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EXTRACTION TO GAMBRINUS

XTRACTION, in a broad sense, is any process for separating a desired constituent from a mass, whether of solids or liquids. Mechanical expression, shaking or "percolating" with a cold solvent, treating with a hot solvent condensed from its vapour, are amongst the methods used. Examples of extractions are the separation of active principles from drugs, and d ore with cyanide solutions.

T is the handing over of a fugitive from y to which he has fled to the country demandement to call the former the required State juring State. Is a country, apart from treaty, to the country of the place of commission of ugitive from justice? The ideal international :e the Universal Postal Union, in which all nterested. Such a matter likewise is the supt this matter had no urgency until the enorf transport facilities during the 19th century. mon criminals rarely had the opportunity of led political criminals sometimes succeeded given up, treaty or no treaty. Grotius held a State either to surrender, or itself to punish, but he seems to confuse fact and theory. tly cannot agree with other nations to do what llow it to do. The reluctance of Great Britain es and her readiness to grant asylum (*q.v.*) rom a belief, not only by herself but by forhe superiority of her institutions; but the ption of representative government in recent championship of the oppressed perhaps unnly embarrassing. As an example of the old e Spanish convicts were wrecked in 1836 on and the governor detained them awaiting attorney-general and the solicitor-general in er he should deliver them up to Spain: he was law of England he could not do so. In 1841 utinied and murdered a passenger in the brig ne ship to the West Indies. At the request of the governor put a guard on board but reprisoners up to the American Government. locally for piracy and acquitted. The law authorities in England were unanimously of the opinion that they could not be given up in the absence of an act of parliament giving power to the executive. At this time France had extradition treaties with Spain, Switzerland, Belgium and Sardinia and could obtain extradition from other countries, without treaties, but not from Great Britain or the United States; from Great Britain because her laws did not allow it; from the United States because it was not then settled whether the power resided in the constituent States or in the Union. By giving effect in 1843 to the Ashburton Treaty with the United States this power was first given to the English executive. The previous chapter of the act (6 and 7 Vic. c. 75) carried into effect a treaty with France which had been signed in the same year (1843).

Extradition Treaties.—Great Britain has extradition treaties with the following countries: Austria (Sept. 22, 1920); Austria Hungary (Dec. 3, 1873; June 26, 1901); Argentine republic (May 22, 1889); Belgium (Oct. 29, 1901; March 5, 1907; March 3, 1911; Aug. 8, 1923); Bolivia (Feb. 22, 1892); Brazil (Nov 13 1872); Bulgaria (Jan. 26, 1897); Chile (Nov. 11, 1924); Czechoslovakia (June 4, 1926); China (March 1, 1894); Colombia (Oct 27, 1888); Cuba (Oct. 3, 1904); Denmark (March 31, 1873), Ecuador (Sept. 20, 1880); Esthonia (Nov 18, 1925); Finland (May 30, 1924; Nov. 25, 1926); France (Aug. 14, 1876; Dec 31, 1889; Feb. 13, 1896; Oct. 17, 1908; Nov. 13, 1923); Germany (May 14, 1872; May 5, 1894; Jan. 30, 1911; Sept. 1, 1913; June 25, 1920); Greece (Sept. 24, 1910); Guatemala (July 4, 1885 May 30, 1914); Haiti (Dec. 7, 1874); Hungary (Oct. 24, 1921), Italy (Feb. 5, 1873; May 7, 1873); Latvia (July 16, 1924) Liberia (Dec. 16, 1892); Lithuania (May 18, 1926); Luxemburg (Nov. 24, 1880); Mexico (Sept. 7, 1886); Monaco (Dec 17 1891); Netherlands (Sept. 26, 1898; Aug. 17, 1914; April 13 1920); Nicaragua (April 19, 1905); Norway (Feb. 18, 1907) Panama (Aug. 25, 1906); Paraguay (Sept. 12, 1908); Peru (Jan 26, 1904); Poland; Portugal (Oct. 17, 1892; Nov. 30, 1892; Jan 10, 1921); Rumania (March 21, 1893); Russia (Nov. 24, 1886) Salvador (June 23, 1881); San Marino (Oct. 16, 1899); Serbia (Dec. 6, 1900); Siam (Sept. 3, 1883; Nov. 30, 1885; March 4 1911); Spain (June 4, 1878; Feb. 19, 1889; June 20, 1919) Switzerland (Nov. 26, 1880; June 29, 1904; July 14, 1920) Sweden and Norway (June 26, 1873); Sweden (July 2, 1907) Tonga (Nov. 29, 1879); Turkey; United States (Aug. 9, 1842 July 12, 1889; Dec. 13, 1900; April 12, 1905; May 15, 1922) Uruguay (March 26 1884; March 9 1891)

It has been said that two things stand in the way of the proposals for uniformity in this matter which have been made from time to time: (1) the variation in the definition of crimes in different countries; (2) the fear that extradition may be made use of in order to get hold of a fugitive who is wanted by his country, not really for a criminal but for a political offence. The first difficulty is doubtless considerable but it is by no means insuperable. The Draft Convention approved by the International Law Association at Warsaw in August 1928 provides (art. 17) that the signatories will furnish each other, before ratification or adherence, with schedules, to be annexed to this convention, of crimes in terms in their own penal law following the order of art. 2 as well as their respective requirements as to proof. (Art. 2 contains a list of 35 offences commonly regarded as heinous in civilized countries.)

Two propositions seem fundamental: (1) every State can insist that in the whole extent of its territory no laws but its own shall be recognized; (2) no State should extend beyond its own territory the application of its own penal laws. To hold otherwise is in effect to demand exterritoriality (*q.v.*) which can only be demanded of uncivilized nations. The criteria of civilization, it is submitted, are the rule of law (*q.v.*) and the impartial administration of justice; subsidiary considerations perhaps are the incidence of crimes of violence and the status of women. A simpler way of putting it is that some countries have not the same way of looking at things as others have. If the above propositions are sound it follows that a State ought to give up its own nationals, properly accused of having committed a crime abroad; but many countries still refuse to deliver their own nationals, though the better practice would seem to be to make the matter optional. Treaties with the following nations reciprocally refuse the extradition of their own subjects: Austria, Brazil, Denmark, Germany, Greece, Guatemala, Haiti, Hungary, Italy Nicaragua, Norway, Portugal, Salvador, Sweden and Norway, and Uruguay. In the case of the following the surrender is optional: Argentine, Belgium, Bolivia, Chile, China, Colombia, Cuba, Czechoslovakia, Ecuador, Estonia, France, Finland, Latvia, Liberia, Lithuania, Luxembourg, Mexico, Monaco, Netherlands, Panama, Paraguay, Peru, Rumania, Russia, San Marino, Serbia, Siam, Spain, Switzerland, Tonga, United States. Spain, Switzerland and Luxemburg, in their treaties with Great Britain, refuse the extradition of their own subjects, but Great Britain is free to surrender hers to them, subject of course to the restrictions governing all surrenders, contained in s. 3 of the Extradition Act of 1870. One of these restrictions is that the offence must not be of a political character nor must the requisition have been made with a view to punish a fugitive for an offence of a political character.

Extraditable Offences.—There are not lacking signs that countries once the champions of revolution in any other country but their own are beginning to think better of it and to wonder whether it is not the interest of each member of the family of nations if not to support at least not to hinder the rest in their task of keeping order within their own borders; especially when so-called political offences involve murder and other heinous crimes. In two treaties concluded by Italy in 1922 (with Czechoslovakia and Yugoslavia) it was agreed not to give up political offenders unless the Act constitutes a "common crime." The Warsaw Draft already referred to proposes (art. 7 par. 2) that acts involving loss of human life or serious bodily injury shall not be considered political. All attempts to lay down hard and fast rules as to what constitutes a political crime have hitherto failed and each case must be decided on its merits; a method familiar to us. It was decided in *Castioni's case*, 1891, 1 Q.B. 149, that such an offence must be "incidental to and form part of political disturbances." With regard however to the provision that a requisition must not be made with a view to try and punish for an offence of a political character a fugitive whose extradition is demanded on other grounds, it was held in *Arton's case*, 1896, 1 Q.B. 509, amongst other things, that the court had no jurisdiction to question the good faith of a friendly Power.

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notable omissions in some treaties, particularly with respect to sexual offences. Participation in or attempt or conspiracy to commit such crimes is not covered by all treaties by any means. It is interesting to note that Rumania may refuse, and Portugal does refuse, to surrender where capital punishment (*q.v.*) may be inflicted. Some countries refuse to extradite if prescription (*q.v.*) has been acquired; such is the case with France after six years.

The procedure in extradition cases is in general not complicated, though some countries fail to realize, with regard to Great Britain, the implications of the presumption of innocence and do not support their application by sufficient evidence, that is to say, the original warrant must have been obtained by evidence on oath—or affirmation where English law allows it—and must not be hearsay. The requisition is made through diplomatic channels.

The return of fugitives within the British empire—that is to say between the home country and the dominions and colonies and between the dominions and colonies themselves—is not technically called extradition and is governed by the Fugitive Offenders' Act 1881.

See Clarke on *Extradition* (4th ed., 1904); Oppenheim, *International Law*, vol i. (4th ed., 1928) International Law Association, *35th Report* (1928). (F. T. G.)

United States.—In the absence of treaty, the United States has consistently refused to surrender fugitive criminals. Beginning with the Jay Treaty of Nov. 19, 1794, numerous extradition treaties have been concluded between the United States and other civilized nations. Recent treaties have tended to broaden the scope of extraditable offences, the convention with France of 1909 making breach of trust under certain circumstances by a person acting in a fiduciary capacity an extraditable offence. Political offences are excepted from the provisions of these treaties either in express terms or by implication. Most treaties in express terms except nationals of the State of asylum from their provisions. In the absence of such an express provision the United States has taken the position that nationals of both contracting parties are extraditable.

The commitment of the person sought to be extradited is effected by resort to judicial authority. Specific provision has been made since 1845 by act of Congress for the procedure to be followed in extradition proceedings. Any Federal judge, U.S. commissioner, or judge of a court of record of general jurisdiction of any State, may act as a committing magistrate, issuing warrants of arrest and passing upon the sufficiency of the evidence to establish the crime charged. His function is not to determine the ultimate guilt of the fugitive but simply to determine whether the evidence is sufficient to warrant trial before the courts of the demanding country, together with the question of whether the offence charged comes within the applicable treaty provisions. The determination of whether the offence is of a political character is consequently a judicial function. To establish a political offence it is necessary to show that the accused was connected with an uprising of a revolutionary character in the demanding State and that the acts charged were incidental to his participation in the movement. The jurisdiction of the committing magistrate can be reviewed by *habeas corpus*, but such review extends only to the sufficiency of the evidence and not to the correctness of the magistrate's conclusions therefrom. A revisory power over the final commitment is possessed by the Secretary of State, but such power is exercised within very narrow limits.

In contradistinction to interstate rendition, U.S. courts can try an extradited criminal only for the offence with which he was charged in the extradition proceedings, unless reasonable time has been given him after his release to return to the country from which he was extradited.

Interstate extradition rests upon the provisions of Article IV., Sect. 2, of the Constitution of the United States, which requires a State to which a person charged with "treason, felony or other crime" in another State has fled to surrender him upon the demand of the latter State. Legislation necessary to carry the constitutional provisions into execution was enacted by Congress in 79 The ble offences are not limited to serious fel but include all acts made by the demanding

State. By the rules adopted by the International Extradition Conference of 1877 requisitions for petty offences, however, are not to be honoured save in exceptional circumstances. Interstate extradition differs from international extradition primarily in two particulars: the duty of the State asylum to surrender the fugitive does not rest on treaty or comity but upon the imperative command of the Constitution; the proceedings relating to interstate extradition are informal in character, conducted before the executive, no hearing being required and the executive being enabled to act even in the absence of the accused and without notice to him.

See Hyde, *International Law;* Moore, *Extradition and Interstate Rendition;* Hawley, *Law and Practice of International Extradition*

(J. M. La.)

EXTRADOS, in architecture, the top or upper surface of the series of wedge-shaped stones (*voussoirs*) of which an arch is composed. (*See* illustration under Arch.) The term is usually confined to those cases in which the upper sides of the *voussoirs* form a continuous curve.

EXTRAPOLATION: *see* Interpolation.

EXTRAVAGANZA, a work for the stage of a go-as-you-please type, which is generally distinguished further by the lavishness and extravagance of its scenery and dresses. The term is also applied sometimes to musical and literary compositions of a humorous and burlesque order.

EXTREME UNCTION, a sacrament of the Catholic Church. It has been general since the 9th century. The Council of Florence A.D. 1439 thus defined it:—

'The fifth sacrament is extreme unction. Its matter is olive oil blessed by a bishop. It shall not be given except to a sick person whose death is apprehended. He shall be anointed in the following places: the eyes, ears, nostrils, mouth, hands, feet, reins. The form of the sacrament is this: Through this anointing of thee and through its most pious mercy, be forgiven all thy sins of sight, etc . . . and so in respect of the other organs. A priest can administer this sacrament. But its effect is to make whole the mind, and, so far as it is expedient, the body as well."

This sacrament supplements that of penance (viz., remission of post-baptismal sin) in the sense that any guilt unconfessed or left over after normal penances imposed by confessors is purged thereby. It was discussed in the 12th century whether this sacrament is indelible like baptism, or whether it can be repeated; and the latter view, that of Peter Lombard, prevailed.

It was a popular opinion in the middle ages that extreme unction extinguishes all ties and links with this world, so that he who has received it must, if he recovers, renounce the eating of flesh and matrimonial relations. Such opinions, combated by bishops and councils, were due to the influence of the *consolamentum* of the Cathars (*q.v.*). In both sacraments the death-bed baptism of an earlier age seems to survive, and they both fulfil a deep-seated need of the human spirit.

EYBESCHÜTZ, JONATHAN (1690–1764), German rabbi, was from 1750 rabbi in Altona. A man of erudition and personality, Eybeschütz became specially notorious because of a curious controversy concerning the amulets which he was suspected of issuing. These amulets recognized the Messianic claims of Sabbatai Sebi (*q.v.*), and a famous rabbinic contemporary of Eybeschütz, Jacob Emden, boldly accused him of heresy. Though there is insufficient evidence against Eybeschütz, Emden may be credited with having crushed the lingering belief in Sabbatai current even in some orthodox circles. For a list of Eybeschütz's works see *Jewish Encyclopedia.*

EYCK, VAN, the name of a family of Flemish painters in whose works the rise and mature development of art in western Flanders are represented. Though bred in the valley of the Meuse, they established their professional domicile in Ghent and in Bruges; and there, by skill and inventive genius, introduced a complete revolution into the technical methods of execution familiar to their countrymen.

1. Hubert (Huybrecht) van Eyck (?1366–1426) was the oldest and most remarkable of this race of artists. The date of his birth and the records of his progress are lost. Hubert was born about 1366, at Maeseyck, under the shelter or protection of a Benedictine convent. But the schools which had flourished in the towns having decayed, the artist wandered to Flanders, and there for the first time gained a name. As court painter to the hereditary prince of Burgundy, and as client to one of the richest of the Ghent patricians, Hubert is celebrated. Here, in middle age, between 1410 and 1420, he signalized himself as the inventor of a new method of painting. Here he lived in the pay of Philip of Charolais till 1421. Here he painted pictures for the corporation, whose chief magistrates honoured him with a state visit in 1424. His principal masterpiece, the "Worship of the Lamb," at St Bavon in Ghent,[1] commissioned by Jodocus Vijdts, lord of Pamele, is the noblest creation of the Flemish school, one upon which Hubert laboured till he died, leaving it to be completed by his brother. Almost unique as an illustration of contemporary feeling for Christian art, this great composition can only be matched by the "Fount of Salvation," in the museum of Madrid. It represents, on numerous panels, Christ on the judgment seat, with the Virgin and St. John the Baptist at His sides, hearing the songs of the angels, and contemplated by Adam and Eve, and, beneath Him the Lamb shedding His blood in the presence of angels, apostles, prophets, martyrs, knights and hermits. On the outer sides of the panels are the Virgin and the angel annunciate, the sibyls and prophets who foretold the coming of the Lord, and the donors in prayer at the feet of the Baptist and Evangelist. After this great work was finished it was placed, in 1432, on an altar in St. Bavon of Ghent, with an inscription on the framework describing Hubert as "maior quo nemo repertus," and setting forth, in colours as imperishable as the picture itself, that Hubert began and John afterwards brought it to perfection. John van Eyck certainly wished to guard against an error which ill-informed posterity showed itself but too prone to foster, the error that he alone had composed and carried out an altarpiece executed jointly by Hubert and himself. His contemporaries may be credited with full knowledge of the truth in this respect, and the facts were equally well known to the duke of Burgundy or the chiefs of the corporation of Bruges, who visited the painter's house in state in 1432, and the members of the chamber of rhetoric at Ghent, who reproduced the Agnus Dei as a *tableau vivant* in 1456. Yet a later generation of Flemings forgot the claims of Hubert and gave the honours that were his due to his brother John exclusively.

The solemn grandeur of church art in the 15th century never found, out of Italy, a nobler exponent than Hubert van Eyck. His representation of Christ as the judge, between the Virgin and St John, affords a fine display of realistic truth, combined with pure drawing, gorgeous colour, and a happy union of earnestness and simplicity with the deepest religious feeling. It is finished with great skill, and executed with the new oil medium, of which Hubert shared the invention with his brother, but of which no rival artists at the time possessed the secret—a medium which consists of subtle mixtures of oil and varnish applied to the moistening of pigments, after a fashion kept secret only for a time from gildsmen of neighbouring cities, but unrevealed to the Italians till near the close of the 15th century. When Hubert died on Sept. 18, 1426 he was buried in the chapel on the altar of which his masterpiece was placed. According to a tradition as old as the 16th century, his arm was preserved as a relic in a casket above the portal of St. Bavon of Ghent.

2. John (Jan) van Eyck (?1385–1441). The date of his birth is not more accurately known than that of his elder brother, but he was born much later than Hubert, who took charge of him and made him his "disciple." Under this tuition John learnt to draw and paint, and mastered the properties of colours from Pliny. Later on, Hubert admitted him into partnership, and both were made court painters to Philip of Charolais. After the breaking up of the prince's household in 1421 John became his own master, left the workshop of Hubert and took an engagement as painter to John of Bavaria, at that time resident at The Hague as count of Holland. From The Hague he returned in 1424 to take

[1] The whole of this altarpiece was reunited after the peace of Versailles, which provided for the restoration of the panels which had hitherto been in the Berlin Museum.

service with Philip, now duke of Burgundy, at a salary of 100 livres per annum, and from that time till his death John van Eyck remained his servant. He was frequently employed in missions of trust; and appears for a time to have been in ceaseless motion, receiving extra pay for secret services at Leyden, drawing his salary at Bruges, yet settled in a fixed abode at Lille. In 1428 he joined the embassy sent by Philip the Good to Lisbon to beg the hand of Isabella of Portugal. His portrait of the bride proved the duke's choice. After his return he settled definitely at Bruges, where he married. His wife bore him a daughter, known in after years as a nun in the convent of Maeseyck. At the christening the duke was sponsor. Numerous altarpieces and portraits now give proof of Van Eyck's extensive practice. As works of art and models of conscientious labour they are all worthy of the name they bear, though not of equal excellence, none being better than those which were completed about 1432. Of an earlier period, a "Consecration of Thomas à Becket" has been preserved, and may now be seen at Chatsworth, bearing the date of 1421: no doubt this picture would give a fair representation of Van Eyck's talents at the moment when he started as an independent master, but that time and accidents of omission and commission have altered its state to such an extent that no conclusive opinion can be formed respecting it. The panels of the "Worship of the Lamb" were completed nine years later. They show that John van Eyck was quite able to work in the spirit of his brother, and John continued the work with almost as much vigour as his master. His own experience had been increased by travel, and he had seen the finest varieties of landscape in Portugal and the Spanish provinces. This enabled him to transfer to his pictures the scenery of lands more sunny than those of Flanders. We may ascribe much of the success which attended his efforts to complete the altar-piece of Ghent to the cleverness with which he reproduced the varied aspect of changing scenery, reminiscent here of the orange groves of Cintra, there of the bluffs and crags of his native valley. In all these backgrounds, though we miss the scientific rules of perspective with which the Van Eycks were not familiar, we find such delicate perceptions of gradations in tone, such atmosphere, yet such minuteness and perfection of finish that our admiration never flags. Nor is the colour less brilliant or the touch less firm than in Hubert's panels. John differs only from his brother in being less masculine and less sternly religious. He excels in two splendid likenesses of Jodocus Vijdts and his wife Catherine Burluuts. The same vigorous style and coloured key of harmony characterizes the small "Virgin and Child" of 1433 at the National Gallery, Melbourne Australia, formerly at Ince, and the "Madonna," probably of the same date, at the Louvre, Paris, executed for Rollin, chancellor of Burgundy. Contemporary with these, the male portraits in the National Gallery, and the "Man with the Pinks," in the Berlin Museum (1432–1434), show no relaxation of power; but later creations display no further progress, unless we accept as progress a more searching delicacy of finish, counterbalanced by an excessive softness of rounding in flesh contours. An unfaltering minuteness of hand and great tenderness of treatment may be found, combined with angularity of drapery and some awkwardness of attitude in the full length portrait couple (John Arnolfini and his wife [1434]), at the National Gallery, in which a rare insight into the detail of animal nature is revealed in a study of a terrier dog. A "Madonna with Saints," at Dresden, equally soft and minute, charms us by the mastery with which an architectural background is put in. The bold and energetic striving of earlier days, the strong bright tone, are not equalled by the soft blending and tender tints of the later ones. Sometimes a crude ruddiness in flesh strikes us as a growing defect, an instance of which is the picture in the museum of Bruges, in which Canon van der Paelen is represented kneeling before the Virgin under the protection of St. George (1434). From first to last Van Eyck retains his ability in portraiture. Fine specimens are the two male likenesses in the gallery of Vienna (1436), and a female, the master's wife, in the gallery of Bruges (1439). His death in 1441 at Bruges is authentically recorded. He was buried in St. Donat

Hubert's disciple, Jodocus of Ghent, hardly betrays his master's after he has thrown off some of the peculiarities of Flemish teaching. Petrus Christus, who was taught by John, remains immeasurably behind him in everything that relates to art. But if the personal influence of the Van Eycks was small, that of their works was immense and it is not too much to say that their example taken in conjunction with that of Van der Weyden, determined the current and practice of painting throughout the whole of Europe north of the Alps for nearly a century. (J. A. C.)

and early acquires importance

The following pictures, besides those mentioned above, are generally attributed to the Van Eycks:—

"St. Barbara," signed and dated 1437, "The Virgin by a Fountain," signed and dated 1439, both in the museum at Antwerp; the "Annunciation" in the Hermitage at Leningrad; these pictures are ascribed to Jan. The following works of an earlier date are generally ascribed to Hubert, though some critics believe them to be by Jan: "The Crucifixion" and the "Last Judgment," two wings of an altarpiece in the Hermitage at Leningrad; the "Three Maries at the Sepulchre" in the Cook collection at Richmond; the "Virgin" in the nave of a Gothic church, at Berlin; two pictures of St. Francis, one in the Johnson collection at Philadelphia, the other in the museum at Turin. An attempt to distinguish between the styles of the two brothers has recently been made by Hulin who attributes certain illuminations which were executed for Duke William of Holland, and which can therefore be dated, 1417, to the Van Eycks. *See* G. de Loo (Hulin) *Heures de Milan* (1911) and P. Durrieu, *Heures de Turin* (1902).

See also G. F. Waagen, *Hubert and Johann van Eyck* (1822); C. Voll, *Werke des Jan van Eyck* (1900); L. Kämmerer on the two families in Knackfuss's *Künstler-Monographien* (1898); W. H. J. Weale, *H. and J. v. Eyck* (1908; abridged 2nd ed., 1912); Martin Conway, *The van Eycks and their Followers* (1921); Max Friedländer, *Die van Eyck* (1924).

EYE, a market-town and municipal borough in the Eye parliamentary division of East Suffolk, England, 94¼ m. N.E. from London on a branch from Mellis of the L.N.E.R. (Ipswich-Norwich section). Pop. (1921) 1,781. The church of St. Peter and St. Paul of Perpendicular flint work, with Early English portions and a fine 15th century rood screen, was formerly attached to a Benedictine priory. Fragments of a Norman castle crown a mound of probably earlier construction. There are a town hall, corn exchange and ancient grammar school. Brewing is the chief industry. The town is governed by a mayor, four aldermen and 12 councillors, and has a separate commission of the peace.

Eye (*Heya, Aye*) was once surrounded by a stream, from which it is said to have derived its name. Leland says it was situated in a marsh and had formerly been accessible by river vessels from Cromer. From the discovery of numerous remains, it has been thought that the place was once the cemetery of a Roman camp. William I. gave the lordship to Robert Malet, a Norman, who built a castle and a Benedictine monastery which was at first subordinate to the abbey of Bernay in Normandy. Eye is a borough by prescription. In 1205 King John granted to the townsmen a charter freeing them from various tolls and customs and from the jurisdiction of the shire and hundred courts. Later charters were granted by Elizabeth, James I. and William III. Two members were returned to parliament from 1571 till 1832, when the membership was reduced to one; in 1885 the representation was merged in the Eye division of the county. The making of pillow-lace was formerly carried on extensively.

EYE, ANATOMY OF. The eye consists of the eyeball, certain muscles which move it, and the lachrymal apparatus which keeps the front of it moist. The *eyeball* is contained in the front of the orbit and is a sphere of about an inch (24 mm.) in diameter. From the front of this a segment of a lesser sphere projects slightly and forms the *cornea* (*see* fig. 1). The eyeball has three coats, external (protective), middle (vascular), and internal (sensory). There are also three refracting media, the aqueous humour, the lens and the vitreous humour or body.

The protective coat consists of the *sclerotic* in the posterior five-sixths and the cornea in the anterior sixth. The sclerotic or "white of the eye" (*see* fig. 1) is a firm fibrous coat, posteriorly pierced by the optic nerve. The cornea is continuous with the

sclerot c but has a greater convexity It consists of five layers the outermost of wh ch is strat fied epithel um Its transparency is due to the fact that all these layers have the same refract ve ndex.

The middle or vascular coat of the eye consists of the *choroid,* the *ciliary processes* and the *iris.* The choroid (*see* fig. 1) does not come quite as far forward as the corneo-scleral junction; it is composed of numerous blood-vessels and pigment cells bound together by connective tissue.

The *ciliary processes* are some 70 triangular ridges, radially arranged, with their apices pointing backward (*see* fig. 1), while their bases are level with the corneo-scleral junction. They are as vascular as the rest of the choroid, and contain in their interior the *ciliary muscle,* which consists of radiating and circular fibres. The radiating fibres (*see* fig. 1) pull forward the choroid when they contract. The circular fibres lie just internal to these and are few or wanting in short-sighted people.

The *iris* (*see* fig. 1) is the coloured diaphragm of the eye, the centre of which is pierced to form the pupil; it is composed of a connective tissue stroma containing blood-vessels, pigment cells and muscle fibres. The pigment in the substance of the iris is variously coloured in different individuals, and is often deposited after birth, so that, in newly born European children, the colour

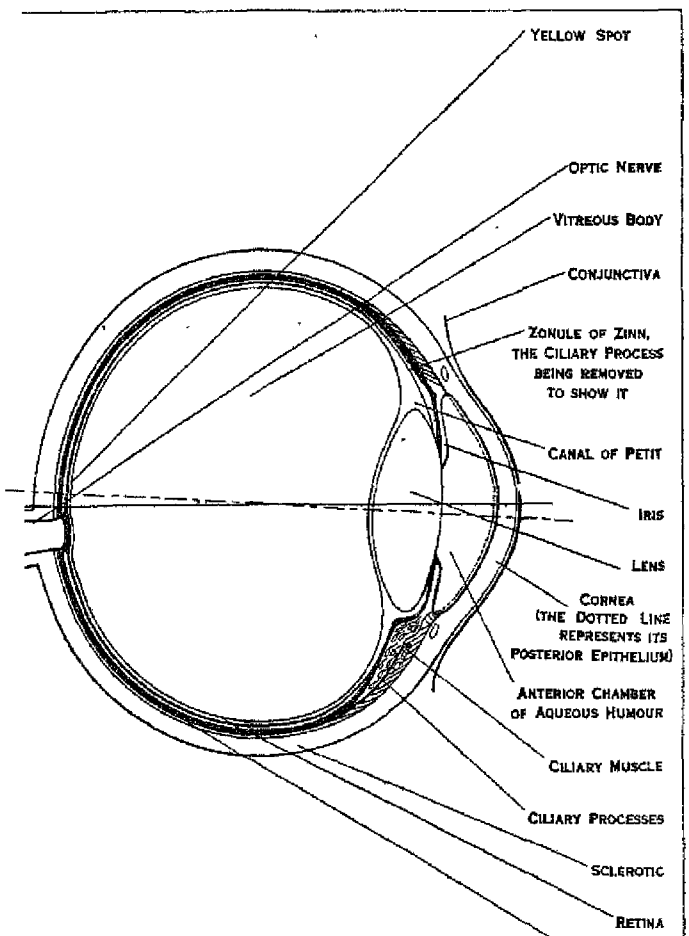


FIG. 1.—DIAGRAMMATIC SECTION THROUGH EYEBALL SHOWING CONSTITUENT PARTS

of the eyes is often slate-blue owing to the black pigment at the back of the iris showing through. White, yellow or reddish-brown pigment is deposited later in the substance of the iris, causing the appearance, with the black pigment behind, of grey, hazel or brown eyes. In blue-eyed people very little interstitial pigment is formed, while in Albinos the posterior pigment is also absent and the blood vessels give the pink coloration. The muscle fibres of the iris are circular and radiating, but it is uncertain whether the latter are really muscular or elastic.

The r or ry layer of the wall of the eyeball is the *ret na* it is a delicate transparent membrane whi h becomes thi ner as the f ont of the eye s approached A short distance b h nd the cil ary processes the nervous part of t stops and forr a scalloped border called the *ora serrata.* Under the microsco the posterior part of the retina is seen to consist, from front back, of eight layers (fig. 2) as follows: (1) Layer of ner fibres; (2) Layer of ganglion cells; (3) Inner molecular laye

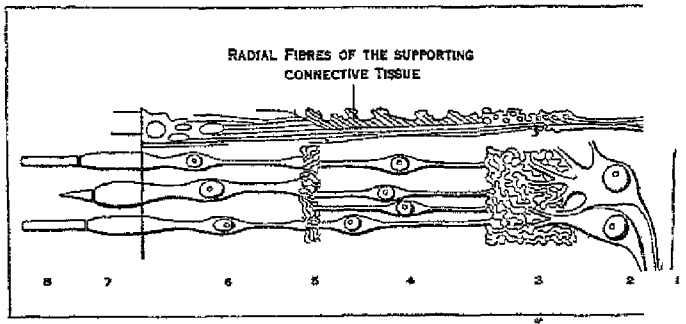


FIG. 2.—DIAGRAMMATIC SECTION THROUGH RETINA SHOWING LAYER (1) Nerve fibres, (2) ganglion cells, (3) inner molecular layer, (4) inne nuclear layer, (5) outer molecular layer, (6) outer nuclear layer, (7) rod and cones, (8) pigmented layer

(4) Inner nuclear layer; (5) Outer molecular layer; (6) Out nuclear layer; (7) Layer of rods and cones; (8) Pigmented lay Supporting the delicate nervous structures of the retina and bin ing them together is a series of radial fibres, or connective tiss rods, known as the *fibres of Müller.*

When the retina is looked at with the naked eye from in fro two small marks are seen on it. One of these is an oval depressi about 3 mm. across, which, owing to the presence of pigment, known as the yellow spot (*macula lutea*); it is situated direct in the antero-posterior axis of the eyeball, and at its margin t nerve fibre layer is thinned and the ganglionic layer thickene At its centre, however, both these layers are wanting, and in t layer of rods and cones only the cones are present. This centr part is called the *fovea centralis* and is the point of acutest visic The second mark is a little below and to the inner side of t yellow spot; it is a circular disc with raised margins and a d pressed centre and is called the *optic disc;* in structure it is complete contrast to the yellow spot, for all the layers except th of the nerve fibres are wanting, and consequently, as light cann be appreciated here, it is known as the "blind spot." It marks t point of entry of the optic nerve, and at its centre the retir artery appears and divides into branches. An appreciation of t condition of the optic disc is one of the chief objects of t ophthalmoscope.

The *crystalline lens* (*see* fig. 1) with its ligaments separat the aqueous from the vitreous chamber of the eye; it is biconv and the posterior surface is more curved than the anteric Radiating from the anterior and posterior poles are three fai lines forming a Y, the posterior Y being erect and the antern inverted. Running from these figures are lamellae, like the laye of an onion, each of which is made up of fibrils called the le fibres. The whole lens is enclosed in an elastic structurele membrane, and, like the cornea, its transparency is due to the fa that all its constituents have the same refractive index.

The ligament of the lens is the thickened anterior part of t hyaloid membrane which surrounds the vitreous body; it closely connected to the iris at the ora serrata, and then spl into two layers, of which the anterior is the thicker and blen with the anterior part of the elastic capsule of the lens, so th when its attachment to the ora serrata is drawn forward by t ciliary muscle, the lens by its own elasticity, increases its cc vexity. Between the anterior and posterior splitting of the hyal membrane is a circular lymph space surrounding the margin the lens known as the *canal of Petit.*

The *aqueous humour* (*see* fig. 1) is contained between the le and its ligament posteriorly and the cornea anteriorly. It is pra tically a very weak solution of common salt (chloride of sodi 1·4%). The space containing it is unequally divided into a lar anterior and a small posterior chamber by a perforated diaphra

—the iris.

The *vitreous body* or *humour* is a jelly which fills all the contents of the eyeball behind the lens. It is surrounded by the hyaloid membrane, and anteriorly is concave for the reception of the lens. The composition of the vitreous is practically the same as that of the aqueous humour.

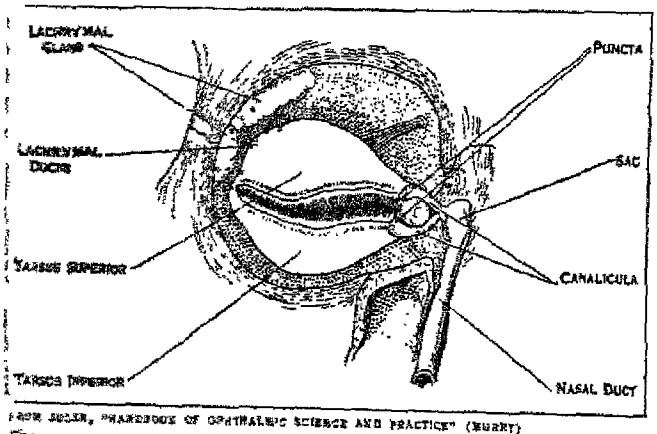
The *arteries of the eyeball* are derived from the ophthalmic branch of the internal carotid, and consist of the retinal which enters the optic nerve far back in the orbit, the two long ciliaries, which run forward in the choroid and join the anterior ciliaries to form a circle round the margin of the iris, and the six to twelve short ciliaries which pierce the sclerotic round the optic nerve and supply the choroid and ciliary processes.

The *veins of the eyeball* emerge as four or five trunks rather behind the equator and open into the superior ophthalmic vein. In addition there is a retinal vein which accompanies its artery.

Accessory Structures of the Eye.—The *eyelids* are composed of the following structures from in front backward: (1) Skin; (2) Superficial fascia; (3) Orbicularis palpebrarum muscle; (4) *Tarsal plates* of fibrous tissue; (5) *Meibomian glands*, which are large modified sebaceous glands lubricating the edges of the lids, and *Glands of Moll*, large sweat glands which, when inflamed, cause a "sty"; (6) the *conjunctiva*, a layer of mucous membrane which lines the back of the eyelids and is reflected on to the front of the globe, on the front of the cornea the conjunctiva is continuous with the layer of epithelial cells already mentioned.

The *lachrymal gland* is found in the upper and outer part of the front of the orbit and is about the size of an almond. Its six to twelve ducts open on to the upper reflection of the conjunctiva.

The *lachrymal canals* (canaliculi) (indicated in fig. 3) are superior and inferior, and open by minute orifices (puncta) on to the free margins of the two eyelids near their inner point of junction. They collect the tears, secreted by the lachrymal gland, which thus pass right across the front of the eyeball, continually



FROM SOLER, "HANDBOOK OF OPHTHALMIC SCIENCE AND PRACTICE" (MURRY)

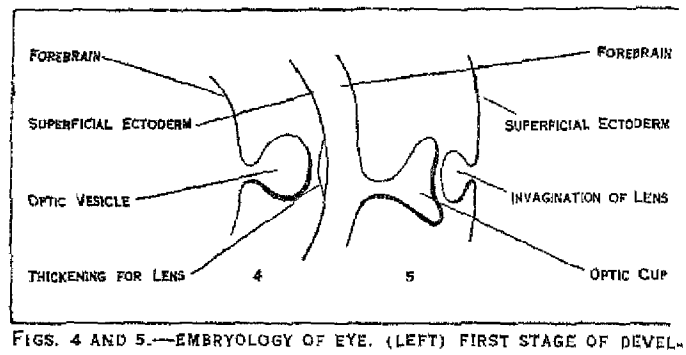
FIG. 3.—DISSECTION OF LACHRYMAL APPARATUS SHOWING LACHRYMAL DUCTS, LACHRYMAL SAC AND NASAL DUCT

moistening the conjunctiva. The two ducts are bent round a small pink tubercle (*caruncula lachrymalis*) (*see* fig. 3) at the inner angle of the eyelids, and open into the *lachrymal sac* (*see* fig. 3), which lies in a groove in the lachrymal bone. The sac is continued down into the *nasal duct* (*see* fig. 3), which is about 1 in. long and opens into the inferior meatus of the nose, its opening being guarded by a valve.

The orbit contains seven muscles, six of which rise close to the optic foramen. The *levator palpebrae superioris* is the highest, and passes forward to the superior tarsal plate and fornix of the conjunctiva. The *superior* and *inferior recti* are inserted into the upper and lower surfaces of the eyeball respectively; they make the eye look inward as well as up or down. The external and internal recti are inserted into the sides of the eyeball and make it look outward or inward. The superior oblique runs forward to [illegible] to be inserted into the outer and back part of the eyeball. It turns the glance downward and outward. The inferior oblique runs from the inner and front part of the floor of the orbit, and is also inserted into the outer and back part of the eyeball. It directs the glance upward and outward. Of all these muscles the superior oblique is supplied by the fourth cranial nerve, the external rectus by the sixth and the rest by the third.

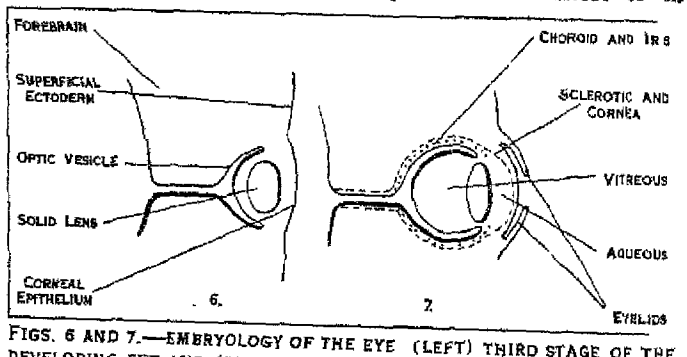
The posterior part of the eyeball and the anterior parts of the muscles are enveloped in a lymph space, known as the *capsule of Tenon*, which assists their movements.

Embryology.—The *optic vesicles* grow out from the fore brain, and the part nearest the brain becomes constricted and



FIGS. 4 AND 5.—EMBRYOLOGY OF EYE. (LEFT) FIRST STAGE OF DEVELOPING EYE AND (RIGHT) SECOND STAGE OF THE SAME

elongated to form the optic stalk (*see* figs. 4 and 5). At the same time the ectoderm covering the side of the head thickens and becomes invaginated to form the lens vesicle (*see* figs. 4 and 5), which later loses its connection with the surface and approaches the optic vesicle, causing that structure to become cupped for its reception, so that what was the optic vesicle becomes the optic cup and consists of an external and an internal layer of cells (*see* fig. 6). Of these cells the outer ones become the retinal pigment, while the inner form the other layers of the retina. The invagination of the optic cup extends, as the *choroidal fissure* (not shown in the diagrams), along the lower and back part of the optic stalk, and into this slit sinks some of the surrounding mesoderm to form the vitreous body. When this has happened the fissure closes up. The anterior epithelium of the lens vesicle remains, but from the posterior the lens fibres are developed and these gradually fill up the cavity. The superficial layer of head ectoderm, from which the lens has been invaginated and separated, becomes the anterior epithelium of the cornea (fig. 6), and between it, and the lens the mesoderm sinks in to form the cornea, iris and anterior chamber of the eye, while surrounding the optic cup the mesoderm forms the sclerotic and choroid coats (indicated in fig. 7). Up to the seventh month the pupil is closed by the *membrana pupillaris*, derived from the capsule of the lens which is part of the mesodermal ingrowth through the choroidal fissure already mentioned. Most of the



FIGS. 6 AND 7.—EMBRYOLOGY OF THE EYE (LEFT) THIRD STAGE OF THE DEVELOPING EYE AND (RIGHT) FOURTH STAGE

fibres of the optic nerve are centripetal and begin as the axons of the ganglionic cells of the retina; a few, however, are centrifugal and come from the nerve cells in the brain.

The eyelids are developed as ectodermal folds, which blend with one another about the third month and separate again before birth in man (*see* fig. 7). The lachrymal sac and duct are formed from solid ectodermal thickenings which later become canalized.

It will thus be seen that the optic nerve and retina are formed from the brain ectoderm; the lens, anterior epithelium of the cornea, skin of the eyelids, conjunctiva and lachrymal apparatus

from the superfic al ectoderm while the sclerot c choroid vitre ous and aqueous humou s as vell as the iris and cornea are de r ved from the mesoderm

Comparative Anatomy. The Acrania, as represented by Amphioxus (the lancelet), have a patch of pigment in the fore part of the brain which is regarded as the remains of a degenerated eye. In the Cyclostomata the hag (Myxine) and larval lamprey (Ammocoetes) have ill-developed eyes lying beneath the skin and devoid of lens, iris, cornea and sclerotic as well as eye muscles. In the adult lamprey (Petromyzon) these structures are developed at the metamorphosis, and the skin becomes transparent, rendering sight possible. Ocular muscles are developed, but, unlike most vertebrates, the inferior rectus is supplied by the sixth nerve while all the others are supplied by the third. In all vertebrates the retina consists of a layer of senso-neural cells, the rods and cones, separated from the light by the other layers which together represent the optic ganglia of the invertebrates; in the latter animals, however, the senso-neural cells are nearer the light than the ganglia.

In fishes the eyeball is flattened in front, but the flat cornea is compensated by a spherical lens, which, unlike that of other vertebrates, is adapted for near vision when at rest. The iris in some bony fishes (Teleostei) is not contractile. In the Teleostei, too, there is a process of the choroid (*processus falciformis*) which projects into the vitreous chamber and runs forward to the lens; besides nourishing the lens it is concerned in accommodation. This group of fishes is also remarkable for the possession of a so-called *choroid gland*, which is really an arterial network between the choroid and sclerotic. The sclerotic in fishes is usually chondrified and sometimes calcified or ossified. In the retina the rods and cones are about equal in number, and the cones are very large. In the cartilaginous fishes (Elasmobranchs) there is a silvery layer (*tapetum lucidum*), on the retinal surface of the choroid

In the Amphibia the cornea is more convex than in the fish, but the lens is circular and the sclerotic often chondrified The class shows the first rudiments of the ciliary muscle, although accommodation is brought about by shifting the lens. In the retina the rods outnumber the cones. The latter are smaller than in other animals.

In Reptilia the eye is spherical and its anterior part is often protected by bony plates in the sclerotic (Lacertilia and Chelonia). The ciliary muscle is striated, and in most reptiles accommodation is effected by relaxing the ciliary ligament as in higher vertebrates, though in the snakes (*Ophidia*) the lens is shifted as it is in the lower forms. Many lizards have a vascular projection of the choroid into the vitreous, foreshadowing the pecten of birds and homologous with the processus falciformis of fishes. In the retina the rods are scarce or absent.

In birds the eye is tubular, especially in nocturnal and raptorial forms; this is due to a lengthening of the ciliary region, which is always protected by bony plates in the sclerotic. The pecten, already mentioned in lizards, is a pleated vascular projection from the optic disc towards the lens which in some cases it reaches. In Apteryx this structure disappears. In the retina cones outnumber rods, but are not as numerous as in reptiles.

In the Mammalia the eye is largely enclosed in the orbit, and bony plates in the sclerotic are only found in the monotremes. The cornea is convex except in aquatic mammals, in which it is flattened. The lens is biconvex in diurnal mammals, but in nocturnal and aquatic it is spherical. There is no pecten, but the numerous hyaloid arteries which are found in the embryo represent it. The iris usually has a circular pupil, but in some ungulates and kangaroos it is a transverse slit. In the Cetacea this transverse opening is kidney-shaped, the hilum of the kidney being above. In many carnivores, especially nocturnal ones, the slit is vertical, and this form of opening seems adapted to a feeble light, for it is found in the owl, among birds. The tapetum lucidum is found in Ungulata, Cetacea and Carnivora. The ciliary muscle is unstriped. In the retina the rods are more numerous than the cones, while the macula lutea only appears in the Primates in connection with binocular vision

Among the accessory structures of the eye the retractor bulb muscle s found in amphibians reptiles b rds and many mam mals ts ne ve supply shows that it is probab y a derivati e of the external or posterior rectus. The nictitating membrane or third eyelid is well developed in amphibians, reptiles, birds and some few sharks; it is less marked in mammals, and in man is only represented by the little *plica semilunaris*. When functional it is drawn across the eye by special muscles derived from the retractor bulbi. In connection with the nictitating membrane the Harderian gland is developed, while the lachrymal gland secretes fluid for the other eyelids to spread over the conjunctiva. These two glands are specialized parts of a row of glands which in the Urodela (tailed amphibians) are situated along the lower eyelid, the outer or posterior part of this row becomes the lachrymal gland, which in higher vertebrates shifts from the lower to the upper eyelid, while the inner or anterior part becomes the Harderian gland. Below the amphibians glands are not necessary, as the water keeps the eye moist.

The lachrymal duct first appears in the tailed amphibians; in snakes and gecko lizards, however, it opens into the mouth.

BIBLIOGRAPHY.—For further details *see* any standard text-book of anatomy Later literature is noticed in the catalogue of the Museum of the Royal College of Surgeons (London). (F. G. P.)

EYE, DISEASES OF. The specially important diseases of the eye are those which temporarily or permanently interfere with sight. (*See* BLINDNESS, CAUSES OF.) In considering the subject it must be remembered that (1) the eye is a double organ, while (2) either eye may have its own trouble

1. Normally, the two eyes act together Impressions made upon either retina, to the one side of a vertical line through the centre the *fovea centralis*, before giving rise to conscious perception cause a stimulation of the same area in the brain. Impressions formed simultaneously, for instance, on the right side of the right retina and on corresponding areas of the right side of the left retina, are conveyed to the same spots in the right occipital lobe of the brain. Pathological processes, therefore, which are localized in the right or left occipital lobes, or along any part of the course of the fibres which pass from the right or left optic tracts to these "visual centres," cause defects in function of the right or left halves of the two retinae. *Hemianopia*, or half-blindness, arising from these pathological changes, is of very varying degrees of severity, according to the nature and extent of the particular lesion. The blind areas in the two fields of vision, corresponding to the outward projection of the paralysed retinal areas, are always symmetrical both in shape and degree. The central lesion may for instance be very small, but at the same time destructive to the nerve tissue. This will be revealed as a sector-shaped or insular symmetrical complete blindness in the fields of vision to the opposite side. Or a large central area, or an area comprising many or all of the nerve fibres which pass to the visual centre on one side, may be involved in a lesion which causes impairment of function, but no actual destruction of the nerve tissue. There is thus caused a symmetrical weakening of vision (*amblyopia*) in the opposite fields. In such cases the colour vision is so much more evidently affected than the sense of form that the condition has been called *hemiachromatopsia* or half-colour blindness Hemianopia may be caused by haemorrhage, embolism, or tumour growth which either directly involves the visual nerve elements or affects them by compression and by inflammation Transitory hemianopia is rare and is frequently of toxic origin

The two eyes also act as if they were one in accommodating It is impossible for the two eyes to accommodate simultaneously to different extents, so that where there is, as occasionally happens, a difference in focus between them, this difference remains the same for all distances for which they are adapted. In such cases, therefore, both eyes cannot ever be accurately adapted at the same time, though either may be alone. It often happens as a consequence that the one eye is used to receive the sharpest images of distant, and the other of near objects. Any pathological change which leads to an interference in the accommodating power of one eye alone must have its origin in a lesion which lies peripherally to the nucleus of the third cranial e Such a

lesion is usually one of the third nerve itself. Consequently, a unilateral accommodation paresis is almost invariably associated with paresis of some of the oculo-motor muscles. A bilateral accommodation paresis is not uncommon. It is due to a nuclear or more central cerebral disturbance. Unlike a hemianopia, which is mostly permanent, a double accommodation paresis is frequently transitory. It is often a post-diphtheritic condition, appearing alone or associated with other paresis.

Both eyes are also, normally, associated in their movements. They move in response to a stimulus or a combination of stimuli, emanating from different centres of the brain, but always equally distributed to the corresponding muscles in both eyes, so that the two lines of fixation meet at the succession of points on which attention is directed. The movements are thus associated in the same direction, to the right or left, upwards or downwards, etc. In addition, owing to the space which separates the two eyes, convergent movements, caused by stimuli equally distributed between the two internal recti, are required for the fixation of nearer and nearer-lying objects. These movements would not be necessary in the case of a single eye. It would merely have to accommodate. The converging movements of the double eye occur in association with accommodation, and thus a close connection becomes established between the stimuli to accommodation and convergence. All combinations of convergent and associated movements are constantly taking place normally.

Associated and convergent movements may be interfered with pathologically in different ways. Cerebral lesions may lead to their impairment or complete abolition, or they may give rise to involuntary spasmodic action, as the result of paralysing or irritating the centres from which the various co-ordinated impulses are controlled or emanate. Lesions which do not involve the centres may prevent the response to associated impulses in one eye alone by interfering with the functional activity of one or more of the nerves along which the stimuli are conveyed. Paralysis of oculo-motor nerves is thus a common cause of defects of association in the movements of the double eye. The great advantage of simultaneous binocular vision—*viz.*, the appreciation of depth, or stereoscopic vision—is thus lost for some, or it may be all directions of fixation. Instead of seeing singly with two eyes, there is then double-vision (*diplopia*). This persists so long as the defect of association continues, or so long as the habit of mentally suppressing the image of the faultily-directed eye is not acquired.

In the absence of any nerve lesions, central or other, interfering with their associated movements the eyes continue throughout life to respond equally to the stimuli which cause these movements, even when, owing to a visual defect of the one eye, binocular vision has become impossible. It is otherwise, however, with the proper co-ordination of convergent movements. These are primarily regulated by the unconscious desire for binocular vision, and more or less firmly associated with accommodation. When one eye becomes blind, or when binocular vision for other reasons is lost, the impulse is gradually, as it were, unlearnt. This is the cause of *divergent concomitant squint*. Under somewhat similar conditions a degree of convergence, which is in excess of the requirements of fixation, may be acquired from different causes. This gives rise to *convergent concomitant squint*.

For *Astigmatism*, etc., *see* the article VISION.

2. Taking each eye as a single organ, we find it to be subject to many diseases. In some cases both eyes are affected in the same way, *e.g.*, where the local disease is a manifestation of some general disturbance. Apart from the fibrous coat of the eye, the sclera, which is little prone to disease, and the external muscles and other adnexa, the eye may be looked upon as composed of two elements: (*a*) the dioptric media, and (*b*) the parts more or less directly connected with perception.

The dioptric media, or the transparent portions which are concerned in the transmission of light to, and the formation of images upon, the retina, are the following; the *cornea*, the *aqueous humour*, the *crystalline lens* and the *vitreous humour*. Loss of transparency in any of these media leads to blurring of the retinal images of external objects. In addition to loss of transparency the cornea may have its curvature altered by pathological processes. This necessarily causes imperfection of sight. The crystalline lens, on the other hand, may be dislocated, and thus cause image distortion.

The Cornea.—The transparency of the cornea is mainly lost from inflammation (*keratitis*). This causes an infiltration of its tissues with leucocytes, or a focal, destructive ulcerative process.

Inflammation of the cornea may be primary or secondary, *i.e.*, the inflammatory changes may be directly connected with one or more foci of inflammation in the cornea itself or the focus or foci may be in some other part of the eye. Only the very superficial forms of primary keratitis, those confined to the epithelial layer, leave no permanent change; there is otherwise always a loss of tissue resulting from the inflammation and this loss is made up for by more or less densely intransparent connective tissue (*nebula, leucoma*). These according to their site and extent cause greater or less visual disturbance. Primary keratitis may be ulcerative or non-ulcerative, superficial or deep, diffuse or circumscribed, vascularized or non-vascularized. It may be complicated by deeper inflammations of the eye such as iritis and cyclitis. In some cases the anterior chamber is invaded by pus (*hypopyon*). The healing of a corneal ulcer is characterized by the disappearance of pain where this has been a symptom and by the rounding off of its sharp margins as epithelium spreads over them from the surrounding healthy parts. Ulcers tend to extend either in depth or superficially, rarely in both manners at the same time. A deep ulcer leads to perforation with more or less serious consequences according to the extent of the perforation. Often an eye bears permanent traces of a perforation in adhesion of the iris to the back of a corneal scar or in changes in the lens capsule (capsular cataract). In other cases the ulcerated cornea may yield to pressure from within, which causes it to bulge forwards (*staphyloma*).

The principal causes of primary keratitis are injuries and infection from the conjunctiva. Injuries are most serious when the body causing the wound is septic or when micro-organisms from some other source, often the conjunctiva and tear-sac, effect a lodgement before healing of the wound has sufficiently advanced. In infected cases a complication with iritis is not uncommon owing to the penetration of toxines into the anterior chamber.

Primary Keratitis.—Inflammations of the cornea are the most important diseases of the eye. Treatment of primary keratitis must vary according to the cause. Generally speaking the aim should be to render the ulcerated portions as aseptic as possible without using applications which are apt to cause a great deal of irritation and thus interfere with healing. On this account it is important to be able to recognize when healing is taking place, for then rest, and frequent irrigation of the conjunctiva with sterilized water at the body temperature, and occasional mild antiseptic irrigation of the nasal mucous membrane is all that is required. It is dangerous to overtreat.

Among the many local antiseptics may be mentioned the actual cautery, chlorine water, freshly prepared silver nitrate or protargol, and the yellow oxide of mercury. These agents are not equally applicable in any given case. For instance, the actual cautery is employed only in the case of the deeper septic ulcers in which the destruction of tissue is already considerable and tending to spread further. Again the yellow oxide of mercury should only be used in the more superficial, tuberculous forms of inflammation.

Secondary Keratitis takes the form of an interstitial deposit of leucocytes between the layers of the cornea as well as often of vascularization, sometimes intense, from the deeper network of vessels (anterior ciliary) surrounding the cornea. The duration of a secondary keratitis often lasts many months. More or less complete restoration of transparency is the rule, however, eventually.

No local treatment is called for except shading of the eyes and in most cases use of a mydriatic to prevent adhesions when the iris is involved. Inherited syphilis tuberculous and other inflam

are the of secondary keratitis

Neuro paralytic Keratitis When the fifth nerve (sensory) is paralysed there is a tendency for the cornea to become inflamed Different forms of inflammation may then occur which also show a marked slowness in healing. The explanation of neuro-paralytic keratitis is that in the insensitive condition of the cornea it is less guarded against injuries. The prognosis is necessarily bad. The treatment consists in as far as possible protecting the eye from external influences and frequently irrigating with antiseptic lotions.

Certain degenerative changes occur in the cornea. In *keratoconus* or conical cornea, the normal curvature of the cornea becomes altered with consequent impairment of vision. Other degenerative changes are *arcus senilis*, a whitish opacity due to fatty degeneration, extending round the corneal margin, varying in thickness in different subjects and usually only met with in old people: *transverse calcareous film*, consisting of a finely punctiform opacity extending, in a tolerably uniformly wide band, occupying the zone of the cornea which is left uncovered when the lids are half closed.

Scleritis.—Inflammation of the sclera is confined to its anterior part which is covered by conjunctiva. Scleritis may occur in circumscribed patches or in the shape of a belt round the cornea. The former is usually more superficial and uncomplicated, the latter deeper and complicated with corneal infiltration, iridocyclitis and anterior choroiditis Superficial scleritis (*episcleritis*) is a long-continued disease which is associated with very varying degrees of discomfort. Its chronic nature depends mainly upon the tendency that the inflammation has to recur in successive patches at different parts of the sclera. Often only one eye at a time is affected. Each patch lasts for a month or two and is succeeded by another after an interval of varying duration. Months or years may elapse between the attacks. The cicatricial site of a previous patch is rarely again attacked. The scleral infiltration causes a firm swelling, often sensitive to touch, over which the conjunctiva is freely moveable. The overlying conjunctiva is always injected. The infiltration itself at the height of the process is densely vascularized. Seen through the conjunctiva its vessels have a darker, more purplish hue than the superficial ones. The swelling caused by the infiltration gradually subsides, leaving a cicatrix to which the overlying conjunctiva becomes adherent. The cicatrix has a slaty, porcellanous-looking colour. Superficial scleritis occurs in both sexes with about equal frequency. No definite cause for the inflammation is known.

Deep scleritis with its attendant complications is a more serious disease. Etiologically it is equally obscure. Both eyes are almost always attacked. It more generally occurs in young people, mostly in young women. It is more persistent and less subject to periods of intermission than episcleritis. Eventually it leads to weakening of the sclerotic coat causing it to yield to the intraocular pressure. Vision suffers from extension of the infiltration to the cornea, or from iritis with its attendant adhesions, or from anterior choroiditis, and sometimes also from secondary glaucoma. Iridectomy, especially if done early in the process, may be of use.

The Aqueous Humour.—Intransparency of the aqueous humour is always due to some exudation. This comes either from the iris or the ciliary processes, and may be blood, pus or fibrin. An exudation in this situation tends naturally to gravitate to the most dependent part, and, in the case of blood or pus, is known as *hyphaema* or *hypopyon*.

The Crystalline Lens Cataract.—Intransparency of the crystalline lens is technically known as *cataract*. Cataract may be idiopathic and uncomplicated, or traumatic, or secondary to disease in the deeper parts of the eye. The modified epithelial structure of which the lens is composed is always being added to throughout life. The older portions of the lens are consequently the more central. They are harder and less elastic. This arrangement seems to predispose to difficulties of nutrition. In many people, in the absence altogether of general or local disease, the transparency of the lens is lost owing to degeneration of the incompletely-nourished fibres. This idiopathic cataract mostly occurs in old people; hence the term *senile cataract*. So-called *senile* cataract is not, however necessarily ted with any genera sen le changes An d opa hic uncompl cated ca aract s also met with as a congen al defect due to faulty development of the cry alline lens A part cular and not uncommon form of this kind of cataract, which may also develop during infancy, is *lamellar* or *zonular cataract*. This is a partial and stationary form of cataract in which, while the greater part of the lens retains its transparency, some of the lamellae are intransparent. Traumatic cataract occurs in two ways: by laceration or rupture of the lens capsule, or by nutritional changes consequent upon injuries to the deeper structures of the eye. The transparency of the lens is dependent upon the integrity of its capsule Penetrating wounds of the eye involving the capsule, or rupture of the capsule from severe blows on the eye without perforation of its coats, are followed by rapidly developing cataract. Severe non-penetrating injuries, which do not cause rupture of the capsule, are sometimes followed, after a time, by slowly-progressing cataract. Secondary cataract is due to abnormalities in the nutrient matter supplied to the lens owing to disease of the ciliary body, choroid or retina In some diseases, as diabetes, the altered general nutrition tells in the same way on the crystalline lens. Cataract is then rapidly formed. All cases of cataract in diabetes are not, however, necessarily true diabetic cataracts in the above sense. *Dislocations of the lens* are traumatic or congenital. In old-standing disease of the eye the suspensory ligament may yield in part, and thus lead to lens dislocation. The lens is practically always cataractous before this takes place.

The Vitreous Humour.—The vitreous humour loses its transparency owing to exudation from the inflamed ciliary body or choroid. The exudation may be fibrinous or purulent; the latter only as a result of injuries by which foreign bodies or septic matter are introduced into the eye or in metastatic choroiditis. Blood may also be effused into the vitreous from rupture of retinal, ciliary or choroidal vessels. The pathological significance of the various effusions into the vitreous depends greatly upon the cause In many cases effusion and absorption are constantly taking place simultaneously. Whether clearing occurs depends on whether absorption preponderates.

Diseases of the Iris and Ciliary Body.—Inflammation of the iris, *iritis*, arises from different causes. Some forms have relations with rheumatism, gout, albuminuria, tuberculosis, fevers, syphilis, gonorrhoea Traumatic and infected cases are attributable to accidents, the presence of foreign bodies, operations, etc In addition, iritis may be secondary to keratitis, scleritis or choroiditis. The beginning of an attack of inflammation of the iris is characterized by alterations in its colour due to hyperaemia and by circumcorneal injection. Later on, exudation takes place into the substance of the iris, causing thickening and also a loss of gloss to its surface. According to the nature and severity of the exudation there may be deposits formed on the back of the cornea, adhesions between the iris and lens capsule (synechiae), or even gelatinous-looking coagulations or pus in the anterior chamber

The symptoms to which the inflammation may give rise are dread of light (*photophobia*), pain, generally most severe at night and often very great, lacrimation, more or less impairment of sight. An acute attack of iritis usually lasts about six weeks Some cases become chronic and last much longer. Others are chronic from the first, and in one clinical type, in which the ciliary body is also affected, viz., *iritis serosa*, there is usually little injection of the eye or pain, so that the patient's attention may only be directed to the eye by gradual impairment of sight. In some cases, particularly in men, there is recurrence at longer or shorter intervals of attacks of iritis (*recurrent iritis*). In these cases, as well as in all cases of plastic iritis, serious consequences to sight are apt to follow from adhesion of the iris to the lens capsule and occlusion of the pupil by exudation.

Inflammation of the ciliary body, *cyclitis*, is frequently associated with iritis. This association is probable in all cases where there are deposits on the posterior surface of the cornea. It is certain where there are changes in the intra-ocular tension. Often in cyclitis there is a very marked diminution in tension. Cyclitis is also present when the degree of visual disturbance is greater than can be accounted for by the visible changes in the pupil and

[illegible] ber [illegible] e ex d on ma a in ir be serou [illegible] e [illegible] or the wo ree ur ac s of he [illegible] early [illegible] ce pos [illegible] acu ou nd nto he treou chambers. This produces more or less intransparency of the vitreous humour, a constant sign of cyclitis. Where there has been excessive exudation into the vitreous, subsequent shrinking and liquefaction take place, leading to detachment of the retina and consequent blindness. The most serious form of iridocyclitis is that which may follow penetrating wounds of the eye. This may lead to a similar inflammation of the other eye (*sympathetic ophthalmia*) which ends in its complete destruction.

The treatment of iritis necessarily differs to some extent according to the cause. The general treatment applicable to all cases need only be here considered. The aim should be to put the eye as far as possible at rest, to prevent the formation of adhesions and alleviate the pain. An attempt should be made to keep the pupil thoroughly dilated with atropine as long as any circumcorneal injection lasts. If a case of iritis be left to itself or treated without the use of a mydriatic, posterior synechiae almost invariably form. Some fibrinous exudation may even organize into a membrane stretching across, and more or less completely occluding the pupil. Synechiae, though not of themselves causing impairment of vision, increase the risk that the eye runs from subsequent attacks of iritis. It should, however, be remembered that as the main call for a mydriatic is to prevent synechiae, the *raison d'être* for its use no longer exists when, having been begun too late, the pupil cannot properly be dilated by it. Under these conditions it may even do harm. The eyes should also be kept shaded from the light by the use of a shade or neutral-tinted glasses. During an attack any use of the eyes for reading, sewing or work of any kind calling for accommodation must be prohibited. This applies equally to the case of inflammation in one eye alone and in both.

Pain is best relieved by hot fomentations, cocaine, and in many cases the internal use of salicin or phenacetin. The treatment sometimes required for cases of old iritis is iridectomy. The operation is called for in two different classes of cases. In the first place, to improve vision where the pupil is small, and to a great extent occluded, though the condition has not so far led to serious nutritive changes; and in the second place, with the object of preventing the complete destruction of vision threatened by either the existing condition or the danger of recurrence of the inflammation. Iridectomy for iritis should be performed when the inflammation has entirely subsided. The portion of iris excised should be large. The operation is urgently called for where the condition of *iris bombans* exists.

Iris tumours, either simple or malignant, are rare. A frequent result of a severe blow on the eye is a separation of a portion of the iris from its peripheral attachment. Of congenital anomalies the most common are a cleft condition (*coloboma*) and more or less persistence of the foetal pupillary membrane.

The Retina.—Choroidal inflammations are generally patchy. These patches may in course of time become more or less confluent. The effect upon vision depends upon the extent to which the external or percipient elements of the retina become involved. It is especially serious when the more central portions of the retina are thus affected.

In *glaucoma* there is an increase of intra-ocular tension, which acts injuriously on the optic nerve end and its ramifications in the retina. The cause of the rise of tension is partly congestive, partly mechanical. The effect of glaucoma, when untreated, is to cause ever-increasing loss of sight, although the time occupied by the process before it leads to complete blindness varies within such extraordinary wide limits as from a few hours to many years. The onset of glaucoma is characterized by subjective flashes of light or a halo around objects and stony hardness of the eyeball to touch. Such symptoms call for immediate treatment, instillation of pilocarpine to contract the pupil to the utmost and thus dilate the lymphatic canal of Petit (*see* EYE, ANATOMY OF) or iridectomy. The uveal tract may be the site of *sarcoma*.

The retina is subject to inflammation, to detachment from the choroid, to haemorrhages from the blood-vessels and to tumour [illegible]

Retinal inflammation may primarily affect either the nerve elements or the connective tissue framework. The former is usually associated with some general disease such as albuminuria or diabetes and is bilateral. The tissue changes are oedema, the formation of exudative patches, and haemorrhage. Where the connective tissue elements are primarily affected, the condition is a slow one, similar to *sclerosis* of the central nervous system. The gradual blindness which this causes is due to compression of the retinal nerve elements by the connective tissue hyperplasia, which is always associated with characteristic changes in the disposition of the retinal pigment. This retinal sclerosis is generally known as *retinitis pigmentosa*, a disease with hereditary predisposition. Haemorrhages into the retina are met with in phlebitis of the central retinal vein, which is almost invariably unilateral, and in certain conditions of the blood, as pernicious anaemia, when they are always bilateral.

The optic nerve is subject to inflammation (optic neuritis) and atrophy. Double optic neuritis, affecting, however, only the intra-ocular ends of the nerves, is an almost constant accompaniment of brain tumour. Unilateral neuritis has a different causation, depending upon an inflammation, mainly perineuritic, of the nerve in the orbit. It is analogous to peripheral inflammation of other nerves, such as the third, fourth, sixth and seventh cranial nerves.

Diseases of the Conjunctiva.—These are the most frequent diseases of the eye with which the surgeon has to deal. They generally lead to some interference with vision and to great impairment if the cornea is implicated.

Hyperaemia.—When the conjunctiva becomes hyperaemic its colour is heightened and its transparency lessened. Sometimes it becomes thickened, and in long standing cases velvety. The redness is most marked in the fold between the palpebral and the ocular conjunctiva, and diminishes towards the cornea. An important diagnostic mark is thus furnished between purely conjunctival hyperaemia and circumcorneal congestion, which is always an indication of more deep-seated vascular dilatation. It also differs materially from a scleral injection, in which there is a visible dilatation of the superficial scleral vessels.

Hyperaemia of the conjunctiva where not followed by inflammation causes more or less lacrimation but no alteration in the character of its secretion. The hyperaemia may be acute and transitory or chronic. Much depends upon the cause as well as upon the persistence of the irritation which sets it up.

Traumata, the presence of foreign bodies in the conjunctival sac, or the irritations of superficial chalky infarcts in the Meibomian ducts, cause more or less severe transitory congestion. Continued subjection to irritating particles of dust, etc., causes a more continued hyperaemia, often circumscribed and less pronounced. Bad air also causes a chronic hyperaemia in which it is common to find a follicular hyperplasia. Long exposure to too intense light, astigmatism and other ocular defects which cause asthenopia lead also to chronic hyperaemia. Anaemic individuals often suffer from hyperaemia of this nature.

The treatment of conjunctival hyperaemia consists first in the removal of the cause when it can be discovered. Often this is difficult. The application of hot sterilized water is useful.

Conjunctivitis.—When the conjunctiva is actually inflamed its secretion becomes copious and altered in character. A practical though by no means sharply defined clinical division of cases of conjunctivitis is afforded by the character of the secretion from the inflamed membrane and the visible tissue alterations which the membrane undergoes. The common varieties of conjunctivitis which may thus be distinguished are (*a*) Catarrhal conjunctivitis, (*b*) Purulent conjunctivitis, (*c*) Phlyctenular conjunctivitis, (*d*) Granular conjunctivitis, and (*e*) Diphtheritic conjunctivitis.

The treatment should have the primary object of preventing implication of the cornea and extension to the other eye.

Catarrhal conjunctivitis, which is characterized by an increased mucoid secretion accompanying the hyperaemia, is usually bilateral and may be either acute or chronic. Acute conjunctivitis lasts as a rule only for a week or two: the chronic type may persist, with or without exacerbations, for years. The subjective symptoms vary in intensity with the severity of the [illegible] ation.

There s always troublesome burning in the eyes with a t red heavy feeling n the lids This s aggravated by reading In acute cases ndeed ead ng is mposs ble In a l cases he symptoms are also more marked if the eyes have been tied up, though this may produce a temporary relief.

A special variety of acute catarrhal conjunctivitis is the so-called *hay-fever* (q.v.; *see* ANAPHYLAXIS). Other ectogenetic causes are mostly microbic. The most common are the Morax-Axenfeld and the Koch-Weeks conjunctivitis.

The Morax-Axenfeld bacillus sets up a contagious conjunctivitis which affects individuals of all ages and conditions. The inflammation is usually chronic, at most subacute. It is often sufficiently characteristic to be recognized without a microscopical examination of the secretions. In typical cases the lid margin, palpebral conjunctiva, and it may be a patch of ocular conjunctiva at the outer or inner angle are alone hyperaemic: the secretion is not copious and is mostly found as a greyish coagulum lying at the inner lid-margin. The subjective symptoms are usually slight. Complications with other varieties of catarrhal conjunctivitis are not uncommon. This mild form of conjunctivitis generally lasts for many months, subject to more or less complete disappearance followed by recurrences. It can be rapidly cured by the use of an oxide of zinc ointment, which should be continued for some time after the appearances have altogether passed off.

The conjunctivitis caused by the Koch-Weeks microbe is still more common. It is a more acute type, affects mostly children, and is very contagious and often epidemic. Here the hyperaemia involves both the ocular and the palpebral conjunctiva, and usually there is considerable swelling of the lids and a copious secretion. Both eyes are always affected. Occasionally the engorged conjunctival vessels give way, causing numerous small extravasations (ecchymoses). Complications with phlyctenulae (vide *infra*) are common in children. The acute symptoms last for a week or ten days, after which the course is more chronic. Treatment with nitrate of silver in solution is generally satisfactory. Less frequent microbic causes yield to the same treatment.

A form of *epidemic muco-purulent conjunctivitis* is not uncommon, in which the swelling of the conjunctival folds and lids is much more marked and the secretions copious. It is less amenable to treatment and also apt to be complicated by corneal ulceration. The microbe which gives rise to this condition has not been definitely established. This inflammation is also known as *school ophthalmia*. It is extremely contagious, so that isolation of cases becomes necessary. The treatment with weak solutions of sub-acetate of lead during the acute stage, provided there be no corneal complication, and subsequently with a weak solution of tannic acid, may be recommended.

Purulent Conjunctivitis.—Some of the severer forms of catarrhal conjunctivitis are accompanied not only by much swelling of both conjunctiva and lids but also by a muco-purulent secretion. Nevertheless there is a sufficiently sharply-defined clinical difference between the catarrhal and purulent types of inflammation. In purulent conjunctivitis the oedema of the lids is always marked, often excessive, the hyperaemia of the whole conjunctiva is intense: the membrane is also infiltrated and swollen (chemosis), the papillae enlarged and the secretion almost wholly purulent. Although this variety of conjunctivitis is principally due to infection by gonococci, other microbes, which more frequently set up a catarrhal type, may lead to the purulent form.

All forms are contagious, and transference of the secretion to other eyes usually sets up the same type of severe inflammation. Infection mostly takes place by direct transference through the hands, or secretions containing gonococci either from the eye or some other mucous membrane. The poison may also be carried by flies. The dried secretion loses its virulence.

In new-born children (*ophthalmia neonatorum*) infection takes place from the maternal passages during birth. Notwithstanding the great changes which occur during the progress of a purulent conjunctivitis there is on recovery a complete *restitutio ad integ r m* so far as the conjunctiva s concerned Owing to the tend ency to severe ulceration of the cornea more or ess nterference w th s ght may result be ore the nflammat on has passed off This is a special danger in adults. For this reason, when only one eye is affected the first point to be attended to in the treatment is to secure the second eye from contagion by efficient occlusion The appliance known as Buller's shield, a watch-glass strapped down by plaster, is the best for this purpose. It not only admits of the patient seeing with the sound eye but allows the other to remain under direct observation. The treatment otherwise consists in frequent removal of the secretions from the affected eye, and the use of nitrate of silver solution as a bactericide applied directly to the conjunctival surface; sometimes it is necessary to cut away the chemotic conjunctiva immediately surrounding the cornea. When the cornea has become affected efforts may be made with the thermo-cautery or otherwise to limit the area of destruction and thus admit of something being done to improve the vision after all inflammation has subsided.

Phlyctenular conjunctivitis is an acute inflammation of the ocular conjunctiva, in which little blebs or phlyctenules form in the vicinity of the corneal margin and on the epithelial continuation of the conjunctiva which covers the cornea. The inflammation is distributed in little circumscribed foci and not diffused as in all other forms of conjunctivitis. In it the conjunctival secretion is not altered, unless there should exist at the same time a complication with some other form of conjunctivitis. This condition is most frequent in children, particularly if ill-nourished or recovering from some illness, *e.g.*, measles. The susceptibility occurs in fact mainly where there exists what used to be called a "strumous" diathesis. This basis has to do with the susceptibility only, at all events to begin with. The local changes are not tuberculous; their exact origin has not been clearly established. They are in all probability produced by staphylococci.

Many children with phlyctenular conjunctivitis suffer after a short time from eczematous excoriation of the skin of the nostrils, the result of lacrimation. Another frequently distressing symptom is a pronounced dread of light (*photophobia*), which often leads to convulsive and very persistent closing of the lids (*blepharospasm*). Indeed the relief of the photophobia is often the most important point to be considered in the treatment of phlyctenular conjunctivitis. Photophobia may be very severe when the local changes are slight. The best local application is yellow oxide of mercury.

Granular Conjunctivitis.—This disease, also known as *trachoma*, is characterized by an inflammatory infiltration of the adenoid tissue of the conjunctiva. The inflammation is accompanied by the formation of so-called *granules*, and by a hyperplasia of the papillae. The changes further lead in the course of time to cicatricial transformations, so that a gradual and progressive atrophy of the conjunctiva results. The disease takes its origin most frequently in the conjunctival fold of the upper lid, but eventually as a rule involves the cornea and the deeper tissues of the lid, particularly the tarsus.

The cause of trachoma is a filter-passing virus (*q.v.*). In a distinctive affection when fully established, differential diagnosis from other forms of conjunctivitis, particularly those with much follicular enlargement or purulent from the first, may be difficult. Trachoma is mostly chronic. When occurring in an acute form it is more amenable to treatment and less likely to end in cicatricial changes. Fully half the cases of trachoma extend to the cornea and produce superficial vascularized infiltration (*pannus*). The veiling which pannus produces causes more or less defect of sight.

Various methods of treatment are in use for trachoma. Expression by means of roller-forceps or repeated grattage are amongst the more effective means of surgical treatment, while local applications of copper sulphate or of alum are useful in suitable cases. Recently, the beta radiation from radium emanation enclosed in specially shaped applicators has been used with good effect.

Diphtheritic conjunctivitis may be due to B. diphtheriae when the changes are those of diphtheria (*q.v.*) modified by the

...e affected. It may or may not be associated with diphtheria ...the throat. It is essentially a disease of early childhood, not more than 10% of all cases occurring after the age of four. A streptococcus infection produces somewhat similar and often quite as disastrous results.

Of non-inflammatory conjunctival affections reference may be made to the following:

Amyloid degeneration, in which waxy-looking masses grow from the palpebral conjunctiva of both lids, often attaining very considerable dimensions. The condition is not uncommon in China and elsewhere in the East.

Essential Shrinking of the Conjunctiva.—This is the result of pemphigus, in which the disease has attacked the conjunctiva and led to its atrophy.

Pterygium is a hypertrophic thickening of the conjunctiva of triangular shape firmly attached by its apex to the superficial layers of the cornea. It is a common condition in warm climates and often calls for operative interference.

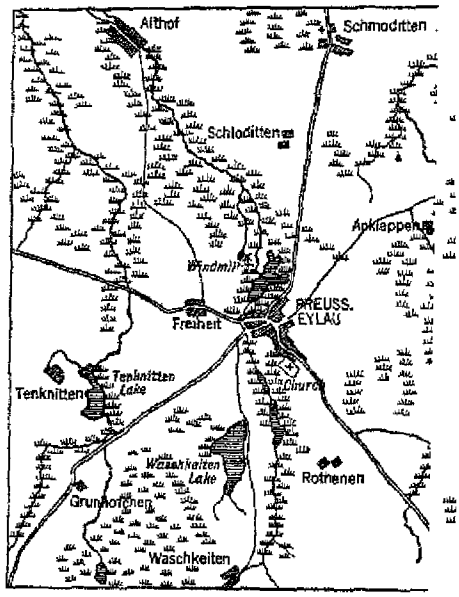
Lastly, short reference must be made to the commonest malignant new growths affecting the eye (*see* TUMOUR). These are melanoma, starting in the choroid, glio-sarcoma starting in the optic nerve or its retinal expansion, epithelioma starting in the conjunctiva, and sarcoma, usually spindle or round celled, starting in the bones of the orbit. (G. A. B.)

EYEMOUTH, a burgh of barony and parish of Berwickshire, Scotland. Pop. (1921) 2,477. It is situated at the mouth of the Eye, 2½ m. N.N.W. of Berwick-on-Tweed by the L.N.E.R. via Burnmouth. The main industry is herring fishing and allied trades, and Eyemouth was known as a port in the 15th century. The harbour was enlarged in 1887, and the bay is easily accessible and affords good anchorage. The rugged coast, and its numerous ravines and caves, were formerly infested with smuggliers. The promontory of St. Abb's Head is 3 m. to the N.W.

EYLAU, a town of Germany, in east Prussia, on the Pasmar, 23 m. S. by E. of Königsberg by rail on the line Pillau-Prostken. It has an Evangelical church, a teachers' seminary, a hospital, foundries and saw mills. Pop. 3,200. Eylau was founded in 1336 by Arnolf von Eilenstein, a knight of the Teutonic Order. It is famous as the scene of a battle between the army of Napoleon and the Russians and Prussians commanded by General Bennigsen, fought on Feb. 8, 1807.

The battle was preceded by a severe general engagement on the 7th. The head of Napoleon's column advancing from the south-west, found itself opposed at the outlet of the Grünhöfchen defile by a strong Russian rearguard which held the (frozen) lakes on either side of the Eylau road. The French turned both wings of the enemy, and Bagration, who commanded the Russian rearguard, retired through Eylau to the main army, which was now arrayed for battle east of Eylau. Barclay de Tolly made a strenuous resistance in Eylau itself, and in the churchyard, and these localities changed hands several times before remaining finally in possession of the French. It is very doubtful whether Napoleon actually ordered this attack upon Eylau, and it is suggested that the French soldiers were encouraged to a premature assault by the hope of obtaining quarters in the village. There is, however, no reason to suppose that this attack was prejudicial to Napoleon's chance of success, for his own army was intended to pin the enemy in front, while the outlying "masses of manoeuvre" closed upon his flanks and rear (*see* NAPOLEONIC CAMPAIGNS). In this case the vigour of the "general advanced guard" was superfluous, for Bennigsen stood to fight of his own free-will.

The foremost line of the French bivouacs extended from Rothenen to Freiheit, but a large proportion of the army spent the night in quarters farther back. The Russian army on the other hand spent the night bivouacked in order of battle. The cold was extreme, and food was scarce in both armies. The ground was covered at the time of battle with deep snow, and all the lakes and marshes were frozen, so that troops of all arms could pass everywhere, so far as the snow permitted. Two of Napoleon's corps (Davout and Ney) were still absent, and Ney did not receive his orders until the morning of the 8th. His task was to descend upon the Russian right and also to prevent a P... corps under Lestocq from coming on to the battlefield. ...ing from the south-east on Moilwitten was of Bennigsen's left wing. In the meantime ...arations for the frontal attack. His infan... windmill, through Eylau, to Rothenen, an... ployed along the whole front; behind each ... the wings stood the cavalry. The Guard w...



MAP OF EYLAU AND SURROUNDING COUN...
The scene of battle between the French army under ... from the southwest, met the Russians and Prussians a... began at 8 A.M. on Feb. 8, 1807, and ended at nig... the Russian and Prussian armies

...of Eylau, and an army reserve stood near ... Bennigsen's army was drawn up in line fron... Sausgarten, the front likewise covered by g... was numerically much superior—having som... occupied Serpallen.

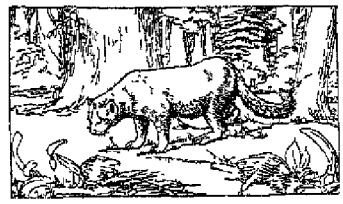
The battle opened in a dense snowstorm ... sen's guns opened fire on Eylau, and after ... artillery fight the French delivered an infant... This was repulsed with heavy losses, and t... towards the windmill in force. Thereupon ... centre, the VII. Corps of Augereau, to mo... church against the Russian front, the divis... Augereau's right participating in the attac... this first stage of the battle as the action of ... guard," Augereau must be held to have ov... VII. Corps advanced in dense masses, but in... lost its direction. St Hilaire attacked direc... Augereau's corps was still less fortunate. C... front of the Russian line, as if making for ... under a *feu d'enfer* and was practically ann... fusion the Russian cavalry charged with the ... and with the wind behind them. Three thou... about fourteen thousand appeared at the e... corps. The marshal and every senior officer w... and wounded. The Russian counterstroke ... itself and Napoleon himself was in serious ... seized with panic for his safety, and sent fo... poleon himself, with the utmost coolness, ju... Russian advance and ordered up a battalion ... exact moment required. In the streets of Ey... Russians at their mercy, and few escaped. ... the French was desperate and the battle hac... all costs. Napoleon now sent forward the ca... line. In the centre the charge was led by ... and the Russian horsemen were swept off the ... under D'Hautpoult charged through the ... through the first line of infantry and then ... penetrating to the woods of Anklappen.

The shock of a second wave of cavalry ...

and though in the final retirement the exhausted troopers lost terribly, they had achieved their object The wreck of Augereau's and other divisions had been reformed, the Guard brought up into first line, and, above all, Davout's leading troops had occupied Serpallen. Thence, with his left in touch with Napoleon's right (St. Hilaire), and his right extending gradually towards Klein Sausgarten, Davout pressed steadily upon the Russian left, rolling it up before him, until his right had reached Kutschitten and his centre Anklappen. By that time the troops under Napoleon's immediate command, pivoting their left on Eylau church, had wheeled gradually inward until the general line extended from the church to Kutschitten. The Russian army was being driven westward, when the advance of Lestocq gave them fresh steadiness. The Prussian corps had been fighting a continuous flank-guard action against Marshal Ney to the north-west of Althof, and Lestocq had finally succeeded in disengaging his main body, Ney being held up at Althof by a small rearguard, while the Prussians, gathering as they went the fugitives of the Russian army, hastened to oppose Davout. The impetus of these fresh troops led by Lestocq and his staff-officer Scharnhorst was such as to check even the famous divisions of Davout's corps which had won the battle of Auerstädt single-handed. The French were now gradually forced back until their right was again at Sausgarten and their centre on the Kreege Berg.

Both sides were now utterly exhausted, for the Prussians also had been marching and fighting all day against Ney. The battle died away at nightfall, Ney's corps being unable effectively to intervene owing to the steadiness of the Prussian detachment left to oppose him, and the extreme difficulty of the roads. A severe conflict between the Russian extreme right and Ney's corps which at last appeared on the field at Schloditten ended the battle. Bennigsen retreated during the night through Schmoditten, Lestocq through Kutschitten—unpursued. The numbers engaged in the first stage of the battle may be taken as—Napoleon, 50,000, Bennigsen, 67,000, to which later were added on the one side Ney and Davout, 29,000, on the other Lestocq, 7,000. The losses were roughly 15,000 men to the French, 18,000 to the Allies, or 21 and 27% respectively of the troops actually engaged.

EYRA, *Felis eyra,* a South American wild cat, of weasel-like build, and uniform colouration, varying from reddish-yellow to chestnut. It is found in Brazil, Guiana and Paraguay, and up to the Rio del Norte, but is rare north of Panama. It is a forest-dweller, active and fierce. The name is sometimes applied to the jaguarondi



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THE EYRA, A FIERCE WILDCAT FOUND IN THE FORESTS OF SOUTH AMERICA

EYRE, SIR JAMES (1734–1799), English judge, was educated at Winchester college and at St. John's college, Oxford. He was called to the bar at Gray's Inn in 1755 and was appointed recorder of London in 1763 He was counsel for the plaintiff in the case of *Wilkes* v. *Wood,* and made a brilliant speech in condemnation of the execution of general search warrants He was appointed a judge of the Exchequer in 1772. From June 1792 to January 1793 he was chief commissioner of the Great Seal. In 1793 he was made chief justice of the common pleas, and presided over the trials of Horne Tooke, Thomas Crosfield and others, with great ability and impartiality. He died on July 1, 1799, and was buried at Ruscombe, Berkshire.

See Howell, *State Trials,* xix. (1154–1155); Foss, *Lives of the Judges.*

EYRE, EDWARD JOHN (1815–1901), British colonial governor, the son of a Yorkshire clergyman, was born at Hornsea on Aug 5, 1815 He emigrated to New South Wales, where he transported stock westward to the new colony of South Australia, then in great distress. He became magistrate and protector of the aborigines, whose interests he warmly advocated. Already an experienced Australian traveller, he undertook extensive and difficult journeys in the desert country north and west of Adelaide, and proved the possibility of land communication between South and West Australia In 845 he returned to England and published the narrative of his travels *Expeditions into Central Australia and Overland from Adelaide to King George's Sound 1840–41* (2 vols 1845). In 1846 he was appointed lieutenant governor of New Zealand, where he served under Sir George Grey After successively governing St. Vincent and Antigua, he was in 1861 appointed acting-governor of Jamaica and in 1864 governor In October 1865 he repressed a negro insurrection. The severity and alleged illegality of Eyre's subsequent proceedings raised a storm in England Eyre was suspended, and an inquiry instituted The committee reported that he should not be reinstated. In spite of many indictments brought by various persons against Eyre and his officers for their severities no action was taken by the Government and Eyre retired on pension in the usual way He died on Nov. 30, 1901.

EYRIE, the alternative English form of the words aerie or aery, the lofty nest of a bird of prey, especially of an eagle; hence any lofty place of abode. The term is also used of the brood of the bird.

EZEKIEL the prophet has recorded, or left us to infer, a few facts about himself He had been a priest in Jerusalem, most likely a member of the clan of Zadok; while still young he was carried away to Babylonia in the First Captivity, 597 B.C., his call to prophesy came in 593; after that, he lived in a house of his own, with his wife (xxiv. 18), among the Jewish exiles at Tel Abîb on the Grand canal ("the river Chebar" iii. 15), somewhere in the neighbourhood of Babylon or Nippur. His fellow-exiles evidently treated him with respect, and waited upon his words (viii. 1, xiv 1, xxxii. 31 f.); judging from xxix 17, 571 B.C., his ministry lasted 22 years. Some notion of the man may be gathered from his book. He possessed in a high degree the prophetic temperament, a sensitiveness to the reality of the invisible world, which made him respond at once to the touch of the Divine hand (i. 3, viii. 1, etc.), a capacity for absorbed meditation, often passing into the state of trance. While in this condition he saw the moving throne (i.), performed a mimic siege of Jerusalem (iv.), felt himself transported from Babylonia to Jerusalem and back (viii.–xi.), saw the valley full of bones (xxxvii. 1–14), and the great temple of the future (xl. ff.) Often he made use of symbolic actions to enforce his message At times these acts were performed in the presence of spectators, *e.g.*, xii. 3–16, xxiv. 15–24, xxxvii. 16–20; but some of them must have taken place in vision, while the trance lay on him; *e.g.*, iii. 1–3. Such, at any rate, seems the best account to give of the weird symbolism of ch. iv. and v. 1–4. He was subject to periods of speechlessness, iii. 25f., xxiv. 27; but when the impulse seized him, he would burst into poetry: xv. 1–5; xvii. 1–10; xix.; xxi. 14–22; xxvi. (in part); xxvii. (in part); xxxi. 2–9; xxxii. 2–16. These fine oracles stand out vividly from the monotonous background of his prose.

The Teaching of Ezekiel.—(A.) His conception of God is marked by a deep sense of awe: the holiness and sovereignty of Jahveh were impressed upon the prophet in the vision which constituted his call (ch. i.). Jahveh will brook no rival, and therefore will punish Israel for its disloyalty and the heathen for their false notions of His divinity and power; His motive, whether in punishment or mercy, is to bring about the recognition of His sole Godhead: "and they, *or* ye, shall know that I am Jahveh" sounds like a refrain throughout the book. Ezekiel thinks in symbols; the ultimate, according to his view, finds expression in the concrete. (B.) Far away in Babylonia, his attention was riveted upon the course of events at home. He denounces Israel's practical heathenism; he insists on the speedy overthrow of the Jewish state, in just requital for centuries of ill-doing (i.–xxiv.). That pessimism in reviewing Israel's past, which became characteristic of later writers, is strongly marked in Ezekiel. He rarely betrays any sympathy with his countrymen (except ix. 8, xi. 13) His hopes were fixed upon the exiles; they were not indeed wholly loyal, yet the future of the true faith lay with them. The message is stern and uncompromising; it was no time for half-measures; Israel's religion was at stake; that it survived at all was largely due to Ezekiel. (C.) As with Israel, so with the nations round both the petty States that were est (xxv.) and

the greater powers of Tyre (xxvi.–xxviii.) and Egypt (xxix.–xxxii., xxxv.); they deserve nothing but the severest judgment, and Nebuchadrezzar is to be the scourge (xxvi., xxx.). Curiously enough, Babylon itself comes in for no denunciation, probably because the prophet, in his bitterness against his own people, regarded the instrument of retribution as on the side of God. Ezekiel holds out no hope for the heathen. (D.) When the news reached Babylonia that Jerusalem had fallen (586 B.C.) xxxiii. 21 f.), Ezekiel's tone changed. His prophecies of punishment had been fulfilled: he could now look forward to the restoration of the exiles. If he had previously argued the freedom and responsibility of the individual (xviii.), it was not with the aim of encouraging an individualistic type of religion, but of building up a community out of converted individuals. That is the ideal which henceforth occupies his mind: a new Israel, risen as it were from the dead, living in a land transformed, with Jahveh's sanctuary in the midst of them for evermore (xxxvi., xxxvii.). Yet there remains one more act in the Divine plan, the invasion and defeat of all the forces of heathenism, the acknowledgment of Jahveh by all, the final act of history (xxxviii., xxxix.). This apocalyptic conception had an immense influence upon subsequent thought. (E.) But Ezekiel was the most practical of dreamers. In the last section of the book, xl.–xlviii., he describes his vision of the restored temple, the centre of the new community, built on an imposing scale like one of the Babylonian sanctuaries (xl.–xlii.). The glory of Jahveh hallows it once more (xliii. 1–5); every source of defilement is removed; the only priests who minister there are to be the sons of Zadok (xliv. 15 ff.); and from the temple itself flows a mystic stream, cleansing, healing and beneficent (xlvii. 1–12).

Text and Authorship.—The textual criticism of Ezekiel was put upon a new footing by Cornill in 1888; and since that time progress has been made in the scientific use of the Greek and other versions for the correction of the Hebrew text, which is one of the most corrupt and obscure in the Old Testament. At present attention is being devoted to the higher criticism of the book, its literary structure, the origin of its ideas, the history and psychology which it contains. The book gives the impression of being arranged on a systematic plan, with four divisions, i.–xxiv., xxv.–xxxii., xxxiii.–xxxix., xl.–xlviii., in chronological order. Exact dates occur 13 times, but the sequence, though observed in the main, is broken on three occasions, xxvi. 1, xxix. 17, xxxii. 1; the plan, therefore, is not so perfect as it looks. On closer inspection, the four chief divisions turn out to be collections of oracles often independent of each other in time and contents; moreover, the date at the head of a section does not always hold good till the next date is given; for example, ch. vii., which stands under the year 593 (i. 1 f.), seems to belong to 586 B.C., and xl.–xlviii., headed 573 B.C., is mostly composed of far later material. In fact the impression of unity and chronological arrangement gives way under examination; the general plan may have been laid down by the prophet, but other hands have enlarged it. Editors must be held responsible for some, at least, of the headings, and for the double texts which are met with now and then, e.g., ch. i. repeated partly in x., xxxiii. in iii., vii. 5–9=2–4, x. 19=xi. 23 f.

The element of conventionality and repetition which enters largely into the prose of Ezekiel may be in some measure due to scribes, who felt no scruple in glossing the text or altering it to suit their taste. A good instance of their methods is seen in ch. xxvii.; the splendid dirge over Tyre has been cut in two by the insertion of a prose passage, vv. 11–25a, which ruins the unity of the poem. Evidently Ezekiel's writings were studied with keen interest, as we may gather from the final section, xl.–xlviii. The first three chapters, with the additions of xliii. 1–12, xliv. 9–25, xlv. 18–20, xlvii. 1–12, are probably the work of the prophet; all that remains in xliii.–xlviii. is made up of fragments, which here and there reveal the technique of the priestly school. They are experiments in legislation. Most of them were never carried out, [illegible] the re-distribution of the land, xlvii. 13–xlviii. 35; some were [illegible] days of atonement, xlv. 18–20; in [illegible] here is an early stage of the movement which in the end produced the Priestly Code. The task of reconstruction which Ezekiel had begun was carried on for years in priestly circles, and their tentative regulations were attached to his book, a natural place for them to find a lodging. Historically these enactments stand midway between Deuteronomy and P. Another law-book with which Ezekiel has relations is Lev. xvii.–xxvi., the law of holiness, as it is called; and in this case the relationship is so close that it points to a common time of origin and the same circle of ideas and interests.

The affinity between Ezekiel and Jeremiah is also remarkable. Thus both prophets insist, often in similar language, upon the overthrow of Jerusalem and the temple (*e.g.*, Jer. vii., xxvii., Ezek. iv. f., vii., xix.–xxiv.); both give up the people of Judah in despair, and fix their hopes upon the exiles (Jer. xxiv., xxix. 10 ff.; Ezek. xi. 16–21, xxxvi. 24 ff.); both proclaim the responsibility of the individual (Jer. xxxi. 29 f.; Ezek. xviii.). They are equally certain that the dispersed will be gathered and return to their native land (Jer. xxiii. 3, xxix. 14, xxxi. 8 ff.; Ezek. xi. 17, xx. 34, 41 f.), and that a second David will come to rule over a united nation (Jer. xxiii. 5 f., xxxiii. 14–16; Ezek. xxxiv. 23 f., xxxvii. 24 f.); and while Jeremiah has not the priestly temper of Ezekiel, yet he too looks forward to the continuance of the Levitical ministry (Jer. xxxiii. 18, 21 f.; Ezek. xliv. 15 ff.). Nevertheless, in spite of all these points of contact with other writings, Ezekiel has an impressive character of its own among the great books of prophecy; none exercised more influence upon subsequent thought and practice, and none perhaps baffles our understanding more.

A different conception from that outlined above has been worked out by Hölscher (1924). Ezekiel, he maintains, was the prophet of doom and of nothing else; he saw but two visions, the one induced him to prophesy the fall of Jerusalem, the other revealed the idolatry in the temple, and roused his fury against the city and its allies, Tyre and Egypt. Ezekiel's own oracles are few, and invariably poetical in form; all else in the book is the work of a redactor, or of several redactors, who lived just before the time of Nehemiah (*c.* 444–430 B.C.). This view of the book does account for the difference, noticed by every reader, between the monotony of the prose and the passion of the lyrics, but the effect of Hölscher's criticism is to empty the prophecies of all serious meaning, and it is applied on *à priori* principles in a ruthless way which excites distrust.

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EZRA, the priest and scribe, one of the principal characters in the chronicler's history of Israel (Chronicles–Ezra–Nehemiah). He is here said to have been sent from Babylon to Jerusalem by the Persian king Artaxerxes (*i.e.*, A. II 398 B.C.) to restore the neglected law (the Pentateuch). On his arrival, he reads the law to the people, and in accordance with it (Ezra x. 3) accomplishes important reforms. A considerable part of the account of his work has been transposed to the book of Nehemiah, as the result of a copyist's mistake. (*See* EZRA AND NEHEMIAH, BOOKS OF.) In still later legend, preserved in 2 Esdras xiv., he is said to have restored not only the law, which had been burnt (v. 21), but also all the other Hebrew scriptures which had been destroyed and seventy apocryphal works in addition. Since the narrative concerning him is written throughout in the chronicler's peculiar diction and style, and in every portion directly serves the apologetic aim of the history of which it is an essential feature, while it is unsupported from any other source, there is very strong reason, in the present writer's opinion, for the conclusion that the character of Ezra was created by the chronicler. (*See* also CHRONICLES, BOOKS OF.) (C. C. T.)

EZRA, THIRD BOOK OF (*1 Esdras*). This "book" is variously called 1 Esdras (Greek, Old Latin and Syriac versions, and the English Bible from 1560 onwards): 2 Esdras (Latin Vul-

ga) 3 E dras (E h op c vers on and some Greek m s) the Greek Ezra (or Esdras) from the m staken be ef hat G eel vas the or g nal language the third book of Ezra (n German usage especially); and there are still other titles. Though one of the so-called Apocrypha, it is very different in character from the other members of the group, for it is merely a portion of the oldest Greek translation of Chronicles–Ezra–Nehemiah. It begins with 2 Chron. xxxv. 1 *seq.*, the account of Josiah's passover, and ends (in the middle of a sentence!) at Neh. viii. 13. The explanation of this fact, as first shown by Torrey, *Ezra Studies*, p. 36, is that a certain number of folded sheets (probably a single ten-leaved quire) had been taken from a Greek codex, with the purpose of preserving a highly important recension which had been abandoned by the Jewish authorities and was in danger of perishing. The portion of the text thus rescued was thenceforth reproduced without change, even the fragmentary clause at the end being retained.

This Greek version was made from a Hebrew-Aramaic text generally identical with our Massoretic text, a skilful translation throughout; not a free rendering, nor a paraphrase. It is rarely difficult to see what Hebrew it represents. It is the work of a single translator and existed in the middle of the 2nd century B.C., and thus antedates by about 300 years the rendering of the canonical Hebrew-Aramaic text by Theodotion which, designated as 2 Esdras, was adopted for the Greek Bible. (*See* CHRONICLES.)

The 1 Esdras recension differs from the canonical in two very striking particulars: (1) the inclusion of the *Story of the Three Youths* at the court of Darius, with some appended narrative (iii. 1–v. 6) and the accompanying transposition of the account of events in the time of Artaxerxes (ii. 15–25=Ezra iv. 7–24); and (2) the transfer of a portion of the book of Nehemiah to the book of Ezra, the last verse of Ezra x. being immediately followed by Neh. vii. 73–viii 13*a*, where the fragment ends.

The Story of the Three Youths.—The three young soldiers who constitute the private bodyguard of Darius engage in a public contest of wit and wisdom. The victor, said to be Zerubbabel, is promised a rich reward by the king; but asks instead to be given permission to restore Jerusalem and the temple. This is granted, and Zerubbabel and Jeshua set out from Babylonia with the company described in chap. ii. of the canonical Ezra. This, however, is not the original form of the story. The parenthesis "this is Zerubbabel" (iv 13) has long been recognized as an interpolation. The story as told by its author contained no mention of the Jews, nor even a religious element, and seems to have ended with iv. 42 All that follows this verse is incident to the interpolation of the story in the chronicler's history. A portion of the latter, *originally forming the immediate sequel of Ezra i. 11*, is to be recognized in 1 Esdr. iv. 47*b*–56; v. 1–5 and 6*b*. The necessary patches composed by the interpolator are iv. 43–47*a*; 57–61; v 6*a*; and he also changed "Cyrus" to "Darius" in v. 2 and slightly altered 6*b*, which originally read: "in the second year of Cyrus," etc The impossible "Joakim the son of" in v. 5 came from a misreading of the Hebrew *wayyaqom bo*, "and there arose with him."

The purpose of the interpolator seems to have been threefold: to show that Darius II. had a special personal interest in Zerubbabel; to improve the picture of the latter by bringing all his recorded activities into the single reign; and to secure for the Jews this very entertaining bit of wisdom. The attempt succeeded, so completely that the original version perished, leaving only the interpolated form in circulation. This was the form rendered by the Greek translator of the 2nd century B.C., apparently the only form known to Josephus, certainly the only form known in Jerusalem at the beginning of the 2nd century A.D. It was nevertheless in its contradictions of the narrative and chronology of the chronicler an absolutely impossible version of the history; hence the Jewish scholars who finally gave out an authoritative text were obliged to cut out the *Story of the Three Youths* with its appendage. Since the latter contained a portion of the chronicler's history (*see* above), there is a gap in our canonical Ezra between chaps. i. and ii.

The *Story of the Three Youths* was in Aramaic The Darius of the story was perhaps Darius III (*Ezra Studies* pp 40 *seq*) but more probably Darius I Hystaspes (the Mede) *cf* iii 1 *seq* with Dan v 1 *seq* The names in v 9 have been thought to denote actual personages but this much more likely that they are mere properties of the story-teller The name Apama points to the 3rd century as the date of composition of the tale.

The Position of Neh. viii. in 1 Esdras.—The account of the reading of the law by Ezra appears in the 1 Esdras fragment as the sequel of Ezra x. It occupied this position also in the text used by Josephus (*Ant.* xi., v. 5), and it is therefore evident that a version of the history embodying this peculiarity circulated widely and for a long period. The recension containing our Massoretic order of the chapters was also in circulation, however, and it was from this that the rearrangement exhibited by 1 Esdras and Josephus was made, as is shown by the fact that the transposed section begins with v. 72 (not 69!) in Neh. vii. (*See* EZRA AND NEHEMIAH, BOOKS OF) The reason for the transposition is very obvious; it was the appreciation of the fact that Ezra, sent by the Persian king to Judaea for the express purpose of proclaiming and administering there the law of God which was already "in his hand" (Ezra vii 14, 25 *seq.*), could not possibly have waited 13 years before making any public use of it. There may also have persisted a tradition that the account of the reading of the law originally stood in other surroundings, namely in the story of Ezra In Josephus, Neh. viii. is continued to the end of the chapter, with mention of the feast of tabernacles, and this was certainly the continuation also in the codex from which the 1 Esdras fragment was plucked.

It is important to ascertain, if possible, what followed the account of the reading of the law, in this peculiar and widely used recension. Josephus proceeds with Neh. i.–vi., and makes also brief but plain allusion to vii. 4, xi. 1, xii. 27, and xiii. 10 *seq* Of chaps. ix. and x. he makes no use. It is possible, but not probable, that these two chapters preceded Neh. i. in this recension (as was held in *Ezra Studies*, 31 *seq.*). It seems much more likely that the interpolation of the name of "Nehemiah the son of Hachaliah" in x. 2 (*Ezra Studies*, 282 *seq.*) was made at an early date and this, with the appearance of "Ezra the Scribe" in xii. 36, would have held the two chapters firmly in their position between vii. 71 (72) and xi. 1. Here, probably, they stood in the 1 Esdras codex and in the text used by Josephus.

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(C. C. T.)

EZRA, FOURTH BOOK (or APOCALYPSE) **OF.** This is the most profound and touching of the Jewish Apocalypses. It stands in the relation of a sister work to the Apocalypse of Baruch but though the relation is so close, they have many points of divergence. Thus, whereas the former represents the ordinary Judaism of the 1st century of the Christian era, the teaching of IV Ezra on the Law, Works, Justification, Original Sin and Free Will approximates to the school of Shammai and serves to explain the Pauline doctrines on those subjects

In the Latin version our book consists of 16 chapters, of which however, only iii.–xiv are found in the other versions. To iii.–xiv, accordingly, the present notice is confined. After the example of most of the Latin mss. we designate the book IV Ezra (*see* Bensly-James, *Fourth Book of Ezra*, pp. xxiv.–xxvii.). As the numerous Graecisms indicate, the Latin version has obviously been derived from a Greek original.

The book consists of seven visions. (1.) iii.–v. 19.—"In the thirtieth year after the ruin of the city I Salathiel (the same is Ezra) was in Babylon and lay troubled upon my bed." In a long prayer Ezra asks how the desolation of Sion and the prosperity of Babylon can be in keeping with the justice of God. The angel Uriel answers that God's ways are unsearchable and past man's understanding. When Ezra asks when the end will be and what are the signs of it, the angel answers that the end is at hand and enumerates the signs.

(2) v 14–vi 34.—Phaltiel chief of the people reproaches Ezra for forsaking his flock. Ezra fasts and in his prayer asks

... God had given up his people into the hands of the heathen. Uriel replies: "Lovest thou that people better than He that made them?" Man cannot find out God's judgment. The end is at hand: its signs are recounted.

(3.) vi. 35–ix. 25.—Ezra recounts the works of creation, and asks why Israel does not possess the world since the world was made for Israel. The answer is that the present state is a necessary stage to the coming one. Then follows an account of the Messianic age and the resurrection, the punishment of the wicked and the blessings of the righteous. There can be no intercession for the departed. Few will be saved—only as it were a grape out of a cluster or a plant out of a forest.

(4.) ix. 26–x. 60.—Ezra eats of herbs in the field of Ardat, and sees in a vision a woman mourning for her only son. Ezra reproves her of the greater desolation of Sion. Suddenly she is transfigured and vanishes, and in her place appears a city. The woman, Uriel explains, represents Sion.

(5.) xi. 1–xii. 39.—Vision of an eagle with three heads, twelve wings and eight winglets, which is rebuked by a lion and destroyed. The eagle is the fourth kingdom seen by Daniel, and the lion is the Messiah.

6.) xiii.—Vision of a man (*i.e.*, the Messiah) arising from the sea who destroys his enemies who assemble against him, and gathers to him another multitude, *i.e.*, the lost ten tribes.

(7.) xiv.—Ezra is told of his approaching translation. He asks for the restoration of the Law, and is enabled by God to dictate in 40 days 94 books (the 24 canonical books of the Old Testament that were lost, and 70 secret books for the wise among the people).

While there is diversity of opinion as to whether all these separate pieces are the work of one author, on two points there can hardly be any difference of view: (*a*) The book contains a great deal of traditional material, especially the eschatological portions: written sources were in all probability drawn upon for this, but the excerpts which were made from such writings have been so interwoven with what the writer himself composed that to indicate precisely how much belongs to a particular source is an extremely difficult, perhaps impossible, task. (*b*) The final form of the work is due to a redactor who has brought these various pieces into a more or less connected whole.

Since the writer used traditional material much of the essence of the book goes back to a time long before he lived; moreover, the book in its present form, having been worked over by a redactor, must be of later date than that of the original form. But indications in the component parts of the book themselves prove that they were written at different times, though these may all have been within the lifetime of one writer. Details cannot be given here, but there are good reasons for dating the various component parts, as they left the writer's hands, as follows: the first four Visions (iii.–x.), known also as the "Salathiel Apocalypse" (Salathiel = Ezra in iii. 1) belong to about A.D. 100; the Eagle Vision" (xi.–xii.) to A.D. 96; the "Vision of the Man rising from the Sea" (xiii.) and the "Ezra Legend" (xiv.) to A.D. 100.

See G. H. Box, *The Ezra-Apocalypse* (1912).

(R. H. Ch.; W. O. E. O.)

EZRA AND NEHEMIAH, BOOKS OF, in the Old Testament. A Hebrew apologist of the 3rd century B.C. (known as "the Chronicler") wrote with much skill a history of Israel beginning with Adam and ending in the 4th century. Jewish scholars of a later day set apart the latter portion of this history, covering the entire Persian period, under the convenient name "Ezra." In much later Christian usage this in turn was divided into *two* books, Ezra and Nehemiah. The Jewish terminology, however, remained unchanged, and was followed in the Greek and Latin translations. (*See* CHRONICLES, BOOKS OF.)

The Book of Ezra.—This contains: (1) the story of the return of the Jews, by permission of Cyrus, from Babylonia to Judaea, and of their attempts to restore the worship and rebuild the temple, finally successful under Darius Nothus. (2) the story of Ezra, the leader of a second expedition from Babylonia to Jerusalem, and of his reforms, culminating in the expulsion of the gentile wives, and in a solemn pledge to keep separate from the peoples of the land" and to support the service of the temple.

The Hebrew text, as it has come down to us, is not in its original form. A long and important passage of 18 verses, the continuation of Ezra i. 1–11, was cut out, along with the interpolated *Story of the Three Youths*, in the 2nd century A.D. (*See* EZRA, THIRD BOOK OF.) It contained the account of the provision of Cyrus for the returning exiles, now preserved in the Apocrypha in strange surroundings (1 Esdr. iv. 47*b*–56; 62–v. 6*b*). Another accident to the text, in the process of its transmission, has had far more serious consequences. Three chapters which originally belonged to the story of Ezra have been transposed to the book of Nehemiah—with chaos as the result. Neh. vii. 69 (70)–viii. 18 originally followed immediately upon Ezra viii. 36. (The transposition was occasioned by the close resemblance of Ezra ii. 68–iii. 1 to Neh. vii. 69–viii. 1*a*, coupled with the fact that the chronicler *repeated* his all-important list of returning exiles, giving it official authentication at both ends of the Persian period.) This first transposition rendered a second absolutely necessary. The original order of the remainder of the Ezra story was Ezra ix., x., Neh. ix., x. Then followed the story of Nehemiah. (Torrey, *Ezra Studies*, chap. viii.)

The chronicler himself was the sole author of the book of Ezra with the probable exception of the Aramaic section iv. 8–vi. 14. It is plain that every part of the book was composed with the same apologetic purpose, the purpose of the chronicler's whole history to define and defend (but especially to define) the true "Israel" in opposition particularly to the very dangerous pretensions of the Samaritans, who claimed to be the true heirs of the religious tradition after the destruction of Jerusalem. The question was settled once for all by means of a historical fiction which seems to have originated in the 3rd century B.C. According to this fiction the Jewish exiles in Babylonia (the sole survivors of the southern kingdom, 2 Chron. xxxvi. 20) returned to Judaea in large numbers under the Persian rule, and thus restored to Palestine the only pure Israelite blood and the only genuine tradition. The chronicler was persuaded of this, and compiled his history to establish it. The great list (Ezra ii. and Neh. vii.), composed by the chronicler presumably from a census of the loyal families dwelling in Jerusalem and Judaea in the 3rd century, is formally attested both by the Persian officer Sheshbazzar ("the Tirshatha") in 538 and also by Nehemiah in 384 (*see* below). All the other lists, earlier and later, were constructed with this one in view. The story of Ezra and his law (the Pentateuch) was designed to show—in a most dramatic and impressive manner—that the pure blood received not the slightest contamination.

The list of Persian kings furnished by Ezra–Nehemiah deserves especial attention. The order: Cyrus, Xerxes (iv. 6), Artaxerxes I. (iv. 7–24), Darius II. (v., vi.), Artaxerxes II. (Ezra and Nehemiah), compared with the order of the kings named in the book of Daniel, shows plainly that in the Jewish learned tradition of this late period Darius I. Hystaspis (as "Darius the Mede") was believed to have preceded Cyrus. (*See* DANIEL, BOOK OF.) With this one exception the chronicler has the correct order; and the history in our Hebrew-Aramaic text is all precisely as he himself composed it, when the story of Ezra is restored to its original sequence (*see* above). The chronology is of course defective; by the dating which was current Zerubbabel could flourish under both Cyrus and Darius II. (Moore, *Judaism*, i. 6).

Portions of the book are written in the Aramaic language. Of these, vi. 15–18 and vii. 12–26 were certainly composed by the chronicler. It is possible that he was also the author of the remainder, iv. 8–vi. 14. He did not originate the fiction of the totally deserted cities of Judaea, the return from the exile, and the uncontaminated Israel, though it arose in his day. The Aramaic of all these passages has plain characteristics which render it impossible to date it earlier than the 3rd century. (See *Ezra Studies*, pp. 161–166; and especially Baumgartner, *Zeit. alt test. Wissens*, 1927, pp. 81–133.)

The Book of Nehemiah.—This contains. (1) the account of the rebuilding of the wall of Jerusalem by Nehemiah. (2) continuation and conclusion of the chronicler's history consisting mainly of his memorable census containing also the equally

indispensable) account of measures taken in order to confirm and perfect the work of purification accomplished by the chronicler's Ezra.

Nehemiah's remarkable narrative of his great undertaking and its successful accomplishment begins abruptly with a brief superscription. It ends in chap. vi., with the completion of the wall and its gates in the face of opposition by enemies. The leader of these adversaries is not the Sanballat of the Elephantine papyri (408 B.C.), but his grandson, the one mentioned by Josephus, *Ant.* XI, vii. 2, viii. 2 *sqq.* If we may give credence to the account preserved in Josephus, Nehemiah's adversary afterwards spent some time at the Persian court, and ultimately received his appointment at Samaria from Darius III. It is plain that he was not governor at the time of the events narrated in Neh. i–vi.; his father (Delaiah?) presumably held that office. The epithet "Horonite" bestowed on him by Nehemiah may mean that he had taken his residence at Beth-horon with the purpose of taking a hand in Jewish affairs. The rebuilding of the wall of Jerusalem was completed in 384 (*see* the evidence presented by Torrey, *The Second Isaiah,* pp. 455–460). Nehemiah's account seems to have been written in 371 (v. 14). Not all of i.–vi. is from his hand, however. In chap. iii., verses 1–32, and probably also 33–37, were written by the chronicler.

The remainder of the book, from vii. 1 onwards, is occupied solely with the chronicler's well known interests. His language, style and habits of composition are everywhere present, and there is no trace of any other hand than his. As was remarked above, the section vii. 69–x. 40 originally formed part of the chronicler's narrative of Ezra, and was at a later day transposed to his narrative of Nehemiah as the result of a copyist's mistake; vii 68 (69) was immediately followed by xi. One other feature of the *pseudo*-Nehemiah requires mention: xiii. 28 *seq.* is not a *direct* allusion to the break with the Samaritans; the chronicler wishes to show how Nehemiah had dealt with a similar case. He brings his account of Nehemiah's reforms to a close in precisely the manner in which he had ended the story of Ezra; *cf.* especially xiii. 31 with x. 35 (34) *seq.* This concluding verse of Nehemiah was the original and fitting close of the whole great work.

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EZZO or **EHRENFRIED** (*c.* 954–1024), count palatine in Lorraine, was the son of a certain Hermann (d. *c.* 1000), also a count palatine in Lorraine who had possessions in the neighbourhood of Bonn. Having married Matilda (d. 1025), a daughter of the emperor Otto II., Ezzo came to the front during the reign of his brother-in-law, the emperor Otto III (983–1002); his power was increased owing to the liberal grant of lands in Thuringia and Franconia which he received with his wife, and some time later his position as count palatine was recognized as an hereditary dignity. Otto's successor, the emperor Henry II., was less friendly towards the powerful count palatine, though there was no serious trouble between them until 1011; but some disturbances in Lorraine quickly compelled the emperor to come to terms, and the assistance of Ezzo was purchased by a gift of lands. Henceforward the relations between Henry and his vassal appear to have been satisfactory. Ezzo died at Saalfeld on March 21, 1024. He left three sons, among them being Hermann, archbishop of Cologne from 1036 to 1056, and Otto, who was for a short time duke of Suabia; and seven daughters, six of whom became abbesses.

EZZOLIED or **ANEGENGE,** a popular old German poem on the life of Christ, written about 1060, by Ezzo of Bamberg It had a great influence on south German poetry, of which it is an important monument.

Text in Müllenhoff and Scherer, *Denkmäler der d Poesie und Prosa aus dem 8–12 Jahrh.* (1892).

F This letter corresponds to the sixth letter of the Greek, Etruscan and Latin alphabets, known to the Greeks as digamma. The sound represented by the letter in Greek was a bilabial spirant similar to English *w*. This sound had disappeared early from the eastern Greek dialects, so that the eastern or Ionic alphabet contained no digamma. It was retained, however, in the Chalcidic and Corinthian alphabets, the sound remaining in these dialects through classical times. The form of the letter in Greek was  , , F or  . It does not occur in the Semitic alphabets. Its origin in the Greek alphabet has been a matter of dispute some maintaining that it descends from Semitic *vau* and using as evidence the fact that occurs as a form of the digamma in Crete, others that it was merely differentiated from the preceding letter by the omission of a horizontal stroke. In either case it is probable that the Greeks were not the innovators, seeing that a form of the letter () occurs in the Lydian alphabet. The letter was probably contained in an Asianic alphabet from which Greek, Lydian and Etruscan were derived. The letter passed into the Latin alphabet from the Chalcidic, and we find it used in early inscriptions in combination with *h* to represent the unvoiced labial spirant (*English f*) *e.g.* in the word FHEFMAKED. The *h* was soon dropped and the sound represented by the letter F alone. It had this value in Etruscan. It was not required in Latin to represent the bilabial spirant (*w*), for the Latins had taken the letter V to represent both this sound and the vowel U. It has represented the unvoiced labial spirant ever since.

NAME OF FORM	APPROXIMATE DATE	FORM OF LETTER
PHOENICIAN	B.C. 1,200	
CRETAN	1,100–900	
THERAEAN	700–600	
ARCHAIC LATIN	700–500	
ATTIC	600	
CORINTHIAN	600	
CHALCIDIAN	600	
IONIC	403	
ROMAN COLONIAL	PRE-CLASSICAL AND CLASSICAL TIMES	
URBAN ROMAN		F
FALISCAN		
OSCAN		
UMBRIAN		
CLASSICAL LATIN AND ONWARDS		F

THE DEVELOPMENT OF THE LETTER "F" FROM THE PHOENICIAN THROUGH THE CLASSICAL LATIN TO THE PRESENT FORM

In the Faliscan alphabet the letter had the curious form , and in Latin there was a form corresponding to the form of the preceding letter. Latin cursive of the 5th century A.D. employed a lengthened form , and the letter was generally extended below the line in uncial writing, *e.g.*, . In Irish writing of the 7th century the form was , and the Carolingian with further rounding of the top . From this developed the modern minuscule *f*.

In music, F is the name of the sixth note of the musical alphabet, otherwise the fourth note of the scale of C. It also gives its name to the bass clef, whose distinguishing sign is put on the F line. Further, it serves as an abbreviation for *forte* (*f*) and *fortissimo* (*ff*).

FA, the name given in French and Italian nomenclature to the fourth note of the natural scale of C., *i.e.*, F, and in the Tonic Sol-fa system and others employing what is called a "movable Do," or tonic, to the fourth note of any major scale.

FABBRONI, ANGELO (1732–1803), Italian biographer was born at Marradi in Tuscany on Sept. 25, 1732, and died at Pisa on Sept. 22, 1803. His principal work is *Vitae Italorum doctrina excellentium qui saeculis XVII. et XVIII. floruerunt* (20 vols., Pisa, 1778–1799, 1804–1805). The last two vols., published posthumously, contain a life of the author.

FABER, the name of a family of German lead-pencil manufacturers. Their business was founded in 1760 at Stein, near Nuremberg, by Kaspar Faber (d. 1784). It was then inherited by his son Anton Wilhelm (d. 1819). Georg Leonhard Faber succeeded in 1810 (d. 1839), and the business passed to Johann Lothar von Faber (1817–1896), the great-grandson of the founder. At the time of his assuming control about twenty hands were employed, under old-fashioned conditions, and owing to the invention of the French *crayons Contés* of Nicolas Jacques Conté (*q.v.*) competition had reduced the entire Nuremberg industry to a low ebb. Johann brought his factory to the highest state of efficiency and it became a model for all the other German and Austrian manufacturers. He established branches in New York, Paris, London and Berlin, and agencies in Vienna, St. Petersburg and Hamburg and made his greatest *coup* in 1856, when he contracted for the exclusive control of the graphite obtained from the East Siberian mines. Faber had also branched out into the manufacture of water-colour and oil paints, inks, slates and slate-pencils, and engineers' and architects' drawing instruments, and built additional factories to house his various industries at New York and at Noisy-le-Sec, near Paris, and had his own cedar mills in Florida. For his services to German industry he received a patent of nobility and an appointment as councillor of state. After the death of his widow (1903) the business was inherited by his granddaughter Countess Otilie von Faber-Castell and her husband Count Alexander

See also *Die Nurnberger Bleistiftindustrie* (1895

FABER, FREDERICK WILLIAM (1814–1863), British hymn-writer and theologian, was born on June 28, 1814 at Calverley, Yorkshire. Educated at Harrow and at Balliol college, Oxford, he was elected fellow of University college in 1837. Meanwhile he had given up Calvinistic views, and had become an enthusiastic follower of John Henry Newman. In 1843, he became rector of Elton in Huntingdonshire, but after a prolonged mental struggle joined the Roman Catholic communion in Nov. 1845. He founded a religious community at Birmingham, called Wilfridians, which was ultimately merged in the oratory of St Philip Neri, with Newman as Superior. In 1849 a branch of the oratory was established in London, first in King William street, and afterwards at Brompton, over which Faber presided till his death on Sept. 26, 1863. It is mainly as a hymn-writer that Faber is remembered. His other works include *Lives of Modern Saints* (1847 *sq.*); *The Blessed Sacrament* (1855); *The Creator and the Creature* (1858); *Growth of Holiness* (1854); *Spiritual Conferences* (1859); *The Foot of the Cross* (8 vols., 1853–60); and *Notes on Doctrinal Subjects*, 2 vols. (1866).

See J. E. Bowden, *Life and Letters of Fr. Faber* (2nd ed. 1888), and *A Brief Sketch of the Early Life of the late F. W. Faber, D.D.*, by his brother the Rev. F. A. Faber (1869).

FABER, FABRI or **FABRY** (surnamed STAPULENSIS), **JACOBUS** [Jacques Lefèvre d'Étaples] (*c.* 1455–1536), a pioneer of the Protestant movement in France, was born of humble parents at Étaples, Pas de Calais. He had already been ordained priest when he entered the university of Paris, where Hermonymus of Sparta was his master in Greek. He visited Italy before 1486, for he heard the lectures of Argyropulus, who died in that year; he formed a friendship with Paulus Aemilius of Verona. In 1492 he again travelled in Italy, studying in Florence, Rome and Venice, making himself familiar with the writings of Aristotle, though greatly influenced by the Platonic philosophy. Returning to Paris, he became professor in the college of Cardinal Lemoine. Among his famous pupils were F. W. Vatable and Farel; his connection with the latter drew him to the Calvinistic side of the movement of reform. At this time he began the publication, with critical apparatus, of Boëtius (*De Arithmetica*), and Aristotle's *Physics* (1492), *Ethics* (1497), *Metaphysics* (1501) and *Politics* (1506). In 1507 he settled in the Benedictine Abbey of St. Germain des Prés, near Paris, where his former pupil, William Briçonnet, later cardinal bishop of Meaux, was abbot. He now began his Biblical studies, the first-fruit of which was his *Quintuplex Psalterium: Gallicum, Romanum, Hebraicum, Vetus, Conciliatum* (1509); the *Conciliatum* was his own version. This was followed by *S. Pauli Epistolae xiv. ex vulgata editione, adjecta intelligentia ex Graeco cum commentariis* (1512), a work of great independence and judgment. His *De Maria Magdalena et triduo Christi disceptatio* (1517) provoked violent controversy and was condemned by the Sorbonne (1521). At Briçonnet's invitation he went in 1520 to Meaux, and in 1523 published his French version of the New Testament. From this, in the same year, he extracted the versions of the Gospels and Epistles "à l'usage du diocèse de Meaux." Faber was protected by Francis I. and the princess Margaret, but Francis being in captivity after the battle of Pavia (Feb. 25, 1525), he was condemned and his works suppressed by commission of the parliament. With the other Meaux preachers he fled to Strasbourg, but, as soon as Francis returned, he with others, was recalled. Faber now became tutor to one of the king's sons. He issued *Le Psautier de David* (1525), and was appointed royal librarian at Blois (1526); his version of the Pentateuch appeared two years later. His complete version of the Bible (1530), on the basis of Jerome, took the same place as his version of the New Testament. Margaret (now queen of Navarre) led him to take refuge (1531) at Nérac from persecution. He is said to have been visited (1533) by Calvin on his flight from France. He died at Nérac in 1536.

See C. H. Graf, *Essai sur la vie et les écrits* (1842); G. Bonet-Maury, in A. Herzog-Hauck's *Realencyklopädie* (1898).

FABER (or LEFÈVRE), **JOHANN** (1478–1541), German theologian, styled from the title of one of his works "Malleus Haereticorum" son of one Heigerlin, a smith (*faber*) was born at Leutkirch, Suabia, in 1478. He studied theology and canon law at Tübingen and at Freiburg im Breisgau, and became vicar of Lindau and Leutkirch and shortly afterwards canon of Basel In 1518 Hugo von Landenberg, bishop of Constance, made him one of his vicars-general, and Leo X. appointed him papal protonotary. He was an advocate of reforms, in sympathy with Erasmus, and corresponded (1519–20) with Zwingli. While he defended Luther against Eck, he was as little inclined to adopt the position of Luther as of Carlstadt. His journey to Rome in the autumn of 1521 had the result of estranging him from the views of the Protestant leaders. He published *Opus adversus nova quaedam dogmata Lutheri* (1522), appeared as a disputant against Zwingli at Zürich (1523), and then put forth his *Malleus in haeresin Lutheranam* (1524). In 1526 he became court preacher to the emperor Ferdinand, and in 1527–28 was sent by him as envoy to Spain and England He approved the death by burning of Balthasar Hubmeier, the Baptist, at Vienna on March 10, 1528 In 1531 he was consecrated bishop of Vienna, and combined with this (till 1538) the administration of the diocese of Neustadt He died at Vienna on May 21, 1541. His works were collected in three volumes, 1537, 1539 and 1541.

See C. E. Kettner, *Diss. de J. Fabri Vita Scriptisque* (1737), Wagenmann and Egli in Herzog-Hauck's *Realencyklopädie* (1898)

FABERT, ABRAHAM DE (1599–1660), marshal of France, was the son of Abraham Fabert, seigneur de Moulins (d. 1638), a famous printer who rendered great services, civil and military, to Henry IV. At the age of fourteen he entered the *Gardes françaises*, and from 1618 was almost constantly in service He was a brilliant engineer, and at the siege of Stenay he introduced new methods of siegecraft which anticipated in a measure the great improvements of Vauban. In 1658 Fabert was made a marshal of France, being the first commoner to attain that rank He died at Sedan on May 17, 1660.

See *Histoire du maréchal de Fabert* (Amsterdam, 1697); P. Barre, *Vie de Fabert* (1752); A. Feillet, *Le Premier Maréchal de France plébéien* (1869); Bourelly, *Le Maréchal Fabert* (1880).

FABIAN (FABIANUS), **SAINT** (d. 250), pope and martyr, was chosen pope in Jan. 236. He was martyred during the persecution under Decius on Jan. 20, 250, and was buried in the catacomb of Calixtus. He is said to have baptized the emperor Philip and his son, to have improved the organization of the church in Rome, to have appointed officials to register the deeds of the martyrs, and to have founded several churches in France.

See *Liber Pontificalis* vol. i. ed Duchesne (1886) and Eusebius, *Hist. Eccl.* vi. 29.

FABIAN SOCIETY, a Socialist society founded in the winter of 1883–4 by a few obscure young people in London with the ambitious object of "reconstructing society in accordance with the highest moral possibilities." They named themselves after Fabius Cunctator because they realized that "long taking of counsel" was necessary before they could decide how to do it During the next two or three years the society was joined by four men who have since become eminent, George Bernard Shaw (*q.v.*), Sidney Webb (*q.v.*), Sydney Olivier (later Lord Olivier) and Graham Wallas, and by Mrs. Annie Besant (*q.v.*). In 1889 the society published a volume of essays by these five, with two others, entitled *Fabian Essays in Socialism* which made a considerable stir in Radical circles. The revolutionary Socialism of that period was Marxian and the followers of H. M. Hyndman and even of William Morris based their propaganda on the Marxian law of value. The Fabians rejected the Marxian doctrine both in economics and in politics, holding that Socialism was not a scheme to be adopted on the morrow of the revolution, but a principle already partially embodied in municipal as well as central government and capable of further extension by the action of existing political parties. The publication of *Fabian Essays* explaining these ideas led to the foundation of Fabian societies throughout England, which, however, a few years later were mostly turned into branches of the new Independent Labour Party, a Socialist society which was Fabian except in its political method. Fabian policy explained by numerous *Fabian Tracts* and expounded everywhere by Fabian lect exercised much influence both on the

Liberal Party and on the Progressive Party which controlled the London County Council from 1889 to 1907.

Although the Fabians always rejected the idea of making a political party out of the adherents to Socialism, they had long urged the trade unions to form a party of their own, and consequently they co-operated with the unions in founding the British Labour Party in 1900. The success of this new party in the General Election of 1906 startled the country into realizing that Socialism was a coming factor in politics, and at the same time Mr H. G. Wells (q.v.) attempted to hasten its coming by reorganizing the Fabian Society. His controversy with Mr. Bernard Shaw over this scheme attracted much public attention to the society.

The Fabian Society has never had as many as 4,000 members at once, but partly through affiliated societies at the chief universities, many people who have subsequently become influential have passed through its ranks and the plays and writings of its leading members have brought its doctrines before a wide public. Nearly all the leading Socialists and many of the foremost trade unionists have at one time or another become members. Since the War the importance of the Labour Party has somewhat overshadowed that of its constituent elements.

See *The History of the Fabian Society*, by Edward R. Pease (2nd ed. 1925). (E.R.P.)

FABIUS, the name of a number of Roman soldiers and statesmen. The Fabian gens was one of the oldest and most distinguished patrician families of Rome. Its members claimed descent from Hercules and a daughter of the Arcadian Evander. From the earliest times it played a prominent part in Roman history, and was one of the two gentes exclusively charged with the management of the most ancient festival in Rome—the Lupercalia (Ovid. *Fasti*, ii. 375). The chief family names of the Fabian gens or clan, in republican times, were Vibulanus, Ambustus, Maximus, Buteo, Pictor, Dorso, Labeo; with surnames Verrucosus, Rullianus, Gurges Aemilianus, Allobrogicus (all of the Maximus branch). The most important members of the family are the following:—

1. Marcus Fabius Ambustus, *pontifex maximus* in the year of the capture of Rome by the Gauls (390). His three sons, sent as ambassadors to the Gauls when they were besieging Clusium, subsequently took part in hostilities (Livy v. 35). The Gauls thereupon demanded their surrender, on the ground that they had violated the law of nations: the Romans, by way of reply, elected them consular tribunes in the following year. The result was the march of the Gauls upon Rome, the battle of the Allia, and the capture of the city (Livy vi. 1).

2. Q. Fabius Maximus, surnamed *Rullianus* or *Rullus*, master of the horse in the second Samnite War to L. Papirius Cursor, by whom he was degraded for having fought the Samnites contrary to orders (Livy viii. 30), in spite of the fact that he gained a victory. In 325, when dictator, he was defeated by the Samnites at Lautulae (Livy ix. 23). In 310 he defeated the Etruscans at the Vadimonian Lake. In 295, consul for the fifth time, he defeated, at the great battle of Sentinum, the combined forces of the Etrurians, Umbrians, Samnites and Gauls (*see* Rome: *History*, II "The Republic"). As censor (304) he limited the freedmen to the four city tribes.

3. Quintus Fabius Maximus, surnamed *Cunctator* ("the delayer," from his cautious tactics in the war against Hannibal), grandson of the preceding. He served his first consulship in Liguria (233 B.C.), was censor (230) and consul for the second time (228). In 218 he was sent to Carthage to demand satisfaction for the attack on Saguntum (Livy xxi. 18). According to the well-known story, he held up a fold of his toga and offered the Carthaginians the choice between peace and war. When they declared themselves indifferent, he let fall his toga with the words, "Then take war." After the disasters of the Trebia and Lake Trasimenus, Fabius was named dictator (Livy calls him pro-dictator, since he was nominated, not by the consul, but by the people) in 217, and began his tactics of "masterly inactivity." Manoeuvring among the hills, where Hannibal's cavalry were useless, he cut off his supplies, harassed him incessantly and did except fight. His steady adherence to his plan caused dissatisfaction at Rome and in his own camp. Minucius Rufus, his master of the horse, during the absence of Fabius at Rome made a successful attack upon the enemy. The people then divided the command between Minucius and Fabius (Livy xxii. 15, 24; Polybius iii. 88). Minucius was led into an ambuscade by Hannibal, and his army was only saved by the opportune arrival of Fabius. Minucius confessed his mistake and henceforth submitted to the orders of Fabius (Livy xxiii. 32). At the end of the legal time of six months Fabius resigned the dictatorship, and the result of the abandonment of Fabian tactics was the disaster of Cannae (216). In 215 and 214 (as consul for the third and fourth times) he was in charge of the operations against Hannibal together with Claudius Marcellus (Livy xxiii. 39). He laid siege to Capua, which had gone over to Hannibal after Cannae, and captured the important position of Casilinum; in his fifth consulship (209) he retook Tarentum, which had been occupied by Hannibal for three years (Livy xxvii. 15; Polybius xiii. 4; Plutarch, *Fabius*). He died in 203. Fabius was a strenuous opponent of the new aggressive policy, and did all he could to prevent the invasion of Africa by Scipio. In his later years he became morose, and showed jealousy of rising young men, especially Scipio (*Life* by Plutarch, Livy xx.–xxx.; Polybius iii. 87–106).

4. Q. Fabius Vibulanus, with his brothers Caeso and Marcus, filled the consulship for seven years in succession (485–479 B.C.). In the last year there was a reaction against the family, in consequence of Caeso's espousing the cause of the plebeians. Thereupon the Fabii emigrated from Rome under the leadership of Caeso and settled on the banks of the Cremera, a few miles above Rome. For two years they defended the city against the Veientes, until at last they were surprised and cut off. The only survivor of the gens was Quintus, the son of Marcus, who apparently took no part in the battle. This Quintus was consul in 467, 465 and 459, and a member of the second decemvirate in 450, on the fall of which he went into voluntary exile (Livy ii. 42, 48–50, iii. 1, 9, 41, 58, vi. 1, Dion Halic. viii. 82–86, ix. 14–22; Ovid, *Fasti*, ii. 195).

The Fabian name is met with as late as the 2nd century A.D. A complete list of the Fabii will be found in de Vit's *Onomasticon*, *see* also W. N. du Rieu, *Disputatio de Gente Fabia* (1856), containing an account of 57 members of the family.

FABIUS PICTOR, QUINTUS, the father of Roman history, was born about 254 B.C. He took an active part in the subjugation of the Gauls in the north of Italy (225), and after the battle of Cannae (216) was sent by the Romans to consult the Delphic oracle. He was the earliest prose writer of Roman history. His sources were the *Annales Maximi*, *Commentarii Consulares*, and similar records; the chronicles of the great Roman families; and his own experiences in the second Punic war. He is also said to have made much use of the Greek historian Diocles of Peparethus. His work, which was written in Greek, began with the arrival of Aeneas in Italy, and ended with the Hannibalic war. Polybius uses him as his chief authority for the second Punic war. A Latin version existed in the time of Cicero, but it is doubtful whether it was by Fabius Pictor or by a later writer with whom he was confused—Q. Fabius Maximus Servilianus (consul 142); or there may have been two annalists of the name of Fabius Pictor.

Fragments in H. Peter, *Historicorum Romanorum Fragmenta* (1883); *see* also Annalists and Livy, and Teuffel-Schwabe, *History of Roman Literature*, § 116. *See* E. S. Duckett, *Studies in Ennius* (Bryn Mawr college monographs, No. 18).

FABLE. With certain restrictions, the necessity of which will be shown in the course of the article, we may accept the definition of "fable" which Dr. Johnson proposes in his *Life of Gay*: "A *fable* or *apologue* seems to be, in its genuine state, a narrative in which beings irrational, and sometimes inanimate (*arbores loquuntur, non tantum ferae*), are, for the purpose of moral instruction, feigned to act and speak with human interests and passions." The description of La Fontaine, the greatest of fabulists, is a poetic rendering of Johnson's definition:

> Fables in sooth are not what they appear;
> Our moralists are mice, and such small deer
> We yawn at ons, but we gladly turn
> To moral tales, and so amused we learn

The fable is distinguished from the myth which grows and is not made the spontaneous and unconscious product of primitive fancy as it plays round some phenomenon of natural or historical fact. The literary myth, such as, for instance, the legend of Pandora in Hesiod or the tale of Er in the *Republic* of Plato, is really an allegory, and differs from the fable in so far as it is self-interpreting; the story and the moral are intermingled throughout. Between the parable and the fable there is no clear line of demarcation. The soundest distinction is drawn by Neander. In the fable human passions and actions are attributed to beasts; in the parable the lower creation is employed only to illustrate the higher life and never transgresses the laws of its kind. There is an affinity between the fable and the proverb. A proverb is often a condensed or fossilized fable, and not a few fables are amplified or elaborated proverbs.

With the fable, as we know it, the moral is indispensable. As La Fontaine puts it, an apologue is composed of two parts, body and soul. The body is the story, the soul the morality. But in the primitive beast-fable, which is the direct progenitor of the Aesopian fable, the story is told simply for its own sake, and is as innocent of any moral as the fairy tales of Little Red Riding-Hood and Jack and the Beanstalk. Thus, in a legend of the Flathead Indians, the Little Wolf found in cloud-land his grandsires the Spiders with their grizzled hair and long crooked tails, and they spun balls of thread to let him down to earth; when he came down and found his wife, the Speckled Duck, whom the Old Wolf had taken from him, she fled in confusion, and this is why she lives and dives alone to this very day. Such animal myths are as common in the New World as in the Old, and abound from Finland and Kamchatka to the Hottentots and Australasians.

From these beast-fables of savages must be derived, through some common store of primitive moralizing, the fables of Greece and India. In the form in which we have them the Greek fables are the older, there is a fable of true type in Hesiod. In the latter part of the 5th century B.C. they became connected with the name of Aesop. The first collection we hear of was made about 300 B.C. These Greek fables are best represented by the verse collection of Babrius (*q.v.*) made about A.D. 200. An inferior version is found in the Latin of Phaedrus (early part of the 1st century). Phaedrus and a third ancient fabulist Avianus (4th century) were textbooks in mediaeval schools and were constantly imitated and expanded.

The oldest Indian collection, the *Panchatantra*, goes back to Buddhist sources of the 4th century or earlier. The *Hitopadesa* is a mediaeval form of the same work, the fables being strung together on a thread of narrative. As *Kalilah and Dimnah* or *Fables of Bidpai* (*Pilpay*) the Indian fables passed through Old Persian and Arabic into Latin, and joined the stream flowing from the Latin fabulists, thus fertilizing the rising vernacular literatures with a variety of *motifs* which could be used either for entertainment or edification. One of the most successful mediaeval collections is that of Odo of Cheriton, a Kentish preacher of the 12th century, who published separately the fables he had used in his sermons.

Modern Literature.—As the supremacy of Latin declined, the fable took a new life in the modern languages. Not only were there numerous adaptations of Aesop, known as Ysopets, but Marie de France in the 13th century composed many original fables, some rivalling La Fontaine's in simplicity and gracefulness. Later, also, fables were not wanting, though not numerous, in the English tongue. Chaucer has given us one, in his Nonne Preste's Tale, which is an expansion of the fable *Don Coc et don Werpil* of Marie de France; another is Lydgate's tale of The Churl and the Bird.

Several of Odo's tales, like Chaucer's story, can be ultimately traced to the History of Reynard the Fox. This great beast-epic is known to us in three forms, Latin, French and German, each with independent episodes, but all woven upon a common basis, and it probably took shape in Picardy in the 10th or 11th century. The Latin form is probably the earliest, and next the German versions. The French poem of more than 30 000 lines the *Roman du Renard* belongs probably to the 13th century. In 1498 appeared *Reinke de Vos*, almost a literal version in Low Saxon of the older Flemish poem *Reinaert de Vos*. Hence the well-known version of Goethe, in modern German hexameters, was taken. We have here no short and unconnected stories. Materials, partly borrowed from older apologues, but in a much greater proportion new, are worked up into one long and systematic tale. The moral, so prominent in the fable proper, shrinks so far into the background that the epic might be considered a work of pure fiction, an animal romance recounting a contest maintained successfully, by selfish craft and audacity, against enemies of all sorts, in a half-barbarous and ill-organized society.

France alone in modern times has attained any pre-eminence in the fable, and this distinction is almost entirely owing to one author. Marie de France in the 13th century, Gilles Corrozet, Guillaume Haudent and Guillaume Gueroult in the 16th, are now studied mainly as the precursors of La Fontaine, from whom he may have borrowed a stray hint or the outline of a story. The unique character of his work has given a new word to the French language: other writers of fables are called *fabulistes*, La Fontaine is named *le fablier*. He is a true poet; his verse is exquisitely modulated; his love of nature often reminds us of Virgil, as do his tenderness and pathos (*see*, for instance, The Two Pigeons and Death and the Woodcutter). He is full of sly fun and delicate humour; like Horace he satirizes without wounding, and "plays around the heart." Lastly, he is a keen observer of men. The whole society of the 17th century, its greatness and its foibles, its luxury and its squalor, from *Le grand monarque* to the poor *manant*, from his majesty the lion to the courtier of an ape, is painted to the life. To borrow his own phrase, La Fontaine's fables are "une ample comédie à cent actes divers." Rousseau did his best to discredit the *Fables* as immoral and corruptors of youth, but in spite of *Émile* they are studied in every French school and are more familiar to most Frenchmen than their breviary. Among the French successors of La Fontaine the most distinguished is Florian: among foreigners who have worked in his vein are the Spaniard Yriarte, the Russian Krylov, and the Italian Pignotti. John Gay's *Fifty-one Fables in Verse* (1727) has much of the charm of La Fontaine. Dryden's *Fables* (1699) are adaptations of Chaucer's and Boccaccio's tales and Ovid's *Metamorphoses* and are fables only in name.

The fables of Lessing represent the reaction against the French school of fabulists. "With La Fontaine himself," says Lessing, "I have no quarrel, but against the imitators of La Fontaine I enter my protest." His attention was first called to the fable by Gellert's popular work published in 1746. Gellert's fables were closely modelled after La Fontaine's, and were a vehicle for lively railings against women, and hits at contemporary follies. Lessing's early essays were in the same style, but his subsequent study of the history and theory of the fable led him to discard his former model as a perversion of later times, and the "Fabeln," published in 1759, are the outcome of his riper views. Lessing's fables, like all that he wrote, display his vigorous common sense, but he has little of La Fontaine's sly humour and lightness of touch. On the other hand, he has the rare power of looking at both sides of a moral problem; he holds a brief for the stupid and the feeble, the ass and the lamb; and in spite of his formal protest against poetical ornament, there is in not a few of his fables a vein of true poetry, as in the Sheep (ii. 13) and Jupiter and the Sheep (ii. 18). But the monograph which introduced the *Fabeln* is of more importance than the fables themselves. According to Lessing the ideal fable is that of Aesop. All the elaborations and refinements of later authors, from Phaedrus to La Fontaine, are perversions of this original. The fable is essentially a moral precept illustrated by a single example, and it is the lesson thus enforced which gives to the fable its unity and makes it a work of art.

BIBLIOGRAPHY.—A. A. Macdonell, *Sanskrit Literature* (1900) with the literature there quoted: *Babrius*, ed. W. C. Rutherford, with excursus on Greek fables (1883); L. Hervieux, *Les Fabulistes latins d'Auguste à la fin du moyen âge* (1884); Jakob Grimm, *Reinhart Fuchs* (1834); Sudre, *Les Sources du roman du Renard* (1893) with G. Paris's review (*Mélanges*, 1902); Taine, *Essai sur les fables de La Fontaine* (1853); Saint-Marc Girardin, *La Fontaine et les fabulistes* (1867). *Krylov's Fables*, Eng. trans. by B. Pares (1926). *Biography of John Gay*, ed. W. H. K. Wright (1923).

FABLIAU. The entertaining tales in eight-syllable rhymed verse which form a marked section of French mediaeval literature are called *fabliaux*, the word being derived by Littré from *fablel*, a diminutive of *fable*. It is a mistake to suppose, as is frequently done, that every legend of the middle ages is a fabliau. In a poem of the 12th century a clear distinction is drawn between songs of chivalry, war or love, and *fabliaux*, which are recitals of laughter. A fabliau always related an event; it was usually brief, containing rarely more than 400 lines; it was neither sentimental, religious nor supernatural, but comic and gay. About 150 fabliaux have come down to us more or less intact; a vast number have doubtless disappeared. As early as the 8th century fabliaux must have existed since the faithful are forbidden to take pleasure in these *fabulae inanes* by the *Poenitentiale* of Egbert. But the earliest surviving fabliau is that of *Richeut*, which dates from 1159. This is a rough and powerful study of the coarse life of the day, with little plot but engaged with a realistic picture of manners. Such poems, but of a more strictly narrative nature, continued to be produced, mainly in the north and north-east of France, until the middle of the 14th century. It does not seem probable that any ancient or exotic influences were brought to bear upon the French jongleurs, who simply invented or adapted stories of that universal kind which springs unsown from every untilled field of human society. More remarkable than the narratives themselves is the spirit in which they are told. This is full of the national humour and the national irony, the true *esprit gaulois*. A very large section of these popular poems deals satirically with the pretensions of the clergy. There are also tales whose purpose is rather voluptuous than witty, and whose aim is to excuse libertinage and render marriage ridiculous. Among these are prominent *Court Mantel* and *Le Dit de Berenger*. Yet another class relates, with a strain of irony or oddity, such familiar classical stories as those of Narcissus, and Pyramus and Thisbe.

The object of the writers was the immediate amusement of their audience; by reference to familiar things, they hoped to arouse a quick and genuine merriment. Hence in the fabliaux we get closer than elsewhere to the living diction of mediaeval France. Such scholars as Gaston Paris and Paul Meyer have praised, in the general laxity of style and garrulity of the middle ages, the terseness of the jongleurs; in the period of false ornament, their fidelity to nature; in a time of general vagueness, the sharp and picturesque outlines of their art. One feature of the fabliaux, however, cannot be praised and yet must not be overlooked. In no other section of the world's literature is the scorn and hatred of women so prominent. It is difficult to account for the anti-feminine rage which pervades the fabliaux, and takes hideous shapes in such examples as *Le Valet aux deux femmes*, *Le Pêcheur de Pont-sur-Seine* and *Chichejace et Begorne*. Probably this was a violent reaction against the extravagant cult of woman as expressed in the contemporary *lais* as well as in the legends of saints. We must remember, too, that those who listened were not nobles or clerks, they were the common people. The fabliaux were *fabellae ignobilium*, little stories told to amuse persons of low degree, who were irritated by the moral pretensions of their superiors.

The names of about 20 of the authors of fabliaux have been preserved, although in most cases nothing is known of their personal history. The most famous is the man whose name, or more probably pseudonym, was Rutebeuf. He wrote *Frère Denyse* and *Le Sacristain*, while to him is attributed the *Dit d'Aristote*, in the course of which Aristotle gives good advice to Alexander. Fabliaux, however, form but a small part of the work of Rutebeuf, who was a satirical poet of wide accomplishment and varied energy. Henri d'Andeli was an ecclesiastic, attached, it is supposed, to the cathedral of Rouen. Jean de Condé, who flourished in the court of Hainaut from 1310 to 1340, and who is the latest of the genuine writers of fabliaux, lived in comfort and security, but most of the professional jongleurs seem to have spent their years in a Bohemian existence, wandering among the clergy and the ignorant class, alternately begging for money and food and selling their mocking verses.

Bibliography.—The principal authorities for the fabliaux are Anatole de Montaiglon and Gaston Raynaud, who published the text, in 6 vols., between 1872 and 1890. This edition supplemented the labours of Méon (1808–23) and Jubinal (1839–42). The works of Henri d'Andeli were edited by A. Héron in 1880, and those of Rutebeuf by Léon Clédat in 1891. *See* also the editions of separate fabliaux by Gaston Paris, Paul Meyer, Ebeling, August Schéler and other modern scholars. Joseph Bédier's *Les Fabliaux* (1925) is a useful summary of critical opinion on the entire subject.

FABRE, FERDINAND (1830–1898), French novelist, was born at Bédarieux, in Hérault, a very picturesque district of the south of France, which he made completely his own in literature. He was brought up by his uncle, the Abbé Fulcran Fabre, at Camplong among the mulberry woods. Of his childhood and early youth he has given a charming account in *Ma Vocation* (1889). He was sent to the seminary of St. Pons de Thomières, where, in 1848, he had, as he believed, a vision in which he was warned not to become a priest. He was then articled as a lawyer's clerk in Paris. In 1853 he published a volume of verses, *Feuilles de lierre*, broke down in health, and returned to his old home at Bédarieux. After some eight or nine years he reappeared in Paris, with the ms. of his earliest novel, *Les Courbezon* (1862), in which he treated the daily business of country priests in the Cevennes. George Sand praised it, Sainte-Beuve hailed in its author "the strongest of the disciples of Balzac," and it was crowned by the French Academy. Fabre wrote about 20 novels. His masterpiece was *L'Abbé Tigrane, candidat à la papauté* (1873), a very powerful picture of unscrupulous priestly ambition. Others are: *Mon Oncle Célestin* (1881), a study of the entirely single and tender hearted country abbé; and *Lucifer* (1884), a marvellous gallery of serious clerical portraits.

In 1883 Fabre was appointed curator of the Mazarin library, with rooms in the Institute, where on Feb. 11, 1898, he died after a brief attack of pneumonia. Ferdinand Fabre was a "regional" novelist, dealing almost exclusively with the population of the mountain villages of Hérault, and particularly with its priests.

See J. Lemaître, *Les Contemporains* (1886–99) vol. ii.; G. Pellissier, *Études de littérature contemporaine* (1898); E. W. Gosse, *French Profiles* (1905).

FABRE, JEAN HENRI (1823–1915), French entomologist, was born of humble parents at St. Léons in Aveyron on Dec. 21, 1823. Having received an elementary classical education at Rodez and at the école normale of Vaucluse, he taught successively at Carpentras, at the college of Ajaccio, Corsica, and in 1852 at the lycée of Avignon. Meanwhile he had taken his doctor's degree in Paris and had discovered that his life-work was to be the study of the life-history, habits and instincts of insects, a study which became his sole occupation after his retirement to Sérignan in 1871. There he lived an extremely secluded life, absorbed in his study. He took no account of books, and all his work was based on direct observation. Although the ways of all insects interested him, his attention was given chiefly to the hymenoptera, coleoptera, orthoptera, as well as to spiders. Of the first, the wasps, with their skill in stinging their prey in the region of the nervous ganglia so as to paralyse it and preserve it living as food for their young, seemed to Fabre to show an intelligence irreconcilable with the theory of fixed habits. Other researches led him to oppose the theory of evolution. His incomparable observations, his deductions concerning the relation between the animal and the human mind, and between entomology and agriculture, are detailed in *Annales des sciences naturelles* (1855–58) and in the 10 vols. of *Souvenirs entomologiques* (1879–1907) (Eng. trans. by De Mattos, 1912 *sqq.*) which was crowned by the Institute of France. A member of many academies and scientific societies, Fabre died at Sérignan, Provence, on Oct. 11, 1915.

See A. Fabre, *Jean-Henri Fabre* (Eng. trans., 1921); C. V. Legros, *Fabre, Poet of Science* (Eng. trans., 1913); and P. F. Bicknell, *The Human Side of Fabre* (New York, 1923). *See* also BEE and INSECTS.

FABRE D'EGLANTINE, PHILIPPE FRANÇOIS NAZAIRE (1750–1794), French dramatist and revolutionist, was born at Carcassonne. His real name was simply Fabre, the "d'Eglantine" being added in commemoration of his receiving the golden eglantine of Clémence Isaure from the academy of the floral games at Toulouse. Of his plays *Philinte ou la suite du*

Misanthrope (1790), which professes to be a continuation of Molière's *Misanthrope*, is best remembered. The character of Philinte had much political significance. Alceste received the highest praise, and evidently represents the citizen patriot, while Philinte is a dangerous aristocrat in disguise. Fabre was president and secretary of the club of the Cordeliers, and belonged also to the Jacobin club. He was private secretary to Danton, and sat in the National Convention. He voted for the king's death, supporting the *maximum* and the law of the suspected, and he was a bitter enemy of the Girondins. He sat on the committee entrusted with the formation of the republican calendar, and to him was due a large part of the new nomenclature, with its poetic *Prairial* and *Floréal*, its prosaic *Primidi* and *Duodi*. On Jan 12, 1794, he was arrested by order of the committee of public safety on a groundless charge of malversation and forgery in connection with the affairs of the Compagnie des Indes. During his trial Fabre showed the greatest calmness and sang his own well-known song of *Il pleut, il pleut, bergère, rentre tes blancs moutons*. He was guillotined on April 5, 1794. On his way to the scaffold he distributed his manuscript poems to the people.

A posthumous play, *Les Précepteurs*, steeped with the doctrines of Rousseau's *Emile*, was performed on Sept. 17, 1794, and met with an enthusiastic reception. Among Fabre's other plays are *Convalescent de qualité* (1791), and *L'Intrigue épistolaire* (1791). In the latter play Fabre is supposed to have drawn a portrait of the painter Greuze.

The author's *Oeuvres mêlées et posthumes* were published at Paris, 1802, 2 vols. *See* A. Maurin, *Galerie hist. de la Révolution française*, tome II; J. Janin, *Hist. de la litt. dram.*; Chénier, *Tableau de la litt. française*, F. A. Aulard in the *Nouvelle Revue* (July 1885), D'Alméras, *Fabre d'Eglantine* (1905).

FABRETTI, RAPHAEL (1618–1700), Italian antiquary, was born in 1618 at Urbino in Umbria. He studied law at Cagli and Urbino, where he took the degree of doctor at the age of 18. He was treasurer and auditor of the papal legation in Spain, where he remained 13 years. By Innocent XII. he was made keeper of the archives of the castle St. Angelo, a charge which he retained till his death. He died at Rome on Jan. 7, 1700.

He wrote: *De Aquis et Aquae-ductibus veteris Romae* (1680), three dissertations on the topography of ancient Latium, printed also in Graevius's *Thesaurus*, iv. (1677); *De Columna Trajani Syntagma* (1683), and *Inscriptionum Antiquarum Explicatio* (1699).

See J. Lamius, *Memorabilia Italorum eruditione praestantium* (Florence, 1742–48).

FABRIANI, SEVERINO (1792–1849), Italian author and teacher, was born at Spilamberto, Italy, on Jan. 7, 1792. In consequence of complete loss of voice he resolved to devote himself to teaching deaf mutes, and founded a small school specially for them. This school the duke of Modena made into an institute, and a teaching staff of nuns was appointed. Fabriani's method of instruction is summed up in his *Logical Letters on Italian Grammar* (1847). He died on April 27, 1849.

FABRIANO, GENTILE DA: *see* GENTILE DA FABRIANO.

FABRIANO, a town and episcopal see of the Marches, Italy, province of Ancona, from which it is 44 m. S.W. by rail, 1,066 ft above sea-level. Pop. (1921) town 8,679, commune 25,209. It has been noted since 1276 for its paper mills. A number of the churches, several of which are of the 13th century, contain works by Allegretto Nuzi (1308–1385) and other local masters. His pupil, Gentile da Fabriano (1370–1427), was a painter of greater skill. The mediaeval Palazzo del Podestà (13th century) is picturesque, and there are other interesting buildings. The municipal picture gallery also contains an interesting collection of pictures. The Archivio Comunale contains documents on watermarked paper of local manufacture going back to 1293–94. Cement, pottery and vats are also made. A branch railway leads hence to Arbino (*q.v.*).

See A. Zonghi, *Antiche Carte-Fabrianesi*.

FABRICIUS, GAIUS LUSCINUS (*i.e.* "the one-eyed"), Roman general, was the first member of the Fabrician gens who settled in Rome. He migrated to Rome from Aletrium (Livy ix. 43). In 285 he was one of the [illegible] sent to the Tarentines to dissuade them from making war on the Romans. In 282 B.C. (when consul) he defeated the Bruttians and Lucanians, who had besieged Thurii (Livy, *Epit.* 12). After the defeat of the Romans by Pyrrhus at Heraclea (280), Fabricius was sent to treat for the ransom and exchange of the prisoners. All attempts to bribe him were unsuccessful, and Pyrrhus is said to have been so impressed that he released the prisoners without ransom (Plutarch, *Pyrrhus*, 18). In 278 Fabricius was elected consul for the second time, and was successful in negotiating terms of peace with Pyrrhus. Fabricius afterwards gained a series of victories over the Samnites, the Lucanians and the Bruttians, and on his return to Rome received a triumph. He died poor, and provision had to be made for his daughter out of the funds of the state (Val. Max. iv. 4, 10).

FABRICIUS, GEORG (1516–1571), German poet, historian, and archaeologist, was born at Chemnitz in upper Saxony on April 23, 1516, and educated at Leipzig. While travelling in Italy he studied the antiquities of Rome. He published the results in his *Roma* (1550), in which the correspondence between every discoverable relic of the old city and the references to it in ancient literature were traced in detail. In 1546 he was appointed rector of the college of Meissen, where he died, July 17, 1751.

Principal works; editions of Terence (1548) and Virgil (1551), *Poëmatum sacrorum libri xxv.* (1560); *Poëtarum veterum ecclesiasticorum opera Christiana* (1562); *De Re Poëtica libri septem* (1565), *Rerum Misnicarum libri septem* (1569); (posthumous) *Originum illustrissimae stirpis Saxonicae libri septem* (1597); *Rerum Germaniae magnae et Saxoniae universae memorabilium mirabiliumque volumina duo* (1609). A life of Georg Fabricius was published in 1839 by D. C. W. Baumgarten-Crusius, who in 1845 also issued an edition of Fabricius's *Epistolae ad W. Meurerum et alios aequales*, with a short sketch *De Vita Ge. Fabricii et de gente Fabriciorum; see* also F. Wachter in Ersch and Gruber, *Allgemeine Encyklopädie*.

FABRICIUS, HIERONYMUS AB AQUAPENDENTE (Fabrizio, Geronimo) (1537–1619), Italian anatomist and embryologist, studied at Padua, where he succeeded his master Fallopius, as teacher of anatomy and surgery, in 1562. Here his studies of the effect of ligatures and the valves in the veins influenced the discoveries of his famous pupil, William Harvey. Fabricius was greatest as a teacher; he failed to follow his own discoveries to their logical conclusion. Dr. C. Singer (*History of Medicine*, 1928) calls him the "effective founder of modern embryology." He died at Venice on May 21, 1619. His works include *De visione, voce et auditu* (1600), *De formato foetu* (1600), *De venarum ostiolis* (1603) and *De formatione ovi et pulli* (1621). His collected works were published at Leipzig in 1687 as *Opera omnia Anatomica et Physiologica*, but the Leyden edition, published by Albinus in 1738, is more complete.

FABRICIUS, JOHANN ALBERT (1668–1736), German classical scholar and bibliographer, was born at Leipzig. His father, Werner Fabricius, director of music in the church of St. Paul at Leipzig, was the author of several works, the most important being *Deliciae Harmonicae* (1656). Johann Albert studied under J. G. Herrichen and afterwards at Quedlinburg under Samuel Schmid. At Leipzig he published anonymously (1688) his first work, *Scriptorum recentiorum decas*, an attack on ten writers of the day. His *Decas Decadum, sive plagiariorum et pseudonymorum centuria* (1689) is the only one of his works to which he signs the name Faber. In 1693 he settled at Hamburg as librarian to J. F. Mayer. In 1696 he accompanied his patron to Sweden; and in 1699 succeeded Vincent Placcius in the chair of rhetoric and ethics, a post which he held till his death.

Fabricius is credited with 128 books, but very many of them were only books which he had edited. One of the most famed and laborious of these is the *Bibliotheca Latina* (1697, republished in an improved and amended form by J. A. Ernesti, 1773). The divisions of the compilation are—the writers to the age of Tiberius; thence to that of the Antonines; and thirdly, to the decay of the language; a fourth gives fragments from old authors, and chapters on early Christian literature. A supplementary work was *Bibliotheca Latina mediae et infimae Aetatis* (1734–36, supplementary volume by C. Schöttgen, 1746; edit. Mansi, 1754). His *chef-d'oeuvre* however is the *Bibliotheca Graeca* (1705–28 revised and continued by G. C. Harles 1790–18) a work

which has justly been denominated *maximus antiquae eruditionis thesaurus*. Its divisions are marked off by Homer, Plato, Christ, Constantine, and the capture of Constantinople in 1453, while a fourth section is devoted to canon law, jurisprudence and medicine. Of his remaining works we may mention: *Bibliotheca Antiquaria*, an account of the writers whose works illustrated Hebrew, Greek, Roman and Christian antiquities (1713); *Centifolium Lutheranum*, a Lutheran bibliography (1728); *Bibliotheca Ecclesiastica* (1734). His *Codex Apocryphus* (1703) is still considered indispensable as an authority on apocryphal Christian literature.

The details of the life of Fabricius are to be found in *De Vita et Scriptis J. A. Fabricii Commentarius* (Hamburg, 1737), by his son-in-law, H. S. Reimarus, the well known editor of Dio Cassius; *see* also C. F. Bahr in Ersch and Gruber's *Allgemeine Encyklopädie*, and J. E. Sandys, *Hist. Class. Schol.*, iii. (1908).

FABRICIUS, JOHANN CHRISTIAN (1745–1808), Danish entomologist and economist, was born at Tondern on Jan. 7, 1745. He studied at Altona and Copenhagen and at Uppsala under Linnaeus. In 1769, he lectured on political economy and in 1775 was appointed professor of natural history, economy and finance at Kiel. He died on March 3, 1808. It is as an entomologist that his memory survives, and for many years his great scientific reputation rested upon the system of classification which he founded upon the structure of the mouth-organs instead of the wings.

A list of his entomological publications in Hagen's *Bibliotheca Entomologiae*; the following are the chief: *Systema Entomologiae* (1775); *Genera Insectorum* (1776); *Philosophia Entomologica* (1778); *Species Insectorum* (1781); *Entomologia Systematica* (1792–1794), with a supplement (1798); *Systema Eleutheratorum* (1801). In the *Transactions of the Entomological Society of London* (1845), 4, his autobiography is translated from the Danish.

FABRITIUS, CAREL (1624?–1654), Dutch painter. The date and place of his birth is unknown. From a description of Delft dated 1667, wherein it is said that the master was killed in an explosion at Delft on Oct. 12, 1654, and that he was then about 32 years of age we learn that he must have been born about 1624. He was a pupil of Rembrandt, and he appears as a serious and cultivated artist in the conversation on art of Rembrandt's pupils which is reported by Hoogstraten. In 1650 he married Agathe van Pruyssen, a widow in Delft, and in 1652 he entered the painters' guild in that city. He was a master of the first rank, an independent spirit who did not lose his own individuality while studying under the great Rembrandt. He seems to have first established a reputation in painting mural decorations with views of architecture in perspective. But of these works nothing remains. However, the pictures which are still extant show an artist of great power.

The earliest work is the half-length portrait of Abraham de Notte in the Rijks museum at Amsterdam. It is dated 1640 and is the work of a mature artist. A portrait of a man in the museum at Rotterdam was attributed to Rembrandt until the signature of Fabritius was discovered. The National Gallery, London, has a splendid half-length portrait of a soldier. In the same collection is the picture of "A musical instrument dealer with a view of Delft." The museum at Schwerin contains "The sentinel," dated 1654, and the Ferdinandeum at Innsbruck the picture of "Tobias and his wife." In the Mauritshuis at The Hague is the famous "Goldfinch," signed and dated 1654. In distinction to Rembrandt, whose figures emerge modelled by the action of light from a dark background, the figures of Fabritius are silhouetted against a light background, a scheme which was adopted and developed by Fabritius's great pupil, Vermeer.

See Hofstede de Groot, *Catalogue of Dutch Painters* (1902).

FABRIZI, NICOLA (1804–1885), Italian patriot, was born at Modena on April 4, 1804. He took part in the Modena insurrection of 1831, and attempted to succour Ancona, but was arrested at sea and taken to Toulon, whence he proceeded to Marseilles. Afterwards he organized with Mazzini the ill-fated Savoy expedition. Taking refuge in Spain, he fought against the Carlists, and was decorated for valour on the battlefield (July 18, 1837). At the end of the Carlist war he established a centre of conspiracy at Malta, endeavoured to dissuade Mazzini from the revolution of 1848. He took part in the defence of Venice and of San Pancrazio. Upon the fall of Rome he returned to Malta, accumulating arms and stores, which he conveyed to Sicily, after having, in 1859, worked with Crispi to prepare the Sicilian revolution of 1860. While Garibaldi was sailing from Genoa towards Marsala Fabrizi landed at Pizzolo, and, after severe fighting joined Garibaldi at Palermo. Under the Garibaldian dictatorship he was appointed governor of Messina and minister of war. Returning to Malta after the Neapolitan plebiscite, which he had vainly endeavoured to postpone, he was recalled to aid Cialdini in suppressing brigandage. While on his way to Sicily in 1862, to induce Garibaldi to give up the Aspromonte enterprise, he was arrested at Naples by Lamarmora. During the war of 1866 he became Garibaldi's chief of staff, and in 1867 fought at Mentana. In parliament he endeavoured to promote agreement between the chiefs of the Left, and from 1878 onwards worked to secure the return of Crispi to power, but died on March 31, 1885, two years before the realization of his object. His life was characterized by ardent patriotism and unimpeachable integrity. (H. W. S.)

FABROT, CHARLES ANNIBAL (1580–1659), French jurisconsult, was born at Aix in Provence on Sept. 15, 1580. He translated the *Basilica* (1647, 7 vols.) and edited the works of Cujas. He died at Paris on Jan. 16, 1659.

FABYAN, ROBERT (d. 1513), English chronicler, belonged to an Essex family, members of which had been connected with trade in London. He married Elizabeth Pake, by whom he had a large family. He was a member of the Drapers' Company, and served as sheriff in 1493–94. In 1496 he was one of those appointed to make representations to the king on the new impositions on English cloth in Flanders. Next year he was one of the aldermen employed in keeping watch at the time of the Cornish rebellion. He resigned his aldermanry in 1502, and spent his latter years on his estate in Essex. He died on Feb. 28, 1513.

Fabyan's Chronicle was first published by Richard Pynson in 1516 as *The new chronicles of England and of France*. In this edition it ends with the reign of Richard III., and this probably represents the work as Fabyan left it, though with the omission of an autobiographical note and some religious verses, which are first found in the second edition, printed by John Rastell in 1533 with continuations down to 1509. A third edition appeared in 1542, and a fourth in 1559 with additions to that year. The only modern edition is that of Sir Henry Ellis, 1811. There is evidence that Fabyan had continued his Chronicle to 1511, but no trace of the manuscript can now be found.

Fabyan's own merits are little more than those of an industrious compiler, who strung together the accounts of his different authorities without any critical capacity. Nevertheless he deserves the praise which he has received as an early worker, and for having made public information which through Hall and Holinshed has become the common property of later historians, and has only recently been otherwise accessible. Bale alleges that the first edition was burnt by order of Cardinal Wolsey because it reflected on the wealth of the clergy; this probably refers to his version of the Lollards bill of 1410, which Fabyan extracted from one of the London Chronicles.

See further Ellis' *Introduction;* W. Busch, *England under the Tudors* (trans. A. M. Todd, 1895), i. 405–410; and C. L. Kingsford *Chronicles of London*, pp. xxvi.–xxxii. (1905).

FAÇADE, an architectural term signifying the external face of a building, especially applied to the principal front.

FACCIOLATI, JACOPO (1682–1769), Italian philologist, was born at Torriglia, near Padua, on Jan. 4, 1682. As professor of logic, and regent of the schools, Facciolati was the ornament of the Paduan university for 45 years. His *magnum opus* is the *Totius Latinitatis Lexicon*, which was ultimately published at Cardinal Priole's expense, 4 vols. fol., Padua, 1771 (revised ed. by de Vit, 1858–87). In the compilation of this work the chief burden seems to have been borne by Facciolati's pupil Forcellini. It has been said that the whole body of Latinity, if it were to perish, might be restored from this lexicon. In 1808 a volume containing nine of his *Epistles* was issued at Padua.

but aided Crispi in the Sicilian

See J. E. Sandys, *Hist. Class. Schol.* (1908).

FACE, a word used as noun or verb whose various meanings of surface, front, expression of countenance, look or appearance, are derived from its application to the exterior of the front of the head, from the top of the forehead to the point of the chin, and from ear to ear (*see* ANATOMY: *Superficial and Artistic;* and PHYSIOGNOMY).

FACE CREAMS are the basis of most modern systems of caring for the skin. Normally, the oil glands which lie in the lower layers of the skin secrete a natural lubricant which escapes from the thousands of pores and spreads out over the surface. Its purpose is to keep the skin smooth and soft, supple and waterproof. However, the conditions of modern life—faulty diet, lack of exercise, living in super-heated houses surrounded by excessively dry air—serve to upset the functioning of the skin's lubricating system. Dry skin and early fine lines resulting from this parched condition are characteristic of the skin of this era To counteract this dryness, specialists recommend face creams, whose purpose it is to supply the lack of natural lubricant in the skin. These creams are to be applied by means of massage. They soften the horny surface layer of the skin, and render the skin smooth and supple. There is much discussion between dermatologists and beauty specialists as to whether or not the skin cells actually assimilate these creams presented externally. But their use does improve the appearance of the skin and prevent and correct fine lines and wrinkles, and so the discussion may be left in the realm of science. The thousands of advertised face creams fall into several general classes.

A *cleansing cream* is generally a cream of very light consistency, containing no waxy ingredients It is intended to be used as a cleansing agent for the face and neck (to supplement, or supplant, the use of soap and water on the face). This should be a cream which melts at skin temperature, so that it can be smoothed easily over the skin. It should pick up dust, powder and impurities on the skin, without the necessity of deep massage movements. It should be made of oils which are not readily absorbed by the skin; otherwise the impurities might be absorbed with the cream. A cleansing cream softens and removes heavier grease on the skin and melts down impurities which clog the pores.

A *massage cream* is variously named a "tissue cream," "muscle-building cream," "skin food," "face moulding cream," by the several makers of creams of this type. It is a heavier cream than the cleansing cream; it is designed as a medium for massaging, patting, moulding and manipulating the muscles to increase circulation in the face and neck. It is made of oils which are absorbed by the skin, for its purpose is to round out the tissues and prevent or correct wrinkles. Cosmetic specialists disagree as to the relative merits of mineral, vegetable and animal fats as ingredients for supplying the needs of the skin. Vegetable and animal fats may perhaps be absorbed more readily, but they have the disadvantage of turning rancid if left on the skin for several hours (as over night), and releasing fatty acids in the pores which pave the way for pimples and other skin infections.

A *vanishing cream* is a cream which literally vanishes as it is smoothed on the skin. It has generally a soap base. It smooths out rough patches and leaves a soft bloom which makes a becoming and lasting base for powder and make-up. Its use prevents rouge from entering the pores. There are, in addition, other types of cream represented on the market. A "rolling cream" is made of casein base. "Astringent creams" are designed for their refining action on the pores. Many liquid creams are actually creamy lotions containing glycerine, gum tragacanth, benzoin or other emollients. (D. Co.)

FACE VALUE. Term describing the nominal value borne upon the face of stock or share certificates, loans, debentures, bank-notes, etc., indicating the value at which they are issued, or par value. The real or market value may be very different from the face value; if higher, a premium is said to exist; if lower, the security or sum thus stated in the face value is then at a discount.

FACILITATION, a term used in neurology to designate the favourable influence exerted over a conduction path by the passage of an impulse having an identical end-effect with the impulse favoured. This facilitation of one nerve impulse by another may be successive or simultaneous. Activation of any reflex path leaves that path in a more favourable "set" for subsequent repetitions of the same response. Subliminal stimuli, simultaneously applied, may facilitate one another sufficiently to produce an overt response, if these impulses are allied in a final common path Facilitation probably occurs at the synapse. The facilitating influence exercised by one impulse on another is generally known as "bahnung."

See C. S. Sherrington, *Integrative Action of the Nervous System*

FACING BRICK: *see* BRICK

FACTION, a term commonly employed, especially in the 18th century, to denote a group of partisans who set the aims of themselves and their party before the public welfare. It bears a more technical sense in Roman and Byzantine history, there denoting the factions of the circus and hippodrome which played a prominent part in politics both at Rome and Constantinople The *factiones* were properly the four companies into which the charioteers were divided, and were distinguished by the colours they wore. Originally at Rome there were only two, white (*albata*) and red (*russata*), when each race was open to two chariots only, on the increase to four, the green (*prasina*) and blue (*veneta*) were added. At Constantinople the last two absorbed the red and white factions

See Gibbon, *Decline and Fall,* ch. xl ; and J. B Bury's *Appendix* 10 in vol. iv. of his edition (1898), for a discussion of the relationship between the *factiones* and the demes of Constantinople.

FACTOR, strictly "one who makes;" thus in ordinary parlance, anything which goes to the composition of anything else is termed one of its "factors," and in mathematics the term is used of those quantities which, when multiplied together, produce a given product. In a special sense, however—and that to which this article is devoted—"factor" is the name given to a mercantile agent (of the class known as "general agents") employed to buy or sell goods for a commission. When employed to sell, the possession of the goods is entrusted to him by his principal, and when employed to buy it is his duty to obtain possession of the goods and to consign them to his principal. In this he differs from a *broker* (*q.v.*), who has not such possession, and it is this distinguishing characteristic which gave rise in England to the series of statutes known as the Factors Acts. By these acts, consolidated and extended by the act of 1889, third parties buying or taking pledges from factors are protected as if the factor were in reality owner; but these enactments have in no way affected the contractual relations between the factor and his employer, and it will be convenient to define them before discussing the position of third parties as affected by the act.

FACTOR AND PRINCIPAL

A factor may be appointed or he may be dismissed in the same way as any other agent. He may be employed for a single transaction or to transact all his principal's business of a certain class during a limited period or till such time as his authority may be determined. It does not matter that a factor carries on a separate business on his own account, either of the same kind as that in which he is employed as factor, or of some other kind A factor's duty is to sell or buy as directed; to carry out with care, skill and good faith any instructions he may receive; to receive or make payment; to keep accounts and to render them to his principal regularly, or when requested to do so, and to hand over to his principal the balance standing to his principal's credit, without any deduction save for commission and expenses. A factor is bound to account for any moneys he receives for his principal, and if between receiving it and paying it over, the money is lost (as for instance if the factor deposited it with a banker who became insolvent), the loss must be borne by the factor. All express instructions he must carry out to the full, and generally speaking literally, provided they do not involve fraud or illegality, but under circumstances of emergency he may deviate from his instructions (as for instance when goods are perishing) and if in so doing he exercises reasonable and proper skil and care he will not be liable for any loss there may

[illegible] act bona fide and to the best of his skill and judgment, and he is bound to follow the usual practice of his particular business and any usages of the trade which may exist if not inconsistent with his instructions or his position as factor or unless, to a man of ordinary prudence, it would be manifestly disadvantageous to his employer's interests to do so. Many usages of businesses in which factors are employed have been proved in court, and may now be regarded as legally established. For instance, he may, unless otherwise instructed, sell in his own name, and (apart from any express limit) at such price as to the best of his judgment he thinks proper, give warranties as to goods sold by him, sell by sample (in most businesses), give such credit as is usual in his business, receive payment in cash or as customary, and give receipts in full discharge, sell by indorsement of bills of lading and insure the goods. He is not bound to insure goods unless to do so is according to the course of business with his principal. If he does effect an insurance he must see that all necessary risks are covered, satisfy himself as to the solvency of the underwriters, and disclose to them all material facts relating to the risk to be undertaken by them. It is his duty to clear the goods at the customs, take charge of them and keep them as safely as reasonable care and diligence will permit; give such notices to his principal and others as may be required, and in particular give punctual notice to his principal of all matters by which the rights or interests of the principal may be affected, as for instance the insolvency of a customer, or failure to effect an insurance, and if necessary take legal proceedings for the protection of the goods. On the other hand, he has not authority to delegate his employment, unless by usage of the trade or by express permission, or to barter, or to accept or negotiate bills of exchange except by authority of his principal and as between himself and his principal he has no right to pledge the goods, although as between the principal and the pledgee, an unauthorized pledge made by the factor may by virtue of the Factors Act 1889 be binding upon the principal. In the same way a factor has of course no right as between himself and his principal to sell goods in contravention of his principal's instructions, although as between his principal and the purchaser the sale may be binding upon the principal. It is, moreover, inconsistent with the factor's employment as agent that he should buy or sell on his own account from or to his principal.

On the due performance of his duties the factor is entitled to his commission, which is usually a percentage on the value of the goods sold or bought by him on account of his principal, regulated in amount by the usages of each business or by express agreement. Failing that, or any usage in the trade, the factor is entitled to a "reasonable" sum as commission. Sometimes the factor makes himself personally responsible for the solvency of the persons with whom he deals, in order that his principal may avoid the risk entailed by the usual trade credit. In such a case the factor is said to be employed on *del credere* terms, and is entitled to a higher rate of commission, usually 2½% extra. Such an arrangement is not a contract of guarantee within the Statute of Frauds, and therefore need not be in writing. Besides his remuneration, the factor is entitled to be reimbursed by his principal for any expenses, and to be indemnified against any liabilities which he may have properly incurred in the execution of his principal's instructions. He cannot as a rule recover for any expenditure which is not expressly or impliedly covered by his instructions but he may do so in case of emergency if it is reasonable and in his employer's interests. For the purpose of enforcing his rights a factor has, without legal proceedings, two remedies. First, by virtue of his general *lien* (*q.v.*) he may hold any of his principal's goods which come lawfully to his hands in the course of his agency as security for the payment to him of any commission, out-of-pocket expenses, or even general balance of account in his favour, and in virtue of his particular lien he may hold any particular chattel in respect of which he has incurred expense. He may not sell the goods unless they have been entrusted to him for sale, in which case he may sell and claim a lien on the price [illegible] pledge the goods to the extent of his lien but no further and exercise a lien on the money so raised and by virtue of the Factors Acts the principal will not be able to recover the goods from the pawnbroker except by discharging the advance made by him. The lien is lost if the goods are improperly sold or pledged or the possession of them is parted with, or the factor takes security from his principal for the debt, or enters into any special arrangement with him, such as to give him credit. Secondly when by contracting in his own name he has rendered himself personally liable to pay for goods he has bought for his principal and where he has consigned goods to his principal but not been paid, he may *"stop in transit"* subject to the same rules of law as an ordinary vendor; that is to say, he must exercise his right before the transit ends, and his right may be defeated by his principal transferring the document of title to the goods to some third person, who takes it in good faith and for valuable consideration (Factors Act 1889, and Sale of Goods Act 1893, s. 47). If the factor does not carry out his principal's instructions, or carries them out so negligently or unskilfully that his principal gets no benefit thereby, the factor loses his commission and his right to reimbursement and indemnity. If by such failure or negligence the principal suffers any loss, the latter may recover it as damages. So too if the factor fails to render proper accounts his principal may by proper legal proceedings obtain an account and payment of what is found due, and threatened breaches of duty may be summarily stopped by an injunction. "An action will of course lie against a *del credere* agent for the price of goods sold to a purchaser who has failed to make payment." Criminal acts by the factor in relation to his principal's goods are dealt with by ss. 20 and 22 of the Larceny Act 1916.

PRINCIPAL AND THIRD PARTY

The rights of a third party as regards the power of a factor to bind his principal have been well-established at common law and amplified in the provisions of a special act.

(*a*) *At Common Law.*—The actual authority of a factor is defined by the same limits as his duty, the nature of which has been described; *i.e.*, firstly, by his principal's express instructions, secondly, by the rules of law and usages of trade, in view of which those instructions were expressed. But his power to bind his principal as regards third parties is often wider than his actual authority; for it would not be reasonable that third parties should be prejudiced by secret instructions, given in derogation of the authority ordinarily conferred by the custom of trade, and, as regards them, the factor is said to have *"apparent"* or *"ostensible"* authority, or to be *held out* as having authority to do what is customary, even though he may in fact have been expressly forbidden so to do by his principal. But this rule is subject to the proviso that if the third party have notice of the factor's actual instructions, the "apparent" authority will not be greater than the actual. "The general principle of law," said Lord Blackburn in the case of *Cole* v. *North-Western Bank*, 1875, L.R. 10, C.P. 363, "is that when the true owner has clothed any one with apparent authority to act as his agent, he is bound to those who deal with the agent on the assumption that he really is an agent with that authority, to the same extent as if the apparent authority were real." Under such circumstances the principal is for reasons of common fairness precluded, or in legal phraseology, *estopped*, from denying his agent's authority. On the same principle of estoppel, but not by reason of any trade usages, a course of dealing which has been followed between a factor and a third party with the assent of the principal will give the factor apparent authority to continue dealing on the same terms even after the principal's assent has been withdrawn; provided that the third party has no notice of the withdrawal.

Such apparent authority binds the principal both as to acts done in excess of the actual authority and also when the actual authority has entirely ceased. For instance, A. B. receives goods from C. D. with instructions not to sell below 1s. per lb.; A. B sells at 10½d., the market price; the buyer is entitled to the goods at 10½d. because A B had apparent authority although he exceeded his actual authority. On the [illegible] principle the buyer would get a good title by buying from A B goods e[illegible] to

h m by C D even though at the time of the sale C D had revoked A B s author y and nstructed him not to sell at all In either case he factor is he d out as having author ty to sell and the principal cannot afterwards turn round and say that his factor had no such authority. As in the course of his business the factor must necessarily make representations preliminary to the contracts into which he enters, so the principal will be bound by any such representations as may be within the factor's actual or apparent authority to the same degree as by the factor's contracts.

(*b*) *Under the Factors Act, 1889.*—The main object of the Factors Acts, in so far as they relate to transactions carried out by factors, has been to add to the number of cases in which third parties honestly buying or lending money on the security of goods may get a good title from persons in whose possession the goods are with the consent, actual or apparent, of the real owners, thus calling in aid the principle of French law that "*possession vaut titre*" as against the doctrine of the English common law that "*nemo dat quod non habet.*" As regards sales by factors and the title which purchasers thereby acquire against the principal, the Factors Acts are mainly declaratory of the common law as stated above, but with this difference, that whereas at common law it was always an open question of fact to be determined by the court whether the principal had in truth held out his agent as having authority to effect the sale, the effect of the Factors Acts is that the principal is *deemed* to have authorized the agent by the fact of entrusting him with the goods. Under the act of 1889 it can be put even higher, and the agent is deemed to have authority by the mere fact of having the goods in his possession with the owner's consent, although there is no evidence of the owner having actually 'entrusted' them to him; the owner's 'consent' being presumed in the absence of evidence to the contrary. (*Oppenheimer* v. *Attenborough*, 1908, 1 K.B. 221, C.A.; *Oppenheimer* v. *Frazer and Wyatt*, 1907, 2 K.B. 50, C.A.) The chief change, however, in the law relating specially to factors has been to put pledges by factors on the same footing as sales, so as to bind a principal to third parties by his factor's pledge as by his factor's sale. The Factors Act 1889 in part re-enacts and in part extends the provisions of the earlier acts of 1823, 1825, 1842 and 1877. Its most important provisions concerning sales, pledges and other dispositions by factors are as follows:—

Section II., s.s. 1. Where a mercantile agent is, with the consent of the owner, in possession of goods or of the documents or title to goods, any sale, pledge or other disposition of the goods made by him when acting in the ordinary course of business of a mercantile agent shall, subject to the provisions of this act, be as valid as if he were expressly authorized by the owner of the goods to make the same; provided that the person taking under the disposition acts in good faith, and has not at the time of the disposition notice that the person making the disposition has not authority to make the same.

2. Where a mercantile agent has, with the consent of the owner, been in possession of goods or of the documents of title to goods, any sale, pledge or other disposition which would have been valid if the consent had continued shall be valid notwithstanding the determination of the consent; provided that the person taking under the disposition has not at the time thereof notice that the consent has been determined.

With regard to these provisions the following points should be noticed: (i.) the term 'notice' is stated by Chalmers (*Sale of Goods Act*, 10th ed. p. 166) to mean probably 'actual though not formal notice: that is to say, either knowledge of the facts or a suspicion of something wrong, combined with a wilful disregard of the means of knowledge.' The onus of proving good faith and want of notice is on the purchaser of the goods. (ii.) The 'consent' of the owner to the factor's possession of the goods is to be presumed in the absence of evidence to the contrary (s. 2, s.s. 4 of the Factors Act 1889). (iii.) Although the Factors Act may operate to make an unauthorized sale or pledge by a factor good as between principal and third party, nothing in the act makes such a sale or pledge good as between principal and factor, or operates to exempt the factor from civil or criminal liability s 1 ss 1 of the Factors Ac 1889) (v) In order that s s 1 and 2 of the Factors Act 1889 (quoted abo e) may apply and a sale pledge or o he d po ion by he fac or be good as between principal and third party, it is necessary that the goods should have been in the possession of the factor *in his capacity as such*, and not in some other capacity. If, for instance, a factor also carries on business as a warehouseman, and goods are entrusted to him not in his capacity as factor, but in his capacity as warehouseman, and solely to be warehoused, any disposition of the goods by him will not be covered by the Factors Act.

Enforcement of Contracts.—1. Where a factor makes a contract in the name of his principal and himself signs as agent only he drops out as soon as the contract is made, and the principal and third party alone can sue or be sued upon it. As factors usually contract in their own name this is not a common case. It is characteristic of brokers rather than of factors.

2. Where a factor makes a contract for the principal without disclosing his principal's name, the third party may, on discovering the principal, elect whether he will treat the factor or his principal as the party to the contract; provided that if the factor contract expressly as factor, so as to exclude the idea that he is personally responsible, he will not be liable. The principal may sue upon the contract, so also may the factor, unless the principal first intervene.

3. Where a factor makes a contract in his own name without disclosing the existence of his principal, the third party may, on discovering the existence of the principal, elect whether he will sue the factor or the principal. Either principal or factor may sue the third party upon the contract. But if the factor has been permitted by the principal to hold himself out as the principal, and the person dealing with the factor has believed that the factor was the principal and has acted on that belief before ascertaining his mistake, then in an action by the principal the third party may set up any defences he would have had against the factor if the factor had brought the action on his own account as principal.

4. Where a factor has a lien upon the goods and their proceeds for advances made to the principal it will be no defence to an action by him for the third party to plead that he has paid the principal, unless the factor by his conduct led the third party to believe that he agreed to a settlement being made with his principal.

5. The factor who acts for a foreign principal will always be personally liable unless it is clear that the third party has agreed to look only to the principal, and equally the factor may always sue on the contract.

6. If a factor contract by deed under seal, or draws, accepts, or indorses a bill of exchange or promissory note, he alone can sue or be sued upon the contract. (L. Sc.)

See J. Story, *Commentaries on the Law of Agency* (Boston, 1882), H. F. Boyd and A. B. Pearson, *The Factors Acts 1823 to 1877* (1884); P. T. Blackwell, *The Law relating to Factors* (1897); also Mechem, *Agency* (2d ed., 1914); Williston, *Sales* (2d. ed., 1924); Weld, *Marketing of Farm Products* (1914).

United States.—In only a few particulars does the American law differ from the English as set forth above, notably in regard to the Factors Act 1889. About eight American States—chiefly on the seaboard—have Factors Acts, and those Acts are hardly so far-reaching in their effects as the English, so that in general it is not law in the United States that a factor can effectively pledge his principal's goods—beyond the extent of his own interest by virtue of advances made to his principal—to secure his own debts. There is, however, an important qualification of the rule, derived from the widespread adoption of the uniform commercial Acts. Under the Sales Act (27 States) and in some additional States, without that Act, the factor (or any other person to whom an owner has entrusted a bill of lading running to order, and properly endorsed) can effectively pledge or sell the document, and so the goods represented by the document although he does so in breach of duty; and under the Federal Bills of Lading Act the rule holds as well for all order bills of lading arising out of inter-State shipments. Moreover under the Warehouse Receipts Act (45

... the same holds as to goods covered by warehouse receipts running to order. This is not true of documents which lack the ... order" or "negotiable," nor as to transactions involving ... in specie; but since most (not all) such attempted pledges ... such order documents, the old rule has been very substantially impaired.

The factor appears in the United States chiefly under the commercial designation "commission man"; goods sent to a factor, large or small, are commonly said to be shipped "on consignment," as distinguished from shipment pursuant to a contract for sale. ... the main, such a commission man is a feature of a central market to which sellers, especially of raw materials, are shipping: so ... especially agricultural produce such as fruits and vegetables, or ... cotton, coffee, live stock, etc. Factorage here serves as an alternative to the middle man who goes about among growers buying up ... produce in advance. Both ways of dealing presuppose a seller who is relatively weak financially: hence the importance of factors' advances to their principals, and of factors' liens.

It should be noted that wherever the factor attains great financial power—as, in the United States, particularly in some phases of importing and in the merchandising of textiles—he tends to develop into a peculiar and specialized type of commercial (and even investment) banker, whose loans are limited to the one specific field in which he is skilled; whose earnings include commissions on his own selling of the merchandise delivered to him as security; and whose banking assets are not recruited by deposits, so as to subject him to State control.

Along another line the factor, being located in a central market and becoming skilled in its operations, tends to branch out into independent trading—as do similarly situated brokers. Hence at times a conflict of interest between himself and his principals, as to whose goods shall get sold on a falling or fluctuating market; hence also some of those financial involvements which raise the question of how far the factor has power to pledge away his principal's goods; hence, finally, occasional legislation aimed at control of the commission man's business in the interest of his principals.

(K. N. L.)

FACTORS OF PRODUCTION. In economics, the four factors which together are necessary to the production of wealth. These are land, capital, labour and organisation (*see* AGENTS OF PRODUCTION).

FACTORY ACTS: *see* LABOUR LAW.

FACTORY CONSTRUCTION AND PLANNING. The selection of the site and the design of factory buildings are vital economic factors in manufacture, as they contribute seriously to the cost of production, not only on account of the initial outlay of capital required, but because of their influence on efficient production. The elimination of waste, whether of material, time or effort, is the chief feature of all manufacturing, and the design of factory buildings plays its part in this elimination.

The haphazard methods of erecting factory buildings are passing and more systematic consideration is being given to their planning and erection, though even at the present time more effort is devoted to providing good machinery than good, suitable buildings. The factors most largely influencing the design of factory buildings are large scale and standardized production; factory legislation, both government and local; building by-laws; insurance conditions and the welfare of the employees.

Regarding the actual design and building of factories, the determining factor is naturally the character of the product, but certain general considerations apply whatever the product. The architect of every new factory should make himself thoroughly familiar with the processes and products of the factory before attempting his design, which should be made with a view to meeting adequately the future needs of the industry which, under favourable conditions, will naturally expand, especially as the present-day tendency is towards amalgamations and the formation of large corporations. One of the best ways of providing for this contingency is to design all buildings on the principle of suitable standardized units which can be increased as necessity arises. These units should [illegible] a complete [illegible], but should be so arranged as to make future possible without interfering with the existing business.

Selection of Site.—The effect of location is common to all factory design, and in selecting a site all the following should be taken into account:—

Nearness to raw material supply is an important factor where raw materials are bulky and cheap, but as the bulk decreases and the value increases this factor becomes less important. It is necessary to study the convenience of existing railway lines, freightage, etc. Proximity to a canal is not the important feature it was formerly. The contour of the land should be studied, not only in so far as it presents a suitably level site for building purposes, but also in relation to canals, railways and other means of transport.

The supplies of electricity, gas and water are all important considerations, especially where, as in the case of some industries, enormous quantities of any one are needed, as, for example, in the pulp and paper industry, which requires a vast amount of water; or where the cost of power represents a large part of the ultimate cost of the product. The climate is an important factor in certain industries, as, for example, in the textile industry, where a humid atmosphere is necessary; though in this case it is becoming less important than formerly because the humidity can be controlled artificially.

Suitable Labour Supply.—Where the necessary labour supply is of the unskilled type this is not an important factor, but where skilled labour is essential it is necessary to locate the industry in a district where training and heredity have developed the required type. Skilled labour is not so migratory as unskilled on account of social and family attachments, etc.

Room for Expansion.—It would, of course, be futile to place a factory in a crowded and congested area where there is no space for expansion. The present tendency is for factories to be built on the outskirts of existing industrial areas because here (providing transport facilities are satisfactory, which is not always the case) land is usually cheaper, taxation lower and working conditions better than in the towns. It is, however, difficult to induce labour that is accustomed to town life to migrate to country districts and this, coupled with the housing question (*see* HOUSING), may be an important factor operating against an otherwise ideal site. Further, some industries may be dangerous or offensive and these must be located well away from congested areas.

Other Factors.—Capital available for investment, laws affecting the tenancy of land, sewage, floods, drinking water supply, etc., are all important points to consider in the selection of a site.

Types of Factory Building.—The type of building erected for a factory depends entirely on the product to be manufactured, and the architectural form is dominated by this factor, and, in the majority of cases, by the great need for economy; but an attractive looking plant has a marked effect on employees, and has an advertising value.

Main Types.—There are, in general, three main types of factory building:—

1. The single story building of the weaving-shed type, having a saw-toothed roof consisting of a series of unequally inclined ridges, glazed usually only on the north side, which permits of uniform lighting without shadows. In the single story type when the site does not permit of north lighting, the ridges, which must be equally inclined, can be glazed on both sides. This type is not well adapted for overhead shafting, cranes, etc.

2. The one-story building with large truss spans, provided with accommodation for travelling cranes, etc. This is the foundry, forge and machine shop type and is suitable for medium and heavy work.

3. Multi-story buildings for all kinds of manufacture and storage, except in the case of the heaviest industries.

Naturally, each type has its advantages and disadvantages and must be considered in relation to the product of the factory; but generally, when cost of land is not prohibitive and the product is bulky, the natural choice would be towards a one-story building. Each of these three types of building permits of a construction of any one of the following kinds:

(*a*) Timber and [illegible]ry known as Mill construction."

(*b*) Steel framework.
(*c*) Reinforced concrete.

Whatever type of construction is employed, the predominating necessity is "fireproofness." In the event of a fire, although the actual amount of material damage is recoverable by insurance, the loss through disorganization is not recoverable, and frequently is so overwhelming as to prevent ultimate reorganization.

Mill Construction.—Mill construction is of various types, but in the main, the outside walls are of masonry, the floors of wood, and the roofs, posts, joists and girders of wood or metal. Where much timber is involved the great disadvantage of this type, which for other than heavy work is in other respects satisfactory, is that for fire-resisting purposes it cannot be recommended. This type of building is seldom used for heights of more than six floors on account of its lack of lateral stability, which is chiefly dependent on the masonry of the walls, and which, if developed to any height, would require to be supported by excessive-sized pillars and increased thickness in the lower stories. The adoption of this type of building is getting less and less.

Steel Framework.—Buildings of this type were made possible by the introduction of the Bessemer process of steel manufacture. Here rolled steel structural members are used and filled in with walls, floor and roof, etc. The steel members are riveted or bolted together. Where long spans without support are necessary, steel framework is essential, and it is also necessary in the case of high walls exposed to wind pressure and to the lateral forces of moving cranes. Steel framework buildings are not fireproof because exposed steelwork twists and buckles when subject to intense heat, thus wrecking the building more quickly than the fire itself. If the structural steel framework is encased in fire-resisting material such as concrete, it is admirably suitable for the interior of a factory (*see* FERRO-CONCRETE).

Reinforced Concrete.—Buildings of this material have come to be recognized as one of the standard types for industry. The material is classed as "fireproof" and will stand the destructive effects of fire as well as any material. It is not usually damaged beyond repair by fire, and seldom, if ever, destroyed. It is a particularly durable material, and its durability improves with age. It is particularly well suited for multi-story buildings containing vibrating machinery or machines with heavy reciprocating parts. "Daylight factories" giving the maximum of natural lighting have come into vogue with reinforced concrete because columns or pillars may be more slender and the steel framework windows which are used give an increased lighting area. In cases where the floor load is higher than 200 lb. per sq.ft., reinforced concrete buildings are cheaper than those of mill construction.

Reinforced concrete buildings have developed almost entirely since 1910. The first line of development was along the form of beam and girder construction, but now the flat slab method of flooring is used, especially in cases where the live load is 150 lb. or more per square foot. For lighter loads, the development has been towards the long span joist construction with a filler of metal, tile, terra-cotta or gypsum block, which reduces dead load and saves concrete.

Details of Construction.—*Foundations*.—In choosing a site an important point is that of levels, and a site poor in this respect purchased at a low figure may eventually prove a most costly one. It is also important to have full knowledge of any mineral workings going on, or likely to go on, as these might cause subsidence. The foundations of buildings which are to house heavy machinery must be ample enough to absorb vibration, and in the case of such implements as the steam and power hammer, or jarring machinery for foundries, the foundations should be entirely separate from all building structures or their foundations. It is important to choose a site where there exists a good subsoil of clay or rock, otherwise the expense of piling or rafting might make the cost of the buildings very high or even prohibitive.

Floors.—These should be designed to provide facilities for future changes, especially if they are of reinforced concrete, and ducts should be arranged to accommodate pipes, etc Conduits should be properly placed and openings provided for belts, shafting and other accessories properly protected. Where apparatus must be taken through floors, ample openings and trap doors or removable floor slabs are essential. Floors formed of concrete and merely spade-finished are unsuitable, and their durability should be increased by some form of floor-hardener or by the application of paving. Pavings are of many kinds, metallic, granolithic, cemented, of fir boarding laid on battens, pitchpine boarding, bricking, maple boarding, rock asphalt, wood blocks, etc. Each of these types has its advantages and disadvantages, some being unsuitable on account of dust, others on account of the discomfort to workers, and every building requires separate consideration. Floor areas must be laid out so as to avoid the conflict of travel in opposite directions and to permit of easy transport.

Lighting.—Windows, while no more expensive in initial outlay than walls, are an expensive item in upkeep, and with a large area of glazing the size of glass forming a unit should be of the order of 1ft. 4in. by 2ft. or even larger, if of the roughcast or "prismatic" type. It is not usually essential that all parts should be made to open. Steel sashing, although difficult to clean and a source of lost heat, is preferable to wooden sashing as it provides increased lighting facilities, giving 80% to 90% light area as against 50% to 70% for wooden sashes and frames. One-story saw-toothed buildings should have roof windows facing north to avoid direct sunlight.

Walls.—The thickness of building walls is dictated by building acts and by-laws, and in most countries there is no possibility of erecting such walls of less thickness than 9in. or 14in. depending on the height and length of the wall and whether steel framework is used As already stated in connection with the various types of building construction, various materials are used for walls such as brick, concrete, stone, etc. Where hoists and cranes are fitted these must be provided with ample support

Roofs.—Roofs are one of the large items in building construction. Their particular form is dependent upon the intended purpose of the building; a high pitched gabled roof is the best for forges, foundries and other shops engaged in hot processes in which large quantities of heat require to be dissipated, and in other cases where a level ceiling is not required; the glazed saw-toothed form of roof provides the best condition of steady, uniform, natural lighting; the flat roof is the natural type for buildings with interior columns. Whatever the type the essential features are water- and fire-proofness. For general purposes the best material is mineral rock asphalt, which is unaffected by heat or cold and requires no yearly treatment, and is also capable of withstanding traffic without damage. Where sloping roofs are used steel or reinforced concrete roof principals are employed, and this method of support is now as cheap as steel. Slates as a covering are high in first cost and heavy for long span roofs, but if of good quality are very durable. Bituminous felts and other compositions in sheet form are low in first cost, but require special treatment every few years.

Heating and Ventilation.—Of these two subjects the latter is the more important. In an ordinary factory the air should be changed three to five times per hour, while under some circumstances it should be changed as many as 20 times per hour. The temperature also varies with the nature of the work carried on but a good average is 57° F, though for heavy manual labour a lower temperature should prevail, and for sedentary work a higher. Various systems of ventilation and heating are employed, but the most suitable for the particular case must be selected care being taken to economize space and avoid interference with cranes, conveyors, etc. (*see* PUBLIC HEALTH).

Stairways, Lifts, Elevators, etc.—Stairways should be ample for emergencies and give passengers the least inconvenience, a 6½in rise being considered good practice. Lifts should be encased with brick walls to prevent the spread of fire, and the openings should be fitted with doors of fire-resisting material made to close automatically in case of fire.

Power Supplies.—Where power is generated on the site, the plant should be located at a point most convenient for the handling of fuel and ashes, and all boiler and engine-room equipment should be capable of extension. Where live steam is used in the manuf pr the power plant should be situated cen-

...ably in order to avoid the necessity of long lengths of piping and excessive loss of heat.

Fire Protection.—The installation of apparatus to deal with outbreaks of fire is a necessity in all industrial buildings. The most usual form is by the sprinkler system in which pipes are fixed horizontally along the ceiling, and supplied with water which is not released until the temperature in the building is sufficiently high to melt the solder which holds the automatic valve of the sprinklers in position. When this is released the water is discharged over the affected area. Where sprinklers are not used, hydrants with lengths of hose should be fixed near stairs and in easily accessible positions and fire buckets and chemical fire extinguishers should be placed within the reach of anyone in the building. In the case of some trades, buckets of sand are more useful than water. Lightning-conductors should be fixed to all buildings. (*See* also INDUSTRIAL ARCHITECTURE.)

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FACTORY INSPECTION. In Great Britain, the duties of the factory inspectors consist broadly in the enforcement of the Factory and Workshop Acts, Truck Acts (in factories and workshops), and the Lead Paint (Protection against Poisoning) Act, 1926, and may be grouped under the following main heads.—

Sanitation.—The inspectors see that all factories are kept clean, are properly ventilated and not overcrowded, and that a reasonable temperature is maintained in each workroom. The local sanitary authorities are primarily responsible for these duties in workshops, but there is close co-operation between them and the Factory Department; the inspectors report all irregularities observed during their inspections, while the local authorities advise the inspectors of workshops they discover where the prescribed Abstract of the Factory and Workshop Acts is not affixed.

Sufficient and suitable sanitary conveniences must be provided, with separate accommodation for each sex, in all areas. This requirement is directly enforceable by the inspectors both in factories and workshops, except in the administrative county of London, or in any place where Part III. of the Public Health Act (Amendment Act), 1890, is in force. As both the Public Health (London) Act, 1891, and the Public Health Act (Amendment Act), 1890, impose the same obligations, works in areas coming under those acts are excluded from the operation of the Factory and Workshop Act, but the factory inspectors co-operate by reporting to the local authorities any irregularities observed. In those parts of England and Wales where Part III. of the Public Health Act, 1890, is not in force and in Scotland the District Council may still deal with the matter under the Public Health Acts, subject to the observance of the standard of sufficiency and suitability determined by order of the secretary of State, but in these areas the duty of seeing that sufficient and suitable accommodation is provided and of administering the secretary of State's order rests primarily with the factory inspectors. At the same time, the inspectors inform the District Council of any instructions issued to occupiers, in order that the council may have the opportunity of enforcing simultaneously any additional conditions under the Public Health Acts which they think desirable. Thus full co-operation is secured.

Safety.—All machinery is inspected to see that a proper standard of fencing is maintained. Though no definite standards are laid down in the act, regulations have been made in the more dangerous industries, specifying in detail the protection required. In other industries agreements have been reached at trade conferences between the department and employers and operatives as to the safeguards to be provided in those industries. Further, departmental instructions based on long experience, and partly also on High Court decisions, have resulted in the establishment of well-recognized standards which enable the ... to ... uniformity of practice.

The inspectors receive notice of all accidents, investigate their cause, and advise as to measures for preventing a recurrence. They also assist the coroners at inquests. They are responsible for seeing that steam boilers are regularly examined, and reports obtained on the condition of the boiler and its mountings, specifying the maximum permissible working pressure. Another important duty is that of seeing that adequate means of escape in case of fire is provided and maintained. Though the local authorities are primarily responsible in this matter, the inspector must report to these authorities cases where, in his opinion, the means of escape is inadequate, and he must be informed of the action taken as a result of his complaint.

Besides enforcing the statutory requirement in regard to safety, the inspectors are constantly in touch with employers on the question of accident prevention generally. Many accidents arise from conditions and practices which cannot be controlled by legal enactments. The inspectors are thus called upon to take up the question of safety generally, and in particular they do all they can to encourage the modern movement towards the adoption of safety organization as a definite part of works management.

Employment.—The inspectors must see that the hours of employment of women and young persons are within the prescribed limits, both during normal hours and during such overtime or night work as is permissible and that proper meal times are allowed. They have to report on applications for permission to work on a system of two shifts, and to enforce the conditions attached to orders sanctioning this system of employment. They must see, too, in those trades to which this requirement of the act applies, that workers paid on a piece-work basis receive such particulars regarding the work to be done and the rate of wages to be paid as will enable them to calculate the wages earned. They are responsible for seeing that no fines or deductions are made from the wages in contravention of the Truck Acts.

Dangerous Trades.—Special duties arise in relation to trades certified as dangerous, either because of the special risk of injury to health from lead, anthrax and silicious and other injurious dusts, or because of the specially dangerous character of the work, as in building, shipbuilding, dock work, wood-working, the use of celluloid and the generation or use of electricity. For these trades special regulations are in operation dealing with such matters as exhaust ventilation, medical supervision, cleanliness, messroom and cloakroom accommodation for the first class, and with detailed measures of protection for the second. The inspectors not only enforce these regulations but take a leading part in their establishment by collecting information as to the best existing practice and by advising as to the requirements to be included in the code.

Welfare.—Similar to the dangerous trades regulations are the welfare orders made to secure the comfort and wellbeing of workers in industries where special welfare arrangements are needed. These deal with the provision of first-aid and ambulance arrangements where accidents are specially numerous; the provision of messrooms, cloakrooms, and lavatories in dirty or offensive trades, arrangements to secure cleanliness and first-aid treatment in industries such as fish-curing, baking, chrome dyeing and tanning where the workers suffer from minor injuries through the materials used. These orders also are framed on reports from the inspectors and are enforced by them.

The department is under the control of the chief inspector, assisted by three deputy chief inspectors (one a woman). The country is divided into divisions, each under a superintending inspector, and each division is divided into districts, under district inspectors, to the more important of which junior and assistant inspectors are attached. Until 1921, the women inspectors were organized as a separate branch, but the two branches have since been amalgamated.

In 1928 the general staff was as follows:—10 superintending inspectors (one a woman) 86 inspectors Class I., 32 inspectors Class II., 7 women deputy superintending inspectors, 8 women district inspectors, 15 women inspectors, 1 senior inspector of ... assistants.

With the development of industry and the increased attention paid to ventilation, engineering, medical and other problems the work of the department has become much more technical. Separate technical branches have, therefore, been established. The medical branch consists of a senior medical inspector with four medical inspectors (one a woman) under him. The electrical branch, recently strengthened to cope with the rapid increase in the use of electricity, consists of one senior inspector with four inspectors under him. The engineering branch consists of a senior engineering inspector with a staff of five.

There are under the jurisdiction of the department some 270,000 factories, 8,000 docks, quays and warehouses, and many buildings in course of construction. Nearly 350,000 visits of inspection are paid every year. The position of the inspectors has, however, greatly changed in recent years. Whereas formerly they had to enforce an unpopular act and contend with all kinds of opposition, they have become more the advisers of the employers, who often consult them on all kinds of questions. They are, indeed, by virtue of their previous scientific, professional and technical training, added to their long and varied experience of the industries of the country, a body of industrial experts, whose services are at the disposal of industry to assist and advise. The value of their special industrial knowledge was amply shown during the World War when they were called upon to carry out many different kinds of war work, including such varied duties as inspection of steel for the Admiralty, service as superintending engineers and in the organization of welfare work at the Ministry of Munitions, assisting in recruiting and advising on substitution at the Ministry of National Service. (G. BEL.)

United States.—Inspection by the national Government applies to all Federal Government work places and to operations in inter-State commerce and to employments aboard vessels on navigable waters. Broad inspection powers are exercised by the U.S. Employees Compensation Commission, by the Shipping Commissioners and by Inter-State Commerce Committee representatives. Most industrial inspection in America is under authority of the 48 individual States, New York having 183 inspectors of whom 31 are women, visiting 66,000 factories and 100,000 mercantile establishments in addition to homes where factory work is carried on, places of public assembly and extensive construction enterprises. The New York Labor Department also administers accident compensation, thus unifying and giving special force to industrial safety and health inspections. The head is a commissioner with an industrial board of five members, the chairman of which is a woman. (J. B. A.)

FACTORY SYSTEM. The system under which modern industry is carried on is often spoken of as the "factory system," and contrasted with a preceding "domestic system," or system of household industry. This contrast is in fact true only in a very broad sense; for the name "domestic system" is by no means generally applicable to the forms of industrial organization before the great changes of the late 18th and early 19th centuries. There were many factories, usually small, and still more fairly large workshops in which the workers laboured under the eye of a master or his manager long before the days of the Industrial Revolution. The case of the famous Jack of Newbury (16th century) as an early factory owner is well known; and there were many others, the number of fairly large industrial establishments steadily increasing, even before the advent of steam power. The contrast between domestic and factory industry is indeed in the main a generalization drawn from the rapid transformation of the spinning and weaving trades in the late 18th and early 19th centuries under the stimulus of mechanical invention and the development of steam power. If these cautions are borne in mind, the factory system can be regarded as the typical organization of industry since the Industrial Revolution. Steam power is, indeed, the very basis of the factory economy as it has appeared in the modern world. Only with the coming of power-driven machinery and the power-house did it become an economic necessity in one manufacturing trade after another to collect the operatives together under the roof of the employer, and to insist on regular hours of labour and a regular discipline. The power plant set the pace and governed the conditions of labour. Under the domestic system it mattered relatively little to the capitalist what hours or with what intensity the worker laboured. He was paid by the piece, and how much he produced in response to the piece-work incentive was in the main his own affair. But as soon as the factory, with its power-plant, had to earn its keep, the intensity and duration of labour became matters of direct economic concern to the employer. Hence the excessively long hours, and the barbarous speeding-up of the early days of the factory system, when it was not uncommon for children, as well as adults, to be worked as much as 14 hours a day. Similar conditions have to some extent reproduced themselves in the Eastern countries now in process of industrialization.

Rise of Trade Unions.—As the factory system spread, and the workers were collected into large masses in the new factory towns, trade unionism naturally arose among them, partly as the response to evil conditions, and partly as the expression of an instinctive desire for association. To a great extent, the factory system called trade unionism into being, supplementing the much older small trade clubs of the skilled artisans by the larger-scale combinations which arose, and won their way to toleration, in the earlier half of the 19th century in England, and later elsewhere, as the factory system developed in other countries. At first the typical factories were, by modern standards, small; but with the development of industrial technique they grew rapidly in size, and their organization was transformed. Increasingly, the limited company took the place of the personal employer; and working conditions came to be regulated by State intervention (Factory Acts of 1802, 1819, 1833, 1847, 1867 . . . to 1901, Mines Acts, Truck Acts, etc.), and by collective bargaining, as the employers, especially after the Trade Union Act of 1871, grow ingly recognized trade unions and entered into (unenforceable) collective agreements with them. To-day, save in a few surviving "sweated" trades, in which "home-work" still lingers, the factory system is practically universal in developed industrial countries, and is rapidly spreading in such countries as India and China. In the advanced countries its evils have been a good deal mitigated by trade union custom, and by industrial legislation, but in the more recently industrialized areas conditions are still very bad. One of the main functions of the International Labour Organization founded, as an integral part of the League of Nations, in 1919, is the regulation of factory conditions throughout the world by means of international conventions ratified and made effective by corresponding national legislation. But progress in this respect has been so far (1928) very slow.

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FACULA (diminutive of *fax*, Lat. for "torch"), in astronomy, a minute shining spot on the sun's disk, markedly brighter than the photosphere in general, usually appearing in groups. Faculae are most frequent in the neighbourhood of spots. (*See* SUN.)

FACULTY, power or capacity of mind or body, for particular kinds of activity, feeling, etc. In the early history of psychology the term was applied to various mental processes considered as causes or conditions of the mind—a treatment of class concepts of mental phenomena as if they were real forces producing these phenomena. In mediaeval Latin *facultas* was used to translate δύναμις in the Aristotelian application of the word to a branch of learning or knowledge, and thus it is particularly applied to the various departments of knowledge as taught in a university and to the body of teachers of the particular art or science taught. A further extension of this use is to the body of members of any particular profession.

In law "faculty" is a [illegible]tion or licence to do that which

is not permitted by the common law. The word in this sense is used only in ecclesiastical law. (*See* BENEFICE; MARRIAGE: LICENCE; NOTARY PUBLIC.) Any alteration in a church, such as an addition or diminution in the fabric or the utensils or ornaments, cannot strictly be made without the legal sanction of the ordinary, which can be expressed only by the issue of a faculty. So a faculty would be required for a vault, for the removal of a body, for the purpose of erecting monuments, for alterations in a parsonage house, for brick graves, for the appurtenament of a seat, etc. Cathedrals, however, are exempt. The court of faculties is the court of the archbishop for granting faculties. In Scotland the society of advocates of the court of session, and local bodies of legal practitioners, are described as faculties.

FACULTY PSYCHOLOGY is the name given to the older psychology which "explained" the various mental processes by reference to corresponding "faculties" (Latin *facultas*, a capacity) which exercised them. Thus the process of thinking was explained by reference to the faculty of "understanding" or of "reason," the process of volition was referred to the faculty of "will," and so on. Although the faculty psychology has been frequently derided from the days of Locke onwards, it is not entirely dead, for it still seems to haunt some of the latest books on psychology in the guise of "abilities."

FADING is the variation of the signal intensity received at a given location from a radio transmitting station as a result of changes in the transmission path

FADNIA, a Guhayina sub-group, partly nomadic, partly sedentary, in the Sudan.

FAED, THOMAS (1826–1900), British painter, born in Kirkcudbrightshire, studied at the school of design, Edinburgh, was a member of the Royal Scottish Academy, and became R.A. in 1864. Three of his pictures, "The Silken Gown," "Faults on Both Sides" and "The Highland Mother," are in the National Gallery of British Art (Tate Gallery), London.

See William D. McKay, *The Scottish School of Painting* (1906).

FAENZA, a city and episcopal see of Emilia, Italy (anc. *Faventia*), province of Ravenna, 31 m. S.W. from the town of Ravenna by rail. 110 ft. above sea-level. It is 31 m. S.E. of Bologna by rail, on the line from Bologna to Rimini, and it is the junction of a line to Florence through the Apennines. Pop. (1921) 22,469 (town), 43,101 (*commune*). The town still preserves traces of the Roman rectangular plan, and is surrounded by walls which date from 1256. The cathedral of S. Pietro stands in the centre of the town. It was begun in 1474 by Giuliano da Maiano; the façade is, however, incomplete. In the interior is the beautiful early Renaissance tomb of S. Savinus with reliefs showing scenes from his life, by Benedetto da Maiano. Opposite the cathedral is a fountain with bronze ornamentation (1621). The municipal buildings have been restored; the picturesque arcades of the Palazzo del Comune date from the 15th century and those of the Palazzo del Podestà from the 18th. The municipal art gallery contains fine specimens of majolica, a variety of which, faience, takes its name from the town. It was largely manufactured in the 15th and 16th centuries, and the industry has been revived in modern times with success. *See* CERAMICS. There is an international museum here of ceramics with specimens of every date and country. The name Faventia is clearly Roman. The town lay on the Via Aemilia: here Papirius Carbo and C. Norbanus were defeated by Q. Caecilius Metellus Pius in 82 B.C. Pliny speaks of the whiteness of its linen, and the productiveness of its vines is mentioned. In 740 it was taken by Liutprand. Desiderius gave it to the church with the duchy of Ferrara. It was a free city at the beginning of the 12th century and at first took the imperial side, but in 1240 it stood a long siege from Frederick II. and was taken only after eight months. In 1313 the Manfredi made themselves masters of the place and remained in power until 1501, when the town was taken by Caesar Borgia.

FAEROE ISLANDS (also written FAROE or THE FAEROES, Danish *Færöerne* or *Færöerne*, "the sheep islands"), a group of islands in the north Atlantic ocean belonging to Denmark. They are situated between Iceland and the Shetland islands, about 200 m. N.W. of the latter, about 7° E. and 62° N. The total land area of the group is 515 sq.m. and there are 21 islands (excluding small rocks and reefs), of which 17 are inhabited. Pop. (1925) 22,835. The principal islands are Strömö, Osterö, Süderö, Vaagö, Sandö and Bordö. The islands were formed by a series of submarine outpourings of basalt in Tertiary times. Together with the thin intercalated beds of tuff, they have a total thickness of 70 to 100 feet. The columnar structure of the basalt can be well seen in the islands of Süderö. Upon the basalt rests the so-called coal formation 35 to 50ft. thick; the lower part of this is mainly fireclays and sandstone, and the upper is weathered clay with thin layers of shale and brown coal. The latter occurs, especially in Süderö, in sufficient quantities to be worth exploitation. Above this, over the greater part of the surface, lie beds of dolerite 15 to 20ft. thick. All these beds lie practically horizontal. During the Glacial period the whole surface up to 1,500ft. was covered by ice sheets, and the present relief is due mainly to the action of ice upon the horizontal beds. The islands are high and rugged, with perpendicular cliffs and flat summits separated by deep narrow ravines. The coasts are deeply indented and a series of fjords run from north-west to south-east. The narrow passages between the islands tend to follow the same direction and are made dangerous by very strong tidal currents. The coastal scenery is very fine, especially in the more westerly islands. The greatest height in the islands is Slättaretindur in Osterö, 2,894 feet. There are several lakes in which trout is abundant, and char is also found; the largest is Sörvaag lake in Vaagö which discharges into the sea by a sheer fall of about 100 feet.

The climate is oceanic, with mild but stormy winters and cool summers. Rainfall is heavy and well distributed, the maximum occurring in autumn and winter. The sky is generally overcast, and fogs are frequent. There are seldom long periods of frost and the harbours are very rarely ice-bound. At midsummer the sun is above the horizon for about 19¾ hours.

Owing to the strong westerly winds and frequent gales the islands are naturally treeless but there has been successful planting of hardy conifers, also maple and mountain ash. Much of the natural vegetation has been dwarfed by continuous grazing. Berry fruits flourish, and potatoes are one of the most successful crops, but the methods of agriculture are extremely primitive and less than 3% of the total area is under cultivation. As the plough is ill-suited to the rugged surface of the land, the ground is usually turned up with the spade. The pasture is on the whole good, but horses and cows are few, and the cows give little milk, in consequence of the coarse hay upon which they are fed. The number of sheep, however, justifies the name of the islands, the total number in the islands now exceeding 60,000. The catching of the numerous sea-birds which build their nests upon the face of the cliffs forms an important source of subsistence to the inhabitants. The puffin is taken for its feathers and for food, and the feathers of the eider duck are collected. Fowling has somewhat decreased in modern times, as the fisheries have risen in importance. The cod fishery is especially important, dried fish being exported in large quantity, and the swim-bladders made into gelatine. The whaling industry came into importance towards the close of the 19th century, and stations for the extraction of the oil and whalebone have been established at several points. The finner whale is the species most commonly taken.

More than one-third of the population is engaged in fishing. There is a small home industry in spinning and knitting. The produce of the whaling and fishing industries, woollen goods, lamb skins and feathers, are the chief exports, while in Thorshavn the preserving of fish and the manufacture of carpets are carried on to some extent. Thorshavn, the seat of government, is situated on the south-east side of Strömö, upon a narrow tongue of land, having creeks on each side, where ships may be safely moored. The houses are generally built of wood and roofed with birch bark covered with turf. The character of the people is marked by simplicity of manners, kindness and hospitality. They are healthy, and the population increases steadily. The Faeroes form an *amt* (county) of Denmark. They have also a local parliament (*lagthing*), consisting of the *amtmann* and 19 other members. Among other duties this body elects a representative to the upper

house of parliament (*landsthing*) in Denmark; the people choose by vote a representative in the lower house (*folkething*). The islands are included in the Danish bishopric of Zealand.

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HISTORY

It seems probable that the islands were peopled in the 9th century by Norse settlers. In the 11th century Sigmund Brresterson took possession of the islands for Olaf Trygvason, king of Norway, and introduced Christianity into the islands. The Norwegian supremacy continued till 1386, when the islands were transferred to Denmark. English adventurers gave great trouble in the 16th century, and the name of Magnus Heineson, a native of Strömö, who was sent by Frederick II. to clear the seas is still celebrated in many songs and stories. There was formerly a bishopric at Kirkebö, south of Thorshavn, but it was abolished at the introduction of Protestantism by Christian III. Denmark retained possession of the Faeroes at the peace of Kiel in 1815. The native literature of the islands consists of the *Faereyinga Saga*, dealing with the period of Sigmund Brresterson, and popular songs and legends of early origin.

Rise of Nationalism.—Since 1910 the development of an active movement in favour of self-government has been the most prominent feature of politics in the Faeroes. Though the *Sjálvstýrisflokkur*, or Home Rule party, was first organized in 1906, some points in the nationalist programme have an earlier origin. The endeavour to secure for the national speech of the inhabitants a position of equality with the official Danish dates from the middle of last century.

Since 1912 the use of the local as well as the Danish language in education and in conduct of religious services has, to some extent, been authorized. The claims of extreme nationalists, however, are not yet satisfied. The complaints of Danish misrule made by Home Rulers seem based more on the events of the past than the present. The Danish Government has voted considerable sums towards the construction of roads and harbour works, as well as to the support of education. The large increase in the population, which has nearly doubled since the beginning of the century, indicates a considerable measure of prosperity.

BIBLIOGRAPHY.—Lucas Jacobson Debes, *Feroa Reserata* (1673; Eng. transl. 1675); Torfaeus, *De rebus gestis Faereyensium* (1695); I. Landt, *Beskrivelse over Färöerne* (1800), and *Descriptions of the Feroe Islands* (1810); J. Russel-Jeaffreson, *The Faröe Islands* (1901); J. Falk Rönne, *Beskrivelse over Färöerne* (1902); C. H. Ostenfeld, E. Warming and others, *Botany of the Faeroes* (1901–03); Annandale, *The Faroes and Iceland* (1905); C. Kuechler, *Die Faeröer Studien und Wanderfahrten* (1913); E. Lehmann, *Auf den Farörn* (1913). *The Faereyinga Saga* was translated by F. York Powell (1896). For folk songs and legends *see* S. Kraeth, *Die färöischen Lieder von Sigurd* (Paderborn, 1877); V. U. Hammershaimb, *Faeröisk Anthologi* (1886–91).

FAESI, ROBERT (1883–), Swiss poet, dramatist, story-writer and literary critic, was born at Zürich on April 10, 1883, and became professor of German literature at the university of that town. He is one of the very few successful playwrights that Switzerland can boast, his tragedies *Odysseus und Nausikaa* (1911) and *Opferspiel* (1925) and the comedy of *Die Fassade* (1918) attaining a high level of excellence. His chief poems are *Aus der Brandung* (1917; an outcome of the World War) and *Der Brennende Busch* (1926). The *Zürcher Idylle* (1908) and the *König von Ste. Pelagie* (1924) are attractive short stories. His critical works include studies of Carl Spitteler (1915), Rainer Maria Rilke (1919), and C. F. Meyer (1925) and a volume entitled *Gestalten und Wandlungen Schweizerischen Dichtung* (1922).

FAESULAE, an ancient city of Etruria, on the height 3 m. to the N.E. of Florentia, 970 ft. above sea-level (mod. *Fiesole, q.v.*) Remains of its walls of large blocks of stone are preserved on all sides, especially on the north-east. The whole circuit extended for about 1⅞ m. The Franciscan monastery (1,130 ft.) occupies the site of the acropolis, once encircled by a triple wall, of which no traces are now visible. The Roman theatre, below the cathedral to the N.E., has 19 tiers of stone seats and is 37 yd. in diameter. To the north of the theatre was an Etruscan temple with three *cellae*, apparently converted into the Capitolium in Roman times, while to the east of it are the Roman baths. There was also an ancient temple on the site occupied by the church of S. Alessandro. A small museum contains the objects found in the excavations.

Though Faesulae was an Etruscan city, we have no record of it in history until 225 B.C., when the Gauls passed near it in their march on Rome. Eight years later Hannibal seems to have taken this route in his march south after the victory of the Trebia. Sulla expelled some of the inhabitants from their lands to make room for his veterans, but some of the latter were soon driven out in their turn by the former occupiers. Both joined the partisans of Catiline, and Manlius, one of his supporters, made his headquarters at Faesulae. In A.D. 405 Radagaisus was crushed in the neighbouring hills, and Belisarius besieged and took it in A.D. 539.

FAFNIR, in Scandinavian mythology, the son of the giant Hreidmar. He was the guardian of the hoard of the Nibelungs.

FAGACEAE, in botany, the beech family; dicotyledonous plants, most of the 350 species being trees. The family includes five genera, the most important being *Fagus* (beech, *q.v.*), *Quercus* (oak, *q.v.*) and *Castanea* (chestnut, *q.v.*). The flowers are borne in catkins in the axils of the leaves, and are unisexual. The pollen is wind-borne. The fruit is a one-seeded nut.

FAGAN, JAMES BERNARD (1873–), an Irish playwright and producer whose works include *Shakespeare versus Shaw*, produced (1905), an adaptation of *Bella Donna* (1911), *The Happy Island* (1913), *And So to Bed* (1926) and *The Greater Love* (1927). He studied law at Trinity college, Oxford, and was attached for a time to the Indian Civil Service; later he joined the F. R. Benson company, his principal stage appearances being in this connection and at His Majesty's theatre, London, with Sir Herbert Tree.

FAGGING, in English public schools, a system under which, generally with the full approval of the authorities, a junior boy performs certain duties for a senior (from "fag" meaning "weary"; of uncertain etymology). Dr. Arnold of Rugby defined fagging as "the power given by the supreme authorities of the school to the Sixth Form, to be exercised by them over the lower boys, for the sake of securing a regular government among the boys themselves, and avoiding the evils of anarchy; in other words, of the lawless tyranny of brute force." Fagging was a fully established system at Eton and Winchester in the 16th century at least. In almost all the great public schools founded during the 19th century fagging has been deliberately adopted by the authorities. The right to fag carries with it certain well-defined duties. The fag-master is the protector of his fags and responsible for their happiness and good conduct. In cases of bullying or injustice their appeal is to him, not to the form or house master, and, except in the gravest cases, all such cases are dealt with by the fag-master on his own responsibility. Until recent years a fag's duties included such humble tasks as blacking boots, brushing clothes, and cooking breakfasts, and there was no limit as to hours. Fagging is now restricted to such light tasks as running errands, bringing tea to the "master's" study, sweeping and tidying the studies, and fagging at cricket or football.

FAGGOT, a bundle of sticks used for firewood. Recanted heretics wore an embroidered faggot on the arm as a symbol of the punishment they had escaped. In the 18th century the word is used of a "dummy" soldier appearing on the rolls of a regiment

... is one artificially created by the minute splitting up of property so as to give a bare qualification for the franchise.

FAGNIEZ, GUSTAVE CHARLES (1842–), French historian and economist, born in Paris, Oct. 6, 1842. His *Études sur l'industrie et la classe industrielle à Paris au XIII^e et au XIV^e siècle* (1877) opened a new field for historical study. He also wrote *Documents relatifs à l'histoire de l'industrie et du commerce en France* (1898–1900), *L'Économie sociale de la France sous Henri IV*, *Le Père Joseph et Richelieu* (1894), and *Journal parisien de Jean de Maupoint, prieur de Ste. Catherine-de-la-Couture*.

FAGUET, ÉMILE (1847–1916), French critic and man of letters, was born at La Roche sur Yon. He was educated at the Normal school in Paris, and after teaching for some time in La Rochelle and Bordeaux he came to Paris. After acting as assistant professor of poetry in the university he became professor in 1897. He was elected to the academy in 1900, and received the ribbon of the Legion of Honour in the next year. He acted as dramatic critic to the *Soleil*; from 1892 he was literary critic to the *Revue bleue*, and in 1896 took the place of M. Jules Lemaître on the *Journal des débats*. Among his works are monographs on *Flaubert* (1899), *André Chénier* (1902), *Zola* (1903), *Balzac* (1913), *Mgr. Dupanloup* (1914), etc.; an admirably concise *Histoire de la Littérature française depuis le XVII^e siècle jusqu'à nos jours*; series of literary studies on the 17th, 18th and 19th centuries; *Questions politiques* (1899); *Propos littéraires* (3 series, 1902–05); *Le Libéralisme* (1902); *L'Anticléricalisme* (1906); *Le Pacifisme* (1908); and several works on Rousseau (between 1910 and 1912). He died in Paris on June 7, 1916.

FA-HIEN (*fl.* A.D. 399–414), Chinese Buddhist monk, pilgrim-traveller and writer, author of one of the earliest and most valuable Chinese accounts of India. He started from Changgan or Si-gan-fu, then the capital of the Tsin empire and, passing the Great Wall, crossed the "River of Sand" or Gobi Desert beyond, that home of "evil demons and hot winds," which he vividly describes —where the only way-marks were the bones of the dead, where no bird appeared in the air above, no animal on the ground below. Arriving at Khotan, the traveller witnessed a great Buddhist festival; here, as in Yarkand, Afghanistan and other parts thoroughly Islamized before the close of the middle ages, Fa-Hien shows us Buddhism still prevailing. India was reached by a perilous descent of "ten thousand cubits," from the "wall-like hills" of the Hindu Kush into the Indus valley (about A.D. 402); and the pilgrim passed the next ten years in the "central" Buddhist realm—making journeys to Peshawur and Afghanistan (especially the Kabul region) on one side, and to the Ganges valley on another. His especial concern was the exploration of the scenes of Buddha's life, the copying of Buddhist texts, and converse with the Buddhist monks and sages whom the Brahman reaction had not yet driven out. Thus we find him at Buddha's birthplace on the Kohana, north-west of Benares; in Patna and on the Vulture Peak near Patna; at the Jetvana monastery in Oudh; as well as at Muttra on the Jumna, at Kanauj, and at Tamluk near the mouth of the Hugli. Later the narrative, which in its earlier portions was primarily historical and geographical, abandons records of fact for theology. From the Ganges delta Fa-Hien sailed with a merchant ship, in fourteen days, to Ceylon, where he transcribed all the sacred books, as yet unknown in China, which he could find; witnessed the festival of the exhibition of Buddha's tooth; and remarked the trade of Arab merchants to the island, two centuries before Mohammed.

Fa-Hien's work is valuable evidence of the strength of Buddhism in central Asia and in India at the time of the collapse of the Roman empire in western Europe. His record is careful and accurate, and most of his positions can be identified.

See James Legge, *Record of Buddhistic Kingdoms, being an account by the Chinese Monk Fâ-hien of his travels in India and Ceylon; translated and edited, with map, etc.* (Oxford, 1886); S. Beal, *Travels of Fâ-hien and Sung-Yun, Buddhist pilgrims from China to India, A.D. 400 and 518, translated with map, etc.* (1869); C. R. Beazley, *Dawn of Modern Geography*, vol. i. pp. 478–485 (1897). *The travels of Fa-hsien*, retranslated by H. A. Giles (1923).

FAHLCRANTZ, CHRISTIAN ERIK (1790–1866), Swedish author, was born at Stora Tuna and studied at Uppsala, where he became tutor in Arabic in 1821, and professor of oriental languages in 1825. He then entered the Church, and in 1849 became bishop of Vesterås. He died on Aug. 6, 1866. His works include: *Noachs Ark* (2 parts, 1825 and 1826), a satire on the political and social life of his time; *Ausgarius* (1835–46), an epic in 11 parts; and *Rom förr och nu* (5 vols., 1858–61), a polemical work directed against the Jesuits.

FAHRENHEIT, GABRIEL DANIEL (1686–1736), German physicist, was born at Danzig on May 14, 1686. For the most part he lived in England and Holland, devoting himself to the study of physics and making a living, apparently, by the manufacture of meteorological instruments. He was the author of important improvements in the construction of thermometers, and he introduced the thermometric scale known by his name and still extensively used in Great Britain and in the United States (*see* THERMOMETRY). He also invented an improved form of hygrometer, a description of which, together with accounts of various observations and experiments made by him, was published in the *Phil. Trans.* for 1724. He died in Holland on Sept. 16, 1736.

FAIDHERBE, LOUIS LÉON CÉSAR (1818–1889), French general and colonial administrator, born on June 3, 1818, at Lille, received his military education at the École Polytechnique and at Metz, and entered the engineers in 1840. From 1844 to 1847 he served in Algeria, then two years in the West Indies, and again in Algeria, taking part in many expeditions against the Arabs. In 1852 he was transferred to Senegal as sub-director of engineers, and in 1854 became governor of the colony. He held this post with one brief interval until July 1865. The work he accomplished in West Africa constitutes his most enduring monument. At that time France possessed in Senegal little else than the town of St. Louis and a strip of coast. Faidherbe dreamed of creating a French African empire stretching from Senegal to the Red sea. By boldly advancing the French outposts on the upper Senegal he stemmed the Muslim advance on the Middle Niger, and by an advantageous treaty with Omar al-Hadji, the ruler of these countries, in 1860 he brought the French possessions into touch with the Niger. He also conquered the country lying between the Senegal and Gambia. When he resigned his post the foundation of the French dominion in West Africa had been laid. In 1863 he became general of brigade.

From 1867 to 1870 he commanded the subdivision of Bona in Algeria, and was commanding the Constantine division at the commencement of the Franco-German War. Promoted general of division in Nov. 1870, he was appointed (Dec. 3) commander-in-chief of the army of the North. The struggle between the I. German army and that commanded by Faidherbe, in which were included the hard-fought battles of Pont Noyelles, Bapaume and St. Quentin, was perhaps the most honourable to the French army in the whole of the People's War. Elected to the National Assembly for the department of the Nord, he resigned his seat in consequence of its reactionary proceedings. Faidherbe was made chancellor of the order of the Legion of Honour. In 1872 he went on a scientific mission to Upper Egypt, where he studied the monuments and inscriptions. He was elected a senator in 1879. He died on Sept. 29, 1889, and received a public funeral. Statues and monuments to his memory were erected at Lille, Bapaume, St. Quentin and St. Louis, Senegal. His works include: *Collection des inscriptions numidiques* (1870); *Épigraphie phénicienne* (1873); *Essai sur la langue poul* (1875); *Le Zénaga des tribus sénégalaises* (1877); *Campagne de l'armée du Nord* (1871); *Le Soudan Français* (1884); *Le Sénégal* (1889).

See Brunel, *Le Général Faidherbe* (2 vols., 1892); Riethy, *Histoire populaire du général Faidherbe* (1901) and Froelicher, *Trois Colonisateurs: Bugeaud, Faidherbe, Galliéni* (1903).

FAIDIT, GAUCELM (*d. c.* 1220), French troubadour, was born at Uzerche. He married Guillelma Monja, and on account of his dissolute life fell into great need from which he was relieved by Richard, Coeur de Lion. His later passion for Marie de Ventadour, who persuaded him to go on the crusade formed the subject of many of his ove... Besides these the chief

of which is *Le Triomphe de l'Amour* imitated by Petrarch Gaucelm's most important works are the poem on the death of Richard and *L'Heésie des Pretres* a satire on the corruptions of the church

See R. Meyer, *Das Leben des Trobadors Gaucelm Faidit* (Heidelberg, 1876), and F. Diez, *Leben und Werke der Troubadours* (2nd ed., Leipzig, 1883).

FAÏENCE, a term applied generally to all kinds of glazed pottery, but properly the French word for the *porzellana di Faenza,* a fine kind of glazed and painted earthenware made in Faenza, Italy (*see* POTTERIES AND PORCELAINS).

FAILLY, PIERRE LOUIS CHARLES DE (1810–1892), French general, was born at Rozoy-sur-Serre (Aisne) on Jan. 21, 1810, and entered the army from St. Cyr in 1828. In the war of 1859 de Failly commanded a division, and in 1867 he defeated Garibaldi at Mentana, this action being the first in which the chassepot was used. In 1870 de Failly commanded the V. corps. His inactivity at Bitsch on the 6th of August while the I. corps on his right and the II. corps on his left were crushed at Wörth and Spicheren respectively, gave rise to the greatest indignation in France, and his military career ended, after the V. corps had been severely handled at Beaumont on Aug. 30, with the catastrophe of Sedan. The rest of his life was spent in retirement. De Failly wrote *Campagne de 1870, Opérations et marche du 5me corps jusqu'au 30 août* (Brussels, 1871).

FAIN, AGATHON JEAN FRANÇOIS (1778–1837), French historian, was born in Paris. Under the Consulate he entered the office of the secretary of State, in the department of the archives. In 1806 he was appointed secretary and archivist to the *cabinet particulier* of the emperor, whom he attended on his campaigns and journeys. He was created a baron of the empire in 1809, and, on the fall of Napoleon, was first secretary of the cabinet and confidential secretary. He published successively *Manuscrit de 1814, contenant l'histoire des six derniers mois du règne de Napoléon* (1823, new ed. with illustrations, 1906); *Manuscrit de 1813, contenant le précis des événements de cette année pour servir à l'histoire de l'empereur Napoléon* (1824); *Manuscrit de 1812* (1827); and *Manuscrit de l'an iii. (1794–1795), contenant les premières transactions de l'Europe avec la république française et le tableau des derniers événements du régime conventionnel* (1828), which form a very valuable source for the history of Napoleon I. Of still greater importance for the history of Napoleon are Fain's *Mémoires,* which were published posthumously in 1908. Immediately after the overthrow of Charles X., King Louis Philippe appointed Fain first secretary of his cabinet (Aug. 1830). Fain was a member of the council of State and deputy from Montargis from 1834 until his death in Paris on Sept. 16, 1837.

FAIR. In popular speech markets and fairs are associated. Coke says that every fair is a market, but not every market is a fair, and in terms that a fair is but a great sort of market. Although this is not admitted by all as historically true, it has become true in English legal theory. The word "fair" is indeed rather loosely used. It may mean no more than a periodical market which attracts more custom than usual, as where a town has a weekly market and designates the first market of the month a fair. The word is also used in modern speech for various private auction marts, which have no characteristic of a true market, and for certain small periodical markets confined to one commodity. But its best use is that which Coke ascribes to it. Fairs, in this sense, are of immemorial antiquity. They appear early in the dark ages on the Continent. Sidonius Apollinaris speaks of the fairs of Champagne and Brie in 427. They were common in the Low Countries by the 10th century. After the Conquest they multiplied in England, when foreign merchants were regularly passing to and fro under the protection of Norman and Angevin kings. The origin of some is lost, and few are modern; in modern times the machinery for establishing them on a legal footing is, in most European countries, similar to that for establishing a market (*see* MARKET). In England this is by charter or by act of parliament, but the general statutes under which any local authority may acquire (or, subject to its not infringing existing rights, may establish) a market do not extend to fairs, and therefore, where a fair is in the hands of a local authority in England it must be by charter or by special act. While a fair is thus more difficult (in England) than a market to establish on a legal footing, it is easier to abolish. In fact, the Fairs Acts, 1868–71, provide machinery for the secretary of State to extinguish fairs which have outlived their utility. Owen's *Book of Fairs,* first published under George II. and again (after intermediate editions) in 1856, gives a list covering 62 pages of small print, but a number of these have passed into oblivion, even without formal abolition. This reflects the fact that, while markets have still a useful function, the commercial value of fairs has largely disappeared (in western Europe) with improved communications and the other changes wrought in modern trade. Thus, a fair held at Much Wenlock under a charter of Edward IV. was allowed to lapse in 1926, and a once important horse fair at Whittlesey attracted two entries only—the reason being that with improved methods of transport available at all times it is not worth while to collect a great assemblage once or twice a year. There are still commercial fairs of some local importance, noted in a recent report of the Ministry of Agriculture and Fisheries, but it may be doubted how long these will last, and it is certain that the day of the famous international fairs such as used to be held in Champagne, at Beaucaire and at Stourbridge (chartered by King John in 1211) is over in the west.

One important function which attached to many fairs—that of a "labour exchange," where servants, especially agricultural and domestic, were hired for a year—has disappeared in most countries, now that hirings are effected for shorter periods.

Pleasure Fairs.—The "pleasure fair" existed from early times side by side with the fair which was a "great market." Bartholomew Fair, held in London in August, had been granted by Henry II. to Rahere as a fair of the old style, but by the 17th century had become almost entirely a pleasure fair—of which, indeed, it became recognized as the type. Often the business and the pleasure fair were mixed, but in the 19th century many of those which still survived tended to be solely for pleasure, and even these lost much of their prestige with the coming of other popular amusements. St. Giles' Fair at Oxford and the "Mop" at Stratford-on-Avon are among those known throughout the English-speaking world which have succeeded in surviving for generations after Bartholomew Fair was abolished in 1855.

In France and Belgium "pleasure fairs" are numerous. The French Revolution swept away a number which possessed a long history, and the commercial fair has suffered reduction in importance, as in England. But even Paris retains numerous pleasure fairs, some of which last for weeks, and they are found on a smaller scale in most provincial towns and villages. Often the fair is associated with a saint's day, the festival of the saint to whom the local church is dedicated. In Brittany and Flanders the word is "kirmiss," or "Church mass," which, like the German use of "messen" in the same sense, keeps alive an association which has led some writers to believe that fairs as an institution had a religious origin. The true origin of the fair as known to-day is a moot point, but it is certain that the institution of periodical great markets is older than the Christian era; indeed, as markets have been shown to arise at a certain point in the development of human institutions, so it is natural that, yearly or half-yearly (or it may be every four years, as at the Olympic Games), some specially important gathering should be held, attracting merchants from a wider area. Such a gathering would, in primitive society, pagan or Christian as the case might be, inevitably be placed under protection of the gods or saints, whose prestige would secure safe conduct for those attending.

In eastern Europe and in Asia the causes which have led to the decline of fairs in the west have so far been less operative. Thus India preserves the fair at Hurdwar, where the Ganges leaves the mountains; a natural pilgrim centre which has in consequence acquired a fair, attracting many others than Hindus. It will be long before the "westernization" of India will have made such fairs unnecessary, and probably the same may be said of Russia, which has several fairs of international fame. The best known is that of Nijni Novgorod, founded in the 17th century. Before the World

War it was calculated that more than 100,000 persons annually attended it from Asia and from Europe, and it is of interest to find it described in an official Russian publication of 1923 as "an outstanding fact in the Soviet economic scheme," playing "a decisive rôle in the commercial transactions of the union." The total value of transactions registered as taking place in the fair in that year was 375 million gold roubles, and these registered transactions excluded all private sales and those of less value than 1,000 gold roubles. Baku, Kiev, Irbit (Siberia) and Kharkov (Ukrania) are other fairs which, after being in abeyance—as was Nijni Novgorod—during the Revolution, have been revived by the Soviet Government. See also MARKET: EXHIBITION AND TRADE FAIR.

(A. N. C. S.)

United States.—In contrast with typical European fairs, where trade features predominate, American fairs have served chiefly the function of agricultural education. In the show ring, on the track, and in crop and other exhibits, accepted standards of excellence have been gradually developed. In 1927, more than 2,000 agricultural fairs were held in the United States and Canada. These included national, regional, provincial, State, county and other expositions. The total attendance was over 40,000,000. The best available data, which, however, are quite incomplete, show premiums paid to the amount of $8,400,714. Each of 14 fairs on the North American continent pays out annually $50,000 or more for prizes, exclusive of purses, and in five the prize money totals $100,000 or more each. Each of 16 fairs owns grounds and buildings worth more than $1,000,000. Almost all American fairs continue for a week, though some last as long as two weeks. Exhibits are made by national, provincial and State governments, as well as by organizations and individuals. In recent years judging contests participated in by boys and girls and by college students have been important attractions. Most fairs have various entertainment features, and the last few years have seen a marked and largely successful effort to improve these.

(R. T. H.)

FAIRBAIRN, ANDREW MARTIN (1838–1912), British Nonconformist divine, was born at Inverkeithing, Fife, on Nov. 4, 1838. He was educated at Edinburgh and Berlin, and at the Evangelical Union Theological Academy in Glasgow, and, entering the Congregational ministry, held pastorates at Bathgate, West Lothian and Aberdeen. From 1877 to 1886 he was principal of Airedale College, Bradford, a post which he gave up to become the first principal of Mansfield College, Oxford. In 1883 he was chairman of the Congregational Union of England and Wales. He resigned his position at Mansfield College in the spring of 1909, and died in London on Feb. 9, 1912.

Among his more important works are:—*Studies in the Philosophy of Religion and History* (1876); *Philosophy of the Christian Religion* (1902); *Studies in Religion and Theology* (1909). See W. B. Selbie, *Life of Andrew Martin Fairbairn* (1914).

FAIRBAIRN, SIR WILLIAM, BART. (1789–1874), Scottish engineer, was born on Feb. 19, 1789 at Kelso, Roxburghshire, where his father was a farm-bailiff. In 1803 he obtained work at three shillings a week as a mason's labourer on the bridge then being built by John Rennie at Kelso; but within a few days he was incapacitated by an accident. During his apprenticeship as a millwright at Percy Main he made the acquaintance of George Stephenson, who then had charge of an engine at a neighbouring colliery. In 1817 he entered into partnership with a shopmate, James Lillie, with whose aid he hired an old shed in High street, Manchester, where he set up a lathe and began the business which became famous throughout the world. Fairbairn investigated the use of iron in shipbuilding, and made exhaustive experiments on its strength as a building material. In 1835 he established a shipbuilding yard at Millwall, London, but his preoccupation with scientific investigation and other matters diverted his attention, and the business was sold at a loss.

In 1845 he was employed, with Robert Stephenson, in constructing the tubular railway bridges across the Conway and Menai Straits. Fairbairn investigated the construction of steam boilers, in which he effected many improvements. His fertility and readiness of invention greatly aided an inquiry carried out at his Manchester works (1851) by Sir William Thomson (Lord Kelvin) and J. P. Joule, at the instigation of William Hopkins, to determine the melting points of substances under great pressure; and from 1861 to 1865 he was employed to guide the experiments of the government committee appointed to inquire into the "application of iron to defensive purposes." He died at Moor Park, Surrey, on Aug. 18, 1874. Fairbairn was a member of many learned societies, both British and foreign, and in 1861 served as president of the British Association. He declined a knighthood in 1861, but accepted a baronetcy in 1869.

His youngest brother, Sir PETER FAIRBAIRN (1799–1861), founded a large machine manufacturing business in Leeds. Starting on a small scale with flax-spinning machinery, he subsequently extended his operations to the manufacture of textile machinery in general and finally to that of engineering tools. He was knighted in 1858.

See *The Life of Sir William Fairbairn*, partly written by himself and edited and completed by Dr. William Pole (1877).

FAIRBANKS, DOUGLAS (1883–), motion picture actor and producer, was born at Denver (Colo.), on May 23, 1883. He studied at the Colorado School of Mines, attended Harvard university, and entered a brokerage firm in Wall street. In 1901 he took up the stage as a career, eventually starring in several plays, among them the *Man of the Hour* and *The Gentleman from Mississippi*. Since 1915 he devoted himself to the screen, in 1917 becoming the head of his own producing company. His pictures include *The Mark of Zorro*, *The Three Musketeers*, *Robin Hood*, *Don Q*, and the *Black Pirate*. He married, on March 28, 1920, as his second wife, Mary Pickford.

FAIRBANKS, ERASTUS (1792–1864), American manufacturer, was born in Brimfield (Mass.) on Oct. 26, 1792. In 1824 he formed a partnership with his brother Thaddeus for the manufacture of stoves and ploughs. Erastus was a member of the State legislature in 1836–38, and governor of Vermont in 1852–53 and 1860–61.

His son HORACE FAIRBANKS (1820–88) became president of E. and T. Fairbanks and Co. in 1874, and was governor of Vermont from 1876 to 1878.

His brother THADDEUS FAIRBANKS (1796–1886), inventor, was born at Brimfield (Mass.) on Jan. 17, 1796. He designed the models from which he and his brother manufactured stoves and ploughs at St. Johnsbury (Vt.). In 1826 he patented a cast-iron plough which was extensively used. In 1831 Fairbanks invented a hemp-dressing machine, and the famous compound-lever platform scale, which marked a great advance in the construction of machines for weighing bulky and heavy objects. He, with his brothers, Erastus and Joseph P., founded the St. Johnsbury academy. He died at St. Johnsbury on April 12, 1886.

FAIRBANKS, a town of Alaska, situated in 64° 50′ N. and 147° 44′ W., about 250 m. up the Tanana river (by the windings of the stream) from its confluence with the Yukon. The population had diminished from three or four thousand during the period of high gold production to 1,155 in 1920. The wagon road distance to Chitina, on the Copper river, is approximately 320 m., and to Valdez, 370 m.; by rail, 467 m. to Seward, the coast terminus. The valley of the Tanana, in this section, consists of rolling hills and fertile soil, and offers inviting conditions for settlement. It is scantily timbered and a large portion of that which once existed has been cut in the mining operations and for domestic use during the past 25 years. Coal is brought in from the Healy river mines along the Government railway. Fairbanks is headquarters of the 4th division of the district court.

FAIRBURY, a city of south-eastern Nebraska, U.S.A., on the Little Blue river, 10m. from the Kansas State line, the county seat of Jefferson county. It is served by the Burlington, the Rock Island, and the St. Joseph and Grand Island railways. The population was 5,454 in 1920 (94% native white), and was estimated locally at 6,240 in 1928. It is in a farming and poultry-raising country, and there are large nurseries in the vicinity. The city has railroad shops and iron works; flour, planing and alfalfa mills; cement, tile and brick works; a creamery and a condensed milk plant; and a windmill factory. Fairbury was settled about 1869

and incorporated in 1873.

FAIRFAX, EDWARD (*c.* 1580–1635), English poet, translator of Tasso, was born at Leeds, the second son of Sir Thomas Fairfax of Denton. He is said to have been only about 20 years of age when he published his translation of the *Gerusalemme Liberata*, which appeared in 1600,—*Godfrey of Bulloigne, or the Recoverie of Ierusalem, done into English heroicall Verse by Edw. Fairefax, Gent.*, and was dedicated to the queen. In the same year extracts from it were printed in *England's Parnassus*. It is said that it was King James's favourite English poem, and that Charles I. read it in prison. Fairfax employed the same number of lines and stanzas as his original, but within the limits of each stanza he allowed himself the greatest liberty. He presented, says Mr. Courthope, "an idea of the chivalrous past of Europe, as seen through the medium of Catholic orthodoxy and classical humanism." The sweetness and melody of many passages are scarcely excelled even by Spenser. He wrote also 12 eclogues, the fourth of which was published in Mrs. Cooper's *Muses' Library* (1737). Another of the eclogues and a *Discourse on Witchcraft, as it was acted in the Family of Mr. Edward Fairfax of Fuystone in the county of York in 1621*, edited from the original copy by Lord Houghton, appeared in the *Miscellanies* of the Philobiblon Society (1858–59). Fairfax died at Fewston on Jan. 27, 1635.

FAIRFAX OF CAMERON, FERDINANDO FAIRFAX, 2ND BARON (1584–1648), English parliamentary general, was born on March 29, 1584, son of Thomas Fairfax of Denton (1560–1640), first Baron Fairfax of Cameron (*c.* 1627). He was M.P. for Boroughbridge during the six parliaments which met between 1614 and 1629 and also during the Short Parliament of 1640. In May 1640 he succeeded his father as Baron Fairfax, but being a Scottish peer he sat in the English House of Commons as one of the representatives of Yorkshire during the Long Parliament from 1640 until his death; he took the side of the parliament, but held moderate views and desired to maintain the peace. In the first Scottish war Fairfax had commanded a regiment in the king's army; on the outbreak of the Civil War in 1642 he was made commander of the parliamentary forces in Yorkshire, with Newcastle as his opponent. Hostilities began after the repudiation of a treaty of neutrality entered into by Fairfax with the royalists. At first he met with no success. He was driven from York, where he was besieging the royalists, to Selby; then in 1643 to Leeds; and after beating off an attack at that place he was totally defeated at Adwalton Moor (June 30). He escaped to Hull, which he defended against Newcastle (Sept. 2–Oct. 11), and by means of a brilliant sally caused the siege to be raised. Fairfax was victorious at Selby (April 11, 1644), and joining the Scots besieged York, after which he was present at Marston Moor. In July he was made governor of York, in December he took the town of Pontefract, but failed to secure the castle. He resigned his command on the passing of the Self-denying Ordinance, but remained a member of the committee for the government of Yorkshire. He died from an accident on March 14, 1648, and was buried at Bolton Percy. He was twice married, and by his first wife, Mary, daughter of Edmund Sheffield, 3rd Lord Sheffield (afterwards 1st earl of Mulgrave), he had six daughters and two sons, Thomas, who succeeded him as 3rd baron, and Charles, a colonel of horse, who was killed at Marston Moor.

FAIRFAX OF CAMERON, THOMAS FAIRFAX, 3RD BARON (1612–1671), parliamentary general and commander-in-chief during the English Civil War, the eldest son of the 2nd lord, was born at Denton, near Otley, Yorkshire, on Jan. 17, 1612. He studied at St. John's College, Cambridge (1626–29), and then served as a volunteer with the English army in the Low Countries under Sir Horace (Lord) Vere, whose daughter Anne he married in 1637. He was knighted in 1640.

The Fairfaxes, father and son, though serving at first under Charles I., were opposed to the arbitrary prerogative of the crown. When Charles endeavoured to raise a guard for his own person at York, intending it to form the nucleus of an army, Fairfax presented a petition asking him to discontinue the raising of troops. This was at a meeting of the freeholders and farmers of Yorkshire convened by the king on Heworth Moor near York. War broke out, Lord Fairfax was appointed general of the Parliamentary forces in the north, and his son, Sir Thomas, was made lieutenant-general of horse under him. Both father and son distinguished themselves in the campaigns in Yorkshire (*see* GREAT REBELLION). Sometimes severely defeated, more often successful, and always energetic, prudent and resourceful, they maintained the struggle until the crisis of 1644, when York was held by the marquess of Newcastle against the combined forces of the English Parliamentarians and the Scots, and Prince Rupert hastened with all available forces to its relief. The battle of Marston Moor (*q.v.*) was decisive of the struggle in the north. The younger Fairfax bore himself with the greatest gallantry in the battle, and though severely wounded managed to join Cromwell and the victorious cavalry on the other wing. One of his brothers, Colonel Charles Fairfax, was killed in the action.

After the passing of the Self-denying Ordinance Thomas Fairfax was selected to succeed Essex, the new lord general, with Cromwell as his lieutenant-general and cavalry commander, and after a short preliminary campaign the "New Model" justified its existence, and "the rebels' new brutish general," as the king called him, his capacity as commander-in-chief in the decisive victory of Naseby (*q.v.*). The king fled to Wales. Fairfax besieged Leicester, and was successful at Taunton, Bridgwater and Bristol. Oxford surrendered in 1646, and it is characteristic of the man that the general's first act was to set a strong guard on the Bodleian Library.

In Jan. 1647 Charles was delivered up by the Scots to the commissioners of parliament. Fairfax met the king beyond Nottingham, and accompanied him during the journey to Holmby, treating him with the utmost consideration. In the confused negotiations between the various parties which followed, Fairfax was placed in the unpleasant position of intermediary between his own officers and parliament. He was more at home in the field than at the head of a political committee, and, finding events too strong for him, he sought in vain to resign his commission as commander-in-chief. He remained the titular chief of the army party, and with the greater part of its objects he was in complete, sometimes most active, sympathy. Shortly before the outbreak of the second Civil War, Fairfax succeeded his father in the barony and in the office of governor of Hull. In the field against the English Royalists in 1648 his operations culminated in the successful siege of Colchester, after the surrender of which place he approved the execution of the Royalist leaders Sir Charles Lucas and Sir George Lisle, holding that these officers had broken their parole. At the same time Cromwell's great victory of Preston crushed the Scots, and the Independents became practically all-powerful.

Milton, in a sonnet written during the siege of Colchester, called upon the lord general to settle the kingdom, but the crisis was now at hand. Fairfax approved, if he did not take an active part in, Pride's Purge (Dec. 6, 1648), but on the question of the fate of Charles he opposed the army officers. He presided over the judges who were to try the king at the preliminary sitting. Then, convinced that the king's death was intended, he refused to act. In calling over the court, when the crier pronounced the name of Fairfax, Lady Fairfax, from the gallery, cried out "that the Lord Fairfax was not there in person, that he would never sit among them, and that they did him wrong to name him as a commissioner." His last service as commander-in-chief was the suppression of the Leveller mutiny at Burford in May 1649. He had been reappointed lord general, but the council of state resolved to send an army against the Scots in 1650. Fairfax resigned his commission. Cromwell was appointed his successor. Fairfax received a pension of £5,000 a year, and lived in retirement at his Yorkshire home of Nunappleton till after the death of the Protector.

The troubles of the later Commonwealth recalled him to political activity, when Monk invited his co-operation against Lambert's army. When, in Dec. 1659, he appeared at the head of a body of Yorkshire gentlemen, 1,200 horse quitted Lambert's colours and joined him. That day secured the restoration of the

monarchy. Fairfax was elected member for Yorkshire in the "free" parliament, and led the commission appointed by the House of Commons to wait upon Charles II. at The Hague and urge his speedy return.

The remaining eleven years of the life of Lord Fairfax were spent in retirement at his seat in Yorkshire. He died at Nunappleton on Nov. 12, 1671, and was buried at Bilborough, near York. As a soldier he was exact and methodical in planning, in the heat of battle "so highly transported that scarce any one durst speak a word to him" (Whitelocke), chivalrous and punctilious in his dealings with his own men and the enemy. Honour and conscientiousness were equally the characteristics of his private and public character. But both in war and peace he was overshadowed by his associate Cromwell.

Lord Fairfax translated some of the Psalms, and wrote poems on solitude, the Christian warfare, the shortness of life, etc. During the last year or two of his life he wrote two *Memorials* which have been published—one on the northern actions in which he was engaged in 1642–44, and the other on some events in his tenure of the chief command. At York and at Oxford he endeavoured to save the libraries from pillage, and he enriched the Bodleian with some valuable mss. His only daughter, Mary Fairfax, was married to George Villiers, the profligate duke of Buckingham of Charles II.'s court.

See the correspondence of Fairfax (2 vols. ed. G. W. Johnson 1849, and 3 vols. ed. R. Bell, as *Memorials of the Civil War*, 1849); C. R. Markham, *The Great Lord Fairfax* (1870); S. R. Gardiner, *History of the Great Civil War* (1893).

His descendant Thomas, 6th baron (*1692–1782*), inherited from his mother, the heiress of Thomas, 2nd Baron Culpepper, large estates in Virginia, U.S.A., and having sold Denton Hall and his Yorkshire estates he retired there about 1746, dying a bachelor. He was a friend of George Washington. Thomas found his cousin William Fairfax settled in Virginia, and made him his agent, and Bryan (1737–1802), the son of William Fairfax, eventually inherited the title, becoming 8th baron in 1793. His claim was admitted by the House of Lords in 1800. But it was practically dropped by the American family, until, shortly before the coronation of Edward VII., the successor in title was discovered in Albert Kirby Fairfax (b. 1870), a descendant of the 8th baron, who was an American citizen. In Nov. 1908 Albert's claim to the title as 12th baron was confirmed by the House of Lords.

FAIRFIELD, a city of Jefferson county, Alabama, U.S.A., 5m. W. of Birmingham; served by the Birmingham Southern and the Southern railways. The population was 5,003 in 1920 (46% negroes) and was estimated locally at 12,000 in 1928. It is an industrial suburb, with large steel plants, coke, freight-car, wire, brick and chemical works. The city was founded in 1910 to provide for the employés of the new plants of the United States Steel Corporation (which in 1907 had purchased the Tennessee Coal, Iron and Railroad company), and was laid out with a regard to beauty. It is the seat of the Employés' hospital of the Tennessee Coal, Iron and Railroad company. The city was incorporated in 1918.

FAIRFIELD, a town of Fairfield county, Connecticut, U.S.A., on Long Island sound, adjoining Bridgeport on the west. It is served by the New York, New Haven and Hartford railroad. The population in 1920 was 11,475, and was estimated locally at over 17,000 in 1928. The town is a summer resort. Truck-gardening is an important occupation, and the principal village, Fairfield, has structural steel and boiler-plate plants, an aluminium factory, a gold and silver refinery, and other manufacturing industries. The town was settled in 1639 by Roger Ludlow, who in 1637 had been one of a band which defeated the Pequot Indians in the vicinity and was attracted by the region. During the colonial period it was a place of importance, but later was overshadowed by Bridgeport. On July 8, 1779, it was burned by the British and Hessians under Governor Tryon.

FAIRFIELD, a city of south-eastern Iowa, U.S.A., on Federal highway 34 and served by the Burlington and the Rock Island railways; the county seat of Jefferson county. The population (95% native white) was 6,353 in 1925 (State census). It is in a blue-grass country, where much live stock is raised, and is an important market for draft horses. The city has important manufactures, especially of dairy and farm equipment which goes to all parts of the country. The output in 1927 was valued at about $6,000,000. An annual Chautauqua assembly is held in a 30ac. park just east of the city, which has an auditorium seating 4,000. Fairfield was settled in 1839 and chartered as a city in 1847. It is the seat of Parsons college (Presbyterian), endowed by Lewis Baldwin Parsons, Sr. (1793–1855), a merchant of Buffalo, N.Y., and established in 1875.

FAIRHAVEN, a town of Bristol county, Massachusetts, U.S.A., on Buzzard's bay, opposite New Bedford; served by the New York, New Haven and Hartford railway. The population in 1925 was 10,827. It is a summer resort, and has a number of factories, making tacks, laundry machines, small yachts and boats and toilet powder. From 1830 to 1857 whaling was the principal industry, but the fishing interests are now relatively unimportant. Many of the public buildings were gifts from Henry H. Rogers (1840–1909), long vice president of the Standard Oil Company, who was a native of the place. Fairhaven was separated from New Bedford and incorporated as a town in 1812. In Sept. 1778, forces from the fleet under Lord Grey, sent to punish New Bedford for its privateering, dismantled the small fort which had been built early in the war on the east side of the harbour; and a day or two later they began to set fire to Fairhaven, but were driven off by 150 minute-men under Major Israel Fearing. The fort was rebuilt at once, and during the war of 1812 (under the name of Ft. Phoenix) was one of the strongest defences on the New England coast.

FAIR ISLAND. An isolated island situated between the Orkney and Shetland islands north-east of Scotland. It has an area of six sq.m. and is of rocky formation. The principal industries are fishing, sheep farming and the knitting of multi-coloured garments for which the island is famous. It is noted among ornithologists for the numerous species of migrant birds observed there.

FAIRMONT, a city of southern Minnesota, U.S.A., 120m. S.W. of Minneapolis; the county seat of Martin county. It is on Federal highway 16, and is served by the Chicago and North Western and the Chicago, Milwaukee, St. Paul and Pacific railways. The population was 4,630 in 1920 (88% native white) and was estimated locally at 6,000 in 1928. It is the trade centre for a farming, dairying and poultry-raising region, is a summer resort, and has sundry manufacturing industries. The city was founded about 1866 and incorporated in 1886.

FAIRMONT, a city of northern West Virginia, U.S.A., 75m. S. by W. of Pittsburgh, at the head of navigation on the Monongahela river; the county seat of Marion county. It is on Federal highway 19, and is served by the Baltimore and Ohio and the Monongahela railways. The population was 17,851 in 1920 (88% native white). The city is built on hills, at an altitude of 800 to 900 feet. It is an important shipping point for coal, of which over 8,000,000 tons were mined in the county in 1926; it is the seat of a State normal school, and has various manufacturing industries (including powder and chemical plants, glass works and textile mills) with an output in 1927 valued at $10,495,160. A town was laid out here in 1819, which in 1842 became the county seat of the newly erected county. Until about 1844 it was called Middletown. The city was chartered in 1899. Since 1890, when the population was only 1,023, it has grown rapidly. In 1920 the population was 17,851.

FAIR OAKS, a station on a branch (formerly famous as the York river railway) of the Southern railway, 6m. east of Richmond, Virginia, U.S.A. It is noted as the site of one of the battles of the Civil War, fought on May 31 and June 1, 1862, between the Union (Army of the Potomac) under Gen. G. B. McClellan and the Confederate forces (Army of Northern Virginia) commanded by Gen. J. E. Johnston. The attack of the Confederates was made at a moment when the river Chickahominy di vided the Federal army into two unequal o corps on the south bank, three on the d was moreover swollen

to such a degree as to endanger the bridges Gen Johnston stationed part of his troops along the river to prevent the Federals sending aid to the smaller force south of it, upon which the Confederate attack, commanded by Gen. Longstreet, was directed. Many accidents, due to the inexperience of the staff officers and to the difficulty of the ground, hindered the development of Longstreet's attack, but the Federals were gradually driven back with a loss of ten guns, though at the last moment reinforcements managed to cross the river and re-establish the line of defence. At the close of the day Johnston was severely wounded, and Gen. G. W. Smith succeeded to the command. The battle was renewed on June 1 but not fought out. At the close of the action Gen. R. E. Lee took over the command of the Confederates, which he held till the final surrender in April 1865. So far as the victory lay with either side, it was with the Union army, for the Confederates failed to achieve their purpose of destroying the almost isolated left wing of McClellan's army, and after the battle they withdrew into the lines of Richmond. The Union losses were 5,031 in killed, wounded and missing; those of the Confederates were 6,134. The battle is alternatively known as the battle of Seven Pines.

FAIRPORT HARBOR, village, Lake county, Ohio, U.S.A., on Lake Erie, 28m. N.N.E. of Cleveland. It is a port of entry, and is served by the Baltimore and Ohio railroad and lake steamers. The population was 4,211 in 1920 (36% foreign-born white). It has one of the finest natural harbours, and one of the oldest lighthouses, on Lake Erie. The commerce of the port in 1925 amounted to 4,327,276 tons, valued at $41,941,156, and consisted largely (on the basis of tonnage) of incoming iron ore and limestone and shipments of coal. A Finnish newspaper is published here. The village was settled in 1812, by pioneers from Connecticut, and the first county court was held here. It soon became an important commercial port. In 1847 cargoes valued at $991,000 (chiefly farm wagons, furniture, cheese, flour and oil of peppermint) were carried by the 2,987 sailing vessels that entered the harbour.

FAIR TRADE, the name given in 1881 in Great Britain to a movement to protect industry from foreign competition by means of import duties. The term "fair trade" was coined to express the conception that free trade was unfair unless reciprocal, and that Great Britain should not admit duty free goods imported from countries which denied free trade to British exports. The boom in British trade of the decade before, having been followed by a period of depression culminating in great unemployment and distress, a fair trade league was formed in 1881. The league found many adherents and published a weekly journal called *Fair Trade*, the issue of which was continued until 1890, when with the revival of industry the agitation died down and was not renewed until the tariff reform movement of the end of the 19th century, led by Joseph Chamberlain. (*See* PROTECTION; TARIFF REFORM.)

FAIRŪZĀBĀDĪ (Abū-ṭ-Ṭāhir ibn Ibrahīm Majd ud-Dīn ul-Fairūzābādī) (1329–1414), Arabian lexicographer, was born at Kārazīn near Shiraz. His student days were spent in Shiraz, Wāsit, Baghdad and Damascus. He taught for ten years in Jerusalem, and afterwards travelled in western Asia and Egypt. In 1368 he settled in Mecca, where he remained for 15 years. He next visited India and spent some time in Delhi, then remained in Mecca another ten years. The following three years were spent in Baghdad, in Shiraz (where he was received by Timur), and in Ta'iz. In 1395 he was appointed chief cadī (qadī) of Yemen, married a daughter of the sultan, and died at Zabīd in 1414. During this last period of his life he converted his house at Mecca into a school of Mālikite law and established three teachers in it. He wrote a huge lexicographical work of 60 or 100 volumes uniting the dictionaries of Ibn Sīda, a Spanish philologist (d 1066), and of Sajānī (d 1252). A digest of or an extract from this last work is his famous dictionary *al-Qāmūs* ("the Ocean"), which has been published in Egypt, Constantinople and India, has been translated into Turkish and Persian, and has itself been the basis of several later dictionaries

FAIRWAY, the navigable channel of a river or other waterway. It is usually marked by buoys of distinctive shape, letter or colour The maintenance of a fairway is often a matter of great care, calling for continuous dredging and clearance. (*See* RIVER ENGINEERING; DREDGERS AND DREDGING; BUOY.) By derivation, the term is also used of the open passage on a golf course between the hazards, such as furze, water, bunkers. (*See* GOLF.)

FAIRY, the common term for a supposed race of supernatural beings who magically intermeddle in human affairs. (Fr *fée, faerie;* Prov. *fada;* Sp. *hada;* Ital. *fata;* med. Lat. *fatare,* to enchant, from Lat. *fatum,* fate, destiny.) They are not the immediate product of one country or of one time; they have a pedigree. But mixture and connection of races have so changed the original folk-product that it is difficult to separate the different strains that have gone to the moulding of the result.

It is not in literature that the early forms of the fairy belief must be sought. Many of Homer's heroes have fairy lemans, called nymphs, but the fairy leman is familiar to the unpoetical Eskimo, and to the Red Indians, with their bird-bride and beaver-bride (*see* A. Lang's *Custom and Myth,* "The Story of Cupid and Psyche"). The Gandharvas of Sanskrit poetry are also fairies.

One of the most interesting facts about fairies is the wide distribution and long persistence of the belief in them. They are the chief factor in surviving Irish superstition. Here they dwell in the "raths," old earth-forts. They are an organized people, and their life corresponds to human life in all particulars. They carry off children and are generally the causes of all mysterious phenomena. Whirls of dust are caused by the fairy marching army, as by the beings called Kutchi in the Dieri tribe of Australia. The fairy changeling belief also exists in some districts of Argyll. In Ireland and the west Highlands neolithic arrow-heads and flint chips are still fairy weapons. They are dipped in water, which is given to ailing cattle and human beings as a sovereign remedy for diseases. In the Highlands there is much more interest in second sight than in fairies, while in Ireland the reverse is the case. The best book on Celtic fairy lore is still that of the minister of Aberfoyle, the Rev. Mr. Kirk (*ob.* 1692). His work on *The Secret Commonwealth of Elves, Fauns, and Fairies,* left in ms. and incomplete (the remainder is in the Laing mss., Edinburgh University library), was published (100 copies) in 1815 by Sir Walter Scott, and in the *Bibliothèque de Carabas* (Lang) there is a French translation.

It is clear that in many respects fairyland corresponds to the pre-Christian abode of the dead. Like Persephone when carried to Hades, or Wainamoïnen in the Hades of the Finns (Manala), a living human being must not eat in fairyland; if he does, he dwells there for ever.

There is a theory that the fairies survive in legend from prehistoric memories of a pigmy people dwelling in the subterranean earth-houses, but the contents of these do not indicate an age prior to the close of the Roman occupation of Britain; nor are pigmy bones common in neolithic sepulchres. The "people of peace" (*Daoine Shie*) of Ireland and Scotland are usually of ordinary stature, only varying from mankind by their proceedings (*See* J. Curtin, *Irish Folk-tales.*)

The belief in a species of lady fairies, deathly to their human lovers, was found by R. L. Stevenson to be as common in Samoa (see *Island Nights' Entertainments*) as on the banks of Loch Awe. The Greek sirens of Homer are a form of these fairies, as the Nereids, Oreads and Naiads are fairies of wells, mountains and the sea. The fairy women who come to the births of children and foretell their fortunes (*Fata, Moerae,* ancient Egyptian *Hathors, Fées, Dominae Fatales*), with their spindles, are refractions of the human "spae-women" (in the Scots term) who derive omens of the child's future from various signs. These women, represented in the spiritual world by *Fata,* bequeath to us the French *fée,* in the sense of fairy. Perrault uses *fée* for anything that has magical quality.

The nearest analogy to the shape which fairy belief takes in Scotland and Ireland—the "pixies" of south-western England—is in *Jān* or *Jinnīs* of the Arabs, Moors and people of Palestine In stories which have passed through a literary medium, like *The Arabian Nights,* the *geni* or *Jān* do not so much resemble our fairies as they do in the popular superstitions of the East orally

collected. They chiefly differ from our fairies in their greater tendency to wear animal forms: though when they choose to appear in human shape they are not to be distinguished from mortals. Like the fairies everywhere they have amours with mortals. The herb rue is potent against them, as in British folk-lore. They, like the British brownies (a kind of domesticated fairy), are the causes of strange disappearances of things. To preserve houses from their influences rue is kept, and the name of Allah is constantly invoked.

They often bear animal names Euphemistically they are addressed as *mubbrakin*, "blessed ones." As our fairies give gold which changes into withered leaves, the *Jān* give onion peels which turn into gold. Like our fairies the *Jān* can apply an ointment, kohl, to human eyes, after which the person so favoured can see *Jān*, which are invisible to other mortals, and can see treasure wherever it may be concealed. (See *Folk-lore of the Holy Land*, by J. E. Hanauer, 1907.)

The enjoyment of love between a fairy and a mortal is generally qualified by some restriction or compact, the breaking of which is the cause of calamity to the lover and all his race, as in the notable tale of Melusine (*q.v.*, and *see* the chapter *De lamiis et nocturnis larvis in Otia Imperialia*, written early in the 13th century, by Gervaise of Tilbury). At the birth of Ogier le Danois six fairies attend, five of whom give good gifts, which the sixth overrides with a restriction. There is little in these fairies of romance to distinguish them from human beings, except their supernatural knowledge and power. To this class belong the fairies of Boiardo, Ariosto and Spenser.

There is no good modern book on the fairy belief in general. Keightley's *Fairy Mythology* is interesting; Rhys's *Celtic Mythology* is copious about Welsh fairies, practically identical with those of Ireland and Scotland. The works of Mr. Jeremiah Curtin and Dr. Douglas Hyde are useful for Ireland; for Scotland, Kirk's *Secret Commonwealth* has already been quoted. Scott's dissertation on fairies in *The Border Minstrelsy* is rich in lore, though Scott had not the benefit of recent researches. There is a full description of French fairies of the 15th century in the evidence of Jeanne d'Arc at her trial (1431) in Quicherat's *Procès de Jeanne d'Arc*, vol. i. pp. 67, 68, 187, 209, 212; vol. ii. pp. 390, 404, 450. In another vein is Sir A. Conan Doyle's *The Coming of the Fairies* (1922).

FAIRY RING, the popular name for the circular patches of a dark green colour seen occasionally on permanent grass-land, either lawn or meadow, on which the fairies were supposed to hold their midnight revels. They mark the area of growth of some fungus, starting from a centre of one or more plants. The mycelium produced from the spores dropped by the fungus or from the "spawn" in the soil, radiates outwards, and each year's successive crop of fungi rises from the new growth round the circle. The rich colour of the grass is due to the fertilizing quality of the decaying fungi, which are peculiarly rich in nitrogenous substances. For further details *see* FUNGI.

FAITH is an attitude of mind which, though not confined to religious experience, can best be examined by setting out from its manifestations within that sphere of experience. There we find in clearest form illustrations of the several shades of meaning which the word "faith" has borne. A classic definition is that presented in the *Epistle to the Hebrews*, xi., 1: "faith is the substance of things hoped for, the evidence of things not seen." The word for "evidence" is, in the Revised version, rendered as "proving," and for "substance" are offered the alternative translations "assurance" and "the giving substance to." Assurance, certitude or convincedness, and giving substance to what we do not perceive and as to which we, therefore, only entertain an idea or a supposition, may at first seem somewhat disparate meanings for one word; but the connection between them is revealed by a common signification of the word "realize." We speak of realizing what some event is when we discern its import, and when what was, so to say, "nothing to us" is found to be something with which we have to reckon or which can influence our thought and action. Personal certitude or conviction as to what as yet is not matter of scientific knowledge or proven with logical certainty, is of the essence of faith; and action upon it *may* lead on to discovery of the actuality of the object, *i.e.*, to substantiation of the hoped-for or the unseen. In the case of faith in God, whom "no man hath seen at any time," such certitude cannot issue in sight or sensibly verified knowledge; though it may develop into "proving" in the sense of establishing reasoned and reasonable belief, such as fact and experience corroborate. But in other spheres faith often issues in knowledge, such as can be characterized as seeing or perceiving what, without such exercise of faith would have remained unseen or unknown. Thus the faith of Columbus "realized" America for the European; and an idea of Stephenson's led to the actual locomotive engine. In neither case did faith create the reality, but in both it substantiated the unseen, and brought men into actual touch with what had been but conceived or supposed. Thus faith begins in creating or fashioning an idea; and it may issue in finding a real counterpart to the idea. There is, however, no necessity that it shall so issue, and frequently it does not; no one, *e.g.*, has realized the idea of a machine capable of perpetual motion, though many have experimented with the notion. The description of faith cited above from Heb. xi. 1 is only lacking in psychological completeness, in that it contemplates successful ventures alone, and is silent as to such as may fail. Otherwise it is of more general and exhaustive a nature than is any other conception met with in the New Testament. For instance, St. Paul considers the efficacy of faith only in so far as it is faith in Christ or in God; one of his central doctrines is that we are justified by God through faith in Christ. On the other hand the writer of *Hebrews* includes, among his illustrations of the faithful life, the case of Rahab who was one of "them that believed not" in the God of Israel; and the object of faith, with him, includes the whole region of the unseen, whatever it may contain. His teaching is aptly expressed in the lines of Hartley Coleridge: faith

> ". . . is an affirmation and an act
> That binds eternal truth to present fact."

The long list of instances of the faithful given in Heb. xi. is made up of prophets, kings, etc., who achieved the heroic life and victories of various kinds, in virtue of their souls being possessed by faith; their faith was verified by their lives. They are all concrete embodiments of the principle "nothing venture, nothing have." And that principle is not only the essence of religious faith; it underlies the acquisition of all human knowledge, such as, for the conduct of life, is most worth having. Thus the "father of the faithful" who obeyed his inward summons and went forward "not knowing whither" is an allegory of the intellectual progress of mankind. Man did not begin with scientific knowledge or knowing, but with learning through doing. He learned by failure as well as by success, and in either case he ventured before he came to have. The uniformity of nature, *e.g.*, was not written so legibly on natural phenomena that, in the time of man's primitiveness, he who ran could read it off. On the other hand, if it had not been tentatively assumed, here a little and there a little, it could never have got "substance" for man's knowledge or relevance to his life; had it not been trusted while as yet unverified, no evidence of its actuality could have emerged. And the most recent advance in logic consists in making clearer than ever before that this principle of uniformity, underlying all our inductive science, is, and must ever remain, a postulate incapable of logical proof. Thus faith, in its primary sense, is not a word to be confined to the vocabulary of theology. Philosophy, or theory of knowledge, requires it and so does science, if it would understand its own logical structure and the presuppositions on which it rests. Probability is not only "the guide of life"; it is also of the very texture of all "knowledge" as to the actual world as distinguished from pure mathematics or truth as to the relations between ideas; and probability in the last resort, *i.e.*, in the case of the fundamental postulates underlying induction—is not a matter of numerical calculability or of formal logic, but of human hope, sanguine expectation, faith in the unseen. Instead of being logically certified it is but pragmatically "verified." The old hard and fast line between knowledge and belief or faith has disappeared. The very rationality of the world, which science would read and expound, is at bottom an idea of faith. Reason if it include the discovery of true premises as well as the ogical

deduction of consequences from premises that may be either true or false constitutes faith as well as logical linkage of sense data.

Besides the primary meaning that has been set forth "faith" has borne others. Sometimes the word has been used as a synonym for "belief" or intellectual assent. But whereas belief is more or less constrained by fact already known, and which convinces us independently of any striving on our part, "faith" is generally used to emphasize the active or volitional element of experience, involved in venture reaching beyond the already known. Faith, again, is to be distinguished from credulity, with which it is apt to be confounded. The open mind and docility, personified in the New Testament as "the little child" are requisite for reception of truth; but there is no beatitude on credulousness. If faith, or the working to a lead or suggestion that experience suggests but does not warrant, is to issue in reasonable belief, credulity must be restrained by resort to the method of doubt, which is equally essential for acquisition of knowledge. And faith proper is doubt-sifted credulity. It proves all things before holding fast to them as true, and pursues no apparently open road after it has been shown to be closed; whereas credulity is interested belief, such as is often resorted to in order to escape the discomfort of uncertitude. Faith or belief worth calling belief must often "be purchased with the sweat of the brow." Another meaning of "faith" current in theological literature as well as in common speech, is that of trust. This resembles faith, as above described, and differs from belief in involving will and feeling: but it is rather an attitude issuing out of, and presupposing, the faith which creates its idea and then establishes belief in its actuality. Before we can trust in God, we must first believe that He is; and that belief is acquired by a venture of faith. Lastly, it is unnecessary to narrow down faith to *moral* postulation, or to the attitude of valuation, exclusively. Religious faith was forthcoming before advanced morality appeared; moreover, it is not concerned with what ought to be real or realized, but with what *is* realizable Theology founded on faith is dogma concerning ultimate reality, not pictorial recipes for pious conduct. When religious faith is conceived as but a particular case of the faith that is involved in all knowledge and reason, science and faith can be seen to be complementary, not mutually exclusive; they can lodge, without need of reconciliation, in brotherly relation within one mind, provided the mind is content with reasonableness, where logical rationality is unattainable.

See W. R. Inge, *Faith* (1909); J. Ward, *Essays in Philosophy* (1927); G. Galloway, *Faith and Reason in Religion* (1927).

(F. R. T.)

FAITHFULL, EMILY (1835–1895), English philanthropist, daughter of the Rev. Ferdinand Faithfull, was born at Headley rectory, Surrey, in 1835. She took a great interest in the conditions of working-women, and in 1860 she set up in London a printing establishment for women. She was shortly afterwards appointed printer and publisher in ordinary to Queen Victoria. In *The Victoria Magazine* (est. 1863) she continuously and earnestly advocated the claims of women to remunerative employment. In 1868 she published a novel, *Change upon Change*. She lectured widely and successfully both in England and the United States on feminist subjects. Emily Faithfull died in Manchester on May 31, 1895.

FAITH HEALING, a form of "mind cure," characterized by the doctrine that pain and disease really exist, but may be neutralized and dispelled by faith in Divine power; Christian Science (*q.v.*) holds that pain is an illusion and seeks to cure the patient by instilling into him this belief In the Christian Church the tradition of faith healing dates from the earliest days of Christianity; upon the miracles of the New Testament follow cases of healing, first by the Apostles, then by their successors. After the 3rd century it became transformed into trust in relics, though faith cures still occur sporadically in later times. With the Reformation faith healing proper reappears among the Moravians and Waldenses, who, like the peculiar people of our own day, put their trust in prayer and anointing with oil. In the 16th century faith cures were recorded of Luther and other reformers, in the next century of the Baptists, Quakers, and other Puritan sects, and in the 18th century the faith healing of the Methodists in this country was paralleled by pietism in Germany. In the 19th century Prince Hohenlohe-Waldenburg-Schillingsfurst, canon of Gross wardein, was a famous healer on the continent; the Mormons and Irvingites were prominent among English-speaking peoples; in the last quarter of the 19th century faith healing became popular in London, and Bethshan homes were opened in 1881, and since then it has found many adherents in England.

Under faith healing in a wider sense may be included (1) the cures in the temples of Aesculapius and other deities in the ancient world; (2) the practice of touching for the king's evil, in vogue from the 11th to the 18th century; (3) the cures of Valentine Greatrakes, the "stroker" (1629–83); and (4) the miracles of Lourdes and other resorts of pilgrims, including St. Winifred's well in Flintshire, Trêves with its holy coat, the grave of the Jansenist F. de Paris in the 18th century, the little town of Kevelaer from 1641 onwards, the tombs of St. Louis, Francis of Assisi, Catherine of Siena, and others.

An animistic theory of disease was held by several European faith healers. Used in this sense, faith healing is indistinguishable from much of savage leech-craft, which seeks to cure disease by expelling the evil spirit in some portion of the body. Although it is usually present, faith in the medicine man is not essential for the efficacy of the method. The same may be said of the lineal descendant of savage medicine—the magical leech-craft of European folk-lore; cures for toothache, warts, etc., act in spite of the disbelief of the sufferer; how far incredulity on the part of the healer would result in failure is an open question.

From the psychological point of view all kinds of mind cure depend on suggestion (*q.v.*). In faith healing proper powerful direct suggestions are used, while the religious atmosphere and the auto-suggestions of the patient co-operate, especially where the cures take place during a period of religious revival when large assemblies and strong emotions are found.

See A. T. Myers and F. W. H. Myers in *Proc. Soc. Psychical Research*, ix. 160–209, on the miracles of Lourdes, with bibliography; A. Feilding, *Faith Healing and Christian Science;* O. Stoll, *Suggestion und Hypnotismus in der Volkerpsychologie;* article "Greatrakes" in *Dict. Nat. Biog.*

(N. W. T.)

FAITHORNE, WILLIAM (1626 or 1627–1691), English painter and engraver, was born in London and was apprenticed to Robert Peake, a painter and printseller. On the outbreak of the Civil War he accompanied his master into the king's service, and being made prisoner at Basinghouse, he was confined for some time to Aldersgate, where, however, he was permitted to follow his profession of engraver, and among other portraits, did a small one of the first Villiers, duke of Buckingham. He was soon released, but only on condition of retiring to France. There he received instruction from Robert Nanteuil. He returned to England about 1650, and carried on his work as an engraver and printseller in a shop near Temple bar. In 1680 he gave up his shop and retired to a house in Blackfriars, occupying himself chiefly in painting portraits from the life in crayons, although still occasionally engaged in engraving. Faithorne engraved the portraits of a large number of eminent persons, including Sir Henry Spelman, Oliver Cromwell, Henry Somerset, the marquis of Worcester, John Milton, Queen Catherine, Prince Rupert, Cardinal Richelieu, Sir Thomas Fairfax, Thomas Hobbes, Richard Hooker, Robert 2nd earl of Essex, and Charles I. Faithorne wrote *The Art of Graving and Etching* (1662). He was the master of Wenceslaus Hollar. He was buried at St. Anne's, Blackfriars, on May 13, 1691.

In addition to his engraved portraits, Faithorne executed many portrait-drawings in crayons, examples of which may be seen in the British Museum, the Bodleian and other collections. Among the most famous of his engravings are two exceedingly rare maps, "an exact delineation" of the cities of London, Westminster and suburbs (only impression known in *Bibl. Nat.*, Paris) in 12 sheets, measuring in all 72 by 39in.; one of Virginia and Maryland (only known impression in Grenville library, Brit. Mus., London) in 4 sheets, measuring altogether 36 by 31 inches. In May 1857 Messrs. Evans, London, and again in 1878, Stanford, London, published facsimiles of the map in the *Bibliotheque Nationale*.

n WILLIAM (1656–1686?), mezzotint engraver, engraved of Charles II., Mary princess of Orange, Queen Anne n ess of Denmark and Charles XII. of Sweden

st account of the Faithornes is that contained in Walpole's *f Painting*. A life of Faithorne the elder is preserved in n Museum among the papers of Bayford, librarian to Lord nd an intimate friend of Faithorne.

ABAD, a town of Afghanistan, capital of the province kshan situated on the Kokcha river. In 1821 it was d by Murad Beg of Kunduz, and the inhabitants removed iz But since Badakshan was annexed by Abdur Rahman, has recovered its former importance, and is now a ble place of trade. It is the chief cantonment for eastern tan and the Pamir region, and is protected by a fort 1904.

ARDO, the largest and most important town on the ost of Porto Rico. According to the census of 1920 the n was 6,571, which had increased to 7,833 in 1928. s a prosperous town with considerable shipping and de The district is one of the richest sugar-producing the island: in it is located the plant of the Fajardo Sugar . It has good schools, churches, stores and shops, and is d with the other towns by rail and highways. Motor-bus available to all points, and the port has service both for nd passenger transportation.

ILU: *see* BARI.

HR UD-DĪN RĀZI (1149–1209), Arabian historian logian, was born at Rai (Rei, Rhagae), near Teheran. at Marāgha he studied philosophy and theology. He was e in law and a follower of Ash'arī (*q.v.*) in theology, and renowned as a defender of orthodoxy. During a journey nzm and Mawara'l-nahr he preached both in Persian and gainst the sects of Islam. He settled later in Herat, ied.

atest work, the *Mafātih ul-Ghaib* ("The Keys of Mystery"), sive commentary on the Koran appeared at Cairo (8 vols., Is dogmatic position may be seen from his work *Kitāb ul-*, which is analysed by Schmölders in his *Essai sur les écoles ques chez les Arabes* (Paris, 1842). Extracts from his *of the Dynasties* were published by Jourdain in the *Fund-e. Orients* (vol. v.), and by D. R. Heinzius (St. Petersburg,

o F. Wüstenfeld, *Geschichte der arabischen Ärzte*, No. 200 n, 1840); for a list of his works *cf.* C. Brockelmann's *Gesch. ischen Literatur*, vol. I (Weimar, 1898) and M. Schreiner, *der deuts. morgenländischen Gesellsch.* vol. 52.

NESY OF THE BOARD OF FOREIGN MISSIONS

MAD FAKIR OF INDIA READING HIS PRAYERS ON A BED OF NAILS

ss of fakir has little in common with the religious order of the same except a claim to sanctity. The beggars that compose it wander about rotry, living on alms and subjecting themselves to unbelievable tortures

KIR (fah-kēr), a generic term, synonymous with Dervish, religious mendicant. A Mohammedan word, it has come to plied also to Hindus, replacing *bhikshu* and older words. are so all the creeds of India, and in theory mostly belong to a religious order. But as a Muslim order does not usually profess celibacy and the Hindu and other orders do not always enforce it, the orders tend to form castes on the ordinary pattern. Where strict monasticism has been maintained the influence of the orders has been on the whole good. But when discipline has been relaxed, many evils have ensued. Mendicancy has often become a pretext for extortion and occult powers a cloak for impudent swindling, sometimes assisted by murder. While many fakirs practise austerities of the severest kinds, others peregrinate the country with performing animals, selling love philtres, profess to transmute silver coin or other metals into gold, and batten on the credulity of the people. The chief Hindu orders are the Saniasis, Gosains, Jogis (who in theory profess *yoga*), bairāgis, the Sikh Udāsīs, Nirmalas, Akālīs, the Mohammedan Chishtis, Qādirīs, Suharwardīs, Naqshbandīs, who owe much to Sufism (*q.v.*), and a host of minor fraternities. Several orders have militant branches.

FALAISE, a town of north-western France, capital of an arrondissement in the department of Calvados, on the right bank of the Ante, 19 m. S. by E. of Caen by road. Pop. (1926) 5,263. The castle, now partly in ruins, was formerly the seat of the dukes of Normandy and the birthplace of William the Conqueror. It stands on a high crag overlooking the town, and consists of a square mass defended by towers and flanked by a small donjon and a lofty tower added by the English in the 15th century; the rest of the castle dates chiefly from the 12th century. Near the castle, in the Place de la Trinité, is an equestrian statue in bronze of William the Conqueror, to whom the town owed its prosperity. From 1417, when the town succumbed to Henry V. of England till 1450, when it was retaken by the French, Falaise was in the hands of the English. Falaise has populous suburbs, one of which Guibray, is celebrated for its annual fair for horses, cattle and wool, which has been held in August since the 11th century. The town is the seat of a subprefecture and has tribunals of first instance and commerce, a chamber of arts and manufacture and a board of trade-arbitrators. Tanning (from at least the 11th cent.) and some cotton manufactures are carried on.

FALASHAS or "Jews of Abyssinia," a tribe of Hamitic stock akin to Galla, who profess the Jewish religion and claim to be descended from the ten tribes banished from the Holy Land. Another tradition assigns them, as ancestor, Menelek, Solomon's alleged son by the queen of Sheba. It is uncertain when they became Jews: one account suggests in Solomon's time; another, at the Babylonian captivity; a third, during the 1st century of the Christian era. One of the earlier dates is in all probability correct since the Falashas know nothing of either the Babylonian or Jerusalem Talmud, make no use of phylacteries (*tefillin*), and observe neither the feast of Purim nor the dedication of the temple. They possess—not in Hebrew, of which they are altogether ignorant, but in Ethiopic (or Geez)—the canonical and apocryphal books of the Old Testament; a volume of extracts from the Pentateuch, with comments given to Moses by God on Mount Sinai; the Te-e-sa-sa Sanbat, or laws of the Sabbath; the Ardit, a book of secrets revealed to twelve saints, which is used as a charm against disease; lives of Abraham, Moses, etc., and a translation of Josephus called Sana Aihud. A copy of the Orit or Mosaic law is kept in the holy of holies in every synagogue. Every newly-built house is considered uninhabitable till the blood of a sheep or fowl has been spilt in it; a woman guilty of a breach of chastity has to undergo purification by leaping into a flaming fire; the Sabbath has been deified, and, as the goddess Sanbat, receives adoration and sacrifice and is said to have ten thousand times ten thousand angels to wait on her commands.

Under the monastic system, founded it is said in the 4th century A.D. by Aba Zebra, a pious man who retired from the world and lived in the cave of Hobarewa, in the province of Armatshoho, the monks must prepare all their food with their own hands, and no lay person, male or female, may enter their houses. Priests are allowed to marry once only, and no one is admitted into the order who has eaten bread with a Christian, or is the son or grand son of a man thus con ted Belief in the evil eye or shadow is universal, and spirit raisers soothsayers and rain-doctors are in

repute. Education is in the hands of the monks and priests, and is confined to boys. Fasts, obligatory on all above seven years of age, are held on every Monday and Thursday, on every new moon and at the passover (April 21 or 22). The annual festivals are the passover, the harvest feast, the Baala Mazalat or feast of tabernacles (during which, however, no booths are built), the day of covenant or assembly and Abraham's day. It is believed that after death the soul remains in a place of darkness till the third day, when the first sacrifice for the dead is offered; prayers are read in the synagogue for the repose of the departed, and for seven days a formal lament takes place every morning in his house. No coffins are used, and a stone vault is built over the corpse so that it may not come into direct contact with the earth.

The Falashas live for the most part in villages of their own, or, if settled in a Christian or Mohammedan town, occupy a separate quarter. Their own kings, they pretend, were descended from David, but in 1800, the royal race became extinct, and they then became subject to the Abyssinian kingdom of Tigré. They do not mix with the Abyssinians, and never marry women of alien religions. They are even forbidden to enter the houses of Christians, and from such a pollution have to be purified before entering their own houses. Polygamy is not practised; early marriages are rare and their morals are generally better than those of their Christian masters. They have no liking for trade, but are skilled in agriculture, in the manufacture of pottery, ironware and cloth and are good masons

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FALCÃO, CHRISTOVAM (?1512–?1553), Portuguese poet, born at Portalegre in the Alemtejo, is said to have fallen in love with an 11-year-old heiress, Maria Brandão, to have married her, and to have been separated from her by hostile parents. He then entered the diplomatic service, and died about 1553. The love story is told in some beautiful lyrics and in the charming eclogue *Chrisfal*. Falcão was the friend of Bernardim Ribeiro, and the poems are very similar in style to Ribeiro's. It is suggested by many critics that *Chrisfal* is really Ribeiro's work.

For a discussion of the authorship of *Chrisfal see* A. F. G. Bell, *Portuguese Literature* (1922). There is a modern critical edition of *Chrisfal* and a *Carta* (letter) by A. Epiphanio da Silva Dias under the title *Obras de Christovão Falcão* (Oporto, 1893), and one of the *Cantigas* and *Esparsas* by the same scholar appeared in the *Revista Lusitana*, vol. iv., pp. 142–179 (1896), under the name *Fragmento de um Cancioneiro do Seculo XVI. See* Dr. T. Braga, *Bernardim Ribeiro e o Bucolismo* (Oporto, 1897), and Delfim Guimarães, *Bernardim Ribeiro (O Poeta Crisfal)* (1908).

FALCK, ANTON REINHARD (1777–1843), Dutch statesman, was born at Utrecht on March 19, 1777. He studied at the University of Leiden, entered the diplomatic service, and became ambassador at Madrid Under King Louis Napoleon he was secretary-general for foreign affairs, but resigned office on the annexation of the Batavian republic to France. He took part in the revolt of 1813 and in the organization of the new kingdom of the Netherlands. He was minister of education and of the colonies under William I., until the king tired of his counsels and sent him as ambassador to London. The disturbances of 1830 convinced him of the necessity of the separation of Belgium from Holland. He consequently resigned his post and lived in close retirement until 1839, when he became the first Dutch minister at the Belgian court. He died at Brussels on March 16, 1843. Besides some historical works he left *Brieven van A. R. Falck, 1795–1843* (2nd ed. The Hague, 1861), and *Ambtsbrieven van A R Falck* (*ibid.* 1878). His memoirs were edited by Colenbrander in 1913.

FALCÓN, the most northern State of Venezuela, with an extensive coast-line on the Caribbean sea and Gulf of Venezuela. Pop (1926) 178 642 It lies between the Caribbean on the north and the State of Lara on the south, with Zulia and the Gulf of Venezuela on the west. Its surface is much broken by irregular ranges of low mountains, and extensive areas on the coast are sandy plains and tropical swamps. The climate is hot, but, being tempered by the trade winds, is not considered unhealthy except in the swampy districts. The State is sparsely settled and has no large towns, its capital, Coro (pop. 1926, 10,932), being important chiefly because of its history, and as the entrepôt for an extensive inland district. The only port in the State is La Vela de Coro, on a small bay of the same name, 7 m. E. of the capital, with which it is connected by railway. In recent years petroleum has been discovered in the State and is being extracted.

FALCON, the name applied to the long-winged birds of prey which take their quarry as it moves. As in all the group of diurnal birds of prey, the female is larger than the male. As type of the family *Falconidae* may be taken the peregrine falcon (*Falco peregrinus*), and the scarcely separable duck-hawk (*F. anatum*) of North America and *F melanogenys* of Australia. The peregrine falcon inhabits practically every part of the world, except where it is replaced by its allies noticed above. For its size, it is perhaps the most powerful bird of prey that flies, and its courage is as great as its power Famous in the days of hawking (*see* FALCONRY), the plumage of this bird is blackish-blue above and white with a more or less deep cream-coloured tinge below, barred, except on the chin and throat, with black. It nests on cliffs and trees, laying four or five eggs mottled with reddish-brown.

THE PEREGRINE FALCON, A COURAGEOUS AND POWERFUL BIRD OF PREY, TRAINED IN EUROPE FOR THE SPORT OF HAWKING

The gyrfalcon (*F. gyrfalco*) is larger and inhabits the Scandinavian mountains. The Iceland falcon (*F. islandus*), which also inhabits South Greenland, is paler, while the Greenland falcon (*F. candicans*) is white with dark streaks. The kindred *F. labradorus* of North-east America is very dark both above and below

The "desert" falcons differ from the preceding in that they retain the longitudinal barring on the breast throughout life, instead of changing it after the first moult to transverse bars. They include in the Old World the lanner (*F. biarmicus*), the saker (*F. cherrug*) and the lugger, or luggar (*F. jugger*), of India; in the New, the prairie falcon (*F. mexicanus*) of the western plains of North America.

The hobby falcons are characterized by their bold upstanding position and long wings. The beautiful little English hobby (*F subbeto*) lives mainly on insects and is a summer visitor to most parts of Europe. Many other species are known. *See* MERLIN, KESTREL.

A falcon is also a primitive light gun, 2½in. bore, weighing about 6cwt., and firing a 2lb. shot. It takes its name from the bird of prey in accordance with an old fashion (*Cf.* FALCONET, MUSKET).

FALCONE, ANIELLO (1600–1656), Italian battle-painter, was born in Naples He studied under Ribera (Lo Spagnoletto), was influenced by Domenichino and later by the Dutch school He introduced the new problems of lighting and colour into fresco-painting. There are three authentic works extant. He decorated the cupola of a chapel in San Paolo dei Padri Teatini at Naples He painted a "Flight into Egypt" in the sacristy of Naples Cathedral (signed and dated 1641); and the frescoes in the sacristy of Gesú Nuovo, also at Naples. He was famous as a battle-painter, two of his battle-pieces being in the Naples museum and in the Prado, Madrid. Some engraved plates are attributed to him without sufficient evidence.

FALCONER, HUGH (1808–1865), British palaeontologist and botanist, was born at Forres on Feb. 29, 1808. He studied at Aberdeen and at Edinburgh, where he took his M.D. in 1829 Pr to Calcutta n 830 as assistant surgeon on the Bengal

establishment of the East India Company, he soon published his descriptions of the fossil bones from Ava in the possession of the Asiatic Society of Bengal. In 1831 he was appointed superintendent of the botanic garden of Saharanpur. In 1834 he published a geological description of the Siwalik hills and subsequently brought to light a sub-tropical fossil fauna of unexampled extent and richness, including remains of *Mastodon*, the colossal ruminant *Sivatherium*, and the enormous tortoise *Colossochelys Atlas*. It was on his recommendation in 1834 that tea was introduced into India.

When illness required him to return to England in 1842, he began his *Fauna Antiqua Sivalensis*, of which Part I. was issued in 1845 and 107 plates during the years 1846–49. He was elected F.R.S. in 1845, and in 1847 was appointed superintendent of the Calcutta botanical garden, and professor of botany in the medical college.

In 1850 he published an important report on the teak forests of Tenasserim, and through his recommendation the cultivation of the cinchona bark was introduced into India. From 1855, he spent the remainder of his life in examining fossil species in England and on the Continent corresponding to those found in India, notably the species of mastodon, elephant and rhinoceros; he also described some new mammalia from the Purbeck strata, and he reported on the bone-caves of Sicily, Gibraltar, Gower and Brixham. He died on Jan. 31, 1865.

Falconer's botanical notes, with 450 coloured drawings of Kashmir and Indian plants, were deposited in the library at Kew Gardens, and his *Palaeontological Memoirs and Notes* were edited, with a biographical sketch, by C. Murchison (1868). See also *Essays, descriptive and biographical* (1901) by his niece Lady Prestwich.

FALCONER, WILLIAM (1732–1769), British poet, was born in Edinburgh, the son of a wig-maker. He went to sea, and at the age of 18 was second mate on the "Britannia" when she was wrecked off Cape Colonna. Falconer was one of the three saved. The voyage was the subject of his poem *The Shipwreck* (1762). On his return he published an elegy on Frederick, Prince of Wales, and some poems in the *Gentleman's Magazine*. He dedicated *The Shipwreck* to the Duke of York, who advised him to enter the navy. After the peace of 1763 he became purser of the "Glory" frigate. In 1764 he published a new edition of *The Shipwreck* and *The Demagogue*, an attack on Wilkes and Charles Churchill. In 1769 appeared his *Universal Marine Dictionary*. He was then appointed purser of the "Aurora" frigate, sailing to India. She left Spithead on Sept. 20, 1769, reached the Cape, which she left on Dec. 27, and was never heard of again. *The Shipwreck* had a great reputation in its day, which it has not preserved.

See *Falconer's Poetical Works* (Aldwe Edition 1836), with a life by J. Mitford. *The Shipwreck* (1887) has a life by W. H. D. Adams.

FALCONET, ÉTIENNE MAURICE (1716–1791), French sculptor, was born at Vevey, and died in Paris on Jan. 4, 1791. He was at first apprenticed to a carpenter, but some of his clay-figures attracted the notice of the sculptor Lemoine, who made him his pupil. His statue of Milo of Crotona secured his admission to the Academy of Fine Arts in 1754. At St. Petersburg (Leningrad) he executed a colossal statue of Peter the Great in bronze (1766). In 1788 he became director of the French academy of painting. Falconet's *"Nymphe descendant au bain"* is in the Louvre.

His writings were collected under the title of *Oeuvres littéraires* (6 vols., Lausanne, 1781–82; 3 vols., Paris, 1787).

FALCONIDAE: *see* FALCON; CARACARA.

FALCONRY. The art of employing falcons and hawks in the chase, often termed hawking (Fr. *fauconnerie*, from late Lat. *falco*, falcon). Falconry was a favourite recreation of the aristocracy during the middle ages, followed, as it seems, more as a sport than as a means of getting game for the table. The antiquity of falconry is very great. It appears to have been known in China some 2,000 years B.C. In Japan it appears to have been known at least 600 years B.C., and probably at an equally early date in India, Arabia, Persia and Syria. Sir A. H. Layard says that on a bas-relief found in the ruins of Khorsabad "there appeared to be a falconer bearing a hawk on his wrist," from which it would appear to have been known there some 1,700 years B.C. In all the above mentioned countries of Asia it is practised at the present day.

Persian and Arabic manuscripts attribute the origin of falconry to a pre-historic Persian king; certain it is that the Moguls gave a great impetus to hawking in India. From ancient carvings and drawings it seems to have been known in Egypt many ages ago. The older writers on falconry, English and Continental, often mention Barbary and Tunisian falcons. It is still practised in Egypt. The oldest records of falconry in Europe are in the writings of Pliny, Aristotle and Martial. It was probably introduced into England from the Continent about A.D. 860, and from that time down to the middle of the 17th century, falconry was followed with an ardour that perhaps no English sport has ever evoked. Stringent laws and enactments were passed from time to time in its interest. About the middle of the 17th century its popularity began to decline in England, to revive somewhat at the Restoration; it never however recovered its former favour, a variety of causes operating against it, such as the enclosure of waste lands and the introduction of fire-arms into the sporting field. Yet it has never been even temporarily extinct, and it is practised at the present day.

In Europe the "quarry" at which hawks are flown consists of grouse (confined to the British Isles), black-game, pheasants, partridges, quails, landrails, ducks, teal, woodcocks, snipe, herons, rooks, crows, gulls, magpies, jays, blackbirds, thrushes, larks, hares and rabbits; in former days geese, cranes, kites, ravens and bustards were also flown at. Old German works make much mention of the use of the Iceland falcon for taking the great bustard, a flight scarcely alluded to by English writers. In Asia the list of "quarry" is longer, and in addition to all the foregoing, or their Asiatic representatives, various kinds of bustards, sand grouse, storks, ibises, spoonbills, stone plovers, grass owls, short eared owls, rollers, hoopoes, pea fowl, jungle fowl, kites, vultures and gazelles are captured by trained hawks. In Mongolia and Chinese Tartary, and among the nomad tribes of Central Asia the sport still flourishes; and a species of eagle known locally as the "berkute" is trained in those regions to take large game, such as antelopes and wolves. In a letter from the Yarkand embassy, dated Nov. 27, 1873, the following passage occurs: "Hawking appears to be a favourite amusement, the golden eagle taking the place of the falcon or hawk." In Africa gazelles are taken and also partridges and wild fowl. The hawks used in England are the Greenland, Iceland and Norway falcons, the peregrine falcon, the hobby, the merlin, the goshawk and the sparrow-hawk. In former days the saker, the lanner and the Barbary or Tunisian falcon were also employed. The most efficient in the field are the peregrine falcon and the goshawk. In all species of hawk the female is larger and more powerful than the male.

Hawks are divided by falconers all over the world into two classes. The first class comprises "falcons," *i.e.*, "long winged hawks," or "hawks of the lure." Merlins come into this category; they are undoubtedly falcons. The goshawk was by courtesy sometimes styled a falcon. The second class is that of "hawks," *i.e.*, "short-winged hawks," or "hawks of the fist"; in these the wings are not pointed but rounded.

Training.—It is through the appetite principally that hawks are tamed; but to fit them for use in the field, much patience, gentleness and care are necessary. Slovenly taming necessitates starving, and low condition and weakness are the result. The aim of the falconer should be to have his hawk always keen, and the appetite, when it is brought into the field, should be such as would induce the bird in a state of nature to put forth its full powers to obtain its food, with, as near as possible, a corresponding bodily condition.

The following is a description of the process of training hawks. When first taken, a rufter or easy-fitting hood should be put on her head, and she must be furnished with jesses, swivel, leash and bell; jesses are strips of light leather for the legs. A thick glove or rather gauntlet should be worn on the left hand. (Eastern falconers always carry a hawk on the right.) She must be carried on the fist for several hours at a time and late into the night at intervals being gently stroked with a bird's wing or feather. At

TRAINED EAGLE FLYING TO FIST

has been trained to fly either to lure or to fist. The falconer is protected against the bird's strong mask, and with horsehide glove of double thickness and an extra leather sleeve fo[r] the [left] a[rm]

BY COURTESY OF CAPTAIN C. W. R. KNIGHT

"INTERMEWED" FALCON

"Intermewed" peregrine falcon (*Falco peregrinus*) so called because it has moulted in the "mews," where hawks are kept. The transverse markings indicate that the bird has moulted; before moulting they are perpendicular. A moulting hawk is kept in very high condition and at liberty in a room within the "mews"; under these conditions it moults quickly and acquires strong and beautiful plumage