which is supported in such a way that normally it stands away from the magnet. When the latter is energized by the passage of an electric current, the armature is attracted towards it, and a small hammer attached to it strikes a blow on the bell or gong. This "single stroke" type of bell is largely used in railway signalling instruments. For domestic purposes, however, the bells are arranged so that the hammer strikes a series of strokes, continuing so long as the push-button which closes the electric circuit is pressed. A light spring is provided against which the armature rests when it is not attracted by the electro-magnet, and the current is arranged to pass through this spring and the armature on its way to the magnet. When the armature is attracted by the magnet it breaks contact with this spring, the current is interrupted, and the magnet being no longer energized allows the armature to fall back on the spring and thus restore the circuit. In this way a rapid to and fro motion is imparted to the hammer. The electric current is supplied by a battery, usually either of Leclanché or of dry cells. One bell will serve for all the rooms of a house, an "indicator" being provided to show from which it has been rung. Such indicators are of two main types: the current either sets in motion a pendulum, or causes a disk bearing the name or number of the room concerned to come into view. Each push must have one wire appropriated to itself leading from the battery through the indicator to the bell, but the return wire from the bell to the battery may be common to all the pushes. Bells of this kind cease to ring whenever the electrical continuity of any of these wires is interrupted, but in some cases, as in connexion with burglar-alarms, it is desirable that the bell, once set in action, shall continue to ring even though the wires are cut. For this purpose, in "continuous ringing" bells, the current, started by the push or alarm apparatus, instead of working the bell, is made to operate a relay-switch and thus to bring into circuit a second battery which continues to ring the bell, no matter what happens to the first circuit.

(H. M. R.)

BELLABELLA, the common name (popularized from the Indian corruption of Milbank) for a tribe of Kwakiutl Indians at Milbank, British Columbia, including the subtribes Kokaitk, Oetlitk and Ocalitk. They were converted to Christianity by Protestant missionaries, and number about 300.

BELLACOOLA or Bilqula, a tribe of North American Indians of Salishan stock, inhabiting the coast of British Columbia. They number some 300.

BELLADONNA (from the Ital. *bella donna*, "beautiful lady," the berries having been used as a cosmetic), the roots and leaves of *Atropa belladonna*, or deadly nightshade (*q.v.*), widely used in medicine on account of the alkaloids which they contain. Of these the more important are atropine (or atropia), hyoscyamine, hyoscine and belladonine; atropine is the most important, occurring as the malate to the extent of about 0.47% in the leaves, and from 0.6 to 0.25% in the roots.

Atropine, $C_{17}H_{23}NO_3$, was discovered in 1833 by P.L. Geiger and Hesse and by Mein in the tissues of *Atropa belladonna*, from which it may be extracted by means of chloroform. By crystallization from alcohol it is obtained as colourless needles, melting at 115°. Hydrolysis with hydrochloric acid or baryta water gives tropic acid and tropine; on the other hand, by boiling equimolecular quantities of these substances with dilute hydrochloric acid, atropine is reformed. Since both these substances have been synthesized (see TROPINE), the artificial formation of atropine is accomplished. Atropine is optically inactive; hyoscyamine, possibly a physical isomer, which yields atropine when heated to 108.6°, is laevorotatory.

Medicine.—The official doses of atropine are from $\frac{1}{200}$ to $\frac{1}{100}$ grain, and the sulphate, which is in general use in medicine, has a similar dose. It is highly important to observe that the official doses of the various pharmacopoeias may with safety be greatly exceeded in practice. They are based on the experimental *toxic*, as distinguished from *lethal* dose. A toxic dose causes unpleasant symptoms, but in certain cases, such as this, it may require very many times a toxic dose to produce the lethal effect. In other words, whilst one-fiftieth of a grain may cause unpleasant symptoms, it may need more than a grain to kill. So valuable are certain of the properties of atropine that it is often desirable to give doses of one-twentieth or one-tenth of a grain; but these will never be ventured upon by the practitioner who is ignorant of the great interval between the minimum toxic and the minimum lethal dose. It actually needs twenty to thirty grains of atropine to kill a rabbit: the animal is, however, somewhat exceptional in this regard. The most valuable preparations of this potent drug are the *liquor atropinae sulphatis*, which is a 1% solution, and the *lamella*—for insertion within the conjunctival sac—which contains one five-thousandth part of a grain of the alkaloid.

Pharmacology.—When rubbed into the skin with such substances as alcohol or glycerine, which are absorbed, atropine is carried through the epidermis with them, and in this manner—or when simply applied to a raw surface—it paralyses the terminals of the pain-conducting sensory nerves. It acts similarly, though less markedly, upon the nerves which determine the secretion of the perspiration, and is therefore a local anaesthetic or anodyne and an anhidrotic. Being rapidly absorbed into the blood, it exercises a long and highly important series of actions on nearly every part and function of the nervous system. Perhaps its most remarkable action is that upon the terminals of nearly all the secretory nerves in the body. This causes the entire skin to become dry—as in the case of the local action above mentioned; and it arrests the secretion of saliva and mucus in the mouth and throat, causing these parts to become very dry and to feel very uncomfortable. This latter result is due to paralysis of the *chorda tympani* nerve, which is mainly responsible for the salivary secretion. Certain nerve fibres from the sympathetic nervous system, which can also cause the secretion of a (specially viscous) saliva, are entirely unaffected by atropine. A curious parallel to this occurs in its action on the eye. There is much uncertainty as to the influence of atropine on the secretions of the stomach, intestines, liver, pancreas and kidneys, and it is not possible to make any definite statement, save that in all probability the activities of the nerves innervating the gland-cells in these organs are reduced, though they are certainly not arrested, as in the other cases. The secretion of mucus by the bronchi and trachea is greatly reduced and their muscular tissue is paralysed—a fact of which much use is made in practical medicine. The secretion of milk, if occurring in the mammary gland, is much diminished or entirely arrested. Given internally, atropine does not exert any appreciable sedative action upon the nerves of pain.

The action of atropine on the motor nerves is equally important. Those that go to the voluntary muscles are depressed only by very large and dangerous doses. The drug appears to have no influence upon the contractile cells that constitute muscle-fibre, any more than it has directly upon the secretory cells that constitute any gland. But moderate doses of atropine markedly paralyse the terminals of the nerves that go to involuntary muscles, whether the action of those nerves be motor or inhibitory. In the intestine, for instance, are layers of muscle-fibre which are constantly being inhibited or kept under check by the splanchnic nerves. These are paralysed by atropine, and intestinal peristalsis is consequently made more active, the muscles being released from nervous control. The motor nerves of the arteries, of the bladder and rectal sphincters, and also of the bronchi, are paralysed by atropine, but the nervous arrangements of those organs are

highly complex and until they are further unravelled by physiologists, pharmacology will be unable to give much information which might be of great value in the employment of atropine. The action upon the vaso-motor system is, however, fairly clear. Whether effected entirely by action on the nerve terminals, or by an additional influence upon the vaso-motor centre in the medulla oblongata, atropine certainly causes extreme dilatation of the blood-vessels, so much so that the skin becomes flushed and there may appear, after large doses, an erythematous rash, which must be carefully distinguished, in cases of supposed belladonna poisoning, from that of scarlet fever: more especially as the temperature may be elevated and the pulse is very rapid in both conditions. But whilst the characteristic action of atropine is to dilate the blood-vessels, its first action is to stimulate the vaso-motor centre—thereby causing temporary contraction of the vessels—and to increase the rapidity of the heart's action, so that the blood-pressure rapidly rises. Though transient, this action is so certain, marked and rapid, as to make the subcutaneous injection of atropine invaluable in certain conditions. The respiratory centre is similarly stimulated, so that atropine must be regarded as a temporary but efficient respiratory and cardiac stimulant.

Toxic doses of atropine—and therefore of belladonna—raise the temperature several degrees. The action is probably nervous, but in the present state of our knowledge regarding the control of the temperature by the nervous system, it cannot be further defined. In small therapeutic and in small toxic doses atropine stimulates the motor apparatus of the spinal cord, just as it stimulates the centres in the medulla oblongata. This is indeed, as Sir Thomas Fraser has pointed out, "a strychnine action." In large toxic and in lethal doses the activity of the spinal cord is lowered.

No less important than any of the above is the action of atropine on the cerebrum. This has long been a debated matter, but it may now be stated, with considerable certainty, that the higher centres are incoordinately stimulated, a state closely resembling that of delirium tremens being induced. In cases of poisoning the delirium may last for many hours or even days. Thereafter a more or less sleepy state supervenes, but it is not the case that atropine ever causes genuine coma. The stuporose condition is the result of exhaustion after the long period of cerebral excitement. It is to be noted that children, who are particularly susceptible to the influence of certain of the other potent alkaloids, such as morphine and strychnine, will take relatively large doses of atropine without ill-effect.

The action of atropine on the eye is of high theoretical and practical importance. The drug affects only the involuntary muscles of the eye, just as it affects only the involuntary or non-striated portion of the oesophagus. The result of its instillation into the eye—and the same occurs when the atropine has been absorbed elsewhere—is rapidly to cause wide dilatation of the pupil. This can be experimentally shown—by the method of exclusion—to be caused by a paralysis of the terminals of the third cranial nerve in the *sphincter pupillae* of the iris. The action of atropine in dilating the pupil is also aided by a stimulation of the fibres from the sympathetic nervous system, which innervate the remaining muscle of the iris—the *dilator pupillae*. As a result of the extreme pupillary dilatation, the tension of the eyeball is greatly raised. The sight of many an eye has been destroyed by the use of atropine—in ignorance of this action on the intra-ocular tension—in cases of incipient glaucoma. The use of atropine is absolutely contra-indicated in any case where the intra-ocular tension already is, or threatens to become, unduly high. This warning applies notably to those—usually women—who are accustomed indiscriminately to use belladonna or atropine in order to give greater brilliancy to their eyes. The fourth ocular result of administering atropine is the production of a slight but definite degree of local anaesthesia of the eyeball. It follows from the above that a patient who is definitely under the influence of atropine will display rapid pulse, dilated pupils, a dry skin and a sense of discomfort, due to dryness of the mouth and throat.

Therapeutics.—The external uses of the drug are mainly analgesic. The liniment or plaster of belladonna will relieve many forms of local pain. Generally speaking, it may be laid down that atropine is more likely than iodine to relieve a pain of quite superficial origin; and conversely. Totally to be reprobated is the use, in order to relieve pain, of belladonna or any other application which affects the skin, in cases where the surgeon may later be required to operate. In such cases, it is necessary to use such anodyne measures as will not interfere with the subsequent demands that may be made of the skin, *i.e.* that it be aseptic and in a condition so sound that it is able to undertake the process of healing itself after the operation has been performed. Atropine is universally and constantly used in ophthalmic practice in order to dilate the pupil for examination of the retina by the ophthalmoscope, or in cases where the inflamed iris threatens to form adhesions to neighbouring parts. The drug is often replaced in ophthalmology by homatropine—an alkaloid prepared from tropine—which acts similarly to atropine but has the advantage of allowing the ocular changes to pass away in a much shorter time. The anhidrotic action of atropine is largely employed in controlling the night-sweats so characteristic of pulmonary tuberculosis, small doses of the solution of the sulphate being given at night.

The uses of atropine in cardiac affections are still obscure and dubious. It can only be laid down that the drug is a valuable though temporary stimulant in emergencies, and that its use as a plaster or internally often relieves cardiac pain. Recollection of the extraordinary complexity of the problems which are involved in the whole question of pain of cardiac origin will emphasize the extreme vagueness of the above assertion. Professor Schäfer recommended the use of atropine prior to the administration of a general anaesthetic, in cases where the action of the vagus nerve upon the heart is to be dreaded; and there is little doubt of the value of this precaution, which has no attendant disadvantages, in all such cases. Atropine is often of value as an antidote, as in poisoning by pilocarpine, muscarine (mushroom poisoning), prussic acid, &c.

Omitting numerous minor applications of this drug, we may pass to two therapeutic uses which are of unquestionable utility. In cases of whooping-cough or any other condition in which there is spasmodic action of the muscular fibre in the bronchi—a definition which includes nearly every form of asthma and many cases of bronchitis—atropine is an almost invaluable 694 drug. Not only does it relieve the spasm, but it lessens the amount of secretion—often dangerously excessive—which is often associated with it. The relief of symptoms in whooping-cough is sharply to be distinguished from any influence on the course of the disease, since the drug does not abbreviate its duration by a single day. In treating an actual and present attack of asthma, it is advisable to give the standardized tincture of belladonna—unless expense is no consideration, in which case atropine may itself be used—in doses of twenty minims every quarter of an hour as long as no evil effects appear. Relief is thereby constantly obtained. Smaller doses of the drug should be given three times a day between the attacks.

The nocturnal enuresis or urinary incontinence of children and of adults is frequently relieved by this drug. The excellent toleration of atropine displayed by children must be remembered, and if its use is “pushed” a cure may almost always be expected.

Toxicology.—The symptoms of poisoning by belladonna or atropine are dealt with above. The essential point here to be added is that death takes place from combined cardiac and respiratory failure. This fact is, of course, the key to treatment. This consists in the use of emetics or the stomach-pump, with lime-water, which decomposes the alkaloid. These measures are, however, usually rendered nugatory by the very rapid absorption of the alkaloid. Death is to be averted by such measures as will keep the heart and lungs in action until the drug has been excreted by the kidneys. Inject stimulants subcutaneously; give coffee—hot and strong—by the mouth and rectum, or use large doses of caffeine citrate; and employ artificial respiration. Do not employ such physiological antagonists as pilocarpine or morphine, for the lethal actions of all these drugs exhibit not mutual antagonism but coincidence.

BELLAGIO, a town of Lombardy, Italy, in the province of Como, about 15 m. N.N.E. by steamer from the town of Como, situated on the promontory which divides the two southern arms of the Lake of Como. Pop. (1901) 3536. It is chiefly remarkable for the beauty of its scenery, and is a very favourite resort in the spring and autumn. Some of the gardens of its villas are remarkably fine. The manufacture of silks and carving in olive wood are carried on.

BELLAIRE, a city of Belmont county, Ohio, U.S.A., on the Ohio river, 5 m. S. of Wheeling, West Virginia. Pop. (1890) 9934; (1900) 9912 (1159 foreign-born); (1910) 12,946. It is served by the Baltimore & Ohio, the Pennsylvania, and the Ohio River & Western railways. Bellaire is the shipping centre of the Belmont county coalfield which in 1907 produced 19.3% of the total output of coal for the state. Iron, limestone and fireclay are found in the vicinity; among the manufactures are iron and steel, glass, galvanized and enamelled ware, agricultural implements and stoves. The value of the city’s factory products increased from $8,837,646 in 1900 to $10,712,438 in 1905, or 21.2%. Bellaire was settled about 1795, was laid out in 1836, was incorporated as a village in 1858, and was chartered as a city in 1874.

BELLAMY, EDWARD (1850-1898), American author and social reformer, was born at Chicopee Falls, Massachusetts, on the 25th of March 1850. He studied for a time at Union College, Schenectady, New York, and in Germany; was admitted to the bar in 1871; but soon engaged in newspaper work, first as an associate editor of the *Springfield Union*, Mass., and then as an editorial writer for the *New York Evening Post*. After publishing three novelettes (*Six to One, Dr Heidenhoff's Process* and *Miss Ludington's Sister*), pleasantly written and showing some inventiveness in situation, but attracting no special notice, in 1888 he caught the public attention with *Looking Backward, 2000-1887*. in which he set forth ideas of co-operative or semi-socialistic life in village or city communities. The book was widely circulated in America and Europe, and was translated into several foreign languages. It was at first judged merely as a romance, but was soon accepted as a statement of the deliberate wishes and methods of its author, who devoted the remainder of his life as editor, author, lecturer and politician, to the promotion of the communistic theories of *Looking Backward*, which he called "nationalism"; a Nationalist party (the main points of whose immediate programme, according to Bellamy, were embodied in the platform of the People's party of 1892) was organized, but obtained no political hold. In 1897 Bellamy published *Equality*, a sequel to *Looking Backward*. He died at Chicopee Falls on the 22nd of May 1898.

BELLAMY, GEORGE ANNE (1727-1788), English actress, born at Fingal, Ireland, by her own account, on the 23rd of April 1733, but more probably in 1727, was the illegitimate daughter of Lord Tyrawley, British ambassador at Lisbon. Her mother married there a Captain Bellamy, and the child received the name George Anne, by mistake for Georgiana. Lord Tyrawley acknowledged the child, had her educated in a convent in Boulogne, and through him she came to know a number of notable people in London. On his appointment as ambassador to Russia, she went to live with her mother in London, made the acquaintance of Mrs Woffington and Garrick, and adopted the theatrical profession. Her first engagement was at Covent Garden as Monimia in the *Orphan* in 1744. Owing to her personal charms and the social patronage extended to her, her success was immediate, and till 1770 she acted in London, Edinburgh and Dublin, in all the principal tragic roles. She played Juliet to Garrick's Romeo at Drury Lane at the time that Spranger Barry (*q.v.*) was giving the rival performances at Covent Garden, and was considered the better of the Juliets. Her last years were unhappy, and passed in poverty and ill-health. She died on the 16th of February 1788.

Her *Apology* (6 vols., 1785) gives an account of her long career and of her private life, the extravagance and licence of which were notorious.

BELLAMY, JOSEPH (1719-1790), American theologian, was born in Cheshire, Connecticut, on the 20th of February 1719. He graduated from Yale in 1735, studied theology for a time under Jonathan Edwards, was licensed to preach when scarcely eighteen years old, and from 1740 until his death, on the 6th of March 1790, was pastor of the Congregational church at Bethlehem, Connecticut. The publication of his best-known work, *True Religion Delineated* (1750), won for him a high reputation as a theologian, and the book was several times reprinted both in England and in America. Despite the fact that with the exception of the period of the "Great Awakening" (1740-1742), when he preached as an itinerant in several neighbouring colonies, his active labours were confined to his own parish, his influence on the religious thought of his time in America was probably surpassed only by that of his old friend and teacher Jonathan Edwards. This influence was due not only to his publications, but also to the "school" or classes for the training of clergymen which he conducted for many years at his home and from which went forth scores of preachers to every part of New England and the middle colonies (states). Bellamy's "system" of divinity was in general similar to that of Edwards. During the War of Independence he was loyal to the American cause. The university of Aberdeen conferred upon him the honorary degree of D.D. in 1768. He was a powerful and dramatic preacher. His published works, in addition to that above mentioned, include *The Wisdom of God in the Permission of Sin* (1758), his most characteristic work; *Theron, Paulinus and Aspasio; or Letters and Dialogues upon the Nature of Love to God, Faith in Christ, and Assurance of a Title to Eternal Life* (1759); *The Nature and Glory of the Gospel* (1762); *A Blow at the Root of Antinomianism* (1763); *There is but One Covenant* (1769); *Four Dialogues on the Half-Way*

Covenant (1769); and *A Careful and Strict Examination of the External Covenant* (1769).

His collected *Works* were published in 3 vols. (New York, 1811-1812), and were republished with a *Memoir* by Rev. Tryon Edwards (2 vols., Boston, 1850).

BELLARMINE (Ital. *Bellarmino*), **ROBERTO FRANCESCO ROMOLO** (1542-1621), Italian cardinal and theologian, was born at Monte Pulciano, in Tuscany, on the 4th of October 1542. He was destined by his father to a political career, but feeling a call to the priesthood he entered the Society of Jesus in 1560 After spending three years at Rome, he was sent to the Jesuit settlement at Mondovi in Piedmont, where he studied and at the same time taught Greek, and, though not yet in orders, gained some reputation as a preacher. In 1567 and 1568 he was at Padua, studying theology under a master who belonged to the school of St Thomas Aquinas. In 1569 he was sent by the general of his order to Louvain, and in 1570, after being ordained priest, began to lecture on theology at the university. His seven years' residence in the Low Countries brought him into close relations with modes of thought differing essentially from his own; and, though he was neither by temperament nor training inclined to be affected by the prevailing Augustinian doctrines of grace and free-will, the controversy into which he fell on these questions compelled him to define his theological principles more clearly. On his return to Rome in 1576 he was chosen by Gregory XIII. to lecture on controversial theology in the newly-founded Roman College. The result of these labours appeared some years afterwards in the far-famed *Disputationes de Controversiis Christianae Fidei adversus hujus temporis Haereticos* (3 vols., 1581, 1582, 1593). These volumes, which called forth a multitude of answers on the Protestant side, exhaust the controversy as it was carried on in those days, and contain a lucid and uncompromising statement of Roman Catholic doctrine. For many years afterwards, Bellarmine was held by Protestant advocates as the champion of the papacy, and a vindication of Protestantism generally took the form of an answer to his works. In 1589 he was selected by Sixtus V. to accompany, in the capacity of theologian, the papal legation sent to France soon after the murder of Henry III. He was created cardinal in 1599 by Clement VIII., and two years later was made archbishop of Capua. His efforts on behalf of the clergy were untiring, and his ideal of the bishop's office may be read in his address to his nephew, Angelo della Ciaia, who had been raised to the episcopate (*Admonitio ad episcopum Theanensem, nepotem suum*, Rome, 1612). Being detained in Rome by the desire of the newly-elected pope, Paul V., he resigned his archbishopric in 1605. He supported the church in its conflicts with the civil powers in Venice, France and England, and sharply criticized James I. for the severe legislation against the Roman Catholics that followed the discovery of the Gunpowder Plot. When health failed him, he retired to Monte Pulciano, where from 1607 to 1611 he acted as bishop. In 1610 he published his *De Potestate summi Pontificis in rebus temporalibus* directed against the posthumous work of William Barclay of Aberdeen, which denied the temporal power of the pope. Bellarmine trod here on difficult ground, for, although maintaining that the pope had the indirect right to depose unworthy rulers, he gave offence to Paul V. in not asserting more strongly the direct papal claim, whilst many French theologians, and especially Bossuet, condemned him for his defence of ultramontanism. As a *consultor* of the Sacred Office, Bellarmine took a prominent part in the first examination of Galileo's writings. His conduct in this matter has been constantly misrepresented. He had followed with interest Galileo's scientific discoveries and a respectful admiration grew up between them. Bellarmine did not proscribe the Copernican system, as has been maintained by Reusch (*Der Process Galilei's und die Jesuiten*, Bonn, 1879, p. 125); all he claimed was that it should be presented as an hypothesis until it should receive scientific demonstration. When Galileo visited Rome in December 1615 he was warmly received by Bellarmine, and the high regard in which he was held is clearly testified in Bellarmine's letters and in Galileo's dedication to the cardinal of his discourse on "flying bodies." The last years of Bellarmine's life were mainly devoted to the composition of devotional works and to securing the papal approbation of the new order of the Visitation, founded by his friend St Francis de Sales, and the beatification of St Philip Neri. He died in Rome on the 17th of September 1621. Bellarmine, whose life was a model of Christian virtue, is the greatest of modern Roman Catholic controversialists, but the value of his theological works is seriously impaired by a very defective exegesis and a too frequent use of "forced" conclusions. His devotional treatises were very popular among English Roman Catholics in the penal days.

Bibliography.—Of the older editions of Bellarmine's complete works the best is that in 7 vols. published at Cologne (1617-1620); modern editions appeared in 8 vols. at Naples (1856-1862, reprinted 1872), and in 12 vols. at Paris (1870-1874). For complete bibliography of all works of Bellarmine, of translations and controversial writings against him, see C. Sommervogel, *Bibliothèque de la Compagnie de Jésus* (Brussels and Paris, 1890 et seq.), vol. i. cols. 1151-1254;

id., Addenda, pp. x.-xi. vol. viii., cols. 1797-1807. The main source for the life of Bellarmine is his Latin *Autobiography* (Rome, 1675; Louvain, 1753), which was reprinted with original text and German translation in the work of Dollinger and Reusch entitled *Die Selbst-biographie des Cardinals Bellarmin* (Bonn, 1887). The *Epistolae Familiares*, a very incomplete collection of letters, was published by J. Fuligatti (Rome, 1650), who is also the author of *Vita del cardinale Bellarmino della Compagnia di Giesù* (Rome, 1624). Cf. D. Bartoli, *Della vita di Roberto cardinal Bellarmino* (Rome, 1678), and M. Cervin, *Imago virtutum Roberti card. Bellarmini Politiani* (Siena, 1622), All these are panegyrics of small historical value. The best modern studies are J.B. Couderc's *Le Vénérable Cardinal Bellarmin* (2 vols., Paris, 1893), and X. le Bachelet's article in A. Vacant's *Dict. de theól, cat.* cols. 560-599, with exhaustive bibliography.

BELLARY, or Ballari, a city and district of British India, in the Madras presidency. The city is 305 m. by rail from Madras. Pop. (1901) 58,247. The fort rises from a huge mass of granite rock, which with a circumference of nearly 2 m., juts up abruptly to a height of 450 ft. above the plain. The length of this rock from north-east to south-west is about 1150 ft. To the E. and S. lies an irregular heap of boulders, but to the W. is an unbroken precipice, and the N. is walled by bare rugged ridges. It is defended by two distinct lines of works. The upper fort is a quadrangular building on the summit, with only one approach, and was deemed impregnable by the Mysore princes. But as it has no accommodation for a garrison, it is now only occupied by a small guard of British troops in charge of prisoners. The ex-nawab of Kurnool was confined in it for forty years for the murder of his wife. It contains several cisterns, excavated in the rock. Outside the turreted rampart are a ditch and covered way. The lower fort lies at the eastern base of the rock and measures about half a mile in diameter. It contains the barracks and the commissariat stores, the Protestant church, orphanage, Masonic lodge, post-office and numerous private dwellings. The fort of Bellary was originally built by Hanumapa, in the 16th century. It was first dependent on the kingdom of Vijayanagar, afterwards on Bijapur, and subsequently subject to the nizam and Hyder Ali. The latter erected the present fortifications according to tradition with the assistance of a French engineer in his service, whom he afterwards hanged for not building the fort on a higher rock adjacent to it. Bellary is an important cantonment and the headquarters of a military division. There is a considerable trade in cotton, in connexion with which there are large steam presses, and some manufacture of cotton cloth. There is a cotton spinning mill. In 1901 Bellary was chosen as one of the places of detention in India for Boer prisoners of war.

The district of Bellary has an area of 5714 sq. m. It consists chiefly of an extensive plateau between the Eastern and Western Ghats, of a height varying from 800 to 1000 ft. above the sea. The most elevated tracts are on the west, where the surface rises towards the culminating range of hills, and on the south, where it rises to the elevated tableland of Mysore. Towards the centre the almost treeless plain presents a monotonous aspect, broken only by a few rocky elevations that rise abruptly from the black soil. The hill ranges in Bellary are those of Sandur and Kampli to the west, the Lanka Malla to the east and the Copper Mountain (3148 ft.) to the south-west. The district is watered by five rivers: the Tungabhadra, formed by the junction of two streams, Tunga and Bhadra, the Haggari, Hindri, Chitravati and Pennar, the last considered sacred by the natives. None of the rivers is navigable and all are fordable during the dry season. The climate of Bellary is characterized by extreme dryness, due to the passing of the air over a great extent of heated plains, and it has a smaller rainfall than any other district in south India. The average daily variation of the thermometer is from 67° to 83° F. The prevailing diseases are cholera, fever, small-pox, ophthalmia, dysentery and those of the skin among the lower classes. Bellary is subject to disastrous storms and hurricanes, and to famines arising from a series of bad seasons. There were memorable famines in 1751, 1793, 1803, 1833, 1854, 1866, 1877 and 1896.

In 1901 the population was 947,214, showing an increase of 8% in the decade. The principal crops are millet, other food-grains, pulse, oil-seeds and cotton. There are considerable manufactures of cotton and woollen goods, and cotton is largely exported. The district is traversed by the Madras and Southern Mahratta railways, meeting on the eastern border at Guntakal junction, where another line branches off to Bezwada.

Little is known of the early history of the district. It contains the ruined capital of the ancient Hindu kingdom of Vijayanagar, and on the overthrow of that state by the Mahommedans, in 1564, the tract now forming the district of Bellary was split up into a number of military holdings, held by chiefs called poligars. In 1635 the Carnatic was annexed to the Bijapur dominions, from which again it was wrested in 1680 by Sivaji, the founder of the Mahratta power. It was then included in the dominions of Nizam-ul-mulk, the nominal viceroy of the great Mogul in the Deccan, from whom again it was subsequently conquered by Hyder Ali of Mysore.

At the close of the war with Tippoo Sultan in 1792, these territories fell to the share of the nizam of Hyderabad, by whom they were ceded to the British in 1800, in return for protection by a force of British troops to be stationed at his capital. In 1808 the "Ceded Districts," as they were called, were split into two districts, Cuddapah and Bellary. In 1882 the district of Anantapur, which had hitherto formed part of Bellary, was formed into a separate collectorate.

See *Bellary Gazetteer*, 1904.

BELL-COT, BELL-GABLE, or BELL-TURRET, the place where one or more bells are hung in chapels or small churches which have no towers. Bell-cots are sometimes double, as at Northborough and Coxwell; a very common form in France and Switzerland admits of three bells. In these countries also they are frequently of wood and attached to the ridge. In later times bell-turrets were much ornamented; on the continent of Europe they run up into a sort of small, slender spire, called *flèche* in France, and *guglio* in Italy. A bell-cot, gable or turret often holds the "Sanctus-bell," rung at the saying of the "Sanctus" at the beginning of the canon of the Mass, and at the consecration and elevation of the Elements in the Roman Church. This differs but little from the common bell-cot, except that it is generally on the top of the arch dividing the nave from the chancel. At Cleeve, however, the bell seems to have been placed in a cot outside the wall. Sanctus-bells have also been placed over the gables of porches.

BELLEAU, REMY (*c.* 1527-1577), French poet, and member of the Pléiade (see DAURAT), was born at Nogent-le-Rotrou about 1527. He studied with Ronsard and others under Jean Daurat at the Collège de Coqueret. He was attached to Renè de Lorraine, marquis d'Elboeuf, in the expedition against Naples in 1557, where he did good military service. On his return he was made tutor to the young Charles, marquis d'Elboeuf, who, under Belleau's training became a great patron of the muses. Belleau was an enthusiast for the new learning and joined the group of young poets with ardour. In 1556 he published the first translation of Anacreon which had appeared in French. In the next year he published his first collection of poems, the *Petites inventions*, in which he describes stones, insects and flowers. The *Amours et nouveaux échanges des pierres précieuses* ... (1576) contains perhaps his most characteristic work. Its title is quoted in the lines of Ronsard's epitaph on his tomb:—

"Luy mesme a basti son tombeau
Dedans ses Pierres Précieuses."

He wrote commentaries to Ronsard's *Amours* in 1560, notes which evinced delicate taste and prodigious learning. Like Ronsard and Joachim Du Bellay, he was extremely deaf. His days passed peacefully in the midst of his books and friends, and he died on the 6th of March 1577. He was buried in the nave of the Grands Augustins at Paris, and was borne to the tomb on the pious shoulders of four poets, Ronsard, J.A. de Baïf, Philippe Desportes and Amadis Jamyn. His most considerable work is *La Bergerie* (1565-1572), a pastoral in prose and verse, written in imitation of Sannazaro. The lines on April in the *Bergerie* are well known to all readers of French poetry. Belleau was the French Herrick, full of picturesqueness, warmth and colour. His skies drop flowers and all his air is perfumed, and this voluptuous sweetness degenerates sometimes into licence. Extremely popular in his own age, he shared the fate of his friends, and was undeservedly forgotten in the next. Regnier said: "Belleau ne parle pas comme on parle à la ville"; and his lyrical beauty was lost on the trim 17th century. His complete works were collected in 1578, and contain, besides the works already mentioned, a comedy entitled *La Reconnue*, in short rhymed lines, which is not without humour and life, and a comic masterpiece, a macaronic poem on the religious wars, *Dictamen metrificum de bello huguenotico et reistrorum*[1] *piglamine ad sodales* (Paris, no date).

The *Œuvres complètes* (3 vols., 1867) of Remy Belleau were edited by A. Gouverneui; and his *Œuvres poétiques* (2 vols., 1879) by M. Ch. Marty-Laveaux in his *Pléiade française*; see also C.A. Sainte-Beuve, *Tableau historique et critique de la poésie française au XVI*^{e} *siècle* (ed. 1876), i. pp. 155-160, and ii. pp. 296 seq.

1 *reîtres*, German soldiers of fortune.

BELLECOUR (1725-1778), French actor, whose real name was Jean Claude Gilles Colson, was born on the 16th of January 1725, the son of a portrait-painter. He showed decided artistic talent, but soon deserted the brush for the stage under the name of Bellecour. After playing in the provinces he was called to the Comédie Française, but his *début*, on the 21st of December 1750, as Achilles in *Iphigénie* was not a great success. He soon turned to more congenial comedy rôles, which for thirty years he filled with great credit. He was a very natural player, and his willingness to give others on the stage an opportunity to show their talents made him extremely popular. He wrote a successful play, *Fausses apparences* (1761), and was very useful to the Comédie Française in editing and adapting the plays of others. He died on the 19th of November 1778.

His wife, Rose Perrine le Roy de la Corbinaye, was born at Lamballe on the 20th of December 1730, the daughter of an artillery officer. Under the stage name of Beaumenard she made her first Paris appearance in 1743 as Gogo in Favart's *Le Coq du village*. After a year at the Opéra Comique she played in several companies, including that of Marshal Saxe, who is said to have been not insensible to her charms. In 1749 she made her *début* at the Comédie Française as Dorine in *Tartuffe*, and her success was immediate. She retired in 1756, but after an absence of five years, during which she married, she reappeared as Madame Bellecour, and continued her successes in soubrette parts in the plays of Molière and de Regnard. She retired finally at the age of sixty, but troublous times had put an end to the pension which she received from Louis XVI. and from the theatre, and she died in abject poverty on the 5th of August 1799. There is a charming portrait of her owned by the Théâtre Français.

BELLEFONTAINE, a city and the county-seat of Logan county, Ohio, U.S.A., about 45 m. N.W. of Columbus. Pop. (1890) 4245; (1900) 6649 (267 foreign-born); (1910) 8238. It is served by the Cleveland, Cincinnati, Chicago & St Louis (which has large shops here) and the Ohio Central railways; also by the Dayton, Springfield & Urbana electric railway. It is built on the south-west slope of a hill having an elevation of about 1500 ft. above sea-level and at the foot of which are several springs of clear water which suggested the city's name. Among the city's manufactures are iron bridges, carriage-bodies, flour and cement. The municipality owns and operates its water-works system and its gas and electric-lighting plants. Bellefontaine was first settled about 1818, was laid out as a town and made the county-seat in 1820 and was incorporated in 1835.

BELLEGARDE, the name of an important French family. Roger de Saint-Lary, baron of Bellegarde, served with distinction in the wars against the French Protestants. He showed much devotion to Henry III., who loaded him with favours and made him marshal of France. He eventually fell into disgrace, however, and died by poisoning in 1579. His nephew, Roger de 697
Saint-Lary de Termes, a favourite with Henry III., Henry IV. and Louis XIII., was royal master of the horse and governor of Burgundy. His estate of Seurre in Burgundy was created a duchy in the peerage of France (*duché-pairie*) in his favour under the name of Bellegarde, in 1619. In 1645 the title of this duchy was transferred to the estate of Choisy-aux-Loges in Gâtinais, and was borne later by the family of Pardaillan de Gondrin, heirs of the house of Saint-Lary-Bellegarde. When Seurre passed into the possession of the princes of Condé they in the same way acquired the title of dukes of Bellegarde.

(M. P.*)

BELLEGARDE, HEINRICH JOSEPH JOHANNES, Count von (1756-1845), Austrian soldier and statesman, was born at Dresden on the 29th of August 1756, and for a short time served in the Saxon army. Transferring his services to Austria in 1771 he distinguished himself greatly as colonel of dragoons in the Turkish War of 1788-1789, and served as a major-general in the Netherlands campaigns of 1793-1794. In the campaign of 1796 in Germany, as a lieutenant field marshal, he served on the staff of the archduke Charles, whom he accompanied to Italy in the following year. He was also employed in the congress of Rastatt. In 1799 he commanded a corps in eastern Switzerland, connecting the armies of the archduke and Suvarov, and finally joined the latter in north Italy. He conducted the siege of the citadel of Alessandria, and was present at the decisive battle of Novi. He served again in the latter part of the Marengo campaign of 1800 in the rank of general of cavalry. In 1805, when the archduke Charles left to take command in Italy, Bellegarde became president *ad interim* of the council of war. He was, however, soon employed in the field, and at the sanguinary battle of Caldiero he commanded the Austrian right. In the war of 1809 he commanded the extreme right wing of the main army (see Napoleonic Campaigns). Cut off from Charles as the result of the battle of Eckmühl, he retreated into Bohemia, but managed to rejoin before the great battles near Vienna (Aspern and Wagram). From 1809 to 1813 Bellegarde, now field marshal, was governor-general of Galicia, but was often called to preside over the meetings of the Aulic Council, especially in 1810 in connexion with the reorganization of the Austrian army. In 1813, 1814 and 1815 he led the Austrian armies in Italy. His successes in these campaigns were diplomatic as well as military, and he ended them by crushing the last attempt of Murat in 1815. From 1816 to 1825 (when he had to retire owing to failing eyesight) he held various distinguished civil and military posts. He died in 1845.

See Smola, *Das Leben des F.M. van Bellegarde* (Vienna, 1847).

BELLE-ÎLE-EN-MER, an island off the W. coast of France, forming a canton of the department of Morbihan, 8 m. S. by W. of the peninsula of Quiberon. Pop. (1906) 9703. Area, 33 sq. m. The island is divided into the four communes of Le Palais, Bangor, Sauzon and Locmaria. It forms a treeless plateau with an average height of 130 ft. above sea-level, largely covered with moors and bordered by a rugged and broken coast. The climate is mild, the fig-tree and myrtle growing in sheltered spots and the soil, where cultivated, is productive. The inhabitants are principally engaged in agriculture and the fisheries, and in the preservation of sardines, anchovies, &c. The breed of draught horses in the island is highly prized. The chief town, Le Palais (pop. 2637), has an old citadel and fortifications, and possesses a port which is accessible to vessels drawing 13 ft. of water. Belle-Île must have been inhabited from a very early period, as it possesses several stone monuments of the class usually called Druidic.

The Roman name of the island seems to have been *Vindilis*, which in the middle ages became corrupted to Guedel. In 1572 the monks of the abbey of Ste Croix at Quimperlé ceded the island to the Retz family, in whose favour it was raised to a marquisate in the following year. It subsequently came into the hands of the family of Fouquet, and was ceded by the latter to the crown in 1718. It was held by English troops from 1761 to 1763 when the French got it in exchange for Nova Scotia. A few of the inhabitants of the latter territory migrated to Belle-Île, which is partly peopled by their descendants. In the state prison of Nouvelle Force at Le Palais political prisoners have at various times been confined.

BELLE-ISLE, CHARLES LOUIS AUGUSTE FOUQUET, Comte, and later Duc, de (1684-1761), French soldier and statesman, was the grandson of Nicholas Fouquet, superintendent of finances under Louis XIV., and was born at Villefranche de Rouergue. Although his family was in disgrace, he entered the army at an early age and was made proprietary colonel of a dragoon regiment in 1708. He rose during the War of the Spanish Succession to the rank of brigadier, and in March 1718 to that of *maréchal de camp*. In the Spanish War of 1718-1719 he was present at the capture of Fontarabia in 1718 and at that of St Sebastian in 1719. When the duke of Bourbon became prime minister, Belle-Isle was imprisoned in the Bastille, and then relegated to his estates, but with the advent of Cardinal Fleury to power he regained some measure of favour and was made a lieutenant-general. In the War of the Polish Succession he commanded a corps under the orders of Marshal Berwick, captured Trier and Trarbach and took part in the siege of Philippsburg (1734). When peace was made in 1736 the king, in recognition both of his

military services and of the part he had taken in the negotiations for the cession of Lorraine, gave him the government of the three important fortresses of Metz, Toul and Verdun—an office which he kept till his death. His military and political reputation was now at its height, and he was one of the principal advisers of the government in military and diplomatic affairs. In 1741 he was sent to Germany as French plenipotentiary to carry out, in the interests of France, a grand scheme of political reorganization in the moribund empire, and especially to obtain the election of Charles, elector of Bavaria, as emperor. His diplomacy was thus the mainspring of the War of the Austrian Succession (*q.v.*), and his military command in south Germany was full of incidents and vicissitudes. He had been named marshal of France in 1741, and received a large army, with which it is said that he promised to make peace in three months under the walls of Vienna. The truth of this story is open to question, for no one knew better than Belle-Isle the limitations imposed upon commanders by the military and political circumstances of the times. These circumstances in fact rendered his efforts, both as a general and as a statesman, unavailing, and the one redeeming feature in the general failure was his heroic retreat from Prague. In ten days he led 14,000 men into and across the Bohemian Forest, suffering great privations and harassed by the enemy, but never allowing himself to be cut off, and his subordinate Chevert defended Prague so well that the Austrians were glad to allow him to rejoin his chief. The campaign, however, had discredited Belle-Isle; he was ridiculed at Paris by the wits and the populace, even Fleury is said to have turned against him, and, to complete his misfortunes, he was taken prisoner by the English in going from Cassel to Berlin through Hanover. He remained a year in England, in spite of the demands of Louis XV. and of the emperor Charles VII. During the campaign of 1746 he was in command of the “Army of Piedmont” on the Alpine frontier, and although he began his work with a demoralized and inferior army, he managed not only to repel the invasion of the Spanish and Italian forces but also to carry the war back into the plain of Lombardy. At the peace, having thus retrieved his military reputation, he was created duke and peer of France (1748). In 1757 his credit at court was considerable, and the king named him secretary for war. During his three years’ ministry he undertook many reforms, such as the development of the military school for officers, and the suppression of the proprietary colonelcies of nobles who were too young to command; and he instituted the Order of Merit. But the Seven Years’ War was by that time in progress and his efforts had no immediate effect. He died at Versailles on the 26th of January 1761. Belle-Isle interested himself in literature; was elected a member of the French Academy in 1740, and founded the Academy of Metz in 1760. The dukedom ended with his death, his only son having been killed in 1758 at the battle of Crefeld.

His brother, Louis Charles Armand Fouquet, known as the Chevalier de Belle-Isle (1693-1746), was also a soldier and a diplomatist. He served as a junior officer in the War of the Spanish Succession and as brigadier in the campaign of 1734 on the Rhine and Moselle, where he won the grade of *maréchal de camp*. He was employed under his brother in political missions in Bavaria and in Swabia in 1741-1742, became a lieutenant-general, fought in Bohemia, Bavaria and the Rhine countries in 1742-1743, and was arrested and sent to England with the marshal in 1744. On his release he was given a command in the Army of Piedmont. He fell a victim to his romantic bravery at the action of Exilles (Col de l’Assiette) on the 19th of July 1746. 698

See Jean de Maugre, *Oraison funèbre du maréchal de Belleisle* (Montmédy, 1762); R.P. de Neuville, *Mémoires du maréchal duc de Belleisle* (Paris, 1761); D.C. (Chevrier), *La Vie politigue et militaire du maréchal duc de Belleisle* (London, 1760), and *Testament politique du maréchal duc de Belleisle* (Hague, 1762); *Le Codicille et l’esprit ou commentaire des maximes du maréchal duc de Belleisle* (Amsterdam, 1761); F.M. Chayert, *Notice sur le maréchal de Belleisle* (Metz, 1856); L. Leclerc, *Éloge du maréchal de Belleisle* (Metz, 1862); E. Michel, *Éloge du maréchal de Belleisle* (Paris, 1862); and Jobez, *La France sous Louis XV* (6 vols., Paris, 1868-1874).

BELLE ISLE, STRAIT OF, the more northern of the two channels connecting the Gulf of St Lawrence with the Atlantic Ocean. It separates northern Newfoundland from Labrador, and extends N.E. and S.W. for 35 m., with a breadth of 10 to 15 m. It derives its name from a precipitous granite island, 700 ft. in height, at its Atlantic entrance. On this lighthouses are maintained by the government of Canada and constant communication with the mainland is kept up by wireless telegraphy. The strait is in the most direct route from Europe to the St Lawrence, but is open only from June till the end of November, and even during this period navigation is often rendered dangerous by floating ice and fogs. Through it Jacques Cartier sailed in 1534. The southern or Cabot Strait, between Cape Ray in Newfoundland and Cape North in Cape Breton, was discovered later, and the expansion below Belle Isle was long known as *La Grande*

Baie. Cabot Strait is open all the year, save for occasional inconvenience from drift ice.

BELLENDEN (BALLANTYNE or BANNATYNE), **JOHN** (fl. 1533-1587), Scottish writer, was born about the end of the 15th century, in the south-east of Scotland, perhaps in East Lothian. He appears to have been educated, first at the university of St Andrews and then at that of Paris, where he took, the degree of doctor. From his own statement, in one of his poems, we learn that he had been in the service of James V. from the king's earliest years, and that the post he held was clerk of accounts. At the request of James he undertook translations of Boece's *Historia Scotorum*, which had appeared at Paris in 1527, and the first five books of Livy. As a reward for his versions, which he finished in 1533, he was appointed archdeacon of Moray and a canon of Ross. He was a strenuous opponent of the Reformation and was compelled to go into exile. He is said by some authorities to have died at Rome in 1550; by others to have been still living in 1587. His translation of Boece, entitled *The History and Chronicles of Scotland*, is a remarkable specimen of Scottish prose, distinguished by its freedom and vigour of expression. It was published in 1536; and was reprinted in 2 vols., edited by Maitland, in 1821. The translation of Livy was not printed till 1822 (also in 2 vols.). Two MSS. of the latter are extant, one, the older, in the Advocates' library, Edinburgh (which was the basis of the normalized text of 1822), the other (*c.* 1550) in the possession of Mr Ogilvie Forbes of Boyndlie. An edition of the work was edited for the Scottish Text Society by Mr W.A. Craigie (2 vols. 1901, 1903). The second volume of this edition contains also a complete reprint of the portions of the holograph first draft which were discovered in the British Museum in 1902. Two poems by Bellenden—*The Proheme to the Cosmographe* and the *Proheme of the History*—appeared in the 1536 edition of the *History of Scotland*. Others, bearing his name in the well-known Bannatyne MS. collection, made by his namesake George Bannatyne (*q.v.*), may or may not be his. Sir David Lyndsay, in his prologue to the *Papyngo*, speaks vaguely of:

> "Ane cunnyng Clark quhilk wrythith craftelie
> Ane plant of poetis callit Ballendyne,
> Quhose ornat workis my wit can nocht defyne."

The chief sources of information regarding Belleriden's life are the *Accounts of the Lord High Treasurer of Scotland*, his own works and the ecclesiastical records.

BELLENDEN, WILLIAM, Scottish classical scholar. Hardly anything is known of him. He lived in the reign of James I. (VI. of Scotland), who appointed him *magister libellorum supplicum* or master of requests. King James is also said to have provided Bellenden with the means of living independently at Paris, where he became professor at the university, and advocate in the parliament. The date of his birth cannot be fixed, and it can only be said that he died later than 1625. The first of the works by which he is known was published anonymously in 1608, with the title *Ciceronis Princeps*, a laborious compilation of all Cicero's remarks on the origin and principles of regal government, digested and systematically arranged. In 1612 there appeared a similar work, devoted to the consideration of consular authority and the Roman senate, *Ciceronis Consul, Senator, Senatusque Romanus*. His third work, *De Statu Prisci Orbls*, 1615, is a good outline of general history. All three works were combined in a single large volume, entitled *De Statu Libri Tres*, 1615, which was first brought into due notice by Dr Samuel Parr, who, in 1787, published an edition with a preface, famous for the elegance of its Latinity, in which he eulogized Burke, Fox and Lord North as the "three English luminaries." The greatest of Bellenden's works is the extensive treatise *De Tribus Luminibus Romanorum*, printed and published posthumously at Paris in 1633. The book is unfinished, and treats only of the first luminary, Cicero; the others intended were apparently Seneca and Pliny. It contains a most elaborate history of Rome and its institutions, drawn from Cicero, and thus forms a storehouse of all the historical notices contained in that voluminous author. It is said that nearly all the copies were lost on the passage to England. One of the few that survived was placed in the university library at Cambridge, and freely drawn upon by Conyers Middieton, the librarian, in his *History of the Life of Cicero*. Both Joseph Warton and Dr Parr accused Middleton of deliberate plagiarism, which was the more likely to have escaped detection owing to the small number of existing copies of Bellenden's work.

BELLEROPHON, or Bellerophontes, in Greek legend, son of Glaucus or Poseidon, grandson of Sisyphus and local hero of Corinth. Having slain by accident the Corinthian hero Bellerus (or, according to others, his own brother) he fled to Tiryns, where his kinsman Proetus, king of Argos, received him hospitably and purged him of his guilt. But Anteia (or Stheneboea), wife of Proetus, became enamoured of Bellerophon, and, when he refused her advances, charged him with an attempt upon her virtue. Proetus thereupon sent him to Iobates, his wife's father, king of Lycia, with a letter or sealed tablet, in which were instructions, apparently given by means of signs, to take the life of the bearer. Arriving in Lycia, he was received as a guest and entertained for nine days. On the tenth, being asked the object of his visit, he handed the letter to the king, whose first plan for complying with it was to send him to slay the Chimaera, a monster which was devastating the country. Bellerophon, mounted on Pegasus (*q.v.*), kept up in the air out of the way of the Chimaera, but yet near enough to kill it with his spear, or, as he is at other times represented, with his sword or with a bow. He was next ordered out against the Solymi, a hostile tribe, and afterwards against the Amazons, from both of which expeditions he not only returned victorious, but also on his way back slew an ambush of chosen warriors whom Iobates had placed to intercept him. His divine origin was now proved; the king gave him his daughter in marriage; and the Lycians presented him with a large and fertile estate on which he lived (Apollodorus, ii. 3; Homer, *Iliad*, vi. 155). Bellerophon is said to have returned to Tiryns and avenged himself on Anteia: he persuaded her to fly with him on his winged horse, and then flung her into the sea near the island of Melos (Schol. Aristoph., *Pax*, 140). His ambitious attempt to ascend to the heavens on Pegasus brought upon him the wrath of the gods. His son was smitten by Ares in battle; his daughter Laodameia was slain by Artemis; he himself, flung from his horse, lamed or blinded, became a wanderer over the face of the earth until his death (Pindar, *Isthmia*, vi. [vii.], 44; Horace, *Odes*, iv. 11, 26). Bellerophon was honoured as a hero at Corinth and in Lycia. His story formed the subject of the *Debates* of Sophocles, and of the *Bellerophontes* and *Stheneboea* of Euripides. It has been suggested that Perseus, the local hero of Argos, and Bellerophon were originally one and the same, the difference in their exploits being the result of the rivalry of Argos and Corinth. Both are connected with the sun-god Helios and with the sea-god Poseidon, the symbol of the union being the winged horse Pegasus. Bellerophon has been explained as a hero of the storm, of which his conflict with the Chimaera is symbolical. The most frequent representations of Bellerophon in ancient art are (1) slaying the Chimaera, (2) departing from Argos with the letter, (3) leading Pegasus to drink. Among the first is to be noted a terra-cotta relief from Melos in the British Museum, where also, on a vase of black ware, is what seems to be a representation of his escape from Stheneboea.

See H.A. Fischer, *Bellerophon* (1851); R. Engelmann, *Annali* of the Archaeological Institute at Rome (1874); O. Treuber, *Gechichte der Lykier* (1887); articles in Pauly-Wissowa's *Real-Encyclopadie*, W.H. Roscher's *Lexikon der Mythologie*, Daremberg and Saglio's *Dictionnaire des antiquités*; L. Preller, *Griechische Mythologie*.

BELLES-LETTRES (Fr. for "fine literature"), a term used to designate the more artistic and imaginative forms of literature, as poetry or romance, as opposed to more pedestrian and exact studies. The term appears to have been first used in English by Swift (1710).

BELLEVILLE, a city and port of entry of Ontario, Canada, and capital of Hastings county, 106 m. E.N.E. of Toronto, on Bay of Quinté and the Grand Trunk railway. Pop. (1901) 9117. Communication is maintained with Lake Ontario and St Lawrence ports by several lines of steamers. It is the commercial centre of a fine agricultural district, and has a large export trade in cheese and farm produce. The principal industries are planing mills and cement works, cheese factories and distilleries. There are several educational institutions, including a business college, a convent, and a government institute for the deaf and dumb. Albert College, under the control of the Methodist church, was formerly a university, but now confines itself to secondary education.

BELLEVILLE, a city and the county-seat of St Clair county, Illinois, U.S.A., in the S.W. part of the state 14 m. S.E. of St Louis, Missouri. Pop. (1890) 15,361; (1900) 17,484, of whom 2750 were foreign-born; (1910) 21,122. Belleville is served by the Illinois Central, the Louisville & Nashville, and the Southern railways, also by extensive interurban electric systems; and a belt line to O'Fallon, Illinois, connects Belleville with the Baltimore & Ohio South Western railway. A large element of the population is of German descent or German birth, and two newspapers are published in German, besides three dailies, three weeklies and a semi-weekly in English. Among the industrial establishments of the city are stove and range factories, flour mills, rolling mills, distilleries, breweries, shoe factories, copper refining works, nail and tack factories, glass works and agricultural implement factories. The value of the city's factory products increased from $2,873,334 in 1900 to $4,356,615 in 1905 or 51.6%. Belleville is in a rich agricultural region, and in the vicinity there are valuable coal mines, the first of which was sunk in 1852; from this dates the industrial development of the city. Belleville was first settled in 1813, was incorporated as a city in 1850, and was re-incorporated in 1876.

BELLEY, a town of eastern France, capital of an arrondissement in the department of Ain, 52 m. S.E. of Bourg by the Paris-Lyon railway. Pop. (1906), town, 3709; commune, 5707. It is situated on vine-covered hills at the southern extremity of the Jura, 3 m. from the right bank of the Rhone. Apart from the cathedral of St Jean, which, with the exception of the choir of 1413, is a modern building, there is little of architectural interest in the town. Belley is the seat of a bishopric and a prefect, and has a tribunal of first instance. The manufacture of morocco leather goods and the quarrying of the lithographic stone of the vicinity are carried on, and there is trade in cattle, grain, wine, truffles and dressed pork. Belley is of Roman origin, and in the 5th century became an episcopal see. It was the capital of the province of Bugey, which was a dependency of Savoy till 1601, when it was ceded to France. In 1385 the town was almost entirely destroyed by an act of incendiarism, but was subsequently rebuilt by the dukes of Savoy, who surrounded it with ramparts of which little is left.

BELLI, GIUSEPPE GIOACHINO (1791-1863), Italian poet, was born at Rome, and after a period of literary employment in poor circumstances was enabled by marriage with a lady of means to follow his own special bent. He is remembered for his vivid popular poetry in the Roman dialect, a number of satirical sonnets which in their own way are unique.

See Morandi's edition, *I sonetti romaneschi* (1886-1889).

BELLIGERENCY, the state of carrying on war (Lat. *bellum*, war, and *gerere*, to wage) in accordance with the law of nations. Insurgents are not as such excluded from recognition as belligerents, and, even where not recognized as belligerents by the government against which they have rebelled, they may be so recognized by a neutral state, as in the case of the American Civil War, when the Southern states were recognized as belligerents by Great Britain, though regarded as rebels by the Northern states. The recognition by a neutral state of belligerency does not, however, imply recognition of independent political existence. The regulations annexed to the Hague Convention, relating to the laws and customs of war (29th of July 1899), contain a section entitled "Belligerents" which is divided into three chapters, dealing respectively with (i.) The Qualifications of Belligerents; (ii.) Prisoners of War; (iii.) The Sick and Wounded. To entitle troops to the special privileges attaching to belligerency, chapter i. provides that all regular, militia or volunteer forces shall alike be commanded by persons responsible for the acts of their men, that all such shall carry distinctive emblems, recognizable

at a distance, that arms shall be carried openly and operations conducted in accordance with the usages of war observed among civilized mankind. It provides, nevertheless, for the emergency of the population of a territory, which has not already been occupied by the invader, spontaneously taking up arms to resist the invading forces, without having had time to comply with the above requirements; they, too, are to be treated as belligerents "if they respect the laws and customs of war." In naval war, privateering having been finally abolished as among the parties to it by the declaration of Paris, a privateer is not entitled, as between such parties, to the rights of belligerency. As between states, one of whom is not a party to the Declaration, the right to grant letters of marque would remain intact for both parties, and the privateer, *as between them*, would be a belligerent; as regards neutrals, the situation would be complicated (see Privateer). On prisoners of war and sick and wounded, see War.

(T. Ba.)

BELLINGHAM, SIR EDWARD (d. 1549), lord deputy of Ireland, was a son of Edward Bellingham of Erringham, Sussex, his mother being a member of the Shelley family. As a soldier he fought in France and elsewhere, then became an English member of parliament and a member of the privy council, and in 1547 took part in some military operations in Ireland. In May 1548 he was sent to that country as lord deputy. Ireland was then in a very disturbed condition, but the new governor crushed a rebellion of the O'Connors in Leinster, freed the Pale from rebels, built forts, and made the English power respected in Münster and Connaught. Bellingham, however, was a headstrong man and was constantly quarrelling with his council; but one of his opponents admitted that he was "the best man of war that ever he had seen in Ireland." His short but successful term of office was ended by his recall in 1549.

See R. Bagwell, *Ireland Under the Tudors*, vol. i. (1885).

BELLINGHAM, a city of Whatcom county, Washington, U.S.A., on the E. side of Bellingham Bay, 96 m. N. of Seattle. Pop. (1900) 11,062; (1905, state est.) 26,000; (1910, U.S. census) 24,298. Area about 23 sq. m. It is served by the Great Northern, the Northern Pacific, the Canadian Pacific, and the Bellingham Bay & British Columbia railways—being a terminus of the last named, which operates only 62 m. of line and connects with the Mt. Baker goldfields and the Nooksack valley farm and orchard region. A suburban electric line was projected in 1907. About 2½ m. south-east of the city is the main body of Lake Whatcom, 13 m. long, 1¼ m. wide, and 318 ft. higher than the city and the source of its water-supply, a gravity system which cost $1,000,000, being owned by the city. Bellingham has two Carnegie libraries. Among the principal buildings are the county court-house, the city hall, the Young Men's Christian Association building, and Beck's theatre, with a seating capacity of 2200. The largest of the state's normal colleges is situated here; in 1907 it had a faculty of 25 and 350 students; there are two high schools, two business colleges, and one industrial school also in the city. The excellent harbour, and the fact that Bellingham is nearer to the great markets of Alaska than any other city in the states, make the port an important shipping centre. In the value of manufactured product the city was fourth in the state in 1905 (being passed only by Tacoma, Seattle and Spokane), with a value of $3,293,988; according to a census taken by the local chamber of commerce the value of the product in 1906 was $7,751,464. The principal industrial establishments are shingle (especially cedar) and saw-mills, salmon canneries and factories for the manufacture of tin cans, and machinery used in the canning of salmon. Motive and electric lighting power is brought 52 m. from the falls of the north fork of the Nooksack river, where there is a power plant which furnishes 3500 horsepower. There are deposits of clay and limestone in the surrounding country, and cement is manufactured in the vicinity of the city. The blue-grey Chuckanut sandstone is quarried on the shore of Chuckanut Bay, south of Bellingham; and a coarse, dark-brown sandstone is quarried on Sucia Island, west of the city. There are quarries also on Waldron Island. Bellingham was formed in 1903 by the consolidation of the cities of New Whatcom (pop. in 1900, 6834) and Fairhaven (pop. in 1900, 4228), and was chartered as a city of the first class in 1904; it is named from Bellingham Bay, which Vancouver is supposed to have named, in 1792, in honour of Sir Henry Bellingham.

BELLINI, the name of a family of craftsmen in Venice, three members of which fill a great place in the history of the Venetian school of painting in the 15th century and the first years of the 16th.

I. Jacopo Bellini (*c.* 1400-1470-71) was the son of a tinsmith or pewterer, Nicoletto Bellini, by his wife Franceschina. When the accomplished Umbrian master Gentile da Fabriano came to practise at Venice, where art was backward, several young men of the city took service under him as pupils. Among these were Giovanni and Antonio of Murano and Jacopo Bellini. Gentile da Fabriano left Venice for Florence in 1422, and the two brothers of Murano stayed at home and presently founded a school of their own (see Vivarini). But Jacopo Bellini followed his teacher to Florence, where the vast progress lately made, alike in truth to natural fact and in sense of classic grace and style, by masters like Donatello and Ghiberti, Masaccio and Paolo Uccello, offered him better instruction than he could obtain even from his Umbrian teacher. But his position as assistant to Gentile brought him into trouble. As a stranger coming to practise in Florence, Gentile was jealously looked on. One day some young Florentines threw stones into his shop, and the Venetian pupil ran out and drove them off with his fists. Thinking this might be turned against him, he went and took service on board the galleys of the Florentine state; but returning after a year, found he had in his absence been condemned and fined for assault. He was arrested and imprisoned, but the matter was soon compromised, Jacopo submitting to a public act of penance and his adversary renouncing further proceedings. Whether Jacopo accompanied his master to Rome in 1426 we cannot tell; but by 1429 we find him settled at Venice and married to a wife from Pesaro named Anna (family name uncertain), who in that year made a will in favour of her first child then expected. She survived, however, and bore her husband two sons, Gentile and Giovanni (though some evidences have been thought to point rather to Giovanni having been his son by another mother), and a daughter Nicolosia. In 1436 Jacopo was at Verona, painting a Crucifixion in fresco for the chapel of S. Nicholas in the cathedral (destroyed by order of the archbishop in 1750, but the composition, a vast one of many figures, has been preserved in an old engraving). Documents ranging from 1437 to 1465 show him to have been a member of the Scuola or mutual aid society of St John the Evangelist at Venice, for which he painted at an uncertain date a series of eighteen subjects of the Life of the Virgin, fully described by Ridolfi but now destroyed or dispersed. In 1439 we find him buying a panel of tarsia work at the sale of the effects of the deceased painter Jacobello del Fiore, and in 1440 entering into a business partnership with another painter of the city called Donato. About this time he must have paid a visit to the court of Ferrara, where there prevailed a spirit of free culture and humanism most congenial to his tastes. Pisanello, the first great naturalist artist of north Italy, whose influence on Jacopo at the outset of his career had been only second to that of Gentile da Fabriano, had been some time engaged on a portrait of Leonello d'Este, the elder son of the reigning marquis Niccolo III. Jacopo (according to an almost contemporary sonneteer) competed with a rival portrait, which was declared by the father to be the better of the two. In the next year, the last of the marquis Niccolo's life, we find him making the successful painter a present of two bushels of wheat. The relations thus begun with the house of Este seem to have been kept up, and among Jacopo's extant drawings are several that seem to belong to the scheme of a monument erected to the memory of the marquis Niccolo ten years later. He was also esteemed and employed by Sigismondo Malatesta at the court of Rimini. In 1443 Jacopo took as an articled pupil a nephew whom he had brought up from charity; in 1452 he painted a banner for the Scuola of St Mary of Charity at Venice, and the next year received a grant from the confraternity for the marriage of his daughter Nicolosia with Andrea Mantegna, a marriage which had the effect of transferring the gifted young Paduan master definitively from the following of Squarcione to that of Bellini. In 1456 he painted a figure of Lorenzo Giustiniani, first patriarch of Venice, for his monument in San Pietro de Castello, and in 1457, with a son for salaried assistant, three figures of saints in the great hall of the patriarch. For some time about these years Jacopo and his family would seem to have resided at, or at least to have paid frequent visits to Padua, where he is reported to have carried out works now lost, including an altar-piece painted with the assistance of his sons in 1459-1460 for the Gattamelata chapel in the Santo, and several portraits which are described by 16th-century witnesses but have disappeared. At Venice he painted a Calvary for the Scuola of St Mark (1466). His activity can be traced in documents down to August 1470, but in November 1471 his wife Anna describes herself as his relict, so that he must have died some time in the interval.

The above are all the facts concerning the life of Jacopo Bellini which can be gathered from printed and documentary records. The materials which have reached posterity for a critical judgment on his work consist of four or five pictures only, together with two important and invaluable books of drawings. These prove him to have been a worthy third, following the Umbrian Gentile da Fabriano and the Veronese Pisanello, in that trio of remarkable artists who in the first half of the 15th century carried towards maturity the art of painting in Venice and the neighbouring cities. Of his pictures, an important signed example is a life-size Christ Crucified in the archbishop's palace at Verona. The rest are almost all Madonnas: two signed, one in the Tadini gallery at Lovere, another in the Venice academy; a third, unsigned and long

ascribed in error to Gentile da Fabriano, in the Louvre, with the portrait of Sigismondo Malatesta as donor; a fourth, richest of all in colour and ornamental detail, recently acquired from private hands for the Uffizi at Florence. Plausibly, though less certainly, ascribed to him are a fifth Madonna at Bergamo, a warrior-saint on horseback (San Crisogono) in the church of San Trovaso at Venice, a Crucifixion in the Museo Correr, and an Adoration of the Magi in private possession at Ferrara. Against this scanty tale of paintings we have to set an abundance of drawings and studies preserved in two precious albums in the British Museum and the Louvre. The former, which is the earlier in date, belonged to the painter's elder son Gentile and was by him bequeathed to his brother Giovanni. It consists of ninety-nine paper pages, all drawn on both back and front with a lead point, an instrument unusual at this date. Two or three of the drawings have been worked over in pen; of the remainder many have become dim from time and rubbing. The album at the Louvre, discovered in 1883 in the loft of a country-house in Guienne, is equally rich and better preserved, the drawings being all highly finished in pen, probably over effaced preliminary sketches in chalk or lead. The range of subjects is much the same in both collections, and in both extremely varied, proving Jacopo to have been a craftsman of many-sided curiosity and invention. He passes indiscriminately from such usual Scripture scenes as the Adoration of the Magi, the Agony in the Garden, and the Crucifixion, to designs from classic fable, copies from ancient bas-reliefs, stories of the saints, especially St Christopher and St George, the latter many times repeated (he was the patron saint of the house of Este), fanciful allegories of which the meaning has now become obscure, scenes of daily life, studies for monuments, and studies of animals, especially of eagles (the emblem of the house of Este), horses and lions. He loves to marshal his figures in vast open spaces, whether of architecture or mountainous landscape. In designing such spaces and in peopling them with figures of relatively small scale, we see him eagerly and continually putting to the test the principles of the new science of perspective. His castellated and pinnacled architecture, in a mixed medieval and classical spirit, is elaborately thought out, and scarcely less so his groups and ranges of barren hills, broken in clefts or ascending in spiral terraces. With a predilection for tall and slender proportions, he draws the human figure with a flowing generalized grace and no small freedom of movement; but he does not approach either in mastery of line or in vehemence of action a Florentine draughtsman such as Antonio Pollaiuolo. Jacopo's influence on the development of Venetian art was very great, not only directly through his two sons and his son-in-law Mantegna, but through other and independent contemporary workshops of the city, in none of which did it remain unfelt.

II. Gentile Bellini (1429-1430-1507), the elder son of Jacopo, first appears independently as the painter of a Madonna, much in his father's manner, dated 1460, and now in the Berlin museum. We have seen how in the previous year he and his brother assisted their father in the execution of an altar-piece for the Santo at Padua. In July 1466 we find him contracting with the officers of the Scuola of St Mark as an independent artist to decorate the doors of their organ. These paintings still exist in a blackened condition. They represent four saints, colossal in size, and designed with much of the harsh and searching austerity which characterized the Paduan school under Squarcione. In December of the same year Gentile bound himself to execute for the great hall of the same company two subjects of the Exodus, to be done better than, or at least as well as, his father's work in the same place. These paintings have perished. For the next eight years the history of Gentile's life and work remains obscure. But he must have risen steadily in the esteem of his fellow-citizens, since in 1474 we find him commissioned by the senate to restore, renew, and when necessary replace, the series of paintings, the work of an earlier generation of artists, which were perishing from damp on the walls of the Hall of the Great Council in the ducal palace. This was evidently intended to be a permanent employment, and in payment the painter was to receive the reversion of a broker's stall in the Fondaco dei Tedeschi; a lucrative form of sinecure frequently allotted to artists engaged for tasks of long duration. In continuation of this work Gentile undertook a series of independent paintings on subjects of Venetian history for the same hall, but had apparently only finished one, representing the delivery of the consecrated candle by the pope to the doge, when his labours were interrupted by a mission to the East. The sultan Mahommed II. had despatched a friendly embassy to Venice, inviting the doge to visit him at Constantinople and at the same time requesting the despatch of an excellent painter to work at his court. The former part of the sultan's proposal the senate declined, with the latter they complied; and Gentile Bellini with two assistants was selected for the mission, his brother Giovanni being at the same time appointed to fill his place on the works for the Hall of the Great Council. Gentile gave great satisfaction to the sultan, and returned after about a year with a knighthood, some fine clothes, a gold chain and a pension. The surviving fruits of his labours at Constantinople consist of a large painting representing the reception of an ambassador in that city, now in the Louvre; a highly finished portrait of the sultan himself, now one of the treasures, despite its damaged condition, of the collection of the late Sir Henry Layard; an exquisitely wrought small portrait in water-colour of a scribe, found in 1905 by a private collector in the bazaar at Constantinople and now in the collection of Mrs Gardner at Boston; and two pen-and-ink drawings of Turkish types, now in the British Museum. Early copies of two or three other similar drawings are preserved in the Städel Institute at Frankfurt; such

copies may have been made for the use of Gentile's Umbrian contemporary, Pinturicchio, who introduced figures borrowed from them into some of his decorative frescoes in the Appartamento Borgia at Rome.

A place had been left open for Gentile to continue working beside his brother Giovanni (with whom he lived always on terms of the closest amity) in the ducal palace; and soon after 1480 he began to carry out his share in the great series of frescoes, unfortunately destroyed by fire in 1577, illustrating the part played by Venice in the struggles between the papacy and the emperor Barbarossa. These works were executed not on the wall itself but on canvas (the climate of Venice having so many times proved fatal to wall paintings), and probably in oil, a method which all the artists of Venice, following the example set by Antonello da Messina, had by this time learnt or were learning to practise. The subjects allotted to Gentile, in addition to the above-mentioned presentation of the consecrated candle, were as follows: the departure of the Venetian ambassadors to the court of Barbarossa, Barbarossa receiving the ambassadors, the pope inciting the doge and senate to war, the pope bestowing a sword and his blessing on the doge and his army (a drawing in the British Museum purports to be the artist's original sketch for this composition), and according to some authorities also the gift of the symbolic ring by the pope to the victorious doge on his return. These works received the highest praise both from contemporary and from later Venetian critics, but no fragment of them survived the fire of 1577. Their character can to some extent be judged by a certain number of kindred historical and processional works by the same hand which have been preserved. Of such the Academy at Venice has three which were painted between 1490 and 1500 for the Scuola of St John the Evangelist, and represent certain events connected with a famous relic belonging to the Scuola, namely, a supposed fragment of the true cross. All have been, much injured and re-painted; nevertheless one at least, showing the procession of the relic through St Mark's Place and the thanksgiving of a father who owed to it the miraculous cure of his son, still gives a good idea of the painter's powers and style. Great accuracy and firmness of individual portraiture, a strong gift, derived no doubt from his father's example, for grouping and marshalling a crowd of personages in spaces of fine architectural perspective, the severity and dryness of the Paduan manner much mitigated by the dawning splendour of true Venetian colour—these are the qualities that no injury has been able to deface. They are again manifest in an interesting Adoration of the Magi in the Layard collection; and reappear still more forcibly in the last work undertaken by the artist, the great picture now at the Brera in Milan of St Mark preaching at Alexandria; this was commissioned by the Scuola of St Mark in March 1505, and left by the artist in his will, dated 18th of February 1507, to be finished by his brother Giovanni. Of single portraits by this artist, who was almost as famous for them as for processional groups, there survive one of a doge at the Museo Correr in Venice, one of Catarina Cornaro at Budapest, one of a mathematician at the National Gallery, another of a monk in the same gallery, signed wrongly to all appearance with the name of Giovanni Bellini, besides one or two others in private hands. The features of Gentile himself are known from a portrait medallion by Camelio, and can be recognized in two extant drawings, one at Berlin supposed to be by the painter's own hand, and another, much larger and more finished, at Christ Church, Oxford, which is variously attributed to Bonsignori and A. Vivarini.

III. Giovanni Bellini (1430-1431-1516) is generally assumed to have been the second son of Jacopo by his wife Anna; though the fact that she does not mention him in her will with her other sons has thrown some slight doubt upon the matter. At any rate he was brought up in his father's house, and always lived and worked in the closest fraternal relation with Gentile. Up till the age of nearly thirty we find documentary evidence of the two sons having served as their father's assistants in works both at Venice and Padua. In Giovanni's earliest independent works we find him more strongly influenced by the harsh and searching manner of the Paduan school, and especially of his own brother-in-law Mantegna, than by the more graceful and facile style of Jacopo. This influence seems to have lasted at full strength until after the departure of his brother-in-law Mantegna for the court of Mantua in 1460. The earliest of Giovanni's independent works no doubt date from before this period. Three of these exist at the Correr museum in Venice: a Crucifixion, a Transfiguration, and a Dead Christ supported by Angels. Two Madonnas of the same or even earlier date are in private collections in America, a third in that of Signor Frizzoni at Milan; while two beautiful works in the National Gallery of London seem to bring the period to a close. One of these is of a rare subject, the Blood of the Redeemer; the other is the fine picture of Christ's Agony in the Garden, formerly in the Northbrook collection. The last-named piece was evidently executed in friendly rivalry with Mantegna, whose version of the subject hangs near by; the main idea of the composition in both cases being taken from a drawing by Jacopo Bellini in the British Museum sketch-book. In all these pictures Giovanni combines with the Paduan severity of drawing and complex rigidity of drapery a depth of religious feeling and human pathos which is his own. They are all executed in the old tempera method; and in the last named the tragedy of the scene is softened by a new and beautiful effect of romantic sunrise colour. In a somewhat changed and more personal manner, with less harshness of contour and a broader treatment of forms and draperies, but not less force of

religious feeling, are the two pictures of the Dead Christ supported by Angels, in these days one of the master's most frequent themes, at Rimini and at Berlin. Chronologically to be placed with these are two Madonnas, one at the church of the Madonna del Orto at Venice and one in the Lochis collection at Bergamo; devout intensity of feeling and rich solemnity of colour being in the case of all these early Madonnas combined with a singularly direct rendering of the natural movements and attitudes of children.

The above-named works, all still executed in tempera, are no doubt earlier than the date of Giovanni's first appointment to work along with his brother and other artists in the Scuola di San Marco, where among other subjects he was commissioned in 1470 to paint a Deluge with Noah's Ark. None of the master's works of this kind, whether painted for the various schools or confraternities or for the ducal palace, have survived. To the decade following 1470 must probably be assigned a Transfiguration now in the Naples museum, repeating with greatly ripened powers and in a much serener spirit the subject of his early effort at Venice; and also the great altar-piece of the Coronation of the Virgin at Pesaro, which would seem to be his earliest effort in a form of art previously almost monopolized in Venice by the rival school of the Vivarini. Probably not much later was the still more famous altar-piece painted in tempera for a chapel in the church of S. Giovanni e Paolo, where it perished along with Titian's Peter Martyr and Tintoretto's Crucifixion in the disastrous fire of 1867. After 1479-1480 very much of Giovanni's time and energy must have been taken up by his duties as conservator of the paintings in the great hall of the ducal palace, in payment for which he was awarded, first the reversion of a broker's place in the Fondaco dei Tedeschi, and afterwards, as a substitute, a fixed annual pension of eighty ducats. Besides repairing and renewing the works of his predecessors he was commissioned to paint a number of new subjects, six or seven in all, in further illustration of the part played by Venice in the wars of Barbarossa and the pope. These works, executed with much interruption and delay, were the object of universal admiration while they lasted, but not a trace of them survived the fire of 1577; neither have any other examples of his historical and processional compositions come down, enabling us to compare his manner in such subjects with that of his brother Gentile. Of the other, the religious class of his work, including both altar-pieces with many figures and simple Madonnas, a considerable number have fortunately been preserved. They show him gradually throwing off the last restraints of the 15th-century manner; gradually acquiring a complete mastery of the new oil medium introduced in Venice by Antonello da Messina about 1473, and mastering with its help all, or nearly all, the secrets of the perfect fusion of colours and atmospheric gradation of tones. The old intensity of pathetic and devout feeling gradually fades away and gives place to a noble, if more worldly, serenity and charm. The enthroned Virgin and Child become tranquil and commanding in their sweetness; the personages of the attendant saints gain in power, presence and individuality; enchanting groups of singing and viol-playing angels symbolize and complete the harmony of the scene. The full splendour of Venetian colour invests alike the figures, their architectural framework, the landscape and the sky. The altar-piece of the Frari at Venice, the altar-piece of San Giobbe, now at the academy, the Virgin between SS. Paul and George, also at the academy, and the altar-piece with the kneeling doge Barbarigo at Murano, are among the most conspicuous examples. Simple Madonnas of the same period (about 1485-1490) are in the Venice academy, in the National Gallery, at Turin and at Bergamo. An interval of some years, no doubt chiefly occupied with work in the Hall of the Great Council, seems to separate the last-named altar-pieces from that of the church of San Zaccaria at Venice, which is perhaps the most beautiful and imposing of all, and is dated 1505, the year following that of Giorgione's Madonna at Castelfranco. Another great altar-piece with saints, that of the church of San Francesco de la Vigna at Venice, belongs to 1507; that of La Corona at Vicenza, a Baptism of Christ in a landscape, to 1510; to 1513 that of San Giovanni Crisostomo at Venice, where the aged saint Jerome, seated on a hill, is raised high against a resplendent sunset background, with SS. Christopher and Augustine standing facing each other below him, in front. Of Giovanni's activity in the interval between the altar-pieces of San Giobbe and of Murano and that of San Zaccaria, there are a few minor evidences left, though the great mass of its results perished with the fire of the ducal palace in 1577. The examples that remain consist of one very interesting and beautiful allegorical picture in the Uffizi at Florence, the subject of which had remained a riddle until it was recently identified as an illustration of a French medieval allegory, the *Pèlerinage de l'âme* by Guillaume de Guilleville; with a set of five other allegories or moral emblems, on a smaller scale and very romantically treated, in the academy at Venice. To these should probably be added, as painted towards the year 1505, the portrait of the doge Loredano in the National Gallery, the only portrait by the master which has been preserved, and in its own manner one of the most masterly in the whole range of painting.

The last ten or twelve years of the master's life saw him besieged with more commissions than he could well complete. Already in the years 1501-1504 the marchioness Isabella Gonzaga of Mantua had had great difficulty in obtaining delivery from him of a picture of the "Madonna and Saints" (now lost) for which part payment had been made in advance. In 1505 she endeavoured through Cardinal Bembo to obtain from him another picture, this time of a secular or

mythological character. What the subject of this piece was, or whether it was actually delivered, we do not know. Albrecht Dürer, visiting Venice for a second time in 1506, reports of Giovanni Bellini as still the best painter in the city, and as full of all courtesy and generosity towards foreign brethren of the brush. In 1507 Gentile Bellini died, and Giovanni completed the picture of the "Preaching of St Mark" which he had left unfinished; a task on the fulfilment of which the bequest by the elder brother to the younger of their father's sketch-book had been made conditional. In 1513 Giovanni's position as sole master (since the death of his brother and of Alvise Vivarini) in charge of the paintings in the Hall of the Great Council was threatened by an application on the part of his own former pupil, Titian, for a joint-share in the same undertaking, to be paid for on the same terms. Titian's application was first granted, then after a year rescinded, and then after another year or two granted again; and the aged master must no doubt have undergone some annoyance from his sometime pupil's proceedings. In 1514 Giovanni undertook to paint a Bacchanal for the duke Alfonso of Ferrara, but died in 1516; leaving it to be finished by his pupils; this picture is now at Alnwick.

Both in the artistic and in the worldly sense, the career of Giovanni Bellini was upon the whole the most serenely and unbrokenly prosperous, from youth to extreme old age, which fell to the lot of any artist of the early Renaissance. He lived to see his own school far outshine that of his rivals, the Vivarini of Murano; he embodied, with ever growing and maturing power, all the devotional gravity and much also of the worldly splendour of the Venice of his time; and he saw his influence propagated by a host of pupils, two of whom at least, Giorgione and Titian, surpassed their master. Giorgione he outlived by five years; Titian, as we have seen, challenged an equal place beside his teacher. Among the best known of his other pupils were, in his earlier time, Andrea Previtali, Cima da Conegliano, Marco Basaiti, Niccolo Rondinelli, Piermaria Pennacchi, Martino da Udine, Girolamo Mocetto; in later time, Pierfrancesco Bissolo, Vincenzo Catena, Lorenzo Lotto and Sebastian del Piombo.

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(S. C.)

BELLINI, LORENZO (1643-1704), Italian physician and anatomist, was born at Florence on the 3rd of September 1643. At the age of twenty, when he had already begun his researches on the structure of the kidneys and had described the ducts known by his name (*Exercitatio anatomica de structura et usu renum*, 1662), he was chosen professor of theoretical medicine at Pisa, but soon after was transferred to the chair of anatomy. After spending thirty years at Pisa, he was invited to Florence and appointed physician to the grand duke Cosimo III., and was also made senior consulting physician to Pope Clement XI. He died at Florence on the 8th of January 1704. His works were published in a collected form at Venice in 1708.

BELLINI, VINCENZO (1801-1835), operatic composer of the Italian school, was born at Catania in Sicily, on the 1st of November 1801. He was descended from a family of musicians, both his father and grandfather having been composers of some reputation. After having received his preparatory musical education at home, he entered the conservatoire of Naples, where he studied singing and composition under Tritto and Zingarelli. He soon began to write pieces for various instruments, as well as a cantata and several masses and other sacred

compositions. His first opera, *Adelson e Savina*, was performed in 1825 at a small theatre in Naples; his second dramatic work, *Bianca e Fernando*, was produced next year at the San Carlo theatre of the same city, and made his name known in Italy. His next work, *Il Pirata* (1827), was written for the Scala in Milan, to words by Felice Romano, with whom Bellini formed a union of friendship to be severed only by his death. The splendid rendering of the music by Tamburini, Rubini and other great Italian singers contributed greatly to the success of the work, which at once established the European reputation of its composer. In almost every year of the short remainder of his life he produced a new operatic work, which was received with rapture by the audiences of France, Italy, Germany and England. The names and dates of four of Bellini's operas familiar to most lovers of Italian music are: *I Montecchi e Capuleti* (1830), in which the part of Romeo became a favourite with all the great contraltos; *La Sonnambula* (1831); *Norma*, Bellini's best and most popular creation (1831); and *I Puritani* (1835), written for the Italian opera in Paris, and to some extent under the influence of French music. In 1833 Bellini had left his country to accompany to England the singer Pasta, who had created the part of his *Sonnambula*. In 1834 he accepted an invitation to write an opera for the national grand opera in Paris. While he was carefully studying the French language and the cadence of French verse for the purpose, he was seized with a sudden illness and died at his villa in Puteaux near Paris on the 24th of September 1835. His operatic creations are throughout replete with a spirit of gentle melancholy, frequently monotonous and almost always undramatic, but at the same time irresistibly sweet. To this spirit, combined with a rich flow of *cantilena*, Bellini's operas owe their popularity. "I shall never forget," wrote Wagner, "the impression made upon me by an opera of Bellini at a period when I was completely exhausted with the everlastingly abstract complication used in our orchestras, when a simple and noble melody was revealed anew to me."

See also G. Labat, *Bellini* (Bordeaux, 1865); A. Pougin, *Bellini, sa vie et ses œuvres* (Paris, 1868).

BELLINZONA (Ger. *Belienz*), the political capital of the Swiss canton of Tessin or Ticino. It is 105 m. from Lucerne by the St Gotthard railway, 19 m. from Lugano and 14 m. from Locarno at the head of the Lago Maggiore, these two towns having been till 1881 capitals of the canton jointly with Bellinzona. The old town is built on some hills, on the left bank of the Tessin or Ticino river, and a little below the junction of the main Ticino valley (the Val Leventina) with that of Mesocco. It thus blocked the road from Germany to Italy, while a great wall was built from the town to the river bank. Bellinzona still possesses three picturesque castles (restored in modern times), dating in their present form from the 15th century. They belonged for several centuries to the three Swiss cantons which were masters of the town. The most westerly, Castello Grande or of San Michele, belonged to Uri; the central castle, that of Montebello, was the property of Schwyz; while the most easterly castle, that of Sasso Corbaro, was in the hands of Unterwalden. The 13th-century church of San Biagio (Blaise) has a remarkable 14th-century fresco, while the collegiate church of San Stefano dates from the 16th century. In 1900 the population of Bellinzona was 4949, practically all Romanists and Italian-speaking.

Possibly Bellinzona is of Roman origin, but it is first mentioned in 590. It played a considerable part in the early history of Lombardy, being a key to several Alpine passes. In the 8th century it belonged to the bishop of Como, while in the 13th and 14th centuries it was tossed to and fro between the cities of Milan and Como. In 1402 it was taken from Milan by Albert von Sax, lord of the Val Mesocco, who in 1419 sold it to Uri and Obwalden, which, however, lost it to Milan in 1422 after the battle of Arbedo. In 1499 (like the rest of the Milanese) it was occupied by the French, but in 1500 it was taken by Uri. In 1503 the French king ceded it to Uri, Schwyz and Unterwalden, which henceforth ruled it very harshly through their bailiffs till 1798. At that date it became the capital of the canton Bellinzona of the Helvetic republic, but in 1803 it was united to the newly-formed canton of Tessin.

(W. A. B. C.)

BELLMAN, KARL MIKAEL (1740-1795), Swedish poet, son of a civil servant, was born at Stockholm on the 4th of February 1740. When quite a child he developed an extraordinary gift of improvising verse, during the delirium of a severe illness, weaving wild thoughts together

lyrically and singing airs of his own composition. When he was nineteen he became clerk in a bank and afterwards in the customs, but his habits were irregular and he was frequently in great distress, particularly after the death of his patron, Gustavus III. As early as 1757 he published *Evangeliska Dödstankar*, meditations on the Passion from the German of David von Schweidnitz, and during the next few years wrote, besides other translations, a great quantity of poems, imitative for the most part of Dalin. In 1760 appeared his first characteristic work, *Månan* (The Moon), a satirical poem, which was revised and edited by Dalin. But the great work of his life occupied him from 1765 to 1780, and consists of the collections of dithyrambic odes known as *Fredmans Epistlar* (1790) and *Fredmans Sånger* (1791). Fredman and his friends were well-known characters in the Stockholm pot-houses, where Bellman had studied them from the life. No poetry can possibly smell less of the lamp than Bellman's. He was accustomed, when in the presence of none but confidential friends, to announce that the god was about to visit him. He would shut his eyes, take his zither, and begin apparently to improvise the music and the words of a long Bacchic ode in praise of love or wine. Most of his melodies are taken direct, or with slight adaptations, from old Swedish ballads, and still retain their popularity. *Fredman's Epistles* bear the clear impress of individual genius; his torrents of rhymes are not without their method; wild as they seem, they all conform to the rules of style, and among those that have been preserved there are few that are not perfect in form. A great Swedish critic has remarked that the voluptuous joviality and the humour of Bellman is, after all, only "sorrow clad in rose-colour," and this underlying pathos gives his poems their undying charm. His later works, *Bacchi Tempel* (The Temple of Bacchus) (1783), eight numbers of a journal called *Hvad behagas?* (What you Will) (1781), in 1780 a religious anthology entitled in a later edition (1787) *Zions Hogtid* (Zion's Holiday), and a translation of Gellert's *Fables*, are comparatively unimportant. He died on the 11th of February 1795. Much of Bellman's work was only printed after his death, *Bihang till Fredmans Epistlar* (Nyköping, 1809), *Fredmans Handskrifter* (Upsala, 1813), *Skaldestycken* ("Poems," Stockholm, 1814) being among the most important of these posthumous works. A colossal bronze bust of the poet by Byström (erected by the Swedish Academy in 1829) adorns the public gardens of Stockholm, and a statue by Alfred Nyström is in the Hasselbacken, Stockholm. Bellman had a grand manner, a fine voice and great gifts of mimicry, and was a favourite companion of King Gustavus III.

The best edition of his works was published at Stockholm, edited by J.G. Carlén, with biographical notes, illustrations and music (5 vols., 1856-1861); see also monographs on Bellman by Nils Erdmann (Stockholm, 1895) and by F. Niedner (Berlin, 1905).

BELLO, ANDRÉS (1781-1865), South American poet and scholar, was born at Caracas (Venezuela) on the 29th of November 1781, and in early youth held a minor post in the civil administration. He joined the colonial revolutionary party, and in 1810 was sent on a political mission to London, where he resided for nineteen years, acting as secretary to the legations of Chile, Colombia and Venezuela, studying in the British Museum, supplementing his small salary by giving private lessons in Spanish, by journalistic work and by copying Jeremy Bentham's almost indecipherable manuscripts. In 1829 he accepted a post in the Chilean treasury, settled at Santiago and took a prominent part in founding the national university (1843), of which he became rector. He was nominated senator, and died at Santiago de Chile on the 15th of October 1865. Bello was mainly responsible for the civil code promulgated on the 14th of December 1855. His prose works deal with such various subjects as law, philosophy, literary criticism and philology; of these the most important is his *Gramática castellana* (1847), the leading authority on the subject. But his position in literature proper is secured by his *Silvas Americanas*, a poem written during his residence in England, which conveys with extraordinary force the majestic impression of the South American landscape.

Bello's complete works were issued in fifteen volumes by the Chilean government (Santiago de Chile, 1881-1893); he is the subject of an excellent biography (Santiago de Chile, 1882) by Miguel Luis Amunátegui.

(J. F.-K.)

BELLO-HORIZONTE, or Minas, a city of Brazil, capital of the state of Minas Geraes since 1898, about 50 m. N.W. of Ouro Preto, connected with the Central of Brazil railway by a branch

line 9 m. in length. Pop. (estimated) in 1906, 25,000 to 30,000. The city was built by the state on an open plateau, and provided with all necessary public buildings, gas, water and tramway services before the seat of government was transferred from Ouro Preto. The cost of transfer was about £1,000,000. The city has grown rapidly, and is considered one of the most attractive state capitals of Brazil.

BELLONA (originally DUELLONA), in Roman mythology, the goddess of war (*bellum*, *i.e. duellum*), corresponding to the Greek Enyo. By later mythologists she is called sometimes the sister, daughter or wife of Mars, sometimes his charioteer or nurse. Her worship appears to have been promoted in Rome chiefly by the family of the Claudii, whose Sabine origin, together with their use of the name of "Nero," has suggested an identification of Bellona with the Sabine war goddess Nerio, herself identified, like Bellona, with Virtus. Her temple at Rome, dedicated by Appius Claudius Caecus (296 B.C.) during a battle with the Samnites and Etruscans (Ovid, *Fasti* vi. 201), stood in the Campus Martius, near the Flaminian Circus, and outside the gates of the city. It was there that the senate met to discuss a general's claim to a triumph, and to receive ambassadors from foreign states. In front of it was the *columna bellica*, where the ceremony of declaring war by the fetialis was performed. From this native Italian goddess is to be distinguished the Asiatic Bellona, whose worship was introduced into Rome from Comana, in Cappadocia, apparently by Sulla, to whom she had appeared, urging him to march to Rome and bathe in the blood of his enemies (Plutarch, *Sulla*, 9). For her a new temple was built, and a college of priests (*Bellonarii*) instituted to conduct her fanatical rites, the prominent feature of which was to lacerate themselves and sprinkle the blood on the spectators (Tibullus i. 6. 45-50). To make the scene more grim they wore black dresses (Tertullian, *De Pallio*) from head to foot. The festival of Bellona, which originally took place on the 3rd of June, was altered to the 24th of March, after the confusion of the Roman Bellona with her Asiatic namesake.

See Tiesler, *De Bellonae Cultu* (1842).

BELLOT, JOSEPH RENÉ (1826-1853), French Arctic explorer, was born at Rochefort on the 18th of March 1826, the son of a farrier. With the aid of the authorities of his native town he was enabled at the age of fifteen to enter the naval school, in which he studied two years and earned a high reputation. He then took part in the Anglo-French expedition of 1845 to Madagascar, and received the cross of the Legion of Honour for distinguished conduct. He afterwards took part in another Anglo-French expedition, that of Parana, which opened the river La Plata to commerce. In 1851 he joined the Arctic expedition under the command of Captain Kennedy in search of Sir John Franklin, and discovered the strait between Boothia Felix and Somerset Land which bears his name. Early in 1852 he was promoted lieutenant, and in the same year accompanied the Franklin search expedition under Captain Inglefield. As on the previous occasion, his intelligence, devotion to duty and courage won him the esteem and admiration of all with whom he was associated. While making a perilous journey with two comrades for the purpose of communicating with Sir Edward Belcher, he suddenly disappeared in an opening between the broken masses of ice (August 1853). A pension was granted to his family by the emperor Napoleon III., and an obelisk was erected to his memory in front of Greenwich hospital.

BELLOWS, ALBERT F. (1829-1883), American landscape-painter, was born at Milford, Massachusetts, on the 20th of November 1829. He first studied architecture, then turned to painting, and worked in Paris and in the Royal Academy at Antwerp. He painted much in England; was a member of the National Academy of Design, and of the American Water Color Society, New York; and an honorary member of the Royal Belgian Society of Water-Colourists. His earlier work was *genre*, in oils; after 1865 he used water-colours more and more exclusively and painted landscapes. Among his water-colours are "Afternoon in Surrey" (1868); "Sunday in Devonshire" (1876), exhibited at the Philadelphia Exposition; "New England Village School"

(1878); and “The Parsonage” (1879). He died in Auburndale, Massachusetts, on the 24th of November 1883.

BELLOWS, HENRY WHITNEY (1814-1882), American clergyman, was born in Boston, Massachusetts, on the 11th of June 1814. He graduated at Harvard College in 1832, and at the Harvard Divinity School in 1837, held a brief pastorate (1837-1838) at Mobile, Alabama, and in 1839 became pastor of the First Congregational (Unitarian) church in New York City (afterwards All Souls church), in charge of which he remained until his death. Here Bellows acquired a high reputation as a pulpit orator and lyceum lecturer, and was a recognized leader in the Unitarian Church in America. For many years after 1846 he edited *The Christian Inquirer*, a Unitarian weekly paper, and he was also for some time an editor of *The Christian Examiner*. In 1857 he delivered a series of lectures in the Lowell Institute course, on “The Treatment of Social Diseases.” At the outbreak of the Civil War he planned the United States Sanitary Commission, of which he was the first and only president (1861 to 1878). He was the first president of the first Civil Service Reform Association organized in the United States (1877), was an organizer of the Union League Club and of the Century Association in New York City, and planned with his parishioner and friend, Peter Cooper, the establishment of Cooper Union. In 1865 he proposed and organized the national conference of Unitarian and other Christian churches, and from 1865 to 1880 was chairman of its council. He died in New York City on the 30th of January 1882. A bronze memorial tablet by Augustus Saint Gaudens was unveiled in All Souls church in 1886. His published writings include *Restatements of Christian Doctrine in Twenty-Five Sermons* (1860); *Unconditioned Loyalty* (1863), a strong pro-Union sermon, which was widely circulated during the Civil War; *The Old World in its New Face: Impressions of Europe in 1867-1868* (2 vols., 1868-1869); *Historical Sketch of the Union League Club* (1879); and *Twenty-Four Sermons in All Souls Church, New York, 1865-1881* (1886).

See Russell N. Bellows, *Henry Whitney Bellows* (Keene, N.H., 1897), a biographical sketch reprinted from T.B. Peck’s *Bellows Family Genealogy*; John White Chadwick, *Henry W. Bellows: His Life and Character* (New York, 1882), a memorial address; and Charles J Stillé, *History of the United States Sanitary Commission* (Philadelphia, 1866).

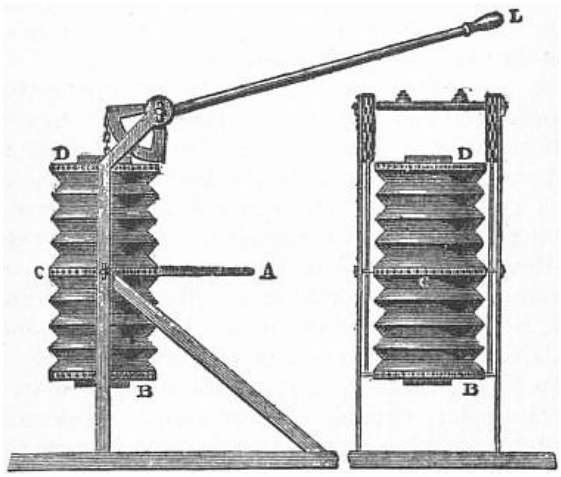
BELLOWS and **BLOWING MACHINES,** appliances used for producing currents of air, or for moving volumes of air from one place to another. Formerly all such artificially-produced currents of air were used to assist the combustion of fires and furnaces, but now this purpose only forms a part of the uses to which they are put. Blowing appliances, among which are included bellows, rotary fans, blowing engines, rotary blowers and steam-jet blowers, are now also employed for forcing pure air into buildings and mines for purposes of ventilation, for withdrawing vitiated air for the same reason, and for supplying the air or other gas which is required in some chemical processes. Appliances of this kind differ from *air compressors* in that they are primarily intended for the transfer of quantities of air at low pressures, very little above that of the atmosphere, whereas the latter are used for supplying air which has previously been raised to a pressure which may be many times that of the atmosphere (see Power Transmission: *Pneumatic*).

Among the earliest contrivances employed for producing the movement of air under a small pressure were those used in Egypt during the Greek occupation. These depended upon the heating of the air, which, being raised in pressure and bulk, was made to force water out of closed vessels, the water being afterwards employed for moving some kind of mechanism. In the process of iron smelting there is still used in some parts of India an artificial blast, produced by a simple form of bellows made from the skins of goats; bellows of this kind probably represent one of the earliest contrivances used for producing currents of air.

The *bellows*[1] now in use consists, in its simplest form, of two flat boards, of rectangular, circular or pear shape, connected round their edges by a wide band of leather so as to include an air chamber, which can be increased or diminished in volume by separating the boards or bringing them nearer together. The leather is kept from collapsing, on the separation of the boards, by several rings of wire which act like the ribs of animals. The lower board has a hole in the centre, covered inside by a leather flap or valve which can only open inwards; there is also

an open outlet, generally in the form of a pipe or nozzle, whose aperture is much smaller than that of the valve. When the upper board is raised air rushes into the cavity through the valve to fill up the partial vacuum produced; on again depressing the upper board the valve is closed by the air attempting to rush out again, and this air is discharged through the open nozzle with a velocity depending on the pressure exerted.

The current of air produced is evidently not continuous but intermittent or in puffs, because an interval is needed to refill the cavity after each discharge. In order to remedy this drawback the *double bellows* are used. To understand their action it is only necessary to conceive an additional board with valve, like the lower board of the single bellows, attached in the same way by leather below this lower board. Thus there are three boards, forming two cavities, the two lower boards being fitted with air-valves. The lowest board is held down by a weight and another weight rests on the top board. In working these double bellows the lowest board is raised, and drives the air from the lower cavity into the upper. On lowering the bottom board again a fresh supply of air is drawn in through the bottom valve, to be again discharged when the board is raised. As the air passes from the lower to the upper cavity it is prevented from returning by the valve in the middle board, and in this way a quantity of air is sent into the upper cavity each time the lowest board is raised. The weight on the top board provides the necessary pressure for the blast, and at the same time causes the current of air delivered to be fairly continuous. When the air is being forced into the upper cavity the weight is being raised, and, during the interval when the lowest board is descending, the weight is slowly forcing the top board down and thus keeping up the flow of air.



FIGS. 1 and 2.—Common Smiths' Bellows.

Hand-bellows for domestic use are generally shaped like a pear, with the hinge at the narrow end. The same shape was adopted for the older forms of smiths' bellows, with the difference that two bellows were used superposed, in a manner similar to that just described, so as to provide for a continuous blast. In the later form of smiths' bellows the same principle is employed, but the boards are made circular in shape and are always maintained roughly parallel to one another. These are shown on figs. 1 and 2. Here A is the blast pipe, B the movable lowest board, C the fixed middle board, close to which the pipe A is inserted, and D is the movable uppermost board pressed upon by the weight shown. The board B is raised by means of a hand lever L, through either a chain or a connecting rod, and lowered by a weight. The size of the weight on D depends on the air pressure required. For instance, if a blast pressure of half a pound per square inch is wanted and the boards are 18 in. in diameter, and therefore have an area of 254 sq. in., on each of the 254 sq. in. there is to be a pressure of half a pound, so that the weight to balance this must be half multiplied by 254, or 127 lb. The diameter of the air-pipe can be varied to suit the required conditions. Instead of bellows with flexible sides, a sliding arrangement is sometimes used; this consists of what are really two boxes fitting into one another with the open sides both facing inwards, as if one were acting as a lid to the other. By having a valve and outlet pipe fitted as in the bellows and sliding them alternately apart and together, an intermittent blast is produced. The chief defect of this arrangement is the leakage of air caused by the difficulty in making the joint a sufficiently good fit to be air-tight.

Blowing Engines.—Where larger quantities of air at higher pressures than can conveniently be supplied by bellows are required, as for blast furnaces and the Bessemer process of steel-making, what are termed "blowing engines" are used. The mode of action of a blowing engine is simple. When a piston, accurately fitting a cylinder which has one end closed, is forcibly moved towards the other end, a partial vacuum is formed between the piston and the blank end, and if this space be allowed to communicate with the outer atmosphere air will flow in to fill the vacuum. When the piston has completed its movement or "stroke," the cylinder will have been filled with air. On the return of the piston, if the valve through which the air entered is now

closed and a second one communicating with a chamber or pipe is opened, the air in the cylinder is expelled through this second valve. The action is similar to that of the bellows, but is carried out in a machine which is much better able to resist higher pressures and which is more convenient for dealing with large quantities of air. The valves through which the atmosphere or "free" air is admitted are called "admission" or "suction" valves, and those through which the air is driven from the cylinder are the "discharge" or "delivery" valves. Formerly one side only of the blowing piston was used, the engine working "single-acting"; but now both sides of the piston are utilized, so that when it is moving in either direction suction will be taking place on one side and delivery on the other. All processes in connexion with which blowing engines are used require the air to be above the pressure of the outer atmosphere. This means that the discharge valves do not open quite at the beginning of the delivery stroke, but remain closed until the air in the cylinder has been reduced in volume and so increased in pressure to that of the air in the discharge chamber.

The power used to actuate these blowing-engines is in most cases steam, the steam cylinder being placed in line or "tandem" with the air cylinder, so that the steam piston rod is continuous with or directly joined to the piston rod of the air cylinder. This plan is always adopted where the cylinders are placed horizontally, and often in the case of vertical engines. The engines are generally built in pairs, with two blowing cylinders and one high-pressure and one low-pressure steam cylinder, the piston rods terminating in connecting rods which are attached to the pins of the two cranks on the shaft. In the centre of this shaft, midway between the two engines, there is usually placed a heavy flywheel which helps to maintain a uniform speed of turning. Some of the largest blowing engines built in Great Britain are arranged as beam engines; that is to say, there is a heavy rocking beam of cast iron which in its middle position is horizontal. One end of this beam is linked by a short connecting rod to the end of the piston rod of the blowing cylinder, while the other end is similarly linked to the top of the steam piston rod, so that as the steam piston comes up the air piston goes down and *vice versa*. At the steam end of the beam a third connecting rod works the crank of a flywheel shaft.

About the end of the 19th century an important development took place which consisted in using the waste gas from blast furnaces to form with air an explosive mixture, and employing this mixture to drive the piston of the actuating cylinder in precisely the same manner as the explosive mixture of coal gas and air is used in a gas engine. Since the majority of blowing engines are used for providing the air required in iron blast furnaces, considerable saving should be effected in this way, because the gas which escapes from the top of the furnace is a waste product and costs nothing to produce.

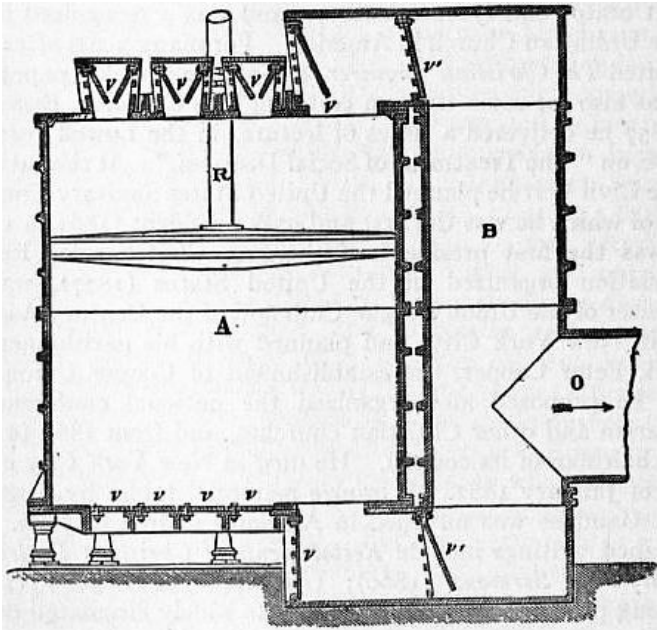


FIG. 3.—Section of Cylinder of Early Blowing Engine (1851).

The general action of a blowing engine may be illustrated by the sectional view shown on fig. 3, which represents the internal view of one of the blowing cylinders of the engines erected at the Dowlais Ironworks as far back as 1851. Many of the details are now obsolete, but the general scheme is the same as in all blowing engines. Here A is the air cylinder; in this is a piston whose rod is marked R; this piston is usually made air-tight by some form of packing fitted into the groove which runs round its edge. In this particular case the cylinder is placed vertically and its piston rod is actuated from the end of a rocking beam. The top and bottom ends are closed by covers and in these are a number of openings controlled by valves opening inwards so that air can flow freely in but cannot return. The piston is shown moving downwards.

Air is now being drawn into the space above the piston through the valves v at the top, and the air in the space A below the piston, drawn in during the previous up-stroke, is being expelled through the valve v′ into the discharge chamber B, thence passing to the outlet pipe O. The action is reversed on the up-stroke. Thus it will be seen that air is being delivered both during the up-stroke and the down-stroke, and therefore flows almost continuously to the furnaces. There must, however, be momentary pauses at the ends of the strokes when the direction of movement is changed, and as the piston, though worked from an evenly rotating crank shaft, moves more quickly at the middle and slows down to no speed at the ends of its travel, there must be a considerable variation in the speed of delivery of the air. The air is therefore led from O into a large storage chamber or reservoir, whence it is again taken to the furnace; if this reservoir is made sufficiently large the elasticity of the air in it will serve to compensate for the irregularities, and a nearly uniform stream of air will flow from it. The valves used in this case and in most of the older blowing engines consist of rectangular metal plates hinged at one of the longer edges; these plates are faced with leather or india rubber so as to allow them to come to rest quietly and without clatter and at the same time to make them air-tight. It will be seen that some of these valves hang vertically and others lie flat on the bottom of the cover. The Dowlais cylinder is very large, having a diameter of 12 ft. and a piston stroke of 12 ft., giving a discharge of 44,000 cub. ft. of air per minute, at a pressure of 4¼ lb. to the square inch.

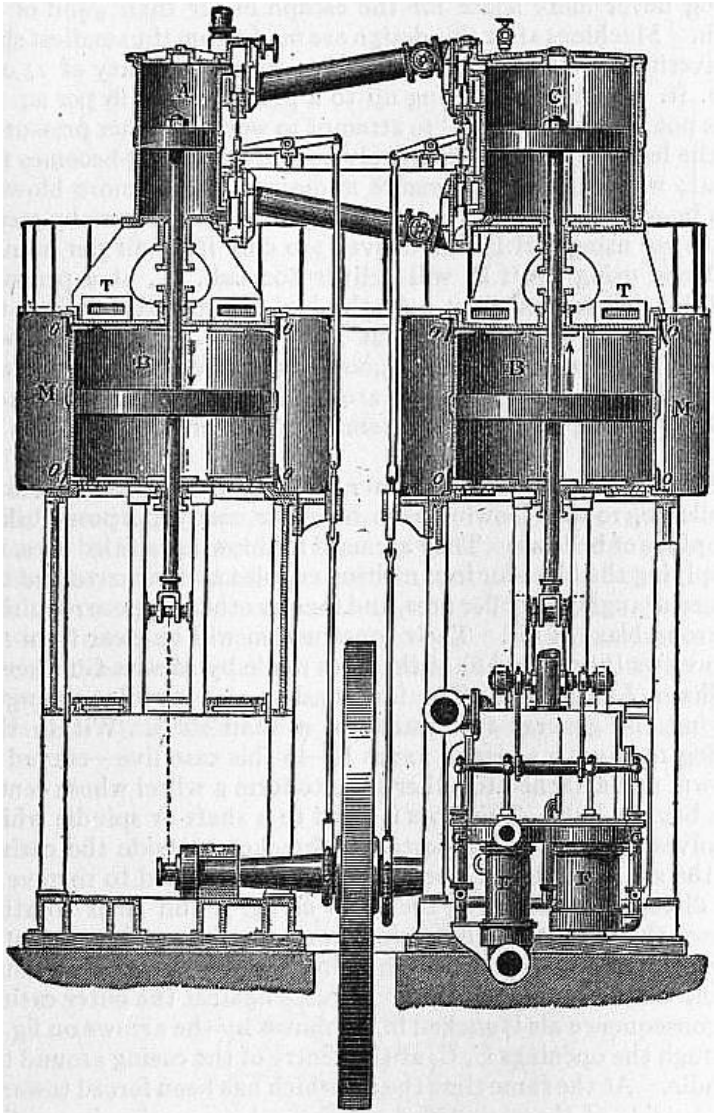


FIG. 4.—Vertical Section of Lackenby Blowing Engines (1871).

A later design of blowing engine, built in 1871 for the Lackenby iron-works, Middlesbrough, is shown in section in fig. 4, and is of a type which is still the most common, especially in the north of England. Here A, the high-pressure steam cylinder, and C, the low-pressure one, are placed in tandem with the air cylinders B, B, whose pistons they actuate. In these blowing cylinders the inlet valves in the bottom are circular disk valves of leather, eighteen in number; the inlet valves T on the top of the cylinder are arranged in ten rectangular boxes, having openings in their vertical sides, inside which are hung leather flap valves. The outlet valves O are ten in number at each end of the cylinders, and are hung against flat gratings which are arranged round the circumference. The blast is delivered into a wrought iron casing M which surrounds the cylinder. The combined area of the inlet valves is 860 sq. in., or one-sixth the area of the piston. The speed is twenty-four revolutions per minute and the air delivered at this speed is 15,072

cubic ft. per minute, the horse-power in the air cylinders being 258. The circulating pump E, air pump F, and feed pumps G, G, are worked off the cross-head on the low-pressure side.

A more modern form of blowing engine erected at the Dowlais works about the end of the 19th century, may be taken as typical of the present design of vertical blowing engine in use in Great Britain. The two air cylinders are placed below and in tandem with the steam cylinders as in the last case. The piston rods also terminate in connecting rods working on to the crank shaft. The air cylinders are each 88 in. in diameter, and the high and low pressure cylinders of the compound steam engine are 30 in. and 64 in. respectively, while the common stroke of all four is 60 in. The pressure of the air delivered varies from 4½ to 10 lb per sq. in. and the quantity per minute is 25,000 cub. ft. Each engine develops about 1200 horse-power. It is to be noted that flap valves such as those used in the 1851 Dowlais engine have in most cases given place to a larger number of circular steel disk valves, held to their seats by springs.

In a large blowing engine built in 1905 by Messrs Davy Bros. of Sheffield for the North-Eastern Steel Company at Middlesbrough (see *Engineering*, January 6, 1905) the same arrangement was adopted as in that just described. The two air cylinders are each 90 in. diameter and have a stroke of 72 in. The capacity of this engine is 52,000 cub. ft. of air per minute, delivered at a pressure of from 12½ to 15 lb per sq. in. when running at a speed of thirty-three revolutions per minute. The air valves consist of a large number of steel disks resting on circular seatings and held down by springs, which for the delivery valves are so adjusted in strength that they lift and release the air when the desired working pressure has been reached. It is worthy of note that in this engine no attempt is made to make the air pistons air-tight in the usual way by having packing rings set in grooves round the edge, but the piston is made deeper than usual and turned so as to be a very good fit in the cylinder and one or two small grooves are cut round the edge to hold the lubricant.

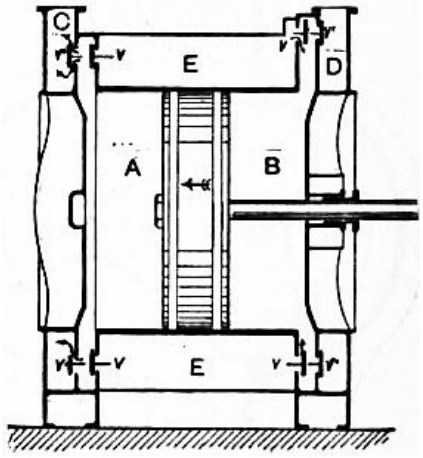


FIG. 5.—Richardsons, Westgarth & Co.'s Blowing Engine.

To illustrate a blowing engine driven by a gas engine supplied with blast furnace gas, fig. 5 gives a diagrammatic view of the blowing cylinder of an engine built by Messrs Richardsons, Westgarth & Co. of Middlesbrough about 1905. The gas cylinder is not shown. It will be seen that the air cylinder is horizontal, and it is arranged to work in tandem with the gas motor cylinder. The chief point of interest is to be found in the arrangement of the details of the air cylinder. Its diameter is 86½ in. and the length of piston stroke 55 in. As to the arrangement of the valves, if the piston be moving in the direction shown, on the left side of the piston at A air is being discharged, and follows the course indicated by the arrows, so as first to pass into the annular chamber which forms a continuation of the space A, and thence, through the spring-controlled steel disk valves v′, into the discharge chamber C, which ultimately leads to the blast pipe. It will be seen that the valves v on the other side of the annular chamber are closed. At the same time a partial vacuum is being formed in the space B, to be filled by the inflow of air through the valves v which are now open, the corresponding discharge valves v′ being closed. These valves on the inside and outside of the annular spaces referred to are arranged so as to form a circle round the ends of the barrel of the cylinder. The free air, instead of being drawn into the valves v direct from the air of the engine house, is taken from an enclosed annular chamber E, which may be in communication with the clean, cool air outside. It will be seen that the piston is made deep so as to allow for a long bearing surface in the cylinder. Two metal packing rings are provided to render the piston air-tight. The horse-power of this engine, which is designed on the Cockerell system, is 750.

Air valves of other types than those which have been mentioned have been tried, such as sliding grid valves, rotatory slide valves and piston valves, but it has been found that either flap or disk lift valves are more satisfactory for air on account of the grit which is liable to get between slide valves and their seatings. In some of the blowing engines made by Messrs Fraser & Chalmers (see *Engineer*, June 15, 1906), sheets of flexible bronze act as flap valves both for admission and delivery, the part which actually closes the opening being thickened for strength.

The pressure of the air supplied by blowing engines depends upon the purposes for which it is to be used. In charcoal furnaces the pressure is very low, being less than 1 lb per sq. in.; for blast furnaces using coal an average value of 4 lb is common; for American blast furnaces using coke or anthracite coal the pressure is as high as 10 lb; while for the air required in the Bessemer process of steel-making pressures up to 25 or 30 lb per sq. in. are not uncommon. According to British practice one large blowing engine is used to supply several blast furnaces,

while in America a number of smaller ones is used, one for each furnace.

Rotary blowers occupy a position midway between blowing engines and fan blowers, being used for purposes requiring the delivery of large volumes of air at pressures lower than those of blowing engines, but higher than those of fan blowers. The blowing engine draws in, compresses and delivers its air by the direct action of air-tight pistons; the same effect is aimed at in a rotary blower with the difference that the piston revolves instead of moving up and down a cylinder.

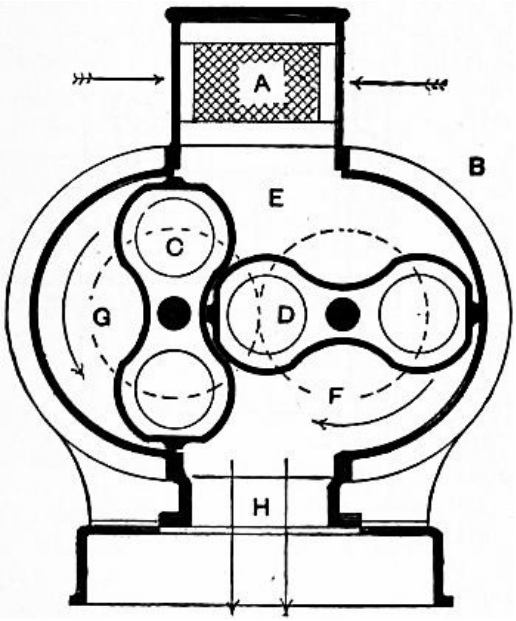


FIG. 6.—Thwaites' Improved Roots' Blower.

Two of the best-known machines of this kind are Roots' and Baker's, both American devices. The mode of action of Roots' blower, as made by Messrs Thwaites Bros. of Bradford, will be clear from the section shown on fig. 6. The moving parts work in a closed casing B, which consists of half-cylindrical curved plates placed a little more than their own radius apart, the ends being enclosed by two plates. Within the casing, and barely touching the curved part of the casing and each other, revolve two parts C, D, called "revolvers," the speed of rotation of which is the same, but the direction opposite. They are compelled to keep their proper relative positions by a pair of equal spur wheels fixed on the ends of the shafts on which they run. The free air enters the casing through a wire screen at A and passes into the space E.

As the space E increases in volume owing to the movement of the revolvers, air is drawn in; it is then imprisoned between D and the casing, as shown at G, and is carried round until it is free to enter F, from which it is in turn expelled by the lessening of this space as the lower ends of the revolvers come together. In this way a series of volumes of air is drawn in through A, to be afterwards expelled from H in an almost perfectly continuous stream, this result being brought about by the relative variation in volume of the spaces E, F and G. In their most improved form the revolvers are made hollow, of cast iron, and accurately machined to a form such that they always keep close to one another and to the end casing without actually touching, there being never more space for the escape of air than $\frac{1}{32}$nd of an inch. Machines after this design are made from the smallest size, delivering 25 cub. ft., to the largest, with a capacity of 25,000 cub. ft. per minute working up to a pressure of 3 lb. per sq. in. It is not found economical to attempt to work at higher pressures, as the leakage between the revolvers and the casing becomes too great; where a higher pressure is desired two or more blowers can be worked in series, the air being raised in pressure by steps. A blower using 1 H.P. will deliver 350 cub. ft. of air per minute and one using 2¾ H.P. will deliver 800 cub. ft., at a pressure suitable for smiths' fires. At the higher pressure required for cupola work—somewhere about ¾ lb. per sq. in.—6½ H.P. will deliver 1300, and 123 H.P. 25,000 cub. ft. per minute. In the Baker blower three revolvers are used—a large one which acts as the rotating piston and two smaller ones forming air locks or valves.

Rotary Fans.—Now that power for driving them is so generally available, rotary blowing fans have for many purposes taken the place of bellows. They are used for blowing smiths' fires, for supplying the blast for iron melting cupolas and furnaces and the forced draught for boiler fires, and for any other purpose requiring a strong blast of air. Their construction will be clear from the two views (figs. 7 and 8) of the form made by Messrs Günther of Oldham, Lancashire. The fan consists of a circular casing A having the general appearance of a snail shell. Within this casing revolves a series of vanes B—in this case five—curved as shown, and attached together so as to form a wheel whose centre is a boss or hub. This boss is fixed to a shaft or spindle which revolves in bearings supported on brackets outside the casing. As the shaft is rotated, the vanes B are compelled to revolve in the direction indicated by the arrow on fig. 7, and their rotation causes the air within the casing to rotate also. Thus a centrifugal action is set up by which there is a diminution of pressure at the centre of the fan and an increase against the outer casing. In consequence air is sucked in, as shown by the arrows on fig. 8, through the openings C, C, at the centre of the casing around the spindle. At the same time the air which has been forced towards the outside of the casing and given a rotary motion is expelled from the opening at D (fig. 8). All blowing fans work on the same principle, though differences in detail are adopted by different makers to meet the variety of conditions under which they are to be used. Where the fan is to be employed for producing a delivery or blast of air the opening D is connected to an air pipe which serves to transmit the current of air, and C is left open to the atmosphere; when, however, the

main object is suction, as in the case where the fan is used for ventilation, the aperture C is connected through a suction pipe with the space to be exhausted, D being usually left open. Günther fans range in size from those which have a diameter of fan disk of 8 in. and make 5500 revolutions per minute, to those which have a diameter of 50 in. and run at from 950 to 1200 revolutions per minute. For exhausting the fans are run less quickly than for blowing, the speed for a fan of 10 in. diameter being 4800 revolutions for blowing and 3300-4000 for exhausting, while the 50-in. fan only runs at 550-700 when exhausting. These two exhausting fans remove 400-500 and 12,000-15,000 cub. ft. of air per minute respectively.

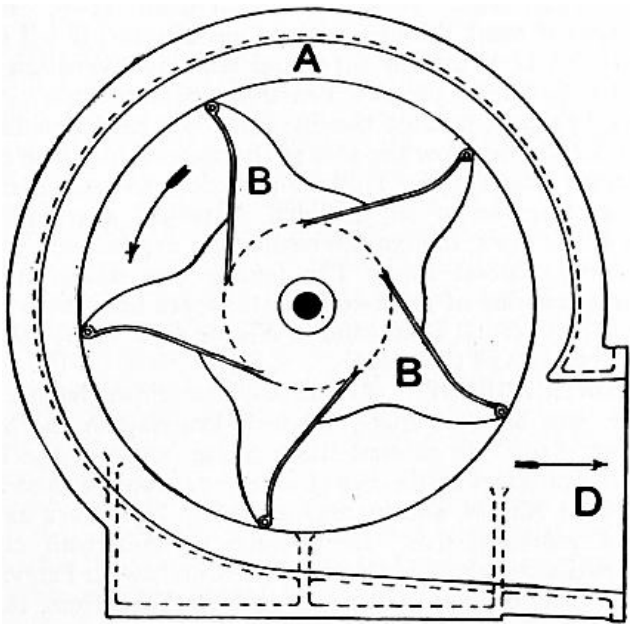


Fig. 7.—Günther's Blowing Fan.

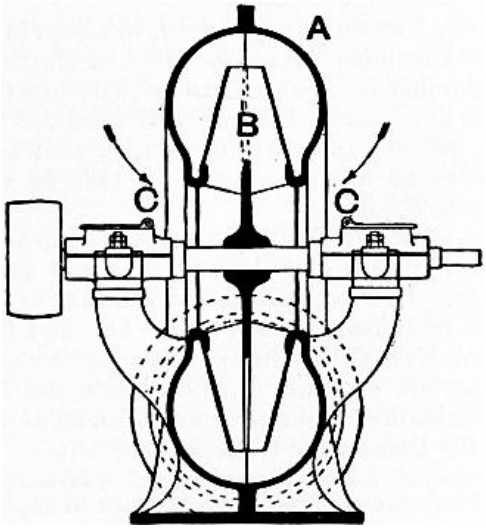


Fig. 8.—Günther's Blowing Fan.

The useful effect of rotary fans, that is to say the proportion of the total power used to drive the fan which is actually utilized in producing the current of air, is very low for the smaller sizes, but may rise to 30-70% in sizes above 5 ft. in diameter. It has its maximum value for any given fan at a certain definite speed. Fans are most suitable in cases where it is required to move or deliver comparatively large volumes of air at pressures which are little above that of the atmosphere. Where the pressure of the current produced exceeds a quarter of a pound on the square inch the waste of work becomes so great as to preclude their use. The fan is not the most economical form of blower, but it is simple and inexpensive, both in first cost and in maintenance. The largest fans are used for ventilating purposes, chiefly in mines, their diameters rising to 40 or even 50 ft. The useful effect of some of these larger fans, as obtained from experiments, is as high as 75%. In the case of the Capell fan, which differs from other forms in that it has two series of blades, inner and outer, separated by a curved blank piece between the inner wings, dipping into the fan inlet, and the outer wings, very high efficiencies have been obtained, being as great as 90% in some cases. Capell fans are used for ventilating mines, buildings, and ships, and for providing induced currents for use in boiler furnaces. In the larger fans the casing, instead of having a curved section, is more often built of sheet steel and is given a rectangular section at right angles to the periphery. The Sirocco blowing fan, of

Messrs Davidson of Belfast, has a larger number of blades, which are relatively narrow as measured radially, but wide axially. It can be made much smaller in diameter than fans of the older designs for the same output of air—a great advantage for use in ships or in buildings where space is limited—and its useful effect is also said to be superior. (See also HYDRAULICS, § 213.)

Helical or screw blowers, often called "air propellers," are used where relatively large volumes of air have to be moved against hardly any perceptible difference in pressure, chiefly for purposes of ventilation and drying. Most often the propeller is used to move air from one room or chamber to another adjoining, and is placed in a light circular iron frame which is fixed in a hole in the wall through which the air is to be passed. The propeller itself consists of a series of vanes or wings arranged helically on a revolving shaft which is fixed in the centre of the opening. The centre line of the shaft is perpendicular to the plane of the opening so that when the vanes revolve the air is drawn towards and through the opening and is propelled away from it as it passes through. The action is similar to that of a steamship screw propeller, air taking the place of water. Such blowers are often driven by small electric motors working directly on the end of the shaft. For moving large volumes of air against little pressure and suction they are very suitable, being simpler than fans, cheaper both in first cost and maintenance for the same volume of air delivered, and less likely to fail or get out of order. To obtain the best effect for the power used a certain maximum speed of rotation must not be exceeded; at higher speeds a great deal of the power is wasted. For example, a propeller with a vane diameter of 2½ ft. was found to deliver a volume of air approximately proportional to the speed up to about 700 revolutions per minute, when 8000 cub. ft. per minute were passed through the machine; but doubling this speed to 1400 revolutions per minute only increased delivery by 1000 cub. ft. to 9000. At the lower of these speeds the horse-power absorbed was 0.6 and at the higher one 1.6.

Other Appliances for producing Currents of Air.—In its primitive form the "trompe" or water-blowing engine adopted in Savoy, Carniola, and some parts of America, consists of a long vertical wooden pipe terminating at its lower end in an air chest. Water is allowed to enter the top of the pipe through a conical plug and, falling down in streamlets, carries with it air which is drawn in through sloping holes near the top of the pipe. In this way a quantity of air is delivered into the chamber, its pressure depending on the height through which the water falls. This simple arrangement has been developed for use in compressing large volumes of air at high pressures to be used for driving compressed air machinery. It is chiefly used in America, and provides a simple and cheap means of obtaining compressed air where there is an abundant natural supply of water falling through a considerable height. The pressure obtained in the air vessel is somewhat less than half a pound per square inch for every foot of fall.

Natural sources of water are also used for compressing and discharging air by letting the water under its natural pressure enter and leave closed vessels, so alternately discharging and drawing in new supplies of air. Here the action is the same as in a blowing engine, the water taking the place of the piston. This method was first thoroughly developed in connexion with the Mt. Cenis tunnel works, and its use has since been extended.

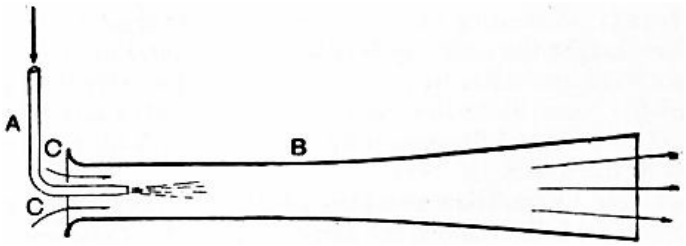


FIG. 9.—Steam-jet Blower.

In the *jet blower* (fig. 9) a jet of steam is used to induce a current of air. Into one end of a trumpet-shaped pipe B projects a steam pipe A. This steam pipe terminates in a small opening, say, one-eighth of an inch, through which the steam is allowed to flow freely. The effect is to cause a movement of the air in the pipe, with the result that a fresh supply is drawn in through the annular opening at C, C, and a continuous stream of air passes along the pipe. This is the form of blower made by Messrs Meldrum Bros. of Manchester, and is largely used for delivering air under the fire bars of boiler and other furnaces. In some cases the jets of steam are allowed to enter a boiler furnace above the fire, thus inducing a current of air which helps the chimney draught and is often used to do away with the production of smoke; they are also used for producing currents of air for purposes other than those of boiler fires, and are very convenient where considerable quantities of air are wanted at very low pressures and where the presence of the moisture of the steam does not matter.

Sometimes jets of high-pressure air flowing at great velocities are used to induce more slowly-moving currents of larger volumes of air at low pressures.

1 The Old English word for this appliance was *blástbaelig*, *i.e.* “blow-bag,” cf. German *Blasebalg*. By the 11th century the first part of the word apparently dropped out of use, and *baelig, bylig*, bag, is found in early glossaries as the equivalent of the Latin *follis. Baelig* became in Middle English *bely*, *i.e.* “belly,” a sack or bag, and so the general word for the lower part of the trunk in man and animals, the stomach, and another form, probably northern in origin, *belu, belw*, became the regular word for the appliance, the plural “bellies” being still used till the 16th century, when “bellows” appears, and the word in the singular ceases to be used. The verb “to bellow” of the roar of a bull, or the low of a cow, is from Old English *bellan*, to bell, roar.

BELLOY, DORMONT DE, the name assumed by Pierre Laurext Buireite (1727-1775), French dramatist, was born at Saint-Flour, in Auvergne, on the 17th of November 1727. He was educated by his uncle, a distinguished advocate in Paris, for the bar. To escape from a profession he disliked he joined a troupe of comedians playing in the courts of the northern sovereigns. In 1758 the performance of his *Titus*, which had already been produced in St Petersburg, was postponed through his uncle’s exertions; and when it did appear, a hostile cabal procured its failure, and it was not until after his guardian’s death that de Belloy returned to Paris with *Zelmire* (1762), a fantastic drama which met with great success. This was followed in 1765 by the patriotic play, *Le Siège de Calais*. The moment was opportune. The humiliations undergone by France in the Seven Years’ War assured a good reception for a play in which the devotion of Frenchmen redeemed disaster. The popular enthusiasm was unaffected by the judgment of calmer critics such as Diderot and Voltaire, who pointed out that the glorification of France was not best effected by a picture of defeat. De Belloy was admitted to the Academy in 1772. His attempt to introduce national subjects into French drama deserves honour, but it must be confessed that his resources proved unequal to the task. The *Siège de Calais* was followed by *Gaston et Bayard* (1771), *Pedro le cruel* (1772) and *Gabrielle de Vergy* (1777). None of these attained the success of the earlier play, and de Belloy’s death, which took place on the 5th of March 1775, is said to have been hastened by disappointment.

BELL or **INCHCAPE ROCK,** a sandstone reef in the North Sea, 11 m. S.E. of Arbroath, belonging to Forfarshire, Scotland. It measures 2000 ft. in length, is under water at high tide, but at low tide is exposed for a few feet, the sea for a distance of 100 yds. around being then only three fathoms deep. Lying in the fairway of vessels making or leaving the Tay and Forth, besides ports farther north, it was a constant menace to navigation. In the great gale of 1799 seventy sail, including the “York,” 74 guns, were wrecked off the reef, and this disaster compelled the authorities to take steps to protect shipping. Next year Robert Stevenson modelled a tower and reported that its erection was feasible, but it was only in 1806 that parliamentary powers were obtained, and operations began in August 1807. Though John Rennie had meanwhile been associated with Stevenson as consulting engineer, the structure in design and details is wholly Stevenson’s work. The tower is 100 ft. high; its diameter at the base is 42 ft., decreasing to 15 ft. at the top. It is solid for 30 ft. at which height the doorway is placed. The interior is divided into six storeys. After five years the building was finished at a cost of £61,300. Since the lighting no wrecks have occurred on the reef. A bust of Stevenson by Samuel Joseph (d. 1850) was placed in the tower.

According to tradition an abbot of Aberbrothock (Arbroath) had ordered a bell—whence the name of the rock—to be fastened to the reef in such a way that it should respond to the movements of the waves, and thus always ring out a warning to mariners. This signal was wantonly destroyed by a pirate, whose ship was afterwards wrecked at this very spot, the rover and his men being drowned. Southey made the incident the subject of his ballad of “The Inchcape Rock.”

BELLUNO (anc. *Bellunum*), a city and episcopal see of Venetia, Italy, the capital of the province of Belluno, N. of Treviso, 54 m. by rail and 28 m. direct. Pop. (1901) town, 6898; commune, 19,050. It is situated in the valley of the Piave, at its confluence with the Ardo, 1285 ft. above sea-level, among the lower Venetian Alps. It was a Roman *municipium*. In the middle ages it went through various vicissitudes; it fell under the dominion of Venice in 1511, and remained Venetian until 1797. Its buildings present Venetian characteristics; it has some good palaces, notably the fine early Lombard Renaissance Palazzo dei Rettori, now the seat of the prefecture. The cathedral, erected after 1517 by Tullio Lombardo, was much damaged by the earthquake of 1873, which destroyed a considerable portion of the town, though the campanile, 217 ft. high, erected in 1732-1743, stood firm. The façade was never finished. Important remains of prehistoric settlements have been found in the vicinity; cf. G. Ghirardini in *Notizie degli Scavi*, 1883, 27, on the necropolis of Caverzano.

(T. As.)

BELMONT, AUGUST (1816-1890), American banker and financier, was born at Alzei, Rhenish Prussia, on the 8th of December 1816. He entered the banking house of the Rothschilds at Frankfort at the age of fourteen, acted as their agent for a time at Naples, and in 1837 settled in New York as their American representative. He became an American citizen, and married a daughter of Commodore Matthew C. Perry. He was the consul-general of Austria at New York from 1844 to 1850, when he resigned in protest against Austria's treatment of Hungary. In 1853-1855 he was chargé d'affaires for the United States at the Hague, and from 1855 to 1858 was the American minister resident there. In 1860 he was a delegate to the Democratic National Convention at Charleston, South Carolina, actively supporting Stephen A. Douglas for the presidential nomination, and afterwards joining those who withdrew to the convention at Baltimore, Maryland, where he was chosen chairman of the National Democratic Committee. He energetically supported the Union cause during the Civil War, and exerted a strong influence in favour of the North upon the merchants and financiers of England and France. He remained at the head of the Democratic organization until 1872. He died in New York on the 24th of November 1890.

His son, PERRY BELMONT (1851-), was born in New York on the 28th of December 1851, graduated at Harvard in 1872 and at the Columbia Law School in 1876, and practised law in New York for five years. He was a Democratic member of Congress from 1881 to 1889, serving in 1885-1887 as chairman of the committee on foreign affairs. In 1889 he was United States minister to Spain.

Another son, AUGUST BELMONT (1853-), was born in New York on the 18th of February 1853 and graduated at Harvard in 1875. He succeeded his father as head of the banking house and was prominent in railway finance, and in financing and building the New York subway. In 1904 he was one of the principal supporters of Alton B. Parker for the Democratic presidential nomination, and served as chairman of the finance committee of the Democratic National Committee.

A volume entitled *Letters, Speeches and Addresses of August Belmont* (the elder) was published at New York in 1890.

BELOIT, a city of Rock county, Wisconsin, U.S.A., situated on the S. boundary of the state, on Rock river, about 91 m. N.W. of Chicago and about 85 m. S.W. of Milwaukee. Pop. (1890) 6315; (1900) 10,436, of whom 1468 were foreign-born; (1910) 15,125. It is served by the Chicago & North-Western, and the Chicago, Milwaukee & St Paul railways, and by an inter-urban electric railway to Janesville, Wisconsin and Rockford, Illinois. Beloit is attractively situated on high bluffs on both sides of the river. The city is the seat of Beloit College, a co-educational, non-sectarian institution, founded under the auspices of the Congregational and Presbyterian churches in 1847, and having, in 1907-1908, 36 instructors and 430 students. It has classical, philosophical (1874) and scientific (1892) courses; women were first admitted in 1895. The Greek department of the college has supervised since 1895 the public presentation nearly every year of an English version of a Greek play. The river furnishes good water-power, and among the manufactures are wood-working machinery, ploughs, steam pumps, windmills, gas engines, paper-mill machinery, cutlery, flour, ladies' shoes, cyclometers and paper; the total value of the

factory product in 1905 was $4,485,224, 60.2% more than in 1900. Beloit, founded by New Englanders in 1838, was chartered as a city in 1856.

BELOMANCY (from βέλος, a dart, and μαντεία, prophecy or divination), a form of divination (*q.v.*) by means of arrows, practised by the Babylonians, Scythians and other ancient peoples. Nebuchadrezzar (Ezek. xxi. 21) resorted to this practice "when he stood in the parting of the way ... to use divination: he made his arrows bright."

BELON, PIERRE (1517-1564), French naturalist, was born about 1517 near Le Mans (Sarthe). He studied medicine at Paris, where he took the degree of doctor, and then became a pupil of the botanist Valerius Cordus (1515-1544) at Wittenberg, with whom he travelled in Germany. On his return to France he was taken under the patronage of Cardinal de Tournon, who furnished him with means for undertaking an extensive scientific journey. Starting in 1546, he travelled through Greece, Asia Minor, Egypt, Arabia and Palestine, and returned in 1549. A full account of his travels, with illustrations, was published in 1553. Belon, who was highly favoured both by Henry II. and by Charles IX., was assassinated at Paris one evening in April 1564, when coming through the Bois de Boulogne. Besides the narrative of his travels he wrote several scientific works of considerable value, particularly the *Histoire naturelle des estranges poissons* (1551), *De aquatilibus* (1553), and *L'Histoire de la nature des oyseaux* (1555), which entitle him to be regarded as one of the first workers in the science of comparative anatomy.

BELPER, a market-town in the mid-parliamentary division of Derbyshire, England, on the river Derwent, 7 m. N. of Derby on the Midland railway. Pop. of urban district (1901), 10,934. The chapel of St John is said to have been founded by Edmund Crouchback, second son of Henry III., about the middle of the 13th century. There is an Anglican convent of the Sisters of St Lawrence, with orphanage and school. For a considerable period one of the most flourishing towns in the county, Belper owed its prosperity to the establishment of cotton works in 1776 by Messrs Strutt, the title of Baron Belper (cr. 1856), in the Strutt family, being taken from the town. Belper also manufactures linen, hosiery, silk and earthenware; and after the decline of nail-making, once an important industry, engineering works and iron foundries were opened. The Derwent provides water-power for the cotton-mills. John of Gaunt is said to have been a great benefactor to Belper, and the foundations of a massive building have been believed to mark the site of his residence. A chapel which he founded is incorporated with a modern schoolhouse. The scenery in the neighbourhood of Belper, especially to the west, is beautiful; but there are collieries, lead-mines and quarries in the vicinity of the town.

Belper (Beaurepaire) until 1846 formed part of the parish of Duffield, granted by William I. to Henry de Ferrers, earl of Derby. There is no distinct mention of Belper till 1296, when the manor was held by Edmund Crouchback, earl of Lancaster, who is said to have enclosed a park and built a hunting seat, to which, from its situation, he gave the name Beaurepaire. The manor thus became parcel of the duchy of Lancaster and is said to have been the residence of John of Gaunt. It afterwards passed with Duffield to the Jodrell family. In a great storm in 1545, 40 houses were destroyed, and the place was scourged by the plague in 1609.

See C. Willott, *Historical Records of Belper.*

BELSHAM, THOMAS (1750-1829), English Unitarian minister, was born at Bedford on the 26th of April 1750. He was educated at the dissenting academy at Daventry, where for seven

years he acted as assistant tutor. After three years spent in a charge at Worcester, he returned as head of the Daventry academy, a post which he continued to hold till 1789, when, having adopted Unitarian principles, he resigned. With Joseph Priestly for colleague, he superintended during its brief existence a new college at Hackney, and was, on Priestly's departure in 1794, also called to the charge of the Gravel Pit congregation. In 1805 he accepted a call to the Essex Street chapel, where in gradually failing health he remained till his death in 1829. Belsham's first work of importance, *Review of Mr Wilberforce's Treatise entitled Practical View* (1798), was written after his conversion to Unitarianism. His most popular work was the *Evidences of Christianity;* the most important was his translation and exposition of the Epistles of St Paul (1822). He was also the author of a work on philosophy, *Elements of the Philosophy of the Human Mind* (1801), which is entirely based on Hartley's psychology. Belsham is one of the most vigorous and able writers of his church, and the *Quarterly Review* and *Gentleman's Magazine* of the early years of the 19th century abound in evidences that his abilities were recognized by his opponents.

BELSHAZZAR (6th century B.C.), Babylonian general. Until the decipherment of the cuneiform inscriptions, he was known only from the book of Daniel (v. 2, 11, 13, 18) and its reproduction in Josephus, where he is represented as the son of Nebuchadrezzar and the last king of Babylon. As his name did not appear in the list of the successors of Nebuchadrezzar handed down by the Greek writers, various suggestions were put forward as to his identity. Niebuhr identified him with Evil-Merodach, Ewald with Nabonidos, others again with Neriglissor. The identification with Nabonidos, the last Babylonian king according to the native historian Berossus, goes back to Josephus. The decipherment of the cuneiform texts put an end to all such speculations. In 1854 Sir H.C. Rawlinson discovered the name of Bel-sarra-uzur—"O Bel, defend the king"—in an inscription belonging to the first year of Nabonidos which had been discovered in the ruins of the temple of the Moon-god at Muqayyar or Ur. Here Nabonidos calls him his "first-born son," and prays that "he may not give way to sin," but that "the fear of the great divinity" of the Moon-god may "dwell in his heart." In the contracts and similar documents there are frequent references to Belshazzar, who is sometimes entitled simply "the son of the king."

He was never king himself, nor was he son of Nebuchadrezzar. Indeed his father Nabonidos (Nabunaid), the son of Nabu-baladsu-iqbi, was not related to the family of Nebuchadrezzar and owed his accession to the throne to a palace revolution. Belshazzar, however, seems to have had more political and military energy than his father, whose tastes were antiquarian and religious; he took command of the army, living with it in the camp near Sippara, and whatever measures of defence were organized against the invasion of Cyrus appear to have been due to him. Hence Jewish tradition substituted him for his less-known father, and rightly concluded that his death marked the fall of the Babylonian monarchy. We learn from the Babylonian Chronicle that from the 7th year of Nabonidos (548 B.C.) onwards "the son of the king" was with the army in Akkad, that is in the close neighbourhood of Sippara. This, as Dr Th. G. Pinches has pointed out, doubtless accounts for the numerous gifts bestowed by him on the temple of the Sun-god at Sippara. So late as the 5th of Ab in the 17th year of Nabonidos—that is to say, about three weeks after the forces of Cyrus had entered Babylonia and only three months before his death—we find him paying 47 shekels of silver to the temple on behalf of his sister, this being the amount of "tithe" due from her at the time. At an earlier period there is frequent mention of his trading transactions which were carried out through his house-steward or agent. Thus in 545 B.C. he lent 20 manehs of silver to a private individual, a Persian by race, on the security of the property of the latter, and a year later his house-steward negotiated a loan of 16 shekels, taking as security the produce of a field of corn.

The legends of Belshazzar's feast and of the siege and capture of Babylon by Cyrus which have come down to us from the book of Daniel and the *Cyropaedia* of Xenophon have been shown by the contemporaneous inscriptions to have been a projection backwards of the re-conquest of the city by Darius Hystaspis. The actual facts were very different. Cyrus had invaded Babylonia from two directions, he himself marching towards the confluence of the Tigris and Diyaleh, while Gobryas, the satrap of Kurdistan, led another body of troops along the course of the Adhem. The portion of the Babylonian army to which the protection of the eastern frontier had been entrusted was defeated at Opis on the banks of the Nizallat, and the invaders poured across the Tigris into Babylonia. On the 14th of Tammuz (June), 538 B.C., Nabonidos fled from Sippara, where he had taken his son's place in the camp, and the city surrendered at once to the enemy. Meanwhile Gobryas had been despatched to Babylon, which opened its gates to the invader on the 16th of the month "without combat or battle," and a few days later Nabonidos was dragged

from his hiding-place and made a prisoner. According to Berossus he was subsequently appointed governor of Karmania by his conqueror. Belshazzar, however, still held out, and it was probably on this account that Cyrus himself did not arrive at Babylon until nearly four months later, on the 3rd of Marchesvan. On the 11th of that month Gobryas was despatched to put an end to the last semblance of resistance in the country "and the son (?) of the king died." In accordance with the conciliatory policy of Cyrus, a general mourning was proclaimed on account of his death, and this lasted for six days, from the 27th of Adar to the 3rd of Nisan. Unfortunately the character representing the word "son" is indistinct on the tablet which contains the annals of Nabonidos, so that the reading is not absolutely certain. The only other reading possible, however, is "and the king died," and this reading is excluded partly by the fact that Nabonidos afterwards became a Persian satrap, partly by the silence which would otherwise be maintained by the "Annals" in regard to the fate of Belshazzar. Considering how important Belshazzar was politically, and what a prominent place he occupied in the history of the period, such a silence would be hard to explain. His death subsequently to the surrender of Babylon and the capture of Nabonidos, and with it the last native effort to resist the invader, would account for the position he assumed in later tradition and the substitution of his name for that of the actual king.

See Th. G. Pinches, *P.S.B.A.*, May 1884; H. Winckler, *Zetischrift für Assyriologie*, ii. 2, 3 (1887); *Records of the Past*, new series, i. pp. 22-31 (1888); A.H. Sayce, *The Higher Criticism*, pp. 497-537 (1893).

(A. H. S.)

BELT, THOMAS (1832-1878), English geologist and naturalist, was born at Newcastle-on-Tyne in 1832, and educated in that city. As a youth he became actively interested in natural history through the Tyneside Naturalists' Field Club. In 1852 he went to Australia and for about eight years worked at the gold-diggings, where he acquired a practical knowledge of ore-deposits. In 1860 he proceeded to Nova Scotia to take charge of some gold-mines, and there met with a serious injury, which led to his return to England. In 1861 he issued a separate work entitled *Mineral Veins: an Enquiry into their Origin, founded on a Study of the Auriferous Quartz Veins of Australia*. Later on he was engaged for about three years at Dolgelly, another though small gold-mining region, and here he carefully investigated the rocks and fossils of the Lingula Flags, his observations being published in an important and now classic memoir in the *Geological Magazine* for 1867. In the following year he was appointed to take charge of some mines in Nicaragua, where he passed four active and adventurous years—the results being given in his *Naturalist in Nicaragua* (1874), a work of high merit. In this volume the author expressed his views on the former presence of glaciers in that country. In subsequent papers he dealt boldly and suggestively with the phenomena of the Glacial period in Britain and in various parts of the world. After many further expeditions to Russia, Siberia and Colorado, he died at Denver on the 21st of September 1878.

BELT (a word common to Teutonic languages, the Old Ger. form being *balz*, from which the Lat. *balteus* probably derived), a flat strap of leather or other material used as a girdle (*q.v.*), especially the *cinctura gladii* or sword-belt, the chief "ornament of investiture" of an earl or knight; in machinery, a flexible strap passing round from one drum, pulley or wheel to another, for the purpose of power-transmission (*q.v.*). The word is applied to any broad stripe, to the belts of the planet Jupiter, to the armour-belt at the water-line of a warship, or to a tract of country, narrow in proportion to its length, with special distinguishing characteristics, such as the earthquake-belt across a continent.

BELTANE, Beltene, Beltine, or Beal-Tene (Scottish Gaelic, *bealltain*), the Celtic name for May-day, on which also was held a festival called by the same name, originally common to all the Celtic peoples, of which traces still linger in Ireland, the Highlands of Scotland and Brittany.

This festival, the most important ceremony of which in later centuries was the lighting of the bonfires known as “beltane fires,” is believed to represent the Druidical worship of the sun-god. The fuel was piled on a hill-top, and at the fire the beltane cake was cooked. This was divided into pieces corresponding to the number of those present, and one piece was blackened with charcoal. For these pieces lots were drawn, and he who had the misfortune to get the black bit became *cailleach bealtine* (the beltane carline)—a term of great reproach. He was pelted with egg-shells, and afterwards for some weeks was spoken of as dead. In the north-east of Scotland beltane fires were still kindled in the latter half of the 18th century. There were many superstitions connecting them with the belief in witchcraft. According to Cormac, archbishop of Cashel about the year 908, who furnishes in his glossary the earliest notice of beltane, it was customary to light two fires close together, and between these both men and cattle were driven, under the belief that health was thereby promoted and disease warded off. (See *Transactions of the Irish Academy*, xiv. pp. 100, 122, 123.) The Highlanders have a proverb, “he is between two beltane fires.” The Strathspey Highlanders used to make a hoop of rowan wood through which on beltane day they drove the sheep and lambs both at dawn and sunset.

As to the derivation of the word beltane there is considerable obscurity. Following Cormac, it has been usual to regard it as representing a combination of the name of the god Bel or Baal or Bil with the Celtic *teine*, fire. And on this etymology theories have been erected of the connexion of the Semitic Baal with Celtic mythology, and the identification of the beltane fires with the worship of this deity. This etymology is now repudiated by scientific philologists, and the *New English Dictionary* accepts Dr Whitley Stokes’s view that beltane in its Gaelic form can have no connexion with *teine*, fire. Beltane, as the 1st of May, was in ancient Scotland one of the four quarter days, the others being Hallowmas, Candlemas, and Lammas.

For a full description of the beltane celebration in the Highlands of Scotland during the 18th century, see John Ramsay, *Scotland and Scotsmen in the 18th Century*, from MSS. edited by A. Allardyce (1888); and see further J. Robertson in Sinclair’s *Statistical Account of Scotland*, xi. 620; Thomas Pennant, *Tour in Scotland* (1769-1770); W. Gregor, “Notes on Beltane Cakes,” *Folklore*, vi. (1895), p. 2; and “Notes on the Folklore of the North-East of Scotland,” p. 167 (*Folklore Soc*. vii. 1881); A. Bertrand, *La Religion des Gaulois* (1897); Jamieson, *Scottish Dictionary* (1808). Cormac’s *Glossary* has been edited by O’Donovan and Stokes (1862).

BELUGA (*Delphinapterus leucas*), also called the “white whale,” a cetacean of the family *Delphinidae*, characterized by its rounded head and uniformly light colour. A native of the Arctic seas, it extends in the western Atlantic as far south as the river St Lawrence, which it ascends for a considerable distance. In colour it is almost pure white; the maximum length is about twelve feet; and the back-fin is replaced by a low ridge. Examples have been taken on the British coasts; and individuals have been kept for some time in captivity in America and in London. See Cetacea.

BELVEDERE, or Belvidere (Ital. for “fair-view”), an architectural structure built in the upper part of a building or in any elevated position so as to command a fine view. The belvedere assumes various forms, such as an angle turret, a cupola, a loggia or open gallery. The name is also applied to the whole building, as the Belvedere gallery in the Vatican at Rome. For Apollo Belvidere see Greek Art, Plate II. fig. 55.

BELVIDERE, a city and the county-seat of Boone county, Illinois, U.S.A., in the N. part of the state, on the Kishwaukee river, about 78 m. N.W. of Chicago. Pop. (1890) 3867; (1900) 6937 (1018 foreign-born); (1910) 7253. It is served by the Chicago & North-Western railway, and by an extensive inter-urban electric system. Among its manufactures are sewing machines, boilers, automobiles, bicycles, roller-skates, pianos, gloves and mittens, corsets, flour and dairy products, Borden’s condensed milk factory being located there. Belvidere was settled in 1836,

was incorporated in 1852 and was re-incorporated in 1881.

BELZONI, GIOVANNI BATTISTA (1778-1823), Italian explorer of Egyptian antiquities, was born at Padua in 1778. His family was from Rome, and in that city he spent his youth. He intended taking monastic orders, but in 1798 the occupation of the city by the French troops drove him from Rome and changed his proposed career. He went back to Padua, where he studied hydraulics, removed in 1800 to Holland, and in 1803 went to England, where he married an Englishwoman. He was 6 ft. 7 in. in height, broad in proportion, and his wife was of equally generous build. They were for some time compelled to find subsistence by exhibitions of feats of strength and agility at fairs and on the streets of London. Through the kindness of Henry Salt, the traveller and antiquarian, who was ever afterwards his patron, he was engaged at Astley's amphitheatre, and his circumstances soon began to improve. In 1812 he left England, and after travelling in Spain and Portugal reached Egypt in 1815, where Salt was then British consul-general. Belzoni was desirous of laying before Mehemet Ali a hydraulic machine of his own invention for raising the waters of the Nile. Though the experiment with this engine was successful, the design was abandoned by the pasha, and Belzoni resolved to continue his travels. On the recommendation of the orientalist, J.L. Burckhardt, he was sent at Salt's charges to Thebes, whence he removed with great skill the colossal bust of Rameses II., commonly called Young Memnon, which he shipped for England, where it is in the British Museum. He also pushed his investigations into the great temple of Edfu, visited Elephantine and Philae, cleared the great temple at Abu Simbel of sand (1817), made excavations at Karnak, and opened up the sepulchre of Seti I. ("Belzoni's Tomb"). He was the first to penetrate into the second pyramid of Giza, and the first European in modern times to visit the oasis of Baharia, which he supposed to be that of Siwa. He also identified the ruins of Berenice on the Red Sea. In 1819 he returned to England, and published in the following year an account of his travels and discoveries entitled *Narrative of the Operations and Recent Discoveries within the Pyramids, Temples, Tombs and Excavations in Egypt and Nubia, &c.* He also exhibited during 1820-1821 facsimiles of the tomb of Seti I. The exhibition was held at the Egyptian Hall, Piccadilly, London. In 1822 Belzoni showed his model in Paris. In 1823 he set out for West Africa, intending to penetrate to Timbuktu. Having been refused permission to pass through Morocco, he chose the Guinea Coast route. He reached Benin, but was seized with dysentery at a village called Gwato, and died there on the 3rd of December 1823. In 1829 his widow published his drawings of the royal tombs at Thebes.

BEM, JOSEF (1795-1850), Polish soldier, was born at Tarnow in Galicia, and was educated at the military school at Warsaw, where he especially distinguished himself in mathematics. Joining a Polish artillery regiment in the French service, he took part in the Russian campaign of 1812, and subsequently so brilliantly distinguished himself in the defence of Danzig (January-November 1813) that he won the cross of the Legion of Honour. On returning to Poland he was for a time in the Russian service, but lost his post, and his liberty as well for some time, for his outspokenness. In 1825 he migrated to Lemberg, where he taught the physical sciences. He was about to write a treatise on the steam-engine, when the Polish War of Independence summoned him back to Warsaw in November 1830. It was his skill as an artillery officer which won for the Polish general Skrynecki the battle of Igany (March 8, 1831), and he distinguished himself at the indecisive battle of Ostrolenká (May 26). He took part in the desperate defence of Warsaw against Prince Paskievich (September 6-7, 1831). Then Bem escaped to Paris, where he supported himself by teaching mathematics. In 1833 he went to Portugal to assist the liberal Dom Pedro against the reactionary Dom Miguel, but abandoned the idea when it was found that a Polish legion could not be formed. A wider field for his activity presented itself in 1848. First he attempted to hold Vienna against the imperial troops, and, after the capitulation, hastened to Pressburg to offer his services to Kossuth, first defending himself, in a long memorial, from the accusations of treachery to the Polish cause and of aristocratic tendencies which the more fanatical section of the Polish emigrant Radicals repeatedly brought against him. He was entrusted with the defence of Transylvania at the end of 1848, and in 1849, as the general of the Szeklers (*q.v.*), he performed miracles with his little army, notably at the bridge of Piski (February 9), where, after fighting all day, he drove back an immense force of pursuers. After recovering Transylvania he was sent to drive the Austrian general Puchner out of the Banat of

Temesvár. Bem defeated him at Orsova (May 16), but the Russian invasion recalled him to Transylvania. From the 12th to 22nd of July he was fighting continually, but finally, on the 31st of July, his army was annihilated by overwhelming numbers near Segesvár (Schässburg), Bem only escaping by feigning death. Yet he fought a fresh action at Gross-Scheueren on the 6th of August, and contrived to bring off the fragments of his host to Temesvár, to aid the hardly-pressed Dembinski. Bem was in command and was seriously wounded in the last pitched battle of the war, fought there on the 9th of August. On the collapse of the rebellion he fled to Turkey, adopted Mahommedanism, and under the name of Murad Pasha served as governor of Aleppo, at which place, at the risk of his life, he saved the Christian population from being massacred by the Moslems. Here he died on the 16th of September 1850. The tiny, withered, sickly body of Bem was animated by an heroic temper. Few men have been so courageous, and his influence was magnetic. Even the rough Szeklers, though they did not understand the language of their "little father," regarded him with superstitious reverence. A statue to his honour has been erected at Maros-Vásárhely, but he lives still more enduringly in the immortal verses of the patriot poet Sandor Petöfi, who fell in the fatal action of the 31st of July at Segesvár. As a soldier Bem was remarkable for his excellent handling of artillery and the rapidity of his marches.

See Johann Czetz, *Memoiren über Bems Feldzug* (Hamburg, 1850); Kálmán Deresényi, *General Bem's Winter Campaign in Transylvania, 1848-1849* (Hung.), (Budapest, 1896).

(R. N. B.)

BEMA (βῆμα), in ecclesiastical architecture, the semicircular recess or exedra, in the basilica, where the judges sat, and where in after times the altar was placed. It generally is roofed with a half dome. The seats, θρόνοι, of the priests were against the wall, looking into the body of the church, that of the bishop being in the centre. The bema is generally ascended by steps, and railed off. In Greece the bema was the general name of any raised platform. Thus the word was applied to the tribunal from which orators addressed assemblies of the citizens at Athens. That in the Pnyx, where the Ecclesia often met, was a stone platform from 10 to 11 ft. in height. Again in the Athenian law court counsel addressed the court from such a platform: it is not known whether each had a separate bema or whether there was only one to which each counsel (? and the witnesses) in turn ascended (cf. W. Wyse in his edition of Isaeus, p. 440). Another bema was the platform on which stood the urns for the reception of the bronze disks (ψῆφοι) by means of which at the end of the 4th century the judges recorded their decisions.

BEMBERG, HERMAN (1861-), French musical composer, was born of French parents at Buenos Aires, and studied at the Paris Conservatoire, under Massenet, whose influence, with that of Gounod, is strongly marked in his music. As a composer he is known by numerous songs and pieces for the piano, as well as by his cantata *La Mort de Jeanne d'Arc* (1886), comic opera *Le Baiser de Suzon* (1888) and grand opera *Elaine* (produced at Covent Garden in 1892). Among his songs the dramatic recitative *Ballade du Désespéré* is well known.

BEMBO, PIETRO (1470-1547), Italian cardinal and scholar, was born at Venice on the 20th of May 1470. While still a boy he accompanied his father to Florence, and there acquired a love for that Tuscan form of speech which he afterwards cultivated in preference to the dialect of his native city. Having completed his studies, which included two years' devotion to Greek under Lascaris at Messina, he chose the ecclesiastical profession. After a considerable time spent in various cities and courts of Italy, where his learning already made him welcome, he accompanied Giulio de' Medici to Rome, where he was soon after appointed secretary to Leo X. On the pontiff's death he retired, with impaired health, to Padua, and there lived for a number of years engaged in literary labours and amusements. In 1529 he accepted the office of historiographer to his native city, and shortly afterwards was appointed librarian of St Mark's. The offer of a cardinal's hat by Pope Paul III. took him in 1539 again to Rome, where he renounced the study of classical literature and devoted himself to theology and classical history,

receiving before long the reward of his conversion in the shape of the bishoprics of Gubbio and Bergamo. He died on the 18th of January 1547. Bembo, as a writer, is the *beau ideal* of a purist. The exact imitation of the style of the genuine classics was the highest perfection at which he aimed. This at once prevented the graces of spontaneity and secured the beauties of artistic elaboration. One cannot fail to be struck with the Ciceronian cadence that guides the movement even of his Italian writings.

His works (collected edition, Venice, 1729) include a *History of Venice* (1551) from 1487 to 1513, dialogues, poems, and what we would now call essays. Perhaps the most famous are a little treatise on Italian prose, and a dialogue entitled *Gli Asolani*, in which Platonic affection is explained and recommended in a rather long-winded fashion, to the amusement of the reader who remembers the relations of the beautiful Morosina with the author. The edition of Petrarch's *Italian Poems*, published by Aldus in 1501, and the *Terzerime*, which issued from the same press in 1502, were edited by Bembo, who was on intimate terms with the great typographer. See *Opere de P. Bembo* (Venice, 1729); Casa, *Vita di Bembo*, in 2nd vol. of his works.

BEMBRIDGE BEDS, in geology, strata forming part of the fluvio-marine series of deposits of Oligocene age, in the Isle of Wight and Hampshire, England. They lie between the Hamstead beds above and the Osborne beds below. The Bembridge marls, freshwater, estuarine and marine clays and marls (70-120 ft.) rest upon the Bembridge limestone, a freshwater pool deposit (15-25 ft.), with large land snails (*Amphidromus* and *Helices*), freshwater snails (*Planorbis, Limnaea*), and the fruits of *Chara*. The marls contain, besides the freshwater *Limnaea* and *Unio*, such forms as *Meretrix, Ostrea* and *Melanopsis*. A thin calcareous sandy layer in this division has yielded the remains of many insects and fossil leaves.

See "Geology of the Isle of Wight," *Mem. Geol. Survey*, 2nd ed. 1889.

BEMIS, EDWARD WEBSTER (1860-), American economist, was born at Springfield, Massachusetts, on the 7th of April 1860. He was educated at Amherst and Johns Hopkins University. He held the professorship of history and political economy in Vanderbilt University from 1887 to 1892, was associate professor of political economy in the university of Chicago from 1892 to 1895, and assistant statistician to the Illinois bureau of labour statistics, 1896. In 1901 he became superintendent of the Cleveland water works. He wrote much on municipal government, his more important works being some chapters in *History of Co-operation in the United States* (1888); *Municipal Ownership of Gas in the U.S.* (1891); *Municipal Monopolies* (1899).

BÉMONT, CHARLES (1848-), French scholar, was born at Paris on the 16th of November 1848. In 1884 he graduated with two theses, *Simon de Montfort* and *La Condamnation de Jean Sansterre* (*Revue historique*, 1886). His *Les Chartes des libertés anglaises* (1892) has an introduction upon the history of Magna Carta, &c., and his *History of Europe from 395 to 1270*, in collaboration with G. Monod, was translated into English. He was also responsible for the continuation of the *Gascon Rolls*, the publication of which had been begun by Francisque Michel in 1885 (supplement to vol. i., 1896; vol. ii., for the years 1273-1290, 1900; vol. iii., for the years 1290-1307, 1906). He received the honorary degree of Litt. Doc. at Oxford in 1909.

BEN (from Old Eng. *bennan*, within), in the Scottish phrase "a but and a ben," the inner room of a house in which there is only one outer door, so that the entrance to the inner room is

through the outer, the but (Old Eng. *butan*, without). Hence “a but and a ben” meant originally a living room and sleeping room, and so a dwelling or a cottage.

BENARES, the Holy City of the Hindus, which gives its name to a district and division in the United Provinces of India. It is one of the most ancient cities in the world. The derivation of its ancient name *Varanasi* is not known, nor is that of its alternative name *Kasi*, which is still in common use among Hindus, and is popularly explained to mean “bright.” The original site of the city is supposed to have been at Sarnath, 3½ m. north of the present city, where ruins of brick and stone buildings, with three lofty *stupas* still standing, cover an area about half a mile long by a quarter broad. Sakya Muni, the Buddha, came here from Gaya in the 6th century B.C. (from which time some of the remains may date), in order to establish his religion, which shows that the place was even then a great centre. Hsüan Tsang, the celebrated Chinese pilgrim, visited Benares in the 7th century A.D. and described it as containing 30 Buddhist monasteries, with about 3000 monks, and about 100 temples of Hindu gods. Hinduism has now supplanted Buddhism, and the Brahman fills the place of the monk. The modern temples number upwards of 1500. Even after the lapse of so great a time the city is still in its glory, and as seen from the river it presents a scene of great picturesqueness and grandeur. The Ganges here forms a fine sweep of about 4 m. in length, the city being situated on the outside of the curve, on the northern bank of the river, which is higher than the other. Being thus elevated, and extending along the river for some 4 m., the city forms a magnificent panorama of buildings in many varieties of oriental architecture. The minarets of the mosque of Aurangzeb rise above all. The bank of the river is entirely lined with stone, and there are many very fine ghats or landing-places built by pious devotees, and highly ornamented. These are generally crowded with bathers and worshippers, who come to wash away their sins in the sacred river Ganges. Near the Manikarnika ghat is the well held to have been dug by Vishnu and filled with his sweat; great numbers of pilgrims bathe in its venerated water. Shrines and temples line the bank of the river. But in spite of its fine appearance from the river, the architecture of Benares is not distinguished, nor are its buildings of high antiquity. Among the most conspicuous of these are the mosque of Aurangzeb, built as an intentional insult in the middle of the Hindu quarter; the Bisheshwar or Golden Temple, important less through architectural beauty than through its rank as the holiest spot in the holy city; and the Durga temple, which, like most of the other principal temples, is a Mahratta building of the 17th century. The temples are mostly small and are placed in the angles of the streets, under the shadow of the lofty houses. Their forms are not ungraceful, and many of them are covered over with beautiful and elaborate carvings of flowers, animals and palm branches. The observatory of Raja Jai Singh is a notable building of the year 1693. The internal streets of the town are so winding and narrow that there is not room for a carriage to pass, and it is difficult to penetrate them even on horseback. The level of the roadway is considerably lower than the ground-floors of the houses, which have generally arched rooms in front, with little shops behind them; and above these they are richly embellished with verandahs, galleries, projecting oriel windows, and very broad overhanging eaves supported by carved brackets. The houses are built of *chanar* stone, and are lofty, none being less than two storeys high, most of them three, and several of five or six storeys. The Hindus are fond of painting the outside of their houses a deep red colour, and of covering the most conspicuous parts with pictures of flowers, men, women, bulls, elephants and gods and goddesses in all the many forms known in Hindu mythology.

Benares is bounded by a road which, though 50 m. in circuit, is never distant from the city more than five kos (7½ m.); hence its name, Panch-kos road. All who die within this boundary, be they Brahman or low caste, Moslem or Christian, are sure of admittance into Siva’s heaven. To tread the Panch-kos road is one of the great ambitions of a Hindu’s life. Even if he be an inhabitant of the sacred city he must traverse it once in the year to free himself from the impurities and sins contracted within the holy precincts. Thousands from all parts of India make the pilgrimage every year. Benares, having from time immemorial been a holy city, contains a vast number of Brahmans, who either subsist by charitable contributions, or are supported by endowments in the numerous religious institutions of the city. Hindu religious mendicants, with every conceivable bodily deformity, line the principal streets on both sides. Some have their legs or arms distorted by long continuance in one position; others have kept their hands clenched until the finger nails have pierced entirely through their hands. But besides an immense resort to Benares of poor pilgrims from every part of India, as well as from Tibet and Burma, numbers of rich Hindus in the decline of life go there for religious salvation. These devotees lavish large sums in indiscriminate charity, and it is the hope of sharing in such pious distributions that brings together the concourse of religious mendicants from all quarters of the country.

The city of Benares had a population in 1901 of 209,331. The European quarter lies to the west of the native town, on both sides of the river Barna. Here is the cantonment of Sikraul, no longer of much military importance, and the suburb of Sigra, the seat of the chief missionary institutions. The principal modern buildings are the Mint, the Prince of Wales' hospital (commemorating the visit of King Edward VII. to the city in 1876) and the town hall. The Benares college, including a first-grade and a Sanskrit college, was opened in 1791, but its fine buildings date from 1852. The Central Hindu College was opened in 1898. Benares conducts a flourishing trade by rail and river with the surrounding country. It is the junction between the Oudh & Rohilkhand and East Indian railways, the Ganges being crossed by a steel girder bridge of seven spans, each 350 ft. long. The chief manufactures are silk brocades, gold and silver thread, gold filigree work, German-silver work, embossed brass vessels and lacquered toys; but the brasswork for which Benares used to be famous has greatly degenerated.

The Hindu kingdom of Benares is said to have been founded by one Kas Raja about 1200 B.C. Subsequently it became part of the kingdom of Kanauj, which in A.D. 1193 was conquered by Mahommed of Ghor. On the downfall of the Pathan dynasty of Delhi, about A.D. 1599, it was incorporated with the Mogul empire. On the dismemberment of the Delhi empire, it was seized by Safdar Jang, the nawab wazir of Oudh, by whose grandson it was ceded to the East India Company by the treaty of 1775. The subsequent history of Benares contains two important events, the rebellion of Chait Singh in 1781, occasioned by the demands of Warren Hastings for money and troops to carry on the Mahratta War, and the Mutiny of 1857, when the energy and coolness of the European officials, chiefly of General Neill, carried the district successfully through the storm.

The District of Benares extends over both sides of the Ganges and has an area of 1008 sq. m. The surface of the country is remarkably level, with numerous deep ravines in the calcareous conglomerate. The soil is a clayey or a sandy loam, and very fertile except in the Usar tracts, where there is a saline efflorescence. The principal rivers are the Ganges, Karamnasa, Gumti and Barna. The principal crops are barley, rice, wheat, other food-grains, pulse, sugar-cane and opium. The main line of the East Indian railway runs through the southern portion of the district, with a branch to Benares city; the Oudh & Rohilkhand railway through the northern portion, starting from the city; and a branch of the Bengal & North-Western railway also terminates at Benares. The climate of Benares is cool in winter but very warm in the hot season. The population in 1901 was 882,084, showing a decrease of 4% in the decade due to the effects of famine.

The Division of Benares has an area of 10,431 sq. m., and comprises the districts of Benares, Mirzapur, Jaunpur, Ghazipur and Ballia. In 1901 the population was 5,069,020, showing a decrease of 6% in the decade.

See E.B. Havell, *Benares* (1906); M.A. Sherring, *The Sacred City of the Hindus* (1868).

BENBOW, JOHN (1653-1702), English admiral, the son of a tanner in Shrewsbury, was born in 1653. He went to sea when very young, and served in the navy as master's mate and master, from 1678 to 1681. When trading to the Mediterranean in 1686 in a ship of his own he beat off a Salli pirate. On the accession of William III. he re-entered the navy as a lieutenant and was rapidly promoted. It is probable that he enjoyed the protection of Arthur Herbert, earl of Torrington, under whom he had already served in the Mediterranean. After taking part in the bombardment of St Malo (1693), and superintending the blockade of Dunkirk (1696), he sailed in 1698 for the West Indies, where he compelled the Spaniards to restore two vessels belonging to the Scottish colonists at Darien (see Paterson, William) which they had seized. On his return he was appointed vice-admiral, and was frequently consulted by the king. In 1701 he was sent again to the West Indies as commander-in-chief. On the 19th of August 1702, when cruising with a squadron of seven ships, he sighted, and chased, four French vessels commanded by M. du Casse near Santa Marta. The engagement is the most disgraceful episode in English naval history. Benbow's captains were mutinous, and he was left unsupported in his flagship the "Breda." His right leg was shattered by a chain-shot, despite which he remained on the quarter-deck till morning, when the flagrant disobedience of the captains under him, and the disabled condition of his ship, forced him reluctantly to abandon the chase. After his return to Jamaica, where his subordinates were tried by court-martial, he died of his wounds on the 4th of November 1702. A great deal of legendary matter has collected round his name, and his life is really obscure.

See Yonge's *Hist. of the British Navy*, vol. i.; Campbell's *British Admirals*, vol. iii.; also Owen

and Blakeway's *History of Shrewsbury.*

BENCE-JONES, HENRY (1814-1873), English physician and chemist, was born at Thorington Hall, Suffolk, in 1814, the son of an officer in the dragoon guards. He was educated at Harrow and Trinity College, Cambridge. Subsequently he studied medicine at St George's hospital, and chemistry at University College, London. In 1841 he went to Giessen in Germany to work at chemistry with Liebig. Besides becoming a fellow, and afterwards senior censor, of the Royal College of Physicians, and a fellow of the Royal Society, he held the post of secretary to the Royal Institution for many years. In 1846 he was elected physician to St George's hospital. He died in London on the 20th of April 1873. Dr Bence-Jones was a recognized authority on diseases of the stomach and kidneys. He wrote, in addition to several scientific books and a number of papers in scientific periodicals, *The Life and Letters of Faraday* (1870).

BENCH (an O. E. and Eng. form of a word common to Teutonic languages, cf. Ger. *Bank*, Dan. *baenk* and the Eng. doublet "bank"), a long narrow wooden seat for several persons, with or without a back. While the chair was yet a seat of state or dignity the bench was ordinarily used by the commonalty. It is still extensively employed for other than domestic purposes, as in schools, churches and places of amusement. Bench or Banc, in law, originally was the seat occupied by judges in court; hence the term is used of a tribunal of justice itself, as the King's Bench, the Common Bench, and is now applied to judges or magistrates collectively as the "judicial bench," "bench of magistrates." The word is also applied to any seat where a number of people sit in an official capacity, or as equivalent to the dignity itself, as "the civic bench," the "bench of aldermen," the "episcopal bench," the "front bench," *i.e.* that reserved for the leaders of either party in the British House of Commons. King's Bench (*q.v.*) was one of the three superior courts of common law at Westminster, the others being the common pleas and the exchequer. Under the Judicature Act 1873, the court of king's bench became the king's bench division of the High Court of Justice. The court of common pleas was sometimes called the common bench.

Sittings in bane were formerly the sittings of one of the superior courts of Westminster for the hearing of motions, special cases, &c., as opposed to the *nisi prius* sittings for trial of facts, where usually only a single judge presided. By the Judicature Act 1873 the business of courts sitting in bane was transferred to divisional courts.

BENCH-MARK, a surveyor's mark cut in stone or some durable material, to indicate a point in a line of levels for the determination of altitudes over a given district. The name is taken from the "angle-iron" which is inserted in the horizontal incision as a "bench" or support for the levelling staff. The mark of the "broad-arrow" is generally incised with the bench-mark so that the horizontal bar passes through its apex.

BENCH TABLE (Fr. *banc*; Ital. *sedile*; Ger. *Bank*), the stone seat which runs round the walls of large churches, and sometimes round the piers; it very generally is placed in the porches.

BEND, (1) (From Old Eng. *bendan*), a bending or curvature, as in “the bend of a river,” or technically the ribs or “wales” of a ship. (2) (From Old Eng. *bindan*, to bind), a nautical term for a knot, the “cable bend,” the “fisherman’s bend.” (3) (From the Old Fr. *bende*, a ribbon), a term of heraldry, signifying a diagonal band or stripe across a shield from the dexter chief to the sinister base; also in tanning, the half of a hide from which the thinner parts have been trimmed away, “bend-leather” being the thickest and best sole-leather.

BENDA, the name of a family of German musicians, of whom the most important is Georg (d. 1795), who was a pupil of his elder brother Franz (1709-1786), *Concertmeister* in Berlin. Georg Benda was a famous clavier player and oboist, but his chief interest for modern musical history lies in his melodramas. Being a far more solid musician than Rousseau he earns the title of the musical pioneer of that art-form (*i.e.* the accompaniment of spoken words by illustrative music) in a sense which cannot be claimed for Rousseau’s earlier *Pygmalion*. Benda’s first melodrama, *Ariadne auf Naxos*, was written in 1774 after his return from a visit to Italy. He was a voluminous composer, whose works (instrumental and dramatic) were enthusiastically taken up by the aristocracy in the time of Mozart. Mozart’s imagination was much fired by Benda’s new vehicle for dramatic expression, and in 1778 he wrote to his father with the greatest enthusiasm about a project for composing a duodrama on the model of Benda’s *Ariadne auf Naxos* and *Medea*, both of which he considered excellent and always carried about with him. He concluded at the time that that was the way the problems of operatic recitative should be solved, or rather shelved, but the only specimen he has himself produced is the wonderful melodrama in his unfinished operetta, *Zaide*, written in 1780.

BENDER (more correctly Bendery), a town of Russia, in the government of Bessarabia, on the right bank of the Dniester, 37 m. by rail S.E. of Kishinev. It possesses a tobacco factory, candle-works and brick-kilns, and is an important river port, vessels discharging here their cargoes of corn, wine, wool, cattle, flour and tallow, to be conveyed by land to Odessa and to Yassy in Rumania. Timber also is floated down the Dniester. The citadel was dismantled in 1897. The town had in 1867 a population of 24,443, and in 1900 of 33,741, the greater proportion being Jews. As early as the 12th century the Genoese had a settlement on the site of Bender. In 1709 Charles XII., after the defeat of Poltava, collected his forces here in a camp which they called New Stockholm, and continued there till 1713. Bender was taken by the Russians in 1770, in 1789 and in 1806, but it was not held permanently by Russia till 1812.

BENDIGO (formerly Sandhurst), a city of Bendigo county, Victoria, Australia, 101 m. by rail N.N.W. of Melbourne. Pop. (1901) 31,020. It is the centre of a large gold-field consisting of quartz ranges, with some alluvial deposits, and many of the mines are deep-level workings. The discovery of alluvial gold in 1851 brought many immigrants to the district; but the opening up of the quartz reefs in 1872 was the principal factor in the importance of Bendigo. It became a municipality in 1855 and a city in 1871. It is the seat of Anglican and Roman Catholic bishops. Besides mining, the local industries are the manufacture of Epsom pottery, bricks and tiles, iron-founding, stone-cutting, brewing, tanning and coach-building. The surrounding district produces quantities of wheat and fruits for export, and much excellent wine is made.

BENDL, KAREL or Karl (1838-1897), Bohemian composer, was born on the 16th of April 1838 at Prague. He studied at the organ school, and in 1858 had already composed a number of small choral works. In 1861 his *Poletuje holubice* won a prize and at once became a favourite

with the local choral societies. In 1864 Bendl went to Brussels, where for a short time he held the post of second conductor of the opera. After visiting Amsterdam and Paris he returned to Prague. Here in 1865 he was appointed conductor of the choral society known as *Hlahoe*, and he held the post until 1879, when Baron Dervies engaged his services for his private band. Bendl's first opera *Lejla* was successfully produced in 1868. It was followed by *Bretislav a Jitka* (1870), *Stary Zenich*, a comic opera (1883), *Karel Skreta* (1883), *Dite Tabera*, a prize opera (1892), and *Matki Mila* (1891). Other operas by Bendl are *Indicka princezna, Cernohorci*, a prize opera, and the two operas *Carovny Kvet* and *Gina*. His ballad *Svanda dudak* acquired much popularity; he published a mass in D minor for male voices and another mass for a mixed choir; two songs to *Ave Maria*; a violin sonata and a string quartet in F; and a quantity of songs and choruses, many of which have come to be regarded as national possessions of Bohemia. Bendl died on the 20th of September 1897 at Prague.

BENEDEK, LUDWIG, Ritter von (1804-1881), Austrian general, was born at Ödenburg in Hungary on the 14th of July 1804, his father being a doctor. He received his commission in the Austrian army as ensign in 1822, becoming lieutenant in 1825, first lieutenant in 1831 and captain in 1835. He was employed for a considerable time in the general staff, and had risen to the rank of colonel, when he won his first laurels in the suppression of the rising of 1846 in Galicia (see Austria: *History*). In this campaign his bold leadership in the field and his capacity for organization were so far conspicuous that he was made a *Ritter* (knight) of the Leopold order by his sovereign, and a freeman (*Ehrenbürger*) by the city of Lemberg. In 1847 he commanded a regiment in Italy, and on the outbreak of war with Sardinia he was placed in command of a mixed brigade, at the head of which he displayed against regular troops the same qualities of unhesitating bravery and resolution which had given him the victory in many actions with the Galician rebels. His conduct at Curtatone won for him the commandership of the Leopold order, and shortly afterwards the knighthood of the Maria Theresa order. At the action of Mortara his tactical skill and bravery were again conspicuous, and Radetzky particularly distinguished him in despatches. The archduke Albert, with whom he served, is said to have given him the sword of his father, the great archduke Charles. He was promoted major-general soon afterwards over the heads of several colonels senior to him, and was sent as a brigade commander to Hungary. Again he was distinguished as a fighting general at Raab, Komorn, Szegedin and many other actions, and was three times wounded. Benedek then received the cross for military merit, and soon afterwards was posted to the staff of the army in Italy. In 1852 he was made lieutenant field marshal, and in 1857 commander successively of the II., the IV. and the VIII. corps, and also a *Geheimrath*. In the political crisis of 1854 he had command of a corps in the army of observation under Hess on the Turkish frontier. In the war of 1859 in Italy, Benedek commanded the VIII. corps, and at the battle of Solferino was in command of the right of the Austrian position. That portion of the struggle which was fought out between Benedek and the Piedmontese army is sometimes called the battle of San Martino. Benedek, with magnificent gallantry, held his own all day, and in the end covered the retreat of the rest of the Austrian army to the Mincio. His reward was the commandership of the order of Maria Theresa, and Vienna and many other cities followed the example of Lemberg in 1846. His reputation was now at its highest, and his great popularity was enhanced, in the prevailing discontent with the reactionary and clerical government of previous years, by the fact that he was a Protestant and not of noble birth. He was promoted *Feldzeugmeister* and in 1860 appointed quartermaster-general to the army, and soon afterwards governor-general and commander-in-chief in Hungary, in succession to the archduke Albert. In 1861 he was made commander-in-chief in Venetia and the adjoining provinces of the empire, and in the following year he received the grand cross of the Leopold order. In 1864 he resigned the quartermaster-generalship and devoted himself exclusively to the command of the army in Italy. In 1861 he had been made a life-member of the house of peers. In 1866 war with Prussia and with Italy became imminent. Benedek was appointed to command the Army of the North against the Prussians, the control of affairs in Italy being taken over by the archduke Albert. For the story of the campaign of Königgrätz, in which the Austrians under Benedek's command were decisively defeated, see Seven Weeks' War. Benedek took over his new command as a stranger to the country and to the troops. Only the personal command of the emperor and the requests of the archduke Albert prevailed upon him to "sacrifice his honour," as he himself said, in a task for which he felt himself ill prepared. When he took the field his despondency was increased by the passive obstruction which he met with amongst his own officers, many of whom resented being placed under a man of the middle class instead of the archduke Albert, and by the general state of unpreparedness which he found existing at the front. Further, his own staff was self-willed to the verge of disloyalty, and his assistants, Lieutenant Field Marshal von Henikstein, and Major-General Krismanic in particular,

endeavoured to control Benedek's operations in the spirit of the 18th-century strategists. Under these circumstances, and against the superior numbers, *moral* and armament of the Prussians, the Austrians were foredoomed to defeat. A series of partial actions convinced Benedek that success was unattainable, and he telegraphed to the emperor advising him to make peace; the emperor refused on the ground that no decisive battle had been fought; Benedek, thereupon, instead of retreating across the Elbe, determined to bring on a decisive engagement, and took up a position with the whole of his forces near Königgrätz with the Elbe in his rear. Here he was completely defeated by the Prussians on the 3rd of July, but they could not prevent him from making good his retreat over the river in magnificent order on the evening of the battle. He conducted the operations of his army in retreat up to the great concentration at Vienna under the archduke Albert, and was then suspended from his command and a court-martial ordered; the emperor, however, in December determined that the inquiry should be stopped. Benedek from this time lived in absolute retirement, and having given his word of honour to the archduke Albert that he would not attempt to rehabilitate himself before the world, he published no defence of his conduct, and even destroyed his papers relating to the campaign of 1866. This attitude of self-sacrificing loyalty he maintained even when on the 8th of November 1866 the official *Wiener Zeitung* published an article in which he was made responsible for all the disasters of the war. The history of the campaign from the Austrian point of view as at present known leaves much unexplained, and the published material is primarily of a controversial character. The official *Österreichs Kämpfe* speaks of the unfortunate general in the following terms: "A career full of achievements, distinction and fame deserved a less tragic close. A dispassionate judgment will not forget the ever fortunate and successful deeds which he accomplished earlier in the service of the emperor, and will ensure for him, in spite of his last heavy misfortune (*Last*), an honourable memory." Praise of his earlier career could not well be denied, and the official history is careful not to extend its eulogy to cover the events of 1866; the recognition in these words cannot therefore be set against the general opinion of subsequent critics that Benedek was the victim of political necessities, perhaps of court intrigues. For the rest of his life Benedek lived at Graz, where he died on the 27th of April 1881.

See H. Friedjung, *Benedeks nachgelassene Papiere* (Leipzig, 1901, 3rd and enlarged ed., 1904), and *Der Kampf um die Vorherrschaft in Deutschland 1859-1866* (Stuttgart, 1897, 6th ed., 1904); v. Schlichtling, *Moltke und Benedek* (Berlin, 1900), also therewith A. Krauss, *Moltke, Benedek und Napoleon* (Vienna, 1901); and a *roman à clé* by Gräfin Salburg, entitled *Königsglaube* (Dresden, 1906). The brief memoir in *Allgemeine deutsche Biographie* represents the court view of Benedek's case.

BENEDETTI, VINCENT, Count (1817-1900), French diplomatist, was born at Bastia, in the island of Corsica, on the 29th of April 1817. In the year 1840 he entered the service of the French foreign office, and was appointed to a post under the marquis de la Valette, who was consul-general at Cairo. He spent eight years in Egypt, being appointed consul in 1845; in 1848 he was made consul at Palermo, and in 1851 he accompanied the marquis, who had been appointed ambassador at Constantinople, as first secretary. For fifteen months during the progress of the Crimean War he acted as chargé d'affaires. In the second volume of his essays he gives some recollections of his experiences in the East, including an account of Mehemet Ali, and a (not very friendly) sketch of Lord Stratford de Redcliffe. In 1855, after refusing the post of minister at Teheran, he was employed in the foreign office at Paris, and acted as secretary to the congress at Paris (1855-1856). During the next few years he was chiefly occupied with Italian affairs, in which he was much interested, and Cavour said of him he was an Italian at heart. He was chosen in 1861 to be the first envoy of France to the king of Italy, but he resigned his post next year on the retirement of E.A. Thouvenel, who had been his patron, when the anti-Italian party began to gain the ascendancy at Paris. In 1864 he was appointed ambassador at the court of Prussia.

Benedetti remained in Berlin till the outbreak of war in 1870, and during these years he played an important part in the diplomatic history of Europe. His position was a difficult one, for Napoleon did not keep him fully informed as to the course of French policy. In 1866, during the critical weeks which followed the attempt of Napoleon to intervene between Prussia and Austria, he accompanied the Prussian headquarters in the advance on Vienna, and during a visit to Vienna he helped to arrange the preliminaries of the armistice signed at Nikolsburg. It was after this that he was instructed to present to Bismarck French demands for "compensation," and in August, after his return to Berlin, as a result of his discussions with Bismarck a draft treaty was drawn up, in which Prussia promised France her support in the annexation of Belgium. This treaty was never concluded, but the draft, which was in Benedetti's handwriting, was kept by

Bismarck and, in 1870, a few days after the outbreak of the war, was published by him in *The Times*. During 1867 Benedetti was much occupied with the affair of Luxemburg. In July 1870, when the candidature of the prince of Hohenzollern for the throne of Spain became known, Benedetti was instructed by the duc de Gramont to present to the king of Prussia, who was then at Ems, the French demands, that the king should order the prince to withdraw, and afterwards that the king should promise that the candidature would never be renewed. This last demand Benedetti submitted to the king in an informal meeting on the promenade at Ems, and the misleading reports of the conversation which were circulated were the immediate cause of the war which followed, for the Germans were led to believe that Benedetti had insulted the king, and the French that the king had insulted the ambassador. Benedetti was severely attacked in his own country for his conduct as ambassador, and the duc de Gramont attempted to throw upon him the blame for the failures of French diplomacy. He answered the charges brought against him in a book, *Ma Mission en Prusse* (Paris, 1871), which still remains one of the most valuable authorities for the study of Bismarck's diplomacy. In this Benedetti successfully defends himself, and shows that he had kept his government well informed; he had even warned 718
them a year before as to the proposed Hohenzollern candidature. Even if he had been outwitted by Bismarck in the matter of the treaty of 1866, the policy of the treaty was not his, but was that of E. Drouyn de Lluys. The idea of the annexation of part of Belgium to France had been suggested to him first by Bismarck; and the use to which Bismarck put the draft was not one which he could be expected to anticipate, for he had carried on the negotiations in good faith. After the fall of the Empire he retired to Corsica. He lived to see his defence confirmed by later publications, which threw more light on the secret history of the times. He published in 1895 a volume of *Essais diplomatiques*, containing a full account of his mission to Ems, written in 1873; and in 1897 a second series dealing with the Eastern question. He died on the 28th of March 1900, while on a visit to Paris. He received the title of count from Napoleon.

See Rothan, *La Politique Française en 1866* (Paris, 1879); and *L'Affaire de Luxemburg* (Paris, 1881); Sorel, *Histoire diplomatique* (Paris, 1875); Sybel, Die Begründung des deutschen Reiches (Munich, 1889), &c.

(J. W. He.)

BENEDICT (Benedictus), the name taken by fourteen of the popes.

Benedict I. was pope from 573 to 578. He succeeded John III., and occupied the papal chair during the incursions of the Lombards, and during the series of plagues and famines which followed these invasions.

Benedict II. was pope from 684 to 685. He succeeded Leo II., but although chosen in 683 he was not ordained till 684, because the leave of the emperor Constantine was not obtained until some months after the election.

Benedict III. was pope from 855 to 858. He was chosen by the clergy and people of Rome, but the election was not confirmed by the emperor, Louis II., who appointed an anti-pope, Anastasius (the librarian). But the candidature of this person, who had been deposed from the presbyterate under Leo IV., was indefensible. The imperial government at length recognized Benedict and discontinued its opposition, with the result that he was at last successful. The mythical pope Joan is usually placed between Benedict and his predecessor, Leo IV.

Benedict IV. was pope from 900 to 903.

Benedict V. was pope from 964 to 965. He was elected by the Romans on the death of John XII. The emperor Otto I. did not approve of the choice, and carried off the pope to Hamburg, where he died.

Benedict VI. was pope from 972 to 974. He was chosen with great ceremony and installed pope under the protection of the emperor, Otto the Great. On the death of the emperor the turbulent citizens of Rome renewed their outrages, and the pope himself was strangled by order of Crescentius, the son of the notorious Theodora, who replaced him by a deacon called Franco. This Franco took the name of Boniface VII.

Benedict VII. was pope from 974 to 983. He was elected through the intervention of a representative of the emperor, Count Sicco, who drove out the intruded Franco (afterwards Pope Boniface VII.). Benedict governed Rome quietly for nearly nine years, a somewhat rare thing in those days.

Benedict VIII., pope from 1012 to 1024, was called originally Theophylactus. He was a member of the family of the count of Tusculum, and was opposed by an anti-pope, Gregory, but defeated

him with the aid of King Henry II. of Saxony, whom he crowned emperor in 1014. In his pontificate the Saracens began to attack the southern coasts of Europe, and effected a settlement in Sardinia. The Normans also then began to settle in Italy. In Italy Benedict supported the policy of the emperor, Henry II., and at the council of Pavia (1022) exerted himself in favour of ecclesiastical discipline, then in a state of great decadence.

Benedict IX., pope from 1033 to 1056, son of Alberic, count of Tusculum, and nephew of Benedict VIII., was also called Theophylactus. He was installed pope at the age of twelve through the influence of his father. The disorders of his conduct, though tolerated by the emperors, Conrad II. and Henry III., who were then morally responsible for the pontificate, at length disgusted the Romans, who drove him out in 1044 and appointed Silvester III. his successor. Silvester remained in the papal chair but a few weeks, as the people of Tusculum quickly recovered their influence and reinstated their pope. Benedict, however, was obliged to bow before the execration of the Romans. He sold his rights to his godfather, the priest Johannes Gratianus, who was installed under the name of Gregory VI. (1045). The following year Henry III. obtained at the council of Sutri the deposition of the three competing popes, and replaced them by Suidger, bishop of Bamberg, who took the name of Clement II. But before the close of 1047 Clement II. died, probably from poison administered by Benedict, who was reinstalled for the third time. At last, on the 17th of July 1048, the marquis of Tuscany drove him from Rome, where he was never seen again. He lived several years after his expulsion and appears to have died impenitent.

Benedict X. (Johannes "Mincius," *i.e.* the lout or dolt, bishop of Velletri) was pope from 1058 to 1059. He was elected on the death of Stephen IX. through the influence of the Roman barons, who, however, had pledged themselves to take no action without Hildebrand, who was then absent from Rome. Hildebrand did not recognize him, and put forward an opposition pope in the person of Gerard, bishop of Florence (pope as Nicholas II.), whom he supported against the Roman aristocracy. With the help of the Normans, Hildebrand seized the castle of Galeria, where Benedict had taken refuge, and degraded him to the rank of a simple priest.

(L. D.*)

Benedict XI. (Niccolo Boccasini), pope from 1303 to 1304, the son of a notary, was born in 1240 at Treviso. Entering the Dominican order in 1254, he became lector, prior of the convent, provincial of his order in Lombardy, and in 1296 its general. In 1298 he was created cardinal priest of Santa Sabina, and in 1300 cardinal bishop of Ostia and Velletri. In 1302 he was papal legate in Hungary. On the 22nd of October 1303 he was unanimously elected pope. He did much to conciliate the enemies made by his predecessor Boniface VIII., notably France, the Colonnas and King Frederick II. of Sicily; nevertheless on the 7th of June 1304 he excommunicated William of Nogaret and all the Italians who had captured Boniface in Anagni. Benedict died at Perugia on the 7th of July 1304; if he was really poisoned, as report had it, suspicion would fall primarily on Nogaret. His successor Clement V. transferred the papal residence to Avignon. Among Benedict's works are commentaries on part of the Psalms and on the Gospel of Matthew. His beatification took place in 1733.

See C. Grandjean, "Registres de Benoît XI." (Paris, 1883 ff.), *Bibliothèque des Écoles françaises d'Athènes et de Rome.*

Benedict XII. (Jacques Fournier), pope from 1334 to 1342, the son of a miller, was born at Saverdun on the Arriège. Entering the Cistercian cloister Bolbonne, and graduating doctor of theology at Paris, he became in 1311 abbot of Fontfroide, in 1317 bishop of Pamiers and in 1326 of Mirepoix. Created cardinal priest of Santa Prisca in 1327 by his uncle John XXII. he was elected his successor on the 20th of December 1334. Benedict made appointments carefully, reformed monastic orders and consistently opposed nepotism. Unable to remove his capital to Rome or to Bologna, he began to erect a great palace at Avignon. In 1336 he decided against a pet notion of John XXII. by saying that souls of saints may attain the fulness of the beatific vision *before* the last judgment. In 1339 he entered upon fruitless negotiations looking toward the reunion of the Greek and Roman churches. French influence made futile his attempt to come to an understanding with the emperor Louis the Bavarian. He died on the 25th of April 1342.

See the source publications of G. Daumet (*Lettres closes, patentes et curiales*, ... Paris, 1899 ff.), and J.-M. Vidal (*Lettres communes*, ... Paris, 1903 ff.).

(W. W. R.*)

Benedict XIII. (Pedro de Luna), (*c.* 1328-1422 or 1423), anti-pope, belonged to one of the most noble families in Aragon. His high birth, his legal learning—he was for a long time professor of canon law at Montpellier—and the irreproachable purity of his life, recommended him to Pope Gregory XI, who created him cardinal in 1375. He was almost the only one who succeeded in making a firm stand in the tumultuous conclave of 1378; but the deliberation with which he made up his mind as to the validity of the election of Urban VI. was equalled, when he took the side of Clement VII., by the ardour and resourcefulness which he displayed in defending the cause of the pope of Avignon; it was mainly to him that the latter owed his recognition by

Castile, Aragon and Navarre. When elected pope, or rather anti-pope, by the cardinals of Avignon, on the 28th of September 1394, it was he who by his astuteness, his resolution, and, it may be added, by his unswerving faith in the justice of his cause, was to succeed in prolonging the lamentable schism of the West for thirty years. The hopes he had aroused that, by a voluntary abdication, he would restore unity to the church, were vain; though called upon by the princes of France to carry out his plan, abandoned by his cardinals, besieged and finally kept under close observation in the palace of the popes (1398-1403), he stood firm, and tired out the fury of his opponents. Escaping from Avignon, he again won obedience in France, and his one thought was how to triumph over his Italian rival, if necessary, by force. He yielded, however, to the instances of the government of Charles VI., and pretending that he wished to have an interview with Gregory XII., with a view to their simultaneous abdication, he advanced to Savona, and then to Porto Venere. The failure of these negotiations, for which he was only in part responsible, led to the universal movement of indignation and impatience, which ended, in France, in the declaration of neutrality (1408), and at Pisa, in the decree of deposition against the two pontiffs (1409). Benedict XIII., who had on his part tried to call together a council at Perpignan, was by this time recognized hardly anywhere but in his native land, in Scotland, and in the estates of the countship of Armagnac. He remained none the less full of energy and of illusions, repulsed the overtures of Sigismund, king of the Romans, who had come to Perpignan to persuade him to abdicate, and, abandoned by nearly all his adherents, he took refuge in the impregnable castle of Peñiscola, on a rock dominating the Mediterranean (1415). The council of Constance then deposed him, as a perjurer, an incurable schismatic and a heretic (26th July 1417). After struggling with the popes of Rome, Urban VI., Boniface IX., Innocent VII. and Gregory XII., and against the popes of Pisa, Alexander V. and John XXIII., Pedro de Luna, clinging more than ever to that apostolic seat which he still professed not to desire, again took up the struggle against Martin V., although the latter was recognized throughout almost all Christendom, and, before his death (29th November 1422, or 23rd May 1423), he nominated four new cardinals in order to carry the schism on even after him.

See Fr. Ehrle, *Archiv für Lit. und Kirchengesch.* vols. v., vi., vii.; N. Valois, *La France et le grand schisme d'occident* (4 vols., Paris, 1896-1902); Fr. Ehrle, "Martin de Alpartils chronica actitatorum temporibus domini Benedicti XIII." (*Quellen und Forschungen aus dem Geb. der Gesch.*, Görres-Gesellschaft, Paderborn, 1906).

(N. V.)

Benedict XIII. (Piero Francesco Orsini), pope from 1724 to 1730, at first styled Benedict XIV., was born on the 2nd of February 1649, of the ducal family of Orsini-Gravina. In 1667 he became a Dominican (as Vincentius Maria), studied theology and philosophy, was made a cardinal in 1672 and archbishop of Benevento in 1686. Elected pope on the 29th of May 1724, he attempted to reform clerical morals; but neither the decrees of the Latin council (1725) nor his personal precepts had much effect. He confirmed the bull *Unigenitus*; but, despite the Jesuits, allowed the Dominicans to preach the Augustinian doctrine of grace. State affairs he left entirely to the unpopular Cardinal Nicolo Coscia. He died on the 21st of February 1730. His works, were published in 3 vols. at Ravenna in 1728.

Benedict XIV. (Prospero Lorenzo Lambertini), pope from 1740 to 1758, was born at Bologna on the 31st of March 1675. At the age of thirteen he entered the Collegium Clementinum at Rome. He served the Curia in many and important capacities, yet devoted his leisure time to theological and canonistic study. Benedict XIII. made him archbishop of Theodosia *in partibus*, then of Ancona (1727), and the next year created him cardinal priest. In 1731 Clement XII. translated him to his native city of Bologna, where as archbishop he was both efficient and popular. He published valuable works, notably *De servorum Dei beatificatione et canonizatione, De sacrificio missae*, as well as a treatise on the feasts of Christ and the Virgin and of some saints honoured in Bologna. In a conclave which had lasted for months he was elected on the 17th of August 1740 the successor of Clement XII. Benedict XIV. was not merely earnest and conscientious, but of incisive intellect, and unfailingly cheerful and witty. In several respects he bettered the economic conditions of the papal states, but was disinclined to undertake the needed thorough-going reform of its administration. In foreign politics he made important concessions to Portugal, Naples, Sardinia, Spain, and was the first pope expressly to recognize the king of Prussia as such. In 1741 he issued the bull *Immensa pastorum principis*, demanding more humane treatment for the Indians of Brazil and Paraguay, and in the bulls *Ex quo singulari* (1742) and *Omnium sollicitudinum* (1744) he rebuked the missionary methods of the Jesuits in accommodating their message to the heathen usages of the Chinese and of the natives of Malabar. In accord with the spirit of the age he reduced the number of holy days in several Catholic countries. To the end of his life he kept up his studies and his intercourse with other scholars, and founded several learned societies. His masterpiece, *Libri octo de synoda diocesana*, begun in Bologna, appeared during his pontificate. He died on the 3rd of May 1758.

His works, published in twelve quarto volumes at Rome (1747-1751), appeared in more nearly complete editions at Venice in 1767 and at Prato, 1839-1846; also *Briefe Benedicts XIV.*, ed. F.X. Kraus (2nd ed., Freiburg, 1888); *Benedicti XIV. Papae opera inedita*, ed. F. Heiner (Freiburg,

1904). See Herzog-Hauck, *Realencyklopädie*, ii. 572 ff.; Wetzer and Welter, *Kirchenlexikon*, ii. 317 ff.

(W. W. R.*)

BENEDICT OF ALIGNAN (d. 1268), Benedictine abbot of Notre Dame de la Grasse (1224) and bishop of Marseilles (1229), twice visited the Holy Land (1239 and 1260), where he helped the Templars build the great castle of Safet. He founded a short-lived order, the Brothers of the Virgin, suppressed by the council of Lyons (1274), and died a Franciscan. His writings include a letter to Innocent IV. and *De constructione Castri Saphet* (Baluze, *Miscellanea*, ii.).

BENEDICT OF NURSIA, SAINT (*c.* 480-*c.* 544), the patriarch of Western monks. Our only authority for the facts of St Benedict's life is bk. ii of St Gregory's *Dialogues*. St Gregory declares that he obtained his information from four of St Benedict's disciples, whom he names; and there can be no serious reason for doubting that it is possible to reconstruct the outlines of St Benedict's career (see Hodgkin, *Italy and her Invaders*, iv. 412). A precise chronology and a pedigree have been supplied for Benedict, according to which he was born in 480, of the great family of the Anicii; but all we know is what St Gregory tells us, that he was born of good family in Nursia, near Spoleto in Umbria. His birth must have occurred within a few years of the date assigned; the only fixed chronological point is a visit of the Gothic king Totila to him in 543, when Benedict was already established at Monte Cassino and advanced in years (*Dial*. ii. 14, 15). He was sent by his parents to frequent the Roman schools, but shocked by the prevailing licentiousness he fled away. It has been usual to represent him as a mere boy at this time, but of late years various considerations have been pointed out which make it more likely that he was a young man. He went to the mountainous districts of the Abruzzi, and at last came to the ruins of Nero's palace and the artificial lake at Subiaco, 40 m. from Rome. Among the rocks on the side of the valley opposite the palace he found a cave in which he took up his abode, unknown to all except one friend, Romanus, a monk of a neighbouring monastery, who clothed him in the monastic habit and secretly supplied him with food. No one who has seen the spot will doubt that the Sacro Speco is indeed the cave wherein Benedict spent the three years of opening manhood in solitary prayer, contemplation and austerity. After this period of formation his fame began to spread abroad, and the monks of a neighbouring monastery induced him to become their abbot; but their lives were irregular and dissolute, and on his trying to put down abuses they attempted to poison him. He returned to his cave, but disciples flocked to him, and in time he formed twelve monasteries in the neighbourhood, placing twelve monks in each, and himself retaining a general control over all. In time patricians and senators from Rome entrusted their young sons to his care, to be brought up as monks; in this manner came to him his two best-known disciples, Maurus and Placidus. Driven from Subiaco by the jealousy and molestations of a neighbouring priest, but leaving behind him communities in his twelve monasteries, he himself, accompanied by a small band of disciples, journeyed south until he came to Cassino, a town halfway between Rome and Naples. Climbing the high mountain that overhangs the town, he established on the summit the monastery with which his name has ever since been associated, and which for centuries was a chief centre of religious life for western Europe. He destroyed the remnants of paganism that lingered on here, and by his preaching gained the rustic population to Christianity. Few other facts of his career are known: there is record of his founding a monastery at Terracina; his death must have occurred soon after Totila's visit in 543.

Rule of St Benedict.—In order to understand St Benedict's character and spirit, and to discover the secret of the success of his institute, it is necessary, as St Gregory says, to turn to his Rule. St Gregory's characterization of the Rule as "conspicuous for its discretion" touches the most essential quality. The relation of St Benedict's Rule to earlier monastic rules, and of his institute to the prevailing monachism of his day, is explained in the article Monasticism. Here it is enough to say that nowadays it is commonly recognized by students that the manner of life instituted by St Benedict was not intended to be, and as a matter of fact was not, one of any great austerity, when judged by the standard of his own day (see E.C. Butler, *Lausiac History of Palladius*, part i. pp. 251-256). His monks were allowed proper clothes, sufficient food, ample sleep. The only bodily austerities were the abstinence from flesh meat and the unbroken fast till mid-day or even 3 P.M., but neither would appear so onerous in Italy even now, as to us in northern climes. Midnight office was no part of St Benedict's Rule: the time for rising for the

night office varied from 1.30 to 3.0, according to the season, and the monks had had unbroken sleep for 7½ or even 8 hours, except in the hot weather, when in compensation they were allowed the traditional Italian summer siesta after the mid-day meal. The canonical office was chanted throughout, but the directly religious duties of the day can hardly have taken more than 4 or 5 hours—perhaps 8 on Sundays. The remaining hours of the day were divided between work and reading, in the proportion (on the average of the whole year) of about 6 and 4 hours respectively. The "reading" in St Benedict's time was probably confined to the Bible and the Fathers. The "work" contemplated by St Benedict was ordinarily field work, as was natural in view of the conditions of the time and best suited to the majority of the monks; but the principle laid down is that the monks should do whatever work is most useful. There were from the beginning young boys in the monastery, who were educated by the monks according to the ideas of the time. We have seen St Benedict evangelizing the pagan population round Monte Cassino; and a considerable time each day is assigned to the reading of the Fathers. Thus the germs of all the chief works carried on by his monks in later ages were to be found in his own monastery.

The Rule consists of a prologue and 73 chapters. Though it has resisted all attempts to reduce it to an ordered scheme, and probably was not written on any set plan, still it is possible roughly to indicate its contents: after the prologue and introductory chapter setting forth St Benedict's intention, follow instructions to the abbot on the manner in which he should govern his monastery (2,3); next comes the ascetical portion of the Rule, on the chief monastic virtues (4-7); then the regulations for the celebration of the canonical office, which St Benedict calls "the Work of God" or "the divine work," his monks' first duty, "of which nothing is to take precedence" (8-20); faults and punishments (23-30); the cellarer and property of the monastery (31, 32); community of goods (33, 34); various officials and daily life (21, 22, 35-57); reception of monks (58-61); miscellaneous (62-73).

The most remarkable chapters, in which St Benedict's wisdom stands out most conspicuously, are those on the abbot (2,3, 27,64). The abbot is to govern the monastery with full and unquestioned patriarchal authority; on important matters he must consult the whole community and hear what each one, even the youngest, thinks; on matters of less weight he should consult a few of the elder monks; but in either case the decision rests entirely with him, and all are to acquiesce. He must, however, bear in mind that he will have to render an account of all his decisions and to answer for the souls of all his monks before the judgment seat of God. Moreover, he has to govern in accordance with the Rule, and must endeavour, while enforcing discipline and implanting virtues, not to sadden or "overdrive" his monks, or give them cause for "just murmuring." In these chapters pre-eminently appears that element of "discretion," as St Gregory calls it, or humanism as it would now be termed, which without doubt has been a chief cause of the success of the Rule. There is as yet no satisfactory text of the Rule, either critical or manual; the best manual text is Schmidt's *editio minor* (Regensburg, 1892). Of the many commentaries the most valuable are those of Paulus Diaconus (the earliest, *c.* 800), of Calmet and of Martène (Migne, *Patrol. Lat.* lxvi.).

AUTHORITIES.—An old English translation of St Gregory's *Dialogues* is reprinted in the Quarterly Series (Burns & Oates). On St Benedict's life and Rule see Montalembert, *Monks of the West*, bk. iv.; Abbate L. Tosti, *S. Benedetto* (translated 1896); also Indexes to standard general histories of the period; Thomas Hodgkin's *Italy and Her Invaders* and Gregorovius' *History of the City of Rome* may be specially mentioned. But by far the best summaries in English are those contained in the relevant portions of F.H. Dudden's *Gregory the Great* (1905), i. 107-115, ii. 160-169; on the recent criticism of the text and contents of the Rule, see Otto Zöckler, *Askese und Mönchtum* (1897), 355-371; and E.C. Butler, articles in *Downside Review*, December 1899, and *Journal of Theological Studies*, April 1902.

(E. C. B.)

BENEDICT, SIR JULIUS (1804-1885), musical composer, was born in Stuttgart on the 27th of November 1804. He was the son of a Jewish banker, and learnt composition from Hummel at Weimar and Weber at Dresden; with the latter he enjoyed for three years an intimacy like that of a son, and it was Weber who introduced him in Vienna to Beethoven on the 5th of October 1823. In the same year he was appointed Kapellmeister of the Kärnthnerthor theatre at Vienna, and two years later (in 1825) he became Kapellmeister of the San Carlo theatre at Naples. Here his first opera, *Giacinta ed Ernesto*, was brought out in 1829, and another, written for his native city, *I Portoghesi in Goa*, was given there in 1830; neither of these was a great success, and in 1834 he went to Paris, leaving it in 1835 at the suggestion of Malibran for London, where he spent the remainder of his life. In 1836 he was given the conductorship of an operatic enterprise at the Lyceum Theatre, and brought out a short opera, *Un anno ed un giorno*, previously given in

Naples. In 1838 he became conductor of the English opera at Drury Lane during the period of Balfe's great popularity; his own operas produced there were *The Gipsy's Warning* (1838), *The Bride of Venice* (1843), and *The Crusaders* (1846). In 1848 he conducted Mendelssohn's *Elijah* at Exeter Hall, for the first appearance of Jenny Lind in oratorio, and in 1850 he went to America as the accompanist on that singer's tour. On his return in 1852 he became musical conductor under Mapleson's management at Her Majesty's theatre (and afterwards at Drury Lane), and in the same year conductor of the Harmonic Union. Benedict wrote recitatives for the production of an Italian version of Weber's *Oberon* in 1860. In the same year was produced his beautiful cantata *Undine* at the Norwich festival, in which Clara Novello appeared in public for the last time. His best-known opera, *The Lily of Killarney*, written on the subject of Dion Boucicault's play *Colleen Bawn* to a libretto by Oxenford, was produced at Covent Garden in 1862. His operetta, *The Bride of Song*, was brought out there in 1864. *St Cecilia*, an oratorio, was performed at the Norwich festival in 1886; *St Peter* at the Birmingham festival of 1870; *Graziella*, a cantata, was given at the Birmingham festival of 1882, and in August 1883 was produced in operatic form at the Crystal Palace. Here also a symphony by him was given in 1873. Benedict conducted every Norwich festival from 1845 to 1878 inclusive, and the Liverpool Philharmonic Society's concerts from 1876 to 1880. He was the regular accompanist at the Monday Popular Concerts in London from their start, and with few exceptions acted as conductor of these concerts. He contributed an interesting life of Weber to the series of biographies of "Great Musicians." In 1871 he was knighted, and in 1874 was made knight commander of the orders of Franz Joseph (Austria) and Frederick (Württemberg). He died in London on the 5th of June 1885.

BENEDICT BISCOP (628?-690), also known as Biscop Baducing, English churchman, was born of a good Northumbrian family and was for a time a thegn of King Oswiu. He then went abroad and after a second journey to Rome (he made five altogether) lived as a monk at Lerins (665-667). It was under his conduct that Theodore of Tarsus came from Rome to Canterbury in 669, and in the same year Benedict was appointed abbot of St Peter's, Canterbury. Five years later he built the monastery of St Peter at Wearmouth, on land granted him by Ecgfrith of Northumbria, and endowed it with an excellent library. A papal letter in 678 exempted the monastery from external control, and in 682 Benedict erected a sister foundation (St Paul) at Jarrow. He died on the 12th of January 690, leaving a high reputation for piety and culture. Saxon architecture owes nearly everything to his initiative, and Bede was one of his pupils.

BENEDICTINE, a liqueur manufactured at Fécamp, France. The composition is a trade secret, but, according to König, the following are among the substances used in the manufacture of imitations of the genuine article: fresh lemon peel, cardamoms, hyssop tops, angelica, peppermint, thyme, cinnamon, nutmegs, cloves and arnica flowers. (See Fécamp.)

BENEDICTINES, or Black Monks, monks living according to the Rule of St Benedict (*q.v.*) of Nursia. Subiaco in the Abruzzi was the cradle of the Benedictines, and in that neighbourhood St Benedict established twelve monasteries. Afterwards giving up the direction of these, he migrated to Monte Cassino and there established the monastery which became the centre whence his Rule and institute spread. From Monte Cassino he founded a monastery at Terracina. These fourteen are the only monasteries of which we have any knowledge as being founded before St Benedict's death; for the mission of St Placidus to Sicily must certainly be regarded as mere romance, nor does there seem to be any solid reason for viewing more favourably the mission of St Maurus to Gaul. There is some ground for believing that it was the third abbot of Monte Cassino who began to spread a knowledge of the Rule beyond the circle of St Benedict's own foundations. About 580-590 Monte Cassino was sacked by the Lombards, and the community came to Rome and was established in a monastery attached to the Lateran Basilica, in the centre of the ecclesiastical world. It is now commonly recognized by scholars

that when Gregory the Great became a monk and turned his palace on the Caelian Hill into a monastery, the monastic life there carried out was fundamentally based on the Benedictine Rule (see F.H. Dudden, *Gregory the Great*, i. 108). From this monastery went forth St Augustine and his companions on their mission to England in 596, carrying their monachism with them; thus England was the first country out of Italy in which Benedictine life was firmly planted. In the course of the 7th century Benedictine life was gradually introduced in Gaul, and in the 8th it was carried into the Germanic lands from England. It is doubtful whether in Spain there were Benedictine monasteries, properly so called, until a later period. In many parts the Benedictine Rule met the much stricter Irish Rule of Columbanus, introduced by the Irish missionaries on the continent, and after brief periods, first of conflict and then of fusion, it gradually absorbed and supplanted it; thus during the 8th century it became, out of Ireland and other purely Celtic lands, the only rule and form of monastic life throughout western Europe,—so completely that Charlemagne once asked if there ever had been any other monastic rule.

What may be called the inner side of Benedictine life and history is treated in the article Monasticism; here it is possible to deal only with the broad facts of the external history. The chief external works achieved for western Europe by the Benedictines during the early middle ages may be summed up under the following heads.

1. *The Conversion of the Teutonic Races.*—The tendency of modern historical scholarship justifies the maintenance of the tradition that St Augustine and his forty companions were the first great Benedictine apostles and missioners. Through their efforts Christianity was firmly planted in various parts of England; and after the conversion of the country it was English Benedictines—Wilfrid, Willibrord, Swithbert, Willehad—who evangelized Friesland and Holland; and another, Winfrid or Boniface, who, with his fellow-monks Willibald and others, evangelized the greater part of central Germany and founded and organized the German church. It was Anschar, a monk of Corbie, who first preached to the Scandinavians, and other Benedictines were apostles to Poles, Prussians and other Slavonic peoples. The conversion of the Teutonic races may properly be called the work of the Benedictines.

2. *The Civilization of north-western Europe.*—As the result of their missionary enterprises the Benedictines penetrated into all these lands and established monasteries, so that by the 10th or 11th century Benedictine houses existed in great numbers throughout the whole of Latin Christendom except Ireland. These monasteries became centres of civilizing influences by the method of presenting object-lessons in organized work, in agriculture, in farming, in the arts and trades, and also in well-ordered life. The unconscious method by which such great results were brought about has been well described by J.S. Brewer (*Preface* to Works of Giraldus Cambrensis, Rolls Series, iv.) and F.A. Gasquet.

3. *Education.*—Boys were educated in Benedictine houses from the beginning, but at first they were destined to be monks. The monasteries, however, played a great part in the educational side of the Carolingian revival; and certainly from that date schools for boys destined to live and work in the world were commonly attached to Benedictine monasteries. From that day to this education has been among the recognized and principal works of Benedictines.

4. *Letters and Learning.*—This side of Benedictine life is most typically represented by the Venerable Bede, the gentle and learned scholar of the early middle ages. In those times the monasteries were the only places of security and rest in western Europe, the only places where letters could in any measure be cultivated. It was in the monasteries that the writings of Latin antiquity, both classical and ecclesiastical, were transcribed and preserved.

In a gigantic system embracing hundreds of monasteries and thousands of monks, and spread over all the countries of western Europe, without any organic bond between the different houses, and exposed to all the vicissitudes of the wars and conquests of those wild times, to say that the monks often fell short of the ideal of their state, and sometimes short of the Christian, and even the moral standard, is but to say that monks are men. Failures there have been many, and scandals not a few in Benedictine history; but it may be said with truth that there does not appear to have been ever a period of widespread or universal corruption, however much at times and in places primitive love may have waxed cold. And when such declensions occurred, they soon called forth efforts at reform and revival; indeed these constantly recurring reform-movements are one of the most striking features of Benedictine history, and the great proof of the vitality of the institute throughout the ages.

The first of these movements arose during the Carolingian revival (*c.* 800), and is associated with the name of Benedict of Aniane. Under the auspices of Charlemagne and Louis the Pious he initiated a scheme for federating into one great order, with himself as abbot general, all the monasteries of Charles’s empire, and for enforcing throughout a rigid uniformity in observance. For this purpose a synod of abbots was assembled at Aix-la-Chapelle in 817, and a series of 80 *Capitula* passed, regulating the life of the monasteries. The scheme as a whole was short-lived and did not survive its originator; but the *Capitula* were commonly recognized as supplying a

useful and much-needed supplement to St Benedict's Rule on points not sufficiently provided for therein. Accordingly these *Capitula* exercised a wide influence among Benedictines even outside the empire. And Benedict of Aniane's ideas of organization found embodiment a century later in the order of Cluny (910), which for a time overshadowed the great body of mere Benedictines (see CLUNY). Here it will suffice to say that the most distinctive features of the Cluny system were (1) a notable increase and prolongation of the church services, which came to take up the greater part of the working day; (2) a strongly centralized government, whereby the houses of the order in their hundreds were strictly subject to the abbot of Cluny.

Though forming a distinct and separate organism Cluny claimed to be, and was recognized as, a body of Benedictine houses; but from that time onwards arose a number of independent bodies, or "orders," which took the Benedictine Rule as the basis of their life. The more important of these were: in the 11th and 12th centuries, the orders of Camaldulians, Vallombrosians, Fontevrault and the Cistercians, and in the 13th and 14th the Silvestrines, Celestines and Olivetans (see separate articles). The general tendency of these Benedictine offshoots was in the direction of greater austerity of life than was practised by the Black Monks or contemplated by St Benedict's Rule—some of them were semi-eremitical; the most important by far were the Cistercians, whose ground-idea was to reproduce exactly the life of St Benedict's own monastery. These various orders were also organized and governed according to the system of centralized authority devised by St Pachomius (see MONASTICISM) and brought into vogue by Cluny in the West. What has here to be traced is the history of the great body of Benedictine monasteries that held aloof from these separatist movements.

For the first four or five centuries of Benedictine history there was no organic bond between any of the monasteries; each house formed an independent autonomous family, managing its own affairs and subject to no external authority or control except that of the bishop of the diocese. But the influence of Cluny, even on monasteries that did not enter into its organism, was enormous; many adopted Cluny customs and practices and moulded their life and spirit after the model it set; and many such monasteries became in turn centres of revival and reform in many lands, so that during the 10th and 11th centuries arose free unions of monasteries based on a common observance derived from a central abbey. Fleury and Hirsau are well-known examples. Basing themselves on St Gregory's counsel to St Augustine, Dunstan, Aethelwold and Oswald adopted from the observance of foreign monasteries, and notably Fleury and Ghent, what was suitable for the restoration of English monachism, and so produced the *Concordia Regularis*, interesting as the first serious attempt to bring about uniformity of observance among the monasteries of an entire nation. In the course of the 12th century sporadic and limited unions of Black Monk monasteries arose in different parts. But notwithstanding all these movements, the majority of the great Black Monk abbeys continued to the end of the 12th century in their primeval isolation. But in the year 1215, at the fourth Lateran council, were made regulations destined profoundly to modify Benedictine polity and history. It was decreed that the Benedictine houses of each ecclesiastical province should henceforth be federated for the purposes of mutual help and the maintenance of discipline, and that for these ends the abbots should every third year meet in a provincial chapter (or synod), in order to pass laws binding on all and to appoint visitors who, in addition to the bishops, should canonically visit the monasteries and report on their condition in spirituals and temporals to the ensuing chapter. The English monks took the lead in carrying out this legislation, and in 1218 the first chapter of the province of Canterbury was held at Oxford, and up to the dissolution under Henry VIII. the triennial chapters took place with wonderful regularity. Fitful attempts were made elsewhere to carry out the decrees, and in 1336 Benedict XII. by the bull *Benedictina* tried to give further development to the system and to secure its general observance. The organization of the Benedictine houses into provinces or chapters under this legislation interfered in the least possible degree with the Benedictine tradition of mutual independence of the houses; the provinces were loose federations of autonomous houses, the legislative power of the chapter and the canonical visitations being the only forms of external interference. The English Benedictines never advanced farther along the path of centralization; up to their destruction this polity remained in operation among them, and proved itself by its results to be well adapted to the conditions of the Benedictine Rule and life.

In other lands things did not on the whole go so well, and many causes at work during the later middle ages tended to bring about relaxation in the Benedictine houses; above all the vicious system of commendatory abbots, rife everywhere except in England. And so in the period of the reforming councils of Constance and Basel the state of the religious orders was seriously taken in hand, and in response to the public demand for reforming the Church, "in head and members," reform movements were set on foot, as among others, so among the Benedictines of various parts of Europe. These movements issued in the congregational system which is the present polity among Benedictines. In the German lands, where the most typical congregation was the Bursfeld Union (1446), which finally embraced over 100 monasteries throughout Germany, the system was kept on the lines of the Lateran decree and the bull *Benedictina*, and received only some further developments in the direction of greater organization; but in Italy the

congregation of S. Justina at Padua (1421), afterwards called the Cassinese, departed altogether from the old lines, setting up a highly centralized government, after the model of the Italian republics, whereby the autonomy of the monasteries was destroyed, and they were subjected to the authority of a central governing board. With various modifications or restrictions this latter system was imported into all the Latin lands, into Spain and Portugal, and thence into Brazil, and into Lorraine and France, where the celebrated congregation of St Maur (see Maurists) was formed early in the 17th century. During this century the Benedictine houses in many parts of Catholic Europe united themselves into congregations, usually characterized by an austerity that was due to the Tridentine reform movement.

In England the Benedictines had, from every point of view, flourished exceedingly. At the time of the Dissolution there were nearly 300 Black Benedictine houses, great and small, men and women, including most of the chief religious houses of the land (for lists see tables and maps in Gasquet's *English Monastic Life*, and *Catholic Dictionary*, art. "Benedictines"). It is now hardly necessary to say that the grave charges brought against the monks are no longer credited by serious historians (Gasquet, *Henry VIII. and the Monasteries*; J. Gairdner, Prefaces to the relevant volumes of *Calendars of State Papers of Henry VIII.*). In Mary's reign some of the surviving monks were brought together, and Westminster Abbey was restored. Of the monks professed there during this momentary revival, one, Sigebert Buckley, lived on into the reign of James I.; and being the only survivor of the Benedictines of England, he in 1607 invested with the English habit and affiliated to Westminster Abbey and to the English congregation two English priests, already Benedictines in the Italian congregation. By this act the old English Benedictine line was perpetuated; and in 1619 a number of English monks professed in Spain were aggregated by pontifical act to these representatives of the old English Benedictines, and thus was constituted the present English Benedictine congregation. Three or four monasteries of the revived English Benedictines were established on the continent at the beginning of the 17th century, and remained there till driven back to England by the French Revolution.

The Reformation and the religious wars spread havoc among the Benedictines in many parts of northern Europe; and as a consequence, in part of the rule of Joseph II. of Austria, in part of the French Revolution, nearly every Benedictine monastery in Europe was suppressed—it is said that in the early years of the 19th century scarcely thirty in all survived. But the latter half of the century witnessed a series of remarkable revivals, and first in Bavaria, under the influence of Louis I. The French congregation (which does not enjoy continuity with the Maurists) was inaugurated by Dom Guéranger in 1833, and the German congregation of Beuron in 1863. Two vigorous congregations have arisen in the United States. These are all new creations since 1830. In Italy, Spain, Portugal and Brazil only a few monasteries survive the various revolutions, and in a crippled state; but signs are not wanting of renewed life: St Benedict's own monasteries of Subiaco and Monte Cassino are relatively flourishing. In Austria, Hungary and Switzerland there are some thirty great abbeys, most of which have had a continued existence since the middle ages. The English congregation is composed of three large abbeys (Downside, Ampleforth and Woolhampton), a cathedral priory (Hereford) and a nunnery (Stanbrook Abbey, Worcester); there are besides in England three or four abbeys belonging to foreign congregations, and several nunneries subject to the bishops. Each congregation has its president, who is merely a president, with limited powers, and not a general superior like the Provincials of other orders; so that the primitive Benedictine principle of each monastery being self-contained and autonomous is preserved. Similarly each congregation is independent and self-governing, there being no superior-general or central authority, as in other orders. Leo XIII. established an international Benedictine College in Rome for theological studies, and conferred on its abbot the title of "Abbot Primate," with precedence among Black Monk abbots. He is only *primus inter pares*, and exercises no kind of superiority over the other abbots or congregations. Thus the Benedictine polity may be described as a number of autonomous federations of autonomous monasteries. The individual monks, too, belong not to the order or the congregation, but each to the monastery in which he became a monk. The chief external work of the Benedictines at the present day is secondary education; there are 114 secondary schools or *gymnasia* attached to the abbeys, wherein the monks teach over 12,000 boys; and many of the nunneries have girls' schools. In certain countries (among them England) where there is a dearth of secular priests, Benedictines undertake parochial work.

The statistics of the order (1905) show that of Black Benedictines there are over 4000 choir-monks and nearly 2000 lay brothers—figures that have more than doubled since 1880. If the Cistercians and lesser offshoots of the order be added, the sum total of choir-monks and lay brothers exceeds 11,000.

In conclusion a word must be said on the Benedictine nuns. From the beginning the number of women living the Benedictine life has not fallen far short of that of the men. St Gregory describes St Benedict's sister Scholastica as a nun (*sanctimonialis*), and she is looked upon as the foundress of Benedictine nuns. As the institute spread to other lands nunneries arose on all sides, and nowhere were the Benedictine nuns more numerous or more remarkable than in

England, from Saxon times to the Reformation. A strong type of womanhood is revealed in the correspondence of St Boniface with various Saxon Benedictine nuns, some in England and some who accompanied him to the continent and there established great convents. In the early times the Benedictine nuns were not strictly enclosed, and could, when occasion called for it, freely go out of their convent walls to perform any special work: on the other hand, they did not resemble the modern active congregations of women, whose ordinary work lies outside the convent. It has to be said that in the course of the middle ages, especially the later middle ages, grave disorders arose in many convents; and this doubtless led, in the reform movements initiated by the councils of Constance and Basel, and later of Trent, to the introduction of strict enclosure in Benedictine convents, which now is the almost universal practice. At the present day there are of Black Benedictine nuns 262 convents with 7000 nuns, the large majority being directly subject to the diocesan bishops; if the Cistercians and others be included, there are 387 convents with nearly 11,000 nuns. In England there are a dozen Benedictine nunneries.

AUTHORITIES—The chief general authority for Benedictine history up to the middle of the 12th century is Mabillon's *Annales*, in 6 vols. folio; for the later period no such general work exists, but the various countries, congregations or even abbeys have to be taken separately. Montalembert's *Monks of the West* gives the early history very fully; the later history, to the beginning of the 18th century, may be found in Helyot, *Hist. des ordres religieux*, v. and vi. (1792). A useful sketch, with references to the best literature, is in Max Heimbucher, *Orden und Kongregationen* (1896), i. §§ 17-28; see also the article "Benedictinerorden" in Wetzer u. Welter, *Kirchenlexicon* (2nd ed.), and "Benedikt von Nursia und der Benediktinerorden," in Herzog-Hauck, *Realencyklopädie* (3rd ed.). For England see Ethelred Taunton, *English Black Monks* (1897); and for the modern history (19th century) the series entitled "Succisa Virescit" in the *Downside Review*, 1880 onwards, by J.G. Dolan. On the inner spirit and working of the institute see F.A. Gasquet, *Sketch of Monastic Constitutional History* (being the preface to the 2nd ed., 1895, of the trans. of Montalembert) and *English Monastic Life* (1904); and Newman's two essays on the Benedictines, among the *Historical Sketches*. On Benedictine nuns much will be found in the above-mentioned authorities, and also in Lina Eckenstein, *Woman in Monasticism* (1896). On Benedictines and the Arts see F.H. Kraus, *Geschichte der christlichen Kunst* (Freiburg-i-B., 1896-1897).

(E. C. B.)

BENEDICTION (Lat. *benedictio*, from *benedicere*, to bless), generally, the utterance of a blessing or of a devout wish for the prosperity and happiness of a person or enterprise. In the usage of the Catholic Church, both East and West, though the benediction as defined above has its place as between one Christian and another, it has also a special place in the sacramental system in virtue of the special powers of blessing vested in the priesthood. Sacerdotal benedictions are not indeed sacraments—means of grace ordained by Christ himself,—but sacramentals (*sacramenta minora*) ordained by the authority of the Church and exercised by the priests, as the plenipotentiaries of God, in virtue of the powers conferred on them at their ordination; "that whatever they bless may be blessed, and whatever they consecrate may be consecrated." The power to bless in this ecclesiastical sense is reserved to priests alone; the blessing of the paschal candle on Holy Saturday by the deacon being the one exception that proves the rule, for he uses for the purpose grains of incense previously blessed by the priest at the altar. But though by some the benediction has thus been brought into connexion with the supreme means of grace, the sacrifice of the Mass, the blessing does not in itself confer grace and does not act on its recipients *ex opere operato*. It must not be supposed, however, that the Catholic idea of a sacerdotal blessing has anything of the vague character associated with a benediction by Protestants. Both by Catholics and by Protestants blessings may be applied to things inanimate as well as animate; but while in the reformed Churches this involves no more than an appeal to God for a special blessing, or a solemn "setting apart" of persons or objects for sacred purposes, in the Catholic idea it implies a special power, conferred by God, of the priests over the invisible forces of evil. It thus stands in the closest relation to the rite of exorcism, of which it is the complement.

According to Catholic doctrine, the Fall involved the subjection, not only of man, but of all things animate and inanimate, to the influence of evil spirits; in support of which St Paul's epistles to the Romans (viii.) and to Timothy (1 Tim. iv. 4-5) are quoted. This belief is, of course, not specifically Christian; it has been held at all times and everywhere by men of the most various races and creeds; and, if there be any validity in the contention that that is true which has been held *semper, ubique, et ab omnibus*, no fact is better established. In general it may be said, then, that whereas exorcism is practised in order to cast out devils already in possession, benediction is the formula by which they are prevented from entering in. Protestants have

condemned these formulae as so much magic, and in this modern science tends to agree with them; but to orthodox Protestants at least Catholics have a perfect right to reply that, in taking this line, they are but repeating the accusation brought by the Pharisees against Christ, viz. that he cast out devils "by Beelzebub, prince of the devils."

Though, however, the discomfiture of malignant spirits still plays an important part in the Catholic doctrine of benedictions, this has on the whole tended to become subordinated to other benefits. This is but natural; for, though the progress of knowledge has not disproved the existence of devils, it has greatly limited the supposed range of their activities. According to Father Patrick Morrisroe, dean and professor of liturgy at Maynooth, the efficacy of benedictions is fourfold: (1) the excitation of pious emotions and affections of the heart, and by their means the remission of venial sins and of the temporal punishments due for these; (2) freedom from the power of evil spirits; (3) preservation and restoration of bodily health; (4) various other benefits, temporal and spiritual. Benedictions, moreover, are twofold: (*a*) invocative, *i.e.* those invoking the divine benignity for persons and things without changing their condition, *e.g.* children or food; (*b*) constitutive, *i.e.* those which give to persons or things an indelible religious character, *i.e.* monks and nuns, or the furniture of the altar. The second of these brings the act of benediction into contact with the principle of consecration (*q.v.*); for by the formal blessing by the duly constituted authority persons, places and things are consecrated, *i.e.* reserved to sacred uses and preserved from the contaminating influence of evil spirits. Thus graveyards are consecrated, *i.e.* solemnly blessed in order that the powers of evil may not disturb the bodies of the faithful departed; thus, too, the blessing of bells gives them a special power against evil demons.

Though the giving of blessings as a sacerdotal function is proper to the whole order of priests, particular benedictions have, by ecclesiastical authority, been reserved for the bishops, who may, however, delegate some of them; *i.e.* the benediction of abbots, of priests at their ordination, of virgins taking the veil, of churches, cemeteries, oratories, and of all articles for use in connexion with the altar (chalices, patens, vestments, &c.), of military colours, of soldiers and of their arms. The holy oil is also blessed by bishops in the Roman Catholic Church; in the Greek Church, on the other hand, the oil for the chrism at baptism is blessed by the priest. To the pope alone is reserved the blessing of the pallium, the golden rose, the "Agnus-Dei" and royal swords; he alone, too, can issue blessings that involve some days' indulgence. The ceremonies prescribed for the various benedictions are set forth in the *Rituale Romanum* (tit. viii.). In general it is laid down (cap. i.) that the priest, in benedictions outside the Mass, shall be vested in surplice and stole, and shall give the blessing standing and bare-headed. Certain prayers are said before each benediction, after which he sprinkles the person or thing to be blessed with holy water and, where prescribed, censes them. He is attended by a minister with a vase of holy water, an *aspergillum* and a copy of the *Rituale* or missal. In all benedictions the sign of the cross is made. In the blessing of the holy water (cap. ii.), the essential instrument of all benedictions, the object is dearly to establish its potency against evil spirits. First the "creature of salt" is exorcized, "that ... thou mayest be to all who take thee health of body and soul; that wherever thou art sprinkled every phantasy and wickedness and wile of diabolic deceit may flee and leave that place, and every unclean spirit"; a prayer to God for the blessing of the salt follows; then the "creature of water" is exorcized, "that thou mayest become exorcized water for the purpose of putting to flight every power of the enemy, that thou mayest avail to uproot and expel this enemy with all his apostate angels, by the virtue of the same our Lord Jesus Christ, &c."; and again a prayer to God follows that the water may "become a creature in the service of His mysteries, for the driving out of demons, &c." In the formulae of blessings that follow, the special efficacy against devils is implied by the aspersion with holy water; the benedictions themselves are usually merely invocative of the divine protection or assistance, though, *e.g.*, in the form for blessing sick animals the priest prays that "all diabolic power in them may be destroyed, and that they may be ill no longer." It is to be remarked that the "laying on of hands," which in the Old and the New Testament alike is the usual "form" of blessing, is not used in liturgical benedictions, the priest being directed merely to extend his right hand towards the person to be blessed. The appendix *de Benedictionibus* to the *Rituale Romanum* contains formulae, often of much simple beauty, for blessing all manner of persons and things, from the congregation as a whole and sick men and women, to railways, ships, blast-furnaces, lime-kilns, articles of food, medicine and medical bandages and all manner of domestic animals.

The *Benediction of the Blessed Sacrament*, commonly called simply "Benediction" (Fr. *salut*, Ger. *Segen*), is one of the most popular of the services of the Roman Catholic Church. It is usually held in the afternoon or evening, sometimes at the conclusion of Vespers, Compline or the Stations of the Cross, and consists in the singing of certain hymns and canticles, more particularly the *O salutaris hostia* and the *Tantum ergo*, before the host, which is exposed on the altar in a monstrance and surrounded by not less than ten lighted candles. Often litanies and hymns to the Virgin are added. At the conclusion the priest, his shoulders wrapped in the humeral veil, takes the monstrance and with it makes the sign of the cross over the kneeling congregation, whence the name Benediction. The service, the details of which vary in different

countries, is of comparatively modern origin. Father Thurston traces it to a combination in the 16th and 17th centuries of customs that had their origin in the 13th, *i.e.* certain gild services in honour of the Blessed Virgin, and the growing habit, resulting naturally from the doctrine of transubstantiation, of ascribing a supreme virtue to the act of looking on the Holy Sacrament.

In the reformed Churches the word “benediction” is technically confined to the blessing with which the priest or minister dismisses the congregation at the close of the service.

See the article “Benediktionen,” by E.C. Achelis in Herzog-Hauck, *Realencyklopädie* (Leipzig, 1897); *The Catholic Encyclopaedia* (London and New York, 1908) s. “Blessing,” by P. Morrisroe, and “Benediction of the Blessed Sacrament,” by Herbert Thurston, S.J.; in all of which further authorities are cited.

BENEDICTUS, the hymn of Zacharias (Luke i. 68 sqq.), so called from the opening word of the Latin version. The hymn has been used in Christian worship since at least the 9th century, and was adopted into the Anglican Order of Morning Prayer from the Roman service of matin-lauds. In the Prayer-Book of 1549 there was no alternative to the *Benedictus*; it was to be used “throughout the whole year.” In 1552 the *Jubilate* was inserted without any restriction as to how often it should take the place of the *Benedictus*. Such restriction is clearly implied in the words “except when that (Benedictus) shall happen to be read in the chapter for the day, or for the Gospel on Saint John Baptist’s day,” which were inserted in 1662. The rubric of 1532 had this curious wording: “And after the Second Lesson shall be used and said, Benedictus in English, as followeth.”

The name is also given to a part of the Roman Catholic mass service beginning *Benedictus qui venit*.

BENEDICTUS ABBAS (d. 1194), abbot of Peterborough, whose name is accidentally connected with the *Gesta Henrici Regis Secundi*, one of the most valuable of English 12th-century chronicles. He first makes his appearance in 1174, as the chancellor of Archbishop Richard, the successor of Becket in the primacy. In 1175 Benedictus became prior of Holy Trinity, Canterbury; in 1177 he received from Henry II. the abbacy of Peterborough, which he held until his death. As abbot he distinguished himself by his activity in building, in administering the finances of his house and in collecting a library. He is described in the *Chronicon Petroburgense* as “blessed both in name and deed.” He belonged to the circle of Becket’s admirers, and wrote two works dealing with the martyrdom and the miracles of his hero. Fragments of the former work have come down to us in the compilation known as the *Quadrilogus*, which is printed in the fourth volume of J.C. Robertson’s *Materials for the History of Thomas Becket* (Rolls series); the miracles are extant in their entirety, and are printed in the second volume of the same collection. Benedictus has been credited with the authorship of the *Gesta Henrici* on the ground that his name appears in the title of the oldest manuscript. We have, however, conclusive evidence that Benedictus merely caused this work to be transcribed for the Peterborough library. It is only through the force of custom that the work is still occasionally cited under the name of Benedictus. The question of authorship has been discussed by Sir T.D. Hardy, Bishop Stubbs and Professor Liebermann; but the results of the discussion are negative. Stubbs conjecturally identified the first part of the *Gesta* (1170-1177) with the *Liber Tricolumnis*, a register of contemporary events kept by Richard Fitz Neal (*q.v.*), the treasurer of Henry II. and author of the *Dialogus de Scaccario*; the latter part (1177-1192) was by the same authority ascribed to Roger of Hoveden, who makes large use of the *Gesta* in his own chronicle, copying them with few alterations beyond the addition of some documents. This theory, so far as concerns the *Liber Tricolumnis*, is rejected by Liebermann and the most recent editors of the *Dialogus* (A. Hughes, C.G. Crump and C. Johnson, Oxford, 1902). We can only say that the *Gesta* are the work of a well-informed contemporary who appears to have been closely connected with the court and is inclined on all occasions to take the side of Henry II. The author confines himself to the external history of events, and his tone is strictly impersonal. He incorporates some official documents, and in many places obviously derives his information from others which he does not quote. There is a break in his work at the year 1177, where the earliest manuscript ends; but the reasons which have been given to prove that the authorship changes at this point are inconclusive. The work begins at Christmas 1169, and concludes in 1192; it is thus

in form a fragment, covering portions of the reign of Henry II. and Richard I.

See W. Stubbs' *Gesta regis Henrici Secundi Benedicti abbatis* (2 vols., Rolls series, 1867), and particularly the preface to the first volume; F. Liebermann in *Einleitung in den Dialogus de Scaccario* (Göttingen, 1875); in *Ostenglische Geschichtsquellen* (Hanover, 1892); and in Pertz's *Monumenta Germaniae Historica, Scriptores*, vol. xxvii. pp. 82, 83; also the introduction to the *Dialogus de Scaccario* in the Oxford edition of 1902.

(H. W. C. D.)

BENEDIX, JULIUS RODERICH (1811-1873), German dramatist and librettist, was born at Leipzig on the 21st of January 1811, and was educated at the Thomasschule at Leipzig. He joined the stage in 1831, his first engagement being with the travelling company of H.E. Bethmann in Dessau, Cöthen, Bernburg and Meiningen. Subsequently he was tenor in several theatres in Westphalia and on the Rhine, and became manager of the theatre at Wesel, where he produced a comedy, *Das bemooste Haupt* (1841), which met with great success. After an engagement in Cologne, he managed the new theatre at Elberfeld (1844-1845) and in 1849 was appointed teacher on the staff of the Rhenish school of music in Cologne. In 1855 he was appointed intendant of the municipal theatre in Frankfort-On-Main, but retired in 1861, and died in Leipzig on the 26th of September 1873. Benedix's comedies, the scenes of which are mostly laid in upper middle-class life, still enjoy some popularity; the best-known are: *Dr Wespe; Die Hochzeitsreise; Der Vetter; Das Gefängnis; Das Lügen; Ein Lustspiel; Der Störenfried; Die Dienstboten; Aschenbrödel; Die zärtlichen Verwandten*. The chief characteristics of his farces are a clear plot and bright, easy and natural dialogue. Among his more serious works are: *Bilder aus dem Schauspielerleben* (Leipzig, 1847); *Der mündliche Vortrag* (Leipzig, 1859-1860); *Das Wesen des deutschen Rhythmus* (Leipzig, 1862) and, posthumously, *Die Shakespearomanie* (1873), in which he attacks the extreme adoration of the British poet.

Benedix's *Gesammelte dramatische Werke* appeared in 27 vols. (Leipzig, 1846-1875); a selection under the title *Volkstheater* in 20 vols. (Leipzig, 1882); and a collection of smaller comedies as *Haustheater* in 2 vols. (both ed., Leipzig, 1891); see Benedix's autobiography in the *Gartenlaube* for 1871.

BENEFICE (Lat. *beneficium*, benefit), a term first applied under the Roman empire to portions of land, the usufruct of which was granted by the emperors to their soldiers or others for life, as a reward or *beneficium* for past services, and as a retainer for future services. A list of all such *beneficia* was recorded in the *Book of Benefices* (*Liber Beneficiorum*), which was kept by the principal registrar of benefices (*Primiscrinius Beneficiorum*). In imitation of the practice observed under the Roman empire, the term came to be applied under the feudal system to portions of land granted by a lord to his vassal for the maintenance of the latter on condition of his rendering military service; and such grants were originally for life only, and the land reverted to the lord on the death of the vassal. In a similar manner grants of land, or of the profits of land, appear to have been made by the bishops to their clergy for life, on the ground of some extraordinary merit on the part of the grantee. The validity of such grants was first formally recognized by the council of Orleans, A.D. 511, which forbade, however, under any circumstances, the alienation from the bishoprics of any lands so granted. The next following council of Orleans, 533, broke in upon this principle, by declaring that a bishop could not reclaim from his clergy any grants made to them by his predecessor, excepting in cases of misconduct. This innovation on the ancient practice was confirmed by the subsequent council of Lyons, 566, and from this period these grants ceased to be regarded as personal, and their substance became annexed to the churches,—in other words, they were henceforth enjoyed *jure tituli*, and no longer *jure personali*. How and when the term *beneficia* came to be applied to these episcopal grants is uncertain, but they are designated by that term in a canon of the council of Mainz, 813.

The term benefice, according to the canon law, implies always an ecclesiastical office, *propter quod beneficium datur*, but it does not always imply a cure of souls. It has been defined to be the right which a clerk has to enjoy certain ecclesiastical revenues on condition of discharging certain services prescribed by the canons, or by usage, or by the conditions under which his office has been founded. These services might be those of a secular priest with cure of souls, or

they might be those of a regular priest, a member of a religious order, without cure of souls; but in every case a benefice implied three things: (1) An obligation to discharge the duties of an office, which is altogether spiritual; (2) The right to enjoy the fruits attached to that office, which is the benefice itself; (3) The fruits themselves, which are the temporalities. By keeping these distinctions in view, the right of patronage in the case of secular benefices becomes intelligible, being in fact the right, which was originally vested in the donor of the temporalities, to present to the bishop a clerk to be admitted, if found fit by the bishop, to the office to which those temporalities are annexed. Nomination or presentation on the part of the patron of the benefice is thus the first requisite in order that a clerk should become legally entitled to a benefice. The next requisite is that he should be admitted by the bishop as a fit person for the spiritual office to which the benefice is annexed, and the bishop is the judge of the sufficiency of the clerk to be so admitted. By the early constitutions of the Church of England a bishop was allowed a space of two months to inquire and inform himself of the sufficiency of every presentee, but by the ninety-fifth of the canons of 1604 that interval has been abridged to twenty-eight days, within which the bishop must admit or reject the clerk. If the bishop rejects the clerk within that time he is liable to a *duplex querela* in the ecclesiastical courts, or to a *quare impedit* in the common law courts, and the bishop must then certify the reasons of his refusal. In cases where the patron is himself a clerk in orders, and wishes to be admitted to the benefice, he must proceed by way of petition instead of by deed of presentation, reciting that the benefice is in his own patronage, and petitioning the bishop to examine him and admit him. Upon the bishop having satisfied himself of the sufficiency of the clerk, he proceeds to institute him to the spiritual office to which the benefice is annexed, but, before such institution can take place, the clerk is required to make a declaration of assent to the Thirty-nine Articles of Religion and to the Book of Common Prayer according to a form prescribed in the Clerical Subscription Act 1865, to make a declaration against simony in accordance with that act, and to take and subscribe the oath of allegiance according to the form in the Promissory Oaths Act 1868. The bishop, by the act of institution, commits to the clerk the cure of souls attached to the office to which the benefice is annexed. In cases where the bishop himself is patron of the benefice, no presentation or petition is required to be tendered by the clerk, but the bishop having satisfied himself of the sufficiency of the clerk, collates him to the benefice and office. It is not necessary that the bishop himself should personally institute or collate a clerk; he may issue a fiat to his vicar-general, or to a special commissary for that purpose. After the bishop or his commissary has instituted the presentee, he issues a mandate under seal, addressed to the archdeacon or some other neighbouring clergyman, authorizing him to induct the clerk into his benefice,—in other words, to put him into legal possession of the temporalities, which is done by some outward form, and for the most part by delivery of the bell-rope to the clerk, who thereupon tolls the bell. This form of induction is required to give the clerk a legal title to his *beneficium*, although his admission to the office by institution is sufficient to vacate any other benefice which he may already possess.

By a decree of the Lateran council of 1215, which was enforced in England, no clerk can hold two benefices with cure of souls, and if a beneficed clerk shall take a second benefice with cure of souls, he vacates *ipso facto* his first benefice. Dispensations, however, could be easily obtained from Rome, before the reformation of the Church of England, to enable a clerk to hold several ecclesiastical dignities or benefices at the same time, and by the Peterpence, Dispensations, &c. Act 1534, the power to grant such dispensations, which had been exercised previously by the court of Rome, was transferred to the archbishop of Canterbury, certain ecclesiastical persons having been declared by a previous statute (1529) to be entitled to such dispensations. The system of pluralities carried with it, as a necessary consequence, systematic non-residence on the part of many incumbents, and delegation of their spiritual duties in respect of their cures of souls to assistant curates. The evils attendant on this system were found to be so great that the Pluralities Act 1838 was passed to abridge the holding of benefices in plurality, and it was enacted that no person should hold under any circumstances more than two benefices, and this privilege was made subject to the restriction that his benefices were within ten statute miles of each other. By the Pluralities Act 1850, the restriction was further narrowed, so that no spiritual person could hold two benefices except the churches of such benefices were within three miles of each other by the nearest road, and the annual value of one of such benefices did not exceed £100. By this statute the term benefice is defined to mean benefice with cure of souls and no other, and therein to comprehend all parishes, perpetual curacies, donatives, endowed public chapels, parochial chapelries and chapelries or districts belonging or reputed to belong, or annexed or reputed to be annexed, to any church or chapel. The Pluralities Acts Amendment Act 1885, however, enacted that, by dispensation from the archbishop, two benefices could be held together, the churches of which are within four miles of each other, and the annual value of one of which does not exceed £200.

All benefices except those under the clear annual value of £50 pay their first fruits (one year’s profits) and tenths (of yearly profits) to Queen Anne’s Bounty for the augmentation of the maintenance of the poorer clergy. Their profits during vacation belong to the next incumbent. Tithe rent charge attached to a benefice is relieved from payment of one-half of the agricultural

rates assessed thereon. Benefices may be exchanged by agreement between incumbents with the consent of the ordinary, and they may, with the consent of the patron and ordinary, be united or dissolved after being united. They may also be charged with the repayment of money laid out for their permanent advantage, and be augmented wholly by the medium of Queen Anne's Bounty.

A benefice is avoided or vacated—(1) by death; (2) by resignation, if the bishop is willing to accept the resignation: by the Incumbents' Resignation Act 1871, Amendment Act 1887, any clergyman who has been an incumbent of one benefice continuously for seven years, and is incapacitated by permanent mental or bodily infirmities from fulfilling his duties, may, if the bishop thinks fit, have a commission appointed to consider the fitness of his resigning; and if the commission report in favour of his resigning, he may, with the consent of the patron (or, if that is refused, with the consent of the archbishop) resign the cure of souls into the bishop's hands, and have assigned to him, out of the benefice, a retiring-pension not exceeding one-third of its annual value, which is recoverable as a debt from his successor; (3) by cession, upon the clerk being instituted to another benefice or some other preferment incompatible with it; (4) by deprivation and sentence of an ecclesiastical court; under the Clergy Discipline Act 1892, an incumbent who has been convicted of offences against the law of bastardy, or against whom judgment has been given in a divorce or matrimonial cause, is deprived, and on being found guilty in the consistory court of immorality or ecclesiastical offences (not in respect of doctrine or ritual), he may be deprived or suspended or declared incapable of preferment; (5) by act of law in consequence of simony; (6) by default of the clerk in neglecting to read publicly in the church the Book of Common Prayer, and to declare his assent thereto within two months after his induction, pursuant to an act of 1662.

See also ADVOWSON; GLEBE; INCUMBENT; VICAR; also Phillimore, *Eccles. Law*; Cripps, *Law of Church and Clergy*.

BENEFICIARY (from Lat. *beneficium*, a benefit), in law, one who holds a benefice; one who is beneficially entitled to, or interested in, property, *i.e.* entitled to it for his own benefit, and not merely holding it for others, as does an executor or trustee. In this latter sense it is nearly equivalent to *cestui que trust*, a term which it is gradually superseding in modern law.

BENEKE, FRIEDRICH EDUARD (1798-1854), German psychologist, was born at Berlin on the 17th of February 1798, studied at the universities of Halle and Berlin, and served as a volunteer in the war of 1815. After studying theology under Schleiermacher and De Wette, he turned to pure philosophy, studying particularly English writers and the German modifiers of Kantianism, such as Jacobi, Fries and Schopenhauer. In 1820 he published his *Erkenntnisslehre*, his *Erfahrungsseelenlehre als Grundlage alles Wissens*, and his inaugural dissertation *De Veris Philosophiae Initiis*. His marked opposition to the philosophy of Hegel, then dominant in Berlin, was shown more clearly in the short tract, *Neue Grundlegung zur Metaphysik* (1822), intended to be the programme for his lectures as privat-docent, and in the able treatise, *Grundlegung zur Physlk der Sitten* (1822), written, in direct antagonism to Kant's *Metaphysic of Ethics*, to deduce ethical principles from a basis of empirical feeling. In 1822 his lectures were prohibited at Berlin, according to his own belief through the influence of Hegel with the Prussian authorities, who also prevented him from obtaining a chair from the Saxon government. He retired to Göttingen, lectured there for some years, and was then allowed to return to Berlin. In 1832 he received an appointment as *professor extraordinarius* in the university, which he continued to hold till his death. On the 1st of March 1854 he disappeared, and more than two years later his remains were found in the canal near Charlottenburg. There was some suspicion that he had committed suicide in a fit of mental depression.

The distinctive peculiarity of Beneke's system consists, first, in the firmness with which he maintained that in empirical psychology is to be found the basis of all philosophy; and secondly, in his rigid treatment of mental phenomena by the genetic method. According to him, the perfected mind is a development from simple elements, and the first problem of philosophy is the determination of these elements and of the processes by which the development takes place. In his *Neue Psychologie*, (essays iii., viii. and ix.), he defined his position with regard to his

predecessors and contemporaries, and both there and in the introduction to his *Lehrbuch* signalized as the two great stages in the progress of psychology the negation of innate ideas by Locke, and of faculties, in the ordinary acceptation of the term, by Herbart. The next step was his own; he insisted that psychology must be treated as one of the natural sciences. As is the case with them, its content is given by experience alone, and differs from theirs only in being the object of the internal as opposed to the external sense. But by this Beneke in no wise meant a psychology founded on physiology. These two sciences, in his opinion, had quite distinct provinces and gave no mutual assistance. Just as little help is to be expected from the science of the body as from mathematics and metaphysics, both of which had been pressed by Herbart into the service of psychology. The true method of study is that applied with so much success in the physical sciences—critical examination of the given experience, and reference of it to ultimate causes, which may not be themselves perceived, but are nevertheless hypotheses necessary to account for the facts. (See on method, *Neue Psych.*, essay i.)

Starting from the two assumptions that there is nothing, or at least no formed product, innate in the mind, and that definite faculties do not originally exist, and from the fact that our minds nevertheless actually have a definite content and definite modes of action, Beneke proceeds to state somewhat dogmatically his scientifically verifiable hypotheses as to the primitive condition of the soul and the laws according to which it develops. Originally the soul is possessed of or is an immense variety of powers, faculties or forces (conceptions which Beneke, in opposition to Herbart, holds to be metaphysically justifiable), differing from one another only in tenacity, vivacity, receptivity and grouping. These primitive immaterial forces, so closely united as to form but one being (essence), acquire definiteness or form through the action upon them of *stimuli* or excitants from the outer world. This action of external impressions which are appropriated by the internal powers is the first fundamental process in the genesis of the completed mind. If the union of impression and faculty be sufficiently strong, consciousness (not *self*-consciousness) arises, and definite sensations and perceptions begin to be formed. These primitive sensations, however, are not to be identified with the sensations of the special senses, for each of these senses is a system of many powers which have grown into a definite unity, have been educated by experience. From ordinary experience it must be concluded that a second fundamental process is incessantly going on, viz. the formation of new powers, which takes place principally during sleep. The third and most important process results from the fact that the combination between stimulus and power may be weak or strong; if weak, then the two elements are said to be movable, and they may flow over from one to another of the already formed psychical products. Any formed faculty does not cease to exist on the removal of its stimulus; in virtue of its fundamental property, *tenacity*, it sinks back as a trace (*Spur*) into unconsciousness, whence it may be recalled by the application to it of another stimulus, or by the attraction towards it of some of the movable elements or newly-formed original powers. These traces and the flowing over of the movable elements are the most important conceptions in Beneke's psychology; by means of them he gives a rationale of reproduction and association, and strives to show that all the formed faculties are simply developments from traces of earlier processes. Lastly, similar forms, according to the degree of their similarity, attract one another or tend to form closer combinations.

All psychical phenomena are explicable by the relation of impression and power, and by the flow of movable elements; the whole process of mental development is nothing but the result of the action and interaction of the above simple laws. In general this growth may be said to take the direction of rendering more and more definite by repetition and attraction of like to like the originally indefinite activities of the primary faculties. Thus the sensations of the special senses are gradually formed from the primary sensuous feelings (*sinnliche Empfindungen*); concepts are formed from intuitions of individuals by the attraction of the common elements, and the consequent flow towards them of movable forms. Judgment is the springing into consciousness of a concept alongside of an intuition, or of a higher concept alongside of a lower. Reasoning is merely a more complex judgment. Nor are there special faculties of judging or reasoning. The understanding is simply the mass of concepts lying in the background of unconsciousness, ready to be called up and to flow with force towards anything closely connected with them. Even memory is not a special faculty; it is simply the fundamental property of tenacity possessed by the original faculties. The very distinction between the great classes, Knowledge, Feeling and Will, may be referred to elementary differences in the original relations of faculty and impression.

This is the groundwork of Beneke's philosophy. It should be carefully compared with the association psychology of modern British thinkers, most of whose results and processes will be found there worked into a comprehensive system (see Association of Ideas). In logic, metaphysics and ethics Beneke's speculations are naturally dependent on his psychology.

The special value of Beneke's works, as has been already said, consists in the many specimens of acute psychological analysis scattered throughout them. As a complete explanation of psychical facts, the theory seems defective. The original hypotheses, peculiar to Beneke, on which the whole depends, are hastily assumed and rest on a clumsy mechanical metaphor. As is the case with all empirical theories of mental development, the higher categories or notions, which are apparently shown to result from the simple elements, are really presupposed at every

step. Particularly unsatisfactory is the account of consciousness, which is said to arise from the union of impression and faculty. The necessity of consciousness for any mental action whatsoever is apparently granted, but the conditions involved in it are never discussed or mentioned. The same defect appears in the account of ethical judgment; no amount of empirical fact can ever yield the notion of absolute duty. His results have found acceptance mainly with practical teachers. Undoubtedly his minute analysis of temperament and careful exposition of the means whereby the young, unformed mind may be trained are of infinite value; but the truth of many of his doctrines on these points lends no support to the fundamental hypotheses, from which, indeed, they might be almost entirely severed.

Beneke was a most prolific writer, and besides the works mentioned above, published large treatises in the several departments of philosophy, both pure and as applied to education and ordinary life. A complete list of his writings will be found in the appendix to Dressler's edition of the *Lehrbuch der Psychologie als Naturwissenschaft* (1861). The chief are:—*Psychologische Skizzen* (1825, 1827); *Lehrbuch der Psychologie* (1832); *Metaphysik und Religionsphilosophie* (1840); *Die neue Psychologie* (1845); *Pragmatische Psychologie oder Seelenlehre in der Anwendung auf das Leben* (1832).

Among German writers, who, though not professed followers of Beneke, have been largely influenced by him, may be mentioned Ueberweg and Karl Fortlage (1806-1881). In England, perhaps, the only writer who shows traces of acquaintance with his works is J.D. Morell (*Introd. to Mental Philosophy*). The most eminent members of the school are J.G. Dressler (whose *Beneke oder Seelenlehre als Naturwissenschaft* is an admirable exposition), Fried. Dittes and G. Raue. The compendium by the last-named author passed through four editions in Germany, and has been translated into French, Flemish and English. The English translation, *Elements of Psychology* (1871), gives a lucid and succinct view of the whole system.

Among more recent works on Beneke are O.E. Hummel, *Die Unterrichtslehre Benekes* (Leipzig, 1885); on his ethical theory, C.H.Th. Kühn, *Die Sittenlehre F.E. Benekes* (1892); Joh. Friedrich, *F.E. Beneke* (Wiesbaden, 1898, with biography and list of works); Otto Gramzow, *F.E. Benekes Leben und Philos.* (Bern, 1899, with full bibliography); on his theory of knowledge, H. Renner, *Benekes Erkenninistheorie* (Halle, 1902); on his metaphysics, *Die Metaphysik Benekes*, by A. Wandschneider (Berlin, 1903); Brandt, *Beneke, the Man and His Philosophy* (New York, 1895); Falckenberg, *Hist. of Phil.* (Eng. trans., 1895); and H. Höffding, *Hist. of Mod. Phil.* vol. ii. (Eng. trans., 1900).

(R. Ad.)

BENETT, ETHELDRED (1776-1845), one of the earliest of English women geologists, the second daughter of Thomas Benett, of Pyt House near Tisbury, was born in 1776. Later she resided at Norton House, near Warminster, in Wiltshire, and for more than a quarter of a century devoted herself to collecting and studying the fossils of her native county. She contributed "A Catalogue of the Organic Remains of the County of Wilts" to Sir R.C. Hoare's *County History*, and a limited number of copies of this work were printed as a separate volume (1831) and privately distributed. She died on the 11th of January 1845.

BENEVENTO, a town and archiepiscopal see of Campania, Italy, capital of the province of Benevento, 60 m. by rail and 32 m. direct N.E. of Naples, situated on a hill 400 ft. above sea-level at the confluence of the Calore and Sabbato. Pop. (1901) town, 17,227; commune, 24,137. It occupies the site of the ancient Beneventum, originally Maleventum or Maluentum, supposed in the imperial period to have been founded by Diomedes. It was the chief town of the Samnites, who took refuge here after their defeat by the Romans in 314 B.C. It appears not to have fallen into the hands of the latter until Pyrrhus's absence in Sicily, but served them as a base of operations in the last campaign against him in 275 B.C. A Latin colony was planted there in 268 B.C., and it was then that the name was changed for the sake of the omen, and probably then that the Via Appia was extended from Capua to Beneventum. It remained in the hands of the Romans during both the Punic and the Social Wars, and was a fortress of importance to them. The position is strong, being protected by the two rivers mentioned, and the medieval fortifications, which are nearly 2 m. in length, probably follow the ancient line, which was razed to the ground by Totila in A.D. 542. After the Social War it became a *municipium* and under Augustus a colony. Being a meeting point of six main roads,[1] it was much visited by travellers. Its importance is

vouched for by the many remains of antiquity which it possesses, of which the most famous is the triumphal arch erected in honour of Trajan by the senate and people of Rome in A.D. 114, with important reliefs relating to its history (E. Petersen in *Römische Mitteilungen*, 1892, 241; A. von Domaszewzki in *Jahreshefte des Österreich. archäologischen Instituts*, ii., 1899, 173). There are also considerable remains of the ancient theatre, a large *cryptoporticus* 197 ft. long known as the ruins of Santi Quaranta, and probably an emporium (according to Meomartini, the portion preserved is only a fraction of the whole, which once measured 1791 ft. in length) and an ancient brick arch (called the Arco del Sacramento), while below the town is the Ponte Lebroso, a bridge of the Via Appia over the Sabbato, and along the road to Avellino are remains of *thermae*. Many inscriptions and ancient fragments may be seen built into the houses; in front of the Madonna delle Grazie is a bull in red Egyptian granite, and in the Piazza Papiniano the fragments of two Egyptian obelisks erected in A.D. 88 in front of the temple of Isis in honour of Domitian. In 1903 the foundations of this temple were discovered close to the Arch of Trajan, and many fragments of fine sculptures in both the Egyptian and the Greco-Roman style belonging to it were found. They had apparently been used as the foundation of a portion of the city wall, reconstructed in A.D. 663 under the fear of an attack by Constans, the Byzantine emperor, the temple having been destroyed under the influence of the bishop, St Barbatus, to provide the necessary material (A. Meomartini, O. Marucchi and L. Savignoni in *Notizie degli Scavi*, 1904, 107 sqq.). Not long after it had been sacked by Totila Benevento became the seat of a powerful Lombard duchy and continued to be independent until 1053, when the emperor Henry III. ceded it to Leo IX. in exchange for the bishopric of Bamberg; and it continued to be a papal possession until 1806, when Napoleon granted it to Talleyrand with the title of prince. In 1815 it returned to the papacy, but was united to Italy in 1860. Manfred lost his life in 1266 in battle with Charles of Anjou not far from the town. Much damage has been done by earthquakes from time to time. The church of S. Sofia, a circular edifice of about 760, now modernized, the roof of which is supported by six ancient columns, is a relic of the Lombard period; it has a fine cloister of the 12th century constructed in part of fragments of earlier buildings; while the cathedral with its fine arcaded façade and incomplete square campanile (begun in 1279) dates from the 9th century and was rebuilt in 1114. The bronze doors, adorned with bas-reliefs, are good; they may belong to the beginning of the 13th century. The interior is in the form of a basilica, the double aisles being borne by ancient columns, and contains *ambones* and a candelabrum of 1311, the former resting on columns supported by lions, and decorated with reliefs and coloured marble mosaic. The castle at the highest point of the town was erected in the 14th century.

Benevento is a station on the railway from Naples to Foggia, and has branch lines to Campobasso and to Avellino.

See A. Meomartini, *Monumenti e opere d'Arte di Benevento* (Benevento, 1899); T. Ashby, *Mélanges de l'école française*, 1903, 416.

(T. As.)

1 These were (1) the prolongation of the Via Appia from Capua, (2) its continuation to Tarentum and Brundisium, of which there were two different lines between Beneventum and Aquilonia at different dates (see Appia, Via), (3) the Via Traiana to Brundisium by Herdoniae, (4) the road to Telesia and Aesernia, (5) the road to Aesernia by Bovianum, (6) the road to Abellinum and Salernum.

BENEVOLENCE (Lat. *bene*, well, and *volens*, wishing), a term for an act of kindness, or a gift of money, or goods, but used in a special sense to indicate sums of money, disguised as gifts, which were extorted by various English kings from their subjects, without consent of parliament. Among the numerous methods which have been adopted by sovereigns everywhere to obtain support from their people, that of demanding gifts has frequently found a place, and consequently it is the word and not the method which is peculiar to English history. Edward II. and Richard II. had obtained funds by resorting to forced loans, a practice which was probably not unusual in earlier times. Edward IV., however, discarded even the pretence of repayment, and in 1473 the word *benevolence* was first used with reference to a royal demand for a gift. Edward was very successful in these efforts, and as they only concerned a limited number of persons he did not incur serious unpopularity. But when Richard III. sought to emulate his brother's example, protests were made which led to the passing of an act of parliament in 1484 abolishing benevolences as "new and unlawful inventions." About the same time the Chronicle of Croyland referred to a benevolence as a "nova et inaudita impositio muneris ut per benevolentiam quilibet daret id quod vellet, immo verius quod nollet." In spite of this act Richard demanded a further benevolence; but it was Henry VII. who made the most extensive

use of this system. In 1491 he sent out commissioners to obtain gifts of money, and in 1496 an act of parliament enforced payment of the sums promised on this occasion under penalty of imprisonment. Henry's chancellor, Cardinal Morton, archbishop of Canterbury, was the traditional author of a method of raising money by benevolences known as "Morton's Fork." If a man lived economically, it was reasoned he was saving money and could afford a present for the king. If, on the contrary, he lived sumptuously, he was evidently wealthy and could likewise afford a gift. Henry VII. obtained considerable sums of money in this manner; and in 1545 Henry VIII. demanded a "loving contribution" from all who possessed lands worth not less than forty shillings a year, or chattels to the value of £15; and those who refused to make payment were summoned before the privy council and punished. Elizabeth took loans which were often repaid; and in 1614 James I. ordered the sheriffs and magistrates in each county and borough to collect a general benevolence from all persons of ability, and with some difficulty about £40,000 was collected. Four counties had, however, distinguished themselves by protests against this demand, and the act of Richard III. had been cited by various objectors. Representatives from the four counties were accordingly called before the privy council, where Sir Edward Coke defended the action of the king, quoted the Tudor precedents and urged that the act of 1484 was to prevent exactions, not voluntary gifts such as James had requested. Subsequently Oliver St John was fined and imprisoned for making a violent protest against the benevolence, and on the occasion of his trial Sir Francis Bacon defended the request for money as voluntary. In 1615 an attempt to exact a benevolence in Ireland failed, and in 1620 it was decided to demand one for the defence of the Palatinate. Circular letters were sent out, punishments were inflicted, but many excuses were made and only about £34,000 was contributed. In 1621 a further attempt was made, judges of assize and others were ordered to press for contributions, and wealthy men were called before the privy council and asked to name a sum at which to be rated. About £88,000 was thus raised, and in 1622 William Fiennes, 1st Viscount Saye and Sele, was imprisoned for six months for protesting. This was the last time benevolences were actually collected, although in 1622 and 1625 it was proposed to raise money in this manner. In 1633 Charles I. consented to collect a benevolence for the recovery of the Palatinate for Charles Louis, the son of his sister Elizabeth, but no further steps were taken to carry out the project.

See W. Stubbs, *Constitutional History of England*, vol. iii. (Oxford, 1895); H. Hallam, *Constitutional History of England*, vol. i. (London, 1855); T.P. Taswell-Langmead, *English Constitutional History* (London, 1896); S.R. Gardiner, *History of England, passim* (London, 1893).

BENFEY, THEODOR (1809-1881), German philologist, son of a Jewish trader at Nörten, near Göttingen, was born on the 28th of January 1809. Although originally designed for the medical profession, his taste for philology was awakened by a careful instruction in Hebrew which he received from his father. After brilliant studies at Göttingen he spent a year at Munich, where he was greatly impressed by the lectures of Schelling and Thiersch, and afterwards settled as a teacher in Frankfort. His pursuits were at first chiefly classical, and his attention was diverted to Sanskrit by an accidental wager that he would learn enough of the language in a few weeks to be able to review a new book upon it. This feat he accomplished, and rivalled in later years when he learned Russian in order to translate V.P. Vasilev's work on Buddhism. For the time, however, his labours were chiefly in classical and Semitic philology. At Göttingen, whither he had returned as privat-docent, he wrote a little work on the names of the Hebrew months, proving that they were derived from the Persian, prepared the great article on India in Ersch and Grüber's *Encyclopaedia*, and published from 1839 to 1842 the *Lexicon of Greek Roots* which gained him the Volney prize of the Institute of France. From this time his attention was principally given to Sanskrit. He published in 1848 his edition of the *Sāma-veda*; in 1852-1854 his *Manual of Sanskrit*, comprising a grammar and chrestomathy; in 1858 his practical Sanskrit grammar, afterwards translated into English; and in 1859 his edition of the *Pantscha Tantra*, with an extensive dissertation on the fables and mythologies of primitive nations. All these works had been produced under the pressure of poverty, the government, whether from parsimony or from prejudice against a Jew, refusing to make any substantial addition to his small salary as extra-professor at the university. At length, in 1862, the growing appreciation of foreign scholars shamed it into making him an ordinary professor, and in 1866 Benfey published the laborious work by which he is on the whole best known, his great *Sanskrit-English Dictionary*. In 1869 he wrote a history of German philological research, especially Oriental, during the 19th century. In 1878 his jubilee as doctor was celebrated by the publication of a volume of philological essays dedicated to him and written by the first scholars in Germany. He had designed to close his literary labours by a grammar of Vedic Sanskrit, and was actively preparing it when he was interrupted by illness, which terminated in his death at Göttingen on

the 26th of June 1881.

A collection of his various writings was published in 1890, prefaced by a memoir by his son.

BENGAL, a province of British India, bounded on the E. by the province of Eastern Bengal and Assam, the boundary line being the Madhumati river and the Ganges; on the S. by the Bay of Bengal and Madras; on the W. by the Central Provinces and United Provinces; and on the N. by Nepal and Sikkim. It has an area of 141,580 sq. m. and a population of 54,096,806. It consists of the provinces of Behar, Orissa and Chota Nagpur, and the western portion of the Ganges valley, but without the provinces of Northern and Eastern Bengal; and is divided into the six British divisions of the presidency, Bhagalpur, Patna, Burdwan, Chota Nagpur and Orissa, and various native states. The province was reconstituted in 1905, when the Chittagong, Dacca and Rajshahi divisions, the district of Malda and the state of Hill Tippera were transferred from Bengal to a new province, Eastern Bengal and Assam; the five Hindi-speaking states of Chota Nagpur, namely Chang Bhakar, Korea, Sirguja, Udaipur and Jashpur, were transferred from Bengal to the Central Provinces; and Sambalpur and the five Oriya states of Bamra, Rairakhol, Sonpur, Patna and Kalahandi were transferred from the Central Provinces to Bengal. The province of Bengal, therefore, now consists of the thirty-three British districts of Burdwan, Birbhum, Bankura, Midnapore, Hugli, Howrah, Twenty-four Parganas, Calcutta, Nadia, Murshidabad, Jessore, Khulna, Patna, Gaya, Shahabad, Saran, Champaran, Muzaffarpur, Darbhanga, Monghyr, Bhagalpur, Purnea, Santal Parganas, Cuttack, Balasore, Angul and Khondmals, Puri, Hazaribagh, Ranchi, Palamau, Manbhum, Singhbum and Sambalpur, and the native states of Sikkim and the tributary states of Orissa and Chota Nagpur.

The name Bengal is derived from Sanskrit geography, and applies strictly to the country stretching southwards from Bhagalpur to the sea. The ancient Banga formed one of the five outlying kingdoms of Aryan India, and was practically conterminous with the delta of Bengal. It derived its name, according to the etymology of the Pundits, from a prince of the Mahabharata, to whose portion it fell on the primitive partition of the country among the Lunar race of Delhi. But a city called Bangala, near Chittagong, which, although now washed away, is supposed to have existed in the Mahommedan period, appears to have given the name to the European world. The word Bangala was first used by the Mussulmans; and under their rule, like the Banga of old Sanskrit times, it applied specifically to the Gangetic delta, although the later conquests to the east of the Brahmaputra were eventually included within it. In their distribution of the country for fiscal purposes, it formed the central province of a governorship, with Behar on the north-west, and Orissa on the south-west, jointly ruled by one deputy of the Delhi emperor. Under the English the name has at different periods borne very different significations. Francis Fernandez applies it to the country from the extreme east of Chittagong to Point Palmyras in Orissa, with a coast line which Purchas estimates at 600 m., running inland for the same distance and watered by the Ganges. This territory would include the Mahommedan province of Bengal, with parts of Behar and Orissa. The loose idea thus derived from old voyagers became stereotyped in the archives of the East India Company. All its north-eastern factories, from Balasore, on the Orissa coast, to Patna, in the heart of Behar, belonged to the “Bengal Establishment,” and as British conquests crept higher up the rivers, the term came to be applied to the whole of northern India. The presidency of Bengal, in contradistinction to those of Madras and Bombay, eventually included all the British territories north of the Central Provinces, from the mouths of the Ganges and Brahmaputra to the Himalayas and the Punjab. In 1831 the North-Western Provinces were created, which are now included with Oudh in the United Provinces; and the whole of northern India is now divided into the four lieutenant-governorships of the Punjab, the United Provinces, Bengal, and Eastern Bengal and Assam, and the North-West Frontier Province under a commissioner.

Physical Geography.—Three sub-provinces of the present lieutenant-governorship of Bengal—namely, Bengal proper, Behar and Orissa—consist of great river valleys; the fourth, Chota Nagpur, is a mountainous region which separates them from the central India plateau. Orissa embraces the rich deltas of the Mahanadi and the neighbouring rivers, bounded by the Bay of Bengal on the S.E., and walled in on the N.W. by tributary hill states. Proceeding west, the sub-province of Bengal proper stretches to the banks of the Ganges and inland from the sea-board to the Himalayas. Its southern portion is formed by the delta of the Ganges; its northern consists of the Ganges valley. Behar lies on the north-west of Bengal proper, and comprises, the higher valley of the Ganges from the spot where it issues from the United Provinces. Between Behar and Orissa lies the province of Chota Nagpur, of which a portion was given in 1905 to the Central Provinces. The valley of the Ganges, which is now divided between Bengal and Eastern

Bengal and Assam, is one of the most fertile and densely-populated tracts of country in the world. It teems with every product of nature. Tea, indigo, turmeric, lac, waving white fields of the opium-poppy, wheat and innumerable grains and pulses, pepper, ginger, betel-nut, quinine and many costly spices and drugs, oil-seeds of sorts, cotton, the silk mulberry, inexhaustible crops of jute and other fibres; timber, from the feathery bamboo and coroneted palm to the iron-hearted *sál* tree—in short, every vegetable product which feeds and clothes a people, and enables it to trade with foreign nations, abounds. Nor is the country destitute of mineral wealth. The districts near the sea consist entirely of alluvial formations; and, indeed, it is stated that no substance so coarse as gravel occurs throughout the delta, or in the heart of the provinces within 400 m. of the river mouths.

Climate.

The climate varies from the snowy regions of the Himalayas to the tropical vapour-bath of the delta and the burning winds of Behar. The ordinary range of the thermometer, on the plains is from about 52° F. in the coldest month to 103° in the shade in summer. A temperature below 60° is considered very cold, while with care the temperature of well-built houses rarely exceeds 95° in the hot weather. The rainfall varies from 37 in. in Behar to about 65 in. in the delta.

Rivers.

Lower Bengal exhibits the two typical stages in the life of a great river. In the northern districts the rivers run along the valleys, receive the drainage from the country on either side, absorb broad tributaries and rush forward with an ever-increasing volume. But near the centre of the provinces the rivers enter upon a new stage of their career. Their main channels bifurcate, and each new stream so created throws off its own set of distributaries to right and left. The country which they thus enclose and intersect forms the delta of Bengal. Originally conquered by the fluvial deposits from the sea, it now stretches out as a vast dead level, in which the rivers find their velocity checked, and their current no longer able to carry along the silt which they have brought down from northern India. The streams, accordingly, deposit their alluvial burden in their channels and upon their banks, so that by degrees their beds rise above the level of the surrounding country. In this way the rivers in the delta slowly build themselves up into canals, which every autumn break through or overflow their margins, and leave their silt upon the adjacent flats. Thousands of square miles in Lower Bengal annually receive a top-dressing of virgin soil from the Himalayas,—a system of natural manuring which renders elaborate tillage a waste of labour, and defies the utmost power of over-cropping to exhaust its fertility. As the rivers creep farther down the delta, they become more and more sluggish, and their bifurcations and interfacings more complicated. The last scene of all is a vast amphibious wilderness of swamp and forest, amid whose solitudes their network of channels insensibly merges into the sea. The rivers, finally checked by the sea, deposit their remaining silt, which emerges as banks or blunted promontories, or, after a year’s battling with the tide, adds a few feet or it may be a few inches to the foreshore.

The Ganges gives to the country its peculiar character and aspect. About 200 m. from its mouth it spreads out into numerous branches, forming a large delta, composed, where it borders on the sea, of a labyrinth of creeks and rivers, running through the dense forests of the Sundarbans, and exhibiting during the annual inundation the appearance of an immense sea. At this time the rice fields to the extent of many hundreds of square miles are submerged. The scene presents to a European eye a panorama of singular novelty and interest—rice fields covered with water to a great depth; the ears of grain floating on the surface; the stupendous embankments, which restrain without altogether preventing the excesses of the inundations; and peasants going out to their daily work with their cattle in canoes or on rafts. The navigable streams which fall into the Ganges intersect the country in every direction and afford great facilities for internal communication. In many parts boats can approach by means of lakes, rivulets and water-courses to the door of almost every cottage. The lower region of the Ganges is the richest and most productive portion of Bengal, abounding in valuable produce. The other principal rivers in Bengal are the Sone, Gogra, Gandak, Kusi, Tista; the Hugli, formed by the junction of the Bhagirathi and Jalangi, and farther to the west, the Damodar and Rupnarayan; and in the south-west, the Mahanadi or great river of Orissa. In a level country like Bengal, where the soil is composed of yielding and loose materials, the courses of the rivers are continually shifting from the wearing away of their different banks, or from the water being turned off by obstacles in its course into a different channel. As this channel is gradually widened the old bed of the river is left dry. The new channel into which the river flows is of course so much land lost, while the old bed constitutes an accession to the adjacent estates. Thus, one man’s property is diminished, while that of another is enlarged or improved; and a distinct branch of jurisprudence has grown up, the particular province of which is the definition and regulation of the alluvial rights alike of private property and of the state.

Geology.—The greater part of Bengal is occupied by the alluvial deposits of the Ganges, but in the south-west rises the plateau of Chota Nagpur composed chiefly of gneissic rocks. The great thickness of the Gangetic alluvium is shown by a borehole at Calcutta which was carried to a depth of about 460 ft. below the present level of the sea without entering any marine deposit.

Over the surface of the gneissic rocks are scattered numerous basins of Gondwana beds. Some of these are undoubtedly faulted into their present positions, and to this they owe their preservation. In the Rajmahal Hills basaltic lava flows are interbedded with the Gondwana deposits, and in the Karharbari coalfield the Gondwana beds are traversed by dikes of mica-peridotite and basalt, which are supposed to be of the same age as the Rajmahal lavas. The Gondwana series is economically of great importance. It includes numerous seams of coal, many of which are worked on an extensive scale (at Giridih, Raniganj, &c.). The quality of the coal is good, but unfortunately it contains a large amount of ash, the average being as high as 17%.

People.—In the sub-provinces under the lieutenant-governor of Bengal dwell a great congeries of peoples, of widely diverse origin, speaking different languages and representing far separated eras of civilization. The province, in fact, became so unwieldy that this was the chief reason for its partition in 1905. The people exhibit every stage of human progress, and every type of human enlightenment and superstition from the educated classes to primitive hill tribes. On the same bench of a Calcutta college sit youths trained up in the strictest theism, others indoctrinated in the mysteries of the Hindu trinity and pantheon, with representatives of every link in the chain of superstition—from the harmless offering of flowers before the family god to the cruel rites of Kali, whose altars in the most civilized districts of Bengal, as lately as the famine of 1866, were stained with human blood. Indeed, the very word Hindu is one of absolutely indeterminate meaning. The census officers employ it as a convenient generic to include 42 millions of the population of Bengal, comprising elements of transparently distinct ethnical origin, and separated from each other by their language, customs and religious rites. But Hinduism, understood even in this wide sense, represents only one of many creeds and races found within Bengal. The other great historical cultus, which during the last twelve centuries did for the Semitic peoples what Christianity accomplished among the European Aryans, has won to itself one-fifth of the population of Bengal. The Mahommedans number some 9,000,000 in Bengal, but the great bulk of their numbers was transferred to Eastern Bengal and Assam. They consist largely of the original inhabitants of the country, who were proselytized by the successive Pathan and Mogul invasions. In the face of great natural catastrophes, such as river inundations, famines, tidal waves and cyclones of the lower provinces of Bengal, the religious instinct works with a vitality unknown in European countries. Until the British government stepped in with its police and canals and railroads, between the people and what they were accustomed to consider the dealings of Providence, scarcely a year passed without some terrible manifestation of the power and the wrath of God. Mahratta invasions from central India, piratical devastations on the sea-board, banditti who marched about the interior in bodies of 50,000 men, floods which drowned the harvests of whole districts, and droughts in which a third of the population starved to death, kept alive a sense of human powerlessness in the presence of an omnipotent fate. Under the Mahommedans a pestilence turned the capital into a silent wilderness, never again to be re-peopled. Under British rule it is estimated that 10 millions perished within the Lower Provinces alone in the famine of 1769-1770; and the first surveyor-general of Bengal entered on his maps a tract of many hundreds of square miles as bare of villages and “depopulated by the Maghs.” But since the advent of British administration the history of Bengal has substantially been a record of prosperity; the teeming population of its river valleys is one of the densest in the world, and the purely agricultural districts of Saran and Muzaffarpur in the Patna division support over 900 persons to the square mile, a number hardly surpassed elsewhere except in urban areas.

Language.—Excluding immigrants the languages spoken by the people of Bengal belong to one or other of four linguistic families—Aryan, Dravidian, Munda and Tibeto-Burman. Of these 731
the languages of the Aryan family are by far the most important, being spoken by no less than 95% of the population according to the census of 1901. The Aryan languages are spoken in the plains by almost the whole population; the Munda and Dravidian in the Chota Nagpur plateau and adjoining tracts; and the Tibeto-Burman in Darjeeling, Sikkim and Jalpaiguri. The most important Aryan languages are Bengali (*q.v.*), Bihari, Eastern Hindi and Oriya. On the average in the province, before partition, out of every 1000 persons 528 spoke Bengali, 341 Hindi and Bihari, and 79 Oriya. As a rule Bengali is the language of Bengal proper, Hindi of Behar and Chota Nagpur, and Oriya of Orissa.

Agriculture.—The staple crop of the province is rice, to which about 66% of the cropped area is devoted. There are three harvests in the year—the *boro*, or spring rice; *áus*, or autumn rice; and *áman*, or winter rice. Of these the last or winter rice is by far the most extensively cultivated, and forms the great harvest of the year. The *áman* crop is grown on low land. In May, after the first fall of rain, a nursery ground is ploughed three times, and the seed scattered broadcast. When the seedlings make their appearance another field is prepared for transplanting. By this time the rainy season has thoroughly set in, and the field is dammed up so as to retain the water. It is then repeatedly ploughed until the water becomes worked into the soil, and the whole reduced to thick mud. The young rice is then taken from the nursery, and transplanted in rows about 9 in. apart. *Áman* rice is much more extensively cultivated than *áus*, and in favourable years is the most valuable crop, but being sown in low lands is liable to be

destroyed by excessive rainfall. Harvest takes place in December or January. *Áus* rice is generally sown on high ground. The field is ploughed when the early rains set in, ten or twelve times over, till the soil is reduced nearly to dust, the seed being sown broadcast in April or May. As soon as the young plants reach 6 in. in height, the land is harrowed for the purpose of thinning the crop and to clear it of weeds. The crop is harvested in August or September. *Boro*, or spring rice, is cultivated on low marshy land, being sown in a nursery in October, transplanted a month later, and harvested in March and April. An indigenous description of rice, called *uri* or *jaradhán*, grows in certain marshy tracts. The grain is very small, and is gathered for consumption only by the poorest. Wheat forms an important food staple in Behar, whence there is a considerable export to Calcutta. Oil-seeds are very largely grown, particularly in Behar. The principal oil-seeds are *sarisha* (mustard), *til* (sesamum) and *lisi* or *masina* (linseed). Jute (*pat* or *kosta*) forms a very important commercial staple of Bengal. The cultivation of this crop has rapidly increased of late years. Its principal seat of cultivation, however, is Eastern Bengal, where the superior varieties are grown. The crop grows on either high or low lands, is sown in April and cut in August. Apart from the quantity exported and the quantity made up by hand, it supports a prosperous mill industry, chiefly in the neighbourhood of Calcutta and Howrah. In 1905 there were thirty-six jute mills in the province and 2¼ million acres were cropped. The value of jute and of the goods manufactured from it represents more than a third of the aggregate value of the trade of Calcutta. Indigo used to be an important crop carried on with European capital in Behar, but of late years the industry has almost been destroyed by the invention of artificial indigo. Tea cultivation is the other great industry carried on by European capital, but that is chiefly confined to Assam, the industry in Darjeeling and the Dwars being on a small scale. Opium is grown in Behar with its head station at Patna. The cultivation of the cinchona plant in Bengal was introduced as an experiment about 1862, and is grown on government plantations in Darjeeling.

Mineral Products.—The chief mineral product in Bengal is coal, which disputes with the gold of Mysore for the place of premier importance in the mining industries of India. The most important mine in point of area, accessibility and output is Raniganj, with an area of 500 sq. m. Another of rising importance is that of Jherria, with an area of 200 sq. m., which is situated only 16 m. to the west of Raniganj; while Daltonganj also has an area of 200 sq. m. The small coalfield of Karharbari with an area of only 11 sq. m. yields the best coal in Bengal. Besides these four coalfields there are twenty-five others of various sizes, which are only in the initial stages of development.

Commerce.—The sea-borne trade of Bengal is almost entirely concentrated at Calcutta (*q.v.*), which also serves as the chief port for Eastern Bengal and Assam, and for the United Provinces. The principal imports are cotton piece goods, railway materials, metals and machinery, oils, sugar, cotton, twist and salt; and the principal exports are jute, tea, hides, opium, rice, oil-seeds, indigo and lac. The inter-provincial trade is mostly carried on with Eastern Bengal and Assam, the United Provinces and the Central Provinces. From the United Provinces come opium, hides, raw cotton, wheat, shellac and oil-seeds; and from Assam, tea, oil-seeds and jute. The frontier trade of Bengal is registered with Nepal, Sikkim, Tibet and Bhutan, but except with Nepal the amount is insignificant.

Railways.—Bengal is well supplied with railways, which naturally have the seaport of Calcutta as the centre of the system. South of the Ganges, the East Indian follows the river from the North-Western Provinces, with its terminus at Howrah on the Hugli, opposite Calcutta. A chord line passes by the coalfield of Raniganj, which enables this great railway to be worked more economically than any other in India. The Bengal-Nagpur, from the Central Provinces, also has its terminus at Howrah, and the section of this railway through Midnapore carries the East Coast line from Madras. North of the Ganges the Eastern Bengal runs north to Darjeeling, and maintains a service of river steamers on the Brahmaputra. The Bengal Central serves the lower Gangetic delta. Both of these have their termini at Sealdah, an eastern suburb of Calcutta. Northern Behar is traversed by the Bengal & North-Western, with an extension eastwards through Tirhoot to join the Eastern Bengal. In addition there are a few light lines and steam tramways.

Canals and Rivers.—Rivers and other waterways still carry a large part of the traffic of Bengal, especially in the delta. The government maintains two channels through the Sundarbans, known as the Calcutta and Eastern canals, and likewise does its best to keep open the Nadiya rivers, which form the communication between the main stream of the Ganges and the Hugli. There is further a route by water between Calcutta and Midnapore. The most important canals, those in Orissa (see Mahanadi) and on the Sone river in southern Behar, have been constructed primarily for irrigation, though they are also used for navigation. Except as a protection against famine, expenditure on irrigation is not remunerative in Bengal, on account of the abundance of rivers, and the general dampness of the climate.

Administration.—The administration of Bengal is conducted by a lieutenant-governor, with a

chief secretary, two secretaries and three under-secretaries. There is no executive council, as in Madras and Bombay; but there is a board of revenue, consisting of two members. For legislative purposes the lieutenant-governor has a council of twenty members, of whom not more than ten may be officials. Of the remaining members seven are nominated on the recommendation of the Calcutta corporation, groups of municipalities, groups of district boards, selected public associations and the senate of Calcutta university. The number of divisions or commissionerships is 6, of which Chota Nagpur ranks as "non-regulation." The number of districts is 33.

Army.—In Lord Kitchener's reconstitution of the Indian army in 1904 the old Bengal command was abolished and its place taken by the Eastern army corps, which includes all the troops from Meerut to Assam. The boundaries of the 8th division include those of the former Oudh, Allahabad, Assam and Presidency districts; and the troops now quartered in Bengal only consist of the Presidency brigade with its headquarters at Fort William.

History.—The history of so large a province as Bengal forms an integral part of the general history of India. The northern part, Behar (*q.v.*), constituted the ancient kingdom of Magadha, the nucleus of the imperial power of the successive great dynasties of the Mauryas, Andhras and Guptas; and its chief town, Patna, is the ancient Pataliputra (the Palimbothra of the Greeks), once the capital of India. The Delta or southern part of Bengal lay beyond the ancient Sanskrit polity, and was governed by a number of local kings belonging to a pre-Aryan stock. The Chinese travellers, Fa Hien in the 5th century, and Hsüan Tsang in the 7th century, found the Buddhist religion prevailing throughout Bengal, but already in a fierce struggle with Hinduism—a struggle which ended about the 9th or 10th century in the general establishment of the latter faith. Until the end of the 12th century Hindu princes governed in a number of petty principalities, till, in 1199, Mahommed Bakhtiyar Khilji was appointed to lead the first Mussulman invasion into Bengal. The Mahommedan conquest of Behar dates from 1197 A.D., and the new power speedily spread southwards into the delta. From about this date until 1340 Bengal was ruled by governors appointed by the Mahommedan emperors in the north. From 1340 to 1539 its governors asserted a precarious independence, and arrogated the position of sovereigns on their own account. From 1540 to 1576 Bengal passed under the rule of the Pathan or Afghan dynasty, which commonly bears the name of Sher Shah. On the overthrow of this house by the powerful arms of Akbar, Bengal was incorporated into the Mogul empire, and administered by governors appointed by the Delhi emperor, until the treaties of 1765, which placed Bengal, Behar and Orissa under the administration of the East India Company. The Company formed its earliest settlements in Bengal in the first half of the 17th century. These settlements were of a purely commercial character. In 1620 one of the Company's factors dates from Patna; in 1624-1636 the Company established itself, by the favour of the emperor, on the ruins of the ancient Portuguese settlement of Pippli, in the north of Orissa; in 1640-1642 an English surgeon, Gabriel Boughton, obtained establishments at Balasore, also in Orissa, and at Hugli, some miles above Calcutta. The vexations and extortions to which the Company's early agents were subjected more than once almost induced them to abandon the trade, and in 1677-1678 they threatened to withdraw from Bengal altogether. In 1685, the Bengal factors, driven to extremity by the oppression of the Mogul governors, threw down the gauntlet; and after various successes and hairbreadth escapes, purchased from the grandson of Aurangzeb, in 1696, the villages which have since grown up into Calcutta, the metropolis of India. During the next fifty years the British had a long and hazardous struggle alike with the Mogul governors of the province and the Mahratta armies which invaded it. In 1756 this struggle culminated in the great outrage known as the Black Hole of Calcutta, followed by Clive's battle of Plassey and capture of Calcutta, which avenged it. That battle, and the subsequent years of confused fighting, established British military supremacy in Bengal, and procured the treaties of 1765, by which the provinces of Bengal, Behar and Orissa passed under British administration. To Warren Hastings (1772-1785) belongs the glory of consolidating the British power, and converting a military occupation into a stable civil government. To another member of the civil service, John Shore, afterwards Lord Teignmouth (1786-1793), is due the formation of a regular system of Anglo-Indian legislation. Acting through Lord Cornwallis, then governor-general, he ascertained and defined the rights of the landholders in the soil. These landholders under the native system had started, for the most part, as collectors of the revenues, and gradually acquired certain prescriptive rights as quasi-proprietors of the estates entrusted to them by the government. In 1793 Lord Cornwallis declared their rights perpetual, and made over the land of Bengal to the previous quasi-proprietors or *zamíndárs*, on condition of the payment of a fixed land tax. This piece of legislation is known as the Permanent Settlement of the Land Revenue. But the Cornwallis code, while defining the rights of the proprietors, failed to give adequate recognition to the rights of the undertenants and the cultivators. His Regulations formally reserved the latter class of rights, but did not legally define them, or enable the husbandmen to enforce them in the courts. After half a century of rural disquiet, the rights of the cultivators were at length carefully formulated by Act X. of 1859. This measure, now known as the land law of Bengal, effected for the rights of the under-holders and cultivators what the Cornwallis code in 1793 had

effected for those of the superior landholders. The status of each class of persons interested in the soil, from the government as suzerain, through the *zamíndárs* or superior landholders, the intermediate tenure-holders and the undertenants, down to the actual cultivator, is now clearly defined. The act dates from the first year after the transfer of India from the company to the crown; for the mutiny burst out in 1857. The transactions of that revolt chiefly took place in northern India, and are narrated in the article Indian Mutiny. In Bengal the rising began at Barrackpore, was communicated to Dacca in Eastern Bengal, and for a time raged in Behar, producing the memorable defence of the billiard-room at Arrah by a handful of civilians and Sikhs—one of the most splendid pieces of gallantry in the history of the British arms. Since 1858, when the country passed to the crown, the history of Bengal has been one of steady progress. Five great lines of railway have been constructed. Trade has enormously expanded; new centres of commerce have sprung up in spots which formerly were silent jungles; new staples of trade, such as tea and jute, have rapidly attained importance; and the coalfields and iron ores have opened up prospects of a new and splendid era in the internal development of the country.

During the decade 1891-1901 Bengal was fortunate in escaping to a great extent the two calamities of famine and plague which afflicted central and western India. The drought of 1896-1897 did indeed extend to Bengal, but not to such an extent as to cause actual famine. The distress was most acute in the densely populated districts of northern Behar, and in the remote hills of Chota Nagpur. Plague first appeared at Calcutta in a sporadic form in April 1898, but down to April of the following year the total number of deaths ascribed to plague throughout the province was less than 1000, compared with 191,000 for Bombay. At the beginning of 1900, however, there was a serious recrudescence of plague at Calcutta, and a malignant outbreak in the district of Patna, which caused 1000 deaths a week. In the early months of 1901, plague again appeared in the same regions. The number of deaths in 1904 was 75,436, the highest recorded up to that date.

The earthquake of the 12th of June 1897, which had its centre of disturbance in Assam, was felt throughout eastern and northern Bengal. In all the large towns the masonry buildings were severely damaged or totally wrecked. The permanent way of the railways also suffered. The total number of deaths returned was only 135. Far more destructive to life was the cyclone and storm-wave that broke over Chittagong district on the night of the 24th of October 1897. Apart from damage to shipping and buildings, the low-lying lands along the coast were completely submerged, and in many villages half the inhabitants were drowned. The loss of human lives was reported to be about 14,000, and the number of cattle drowned about 15,000. As usual in such cases, a severe outbreak of cholera followed in the track of the storm-wave. Another natural calamity on a large scale occurred at Darjeeling in October 1899. Torrential rains caused a series of landslips, carrying away houses and breaking up the hill railway.

The most notable event, however, of recent times was the partition of the province, which was decided upon by Lord Curzon, and carried into execution in October 1905. Serious popular agitation followed this step, on the ground (*inter alia*) that the Bengali population, the centre of whose interests and prosperity was Calcutta, would now be divided under two governments, instead of being concentrated and numerically dominant under the one; while the bulk would be in the new division. In 1906-1909 the unrest developed to a considerable extent, requiring special attention from the Indian and home governments; but as part of the general history of India the movement may be best discussed under that heading (see India: *History*).

See Parliamentary Papers relating to the reconstitution of the provinces of Bengal and Assam (Cd. 2658 and Cd. 2746, 1905); Colonel E.T. Dalton, *The Ethnology of Bengal* (1872); Sir W.W. Hunter, *Annals of Rural Bengal* (1868), and *Orissa* (1872); Sir H.H. Risley, *Tribes and Castes of Bengal* (1891); C.E. Buckland, *Bengal under the Lieutenant-Governors* (1901); and Sir James Bourdillon, *The Partition of Bengal* (Society of Arts, 1905).

BENGAL, BAY OF, a portion of the Indian Ocean, resembling a triangle in shape, lying between India and Burma. A zone 50 m. wide extending from the island of Ceylon and the Coromandel coast to the head of the bay, and thence southwards through a strip embracing the Andaman and Nicobar islands, is bounded by the 100 fathom line of sea bottom; some 50 m. beyond this lies the 500-fathom limit. Opposite the mouth of the Ganges, however, the intervals between these depths are very much extended by deltaic influence. The bay receives many large rivers, of which the most important are the Ganges and Brahmaputra on the north, the Irrawaddy on the east, and the Mahanadi, Godavari, Kistna and Cauvery on the west. On the west coast it has no harbours, Madras having a mere open roadstead, but on the east there are

many good ports, such as Akyab, Moulmein, Rangoon and Tavoy river. The islands in the bay are very numerous, including the Andaman, Nicobar and Mergui groups. The group of islands, Cheduba and others, in the north-east, off the Burmese coast, are remarkable for a chain of mud volcanoes, which are occasionally active. Thus in December 1906 a new island of mud was thrown up, and measured 307 by 217 yds.

BENGALI, with Oriya and Assamese, three of the four forms of speech which compose the Eastern Group of the Indo-Aryan Languages (*q.v.*). This group includes all the Aryan languages spoken in India east of the longitude of Benares, and its members are the following:—

	Number of speakers in British India, 1901.
Bengali	44,624,048
Oriya	9,687,429
Assamese	1,350,846
Bihari	34,579,844
Total	90,242,167

Of these Bihari is treated separately. In the present article we shall devote ourselves to the examination of Bengali together with the two other closely connected languages. The reader is throughout assumed to be in possession of the facts described under the heads Indo-Aryan Languages and Prakrit.

Language.

Bengali is spoken in the province of Bengal proper, *i.e.* in, and on both sides of the delta of the Ganges, and also in the Eastern Bengal portion of the province of Eastern Bengal and Assam. The name "Bengali" is an English word, derived from the English word "Bengal." Natives call the language *Banga-Bhāṣā*, or the language of Banga, *i.e.* "Bengal." "Oṛiyā" is the native name for the language of Ōḍra or Orissa. Assamese, again an English word, is spoken in the Assam Valley. Its native name is *Asamiyā*, pronounced *Ohåmiyā*. All these languages have alphabets derived from early forms of the well-known Nagari character of northern India. That of Bengali dates from about the 11th century A.D. It is a cursive script which admits of considerable speed in writing. The Assamese alphabet is the same as that of Bengali, but has one additional character to represent the sound of *w*, which has to be expressed in the former language in a very awkward fashion. In Orissa, till lately, writing was done on a talipot palm-leaf, on which the letters were scratched with an iron stylus. In such circumstances straight lines would tend to split the leaf, and accordingly the alphabet received a peculiar curved appearance typical of it and of one or two other South Indian methods of writing.

The three languages are all the immediate descendants of Māgadhī Prakrit (see Prakrit), the headquarters of which were in south Behar, near the modern city of Patna. From here it spread in three lines—southwards, where it developed into Oriya; south-eastwards into Bengal proper, where it became Bengali; and eastwards, through Northern Bengal, into Assam, where it became Assamese. It thus appears that the language of Northern Bengal, though usually and conveniently treated as a dialect of Bengali, is not so in reality, but is a connecting link between Assamese and Bihari, the language of Behar. It is noteworthy that Northern Bengali and Assamese often agree in their grammar with Oriya, as against standard Bengali.

Omitting border forms of speech, Bengali, as a vernacular, has two main dialects, a western and an eastern, the former being the standard. The boundary-line between the two may be roughly put at the 89th degree of east longitude. The eastern dialect has many marked peculiarities, amongst which we may mention a tendency to disaspiration, the pronunciation of *c* as *ts*, of *ch* as *s*, and of *j* as *z*. In the northern part of the tract a medial *r* is often elided, and in the extreme east there is a broader pronunciation of the vowel *a*, like that in the English word "ball," *k* is sounded like the *ch* in "loch," and both *c* and *ch* are pronounced like *s*. The letter *p* is often sounded like *w*, and *s* like *h*, which again, when initial, is dropped. The distinction between cerebral and dental letters is lost, so that the words *āṭh* and *sāt* are both pronounced *'āt*. In the south-east, near Chittagong, corruption has gone even further, and the local dialect, which is practically a new language, is unintelligible to a man from Western Bengal. Throughout the eastern districts there is a strong tendency to epenthesis, *e.g. kāli* is pronounced *kāïl*. A more important dialectic difference in Bengali is that between the literary speech and the vernacular. The literary vocabulary is highly Sanskritized, so much so that it is not understood by any native of Bengal who has not received special instruction in it. Its grammar preserves numerous archaic or pseudo-archaic forms, which are invariably contracted in the colloquial speech of

even the most highly educated. For instance, “I do” is expressed in the literary dialect by *karitēchi*, but in the vernacular by *kŏrcci* or *kŏcci*. Oriya and Assamese may be said to have no dialects. There are a few local variations, but the standard form of speech, as a whole, is used everywhere in the respective tracts where the languages are spoken.

The three languages, being all children of a common parent, present many similar features. Oriya on the whole preserves the usual accentuation of the Indo-Aryan Languages (*q.v.*), seldom having the stress syllable farther back than the antepenultimate. Bengali, on the other hand, throws the accent as far back as possible, and this produces the contracted forms which we observe in the colloquial language, the first syllable of a word being strongly accented, and the rest being hurried over. Literary Bengali preserves the full form of the word, and in reading aloud this full form is adhered to. Assamese follows Bengali in its accentuation, but the language has never been the toy of euphuism. In its literature colloquial words are employed, and are written as they are pronounced colloquially.

In the following account of the three languages, Bengali, literary and colloquial, will be primarily dealt with, and then the points of difference between it and the other two will be described. Abbreviations used: A. = Assamese, Bg. = Bengali, O. = Oriya, Pr. = Prakrit, Mg. Pr. = Māgadhi Prakrit, Skr. = Sanskrit.

Vocabulary.—As already said, Literary Bengali abounds in *tatsamas*, or words borrowed in modern times from Sanskrit (see Indo-Aryan Languages), and these have also intruded themselves into the speech of the educated. So much has the false taste for these learned words obtained the mastery that, in the literary language, when a genuine Bengali or *tadbhava* word is used in literature it is frequently not put into writing, but the corresponding learned *tatsama* is written in its place, although the *tadbhava* is read. It is as though a French writer wrote *sicca* when he wished the word *sèche* to be pronounced. Similarly, the Bengali word for the goddess of Fortune is *Lakkhī*, but in books this is always written in the Skr. form *Lakṣmī*, although no Bengali would dream of saying anything but *Lakkhī*, even when reciting a purple passage *ore rotunda*. In fact, the vocal organs of most Bengalis are incapable of uttering the sound connoted by the letters *Lakṣmī*. The result is that the spelling of a Bengali word rarely represents its pronunciation. Oriya also borrows freely from Sanskrit, but there is no confusion between *tatsamas* and *tadbhavas*, as in Bengali. Assamese, on the other hand, is remarkably free from these parasites, its vocabulary being mainly *tadbhava*. In Eastern Bengal, where Mussulmans predominate, there is a free use of words borrowed from Arabic and Persian. Owing to geographical and historical circumstances, Oriya is to some extent infected by Telugu and Marathi idioms, while the Tibeto-Burman dialects and Ahom have left their marks upon Assamese.

Phonetics.—The three forms of speech agree in sounding the vowel *a* like the *ŏ* in “hot.” When writing phonetically, this sound is represented in the present article by *ŏ*. The pronunciation of this frequently recurring vowel gives a tone to the general sound of the languages which at once strikes a foreigner. In Bg. and A. a final vowel preceded by a single consonant is generally not pronounced. In Bg. this is only true for nouns, a final *a* being freely sounded in adjectives and verbs. In O., on the other hand, a final *a* is always pronounced. The sound of such a final *a* is in all three languages the same as that of the second *o* in “promote”; thus, the Bg. *bara* is pronounced *bŏṛō*. In Bg. a medial *a* sometimes has the sound of the first *o* in “promote,” as, for instance, in the word *ban* (*bon*), a forest. In A. and Eastern Bg. a medial *a* is often sounded like the *a* in “ball,” and is then transliterated *ă*. *Ā* has preserved as a rule its proper sound of *a* in “father.” The distinction between *i* and *ī* and between *u* and *ū* is everywhere lost in pronunciation, although in *tatsama* words the Sanskrit spelling is followed in literature. Thus, in Bg., the Skr. *vyatīta* is pronounced *bétítō*, with the accent on the first syllable. In A. the distinction between these long and short vowels is obliterated more than elsewhere, the reason being, as in Bg., the changes of pronunciation due to the shifting back of the accent. In O., the Skr. vowel *ṛ* is pronounced *ru*. Elsewhere it is *ri*. In O. the vowel *ē* is always long, but in Bg. it may be long or short, and in A. it is always short. The syllable *ya* preceded by a consonant has in Bg. the sound of a short *e*, so that *vyakti* is pronounced *bekti*. Moreover, in the same language the letter *ē* is often pronounced like the *a* in the German *Mann*, a sound here phonetically represented by *a*; thus, *dēkha* is sometimes pronounced *dekhō*, and sometimes *dăkhō* or even *dăkō*. The syllable *yā*, when following a consonant, also has this *ă*-sound, so that the English word “bank” is written *byānk* in Bengali characters. *Ō* in O. is always long. In Bg., when it has not got the accent it is shortened to the sound of the first *o* in “promote,” a sound which, as we have seen, is also sometimes taken by a medial *a*. In A. *ō* approaches the sound of *u*, and it actually becomes *u* when followed by *i* in the next syllable. The diphthongs *āī* (in *tatsamas*, *i.e.* the Skr. *āi*) and *ai* (in *tadbhavas*) are sounded like *oi* in “oil” in Bg. and O., while in A. they have the sound of *oi* in “going.” Similarly, in Bg. and O. the diphthongs *āū* and *au* are sounded like the *au* in the German *Haus*, but in A. like *au* in the French *jaune*, or the second *o* in “promote.” In colloquial Bg. the two syllables *āi* often have the sound of *ē*, as in *khāitē* (*khētē*), to eat.

In Eastern Bengal *k* has often the sound of *ch* in “loch.” In A. the consonants *c* and *ch* are both pronounced like *s*, and *j* and *jh* become *zh* (*i.e.* the *s* in “pleasure”) or (when final) *z*. The same tendency is observable in Bg., though it is usually considered vulgar. In parts of Eastern Bengal

c is pronounced like *ts*. O. as a rule has the proper sound of these letters, but towards the south *c* and *ch* become *ts* and *tsh* when not followed by a palatal letter. The letters *ḍ* and *ḍh*, when medial, are pronounced as a strongly burred *r*, and are then transliterated *ṛ* and *ṛh* respectively. In A. and Eastern Bg. there is a strong tendency to pronounce both dentals and cerebrals as semi-cerebrals, as is done by the neighbouring Tibeto-Burmans. In A. *ṛ* and *ṛh* become *r* and *rh* respectively. In Bg. and A. *ṇ* has universally become *n*, but is properly pronounced in O. *Y* is usually pronounced as *j*, unless it is a merely euphonic bridge to avoid a hiatus between two vowels, as in *kariyā* for *kari-ā*. In A. the resultant *j* has the usual *z*-sound. When *y* is the final element of a conjunct consonant, in Bg. (except in the south-east) it is very faintly pronounced. In compensation the preceding member of the conjunct is doubled and the preceding vowel is shortened if possible, thus *vākya* becomes *bå̀kk^{y}ō*. In A., while the *y* is usually preserved, an *i* is inserted before the conjunct, so that we have *bāikyō*. *M* and *v* when similarly situated are altogether elided in Bg., and this is also the case with *v* in A., in which language *m* under these circumstances becomes *w*; thus, *smaraṇa* becomes Bg. *śśå̀rå̀n*, A. *swå̀rå̀n*, and *dvārā* becomes Bg. and A. *ddārā*. *R* is generally pronounced correctly, except that when a member of a compound it is often not pronounced in colloquial Bg.; thus *karma* (*kå̀mmō*). In North-eastern Bengali and in A. a medial *r* is commonly dropped; thus, Bg. *karilām* (*kaïlām*), A. *kari* (*kai*).[1] The vulgar commonly confound *n* and *l*. O. has retained the old cerebral *ḷ* of Pr., which has disappeared in Bg. and A. The semi-vowel *v* (*w*) becomes *b* in Bg. and O., but retains its proper sound when medial in A. When Bg. wishes to represent a *w*, it has to write *ōyā*; thus, for *chāwā* it writes *chāōyā*. Similarly *bārō*, twelve, *+yāri*, friendship, when compounded together to mean "a collection of twelve friends," is pronounced *bārwāri*. Bg. pronounces all uncompounded sibilants as if they were *ś*, like the English *sh* in "shin." This was already the case in Mg. Pr. (see PRAKRIT). O., on the contrary, pronounces all three like the dental *s* in "sin," while A. sounds them like a rough *h*, almost like the *ch* in "loch." In Eastern Bg. *s* becomes frankly *h*, and is then often dropped. The compound *kṣ* is everywhere treated as if it were *khy*, In colloquial Bg. there is a tendency to disaspiration; thus *dēkha* is pronounced *då̀kō* and the Pr. *hattha-*, a hand, becomes *hāt*, not *hāth*. In Eastern Bg. there is a cockney tendency to drop *h*, so that we have *ʻāt*, a hand, and *kaïlām* for *kahilām*, I said.

The above remarks show that O. has, on the whole, preserved the original sounds of the various letters better than Bg. or A.

Declension.—The distinction of gender has disappeared from all three languages. Sex is distinguished either by the use of qualifying terms, such as "male" or "female," or by the employment of different words, as in the case of our "bull" and "cow." The plural number is almost always denoted by the addition of some word meaning "many" or "collection" to the singular, although we sometimes find a true plural used in the case of nouns denoting human beings. Case was originally indicated by postpositions (see INDO-ARYAN LANGUAGES), but in many instances these have been joined to the noun, so that they form one word with it. The following is the full declension of the singular of the word *ghōṛā*, a horse, in the three languages:—

	Oriya.	Bengali.	Assamese.
Nom.	*ghōṛā*	*ghōṛā*	*ghōrā*
Acc.-Dat.	*ghōṛāku*	*ghōṛākē*	*ghōrāk*
Instr.	*ghōṛārē*	*ghōṛātē*	*ghōrārē*
Abl.	*ghōṛāru*	*ghōṛā-haïtē*	*ghōrāyē*
Gen.	*ghōṛāra*	*ghōṛār*	*ghōrār*
Loc.	*ghōṛārē*	*ghōṛāte* or *ghōrāy*	*ghōrāt*

In Bg. and A. a noun often takes *ē* (*e*) in the nominative singular, when it is the subject of a transitive verb; thus Bg. *bēdeē* (from *bēd*) *balē*, the Veda says. In Bg. the nominative plural may, in the case of human beings, be formed by adding *ā* to the genitive singular; thus, *santān*, a son; gen. sing., *santānēr*; nom. plur., *santānēra*. The same is the case with the pronouns; thus *āmār*, of me; *āmarā*, we; *tāhār*, his; *tāhārā*, they. In Bihari (*q.v.*) the pronouns follow the same rule, and, as is explained under that head, the nominative plural is really an oblique form of the genitive. With this exception, the plural in all our three languages is either the same as the singular, or (when the idea of plurality has to be emphasized) is formed by the addition of nouns of multitude, such as *gaṇ* in Bg., *māna* in O., or *bilāk* in A.

We shall see that pronominal suffixes are freely used in all three languages in the conjugation of verbs. In the Outer languages of the north-west of India (for the list of these, see INDO-ARYAN LANGUAGES) pronominal suffixes are also commonly added to nouns to signify possession. In most of the languages of the Eastern Group such pronominal suffixes added to nouns have fallen into disuse, but in A. they are still commonly employed with nouns of relationship; thus, *bāp*, a father; *bopāi*, my father; *bāper*, your father; *bāpek*, his father. Their retention in A. is no doubt due to the example of the neighbouring Tibeto-Burman languages, in which such pronominal *prefixes* are a common feature.

In all three languages the adjective does not change for gender, for number or for case.

The personal pronouns have at the present day lost their old nominatives, and have new nominatives formed from the oblique base. In the first and second persons the singulars have fallen into disuse in polite conversation, and the plurals are used honorifically for the singular, as in the case of the English “you” for “thou.” For the plural, new plurals are formed from the new singular (old plural) bases. In A., however, the old singular of the first person is retained, and the old plural plays its proper function. The Bg. pronouns are, *mui* (old), I; *āmi* (modern), I; *tui* (old), thou; *tumi* (modern), thou; *sē*, *tini*, he; *ē*, *ini*, this; *ō*, *uni*, that; *jē*, *jini*, who; *kē*, who?; *ki*, what?; *kōn*, what (adjective)?; *kēha*, anyone; *kichu*, anything; *kōna*, any. Most of the forms in the other languages closely follow these. The words in O. for “I” and “thou” are *ambhē* and *tumbhē* respectively. All these pronouns have plurals and oblique forms to which the case suffixes are added. These must be learnt from the grammars.

Conjugation.—It is in the conjugation of the verb that colloquial Bg. differs most from the literary dialect. There is no distinction in any of the three languages between singular and plural. Most of the old singular forms have survived in a non-honorific sense, but they are rarely employed in polite language except in the third person. The old plural forms are generally employed for the singular also. The usual base for the verb substantive, when employed as an auxiliary, is *ach*, be, derived from the Skr. *ṛcchati*. O., however, forms its past from the base *tha* (Skr. *sthita-*), and in South-western Bengal the base *ṭha*, derived from the same original, is used for both present and past time. Only two of the old Skr.-Pr. tenses have survived in the finite verb, the simple present and the imperative. Thus, Bg. *kari*, I do; *kar*, do thou. The past is formed by adding pronominal suffixes to the old past participle in *il* (Skr. *-illa-*, a pleonastic suffix, see PRAKRIT), and the future by adding them to the old future participle in *b* (Skr. *-tavya-*, Pr. *-avva-*). Thus, Bg. *karil-ām*, done + by-me, I did; *karib-a*, it-is-to-be-done + by-me, I shall do. In Bg. there are two modern participles, a present (*kar-itē*) and a past (*kar-iyā*), and from these there are formed periphrastic tenses by suffixing auxiliary verbs. Thus, *karite-chi* (colloquial, *kŏrci* or *kŏcci*), I am doing; *karitē-chilām* (coll. *korcilum* or *kŏccilum*), I was doing; *kariyā-chi* (coll., *korsi*), I have done; *kariyā-chilām* (coll., *korsilum*), I had done. A past conditional is formed by adding pronominal suffixes to the present participle; thus, *karitām* (coll., *kortum* or *kottum*), (if) I had done. Similar tenses are formed in O. and A., but the periphrastic tenses are formed with verbal nouns and not with participles. Thus, O. *karu-achī*, A. *kari-chŏ*, I am a-doing, I am doing. O. and A. have each a very complete series of gerunds or verbal nouns which are fully declined. In Bg. only one gerund, that of the genitive, is in common use.

In order to illustrate the conjugation of the verb, we here give that of the root *kar*, do, in its present, past and future tenses.

	Oriya.	Literary Bengali.	Colloquial Bengali.	Assamese.
I do	*karñ*	*kari*	*kŏri*	*karŏ*
Thou doest	*kara*	*kara*	*kŏrō*	*karā*
He (non-honorific) does	*karē*	*karē*	*kŏrē*	*kare*
He (honorific) does	*karanti*	*karen*	*kŏren*	*kare*
I did	*karilū*	*karilām*	*kŏllum, kŏrlum*	*kărilŏ*
Thou didst	*karila*	*karilē*	*kŏllē, kŏrlē*	*kărilā*
He (non-honorific) did	*karilā*	*karila*	*kŏllō, kŏrlō*	*kările*
He (honorific) did	*karilē*	*karilen*	*kŏllen, kŏrlen*	*kările*
I shall do	*karibū*	*kariba*	*kŏrbō*	*kărim*
Thou wilt do	*kariba*	*karibē*	*kŏrbē*	*kăribā*
He (non-honorific) will do	*kariba*	*karibĕ*	*kŏrbē*	*kăriba*
He (honorific) will do	*karibē*	*kariben*	*kŏrben*	*kăriba*

All the three languages have negative forms of the verb substantive, and A. has a complete negative conjugation for all verbs, made by prefixing the negative syllable *na* under certain euphonic rules.

Literature.

Bengali Literature.—The oldest recognized writer in Bengali is the Vaishnava poet Caṇḍī Dās, who flourished about the end of the 14th or the beginning of the 15th century. His language does not differ much from the Bengali of to-day. He founded a school of poets who wrote hymns in honour of Krishna, many of whom, in later times, became connected with the religious revival instituted by Caitanya in the early part of the 16th century. In the 15th century Kāśī Rām translated the *Mahābhārata*, and Krttibās Ojhā the *Rāmāyaṇa* into the vernacular. The principal figure of the 17th century was Mukunda Rām who has left us two really admirable poems entitled *Caṇḍī* and *Śrīmanta Saudāgar*. Parts of the former have been translated by Professor Cowell into English verse, and both well deserve putting into an English dress. With Bhārat Candra, whose much admired but artificial Bidyā Sundar appeared in the 18th century, the list of old Bengali authors may be considered as closed. They wrote in genuine nervous Bengali, and the conspicuous success of many of them shows how baseless is the contention of some native writers of the present day that modern literary Bengali needs the help of its huge imported Sanskrit vocabulary to express anything but

the simplest ideas. This modern literary Bengali arose early in the 19th century, as a child of the revival of Sanskrit learning in Calcutta, under the influence of the college founded by the English in Fort William. Each decade it has become more and more the slave of Sanskrit. It has had some excellent writers, notably the late Bankim Candra, whose novels have received the honour of being translated into several languages, including English. Even he, however, sometimes laboured under the fetters imposed upon him by a strange vocabulary, and all competent European scholars are agreed that no work of first-class originality has much chance of arising in Bengal till some great genius purges the language of its pseudo-classical element.

Oriya Literature does not go back beyond the 16th century, though examples of the language are found in inscriptions of the 13th century. Nearly all the works are connected with the history of Krishna, and the translation of the *Bhāgavata Purāṇa* into Oriya in the first half of the 16th century still exercises great influence on the masses. Dīna Kṛṣṇa Dās (17th century) was the author of another popular work entitled *Rasa Kallola*, or "The Waves of Sentiment," which deals with the early life of Krishna. Every verse in it begins with the letter *k*. It is not always decent, but is immensely popular. Upēndra Bhañja, Rājā of Gumsur, a petty hill state, is the most famous of Oriya poets, and was the most prolific. His work is insipid to a European taste, and when not unintelligible is often obscene. Oriya poetry, from first to last, has been an artificial production, the work of *paṇḍits*, who clung to the rules of Sanskrit rhetoric, and loaded their verses with so many ideas and words borrowed from that language that it is rarely understood, except by the learned. The whole literature is, in fact, overshadowed by the great temple of Jagannāth (a name of Krishna) at Puri in Orissa.

Assamese Literature.—The Assamese are justly proud of their national literature. It has an independent growth, and its strength lies in history, a branch of letters in which other Indian languages are almost entirely wanting. They have chronicles going back for the past 600 years, and a knowledge of their contents is a necessary part of the education of the upper classes of the country. In poetry, the Vaishnava reformer, Sankar Deb, who flourished some 450 years ago, was a voluminous writer. His best known work is a translation of the *Bhāgavata Purāṇa*. About the same time Ananta Kandali translated the *Mahābhārata* and the *Rāmāyaṇa* into his native tongue. Medicine was a science much studied, and there are translations of all the principal Sanskrit works on the subject. Forty or fifty dramatic works in the vernacular are known and are still acted. Some of them date back to the time of Śankar Dēb.

AUTHORITIES.—There is no work dealing with the three languages as a group. Both the *Comparative Grammars* of Beames and Hoernle (see INDO-ARYAN LANGUAGES) are silent about Assamese. The fullest details concerning them all will be found in vol. v. of the *Linguistic Survey of India*, parts i. and ii. (Calcutta, 1903). In this each dialect and subdialect is treated with great minuteness and with copious examples.

The first Bengali grammar and dictionary in a European language was the *Vocabulario em Idioma Bengalla e Portuguez* of Manoel da Assumpçam (Lisbon, 1743). N.B. Halhed wrote the first Bengali grammar in the English language (Hooghly, 1778), but the real father of Bengali philology was the great missionary, William Carey (*Grammar*, Serampore, 1801; *Dictionary, ib.*, 1825). W. Yates's *Grammar*, as edited and improved by T. Wenger (Calcutta, 1847) and others, is still on sale. It is entirely confined to the literary Bengali of the paṇḍits. Its great rival has been Śyāmā Caraṇ Sarkār's *Grammar* (Calcutta, 1850), of which there have been numerous reprints. In 1894 J. Beames published his *Grammar* (Oxford), now the standard work on the subject. It is largely based on Śyāmā Caraṇ's work, but with much new material, especially that dealing with the colloquial side of the language. G.F. Nicholl's *Grammar* (London, 1885) is an independent study of the language, in which the vernacular works of the best native grammarians have been freely utilized. There is no good Bengali dictionary. G.C. Haughton's *Dictionary* (London, 1833) is perhaps still the best, but J. Mendies' (Calcutta, about 1870) is also well known, and is the parent of countless others which have issued from the Calcutta presses. *A Small Dictionary of Colloquial Bengali Words*, by J.M.C. and G.A.C. (Calcutta, 1904), may also be studied with advantage. Cf. also Śyāmā-caraṇ Gāṇguli, *Bengali Spoken and Written* (Calcutta, 1906). For Bengali literature, see R.C. Dutt, *The Literature of Bengal* (Calcutta and London, 1895), and Hara Prasād Śāstrī, *The Vernacular Literature of Bengal before the Introduction of English Education* (Calcutta, n.d.). The most complete work is *Bangabhāsā o Sāhitya* by Dīnēś Candra Sēn (2nd ed., Calcutta, 1901) in the Bengali language.

For Oriya there are E. Hallam's (Calcutta, 1874), T. Maltby's (Calcutta, 1874) and J. Browne's (London, 1882) *Grammars*. The last two are in the Roman character. They are all mere sketches of the language. Sutton's (Cuttack, 1841) is still the only *Dictionary* which the present writer has found of any practical use. For Oriya literature, see App. IX. of Hunter's *Orissa* (London, 1872), and Monmohan Chakravarti's "Notes on the Language and Literature of Orissa" in the *Journal of the Asiatic Society of Bengal*, vol. lxvi. (1897), part i. pp. 317 ff., and vol. lxvii. (1898), part i. pp. 332 ff.

The first Assamese *Grammar* was Nathan Brown's (Sibsagar, 1848, 3rd ed. 1893), and it is still the one usually studied. G.F. Nicholl gives an Assamese grammar as a supplement to his Bengali *Grammar* already quoted. Like that work, it is quite independent, and is not a revised edition of

Brown. M. Bronson's *Dictionary* (Sibsagar, 1867) was for long the only vocabulary available, and a very useful and practical work it was. It is now superseded by Hem Candra Baṛuā's *Hema-koṣa* (Shillong, 1900). For Assamese literature, see Ananda Rām Dhekiāl Phukan's *A Few Remarks on the Assamese Language* (Sibsagar, 1855), partly reprinted in the *Indian Antiquary*, vol. xxv. (1896), pp. 57 ff.

(G. A. Gr.)

1 In Mg. Pr. every *r* becomes *l*. For an explanation of the apparent non-observance of this rule in languages of the Eastern Group, see Bihari.

BENGAZI (anc. *Hesperides-Berenice*), a seaport on the north coast of Africa, capital of the sanjak of Bengazi or Barca, formerly in the vilayet of Tripoli, but, since 1875, dependent directly on the ministry of the interior at Constantinople. It is situated on a narrow strip of land between the Gulf of Sidra and a salt marsh, in 30° 7′ N. lat. and 20° 3′ E. long. Though for the most part poorly built, it has one or two buildings of some pretension—an ancient castle, a mosque, a Franciscan monastery, government buildings and barracks. Senussi influence is strong and there is a large *zawia* (convent). The harbour is half silted up with sand and the ruins of fortifications and is accessible only to vessels of light draught. A lighthouse has been erected at the entrance, but reefs render approach difficult, and the outer anchorage is fully exposed to west and north and not good holding. The export trade is largely in barley, shipped to British and other maltsters. The Sudan produce (ivory, ostrich feathers, &c.) formerly brought to Bengazi by caravan, has now been almost wholly diverted to Tripoli, the eastern tracks from Wadai and Borku by way of Kufra to Aujila having become so unsafe that their natural difficulties are no longer worth braving. Consular vigilance has also killed the once considerable slave trade. Trade in other commodities, however, is on the increase, exports now amounting to nearly half a million sterling and imports to half that figure. The neighbouring coast is frequented by Greek and Italian sponge-fishers, the industry being a valuable one. The province of Bengazi, being still without telegraphs or roads, is one of the most backward in the Ottoman empire.

Founded by the Greeks of Cyrenaica under the name Hesperides, the town received from Ptolemy III. the name of Berenice in compliment to his wife. The ruins of the ancient town, which superseded Cyrene and Barca as chief place in the province after the 3rd century A.D., are now nearly buried in the sand. The modern town lies south-west of the original site. Certain large natural pits which are found in the plain behind, and have luxuriant gardens at the bottom, are supposed to have originated the myth of the Gardens of the Hesperides. Ancient tombs are found, which in 1882 yielded fine Greek vases to G. Dennis, then British vice-consul. The present name is derived from that of a Moslem saint whose tomb, near the sea-coast, is an object of veneration. The population, amounting to about 25,000, is greatly mixed. Levantines, Maltese, Greeks and Jews form the trading community, but since 1895, when a branch of the Agenzia Italiana Commerciale was established at Bengazi, Italians have exercised an increasing influence on Cyrenaic commerce. Turks, Arabs and Berbers are the ruling castes, and negroes act as labourers and domestics. Many of these found their way to Crete, and becoming porters, &c. in Canea and Candia, were notorious for turbulence and fanaticism. In 1897 and 1898 the European admirals forcibly deported consignments of the worst characters back to Bengazi. In 1858 and again in 1874 the town was devastated by plague (see also Tripoli and Cyrenaica).

(D. G. H.)

BENGEL, JOHANN ALBRECHT (1687-1752), Lutheran divine and scholar, was born at Winnenden in Württemberg, on the 24th of June 1687. His father died in 1693, and Bengel was educated by a friend, who became a master in the gymnasium at Stuttgart. In 1703 Bengel left Stuttgart and entered the university of Tübingen, where, in his spare time, he devoted himself specially to the works of Aristotle and Spinoza, and in theology to those of Philipp Spener, Johann Arndt and August Franke. His knowledge of the metaphysics of Spinoza was such that he was selected by one of the professors to prepare materials for a treatise *De Spinosismo*, which was afterwards published. After taking his degree, Bengel devoted himself to theology. Even at this time he had religious doubts; it is interesting in view of his later work that one cause of his perplexities was the difficulty of ascertaining the true reading of certain passages in the Greek

New Testament. In 1707 Bengel entered the ministry and was appointed to the parochial charge of Metzingen-unter-Urach. In the following year he was recalled to Tübingen to undertake the office of *Repetent* or theological tutor. Here he remained till 1713, when he was appointed head of a seminary recently established at Denkendorf as a preparatory school of theology. Before entering on his new duties he travelled through the greater part of Germany, studying the systems of education which were in use, and visiting the seminaries of the Jesuits as well as those of the Lutheran and Reformed churches. Among other places he went to Heidelberg and Halle, and had his attention directed at Heidelberg to the canons of scripture criticism published by Gerhard von Mästricht, and at Halle to C. Vitringa's *Anacrisis ad Apocalypsin*. The influence exerted by these upon his theological studies is manifest in some of his works. For twenty-eight years—from 1713 to 1741—he was master (*Klosterpräceptor*) of the *Klosterschule* at Denkendorf, a seminary for candidates for the ministry established in a former monastery of the canons of the Holy Sepulchre. To these years, the period of his greatest intellectual activity, belong many of his chief works. In 1741 he was appointed prelate (*i.e. General Superintendent*) at Herbrechtingen, where he remained till 1749, when he was raised to the dignity of consistorial counsellor and prelate of Alpirspach, with a residence in Stuttgart. He now devoted himself to the discharge of his duties as a member of the consistory. A question of considerable difficulty was at that time occupying the attention of the church courts, viz. the manner in which those who separated themselves from the church were to be dealt with, and the amount of toleration which should be accorded to meetings held in private houses for the purpose of religious edification. The civil power (the duke of Württemberg was a Roman Catholic) was disposed to have recourse to measures of repression, while the members of the consistory, recognizing the good effects of such meetings, were inclined to concede considerable liberty. Bengel exerted himself on the side of the members of the consistory. In 1751 the university of Tübingen conferred upon him the degree of doctor of divinity. He died after a short illness, in 1752.

The works on which Bengel's reputation rests as a Biblical scholar and critic are his edition of the Greek New Testament, and his *Gnomon* or *Exegetical Commentary* on the same.

(A.) His edition of the Greek Testament was published at Tübingen in 1734, and at Stuttgart in the same year, but without the critical apparatus. So early as 1725, in an addition to his edition of Chrysostom's *De Sacerdotio*, he had given an account in his *Prodromus Novi Testamenti Graeci recte cauteque adornandi* of the principles on which his intended edition was to be based. In preparation for his work Bengel was able to avail himself of the collations of upwards of twenty MSS., none of them, however, of great importance, twelve of which had been collated by himself. In constituting the text, he imposed upon himself the singular restriction of not inserting any various reading which had not already been *printed* in some preceding edition of the Greek text. From this rule, however, he deviated in the case of the Apocalypse, where, owing to the corrupt state of the text, he felt himself at liberty to introduce certain readings on manuscript authority. In the lower margin of the page he inserted a selection of various readings, the relative importance of which he denoted by the first five letters of the Greek alphabet in the following manner:—α was employed to denote the reading which in his judgment was the true one, although he did not venture to place it in the text; β, a reading better than that in the text; γ, one equal to the textual reading; δ and ε, readings inferior to those in the text. R. Étienne's division into verses was retained in the inner margin, but the text was divided into paragraphs. The text was followed by a critical apparatus, the first part of which consisted of an introduction to the criticism of the New Testament, in the thirty-fourth section of which he laid down and explained his celebrated canon, "*Proclivi scriptioni praestat ardua*" ("The difficult reading is to be preferred to that which is easy"), the soundness of which, as a general principle, has been recognized by succeeding critics. The second part of the critical apparatus was devoted to a consideration of the various readings, and here Bengel adopted the plan of stating the evidence both *against* and *in favour* of a particular reading, thus placing before the reader the materials for forming a judgment. Bengel was the first definitely to propound the theory of families or recensions of MSS. His investigations had led him to see that a certain affinity or resemblance existed amongst many of the authorities for the Greek text—MSS., versions, and ecclesiastical writers; that if a peculiar reading, *e.g.*, was found in one of these, it was generally found also in the other members of the same class; and this general relationship seemed to point ultimately to a common origin for all the authorities which presented such peculiarities. Although disposed at first to divide the various documents into three classes, he finally adopted a classification into two—the African or older family of documents, and the Asiatic, or more recent class, to which he attached only a subordinate value. The theory was afterwards adopted by J.S. Semler and J.J. Griesbach, and worked up into an elaborate system by the latter critic. Bengel's labours on the text of the Greek Testament were received with great disfavour in many quarters. Like Brian Walton and John Mill before him, he had to encounter the opposition of those who believed that the certainty of the word of God was endangered by the importance attached to the various readings. J.J. Wetstein, on the other hand, accused him of excessive caution in not making freer use of his critical materials. In answer to these strictures, Bengel published a *Defence of the Greek Text of His New Testament*, which he prefixed to his *Harmony of the Four Gospels*, published in 1736, and which contained a sufficient answer to the complaints, especially of

Wetstein, which had been made against him from so many different quarters. The text of Bengel long enjoyed a high reputation among scholars, and was frequently reprinted. An enlarged edition of the critical apparatus was published by Philip David Burk in 1763.

(B.) The other great work of Bengel, and that on which his reputation as an exegete is mainly based, is his *Gnomon Novi Testamenti, or Exegetical Annotations on the New Testament*, published in 1742. It was the fruit of twenty years' labour, and exhibits with a brevity of expression, which, it has been said, "condenses more matter into a line than can be extracted from pages of other writers," the results of his study. He modestly entitled his work a *Gnomon* or index, his object being rather to guide the reader to ascertain the meaning for himself, than to save him from the trouble of personal investigation. The principles of interpretation on which he proceeded were, to import nothing *into* Scripture, but to draw *out of* it everything that it really contained, in conformity with grammatico-historical rules; not to be hampered by dogmatical considerations; and not to be influenced by the symbolical books. Bengel's hope that the *Gnomon* would help to rekindle a fresh interest in the study of the New Testament was fully realized. It has passed through many editions, has been translated into German and into English, and is still one of the books most valued by expositors of the New Testament. John Wesley made great use of it in compiling his *Expository Notes upon the New Testament* (1755).

Besides the two works already described, Bengel was the editor or author of many others, classical, patristic, ecclesiastical and expository. The more important are: *Ordo Temporum*, a treatise on the chronology of Scripture, in which he enters upon speculations regarding the end of the world, and an *Exposition of the Apocalypse* which enjoyed for a time great popularity in Germany, and was translated into several languages.

AUTHORITIES.—For full details regarding Bengel the reader is referred to Oskar Wächter's *J.A. Bengels Lebensabriss* and to the *Memoir of His Life and Writings* (*J.A. Bengels Leben und Wirken*), by J.C.F. Burk, translated into English by Rev. R.F. Walker (London, 1837); see also Herzog-Hauck, *Realencyklopädie*, and E. Nestle, *Bengel als Gelehrter* (1893).

BENGUELLA (São Felipe de Benguella), a town of Portuguese West Africa, capital of Benguella district, on a bay of the same name, in 12° 33′ S., 13° 25′ E. Benguella was founded in 1617 by the Portuguese under Manoel Cerveira Pereira. It was long the centre of an important trade, especially in slaves to Brazil and Cuba, but has now greatly declined. The anchorage, about a mile from the town, in 4 to 6 fathoms, is nothing but an open roadstead. Besides the churches of S. Felipe and S. Antonio, the hospital, and the fortress, there are only a few stone-built houses. The white population numbers about 1500. A short way beyond Benguella is Bahia Tarta, where salt is manufactured and sulphur excavated.

About 20 m. north of Benguella is Lobito Bay, a natural harbour chosen (1903) as the starting-point of a railway to Katanga. At Lobito steamers can come close inshore and discharge cargo direct. Lobito is connected with Benguella by a railway which passes about midway through Katumbella, a town at the mouth of the river of the same name, and the sea terminus of an ancient route from the heart of Central Africa through Bihe. Old Benguella is a small town about 120 m. north of Lobito Bay.

BENÍ, a river of Bolivia, a tributary of the Madeira, rising in the elevated Cordilleras near the city of La Paz and at first known as the Rio de La Paz, and flowing east, and north-east, to a junction with the Mamoré at 10° 20′ S. lat. to form the Madeira. Fully one-half of its length is through the mountainous districts of central Bolivia, where it is fed by a large number of rivers and streams from the snowclad peaks, and may be described as a raging torrent. Below Reyes its course is through the forest-covered hills and open plains of northern Bolivia, where some of the old Indian missions were located. The lower river is navigable for 217 m. from Reyes to the Esperanza rapids, 18 m. above its confluence with the Mamoré, where a fall of 20 ft. in a distance of 330 yds. obstructs free navigation. Its principal affluent is the Madre de Dios, or Mayu-tata, which rises in the eastern Cordilleras about 35 m. east of Cuzco, and flows in an east and north-east direction through northern Bolivia to a junction with the Beni 120 m. above its mouth. The principal tributaries of the Madre de Dios are the Inambari and Paucartambo, both large rivers, and the Chandless, Marcapata, and Tambopata. In length and size of its tributaries the Madre de Dios is a more important river than the Beni itself, and is navigable during the wet

season to the foot of the Andes, 180 m. from Cuzco.

BENÍ (El Beni), a department of north-eastern Bolivia, bounded N. and E. by Brazil, S. by the departments of Santa Cruz and Cochabamba, and W. by La Paz and the national territory contiguous to Peru and Brazil. Pop. (est., 1900) 32,180, including 6000 wild Indians; area (est., probably too high) 102,111 sq. m. The "Llanos de Mojos," famous for their flourishing Jesuit mission settlements of the 17th and 18th centuries, occupy the eastern part of this department and are still inhabited by an industrious peaceful native population, devoted to cattle raising and primitive methods of agriculture. Cattle and forest products, including rubber and coca, are exported to a limited extent. The capital, Trinidad (pop. 2556), is situated on the Mamoré river in an open fertile country, and was once a flourishing Jesuit mission.

BENI-AMER (Amir), a tribe of African "Arabs" of Hamitic stock, ethnologically intermediate between Abyssinians and Nubians. They are of the Beja family, and occupy the coast of the Red Sea south of Suakin and portions of the adjacent coast-country of Eritrea, north of Abyssinia. They are of very mixed Beja and Abyssinian blood, and speak a dialect half Beja and half Tigré, locally known as *Hassa*. They marry the women of the Bogos and other mountain tribes; but are too proud to let their daughters marry Abyssinians.

See *Anglo-Egyptian Sudan*, ed. Count Gleichen (London, 1905); A.H. Keane, *Ethnology of Egyptian Sudan* (1884); G. Sergi, *Africa: Antropologia della Stirpe Camitica* (Turin, 1897).

BENI-ISRAEL ("Sons of Israel"), a colony of Jews settled on the Malabar coast in Kolaba district, Bombay presidency, chiefly centring in the native state of Janjira. With the Jews of Cochin, they represent a very ancient Judaic invasion of India, and are to be entirely distinguished from those Jews who have come to India in modern days for purposes of trade. Some authorities believe that the Beni-Israel settled in Kolaba in the 15th century, but they themselves have traditions which indicate a far longer connexion with India (see Jews: § 3).

BENIN, the name of a country, city and river of British West Africa, west of the main channel of the Niger, forming part of the protectorate of Southern Nigeria. The name was formerly applied to the coast from the Volta, in 0° 40′ E., to the Rio del Rey, in 8° 40′ E., and included the Slave Coast, the whole delta of the Niger and a small portion of the country to the eastward. Some trace of this earlier application remains in the name "Bight of Benin," still given to that part of the sea which washes the Slave Coast, whilst up to 1894 "Benin" was used to designate the French possessions on the coast now included in Dahomey.

In its restricted sense Benin is the country formerly ruled by the king of Benin city. This area, at one time very extensive, gradually contracted as subject tribes and towns acquired independence. It may be described as bounded W. by Lagos, S. by the territory of the Jakri and other tribes of the Niger delta, E. by the Niger river, and N. by Yorubaland. The coast-line held by Benin had passed out of its sovereignty by the middle of the 19th century. In physical characteristics, climate, flora and fauna, Benin in no way differs from the rest of the southern portion of Nigeria (*q.v.*). The coast is low, intersected by creeks, and forms one huge mangrove swamp; on the rising ground inland are dense forests in which the cotton and mahogany trees are conspicuous.

Benin river (known also as the Jakri outlet), though linked to the Niger system by a network of

creeks, is an independent stream. It is formed by the junction of two rivers, the Ethiope and the Jamieson, which rise (north of 6° N,) on the western side of the hills which slope east to the Niger river. They unite about 50 m. above the sea. The general course of the Benin is westerly. It enters the Atlantic in about 5° 46′ N., 5° 3′ E., and at its mouth is 2 m. wide. It is here obstructed by a sand-bar over which there is 12-14 ft. of water at high tide. The river is navigable by small steamers up to Sapele, a town on the south bank immediately below the junction of the head streams. The Ologi and Gwato creeks enter the Benin on the right or north bank, and on the same side (8 m. above the mouth of the river) a channel, the Lagos creek, 170 m. long, branches off to the north-west, affording a waterway to Lagos. From the south or left bank of the Benin the Forcados mouth of the Niger can be reached by the Nana creek.

The Beni are a pure negro tribe, speaking a distinct language, but having many characteristics common to those of the Yoruba- and Ewe-speaking tribes. Like the Ashanti and Dahomeyans the Beni had a well-organized and powerful government and possessed a culture rare among negro races (see below, *History*).

Benin city is situated in a clearing of the forest, about 25 m. from the river-port of Gwato, on Gwato creek. The principal building is the British residency, which is constructed of brick and timber. A primary school, supported by the native chiefs, was opened in 1901, and a meteorological station was established in 1902. In 1904 the town was placed in telegraphic communication with the rest of the protectorate and with Europe. Of the ancient city, whose buildings excited the admiration of travellers in the 17th and 18th centuries, scarcely a trace remains. The houses are neatly built of clay, coloured with red ochre, and frequently ornamented with rudely carved pillars. The port of Gwato, which lies about 30 m. north-north-east of the mouth of the Benin river, has a special interest as the place where Giovanni Belzoni, the explorer of Egyptian antiquities, died in 1823 when starting on an expedition to Timbuktu. No trace of his grave can now be found. Wari (formerly known also as Owari, Oywheré, &c.) is a much-frequented port on a branch of the Niger of the same name reached from the Forcados mouth, and is 55 m. south of Benin city.

Since the abolition of the slave trade the chief export of the country is palm-oil. Other trade products were from time to time—with the desire to preserve the isolation and independence of the country—placed under fetish, *i.e.* their export was forbidden, so that in 1897 the only article in which trade was allowed by the king was palm-oil. After the British occupation, an extensive trade developed in oil, kernels, timber, ivory, rubber, &c. In the rubber and timber industries great strides have been made. The chiefs and people have shown considerable aptitude in adapting themselves to the new order of things. Among the articles prized by the Beni is coral, of which the chiefs wear great quantities as ornaments.

History.—Benin was discovered by the Portuguese about the year 1485, and they carried on a brisk trade in slaves, who were taken to Elmina and sold to the natives of the Gold Coast. At that time and for more than two centuries afterwards, Benin seems to have been one of the most powerful states of West Africa. It was known to Europeans in the 17th century as the Great Benin. The towns of Lagos and Badagry were both founded by Benin colonists. Benin city was the seat of a theocracy of priests, in whose hands the oba or king, nominally supreme, appears to have often been a puppet. He was revered by his subjects as a species of divinity, and seldom left the enclosure surrounding the royal palace. The religion and mythology of the Beni, like those of the Yorubas, are based on spirit- and ancestor-worship (see Negro and Africa: *Ethnology*); the chief spirit or juju was worshipped with human sacrifices to an appalling extent, the Benin fetish being considered the most powerful in all West Africa. The usual form of sacrifice was crucifixion. Many chiefs, in no way politically dependent on Benin, used to send annual presents to the juju. The Benin people do not appear to have indulged in wanton cruelty, and it is stated that they usually stupefied the victims before putting them to death. The people were skilled in brass work; their carving and design were alike excellent. Carved ivory objects abound, and there are many evidences of the skill attained by native artists, who perhaps owed something to their contact with the Portuguese. The weaving of cloth was also carried on. The Beni remained politically and socially almost unaffected by European influence until the occupation of their country by the British in 1897, their connexion with the white men having previously been almost confined to matters of trade. The Portuguese withdrew from the coast in the 18th century, but one of the most striking proofs of their commercial influence is the fact that a corrupt Lusitanian dialect was spoken by the older natives up to the last quarter of the 19th century. The first English expedition to Benin was in 1553; after that time a considerable trade grew up between England and that country, ivory, palm-oil and pepper being the chief commodities exported from Benin. The Dutch afterwards established factories and maintained them for a considerable time, chiefly with a view to the slave trade. In 1788 Captain Landolphe founded a factory called Barodo, near the native village of Obobi for the French Compagnie d'Oywheré; and it lasted till 1792, when it was destroyed by the English. In 1863 Sir Richard Burton, then British consul at Fernando Po, went to Benin to try and put a stop to human sacrifices, an attempt in which he did not succeed. At that time the decline in power of the

kingdom of Benin was obvious, and the city was in a decaying condition. In 1885 the coast-line of Benin was placed under British protection, and steps were taken to enter into friendly relations with the king. Consul G.F.N.B. Annesley[1] saw the king in 1890, with the hope of making a treaty, but failed in his object. In March 1892 Captain H.L. Gallwey, British vice-consul, succeeded in concluding a treaty with the king Overami. The treaty, however, proved of no avail, and the king kept as aloof as of old from any outside interference. In January 1897 J.R. Phillips, acting consul-general, and eight Europeans were brutally massacred on the road from Gwato to Benin city, whilst on a mission to the king. Phillips had persisted in starting for Benin despite the repeated request of the king that he should delay his visit until he (the king) had finished the celebration of the annual "customs." Two Europeans, Captain Alan Boisragon and R.F. Locke, alone escaped. A punitive expedition was organized under the command of Admiral Sir Harry Rawson, the success of which was a remarkable example of good organization hastily improvised. The news of the massacre of Phillips's party reached Rear-Admiral Rawson, the commander-in-chief on the Cape station, on the 4th of January 1897. The flagship was at Simons Town. The small craft were dispersed. Two ships at Malta had been ordered to join the Cape command. A transport was chartered in the Thames for the purposes of the expedition. In twenty-nine days a force of 1200 men, coming from three places between 3000 and 4500 m. from the Benin river, was landed, organized, equipped and provided with transport. Five days later the city of Benin was taken, and in twelve days more the men were re-embarked, and the ships coaled and ready for any further service. On the 17th of February Benin was occupied after considerable fighting. The town, which was found to be reeking of human sacrifices, was partly burned, and on the 22nd the expedition started on its return. The king and chiefs responsible for the massacre were placed on their trial by Sir Ralph Moor, high commissioner for Southern Nigeria; the king was deposed and deported to Calabar, and the chiefs, six in all, were executed. The chief offender was not brought to justice until a second punitive expedition in 1899 completed the pacification of the country. After the removal of the king in September 1897 a council of chiefs was appointed. This council carries on the government of the whole Beni country, and is presided over by a British resident.

AUTHORITIES.—H.L. Roth, *Great Benin, its Customs, Art and Horrors* (Halifax, 1903), a comprehensive and profusely illustrated work, with an annotated bibliography; C.H. Read and O.M. Dalton, *Antiquities from Benin ... in the British Museum* (1899); Pitt Rivers, *Works of Art from Benin* (1900); R.E. Dennett, *At the Back of the Black Man's Mind* (London, 1906); Sir R. Burton, *Wanderings in West Africa* (London, 1863); H.L. Gallwey, "Journeys in the Benin Country," *Geog. Jnl.*, vol. i., London, 1893; A. Boisragon, *The Benin Massacre* (London, 1897); R.H. Bacon, *Benin, the City of Blood* (London, 1898), by a member of the punitive expedition of 1897; the annual *Reports on Southern Nigeria*, issued by the Colonial Office, London.

1 Mr Annesley (b. 1851), after having served in the Prussian army, and in the Turkish army during the war of 1877, was in the British consular service from 1879 to 1892. In 1888 he became consul to the Congo Free State.

BENITOITE, a mineral discovered in 1907 near the headwaters of the San Benito river, San Benito Co., California, and described by Prof. G.D. Louderback. It is a titano-silicate of barium ($BaTiSi_3O_9$), crystallizing in the hexagonal system, with a hardness of 6.5, and specific gravity 3.65. It may be colourless or blue, the colour varying sometimes in different parts, and passing to a deep sapphire blue. The blue variety is cut as a gem stone, and often resembles blue spinel, though its softness distinguishes it from spinel and sapphire. It is a brilliant stone, with high refractive index, and is strongly dichroic, being pale when viewed parallel to the principal axis and dark when viewed transversely.

BENJAMIN, a tribe of Israel, named after the youngest son of Jacob and Rachel. As distinct from the others Benjamin was born not beyond the Jordan but in Palestine, between Bethel and Ephrath. His mother, dying in childbed, gave him the name Ben-oni, "Son of my sorrow," which was changed by his father to Ben-jamin, meaning probably "Son of the right hand" (*i.e.* "of prosperity," or, perhaps, "son of the south"; Gen. xxxv. 16-18). Of his personal history little is recorded. He was the favourite of his father and brothers (with which contrast the spirit of the stories in Judg. xix.-xxi.), and the reputation of fierceness ascribed to him in the blessing of

Jacob ("Benjamin is a wolf that teareth," Gen. xlix. 27) agrees with what is told of the tribe's warriors (see EHUD, SAUL, JONATHAN). It is a curious feature that its noted slingers were said to be left-handed (Judg. xx. 16, cf. iii. 15) and even ambidextrous (1 Chron. xii. 2). The late references to this tribe in the Israelite wanderings in the wilderness are of little value. On entering Palestine it is allotted a portion encompassed by the districts of Ephraim, Dan and Judah. In the time of the "judges" the tribe of Benjamin was almost exterminated (see JUDGES, BOOK OF), 600 men alone escaping (Judges xix. sqq.). The tribe was built up again by the rape of the maidens of Shiloh at one of their annual festivals (for which cf. Judges ix. 27), but a later narrative gives currency to a tradition that 400 virgins were also brought to Shiloh, the survivors of a massacre of the inhabitants of Jabesh-Gilead. At all events, Benjamin claimed the honour of providing the great king of Israel whose heroic deliverance of Jabesh-Gilead is referred to elsewhere (see SAUL), and it is noteworthy that the tribe only now attain historical importance. If the genealogies associated it with Joseph the father of Ephraim and Manasseh, its fortunes were for a time bound up with the northern kingdom (see DAVID). Although its territory lies open on the west and east, its physical features unite it to Judah, and what is known of its mixed population[1] makes it difficult to determine how far the youngest of the tribes of Israel enjoyed any independent position previous to the monarchy. Its neutral position between Judah and Ephraim gave it an importance which was religious as well as political. Anathoth the home of Abiathar and Jeremiah, Gibeon the old Canaanite sanctuary, the royal sanctuary at Bethel, its associations with Samuel and the prophetic gilds of the times of Elijah and Elisha, and finally Jerusalem itself, the centre of worship, give "the least of all the tribes" a unique value in the history of Old Testament religion.

See H.W. Hogg, *Ency. Bib.*, col. 534 sqq.

(S. A. C.)

1 Jerusalem and its district was Jebusite until its capture by David (see 2 Sam. v.); for Beeroth and Gibeon, see 2 Sam. iv. 2 seq., xxi. 2, and note the Benjamite and Judahite names which find analogies in the Edomite genealogies. See, on these points, S.A. Cook, *Jew. Quarterly Review* (1906), pp. 528 sqq.

BENJAMIN OF TUDELA (in Navarre), a Jewish rabbi of the 12th century. He visited Constantinople, Egypt, Assyria and Persia, and penetrated to the frontiers of China. His journeys occupied him for about thirteen years. He was credulous, but his *Itinerary*, or *Massa'oth*, contains some curious notices of the countries he visited and of the condition of the Jews. Thus his work is of much value for the Jewish history of the 12th century. It is from Benjamin that we know that the Jews of Palestine and other parts of the East were noted for the arts of dyeing and glass-making.

His *Itinerary* was translated from the Hebrew into Latin by Arias Montanus in 1575, and appeared in a French version by Baratier in 1734. There have been various English translations. One was published by Asher in 1840; another (with critical Hebrew text) by M.N. Adler (*Jewish Quarterly Review*, vols. xvi.-xviii.; also reprinted as a separate volume, 1907).

BENJAMIN, JUDAH PHILIP (1811-1884), Anglo-American lawyer, of Jewish descent, was born a British subject at St Thomas in the West Indies on the 11th of August 1811, and was successively an American lawyer, a leading Confederate politician and a distinguished English barrister. He eventually died in Paris a domiciled Frenchman. After 1818 his parents lived in Charleston, South Carolina, and he went to Yale in 1825 for his education, but left without taking a degree, and entered an attorney's office in New Orleans. He was admitted to the New Orleans bar in 1832. He compiled with his friend John Slidell a valuable digest of decisions of the superior courts of New Orleans and Louisiana; and as a partner in the firm of Slidell, Benjamin & Conrad, he enjoyed a good practice. In 1848 he was admitted a councillor of the supreme court, and in 1852 he was elected a senator for Louisiana, and thereafter he took an active part in politics, declining to accept a judgeship of the supreme court. In 1861 he withdrew from the Senate, left Washington and actively espoused the Confederate cause. He joined Jefferson Davis's provisional government as attorney-general, becoming afterwards his secretary for war (1861-1862), and chief secretary of state (1862-1865). Although at times subject to

fierce criticism with regard to matters of administration and finance, he was recognized as one of the ablest men on the Confederate side, and he remained with Jefferson Davis to the last, sharing his flight after the surrender at Appomattox, and only leaving him shortly before his capture, because he found himself unable to go farther on horseback. He escaped from the coast of Florida in an open boat, and after many vicissitudes reached England, an exile. In 1866 his remaining property was lost in the banking failure of Overend & Gurney.

In London Benjamin was able to earn a little money by journalism, and on the 13th of January 1866 he entered Lincoln's Inn. He received a hospitable welcome from the legal profession. The influence of English judges who knew his abilities and his circumstances enabled him to be called to the bar on the 6th of June 1866, dispensing with the usual three years as a student, and he acquired his first knowledge of the practice and methods of English courts as the pupil of Mr C.E. (afterwards Baron) Pollock. Pollock fully recognized his abilities and they became and remained firm friends. Benjamin was naturally an apt and useful pupil; for instance, an opinion of Mr Pollock, which for long guided the London police in the exercise of their right to search prisoners, is mentioned by him as having been really composed by Benjamin while he was still his pupil. Benjamin joined the northern circuit, and a large proportion of his early practice came from solicitors at Liverpool who had correspondents in New Orleans. His business gradually increased, and having received a patent of precedence, he was on the 2nd of November 1872 called within the bar as a queen's counsel. In addition to his knowledge of law and of commercial matters he had considerable eloquence, and a power of marshalling facts and arguments that rendered him extremely effective, particularly before judges. He was less successful in addressing juries, and towards the close of his career did not take *Nisi prius* work, but in the court of appeal and House of Lords and before the judicial committee of the privy council he enjoyed a very large practice, making for some time fully £15,000 a year. The question of raising him to the bench was seriously considered by Lord Cairns, who, however, seems to have thought that the ungrudging hospitality and goodwill with which Benjamin had been received by the English legal profession had gone far enough. Towards the close of his career he was in ill health, and he suffered from the results of a fall from a tramcar. He retired in 1882 to a house in Paris which he had built and where he had been in the habit of passing his vacations with his wife, who was a Frenchwoman. He never returned to practice, but came back to London to be entertained by the bench and bar of England at a banquet in the Inner Temple Hall on the 30th of June 1883. He died at Paris on the 6th of May 1884.

Benjamin was thick-set and stout, with an expression of great shrewdness. An early portrait of him is to be found in Jefferson Davis's *Rise and Fall of the Confederate Government*. His political history may be traced in that work, and in John W. Draper's *American Civil War* and von Holst's *Constitutional History of the United States*. Many allusions to his English career will be found in works describing English lawyers of his period, and there are some interesting reminiscences of him by Baron Pollock in the *Fortnightly Review* for March 1898. His *Treatise on the Law of Sale of Personal Property with References to the American Decisions and to the French Code and Civil Law*—a bulky volume known to practitioners as *Benjamin on Sales*—is the principal text-book on its subject, and a fitting monument of the author's career at the English bar, of his industry and learning. Many of his American speeches have been published.

See *Judah P. Benjamin*, by Pierce Butler (Philadelphia, 1907, with a good bibliography).

BEN LEDI (Gaelic, "the hill of God"), a mountain of Perthshire, Scotland, 2875 ft. high, 5 m. by road N.W. of Callander. It is situated close to some of the most romantic scenery in the Highlands, and is particularly well known through Scott's *Lady of the Lake*. Its name is supposed to point to the time when Beltane rites were observed on its summit. A cairn was built on the top in 1887 to commemorate Queen Victoria's jubilee. On one of the sides of the mountain is a tarn which bears the name of Lochan nan Corp, "the little loch of the dead," from an accident to a funeral party by which 200 lives were lost.

BENLLIURE Y GIL, JOSÉ (1858-), Spanish painter, was born at Valencia, studied painting under Domingo, and showed from the first such marked talent that he was sent to the Spanish school in Rome. He was one of the select circle pensioned by the Spanish government

for residence in Italy and executed several state orders for the decoration of public buildings; but he owes his chief fame to his large historical paintings, notably the “Vision in the Coliseum.” He became the leader of the Spanish art colony in Rome, where he practised as painter and sculptor.

BEN LOMOND, a mountain in the north-west of Stirlingshire, Scotland. It is situated near the eastern bank of Loch Lomond, about 9 m. from the head and about 15 from the foot. It is 3192 ft. high, and the prevailing rocks are granite, mica schist, diorite, porphyry and quartzite, the last, where it crops out on the surface, gleaming in the distance like snow. Duchray Water, a head-stream of the Forth, rises in the north-east shoulder. The hill, which is covered with grass to the top, is a favourite climb, being ascended from Rowardennan (the easiest) or Inversnaid on the lake, or Aberfoyle 10 m. inland due east. The view from the summit extends northward as far as the Grampians, with occasional glimpses of Ben Nevis; westward to Jura in the Atlantic; south-westward to Arran in the Firth of Clyde; southward to Tinto Hill, the Lowthers and Cairnsmore; and eastward to Edinburgh Castle and Arthur’s Seat.

BENLOWES, EDWARD (1603?-1676), English poet, son of Andrew Benlowes of Brent Hall, Essex, was born about 1603. He matriculated at St John’s College, Cambridge, in 1620, and on leaving the university he made a prolonged tour on the continent of Europe. He was a Roman Catholic in middle life, but became a convert to Protestantism in his later years. He dissipated his fortune by openhanded generosity to his friends and relations, and possibly by serving in the Civil War; so that he was in great poverty at the time of his death, which occurred on the 18th of December 1676. The last eight years of his life were passed at Oxford. Many of his writings are in Latin. His most important work is *Theophila, or Love’s Sacrifice, a Divine Poem* (1652). The poem deals with mystical religion, telling how the soul, represented by Theophila, ascends by humility, zeal and contemplation, and triumphs over the sins of the senses. It is written in a curious stanza of three lines of unequal length rhyming together. Until recent times justice has hardly been done to Benlowes’ poetical merits and indisputable piety. Samuel Butler, who satirized him in his “Character of a Small Poet,” found abundant matter for ridicule in his eccentricities; and Pope and Warburton noted him as a patron of bad poets.

His *Theophila* was reprinted by S.W. Singer; and in *Minor Poets of the Caroline Period*, vol. i. (1905), Mr Saintsbury reprints *Theophila* and two other poems by Benlowes, “The Summary of Wisedome,” and “A Poetic Descant upon a Private Music-Meeting.”

BEN MACDHUI, more correctly Ben Muichdhui (Gaelic for “the mountain of the black pig,” in allusion to its shape), the second highest mountain (4296 ft.) in Great Britain, one of the Cairngorm group, on the confines of south-western Aberdeenshire and south-western Banffshire, not far from the eastern boundary of Inverness-shire. It is about 11 m. from Castleton of Braemar and about 10 from Aviemore. The ascent is usually made from Castleton of Braemar, by way of the Linn of Dee, Glen Lui and Glen Derry. From the head of Glen Derry, with its blasted trees, the picture of desolation, it becomes more toilsome, but is partly repaid by the view of the remarkable columnar cliffs of Corrie Etchachan. The summit is flat and quite bare of vegetation, but the panorama in every direction is extremely grand. At the foot of a vast gully, 2500 ft. above the sea, lies Loch Avon (or A’an), a narrow lake about 1½ m. long, with water of the deepest blue and a margin of bright yellow sand. At the western end of the lake is the Shelter Stone, an enormous block of granite resting upon two other blocks, which can accommodate a dozen persons. Beautiful rock crystals occur in veins in the corries. The summit of Cairngorm, 3½ m. north of that of Ben Macdhui, may be reached from the latter with scarcely any descent, by following the rugged ridge flanking the western side of Loch Avon. The other great peaks of the group are Braeriach (4248 ft.) and Cairntoul (4241 ft.), and 6 m. to the east are the twin masses of Ben a Bourd, the northern top of which is 3924 ft. and the southern 3860 ft. high. Ben

A’an, an adjoining hill, is 3843 ft. high.

BENNETT, CHARLES EDWIN (1858-), American classical scholar, was born on the 6th of April 1858, in Providence, Rhode Island. He graduated from Brown University in 1878 and also studied at Harvard (1881-1882) and in Germany (1882-1884). He taught in secondary schools in Florida (1878-1879), New York (1879-1881), and Nebraska (1885-1889), and became professor of Latin in the University of Wisconsin in 1889, of classical philology at Brown University in 1891, and of Latin at Cornell University in 1892. His syntactical studies, notably various papers on the subjunctive, are based on a statistical examination of Latin texts and are marked by a fresh system of nomenclature; he ranks as one of the leaders of the “New American School” of syntacticians, who insist on a preliminary re-examination of all available data. Of great importance are his advocacy of “quantitative” reading of Latin verse and his *Critique of Some Recent Subjunctive Theories* in vol. ix. (1898) of *Cornell Studies in Classical Philology*, of which he was an editor. Bennett’s *Latin Grammar* (1895) is the first successful attempt in America to adopt the method of the brief, scholarly *Schulgrammatik*. Besides the Latin classics commonly read in secondary courses and other text-books in “Bennett’s Latin Series,” he edited Tacitus’s *Dialogus de Oratoribus* (1894), and Cicero’s *De Senectute* (1897) and *De Amicitia* (1897). He wrote, with George P. Bristol, *The Teaching of Greek and Latin in Secondary Schools* (1900), and *The Latin Language*, (1907), and with William Alexander Hammond translated *The Characters of Theophrastus* (1902).

BENNETT, JAMES GORDON (1794-1872), American journalist, founder and editor of the New York Herald, was born at Newmills in Banffshire, Scotland, in 1794 (not in 1800, as has been stated). He was educated for the Roman Catholic priesthood in a seminary at Aberdeen, but in the spring of 1819, giving up the career which had been chosen for him, he emigrated to America. Landing at Halifax, Nova Scotia, he earned a poor living there for a short time by giving lessons in French, Spanish and bookkeeping; he passed next to Boston, where starvation threatened him until he got employment in a printing-office; and in 1822 he went to New York. An engagement as translator of Spanish for the *Courier* of Charleston, South Carolina, took him there for a few months in 1823. On his return to New York he projected a school, gave lectures on political economy and did subordinate work for the journals. During the next ten years he was employed on various papers, was the Washington correspondent first of the *New York Enquirer*, and later of the *Courier and Enquirer* in 1827-1832, his letters attracting much attention; he founded the short-lived *Globe* in New York in 1832; and in 1833-1834 was the chief editor and one of the proprietors of the *Pennsylvanian* at Philadelphia. On the 6th of May 1835 he published the first number of a small one-cent paper, bearing the title of *New York Herald*, and issuing from a cellar, in which the proprietor and editor played also the part of salesman. “He started with a disclaimer of all principle, as it is called, all party, all politics”; and to this he consistently adhered. By his industry, sagacity and unscrupulousness, and by the variety of his news, the “spicy” correspondence, and the supply of personal gossip and scandal, he made the paper a great commercial success. He devoted his attention particularly to the gathering of news, and was the first to introduce many of the methods of the modern American reporter. He published on the 13th of June 1835, the first Wall Street financial article to appear in any American newspaper; printed a vivid and detailed account of the great fire of December 1835, in New York; was the first, in 1846, to obtain the report in full by telegraph of a long political speech; and during the Civil War maintained a staff of sixty-three war correspondents. Bennett continued to edit the Herald almost till his death, at New York, on the 1st of June 1872.

His son, James Gordon Bennett (1841-), took over the management of the paper during the last year of its founder’s life, and succeeded him in its control. It was he who sent Henry M. Stanley on his mission to find Livingstone in Central Africa, and he fitted out the “Jeannette” Polar Expedition, and in 1883 established (with John W. Mackay) the Commercial Cable Company.

BENNETT, JOHN, one of the finest English madrigalists, whose first set of madrigals appeared in 1599. In 1614 Ravenscroft, in a collection including five of his madrigals, writes a eulogy which reads like an obituary notice. The first set of madrigals was reprinted in 1845 by the Musical Antiquarian Society. Bennett's works consist of this set and several contributions to such collections as the *Triumphs of Oriana*, and to various collections of church music.

BENNETT, JOHN HUGHES (1812-1875), English physician and pathologist, was born in London on the 31st of August 1812. He was educated at Exeter, and being destined for the medical profession was articled to a surgeon in Maidstone. In 1833 he began his studies at Edinburgh, and in 1837 graduated with the highest honours. During the next four years he studied in Paris and Germany, and on his return to Edinburgh in 1841 published a *Treatise on Cod-liver Oil as a Therapeutic Agent*. In the same year he began to lecture as an extra-academical teacher on histology, drawing attention to the importance of the microscope in the investigation of disease; and as physician to the Royal Dispensary he instituted courses of "polyclinical medicine." In 1843 he was appointed professor of the institutes of medicine at Edinburgh, and performed the duties of that chair with great energy till incapacitated by failing health. He resigned in 1874. In August 1875 he was able to be present at the meeting of the British Medical Association in Edinburgh, on which occasion he received the degree of LL.D., but the fatigue he then underwent brought on a relapse, and he was compelled to have the operation of lithotomy performed. He sank rapidly and died on the 25th of September at Norwich. His publications were very numerous including *Lectures on Clinical Medicine* (1850-1856), which in second and subsequent editions were called *Clinical Lectures on the Principles and Practice of Medicine*, and were translated into various languages, including Russian and Hindu; *Leucocythaemia* (1852), the first recorded cure of which was published by him in 1845; *Outlines of Physiology* (1858), reprinted from the 8th edition of the *Encyclopaedia Britannica*; *Pathology and Treatment of Pulmonary Tuberculosis* (1853); *Textbook of Physiology* (1871-1872).

BENNETT, SIR WILLIAM STERNDALE (1816-1875), English musical composer, the son of Robert Bennett, an organist, was born at Sheffield on the 13th of April 1816. Having lost his father at an early age, he was brought up at Cambridge by his grandfather, from whom he received his first musical education. He entered the choir of King's College chapel in 1824. In 1826 he entered the Royal Academy of Music, and remained a pupil of that institution for the next ten years, studying pianoforte under W.H. Holmes and Cipriani Potter, and composition under Lucas and Dr Crotch. It was during this time that he wrote several of his most appreciated works, in which may be traced influences of the contemporary movement of music in Germany, which country he frequently visited during the years 1836-1842. At one of the Rhenish musical festivals in Düsseldorf he made the personal acquaintance of Mendelssohn, and soon afterwards renewed it at Leipzig, where the talented young Englishman was welcomed by the leading musicians of the rising generation. At one of the celebrated Gewandhaus concerts he played his third pianoforte concerto, which was received enthusiastically. An enthusiastic account of the event was written by Robert Schumann, who pronounced Bennett to be the most "*musikalisch*" of all Englishmen, and "an angel of a musician" (copying Gregory's pun on *Angli* and *Angeli*). But it was Mendelssohn's influence that dominated Bennett's mode of utterance. A good example of this may be studied in Bennett's *Capriccio in D minor*. His great success on the continent established his position on his return to England. In 1834 he was elected organist of St Anne's chapel (now church), Wandsworth. In this year he composed his *Overture to Parisina*, and his Concerto in C minor, modelled on Mozart. An unpublished concerto in F minor, and the overture to the *Naiads*, impressed the firm of Broadwood so favourably in 1836 that they offered the composer a year in Leipzig, where the *Naiads* overture was performed at a Gewandhaus concert on the 13th of February 1837. Bennett visited Leipzig a second time in 1840-1841, when he composed his *Caprice in E* for pianoforte and orchestra and his overture *The Wood Nymphs*. He settled in London, devoting himself chiefly to practical teaching. In 1844 he married Mary Anne, daughter of Captain James Wood, R.N. He was made musical professor at Cambridge in 1856, the year in which he was engaged as permanent conductor of the Philharmonic Society. This latter post he held until 1866, when he became principal of the Royal Academy of Music. Owing to his professional duties his latter years were not fertile, and what he then wrote was scarcely

equal to the productions of his youth. The principal charm of Bennett's compositions (not to mention his absolute mastery of the musical form) consists in the tenderness of their conception, rising occasionally to sweetest lyrical intensity. Except the opera, Bennett tried his hand at almost all the different forms of vocal and instrumental writing. As his best works in various branches of art, we may mention, for pianoforte solo, and with accompaniment of the orchestra, his three sketches, *The Lake, The Millstream* and *The Fountain*, and his 3rd pianoforte concerto; for the orchestra, his *Symphony in G minor*, and his overture *The Naiads*; and for voices, his cantata *The May Queen*, written for the Leeds Festival in 1858. For the jubilee of the Philharmonic Society he wrote the overture *Paradise and the Peri* in 1862. He also wrote a sacred cantata, *The Woman of Samaria*, first performed at the Birmingham Musical Festival in 1867. In 1870 the university of Oxford conferred upon him the honorary degree of D.C.L. A year later he was knighted, and in 1872 he received a public testimonial before a large audience at St James's Hall, the money subscribed being devoted to the foundation of a scholarship at the Royal Academy of Music. Shortly before his death he produced a sonata called the *Maid of Orleans*, an elaborate piece of programme music based on Schiller's tragedy. He died at his house in St John's Wood, London, on the 15th of February 1875. See the *Life*, by his son (1908).

BEN NEVIS, the highest mountain in the British Isles, in Inverness-shire, Scotland. It is 4406 ft. above the level of the sea, and is situated 4½ m. E.S.E. of Fort William, the meridian of 5° W passing through it. As viewed from Banavie on the Caledonian Canal, it has the appearance of two great masses, one higher than the other, and though its bulk is impressive, its outline is much less striking than that of many other Highland hills. Its summit consists of a plateau 100 acres in area, with a slight slope to the south, terminating on its north-eastern side in a sheer fall of more than 1500 ft. Snow lies in some of the gorges all the year round. The rocks of its lower half are mainly granite and gneiss; its upper half is composed of porphyritic greenstone, and a variety of minerals occur. Its circumference at the base is about 30 m. It may be described as flanked on the west and south by the Glen and Water of Nevis, on the east by the river and Glen of Treig, and on the north by the river and Glen of Spean. From 1881 till 1904 meteorological observations were taken from the summit of Ben Nevis, the observers at first making the ascent daily for the purpose. In 1883, however, an observatory, equipped at a cost of £4000 (raised by public subscription), was opened by Mrs Cameron Campbell of Monzie, who provided the site. The observatory, which was connected by wire with the post office at Fort William, was provisioned by the Scottish Meteorological Society, to whom it belonged. The burden of maintaining it, however, proving too great for the society's means, appeal was made in vain to government for national support, and the station was closed in 1904. The bridle road up the mountain leaves Glen Nevis at Achintee; it has a gradient nowhere exceeding 1 in 5, and the ascent is commonly effected in two to three hours. There is a small hotel on the summit for the convenience of tourists, especially of those anxious to witness sunrise. From the summit every considerable peak in Scotland is visible. Observations conducted during several months have shown that, whilst the mean temperature at Fort William was 57° F., at the summit of Ben Nevis it was 41° F., and that though the rainfall at the fort amounted to 24 in., it was as much as 43 in. on the top of the Ben.

BENNIGSEN, LEVIN AUGUST, Count von (1745-1826), Russian general, of Hanoverian family, was born on the 10th of February 1745 in Brunswick, and served successively as a page at the Hanoverian court and as an officer of foot-guards. He retired from the Hanoverian army in 1764, and in 1773 entered the Russian service as a field officer. He fought against the Turks in 1774 and in 1778, becoming lieutenant-colonel in the latter year. In 1787 his conduct at the storming of Oczakov won him promotion to the rank of brigadier, and he distinguished himself repeatedly in the Polish War of 1793-1794 and in the Persian War of 1796. The part played by Bennigsen in the actual assassination of the tsar Paul I. is not fully known, but he took a most active share in the formation and conduct of the conspiracy. Alexander I. made him governor-general of Lithuania in 1801, and in 1802 a general of cavalry. In 1806 he was in command of one of the Russian armies operating against Napoleon, when he fought the battle of Pultusk and met the emperor in person in the sanguinary battle of Eylau (8th of February 1807). Here he could claim to have inflicted the first reverse suffered by Napoleon, but six months later Bennigsen met with the crushing defeat of Friedland (14th of June 1807) the direct consequence

of which was the treaty of Tilsit. Bennigsen now retired for some years, but in the campaign of 1812 he reappeared in the army in various responsible positions. He was present at Borodino, and defeated Murat in the engagement of Tarutino, but on account of a quarrel with Marshal Kutusov, the Russian commander-in-chief, he was compelled to retire from active military employment. After the death of Kutusov he was recalled and placed at the head of an army. Bennigsen led one of the columns which made the decisive attack on the last day of the battle of Leipzig (16th-19th of October 1813). On the same evening he was made a count by the emperor Alexander I., and he afterwards commanded the forces which operated against Marshal Davout in North Germany. After the general peace he held a command from 1815 to 1818, when he retired from active service and settled on his Hanoverian estate of Banteln near Hildesheim. Count Bennigsen died on the 3rd of December 1826. His son, Alexander Levin, count von Bennigsen (1809-1893), was a distinguished Hanoverian statesman.

BENNIGSEN, RUDOLF VON (1824-1902), German politician, was born at Lüneburg on the 10th of July 1824. He was descended from an old Hanoverian family, his father, Karl von Bennigsen, being an officer in the Hanoverian army, who rose to the rank of general and also held diplomatic appointments. Bennigsen, having studied at the university of Göttingen, entered the Hanoverian civil service. In 1855 he was elected a member of the second chamber; and as the government refused to allow him leave of absence from his official duties he resigned his post in the public service. He at once became the recognized leader of the Liberal opposition to the reactionary government, but must be distinguished from Count Bennigsen, a member of the same family, and son of the distinguished Russian general, who was also one of the parliamentary leaders at the time. What gave Bennigsen his importance not only in Hanover, but throughout the whole of Germany, was the foundation of the National Verein, which was due to him, and of which he was president. This society, which arose out of the public excitement created by the war between France and Austria, had for its object the formation of a national party which should strive for the unity and the constitutional liberty of the whole Fatherland. It united the moderate Liberals throughout Germany, and at once became a great political power, notwithstanding all the efforts of the governments, and especially of the king of Hanover to suppress it. In 1866 Bennigsen used all his influence to keep Hanover neutral in the conflict between Prussia and Austria, but in vain. He took no part in the war, but his brother, who was an officer in the Prussian army, was killed in Bohemia. In May of this year he had an important interview with Bismarck, who wished to secure his support for the reform of the confederation, and after the war was over at once accepted the position of a Prussian subject, and took his seat in the diet of the North German Confederation and in the Prussian parliament. He used his influence to procure as much autonomy as possible for the province of Hanover, but was a strong opponent of the Guelph party. He was one of the three Hanoverians, Windthorst and Miquel being the other two, who at once won for the representatives of the conquered province the lead in both the Prussian and German parliaments. The National Verein, its work being done, was now dissolved; but Bennigsen was chiefly instrumental in founding a new political party—the National Liberals,—who, while they supported Bismarck’s national policy, hoped to secure the constitutional development of the country. For the next thirty years he was president of the party, and was the most influential of the parliamentary leaders. It was chiefly owing to him that the building up of the internal institutions of the empire was carried on without the open breach between Bismarck and the parliament, which was often imminent. Many amendments suggested by him were introduced in the debates on the constitution; in 1870 he undertook a mission to South Germany to strengthen the national party there, and was consulted by Bismarck while at Versailles. It was he who brought about the compromise on the military bill in 1874. In 1877 he was offered the post of vice-chancellor with a seat in the Prussian ministry, but refused it because Bismarck or the king would not agree to his conditions. From this time his relations with the government were less friendly, and in 1878 he brought about the rejection of the first Socialist Bill. In 1883 he resigned his seat in parliament owing to the reactionary measures of the government, which made it impossible for him to continue his former co-operation with Bismarck, but returned in 1887 to support the coalition of national parties. One of the first acts of the emperor William II. was to appoint him president of the province of Hanover. In 1897 he resigned this post and retired from public life. He died on the 7th of August 1902.

See biographical notices by A. Kiepert (2nd ed., Hanover, 1902), and E. Schreck (Hanover, 1894).

BENNINGTON, a village and one of the county-seats of Bennington county, Vermont, U.S.A., situated in the S.W. part of the state, about 30 m. E.N.E. of Troy, New York. Pop. (1890) 3971; (1900) 5656 (965 foreign-born); (1910) 6211. The township of the same name, in which it is situated, had in 1910 a population of 8698, living chiefly in the villages of Bennington, North Bennington and Bennington Centre, the last a summer resort. The village of Bennington is served by the Rutland railway, and is connected by electric railway with North Adams and Pittsfield, Mass., and Hoosick Falls, N.Y. It is picturesquely situated at the foot of the Green Mountains, and the summit of the neighbouring Mt. Anthony (2345 ft.) commands a magnificent view. The village has woollen mills, knitting mills, stereoscope, box, and collar and cuff factories and machine shops. There are white clay and yellow ochre works in different parts of the township. Bennington is the seat of the Vermont state soldiers' home. The Bennington Battle Monument, a shaft 301 ft. high, is said to be the highest battle monument in the world. It commemorates the success gained on the 16th of August 1777 by a force of nearly 2000 "Green Mountain Boys" and New Hampshire and Massachusetts militia under General John Stark over two detachments of General Burgoyne's army, totalling about 1200 men, under Col. Friedrich Baum and Col. Breyman. These came up one after the other in search of provisions and were practically annihilated, Col. Baum being mortally wounded and 700 men taken prisoners. The scene of the battle is about 5 m. from the village. The victory had an important influence on Burgoyne's campaign (see American War of Independence), weakening Burgoyne and encouraging the American militia to take the field against him. Bennington was settled in 1761 and was named in honour of Governor Benning Wentworth of New Hampshire. The township was organized in 1762. It was one of the "New Hampshire Grant" towns, both New York and New Hampshire claiming jurisdiction over it, and, being the home of Ethan Alien and Seth Warner, it became the centre of activities of the "Green Mountain Boys," of whom they were leaders. During the fifteen years in which Vermont was an independent commonwealth, Bennington was the headquarters of the council of safety. In 1828-1829 W.L. Garrison edited here a paper called *The Journal of the Times*. The village of Bennington was incorporated in 1849.

See Merrill and Merrill, *Sketches of Historic Bennington* (Cambridge, Mass., 1898).

BENNO (1010-1106), bishop of Meissen, was the son of Werner, count of Woldenburg, was educated at Gosslar, and in 1066 was nominated by the emperor Henry IV. to the see of Meissen. In the troubles between empire and papacy that followed Benno took part against the emperor. In 1085 he was deposed by the synod of Mainz, but after the death of Pope Gregory VII. he submitted, and on the recommendation of the imperialist Pope Clement III. was restored to his see, which he held till his death. He did much for his diocese, both by ecclesiastical reforms on the Hildebrandine model and by material developments. He was long reverenced in his own diocese as a saint before, in 1523, he was canonized by Pope Adrian VI. His canonization drew from Luther a violent brochure "against the new false god and old devil, who is to be lifted up at Meissen."

For bibliography, see Ulysse Chevalier, *Répertoire des sources hist.: Bio-bibliographie, s.v.* "Bennon."

BENOIT, PETER LEONARD LEOPOLD (1834-1901), Flemish composer, was born on the 17th of August 1834 at Harlebeke in Flanders. His father and a local village organist were his first teachers. In 1851 Benoit entered the Brussels Conservatoire, where he remained till 1855, studying chiefly under F.J. Fétis. During this period he composed music to many melodramas, and to an opera *Le Village dans les montagnes* for the Park theatre, of which in 1856 he became conductor. He won a government prize and a money grant in 1857 by his cantata *Le Meurtre d'Abel*, and this enabled him to travel through Germany. In course of his journeyings he found time to write a considerable amount of music, as well as an essay *L'École de musique flamande et son avenir*. Fétis loudly praised his *Messe solennelle*, which Benoit produced at Brussels on his return from Germany. In 1861 he visited Paris for the production of his opera *Le Roi des Aulnes* ("Erlkönig"), which, though accepted by the Théâtre Lyrique, was never mounted; while there he conducted at the Bouffes-Parisiens. Again returning home, he astonished a section of the musical world by the production at Antwerp of a sacred tetralogy, consisting of his *Cantate de Noël*, the above-mentioned *Mass*, a *Te Deum* and a *Requiem*, in which were embodied to a

large extent his theories of Flemish music. It was in consequence of his passion for the founding of an entirely separate Flemish school that Benoit changed his name from Pierre to Peter. By prodigious efforts he succeeded in gathering round him a small band of enthusiasts, who affected to see with him possibilities in the foundation of a school whose music should differ completely from that of the French and German schools. In its main features this school failed, for its faith was pinned to Benoit's music, which is hardly more Flemish than French or German. Benoit's more important compositions include the Flemish oratorios *De Schelde* and *Lucifer*, the latter of which met with complete failure on its production in London in 1888; the operas *Het Dorp int Gebirgte* and *Isa*, the *Drama Christi*; an enormous mass of songs, choruses, small cantatas and motets. Benoit also wrote a great number of essays on musical matters. He died at Antwerp on the 8th of March 1901.

BENOÎT DE SAINTE-MORE, or Sainte-Maure, 12th century French *trouvère*, is supposed to have been a native of Sainte-Maure in Touraine. Very little is known of his personal history. The *maître* prefixed to his name implies that he had graduated at the university, but there is nothing to show whether he was a simple *trouvère* by profession or belonged to the clergy. He was a loyal subject of Henry II. of England, to whose court he was attached, and when he speaks of the French, it is as "they." Wace had begun a history of the dukes of Normandy in his *Roman du Rou*. This he brought down to the reign of Henry I., but here Henry II. seems to have withdrawn his patronage, and at the end of his poem Wace refers to a *maistre Beneeit* who had received a similar commission. There is no other contemporary poem extant dealing with the subject except the *Chronique des ducs de Normandie*, and it would seem reasonable to assume the identity of Wace's rival with Benoît de Sainte-More, whose authorship of the chronicle has, nevertheless, been often disputed. But a comparison of the *Roman de Troie*, which is certainly Benoît's work, with the *Chronique*, confirms the supposition that they are by the same author. The poem contains over forty thousand lines, and relates the history of the Norman dukes from Rollo to Henry I., with a preliminary sketch of the Danish invasions and the adventures of Hastings and his companions. It has no claims to be considered an original authority. Benoît drew his information from the *De moribus et actis primorum Normanniae ducum* of Dudon de Saint Quentin as far as 1002, following his model very closely. From that time he avails himself of the chronicle of William of Jumieges, also of Ordericus Vitalis and others. The *Chronique* probably dates from about 1172 to 1176. In the *Roman de Troie*, written about 1160, Benoît expressly asserts his authorship. He mentions "Omers" with great respect as *li clers merveillos*, but his authority for the story is naturally not Homer, of whom he could have no first-hand knowledge. He follows the apocryphal *Historia de excidio Trojae* of Dares the Phrygian and the *Ephemerides belli Trojani* of Dictys of Crete. The poem runs to about 30,000 lines. The personages of the classical story are converted into heroes of romance. They have their castles and their abbeys, and act in accordance with feudal custom. The supernatural machinery of Homer is missing both in Benoît's original and his own narrative. The story begins with the capture of the Golden Fleece and comes down to the return of the Greek princes after the fall of Troy. Benoît diverges very widely from the classical tradition, and M. Léopold Constans sees reason to suppose that the *trouvère* founded his poem on an amplified version of the Dares narrative that has not come down to us. In the *Roman de Troie* first appeared the episode of Troïlus and Briseïde, that was to be developed later in the *Filostrato* of Boccaccio, which in its turn formed the basis of Chaucer's *Troilus and Creseide*. The Shakespearian play of *Troilus and Cressida* is also indirectly derived from Benoît's story.

On the strength of a certain similarity of treatment Benoît has sometimes been credited with the authorship of the anonymous *Roman d'Énéas* and of the *Roman de Thèbes*, a romance derived indirectly from the *Thebaïs* of Statius. M. Constans is inclined to negative both these attributions. It is not even certain that the Benoît who chronicled the deeds of the Norman dukes for Henry II. between 1172 and 1176 was the Benoît de Sainte-More of the *Roman de Troie*.

The *Chronique des ducs de Normandie* was edited by Francisque Michel in 1836-1844; the *Roman de Troie* by A. Joly in 1870-1871; the *Énéas*, by J.J. Salverda de Grave in H. Suchier's *Bibliotheca Normannica* in 1891; the *Roman de Thèbes* for the *Société des anciens textes français*, by M.L. Constans in 1890. See E.D. Grand in *La Grande Encyclopédie*; L. Constans in Petit de Julleville's *Hist. de la langue et de la litt, française* (vol. i. pp. 171-225). where the three romances are analysed at length. The prefaces to the editions just mentioned discuss the authorship of the romances.

BENSERADE, ISAAC DE (1613-1691), French poet, was born in Paris, and baptized on the 5th of November 1613. His family appears to have been connected with Richelieu, who bestowed on him a pension of 600 livres. He began his literary career with the tragedy of *Cléopâtre* (1635), which was followed by four other indifferent pieces. On Richelieu's death Benserade lost his pension, but became more and more a favourite at court, especially with Anne of Austria. He provided the words for the court ballets, and was, in 1674, admitted to the Academy, where he wielded an influence quite out of proportion to the merit of his work. In 1676 the failure of his *Métamorphoses d'Ovide* in the form of rondeaux gave a blow to his reputation, but by no means destroyed his vogue with his contemporaries. Benserade would probably be forgotten but for his sonnet on Job (1651). This sonnet, which he sent to a young lady with his paraphrase on Job, having been placed in competition with the *Urania* of Voiture, a dispute on their relative merits long divided the whole court and the wits into two parties, styled respectively the *Jobelins* and the *Uranists*. The partisans of Benserade were headed by the prince de Conti and Mile de Scudéry, while Mme de Montausier and J.G. de Balzac took the side of Voiture.

Some years before his death, on the 19th of October 1691, Benserade retired to Chantilly, and devoted himself to a translation of the Psalms, which he nearly completed.

BENSLEY, ROBERT, an 18th-century English actor, of whom Charles Lamb in the *Essays of Elia* speaks with special praise. His early life is obscure, and he is said to have served in America as a lieutenant of marines; but he appeared at Drury Lane in 1765, and at that house and at Covent Garden, and later at the Haymarket, he played important parts up to 1796, when he retired from the stage. He appears then to have been given a small post under the government, a paymastership, which he resigned in 1798. He is stated in various quarters to have died in 1817, but Mr Joseph Knight shows in his article in the *Dict. Nat. Biog.* that this is due to a confusion with another man named William Bensley, who possibly belonged to the family of printers of whom Thomas Bensley (d. 1833) was the chief representative. On the stage he was simply "Mr Bensley," but though he is named William and even Richard in some accounts, Mr Knight shows that his name was certainly Robert. The actual date of his death is unknown, though it was probably later than 1809, when he is said to have inherited a fortune. His great character was Malvolio, but Charles Lamb's fervent admiration of his acting seems to have outrun the general opinion.

BENSON, EDWARD WHITE (1829-1896), archbishop of Canterbury, was born on the 14th of July 1829, at Birmingham. He came of a family of Yorkshire dalesmen, his father, whose name was also Edward White Benson, being a manufacturing chemist of some note. He was educated at King Edward VI.'s school, Birmingham, under James Prince Lee, afterwards bishop of Manchester, and amongst his school-fellows were B.F. Westcott and J.B. Lightfoot, both of whom preceded him to Trinity College, Cambridge, where he was elected a sub-sizar in 1848, becoming subsequently sizar and scholar. The death of his widowed mother in 1850 left him almost without resources, with a family of younger brothers and sisters dependent upon him. Relations came to his aid, and presently his anxieties were relieved by Francis Martin, bursar of Trinity, who gave him liberal help. Benson took his degree in 1852 as a senior optime, eighth classic and senior chancellor's medallist, and was elected fellow of Trinity in the following year. He became a master at Rugby, first under E.M. Goulburn, and then (1857) under Frederick Temple, who became his lifelong friend; he was also ordained deacon in 1854 and priest in 1856. From Rugby he went to be first headmaster of Wellington College, which was opened in January 1859; and in the course of the same year he married his cousin, Mary Sidgwick. The school flourished under his management and also developed his administrative abilities, but gradually his thoughts began to turn towards other work. In 1868 he became prebendary of Lincoln and examining chaplain to Bishop Christopher Wordsworth, an office which he also held for a short time in 1870 for Dr Temple, just appointed to the see of Exeter. In 1872 his acceptance of the chancellorship of Lincoln opened a new period of his life. As chancellor, the statutes directed him to study theology, to train others in that study and to oversee the educational work of the diocese. To such work Benson at once devoted himself; and did more perhaps than any other man to reinvigorate cathedral life in England. He started a theological college (the *Scholae*

Cancellarii), founded night schools, delivered courses of lectures on church history, held Bible classes, and was instrumental in founding a society of mission preachers for the diocese, the "Novate Novale." Early in 1877 he was consecrated first bishop of Truro, and threw himself with characteristic vigour into the work of organizing the new diocese. His knowledge, his sympathy, his enthusiasm soon made themselves felt everywhere; the ruridecanal conferences of clergy became a real force, and the church in Cornwall was inspired with a vitality that had never been possible when it was part of the unwieldy diocese of Exeter. A chapter was constituted, the bishop being dean; amongst its members was a canon missioner (the first to be appointed in England), and the *Scholae Cancellarii* were founded after the Lincoln pattern. Moreover, the bishop at once set to work to build a cathedral. The foundation-stone was laid on the 20th of May 1880, and on the 3rd of November 1887 the building, so far as then completed, was consecrated. On the death of Dr Tait, Benson was nominated to the see of Canterbury and was enthroned on the 29th of March 1883. His primacy was one of almost unprecedented activity.

Frequent communications passed between him and the heads of the Eastern Churches. With their approval a bishop was again consecrated, after six years' interval (1881-1887), for the Anglican congregations in Jerusalem and the East; and the features which had made the plan objectionable to many English churchmen were now abolished. In 1886, after much careful investigation, he founded the "Archbishop's Mission to the Assyrian Christians," having for its object the instruction and the strengthening from within of the "Nestorian" churches of the East (see Nestorians). An interchange of courtesies with the Metropolitan of Kiev on the occasion of the 900th anniversary of the conversion of Russia (1888), led to further intercourse, which has tended to a friendlier feeling between the English and Russian churches. On the other hand, with the efforts towards a *rapprochement* with the Church of Rome, to which the visit of the French Abbé Portal in 1894 gave some stimulus, the archbishop would have nothing to do.

With the other churches of the Anglican Communion the archbishop's relations were cordial in the extreme and grew closer as time went on. Particular questions of importance, the Jerusalem bishopric, the healing of the Colenso schism in the diocese of Natal, the organization of native ministries and the like, occupied much of his time; and he did all in his power to foster the growth of local churches. But it was the work at home which occupied most of his energies. That he in no way slighted diocesan work had been shown at Truro. He complained now that the bishops were "bishops of their dioceses but not bishops of England," and did all he could to make the Church a greater religious force in English life. He sat on the ecclesiastical courts commission (1881-1883) and the sweating commission (1888-1890). He brought bills into parliament to reform Church patronage and Church discipline, and worked unremittingly for years in their behalf. The latter became law in 1892, and the former was merged in the Benefices Bill, which passed in 1898, after his death. He wrote and spoke vigorously against Welsh disestablishment (1893); and in the following year, under his guidance, the existing agencies for Church defence were consolidated. He was largely instrumental in the inauguration of the House of Laymen in the province of Canterbury (1886); he made diligent inquiries as to the internal order of the sisterhoods of which he was visitor; from 1884 onwards he gave regular Bible readings for ladies in Lambeth Palace chapel. But the most important ecclesiastical event of his primacy was the judgment in the case of the bishop of Lincoln (see Lincoln Judgment), in which the law of the prayer-book is investigated, as it had never been before, from the standpoint of the whole history of the English Church. In 1896 the archbishop went to Ireland to see the working of the sister Church. He was received with enthusiasm, but the work which his tour entailed over-fatigued him. On Sunday morning the 11th of October, just after his return, whilst on a visit to Mr Gladstone, he died in Hawarden parish church of heart failure.

Archbishop Benson left numerous writings, including a valuable essay on *The Cathedral* (London, 1878), and various charges and volumes of sermons and addresses. But his two chief works, posthumously published, are his *Cyprian* (London, 1897), a work of great learning, which had occupied him at intervals since early manhood; and *The Apocalypse, an Introductory Study* (London, 1900), interesting and beautiful, but limited by the fact that the method of study is that of a Greek play, not of a Hebrew apocalypse. The archbishop's knowledge of the past was both wide and minute, but it was that of an antiquary rather than of a historian. "I think," writes his son, "he was more interested in modern movements for their resemblance to ancient than vice versa." His sermons are very noble though written in a style which is over-compressed and often obscure. He wrote some good hymns, including "O Throned, O Crowned" and a beautiful version of *Urbs Beata*. His "grandeur in social function" was unequalled and his interests were very wide. But above all else he was a great ecclesiastic. He paid less attention to secular politics than Archbishop Tait; but if a man is to be judged by the effect of his work, it is Benson and not Tait who should be described as a great statesman. His biography, by his son, reveals him as a man of devout and holy life, impulsive indeed and masterful, but one who learned self-restraint by strenuous endeavour.

His eldest son, Arthur Christopher Benson (b. 1862), was educated at Eton and King's College, Cambridge. He became fellow of Magdalene College, Cambridge, and was a master at Eton

College from 1885 to 1903. His literary capacity was early shown in the remarkable fiction of his *Memoirs of Arthur Hamilton* (1886) under the pseudonym of "Christopher Carr," and his *Poems* (1893) and *Lyrics* (1895) established his reputation as a writer of verse. Among his works are *Fasti Etonenses* (1899); his father's *Life* (1899); *The Schoolmaster* (1902), a commentary on the aims and methods of an assistant schoolmaster in a public school; a study of Archbishop Laud (1887); monographs on D.G. Rossetti (1904), Edward FitzGerald (1905) and Walter Pater (1906), in the "English Men of Letters" series; *Lord Vyet and other Poems* (1897), *Peace and other Poems* (1905); *The Upton Letters (1905), From a College Window* (1906), *Beside Still Waters* (1907). He also collaborated with Lord Esher in editing the *Correspondence of Queen Victoria* (1907).

The third son, Edward Frederick Benson (b. 1867), was educated at Marlborough College and King's College, Cambridge. He worked at Athens for the British Archaeological Society from 1892 to 1895, and subsequently in Egypt for the Hellenic Society. In 1893 his society novel, *Dodo*, brought him to the front among the writers of clever fiction; and this was followed by other novels, notably *The Vintage* (1898) and *The Capsina* (1899).

The fourth son, Robert Hugh Benson (b. 1871), was educated at Eton and Trinity College, Cambridge. After reading with Dean Vaughan at Llandaff he took orders, and in 1898 became a member of the Community of the Resurrection at Mirfield. In 1903 he became a Roman Catholic, was ordained priest at Rome in the following year, and returned to Cambridge as assistant priest of the Roman Catholic church there. Among his numerous publications are *The Light Invisible, By What Authority?, The King's Achievement, Richard Raynal, Solitary, The Queen's Tragedy, The Sentimentalists, Lord of the World*.

See A.C. Benson, *Life of Archbishop Benson* (2 vols., London, 1899); J.H. Bernard, *Archbishop Benson in Ireland* (1897); Sir L.T. Dibdin in *The Quarterly Review*, October 1897.

BENSON, FRANCIS ROBERT (1858-), English actor, son of William Benson of Alresford, Hants, was born at Tunbridge Wells on the 4th of November 1858. He came of a talented family, his elder brother, W.A.S. Benson (b. 1854), becoming well known in the world of art as one of the pioneers in the revival of English industrial craftsmanship, especially in the field of the metallic arts; and his younger brother, Godfrey Benson, being an active Liberal politician. He was educated at Winchester and New College, Oxford, and at the university was distinguished both as an athlete (winning the Inter-university three miles) and as an amateur actor. In the latter respect he was notable for producing at Oxford the first performance of a Greek play, the *Agamemnon*, in which many Oxford men who afterwards became famous in other fields took part. Mr Benson, on leaving Oxford, took to the professional stage, and made his first appearance at the Lyceum, under Irving, in *Romeo and Juliet*, as Paris, in 1882. In the next year he went into managership with a company of his own, taken over from Walter Bentley, and from this time he became gradually more and more prominent, both as an actor of leading parts himself and as the organizer of practically the only modern "stock company" touring through the provinces. In 1886 he married Gertrude Constance Cockburn (Featherstonhaugh), who acted in his company and continued to play leading parts with him. Mr Benson's chief successes were gained out of London for some years, but in 1890 he had a season in London at the Globe and in 1900 at the Lyceum, and in later years he was seen with his *répertoire* at the Coronet. His company included from time to time many actors and actresses who, having been trained under him, became prominent on their own account, and both by his organization of this regular company and by his foundation of a dramatic school of acting in 1901, Mr Benson exercised a most important influence on the contemporary stage. From the first he devoted himself largely to the production of Shakespeare's plays, reviving many which had not been acted for generations, and his services to the cause of Shakespeare can hardly be overestimated. From 1888 onwards he managed the Stratford-on-Avon Shakespearian Festival. His romantic and intellectual powers as an actor, combined with his athletic and picturesque bearing and fine elocution, were conspicuously shown in his own impersonations, most remarkable among which were his Hamlet (in 1900 he produced this play without cuts in London), his Coriolanus, his Richard II., his Lear and his Petruchio.

BENSON, FRANK WESTON (1862-), American painter, was born in Salem, Massachusetts, on the 24th of March 1862. He was a pupil of Boulanger and of Lefebvre in Paris; won many distinctions in American exhibitions, and a silver medal at the Paris Exhibition of 1900; and became a member of the “Ten Americans,” and of the National Academy of Design, New York. Besides portraits, he painted landscape and still life; and he was one of the decorators of the Congressional library, Washington, D.C.

BENSON, GEORGE (1699-1762), English dissenting minister, was born at Great Salkeld, in Cumberland, on the 1st of September 1699, of a family which had distinguished itself in church and state. He studied at a school at Whitehaven and later at the university of Glasgow. In 1722, on Calamy’s recommendation, he was chosen pastor of a congregation of dissenters at Abingdon, in Berkshire, where he continued till 1729, when, having embraced Arminian views, he became the choice of a congregation in Southwark; and in 1740 he was appointed by the congregation of Crutched Friars colleague to the learned Dr Nathaniel Lardner, whom he succeeded in 1749. His *Defence of the Reasonableness of Prayer* appeared in 1731, and he afterwards published paraphrases and notes on the epistles to the Thessalonians, Timothy, Titus and Philemon, adding dissertations on several important subjects, particularly (as an appendix to 1 Timothy) on inspiration. In 1738 he published his *History of the First Planting of the Christian Religion*, in 3 vols. 4to, a work of great learning and ability. He also wrote the *Reasonableness of the Christian Religion* (1743), the *History of the Life of Jesus Christ*, posthumously published in 1764, a paraphrase and notes on the seven Catholic epistles, and several other works, which gained him great reputation as a scholar and theologian even outside his own communion and his own country. Owing to his undoubted Socinianism his works suffered neglect after his death, which occurred on the 6th of April 1762.

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