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THE ENCYCLOPÆDIA BRITANNICA

A DICTIONARY OF ARTS, SCIENCES, LITERATURE AND GENERAL INFORMATION

ELEVENTH EDITION

VOLUME XVII SLICE VII

Mars to Matteawan

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MARTHA'S VINEYARD	MASSEY, SIR EDWARD
MARTÍ, JUAN JOSÉ	MASSEY, GERALD
MARTIAL	MASSICUS, MONS
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MARTINEAU, JAMES	MASULIPATAM
MARTINET	MAT
MARTÍNEZ DE LA ROSA, FRANCISCO DE PAULA	MATABELE
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MARUTS	MATHERAN
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MARX, HEINRICH KARL
 MARY (the mother of Jesus)
 MARY (Magdalene)
 MARY I.
 MARY II.
 MARY QUEEN OF SCOTS
 MARY (duchess of Burgundy)
 MARY (queen of France)
 MARY OF LORRAINE
 MARY OF MODENA
 MARY OF ORANGE
 MARYBOROUGH (Ireland)
 MARYBOROUGH (Queensland, Australia)
 MARYBOROUGH (Victoria, Australia)
 MARYLAND
 MARYPORT
 MARZABOTTO
 MASACCIO

MATHEW, THEOBALD
 MATHEWS, CHARLES
 MATHEWS, THOMAS
 MATHY, KARL
 MATILDA (queen of England)
 MATILDA (countess of Tuscany)
 MATINS
 MATLOCK
 MATOS FRAGOSO, JUAN DE
 MATRASS
 MATRIARCHATE
 MATRIMONY
 MATRIX
 MATROSS
 MATSUKATA
 MATSYS, QUINTIN
 MATTEAWAN



MARS, in astronomy, the fourth planet in the order of distance from the sun, and the next outside the earth. To the naked eye it appears as a bright star of a decidedly reddish or lurid tint, which contrasts strongly with the whiteness of Venus and Jupiter. At opposition it is brighter than a first magnitude star, sometimes outshining even Sirius. It is by virtue of its position the most favourably situated of all the planets for observation from the earth. The eccentricity of its orbit, 0.0933, is greater than that of any other major planet except Mercury. The result is that at an opposition near perihelion Mars is markedly nearer to the earth than at an opposition near aphelion, the one distance being about 35 million miles; the other 63 million. These numbers express only the minimum distances at or near opposition, and not the distance at other times. The time of revolution of Mars is 686.98 days. The mean interval between oppositions is 2 years 49½ days, but, owing to the eccentricity of the orbit, the actual excess over two years ranges from 36 days to more than 2½ months. Its period of rotation is 24 h. 37 m. 22.66 s. (H. G. Bakhuyzen).

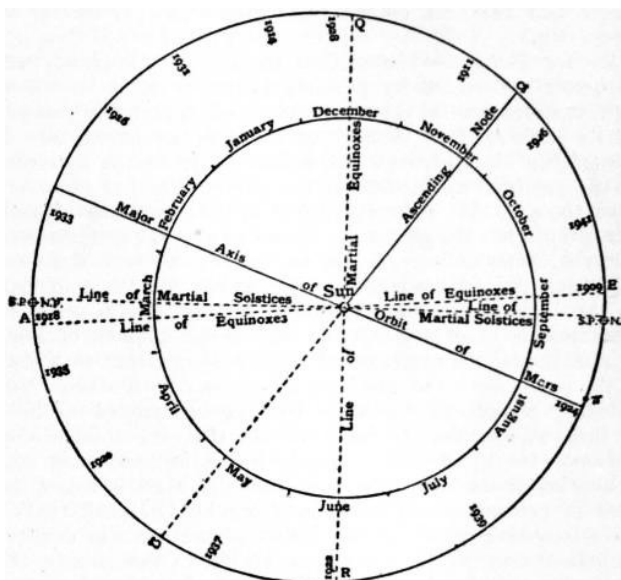


FIG. 1.—Orbits of Mars and the Earth, showing aspects of the planet relative to the earth and sun.

Motions.—The accompanying diagram will convey a notion of the varied aspects presented by the planet, of the cycles of change through which they go, and of the order in which the oppositions follow each other. The outer circle represents the orbit of Mars, the inner one that of the earth. AE is the line of the equinoxes from which longitudes are counted. The perihelion of Mars is in longitude 335° at the point π. The ascending node Ω is in longitude 47°. The line of nodes makes an angle of 74° with the major axis, so that Mars is south of the ecliptic near perihelion, but north of it near aphelion. Around the inner circle, representing the earth's orbit, are marked the months during which the earth passes through the different parts of the orbit. It will be seen that the distance of Mars at the time of any opposition depends upon the month in which opposition occurs. The least possible distance would occur in an opposition about the end of August, a little before Mars reached the perihelion, because the eccentricity of the earth's orbit throws our planet a little farther from the sun and nearer the orbit of Mars in July than it does in August. The opposition of 1909 occurred on the 24th of September, at a point marked by the year near the equinox, and the month and years of the oppositions following, up to 1941, are also shown in the same way. Tracing them around, it will be seen that the points of opposition travel around the orbit in about 16 years, so that oppositions near perihelion, when Mars is therefore nearest the earth, occur at intervals of 15 or 17 years.

The axis of rotation of the planet is inclined between 23° and 24° to the orbit, and the equator of the planet has

the same inclination to the plane of the orbit. The north pole is directed toward a point in longitude 355° , in consequence of which the projection of the planet's axis upon the plane of the ecliptic is nearly parallel to the line of our equinoxes. This projection is shown by the dotted line SP-NP, which corresponds closely to the line of the Martian solstices. It will be seen that at a September opposition the north pole of the planet is turned away from the sun, so that only the southern hemisphere is presented to us, and only the south pole can be seen from the earth. The Martian vernal equinox is near Q and the northern solstice near A. Here at the point S.P. the northern hemisphere is turned toward the sun. It will be seen that the aspect of the planet at opposition, especially the hemisphere which is visible, varies with the month of opposition, the general rule being that the northern hemisphere of the planet is entirely seen only near aphelion oppositions, and therefore when farthest from us, while the southern hemisphere is best seen near perihelion oppositions. The distances of the planet from the sun at aphelion and at perihelion are nearly in the ratio 6:5. The intensity of the sun's radiation on the planet is as the inverse square of this ratio. It is therefore more than 40% greater near perihelion than near aphelion. It follows from all this that the southern hemisphere is subjected to a more intense solar heat than the northern, and must therefore have a warmer summer season. But the length of the seasons is the inverse of this, the summer of the northern hemisphere being longer and the heat of the southern hemisphere shorter in proportion.

Surface Features.—The surface features of the planet will be better understood by first considering what is known of its atmosphere and of the temperature which probably prevails on its surface. One method of detecting an atmosphere is through its absorption of the different rays in the spectrum of the sunlight reflected from the planet. Several observers have thought that they saw fairly distinct evidence of such absorption when the planet was examined with the spectroscope. But the observations were not conclusive; and with the view of setting the question at rest if possible, W. W. Campbell at the Lick Observatory instituted a very careful series of spectroscopic observations.¹ To reduce the chances of error to a minimum the spectrum of Mars was compared with that of the moon when the two bodies were near each other. Not the slightest difference could be seen between any of the lines in the two spectra. It being certain that the spectrum of the moon is not affected by absorption, it followed that any absorption produced by the atmosphere of Mars is below the limit of perception. It was considered by Campbell that if the atmosphere of Mars were $\frac{1}{4}$ that of the earth in density, the absorption would have been visible. Consequently the atmosphere of Mars would be of a density less than $\frac{1}{4}$ that of the earth.²

Closely related to the question of an atmosphere is that of possible clouds above the surface of the planet, the existence of which, if real, would necessarily imply an atmosphere of a density approaching the limit set by Campbell's observations. The most favourable opportunity for seeing clouds would be when they are formed above a region of the planet upon which the sun is about to rise, or from which it has just been setting. The cloud will then be illuminated by the sun's rays while the surface below it is in darkness, and will appear to an observer on the earth as a spot of light outside the terminator, or visible edge of the illuminated part of the disk. It is noticeable that phenomena more or less of this character, though by no means common, have been noted by observers on several occasions. Among these have been the Mt Hamilton and Lowell observers, and W. H. Pickering at Arequipa. Campbell has shown that many of them may be accounted for by supposing the presence of mountains not more than two miles in height, which may well exist on the planet. While this hypothesis will serve to explain several of these appearances, this can scarcely be said of a detached spot observed on the evening of the 26th of May 1903, at the Lowell Observatory.³ Dr Slipher, who first saw it, was so struck by the appearance of the projection from the terminator upon the dark side of the disk that he called the other observers to witness it. Micrometric measures showed that it was some 300 miles in length, and that its highest point stood some 17 miles above the surface of the planet. That a cloud should be formed at such a height in so rare an atmosphere seems difficult to account for except on the principle that the rate of diminution of the density of an atmosphere with its height is proportional to the intensity of gravity, which is smaller on Mars than on the earth. The colour was not white, but tawny, of the tint exhibited by a cloud of dust. Percival Lowell therefore suggests that this and other appearances of the same kind seen from time to time are probably dust clouds, travelling over the desert, as they sometimes do on the earth, and settling slowly again to the ground.

Temperature.—Up to a recent time all that could be said of the probable temperature of Mars was that, being more distant from the sun than the earth, and having a rarer atmosphere, it had a general mean temperature probably below that of the earth. Greater precision can now be given to this theoretical conclusion by recent determination of the law of radiation of heat by bodies at different temperatures. Regarding it as fairly well established that at ordinary temperatures the radiation varies directly as the fourth power of the absolute temperature, it is possible when the "solar constant" is known to compute the temperature of a non-coloured body at the distance of Mars which presents every part of its surface in rapid succession to the sun's rays in the absence of atmosphere only. This has been elaborately done for the major planets by J. H. Poynting,⁴ who computes that the mean temperature of Mars is far below the freezing point of water. On the other hand an investigation made by Lowell in 1907,⁵ taking into account the effect of the rare atmosphere on the heat lost by reflection, and of several other factors in the problem hitherto overlooked, led him to the conclusion that the mean temperature is about 48° Fahr.⁶ But the temperature may rise much above the mean on those regions of the surface exposed to a nearly vertical noon-day sun. The diurnal changes of temperature, being diminished by an atmosphere, must be greater on Mars than on the earth, so that the vicissitudes of temperature are there very great, but cannot be exactly determined, because they must depend upon the conductivity and thermal capacity of the matter composing the surface of the planet. What we can say with confidence is that, during the Martian winter of between eight and twelve of our months, the regions around either pole must fall to a temperature nearer the absolute zero than any known on this planet. In fact the climatic conditions in all but the equatorial regions are probably of the same nature as those which prevail on the tops of our highest mountains, except that the cold is more intense.⁷

Having these preliminary considerations in mind, we may now study the features presented to our view by the surface of the planet. These have a permanence and invariability which markedly differentiate them from the ever varying surfaces of Jupiter and Saturn, and show that what we see is a solid surface, like that of our earth. They were observed and delineated by the leading astronomers of the 16th century, especially Huygens, Cassini and Hooke. These observers could only distinguish the different regions upon the planet as bright or dark. Reasoning as they did in the case of the moon, it was naturally supposed that the brighter regions were land and the darker ones seas. The observers of our time find that the darker regions have a slightly blue-green aspect, which might suggest the idea of water, but are variegated in a way to show that they must be composed of a solid crust, like the brighter regions. The latter have a decidedly warm red or ochre tint, which gives the characteristic colour to the planet as seen by the naked eye. The regions in equatorial and middle latitudes, which are those best seen from our planet, show a surface of which the general aspect is not dissimilar to that which would be presented by the deserts of our earth when seen from the moon. With each improvement in the telescope the numerous drawings of the planet show more definiteness and certainty in details. About 1830 a fairly good map was made by W. Beer and J. H. Mädler, a

work which has been repeated by a number of observers since that time. The volume of literature on the subject, illustrated by drawings and maps, has become so great that it is impossible here to present even an abstract of it; and it would not be practicable, even were it instructive, to enter upon any detailed description of Martian topography. A few great and well-marked features were depicted by the earliest observers, who saw them so plainly that they may be recognized by their drawings at the present time. There is also a general agreement among nearly all observers with good instruments as to the general features of the planet, but even in the latest drawings there is a marked divergence as to the minuter details. This is especially true of the boundaries of the more ill-defined regions, and of the faint and difficult markings of various kinds which are very numerous on every part of the planet. There is not even a close agreement between the drawings by the same observer at different oppositions; but this may be largely due to seasonal and other changes.

The most striking feature, and one which shows the greatest resemblance to a familiar terrestrial process, is that when either polar region comes into view after being turned nearly a year away from the sun, it is found to be covered with a white cap. This gradually contracts in extent as the sun shines upon it during the remaining half of the Martian year, sometimes nearly disappearing. That this change is due to the precipitation of watery vapour in the form of ice, snow or frost during the winter, and its melting or evaporation when exposed to the sun's rays, is so obvious a conclusion that it has never been seriously questioned. It has indeed been suggested that the deposit may be frozen carbonic acid. While we cannot pronounce this out of the question, the probabilities seem in favour of the deposit being due to the precipitation of aqueous vapour in a frozen form. At a temperature of -50° C., which is far above what we can suppose to prevail in the polar regions during the winter, the tension of aqueous vapour is 0.034 mm. On the other hand Faraday found the tension of carbonic acid to be still an entire atmosphere at as low a temperature as -80° C. Numerically exact statements are impossible owing to our want of knowledge of the actual temperature, which must depend partly upon air currents between the equator and the poles of Mars. It can, however, be said, in a general way, that a proportion of aqueous vapour in the rare atmosphere of Mars, far smaller than that which prevails on the earth, would suffice to explain the observed formation and disappearances of the polar caps. Since every improvement in the telescope and in the conditions of observation must enable modern observers to see all that their predecessors did and yet more, we shall confine our statements to the latest results. These may be derived from the work of Professor Lowell of Boston, who in 1894 founded an observatory at Flagstaff, Arizona, 7250 ft. above sea-level, and supplied it with a 24" telescope, of which the main purpose was the study of Mars. This work has been continued with such care and assiduity that its results must take precedence of all others in everything that relates to our present subject.⁸

Among the more probable conclusions to be drawn from Lowell's observations, the following are of most interest. The darker areas are all seamed by lines and dots darker than themselves, which are permanent in position, so that there can be no bodies of water on the planet. On the other hand, their colour, blue-green, is that of vegetation. This fades out as vegetation would at certain seasons to faint blue-green, but in some places to a tawny brown. Each hemisphere undergoes these changes in its turn, the changes being opposite in opposite hemispheres. The changes in the dark areas follow some time after the melting of the polar caps. The aspect of these areas suggests old sea bottoms, and when on the terminator appear as depressions, though this may be only apparent and due to the dark colour. The smoothness and soft outline of the terminator shows that there are no mountains on Mars comparable with ours, but that the surface is surprisingly flat. White spots are occasionally visible in the tropical and temperate regions, which are perhaps due to the condensation of frost or snow, or to saline exudation such as seasonally occurs in India (Lowell). Moreover in winter the temperate zones are more or less covered by a whitish veil, which may be either hoar frost or cloud. A spring haze seems to surround the north polar cap during its most extensive melting; otherwise the Martian sky is quite clear, like that of a dry desert land. When either polar cap is melting it is bordered by a bluish area, which Lowell attributes to the water produced by the melting. But the obliquity at which the sun's rays strike the surface as the cap is melting away is so great that it would seem to preclude the possibility of a temperature high enough to melt the snow into water. Under the low barometric pressure prevailing on the planet, snow would evaporate under the influence of the sun's rays without changing into water. It is also contended that what looks like such a bluish border may be formed around a bright area by the secondary aberration of a refracting telescope.⁹

The modern studies of Mars which have aroused so much public interest began with the work of Schiaparelli in 1877. Accepting the term "ocean," used by the older observers, to designate the widely extended darker regions on the planet, and holding that they were really bodies of water, he found that they were connected by comparatively narrow streaks. (Schiaparelli considered them really water until after the Lowell observations.) In accordance with the adopted system of nomenclature, he termed these streaks *canale*, a word of which the proper rendering into English would be *channels*. But the word was actually translated into both English and French as canal, thus connoting artificiality in the supposed waterways, which were attributed to the inhabitants of the planet. The fact that they were many miles in breadth, and that it was therefore absurd to call them canals, did not prevent this term from being so extensively used that it is now scarcely possible to do away with it. A second series of observations was made by Schiaparelli at the opposition of 1879, when the planet was farther away, but was better situated as to altitude above the horizon. He now found a number of additional channels, which were much finer than those he had previously drawn. The great interest attaching to their seemingly artificial character gave an impetus to telescopic study of the planet which has continued to the present time. New canals were added, especially at the Lowell Observatory, until the entire number listed in 1908 amounted to more than 585. The general character of this complex system of lines is described by Lowell as a network covering the whole face of the planet, light and dark regions alike, and connecting at either end with the respective polar caps there. At their junctions are small dark pinheads of spots. The lines vary in size between themselves, but each maintains its own width throughout. But the more difficult of these objects are only seen occasionally and are variable in definiteness. Of two canals equally well situated for seeing, only one may be visible at one time and only the other at other times. If this variability of aspect among different canals is true as they are seen from the Lowell Observatory, we find it true to a much greater extent when we compare descriptions by different observers. At Flagstaff, the most favourably situated of all the points of observation, they are seen as fine sharp lines, sometimes as well marked as if drawn with a pencil. But other observers see them with varying degrees of breadth and diffuseness.

One remarkable feature of these objects is their occasional "gemination," some of the canals appearing as if doubled. This was first noticed by Schiaparelli, and has been confirmed, so far as observations can confirm it, by other observers. Different explanations of this phenomenon have been suggested, but the descriptions of it are not sufficiently definite to render any explanation worthy of entire confidence possible. Indeed the more cautious astronomers, who have not specially devoted themselves to the particular phenomena, reserve a doubt as to how far the apparent phenomena of the finer canals are real, and what the markings which give rise to their appearance might prove to be if a better and nearer view of the planet than is now possible could be obtained. Of the reality of

the better marked ones there can be no doubt, as they have been seen repeatedly by many observers, including those at the Lick Observatory, and have actually been photographed at the Lowell Observatory. The doubt is therefore confined to the vast network of lines so fine that they never certainly have been seen elsewhere than at Flagstaff. The difficulty of pronouncing upon their reality arises from the fact that we have to do mainly with objects not plainly visible (or, as Lowell contends, not plainly visible elsewhere). The question therefore becomes one of psychological optics rather than of astronomy. When the question is considered from this point of view it is found that combinations of light and shaded areas very different from continuous lines, will, under certain conditions, be interpreted by the eye as such lines; and when such is the case, long practice by an observer, however carefully conducted, may confirm him in this interpretation. To give a single example of the principles involved; it is found by experiment that if, through a long line so fine as to approach the limit of visibility, segments not too near each other, or so short that they would not be visible by themselves, be taken out, their absence from the line will not be noticed, and the latter will still seem continuous.¹⁰ In other words we do not change the aspect of the line by taking away from it a part which by itself would be invisible. This act of the eye, in interpreting a discontinuous series of very faint patches as a continuous line, is not, properly speaking, an optical illusion, but rather a habit. The arguments for the reality of all the phenomena associated with the canals, while cogent, have not sufficed to bring about a general consensus of opinion among critics beyond the limit already mentioned.

Accepting the view that the dark lines on Mars are objectively real and continuous, and are features as definite in reality as they appear in the telescope, Professor Lowell has put forth an explanation of sufficient interest to be mentioned here. His first proposition is that lines frequently thousands of miles long, each following closely a great circle, must be the product of design rather than of natural causes. His explanation is that they indicate the existence of irrigating canals which carry the water produced annually by the melting of the polar snows to every part of the planet. The actual canals are too minute to be visible to us. What we really see as dark lines are broad strips of vegetation, produced by artificial cultivation extending along each border of the irrigating streams. On the other hand, in the view of his critics, the quantity of ice or snow which the sun's rays could melt around the poles of Mars, the rate of flow and evaporation as the water is carried toward the equator, and several other of the conditions involved, require investigation before the theory can be established.¹¹

The accompanying illustrations of Mars and its canals are those of Lowell, and represent the planet as seen by the Flagstaff observers.

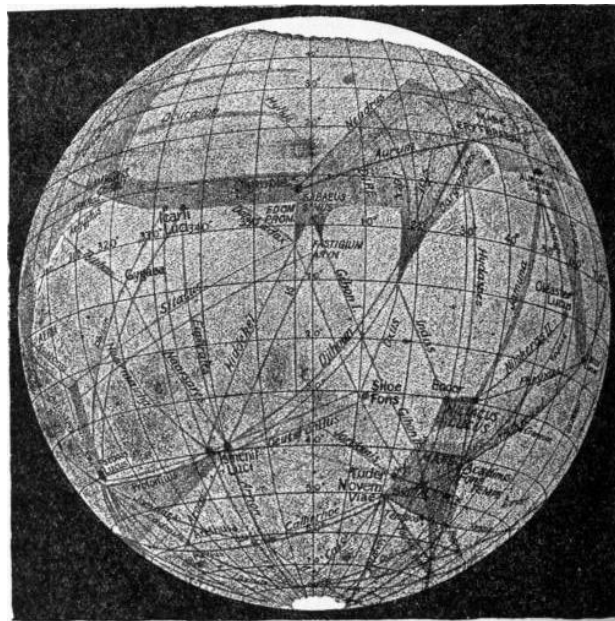


FIG. 2.

Satellites and Pole of Mars.—At the opposition of Mars which occurred in August 1877 the planet was unusually near the earth. Asaph Hall, then in charge of the 26" telescope at the Naval Observatory in Washington, took advantage of this favourable circumstance to make a careful search for a visible satellite of the planet. On the night of the 11th of August he found a faint object near the planet. Cloudy weather intervened, and the object was not again seen until the 16th, when it was found to be moving with the planet, leaving no doubt as to its being a satellite. On the night following an inner satellite much nearer the planet was observed. This discovery, apart from its intrinsic interest, is also noteworthy as the first of a series of discoveries of satellites of the outer planets. The satellites of Mars are difficult to observe, on account not merely of their faintness, but of their proximity to the planet, the light of which is so bright as to nearly blot out that of the satellite. Intrinsicly the inner satellite is brighter than the outer one, but for the reason just mentioned it is more difficult to observe. The names given them by Hall were Deimos for the outer satellite and Phobos for the inner one, derived from the mythological horses that drew the chariot of the god Mars. A remarkable feature of the orbit of Phobos is that it is so near the planet as to perform a revolution in less than one-third that of the diurnal rotation of Mars. The result is that to an inhabitant of Mars this satellite would rise in the west and set in the east, making two apparent diurnal revolutions every day. The period of Deimos is only six days greater than that of a Martian day; consequently its apparent motion around the planet would be so slow that more than two days elapse between rising and setting, and again between setting and rising.

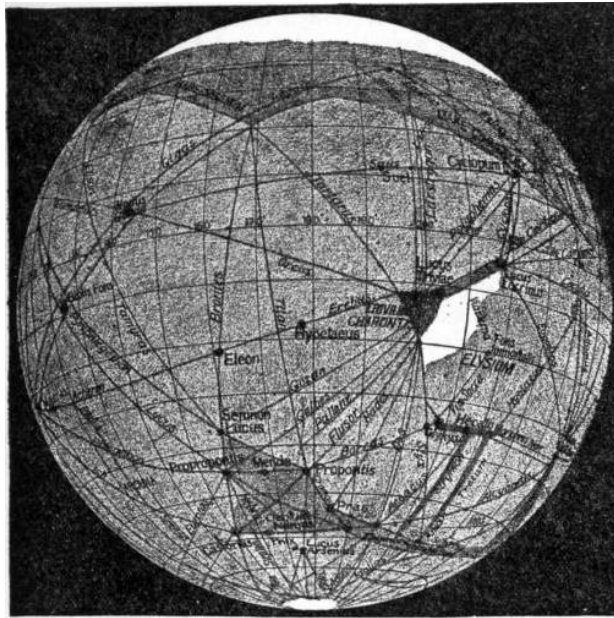


FIG. 3.

Owing to the minuteness of these bodies it is impossible to make any measures of their diameters. These can be inferred only from their brightness. Assuming them to be of the same colour as Mars, Lowell estimates them to be about ten miles for Deimos and somewhat more for Phobos. But these estimates are uncertain, not only from the somewhat hypothetical character of the data on which they rest, but from the difficulty of accurately estimating the brightness of such an object in the glare of the planet.

A long and careful series of observations was made upon these bodies by other observers. Later, especially at the very favourable oppositions of 1892 and 1894, observations were made by Hermann Struve at Poulkova, who subjected all the observations up to 1898 to a very careful discussion. He showed that the inclination of the planes of the orbits to the equator of the planet is quite small, thus making it certain that these two planes can never wander far from each other. In the following statement of the numerical elements of the entire system, Struve's results are given for the satellites, while those of Lowell are adopted for the position of the plane of the equator.

The relations of the several planes can be best conceived by considering the points at which lines perpendicular to them, or their poles, meet the celestial sphere. By theory, the pole of the orbital plane of each satellite revolves round the pole of a certain fixed plane, differing less from the plane of the equator of Mars the nearer the satellite is to Mars. Lowell from a combination of his own observations with those of Schiaparelli, Lohse and Cerulli, found for the pole of the axis of rotation of Mars¹²:—

$$\text{R.A.} = 317.5^\circ; \quad \text{Dec.} = +54.5^\circ; \text{ Epoch, 1905.}$$

Tilt¹³ of Martian Equator to Martian ecliptic, $23^\circ. 59'$. Hermann Struve, from the observations of the satellites, found theoretically the following positions of this pole, and of those of the fixed planes of the satellite orbits for 1900:—

Pole of Mars: R.A.	= 317.25°	Dec. = 52.63°
Pole of fixed plane for Phobos	= 317.24°	= 52.64°
Pole of fixed plane for Deimos	= 316.20°	= 53.37°

Lowell's position of the pole is that now adopted by the British Nautical Almanac.

The actual positions of the poles of the satellite—orbits revolve around these poles of the two fixed planes in circles. Putting N for the right-ascensions of their nodes on the plane of the terrestrial equator, and J for their angular distance from the north terrestrial pole, N, and J, for the corresponding poles of the fixed planes, and t for the time in years after 1900, Struve's results are:—

Deimos.

$$\begin{aligned} N_1 &= 46^\circ.12' + 0.463' t; J = 36^\circ.42' - 0.24' t \\ (N - N_1) \sin J &= 97.6' \sin (356.8^\circ - 6.375^\circ t) \\ J - J_1 &= 97.6 \cos (356.8^\circ - 6.375^\circ t) \end{aligned}$$

Phobos.

$$\begin{aligned} N_1 &= 47^\circ 14.3' + 0.46' t; J_1 = 37^\circ 21.9' - 0.24' t \\ (N - N_1) \sin J &= 53.1' \sin (257^\circ.1' - 158.0^\circ t) \\ J - J_1 &= 53.1' \cos (257^\circ.1' - 158.0^\circ t) \end{aligned}$$

The other elements are:—

	Deimos.	Phobos.
Mean long. 1894, Oct. o.o G.M.T	186.25°	296.13°
Mean daily motion (tropical)	285.16198°	1128.84396°
Mean distance ($\Delta = 1$)	32.373°	12.938°
Long. of pericentre, ($\pi + N$)	$264^\circ + 6.375^\circ t$	$14^\circ + 158.0^\circ t$
Eccentricity of orbit	0.0031	0.0217
Epoch for t	1900.0	1900.0

BIBLIOGRAPHY.—Flammarion, *La Planète Mars et ses conditions d'habitabilité* (Paris, 1892), embodies so copious a résumé of all the publications and drawings relating to Mars up to 1891 that there is little occasion for reference in detail to early publications. Among the principal sources may be mentioned the *Monthly Notices* and *Memoirs* of the Royal Astronomical Society, the publications of the Astronomical Society of the Pacific, especially vols. vi., viii. and

ix., containing observations and discussions by the Mt Hamilton astronomers, and the journals, *Sidereal Messenger*, *Astronomy* and *Astrophysics* and *Astrophysical Journal*. Schiaparelli's extended memoirs appeared under the general title *Osservazioni astronomiche e fisiche sull'asse di rotazione e sulla topografia del pianeta Marte*, and were published in different volumes of the *Memoirs of the Reale Accademia dei Lincei* of Rome. The observations and drawings of Lowell are found *in extenso* in *Annals of the Lowell Observatory*. Lowell's conclusions are summarized in *Mars and its Canals*, by Percival Lowell (1906), and *Mars as the Abode of Life* (1909). In connexion with his work may be mentioned *Mars and its Mystery*, by Edward S. Morse (Boston, 1906), the work of a naturalist who made studies of the planet at the Lowell Observatory in 1905. Brief discussions and notices will also be found in the Lowell Observatory *Bulletins*. The optical principles involved in the interpretations of the canals are discussed in recent volumes of the *Monthly Notices, R.A.S.*, and in the *Astrophysical Journal*. In 1907 the veteran A. R. Wallace disputed Lowell's views vigorously in his *Is Mars Habitable?* and was briefly answered by Lowell in *Nature*, who contended that Wallace's theory was not in accord with celestial mechanics.

(S. N.)

- 1 *Astronomy and Astrophysics*, iii. 752, and *Astron. Soc. of the Pacific, Publications*, vi. 273 and ix. 109.
- 2 According to Percival Lowell these results were, however, inconclusive because the strong atmospheric lines lie redwards beyond the part of the spectrum then possible to observe. Subsequently, by experimenting with sensitizing dyes, Dr Slipher of the Lowell Observatory succeeded in 1908 in photographing the spectrum far into the red. Comparison spectrograms of Mars and the Moon, taken by him at equal altitudes on such plates, eight in all, show the "a" band, the great band of water-vapour was distinctly stronger in the spectrum of Mars, thus affording what appeared decisive evidence of water vapour in the atmosphere of the planet.
- 3 Lowell, *Mars and its Canals*, p. 101.
- 4 *Phil. Trans.*, vol. 202 A, p. 525.
- 5 *Proc. Amer. Acad. Arts and Sciences*, vol. xlii. No. 25.
- 6 Professor F. W. Very concurs with Lowell (*Phil. Mag.*, 1908).
- 7 According to Lowell, the climatic conditions are proportionally warm in summer.
- 8 The great space penetration of the Lowell Observatory is shown in the case of stars. More stars have been mapped there in a given space than at the Lick, and Mr Ritchey of the Yerkes Observatory found stars easily visible there which were only just perceptible at Yerkes.
- 9 As against this, Lowell's answer is that the effect is not optical; for the belt surrounds the *melting*, not the *making cap*.
- 10 For limits of this theory and Lowell's view of its inapplicability to Mars, see *Astrophys. Jour.*, Sept. 1907.
- 11 Prof. Lowell's theory is supported by so much evidence of different kinds that his own exposition should be read *in extenso* in *Mars and its canals* and *Mars as the abode of life*. In order, however, that his views may be adequately presented here, he has kindly supplied the following summary in his own words:—

"Owing to inadequate atmospheric advantages generally, much misapprehension exists as to the definiteness with which the surface of Mars is seen under good conditions. In steady air the canals are perfectly distinct lines, not unlike the Fraunhofer ones of the Spectrum, pencil lines or gossamer filaments according to size. All the observers at Flagstaff concur in this. The photographs of them taken there also confirm it up to the limit of their ability. Careful experiments by the same observers on artificial lines show that if the canals had breaks amounting to 16 m. across, such breaks would be visible. None are; while the lines themselves are thousands of miles long and perfectly straight (*Astrophys. Jour.*, Sept. 1907). Between expert observers representing the planet at the same epoch the accordance is striking; differences in drawings are differences of time and are due to seasonal and secular changes in the planet itself. These seasonal changes have been carefully followed at Flagstaff, and the law governing them detected. They are found to depend upon the melting of the polar caps. After the melting is under way the canals next the cap proceed to darken, and the darkening thence progresses regularly down the latitudes. Twice this happens every Martian year, first from one cap and then six Martian months later from the other. The action reminds one of the quickening of the Nile valley after the melting of the snows in Abyssinia; only with planet-wide rhythm. Some of the canals are paired. The phenomenon is peculiar to certain canals, for only about one-tenth of the whole number, 56 out of 585, ever show double and these do so regularly. Each double has its special width; this width between the pair being 400 m. in some cases, only 75 in others. Careful plotting has disclosed the fact that the doubles cluster round the planet's equator, rarely pass 40° Lat., and never occur at the poles, though the planet's axial tilt reveals all its latitudes to us in turn. They are thus features of those latitudes where the surface is greatest compared with the area of the polar cap, which is suggestive. Space precludes mention of many other equally striking peculiarities of the canals' positioning and development. At the junctions of the canals are small, dark round spots, which also wax and wane with the seasons. These facts and a host of others of like significance have led Lowell to the conclusion that the whole canal system is of artificial origin, first because of each appearance and secondly because of the laws governing its development. Every opposition has added to the assurance that the canals are artificial; both by disclosing their peculiarities better and better and by removing generic doubts as to the planet's habitability. The warmer temperature disclosed from Lowell's investigation on the subject, and the spectrographic detection by Slipher of water-vapour in the Martian air, are among the latest of these confirmations."—[ED.]
- 12 *Bulletin Lowell Obsy., Monthly Notices, R.A.S.* (1905), 66, p. 51.
- 13 *St Petersburg Memoirs*, series viii., Phys. Mars-classe, vol. viii.



MARSALA, a seaport of Sicily, in the province of Trapani, 19 m. by rail S. of Trapani. Pop. (1881), 19,732; (1901), 57,567. The low coast on which it is situated is the westernmost point of the island. The town is the seat of a bishop, and the cathedral contains 16 grey marble columns, which are said to have been intended for Canterbury Cathedral in England, the vessel conveying them having been wrecked here. The town owes its importance mainly to the trade in Marsala wine.

Marsala occupies the site of *Lilybaeum*, the principal stronghold of the Carthaginians in Sicily, founded by Himilco after the abandonment of *Motya*. Neither Pyrrhus nor the Romans were able to reduce it by siege, but it was surrendered to the latter in 241 B.C. at the end of the First Punic War. In the later wars it was a starting point for the Roman expeditions against Carthage; and under Roman rule it enjoyed considerable prosperity (*C.I.L.* x. p. 742). It obtained municipal rights from Augustus and became a colony under Pertinax or Septimus Severus. The Saracens

gave it its present name, *Marsa Ali*, port of Ali. The harbour, which lay on the north-east, was destroyed by Charles V. to prevent its occupation by pirates. The modern harbour lies to the south-east. In 1860 Garibaldi landed at Marsala with 1000 men and began his campaign in Sicily. Scanty remains of the ancient *Lilybaeum* (fragments of the city walls, of squared stones, and some foundations of buildings between the walls and the sea) are visible; and the so-called grotto and spring of the Sibyl may be mentioned. To the east of the town is a great fosse which defended it on the land side, and beyond this again are quarries like those of Syracuse on a small scale. The modern town takes the shape of the Roman camp within the earlier city, one of the gates of which still existed in 1887. The main street (the Cassaro) perpetuates the name *castrum*.



MARSDEN, WILLIAM (1754-1836), English orientalist, the son of a Dublin merchant, was born at Verval, Co. Wicklow on the 16th of November 1754. He was educated in Dublin, and having obtained an appointment in the civil service of the East India Company arrived at Benkulen, Sumatra, in 1771. There he soon rose to the office of principal secretary to the government, and acquired a knowledge of the Malay language and country. Returning to England in 1779 with a pension, he wrote his *History of Sumatra*, published in 1783. Marsden was appointed in 1795 second secretary and afterwards first secretary to the admiralty. In 1807 he retired and published in 1812 his *Grammar and Dictionary of the Malay Language*, and in 1818 his translation of the *Travels of Marco Polo*. He was a member of many learned societies, and treasurer and vice-president of the Royal Society. In 1834 he presented his collection of oriental coins to the British Museum, and his library of books and Oriental MSS. to King's College, London. He died on the 6th of October 1836.

Marsden's other works are: *Numismata orientalia* (London, 1823-1825); *Catalogue of Dictionaries, Vocabularies, Grammars and Alphabets* (1796); and several papers on Eastern topics in the *Philosophical Transactions* and the *Archaeologia*.



MARSEILLES, a city of southern France, chief seaport of France and of the Mediterranean, 219 m. S. by E. of Lyons and 534 m. S.S.E. of Paris, by the Paris-Lyon-Méditerranée railway. Pop. (1906), commune 517,498; town 421,116. Marseilles is situated on the Golfe du Lion on the eastern shore of a bay protected to the south by Cape Croisette but open towards the west; to the east the horizon is bounded by an amphitheatre of hills, those in the foreground clothed with vegetation while the more distant eminences are bare and rugged. The city is built on undulating ground and the south-western and most aristocratic quarter covers the slopes of the ridge crowned by a fort and the church of Notre-Dame de la Garde and projecting westward into the bay to form a protection for the harbour. The newest and most pleasant portion lies on the south-eastern slope of the ridge, between the southern end of the Rue Paradis and the Prado avenues, which is better protected than most other quarters from the mistral that blows down the Rhone valley, and where in summer the temperature is always a little lower than in the centre of the town. The old harbour of Marseilles opens on the west to the Golfe du Lion, the famous Rue Cannebière¹ prolonged by the Rue Noailles leading E.N.E. from its inner end. These two streets are the centre of the life of the city. Continued in the Allées de Meilhan and the Boulevard de la Madeleine, they form one of its main arteries. The other, at right angles with the first, connects the Place d'Aix with the spacious and fashionable Promenade du Prado, by way of the Cours Belsunce and the Rue de Rome. Other fine streets—the Rue St Ferréol, the Rue Paradis and the Rue Breteuil are to the south of the Cannebière running parallel with the Rue de Rome. To these must be added the neighbouring avenue of Pierre Puget named after the sculptor whose statue stands in the Borély Park. The Prado, with its avenues of trees and fine houses, runs to within a quarter of a mile of the Huveaune, a stream that borders the city on the south-east, then turns off at right angles and extends to the sea, coming to an end close to the Borély Park and the race-course. From its extremity the Chemin de la Corniche runs northwards along the coast, fringed by villas and bathing establishments, to the Anse des Catalans, a distance of 4½ miles.

The old town of Marseilles is bounded W. by the Joliette basin and the sea, E. by the Cours Belsunce, S. by the northern quay of the old port, and N. by the Boulevard des Dames. It consists of a labyrinth of steep, dark and narrow streets inhabited by a seafaring population. Through its centre runs the broad Rue de la République, extending from the Cannebière to the Place de la Joliette. The entrance to the old harbour is defended by Fort St Jean on the north and Fort St Nicolas on the south. Behind the latter is the Anse (Creek) de la Réserve. Beyond this again, situated in succession along the shore, come the Château du Pharo, given by the empress Eugénie to the town, the Anse du Pharo, the military exercising ground, and the Anse des Catalans. To the old harbour, which covers only 70 acres with a mean depth of 19½ ft. and is now used by sailing vessels, the basin of La Joliette (55 acres) with an entrance harbour was added in 1853. Communicating with the old harbour by a channel which passes behind Fort St Jean, this dock opens on the south into the outer harbour, opposite the palace and the Anse du Pharo. A series of similar basins separated from the roadstead by a jetty 2½ m. long was subsequently added along the shore to the north, viz. the basins of Lazaret and Arenc, bordered by the harbour railway station and the extensive warehouses of the Compagnie des Docks et Entrepôts, the Bassin de la Gare Maritime with the warehouses of the chamber of commerce; the Bassin National with the refitting basin, comprising six dry docks behind it; and the Bassin de la Pinède entered from the northern outer harbour. These new docks have a water area of 414 acres and over 11 m. of quays, and are commodious and deep enough for the largest vessels to manœuvre easily.

In the roads to the south-west of the port lie the islands of Ratonneau and Pomègue, united by a jetty forming a quarantine port. Between them and the mainland is the islet of Château d'If, in which the scene of part of Dumas' *Monte Cristo* is laid.

Marseilles possesses few remains of either the Greek or Roman periods of occupation, and is poor in medieval buildings. The old cathedral of la Major (Sainte-Marie-Majeure), dating chiefly from the 12th century and built on

the ruins of a temple of Diana, is in bad preservation. The chapel of St Lazare (late 15th century) in the left aisle is in the earliest Renaissance style, and a bas-relief of white porcelain by Lucca della Robbia is of artistic value. Beside this church and alongside the Joliette basin is a modern building begun in 1852, opened for worship in 1893 and recognized as the finest modern cathedral in France. It is a Byzantine basilica, in the form of a Latin cross, 460 ft. long, built in green Florentine stone blended with white stone from the neighbourhood of Arles. The four towers which surmount it—two at the west front, one over the crossing, one at the east end—are roofed with cupolas. Near the cathedral stands the bishop's palace, and the Place de la Major, which they overlook, is embellished with the statue of Bishop Belsunce, who displayed great devotion during the plague of 1720-1721. The celebrated Notre-Dame de la Garde, the steeple of which, surmounted by a gilded statue of the Virgin, 30 ft. in height, rises 150 ft. above the summit of the hill on which it stands, commands a view of the whole port and town, as well as of the surrounding mountains and the neighbouring sea. The present chapel is modern and occupies the site of one built in 1214.

On the south side of the old harbour near the Fort St Nicolas stands the church of St Victor, built in the 13th century and once attached to an abbey founded early in the 4th century. With its lofty crenellated walls and square towers built of large blocks of uncemented stone, it resembles a fortress. St Victor is built above crypts dating mainly from the 11th century but also embodying architecture of the Carolingian period and of the early centuries of the Christian era. Tradition relates that St Lazarus inhabited the catacombs under St Victor; and the black image of the Virgin, still preserved there, is popularly attributed to St Luke. The spire, which is the only relic of the ancient church of Accoules, marks the centre of Old Marseilles. At its foot are a "calvary" and a curious underground chapel in rock work, both modern. Notre-Dame du Mont Carmel, also in the old town, occupies the place of what was the citadel of the Massaliots when they were besieged by Julius Caesar.

Of the civil buildings of the city, the prefecture, one of the finest in France, the Palais de Justice, in front of which is the statue of the advocate Antoine Berryer (1790-1868) and the Exchange, all date from the latter half of the 19th century. The Exchange, built at the expense of the Chamber of Commerce, includes the spacious hall of that institution with its fine mural paintings and gilding. The hôtel-de-ville (17th century) stands on the northern quay of the old harbour. All these buildings are surpassed by the Palais Longchamp (1862-1870), situated in the north-east of the town at the end of the Boulevard Longchamp. The centre of the building is occupied by a monumental *château d'eau* (reservoir). Colonnades branch off from this, uniting it on the left to the picture gallery, with a fine collection of ancient and modern works, and on the right to the natural history museum, remarkable for its conchological department and collection of ammonites. In front are ornamental grounds; behind are extensive zoological gardens, with the astronomical observatory. The museum of antiquities is established in the Château Borély (1766-1778) in a fine park at the end of the Prado. It includes a Phoenician collection (containing the remains that support the hypothesis of the Phoenician origin of Marseilles), an Egyptian collection, numerous Greek, Latin, and Christian inscriptions in stone, &c. A special building within the city contains the school of art with a valuable library and a collection of medals and coins annexed to it. The city also has a colonial museum and a laboratory of marine zoology. The triumphal arch of Aix, originally dedicated to the victors of the Trocadéro, was in 1830 appropriated to the conquests of the empire.

The canal de Marseille, constructed from 1837 to 1848, which has metamorphosed the town and its arid surroundings by bringing to them the waters of the Durance, leaves the river opposite Pertuis. It has a length of 97 miles (including its four main branches) of which 13 are underground, and irrigates some 7500 acres. After crossing the valley of the Arc, between Aix and Rognac, by the magnificent aqueduct of Roquefavour, it purifies its waters, charged with ooze, in the basins of Réaltort. It draws about 2200 gallons of water per second from the Durance, supplies 2450 horse-power to works in the vicinity of Marseilles, and ensures a good water-supply and efficient sanitation to the city.

Marseilles is the headquarters of the XV. army corps and the seat of a bishop and a prefect. It has tribunals of first instance and of commerce, a chamber of commerce, a board of trade arbitration, and a branch of the Bank of France. The educational institutions include a faculty of science, a school of medicine and pharmacy, and a faculty (*faculté libre*) of law, these three forming part of the university of Aix-Marseille; lycées for boys and girls, a conservatoire of music, a school of fine art, a higher school of commerce, a school for ships' boys, a school of navigation and industrial schools for both sexes.

Trade and Industry.—Marseilles is the western emporium for the Levant trade and the French gate of the Far East. It suffers, however, from the competition of Genoa, which is linked with the Rhine basin by the Simplon and St Gotthard railway routes, and from lack of communication with the inland waterways of France. In January 1902 the chamber of deputies voted £3,656,000 for the construction of a canal from Marseilles to the Rhone at Arles. This scheme was designed to overcome the difficulties of egress from the Rhone and to make the city the natural outlet of the rich Rhone basin. Much of the activity of the port is due to the demand for raw material created by the industries of Marseilles itself. The imports include raw silk, sesame, ground-nuts and other oil-producing fruits and seeds largely used in the soap manufacture, cereals and flour, wool, hides and skins, olive and other oils, raw cotton, sheep and other livestock, woven goods, table fruit, wine, potatoes and dry vegetables, lead, cocoon silk, coffee, coal, timber. The total value of imports was £64,189,000 in 1907, an increase of £18,000,000 in the preceding decade. The exports, of which the total value was £52,901,000 (an increase of £21,000,000 in the decade) included cotton fabrics, silk fabrics, cereals and flour, hides and skins, wool fabrics, worked skins, olive and other oils, chemical products, wine, refined sugar, raw cotton, wool, coal, building-material, machinery and pottery.

The port is the centre for numerous lines of steamers, of which the chief are the Messageries Maritimes, which ply to the eastern Mediterranean, the east coast of Africa, Australia, India, Indo-China, Havre and London, and the Compagnie Générale Transatlantique, whose vessels run to Algiers, Tunis, Malta, Corsica, Morocco and the Antilles. In addition many important foreign lines call at the port, among them being the P. and O., the Orient, the North German Lloyd, and the German East Africa lines.

Marseilles has five chief railway stations, two of which serve the new harbours, while one is alongside the old port; the city is on the main line of the Paris-Lyon-Méditerranée railway from the Riviera and Toulon to Paris via Arles, Avignon and Lyons, another less important line connecting it with Aix.

Soap-making, introduced in antiquity from Savona and Genoa, is carried on in upwards of fifty factories. These utilize the products of the oil-distilleries and of the chemical works, the latter being also an important adjunct to the manufacture of candles, another leading industry. A large quantity of iron, copper and other ores is smelted in the blast-furnaces of Saint Louis in the vicinity and in other foundries, and the Mediterranean Engineering Company and other companies have large workshops for the construction or repair of marine steam-engines and every branch of iron shipbuilding. To these industries must be added flour-milling, the manufacture of semolina and other farinaceous foods and of biscuits, bricks and tiles, rope, casks, capsules for bottles and other tin-goods, tanning,

distilling, brewing and sulphur- and sugar-refining. There are state tobacco and match factories.

History.—The Greek colony of Massalia (Lat. *Massilia*) was founded by the mariners of Phocaea in Asia Minor, about 600 B.C. The settlement of the Greeks in waters which the Carthaginians reserved for their own commerce was not effected without a naval conflict; it is not improbable that the Phoenicians were settled at Marseilles before the Greek period, and that the name of the town is the Phoenician for “settlement.” Whether the judges (*sophetim*, “suffetes”) of the Phoenician sacrificial tablet of Marseilles were the rulers of a city existing before the advent of the Phocaeans, or were consuls for Punic residents in the Greek period, is disputed. In 542 B.C. the fall of the Phocaeen cities before the Persians probably sent new settlers to the Ligurian coast and cut off the remote city of Massalia from close connexion with the mother country. Isolated amid alien populations, the Massalians made their way by prudence in dealing with the inland tribes, by vigilant administration of their oligarchical government, and by frugality united to remarkable commercial and naval enterprise. Their colonies spread east and west along the coast from Monaco to Cape St Martin in Spain, carrying with them the worship of Artemis; the inland trade, in which wine was an important element, can be traced by finds of Massalian coins across Gaul and through the Alps as far as Tirol. In the 4th century B.C. the Massaliant Pytheas visited the coasts of Gaul, Britain and Germany, and Euthymenes is said to have sailed down the west coast of Africa as far as Senegal. The great rival of Massalian trade was Carthage, and in the Punic Wars the city took the side of Rome, and was rewarded by Roman assistance in the subjugation of the native tribes of Liguria. In the war between Caesar and Pompey Massilia took Pompey’s side and in A.D. 49 offered a vain resistance to Caesar’s lieutenant Trebonius. In memory of its ancient services the city, “without which,” as Cicero says, “Rome had never triumphed over the Transalpine nations,” was left as a *civitas libera*, but her power was broken and most of her dependencies taken from her. From this time Massilia has little place in Roman history; it became for a time an important school of letters and medicine, but its commercial and intellectual importance declined. The town appears to have been christianized before the end of the 3rd century, and at the beginning of the 4th century was the scene of the martyrdom of St Victor. Its reputation partly revived through the names of Gennadius and Cassian, which give it prominence in the history of Semi-Pelagianism and the foundation of western monachism.

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After the ravages of successive invaders, Marseilles was repopled in the 10th century under the protection of its viscounts. The town gradually bought up their rights, and at the beginning of the 13th century was formed into a republic, governed by a *podestat*, who was appointed for life, and exercised his office in conjunction with 3 notables, and a municipal council, composed of 80 citizens, 3 clerics, and 6 principal tradesmen. During the rest of the middle ages, however, the higher town was governed by the bishop, and had its harbour at the creek of La Joliette which at that period ran inland to the north of the old town. The southern suburb was governed by the abbot of St Victor, and owned the Port des Catalans. Situated between the two, the lower town, the republic, retained the old harbour, and was the most powerful of the three divisions. The period of the crusades brought prosperity to Marseilles, though throughout the middle ages it suffered from the competition of Pisa, Genoa and Venice. In 1245 and 1256 Charles of Anjou, count of Provence, whose predecessors had left the citizens a large measure of independence, established his authority above that of the republic. In 1423 Alphonso V. of Aragon sacked the town. King René, who had made it his winter residence, however, caused trade, arts and manufactures again to flourish. On the embodiment of Provence in the kingdom of France in 1481, Marseilles preserved a separate administration directed by royal officials. Under Francis I. the disaffected constable Charles de Bourbon vainly besieged the town with the imperial forces in 1524. During the wars of religion, Marseilles took part against the Protestants, and long refused to acknowledge Henry IV. The loss of the ancient liberties of the town brought new disturbances under the Fronde, which Louis XIV. came in person to suppress. He entered the town by a breach in the walls and afterwards had Fort St Nicolas constructed. Marseilles repeatedly suffered from the plague, notably from May 1720 to May 1721.

During the Revolution the people rose against the aristocracy, who up to that time had governed the commune. In the Terror they rebelled against the Convention, but were promptly subdued by General Carteaux. The wars of the empire, by dealing a blow to their maritime commerce, excited the hatred of the inhabitants against Napoleon, and they hailed the return of the Bourbons and the defeat of Waterloo. The news of the latter provoked a bloody reaction in the town against those suspected of imperialism. The prosperity of the city received a considerable impulse from the conquest of Algeria and from the opening of the Suez Canal.

See P. Castanier, *Histoire de la Provence dans l'antiquité*, vol. ii. (Paris, 1896); E. Caman, *Marseille au XX^{me} siècle* (Paris, 1905); P. Joanne, *Marseille et ses environs*.

1 From the Latin *cannabis*, Provençal *cannèbe*, “hemp,” in allusion to the rope-walks formerly occupying its site.



MARSH, ADAM (ADAM DE MARISCO) (d. c. 1258), English Franciscan, scholar and theologian, was born about 1200 in the diocese of Bath, and educated at Oxford under the famous Grosseteste. Before 1226 Adam received the benefice of Wearmouth from his uncle, Richard Marsh, bishop of Durham; but between that year and 1230 he entered the Franciscan order. About 1238 he became the lecturer of the Franciscan house at Oxford, and within a few years was regarded by the English province of that order as an intellectual and spiritual leader. Roger Bacon, his pupil, speaks highly of his attainments in theology and mathematics. His fame, however, rests upon the influence which he exercised over the statesmen of his day. Consulted as a friend by Grosseteste, as a spiritual director by Simon de Montfort, the countess of Leicester and the queen, as an expert lawyer and theologian by the primate, Boniface of Savoy, he did much to guide the policy both of the opposition and of the court party in all matters affecting the interests of the Church. He shrank from office, and never became provincial minister of the English Franciscans, though constantly charged with responsible commissions. Henry III. and Archbishop Boniface unsuccessfully endeavoured to secure for him the see of Ely in 1256. In 1257 Adam’s health was failing, and he appears to have died in the following year. To judge from his correspondence he took no interest in secular politics. He sympathized with Montfort as with a friend of the Church and an unjustly treated man; but on the eve of the baronial revolution he was on friendly terms with the king. Faithful to the traditions of his order, he made it his ambition to be a mediator. He rebuked both parties in the state for their shortcomings, but he did not break with either.

See his correspondence, with J. S. Brewer's introduction, in *Monumenta franciscana*, vol. i. (Rolls ser., 1858); the biographical notice in A. G. Little's *Grey Friars in Oxford* (Oxford, 1892), where all the references are collected. On Marsh's relations with Grosseteste, see *Roberti Grosseteste epistolae*, ed. H. R. Luard (Rolls ed., 1861), and F. S. Stevenson, *Robert Grosseteste* (London, 1809).

(H. W. C. D.)



MARSH, GEORGE PERKINS (1801-1882), American diplomatist and philologist, was born at Woodstock, Vermont, on the 15th of March 1801. He graduated at Dartmouth College in 1820, was admitted to the bar in 1825, and practised law at Burlington, Vermont, devoting himself also with ardour to philological studies. In 1835 he was a member of the Supreme Executive Council of Vermont, and from 1843 to 1849 a Whig representative in Congress. In 1849 he was appointed United States minister resident in Turkey, and in 1852-1853 discharged a mission to Greece in connexion with the imprisonment by the authorities of that country of an American missionary, Dr Jonas King (1792-1869). He returned to Vermont in 1854, and in 1857 was a member of the state railway commission. In 1861 he became the first United States minister to the kingdom of Italy, and died in that office at Vallombrosa on the 23rd of July 1882. He was buried in a Protestant cemetery in Rome. Marsh was an able linguist, writing and speaking with ease the Scandinavian and half a dozen other European languages, a remarkable philologist for his day, and a scholar of great breadth, knowing much of military science, engraving and physics, as well as of Icelandic, which was his specialty. He wrote many articles for Johnson's *Universal Cyclopaedia*, and contributed many reviews and letters to the *Nation*. His chief published works are: *A Compendious Grammar of the Old Northern or Icelandic Language* (1838), compiled and translated from the grammars of Rask; *The Camel, his Organization, Habits, and Uses, with Reference to his Introduction into the United States* (1856); *Lectures on the English Language* (1860); *The Origin and History of the English Language* (1862; revised ed., 1885); and *Man and Nature* (1865). The last-named work was translated into Italian in 1872, and, largely rewritten, was issued in 1874 under the title *The Earth as Modified by Human Action*; a revised edition was published in 1885. He also published a work on *Mediaeval and Modern Saints and Miracles* (1876). His valuable library was presented in 1883 by Frederick Billings to the university of Vermont. His second wife, CAROLINE (CRANE) MARSH (1816-1901), whom he married in 1839, published *Wolfe of the Knoll and other Poems* (1860), and the *Life and Letters of George Perkins Marsh* (New York, 1888). This last work was left incomplete, the second volume never having been published. She also translated from the German of Johann C. Biernatzki (1795-1840), *The Hallig; or the Sheepfold in the Waters* (1856).



MARSH, HERBERT (1757-1839), English divine, was born at Faversham, Kent, on the 10th of December 1757, and was educated at St John's College, Cambridge, where he was elected fellow in 1782, having been second wrangler and second Smith's prizeman. For some years he studied at Leipzig, and between 1793 and 1801 published in four volumes a translation of J. D. Michaelis's *Introduction to the New Testament*, with notes of his own, in which he may be said to have introduced German methods of research into English biblical scholarship. His *History of the Politics of Great Britain and France* (1799) brought him much notice and a pension from William Pitt. In 1807 he was appointed Lady Margaret professor of divinity at Cambridge, and lectured to large audiences on biblical criticism, substituting English for the traditional Latin. Both here, and afterwards as bishop of Llandaff (1816) and of Peterborough (1819), he stoutly opposed hymn-singing, Calvinism, Roman Catholicism, and the Evangelical movement as represented by Charles Simeon and the Bible Society. Among his writings are *Lectures on the Criticism and Interpretation of the Bible* (1828), *A Comparative View of the Churches of England and Rome* (1814), and *Horae Pelasgicae* (1815). He died at Peterborough on the 1st of May 1839.

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MARSH, NARCISSUS (1638-1713), archbishop of Dublin and Armagh, was born at Hannington, Wiltshire, and educated at Oxford. He became a fellow of Exeter College, Oxford, in 1658. In 1662 he was ordained, and presented to the living of Swindon, which he resigned in the following year. After acting as chaplain to Seth Ward, bishop of Exeter and Salisbury, and Lord Chancellor Clarendon, he was elected principal of St Alban Hall, Oxford, in 1673. In 1679 he was appointed provost of Trinity College, Dublin, where he did much to encourage the study of the Irish language. He helped to found the Royal Dublin Society, and contributed to it a paper entitled "Introductory Essay to the Doctrine of Sounds" (printed in *Philosophical Transactions*, No. 156, Oxford, 1684). In 1683 he was consecrated bishop of Ferns and Leighlin, but after the accession of James II. he was compelled by the turbulent soldiery to flee to England (1689), where he became vicar of Gresford, Flint, and canon of St Asaph. Returning to Ireland in 1691 after the battle of the Boyne, he was made archbishop of Cashel, and three years later he became archbishop of Dublin. About this time he founded the Marsh Library in Dublin. He became archbishop of Armagh in 1703. Between 1699 and 1711 he was six times a lord justice of Ireland. He died on the 2nd of November 1713.



MARSH, OTHNIEL CHARLES (1831-1899), American palaeontologist, was born in Lockport, New York, on the 29th of October 1831. He graduated at Yale College in 1860, and studied geology and mineralogy in the Sheffield scientific school, New Haven, and afterwards palaeontology and anatomy in Berlin, Heidelberg and Breslau. Returning to America in 1866 he was appointed professor of vertebrate palaeontology at Yale College, and there began the researches of the fossil vertebrata of the western states, whereby he established his reputation. He was aided by a private fortune from his uncle, George Peabody, whom he induced to establish the Peabody Museum of Natural History (especially devoted to zoology, geology and mineralogy) in the college. In May 1871 he discovered the first pterodactyl remains found in America, and in subsequent years he brought to light from Wyoming and other regions many new genera and families, and some entirely new orders of extinct vertebrata, which he described in monographs or periodical articles. These included remains of the Cretaceous toothed birds *Hesperornis* and *Ichthyornis*, the Cretaceous flying-reptiles (*Pteranodon*), the swimming reptiles or Mosasauria, and the Cretaceous and Jurassic land reptiles (*Dinosauria*) among which were the *Brontosaurus* and *Atlantosaurus*. The remarkable mammals which he termed Brontotheria (now grouped as Titanotheriidae), and the huge Dinocerata, one being the *Uintatherium*, were also brought to light by him. Among his later discoveries were remains of early ancestors of horses in America. On becoming vice-president of the American Association for the Advancement of Science in 1875 he gave an address on the "Introduction and Succession of Vertebrate Life in America," summarizing his conclusions to that date. He repeatedly organized and often accompanied scientific exploring expeditions in the Rocky Mountains, and their results tended in an important degree to support the doctrines of natural selection and evolution. He published many papers on these, and found time—besides that necessarily given to the accumulation and care of the most extensive collection of fossils in the world—to write *Odontornithes: A Monograph on the Extinct Toothed Birds of North America* (1880); *Dinocerata: A Monograph on an Extinct Order of Gigantic Mammals* (1884); and *The Dinosaurs of North America* (1896). His work is full of accurately recorded facts of permanent value. He was long in charge of the division of vertebrate palaeontology in the United States Geological Survey, and received many scientific honours, medals and degrees, American and foreign. He died in New Haven on the 18th of March 1899.

See obituary by Dr Henry Woodward (with portrait) in *Geol. Mag.* (1899), p. 237.



MARSH (O. F. *mersc*, for *merisc*, a place full of "meres" or pools; cf. Ger. *Meer*, sea, Lat. *mare*), an area of low-lying watery land. The significance of a marsh area is not so much in the manner of its formation as in the peculiar chemical and physical results that accompany it, and its relation to the ecology of plant and animal life. Chemically it is productive of such gases as arise from decomposing vegetation and are transitory in their effects, and in the production of hydrated iron oxide, which may be seen floating as an iridescent scum at the edge of rusty, marshy pools. This sinks into the soil and forms a powerful iron cement to many sandstones, binding them into a hard local mass, while the surrounding sandstones are loose and friable. A curious morphological inversion follows in a later geological period, the marsh area forming the hard cap of a hill (see [MESA](#)) while the surrounding sandstones are weathered away. Salt marshes are a feature of many low-lying sea-coasts and areas of inland drainage.



MARSHAL (med. Lat. *marescalcus*, from O.H.Ger. *marah*, horse, and *scalc*, servant), a title given in various countries to certain military and civil officers, usually of high rank. The origin and development of the meaning of the designation is closely analogous with that of constable (*q.v.*). Just as the title of constable, in all its medieval and modern uses, is traceable to the style and functions of the Byzantine count of the stable, so that of marshal was evolved from the title of the *marescalci*, or masters of the horse, of the early Frankish kings. In this original sense the word survived down to the close of the Holy Roman empire in the titular office of *Erz-Marschalk* (arch-marshal), borne by the electors of Saxony. Elsewhere the meaning of office and title was modified. The importance of cavalry in medieval warfare led to the marshalship being associated with military command; this again led to the duty of keeping order in court and camp, of deciding questions of chivalry, and to the assumption of judicial and executive functions. The marshal, as a military leader, was originally a subordinate officer, the chief command under the king being held by the constable; but in the 12th century, though still nominally second to the constable, the marshal has come to the forefront as commander of the royal forces and a great officer of state. In England after the Conquest the marshalship was hereditary in the family which derived its surname from the office, and the hereditary title of earl-marshal originated in the marriage of William Marshal with the heiress of the earldom of Pembroke (see [EARL MARSHAL](#)). Similarly, in Scotland, the office of marischal (from the French *maréchal*), probably introduced under David I., became in the 14th century hereditary in the house of Keith. In 1485 the Scottish marischal became an earl under the designation of earl-marischal, the dignity coming to an end by the attainder of George, 10th earl-marischal, in 1716. In France, on the other hand, though under Philip Augustus the marshal of France (*marescalcus Franciae*) appears as commander-in-chief of the forces, care was taken not to allow the office to become descendible; under Francis I. the number of marshals of France was raised to two, under Henry III. to four, and under Louis XIV. to twenty. Revived by Napoleon, the title fell into abeyance with the downfall of the Second empire.

In England the use of the word marshal in the sense of commander of an army appears very early; so Matthew Paris records that in 1214 King John constituted William, earl of Salisbury, *marescalcus* of his forces. The modern military title of field marshal, imported from Germany by King George II. in 1736, is derived from the high dignity of the *marescalcus* in a roundabout way. The *marescalcus campi*, or *maréchal des champs*, was originally one of a number of officials to whom the name, with certain of the functions, of the marshal was given. The marshal, being responsible for order in court and camp, had to employ subordinates, who developed into officials often but nominally dependent upon him. On military expeditions it was usual for two such marshals to precede the army,

select the site of the camp and assign to the lords and knights their places in it. In time of peace they preceded the king on a journey and arranged for his lodging and maintenance. In France *maréchal des logis* is the title of superior non-commissioned officers in the cavalry.

Similarly at the king's court the *marescalcus aulae* or *intrinsecus* was responsible for order, the admission or exclusion of those seeking access, ceremonial arrangements, &c. Such "marshals" were maintained, not only by the king, but by great lords and ecclesiastics. The more dignified of their functions, together with the title, survive in the various German courts, where the court marshal (*Hofmarschall*) is equivalent to the English lord chamberlain. Just as the *marescalcus intrinsecus* acted as the vicar of the marshal for duties "within" the court, so the *marescalcus forinsecus* was deputed to perform those acts of serjeanty due from the marshal to the Crown "without." Similarly there appears in the statute 5 Edw. III. cap. 8, a *marescalcus banci regii* (*maréchal du Banc du Roy*), or marshal of the king's bench, who presided over the Marshalsea Court, and was responsible for the safe custody of prisoners, who were bestowed in the *marshalsea*, or Marshalsea prison. The office of marshal of the queen's bench survived till 1849 (see [LORD STEWARD](#); and [MARSHALSEA](#)). The official known as a judge's marshal, whose office is of considerable antiquity, and whose duties consisted of making abstracts of indictments and pleadings for the use of the judge, still survives, but no longer exercises the above functions. He accompanies a judge of assize on circuit and is appointed by him at the beginning of each circuit. His travelling and other expenses are paid by the judge, and he receives an allowance of two guineas a day, which is paid through the Treasury. He introduces the high sheriff of the county to the judge of assize on his arrival, and swears in the grand jury. For the French *maréchaussée* see [FRANCE](#): § *Law and Institutions*.

In the sense of executive legal officer the title marshal survives in the United States of America in two senses. The United States marshal is the executive officer of the Federal courts, one being appointed for each district, or exceptionally, one for two districts. His duties are to open and close the sessions of the district and circuit courts, serve warrants, and execute throughout the district the orders of the court. There are United States marshals also in Alaska, Hawaii, Porto Rico and the Philippines. They are appointed by the President, with the advice and consent of the Senate, for a term of four years, and, besides their duties in connexion with the courts, are employed in the service of the internal revenue, public lands, post office, &c. The temporary police sworn in to maintain order in times of disturbance, known in England as special constables, are also termed marshals in the United States. In some of the southern and western states of the Union the title marshal has sunk to that of the village policeman, as distinct from the county officers known as sheriffs and those of the justices' courts called constables.

In England the title of marshal, as applied to an executive officer, survives only in the army, where the provost marshal is chief of the military police in large garrisons and in field forces. Office and title were borrowed from the French *prévôt des maréchaux*, the modern equivalent of the medieval *praepositus marescalcorum* or *guerrarum*.



MARSHALL, ALFRED (1842-), English economist, was born in London on the 26th of July 1842. He was educated at the Merchant Taylors' School and St John's College, Cambridge, being second wrangler in 1865, and in the same year becoming fellow of his college. He became principal of University College, Bristol, in 1877, and was lecturer and fellow of Balliol College, Oxford in 1883-1884. He was professor of political economy at Cambridge University from 1885 to 1908, and was a member of the Royal Commission on Labour in 1891. He became a fellow of the British Academy in 1902. He wrote (in conjunction with his wife) *Economics of Industry* (1879), whilst his *Principles of Economics* (1st ed., 1890) is a standard English treatise.



MARSHALL, JOHN (1755-1835), American jurist, chief-justice of the U.S. Supreme Court, was born on the 24th of September 1755 at Germantown (now Midland), in what four years later became Fauquier county, Virginia. He was of English descent, the son of Thomas Marshall (1732-1806) and his wife Mary Isham Keith. Marshall served first as lieutenant and after July 1778 as captain in the Continental Army during the War of Independence. He resigned his commission early in 1781; was admitted to the bar after a brief course of study, first practised in Fauquier county; and after two years began to practise in Richmond. In 1786 we find him counsel in a case of great importance, *Hite v. Fairfax*, involving the original title of Lord Fairfax to that large tract of country between the headwaters of the Potomac and Rappahannock, known as the northern neck of Virginia. Marshall represented tenants of Lord Fairfax and won his case. From this time, as is shown by an examination of Call's *Virginia Reports* which cover the period, he maintained the leadership of the bar of Virginia. He was a member of the Virginia Assembly in 1782-1791 and again in 1795-1797; and in 1788, he took a leading part in the Virginia Convention called to act on the proposed constitution for the United States, with Madison ably urging the ratification of that instrument. In 1795 Washington offered him the attorney-generalship, and in 1796, after the retirement of James Monroe, the position of minister to France. Marshall declined both offers because his situation at the bar appeared to him "to be more independent and not less honourable than any other," and his "preference for it was decided." He spent the autumn and winter of 1797-1798 in France as one of the three commissioners appointed by President John Adams to adjust the differences between the young republic and the directory. The commission failed, but the course pursued by Marshall was approved in America, and with the resentment felt because of the way in which the commission had been treated in France, made him, on his return, exceedingly popular. To this popularity, as well as to the earnest advocacy of Patrick Henry, he owed his election as a Federalist to the National House of Representatives in the spring of 1799, though the feeling in Richmond was overwhelmingly in favour of the opposition or Republican party. His most notable service in Congress was his speech on the case of Thomas Nash, alias Jonathan Robbins, in which he showed that there is nothing in the constitution of the United States which prevents the Federal government from carrying out an extradition treaty. He was secretary of state under President Adams from the 6th of June 1800 to the 4th of March 1801. In the meantime he had been appointed chief-justice of

the Supreme Court, his commission bearing date the 31st of January. Thus while still secretary he presided as chief-justice.

At the time of Marshall's appointment it was generally considered that the Supreme Court was the one department of the new government which had failed in its purpose. John Jay, the first chief-justice, who had resigned in 1795, had just declined a reappointment to the chief-justiceship on the ground that he had left the bench perfectly convinced that the court would never acquire proper weight and dignity, its organization being fatally defective. The advent of the new chief-justice was marked by a change in the conduct of business in the court. Since its organization, following the prevailing English custom, the judges had pronounced their opinions seriatim. But beginning with the December term 1801, the chief-justice became practically the sole mouthpiece of the court. For eleven years the opinions are almost exclusively his, and there are few recorded dissents. The change was admirably adapted to strengthen the power and dignity of the court. The chief-justice embodied the majesty of the judicial department of the government almost as fully as the president stood for the power of the executive. That this change was acquiesced in by his associates without diminishing their goodwill towards their new chief is testimony to the persuasive force of Marshall's personality; for his associates were not men of mediocre ability. After the advent of Mr Justice Joseph Story the practice was abandoned. Marshall, however, still delivered the opinion in the great majority of cases, and in practically all cases of any importance involving the interpretation of the Constitution. During the course of his judicial life his associates were as a rule men of learning and ability. During most of the time the majority were the appointees of Democratic presidents, and before their elevation to the bench supposed to be out of sympathy with the federalistic ideas of the chief-justice. Yet in matters pertaining to constitutional construction, they seem to have had hardly any other function than to add the weight of their silent concurrence to the decision of their great chief. Thus the task of expounding the constitution during the most critical period of its history was his, and it was given to him to preside over the Supreme Court when it was called upon to decide four cases of vital importance: *Marbury v. Madison*, *M'Culloch v. Maryland*, *Cohens v. Virginia* and *Gibbons v. Ogden*. In each of these cases it is Marshall who writes the opinion of the court; in each the continued existence of the peculiar Federal system established by the Constitution depended on the action of the court, and in each the court adopted a principle which is now generally perceived to be essential to the preservation of the United States as a federal state.

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In *Marbury v. Madison*, which was decided two years after his elevation to the bench, he decided that it was the duty of the court to disregard any act of Congress, and, therefore, a fortiori any act of a legislature of one of the states, which the court thought contrary to the Federal Constitution.

In *Cohens v. Virginia*, in spite of the contention of Jefferson and the then prevalent school of political thought that it was contrary to the Constitution for a person to bring one of the states of the United States, though only as an appellee, into a court of justice, he held that Congress could lawfully pass an act which permitted a person who was convicted in a state court, to appeal to the Supreme Court of the United States, if he alleged that the state act under which he was convicted conflicted with the Federal Constitution or with an act of Congress.

In *M'Culloch v. Maryland*, though admitting that the Federal government is one of delegated powers and cannot exercise any power not expressly given in the Constitution, he laid down the rule that Congress in the exercise of a delegated power has a wide latitude in the choice of means, not being confined in its choice of means to those which must be used if the power is to be exercised at all.

Lastly, in *Gibbons v. Ogden*, he held that when the power to regulate interstate and foreign commerce was conferred by the Constitution on the Federal government, the word "commerce" included not only the exchange of commodities, but the means by which interstate and foreign intercourse was carried on, and therefore that Congress had the power to license vessels to carry goods and passengers between the states, and an act of one of the states making a regulation which interfered with such regulation of Congress was, *pro tanto*, of no effect. It will be seen that in the first two cases he established the Supreme Court as the final interpreter of the Constitution.

The decision in *M'Culloch v. Maryland*, by leaving Congress unhampered in the choice of means to execute its delegated powers, made it possible for the Federal government to accomplish the ends of its existence. "Let the end be legitimate," said Marshall in the course of its opinion, "let it be within the scope of the Constitution, and all means which are appropriate, which are plainly adapted to that end, which are not prohibited, but consist with the letter and spirit of the Constitution, are constitutional."

If the decision in *M'Culloch v. Maryland* gave vigour to all Federal power, the decision in *Gibbons v. Ogden*, by giving the Federal government control over the means by which interstate and foreign commerce is carried on, preserved the material prosperity of the country. The decision recognizes what the framers of the Constitution recognized, namely that the United States is an economic union, and that business which is national should be under national, not state, control.

Though for the reasons stated, the four cases mentioned are the most important of his decisions, the value of his work as an expounder of the Constitution of the United States is not to be measured by these cases alone. In all he decided forty-four cases involving constitutional questions. Nearly every important part of the Constitution of the United States as it existed before the amendments which were adopted after the Civil War, is treated in one or more of them. The Constitution in its most important aspects is the Constitution as he interpreted it. He did not work out completely the position of the states in the Federal system, but he did grasp and establish the position of the Federal legislature and the Federal judiciary. To appreciate his work, however, it is necessary to see that it was the work not of a statesman but of a judge. Had Marshall been merely a far-seeing statesman, while most of his important cases would have been decided as he decided them, his life-work would have been a failure. It was not only necessary that he should decide great constitutional questions properly, but also that the people of the United States should be convinced of the correctness of his interpretation of the Constitution. His opinions, therefore, had to carry to those who studied them a conviction that the constitution as written had been interpreted according to its evident meaning. They fulfilled this prime requisite. Their chief characteristic is the cumulative force of the argument. The ground for the premiss is carefully prepared, the premiss itself is clearly stated; nearly every possible objection is examined and answered; and then comes the conclusion. There is little or no repetition, but there is a wealth of illustration, a completeness of analysis, that convinces the reader, not only that the subject has been adequately treated, but that it has been exhausted. His style, reflecting his character, suits perfectly the subject matter. Simple in the best sense of the word, his intellectual processes were so clear that he never doubted the correctness of the conclusion to which they led him. Apparently from his own point of view, he merely indicated the question at issue, and the inexorable rules of logic did the rest. Thus his opinions are simple, clear, dignified. Intensely interesting, the interest is in the argument, not in its expression. He had, in a wonderful degree, the power of phrase. He expressed important principles of law in language which tersely yet clearly conveyed his exact meaning. Not only is the Constitution interpreted largely as he taught the people of the United States to interpret it, but when they wish to express important constitutional principles which he enunciated they use his exact words. Again, his opinions show

that he adhered closely to the words of the Constitution; indeed no one who has attempted to expound that instrument has confined himself more strictly to an examination of the text. In the proper, though not in the historical, sense he was the strictest of strict constructionalists, and as a result his opinions are practically devoid of theories of government, sovereignty and the rights of man.

A single illustration of his avoidance of all theory and his adherence to the words of the Constitution will suffice. In the case of the *United States v. Fisher* the constitutional question involved was the power of Congress to give to the United States a preference over all other creditors in the distribution of the assets of a bankrupt. Such an act can be upheld on the ground that all governments have necessarily the right to give themselves priority. Not so Marshall. To him the act must be supported, if supported at all, not on any theory of the innate nature of the government, national or otherwise, but as a reasonable means of carrying out one of the express powers conferred by the Constitution on the Federal government. Thus, he upholds the act in question because of the power expressly conferred on the Federal government to pay the debts of the union, and as a necessary consequence of this power the right to make remittances by bills or otherwise and to take precautions which will render the transactions safe.

It is important to emphasize the fact that Marshall adhered in his opinions to the Constitution as written, not only because it is a fact which must be recognized if we are to understand the correct value of his work in the field of constitutional law, but also because there exists to-day a popular impression that by implication he stretched to the utmost the powers of the Federal government. This impression is due primarily to the ignorance of many of those who have undertaken to praise him. During his life he was charged by followers of the States Rights School of political thought with upholding Federal power in cases not warranted by the constitution. Later, however, those who admired a strong national government, without taking the trouble to ascertain whether the old criticism by members of the States Rights Party was just, regarded the assumption on which it was founded as Marshall's best claim to his country's gratitude.

As a constitutional lawyer, Marshall stands without a rival. His work on international law and admiralty is of first rank. But though a good, he was not a great, common law or equity lawyer. In these fields he did not make new law nor clarify what was obscure, and his constitutional opinions which to-day are found least satisfactory are those in which the question to be solved necessarily involves the discussion of some common-law conception, especially those cases in which he was required to construe the restriction imposed by the Constitution on any state impairing the obligation of contracts. His decision in the celebrated case of *Dartmouth College v. Woodward*, in which he held that a state could not repeal a charter of a private corporation, because a charter is a contract which a subsequent act of the state repealing the charter impairs, though of great economic importance, does not touch any fundamental question of constitutional law. The argument which he advances lacks the clearness and finality for which most of his opinions are celebrated. It is not certain with whom he thought the contract was made: with the corporation created by the charter, with the trustees of the corporation, or with those who had contributed money to its objects.

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Of the wonderful persuasive force of Marshall's personality there is abundant evidence. His influence over his associates, already referred to, is but one example though a most impressive one. From the moment he delivered the opinion in *Marbury v. Madison* the legal profession knew that he was a great judge. Each year added to his reputation and made for a better appreciation of his intellectual and moral qualities. The bar of the Supreme Court during his chief-justiceship was the most brilliant which the United States has ever known. Leaders, not only of legal, but political thought were among its members; one, Webster, was a man of genius and commanding position. To a very great degree Marshall impressed on the members of this bar and on the profession generally his own ideas of the correct interpretation of the Constitution and his own love for the union. He did this, not merely by his arguments but by the influence which was his by right of his strong, sweet nature. Statesmen and politicians, great and small, were at this time, almost without exception, members of the bar. To influence the political thought of the bar was to a great extent to influence the political thought of the people.

In 1782 he married Mary Willis Ambler, the daughter of the then treasurer of Virginia. They had ten children, six of whom grew to full age. For the greater part of the forty-eight years of their married life Mrs Marshall suffered intensely from a nervous affliction. Her condition called out the love and sympathy of her husband's deep and affectionate nature. Judge Story tells us: "That which, in a just sense, was his highest glory, was the purity, affectionateness, liberality and devotedness of his domestic life." For the first thirty years of his chief-justiceship his life was a singularly happy one. He never had to remain in Washington for more than three months. During the rest of the year, with the exception of a visit to Raleigh, which his duties as circuit judge required him to make, and a visit to his old home in Fauquier county, he lived in Richmond. His house on Shockhoe Hill is still standing.

On Christmas Day 1831 his wife died. He never was quite the same again. On returning from Washington in the spring of 1835 he suffered severe contusions, from an accident to the stage coach in which he was riding. His health, which had not been good, now rapidly declined and in June he returned to Philadelphia for medical attendance. There he died on the 6th of July. His body, which was taken to Richmond, lies in Shockhoe Hill Cemetery under a plain marble slab, on which is a simple inscription written by himself. In addition to his decisions Marshall wrote a famous biography of George Washington (5 vols., 1804-1807; 2nd ed., 2 vols., 1832), which though prepared hastily contains much material of value.

The principal sources of information are: an essay by James B. Thayer (Boston and New York, 1904); *Great American Lawyers* (Philadelphia, 1908), ii. 313-408, an essay by Wm. Draper Lewis; and Allan B. Magruder, *John Marshall* (Boston, 1885), in the "American Statesmen Series." The addresses delivered on Marshall Day, the 4th of February 1901, are collected by John F. Dillon (Chicago, 1903). In the "Appendix" to Dillon's collection will be found the "Discourse" by Joseph Story and the "Eulogy" by Horace Binney, both delivered soon after Marshall's death. For a study of Marshall's decisions, the *Constitutional Decisions of John Marshall*, edited by Joseph P. Collon, Jr. (New York and London, 1905), is of value.

(W. D. L.)



MARSHALL, JOHN (1818-1891), British surgeon and physiologist, was born at Ely, on the 11th of September 1818, his father being a lawyer of that city. He entered University College, London, in 1838, and in 1847 he was appointed assistant-surgeon at the hospital, becoming in 1866 surgeon and professor of surgery. He was

professor of anatomy at the Royal Academy from 1873 till his death. In 1883 he was president of the College of Surgeons, also Bradshaw lecturer (on "Nerve-stretching for the relief or cure of pain"), Hunterian orator in 1885, and Morton lecturer in 1889. In 1867 he published his well-known textbook *The Outlines of Physiology* in two volumes. He died on the 1st of January 1891. "Marshall's fame," wrote Sir W. MacCormac in his volume on the *Centenary of the College of Surgeons* (1900), "rests on the great ability with which he taught anatomy in relation to art, on the introduction into modern surgery of the galvano-cautery, and on the operation for the excision of varicose veins. He was one of the first to show that cholera might be spread by means of drinking water, and issued a report on the outbreak of cholera in Broad Street, St James's, 1854. He also invented the system of circular wards for hospitals, and to him are largely owing the details of the modern medical student's education."



MARSHALL, STEPHEN (c. 1594-1655), English Nonconformist divine, was born at Godmanchester in Huntingdonshire, and was educated at Emmanuel College, Cambridge (M.A. 1622, B.D. 1629). After holding the living of Wethersfield in Essex he became vicar of Finchingfield in the same county, and in 1636 was reported for "want of conformity." He was a preacher of great power, and influenced the elections for the Short Parliament of 1640. Clarendon esteemed his influence on the parliamentary side greater than that of Laud on the royalist. In 1642 he was appointed lecturer at St Margaret's, Westminster, and delivered a series of addresses to the Commons in which he advocated episcopal and liturgical reform. He had a share in writing *Smectymnuus*, was appointed chaplain to the earl of Essex's regiment in 1642, and a member of the Westminster Assembly in 1643. He represented the English Parliament in Scotland in 1643, and attended the parliamentary commissions at the Uxbridge Conference in 1645. He waited on Archbishop Laud before his execution, and was chaplain to Charles I. at Holmby House and at Carisbrooke. A moderate and judicious presbyterian, he prepared with others the "Shorter Catechism" in 1647, and was one of the "Triers," 1654. He died in November 1655 and was buried in Westminster Abbey, but his body was exhumed and maltreated at the Restoration. His sermons, especially that on the death of John Pym in 1643, reveal eloquence and fervour. The only "systematic" work he published was *A Defence of Infant Baptism*, against John Tombes (London, 1646).



MARSHALL, a city and the county-seat of Saline county, Missouri, U.S.A., situated a little W. of the centre of the state, near the Salt Fork of the La Mine River. Pop. (1890), 4297; (1900), 5086 (208 being foreign-born and 98 negroes); (1910) 4869. It is served by the Missouri Pacific and the Chicago & Alton railways. The city is laid out regularly on a high, undulating prairie. It is the seat of Missouri Valley College (opened 1889; co-educational), which was established by the Cumberland Presbyterian church, and includes a preparatory department and a conservatory of music. The court-house (1883), a Roman Catholic convent and a high school (1907) are the principal buildings. The Missouri colony for the feeble-minded and epileptic (1899) is at Marshall. The principal trade is with the surrounding farming country. The municipality owns and operates the waterworks. Marshall was first settled and was made the county seat in 1839; it became a town in 1866 (re-incorporated 1870) and a city in 1878.



MARSHALL, a city and the county-seat of Harrison county, Texas, U.S.A., about 145 m. E. by S. of Dallas. Pop. (1890), 7207; (1900) 7855 (3769 negroes); (1910) 11,452. Marshall is served by the Texas & Pacific and the Marshall & East Texas railways, which have large shops here. Wiley University was founded in 1873 by the Freedman's Aid Society of the Methodist Episcopal Church, and Bishop College, was founded in 1881 by the American Baptist Home Mission Society and incorporated in 1885. Marshall is situated in a region growing cotton and Indian corn, vegetables, small fruits and sugar-cane; in the surrounding country there are valuable forests of pine, oak and gum. In the vicinity of the city there are several lakes (including Caddo Lake) and springs (including Hynson and Rosborough springs). The city has a cotton compress, and among its manufactures are cotton-seed oil, lumber, ice, foundry products and canned goods. The municipality owns and operates the waterworks. Marshall was first settled in 1842, was incorporated in 1843, and received a city charter in 1848; in 1909 it adopted the commission form of government.



MARSHALL ISLANDS, an island group in the western Pacific Ocean (Micronesia) belonging to Germany. The group consists of a number of atolls ranged in two almost parallel lines, which run from N.W. to S.E. between 4° and 15° N. and 161° and 174° E. The north-east line, with fifteen islands, is called Ratak, the other, numbering eighteen, Ralik. These atolls are of coralline formation and of irregular shape. They rise but little above high-water mark. The highest elevation occurs on the island of Likieb, but is only 33 ft. The lagoon is scarcely more than 150 ft.

deep and is accessible through numerous breaks in the reef. On the outward side the shore sinks rapidly to a great depth. The surface of the atolls is covered with sand, except in a few places where it has been turned into soil through the admixture of decayed vegetation. The reef in scarcely any instance exceeds 600 ft. in width.

The climate is moist and hot, the mean temperature being 80.50° F. Easterly winds prevail all the year round. There is no difference between the seasons, which, though the islands belong to the northern hemisphere, have the highest temperature in January and the lowest in July. Vegetation, on the whole, is very poor. There are many coconut palms, bread-fruit trees (*Artocarpus incisa*), various kinds of bananas, yams and taro, and pandanus, of which the natives eat the seeds. From the bark of another plant they manufacture mats. There are few animals. Cattle do not thrive, and even poultry are scarce. Pigs, cats, dogs and rats have been imported. There are a few pigeons and aquatic birds, butterflies and beetles. Crustacea and fish abound on the reefs.

The natives are Micronesians of a dark brown colour, though lighter shades occur. Their hair is not woolly but straight and long. They practise tattooing, and show Papuan influence by distending the ear-lobes by the insertion of wooden disks. They are expert navigators, and construct curious charts of thin strips of wood tied together with fibres, some giving the position of the islands and some the direction of the prevailing winds. Their canoes carry sails and are made of the trunk of the bread-fruit tree. The people are divided into four classes, of which only two are allowed to own land. The islands lie entirely within the German sphere of interest, and the boundaries were agreed upon between Great Britain and Germany on the 10th of April 1889. Their area is estimated at 160 sq. m., with 15,000 inhabitants, who are apparently increasing, though the contrary was long believed. All but about 250 are natives. The administrator of the islands is the governor of German New Guinea, but a number of officials reside on the islands. There is no military force, the natives being of peaceful disposition. The chief island and seat of government is Jaluit. The most populous island is Majeru, with 1600 inhabitants. The natives are generally pagans, but a Roman Catholic mission has been established, and the American Mission Board maintains coloured teachers on many of the islands. There is communication with Sydney by private steamer, and a steamer sails between Jaluit and Ponape to connect with the French boats for Singapore. The chief products for export are copra, tortoise-shell, mother-of-pearl, sharks' fins and trepang. The natives are clever boat-builders, and find a market for their canoes on neighbouring islands. They have made such progress in their art that they have even built seaworthy little schooners of 30 to 40 tons. The only other articles they make are a few shell ornaments.

The Marshall Islands may have been visited by Alvaro de Saavedra in 1529, Captain Wallis touched at the group in 1767, and in 1788 Captains Marshall and Gilbert explored it. The Germans made a treaty with the chieftains of Jaluit in 1878 and annexed the group in 1885-1886.

See C. Hager, *Die Marshall-Inseln* (Leipzig, 1886); Steinbach and Grösser, *Wörterbuch der Marshall-Sprache* (Hamburg, 1902).



MARSHALLTOWN, a city and the county-seat of Marshall county, Iowa, U.S.A., near the Iowa River and about 60 m. N.E. of Des Moines. Pop. (1890), 8914; (1900), 11,544, of whom 1590 were foreign-born; (1910 census) 13,374. Marshalltown is served by the Chicago & North-Western, the Chicago Great Western, and the Iowa Central railways, the last of which has machine shops here. At Marshalltown are the Iowa soldiers' home, supported in part by the Federal Government, and St. Mary's institute, a Roman Catholic commercial and business school. The city is situated in a rich agricultural region, and is a market for grain, meat cattle, horses and swine. There are miscellaneous manufactures, and in 1905 the factory product was valued at \$3,090,312. The municipality owns and operates its waterworks and its electric-lighting plant. Marshalltown, named in honour of Chief Justice John Marshall, was laid out in 1853, and became the county-seat in 1860. It was incorporated as a town in 1863, and was chartered as a city in 1868.



MARSHALSEA, a prison formerly existing in Southwark, London. It was attached to the court of that name held by the steward and marshal of the king's house (see [LORD STEWARD](#) and [MARSHAL](#)). The date of its first establishment is unknown, but it existed as early as the reign of Edward III. It was consolidated in 1842 with the queen's bench and the Fleet, and was then described as "a prison for debtors and for persons charged with contempt of Her Majesty's courts of the Marshalsea, the court of the queen's palace of Westminster, and the high court of admiralty, and also for admiralty prisoners under sentence of courts martial." It was abolished in 1849. The Marshalsea Prison is described in Charles Dickens' *Little Dorrit*.



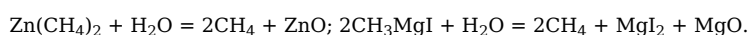
MARSHBUCK, a book-name proposed for such of the African bushbucks or harnessed antelopes as have abnormally long hoofs to support them in walking on marshy or swampy ground. (See [BUSHBUCK](#) and [ANTELOPE](#).)



MARSHFIELD, a city of Wood county, Wisconsin, about 165 m. N.W. of Milwaukee. Pop. (1890), 3450; (1900), 5240, of whom 1161 were foreign-born; (1905) 6036; (1910) 5783. It is served by the Chicago & North-Western, the Chicago, St Paul, Minneapolis & Omaha, and the Minneapolis, St Paul & Sault Ste Marie railways. It contains the mother-house of the Sisters of the Sorrowful Mother. Lumbering is the most important industry, and there are various manufactures. The city is situated in a clover region, in which dairying is important, and Guernsey and Holstein-Friesland cattle are raised. The municipality owns and operates the waterworks and the electric-lighting plant. The site of Marshfield was part of a tract granted by the Federal government to the Fox River Improvement Company, organized to construct a waterway between the Mississippi river and Green Bay, and among the original owners of the town site were Samuel Marsh of Massachusetts (in whose honour the place was named) and Horatio Seymour, Ezra Cornell, Erastus Corning, and William A. Butler of New York. Marshfield was settled about 1870, and was first chartered as a city in 1883.



MARSH GAS (methane), CH₄, the first member of the series of paraffin hydrocarbons. It occurs as a constituent of the "fire-damp" of coal-mines, in the gases evolved from volcanoes, and in the gases which arise in marshy districts (due to the decomposition of vegetable matter under the surface of water). It is found associated with petroleum and also in human intestinal gases. It is a product of the destructive distillation of complex organic matter (wood, coal, bituminous shale, &c.), forming in this way from 30 to 40% of ordinary illuminating gas. It may be synthetically obtained by passing a mixture of the vapour of carbon bisulphide with sulphuretted hydrogen over red-hot copper (M. Berthelot, *Comptes rendus*, 1856, 43, p. 236), CS₂ + 2H₂S + 8Cu = 4Cu₂S + CH₄; by passing a mixture of hydrogen and carbon monoxide over reduced nickel at 200-250° C., or hydrogen and carbon dioxide at 230-300° C. (P. Sabatier and J. B. Senderens, *Comptes rendus*, 1902, 134, pp. 514, 689); by the decomposition of aluminium carbide with water [H. Moissan, *Bull. Soc. Chim.*, 1894, (3) 11, p. 1012]; and by heating phosphonium iodide with carbon bisulphide in a sealed tube to 120-140° C. (H. Jahn, *Ber.*, 1880, 13, p. 127). It is also obtained by the reduction of many methyl compounds with nascent hydrogen; thus methyl iodide dissolved in methyl alcohol readily yields methane when acted on by the zinc-copper couple (J. H. Gladstone and A. Tribe, *Jour. Chem. Soc.*, 1884, 45, p. 156) or by the aluminium-mercury couple. It may be obtained in an indirect manner from methyl iodide by conversion of this compound into zinc methyl, or into magnesium methyl iodide (formed by the action of magnesium on methyl iodide dissolved in anhydrous ether), and decomposing these latter substances with water (E. Frankland, 1856; V. Grignard, 1900),



In the laboratory it is usually prepared by J. B. A. Dumas' method (*Ann.*, 1840, 33, p. 181), which consists in heating anhydrous sodium acetate with soda lime, CH₃CO₂Na + NaOH = Na₂CO₃ + CH₄. The product obtained by this method is not pure, containing generally more or less ethylene and hydrogen.

Methane is a colourless gas of specific gravity 0.559 (air = 1). It may be condensed to a colourless liquid at -155° to -160° C. under atmospheric pressure (S. Wroblewsky, *Comptes rendus*, 1884, 99, p. 136). It boils at -162° C. and freezes at -186° C. Its critical temperature is -99.5° C. (J. Dewar). The gas is almost insoluble in water, but is slightly soluble in alcohol. It decomposes into its constituents when passed through a red-hot tube, small quantities of other hydrocarbons (ethane, ethylene, acetylene, benzene, &c.) being formed at the same time. It burns with a pale flame, and when mixed with air or oxygen forms a highly explosive mixture. W. A. Bone (*Jour. Chem. Soc.*, 1902, 81, p. 535; 1903, 83, p. 1074) has shown that in the oxidation of methane by oxygen at 450-500° C. formaldehyde (or possibly methyl alcohol) is formed as an intermediate product, and is ultimately oxidized to carbon dioxide. Methane is an exceedingly stable gas, being unaffected by the action of chromic acid, nitric acid, or a mixture of nitric and sulphuric acids. Chlorine and bromine, however, react with methane, gradually replacing hydrogen and forming chlor- and brom-substitution products.



MARSHMAN, JOSHUA (1768-1837), English Baptist missionary and orientalist, was born on the 20th of April 1768, at Westbury Leigh, in Wiltshire. He followed the occupation of a weaver until 1794, but having meanwhile devoted himself to study he removed to Broadmead, Bristol, to take charge of a small school. In 1799 he was sent by the Baptist Missionary Society to join their mission at Serampur. Here, in addition to his more special duties, he studied Bengali and Sanskrit, and afterwards Chinese. He translated the Bible into various dialects, and, aided by his son, established newspapers and founded Serampur College. He received the degree of D.D. from Brown University, U.S.A., in 1810. He died at Serampur on the 5th of December 1837. His son, John Clark Marshman (1704-1877), was official Bengali translator; he published a *Guide to the Civil Law* which, before the work of Macaulay, was the civil code of India, and wrote a *History of India* (1842).

Marshman translated into Chinese the book of Genesis, the Gospels, and the Epistles of Paul to the Romans and the Corinthians; in 1811 he published *The Works of Confucius, containing the Original Text, with a Translation*, and in 1814 his *Clavis Sinica*. He was also the author of *Elements of Chinese Grammar, with Preliminary Dissertation on the Characters and Colloquial Mediums of the Chinese*, and was associated with W. Carey in the preparation of a Sanskrit grammar and of a Bengali-English dictionary.

See J. C. Marshman, *Life and Times of Carey, Marshman and Ward* (2 vols., 1859).



MARSI, an ancient people of Italy, whose chief centre was Marruvium, on the eastern shore of Lake Fucinus. They are first mentioned as members of a confederacy with the Vestini, Paeligni and Marrucini (Liv. viii. 29, cf. viii. 6, and Polyb. ii. 24, 12). They joined the Samnites in 308 B.C. (Liv. ix. 41), and on their submission became allies of Rome in 304 B.C. (Liv. ix. 45). After a short-lived revolt two years later, for which they were punished by loss of territory (Liv. x. 3), they were readmitted to the Roman alliance and remained faithful down to the social war, their contingent (*e.g.* Liv. xlv. 46) being always regarded as the flower of the Italian forces (*e.g.* Hor. *Od.* ii. 20, 18). In this war, which, owing to the prominence of the Marsian rebels is often known as the Marsic War, they fought bravely against odds under their leader Q. Pompeidius Silo, and, though they were frequently defeated, the result of the war was the enfranchisement of the allies (see **ROME: History**, "The Republic"). The Marsi were a hardy mountain people, famed for their simple habits and indomitable courage. It was said that the Romans had never triumphed over them or without them (Appian). They were also renowned for their magicians, who had strange remedies for various diseases.

The Latin colony of Alba Fucens near the north-west corner of the lake was founded in the adjoining Aequian territory in 303, so that from the beginning of the 3rd century the Marsians were in touch with a Latin-speaking community, to say nothing of the Latin colony of Carsioli (298 B.C.) farther west. The earliest pure Latin inscriptions of the district seem to be *C.I.L.* ix. 3827 and 3848 from the neighbourhood of Supinum; its character generally is of the Gracchan period, though it might be somewhat earlier.

Mommsen (*Unteritalische Dialekten*, p. 345) pointed out that in the social war all the coins of Pompeidius Silo have the Latin legend "Italia," while the other leaders in all but one case used Oscan.

The chief record of the dialect or patois we owe to the goddess Angitia, whose chief temple and grove stood at the south-west corner of Lake Fucinus, near the inlet to the *emissarius* of Claudius (restored by Prince Torlonia), and the modern village of Luco. She (or they, for the name is in the plural in the Latin inscription next cited) was widely worshipped in the central highlands (Sulmo, *C.I.L.* ix. 3074, Furfo Vestinorum, *ibid.* 3515) as a goddess of healing, especially skilled to cure serpent bites by charms and the herbs of the Marsian woods. Her worshippers naturally practised the same arts—as their descendants do (see A. de Nino's charming collection of *Usi e costumi abruzzesi*), their country being in Rome counted the home of witchcraft; see Hor. *Sal.* 1, 9, 29, *Epod.* 17, 28, &c.

The earliest local inscriptions date from about 300 to 150 B.C. and include the interesting and difficult bronze of Lake Fucinus, which seems to record a votive offering to Angitia, if *A(n)ctia*, as is probable, was the local form of her name. Their language differs very slightly from Roman Latin of that date; for apparently contracted forms like *Fouigno* instead of *Fucino* may really only be a matter of spelling. In final syllables the diphthongs *ai*, *ei*, *oi*, all appear as *ē*. On the other hand, the older form of the name of the tribe (dat. plur. *Martses* = Lat. *Martiis*) shows its derivation and exhibits the assibilation of *-tio-* into *-tso-* proper to many Oscan dialects (see **OSCA LINGUA**) but strange to classical Latin.

See R. S. Conway, *The Italic Dialects*, pp. 290 seq. (from which some portions of this article are taken by permission of the syndics of the Camb. Univ. Press); on the Fucino-Bronze, *ib.* p. 294.

(R. S. C.)



MARSIGLI [Latinized **MARSILIUS**], **LUIGI FERDINANDO**, Count (1658-1730), Italian soldier and scientific writer, was born at Bologna on the 10th of July 1658. After a course of scientific studies in his native city he travelled through Turkey collecting data on the military organization of that empire, as well as on its natural history. On his return he entered the service of the emperor Leopold (1682) and fought with distinction against the Turks, by whom he was wounded and captured in an action on the river Raab, and sold to a pasha whom he accompanied to the siege of Vienna. His release was purchased in 1684, and he afterwards took part in the war of the Spanish succession. In 1703 he was appointed second in command under Count Arco in the defence of Alt-Breisach. The fortress surrendered to the duke of Burgundy, and both Arco and Marsigli were court martialled; the former was condemned to death and the latter cashiered, although acquitted of blame by public opinion. Having thus been forced to give up soldiering, he devoted the rest of his life to scientific investigations, in the pursuit of which he made many journeys through Europe, spending a considerable time at Marseilles to study the nature of the sea. In 1712 he presented his collections to his native city, where they formed the nucleus of the Bologna Institute of Science and Art. He died at Bologna on the 1st of November 1730. Marsigli was a fellow of the London Royal Society and a member of the Paris Academy of Science.

BIBLIOGRAPHY.—A list of his works, over twenty in number, is given in Nicéron's *Memoirs*; his *Breve ristretto del saggio fisico intorno alla storia del mare* was published at Venice in 1711, and again at Amsterdam (in French) in 1725; the *Stato militare dell' impero ottomano* was published at Amsterdam and the Hague in Italian and French (1732), the *Osservazioni intorno al Bosforo Tracio* in Rome (1681) and the *Danubius pannonico-mysicus*, a large work in six volumes containing much valuable historic and scientific information on the Danubian countries, at the Hague (1725). See Fontenelle, "Éloge" in the *Mém. de l'acad. des sciences* (Paris, 1730); Quincy, *Mémoires sur la vie de M. le comte Marsigli* (Zürich, 1741), and Fantuzzi's biography of Marsigli (Bologna, 1770).



MARSILIUS OF PADUA [MARSIGLIO MAINARDINO] (1270-1342), Italian medieval scholar, was born at Padua, and at first studied medicine in his own country. After practising various professions, among others that of a soldier, he went to Paris about 1311. The reputation which he had gained in the physical sciences soon caused him to be raised to the position of rector of the university (for the first term of the year 1313). While still practising medicine he entered into relations with another master of Paris, the philosopher John of Jandun, who collaborated with him in the composition of the famous *Defensor pacis* (1324), one of the most extraordinary political and religious works which appeared during the 14th century. A violent struggle had just broken out between pope John XXII. and Louis of Bavaria, king of the Romans, and the latter, on being excommunicated and called upon to give up the empire, only replied to the pope's threats with fresh provocations. Marsilius of Padua and John of Jandun, though they had both reason to be grateful for the benefits of John XXII., chose this moment to demonstrate, by plausible arguments, the supremacy of the Empire, its independence of the Holy See, and the emptiness of the prerogatives "usurped" by the sovereign pontiffs—a demonstration naturally calculated to give them a claim on the gratitude of the German sovereign.

The *Defensor pacis*, as its name implies, is a work intended to restore peace, as the most indispensable benefit of human society. The author of the law is the people, *i.e.* the whole body, or at least the most important part (*valentior*) of the citizens; the people should themselves elect, or at least appoint, the head of the government, who, lest he should be tempted to put himself above the scope of the laws, should have at his disposal only a limited armed force. This chief is responsible to the people for his breaches of the law, and in serious cases they can condemn him to death. The real cause of the trouble which prevails among men is the papacy, a "fictitious" power, the development of which is the result of a series of usurpations. Marsilius denies, not only to the pope, but to the bishops and clergy, any coercive jurisdiction or any right to pronounce on their own authority excommunications and interdicts, or in any way to impose the observation of the divine law. He is not opposed to penalties against heretics, but he would have them pronounced only by civil tribunals. Desiring to see the clergy practise a holy poverty, he proposes the suppression of tithes and the seizure by the secular power of the greater part of the property of the church. The clergy, thus deprived of its wealth, privileges and jurisdiction, is further to be deprived of independence, for the civil power is to have the right of appointing to benefices, &c. The supreme authority in the church is to be the council, but a council summoned by the emperor. The pope, no longer possessing any more power than other bishops (though Marsilius recognizes that the supremacy of the Church of Rome goes back to the earliest times of Christianity), is to content himself with a pre-eminence mainly of an honorary kind, without claiming to interpret the Holy Scriptures, define dogmas or distribute benefices; moreover, he is to be elected by the Christian people, or by the delegates of the people, *i.e.* the princes, or by the council, and these are also to have the power to punish, suspend or depose him. Such is this famous work, full of obscurities, redundancies and contradictions, in which the thread of the argument is sometimes lost in a labyrinth of reasonings and citations, both sacred and profane, but which nevertheless expresses, both in religion and politics, such audacious and novel ideas that it has been possible to trace in it, as it were, a rough sketch of the doctrines developed during the periods of the Reformation and of the French Revolution. The theory was purely democratic, but was all ready to be transformed, by means of a series of fictions and implications, into an imperialist doctrine; and in like manner it contained a visionary plan of reformation which ended, not in the separation of the church from the state, but in the subjection of the church to the state. To overthrow the ecclesiastical hierarchy, to deprive the clergy of all their privileges, to reduce the pope to the rank of a kind of president of a Christian republic, which governs itself, or rather submits to the government of Caesar—such is the dream formed in 1324 by two masters of the university of Paris.

When in 1326 Louis of Bavaria saw the arrival in Nuremberg of the two authors of the book dedicated to him, startled by the boldness of their political and religious theories, he was at first inclined to treat them as heretics. He soon changed his mind, however, and, admitting them to the circle of his intimates, loaded them with favours. Having become one of the chief inspirers of the imperial policy, Marsilius accompanied Louis of Bavaria to Italy, where he preached or circulated written attacks against the pope, especially at Milan, and where he came within the sight of the realization of his wildest utopias. To see a king of the Romans crowned emperor at Rome, not by the pope, but by those who claimed to be the delegates of the people (Jan. 17, 1328), to see John XXII. deposed by the head of the Empire (April 18), and a mendicant friar, Pietro de Corbara, raised by an imperial decree to the throne of St Peter (as Nicholas V.) after a sham of a popular election (May 12), all this was merely the application of principles laid down in the *Defensor pacis*. The two authors of this book played a most active part in the Roman Revolution. Marsilius, appointed imperial vicar, abused his power to persecute the clergy who had remained faithful to John XXII. In recompense for his services, he seems to have been appointed archbishop of Milan, while his collaborator, John of Jandun, obtained from Louis of Bavaria the bishopric of Ferrara.

Marsilius of Padua also composed a treatise *De translatione imperii romani*, which is merely a rearrangement of a work of Landolfo Colonna, *De jurisdictione imperatoris in causa matrimoniali*, intended to prove the exclusive jurisdiction of the emperor in matrimonial affairs, or rather, to justify the intervention of Louis of Bavaria, who, in the interests of his policy, had just annulled the marriage of the son of the king of Bohemia and the countess of Tirol. But, above all, in an unpublished work preserved at Oxford, the *Defensor minor*, Marsilius completed and elaborated in a curious manner certain points in the doctrine laid down in the *Defensor pacis*. In it he deals with ecclesiastical jurisdiction, penances, indulgences, crusades and pilgrimages, vows, excommunication, the pope and the council, marriage and divorce. Here his democratic theory still more clearly leads up to a proclamation of the imperial omnipotence.

Marsilius of Padua does not seem to have lived long after 1342. But the scandal provoked by his *Defensor pacis*, condemned by the court of Avignon in 1326, lasted much longer. Benedict XII. and Clement VI. censured it in turn; Louis of Bavaria disowned it. Translated into French, then into Italian (14th century) and into English (16th century), it was known by Wycliffe and Luther, and was not without an influence on the Reform movement.

See J. Sullivan, *American Historical Review*, vol. ii. (1896-1897), and *English Historical Review* for April 1905; *Histoire littéraire de la France* (1906), xxxiii. 528-623; Sigmund Riezler, *Die literarischen Widersacher der Päpste zur Zeit Ludwig des Baiers* (Leipzig, 1874).

There are numerous manuscripts of the *Defensor pacis* extant. We will here mention only one edition, that given by Goldast, in 1614, in vol. i. of his *Monarchia sacri imperii*; an unpublished last chapter was published by Karl Müller, in 1883, in the *Göttingische gelehrte Anzeigen*, pp. 923-925.

Count Lützwow in *The Life and Times of Master John Hus* (London and New York, 1909), pp. 5-9, gives a good abstract of the *Defensor pacis* and the relations of Marsilius to other precursors of the Reformation.



MARSIVAN, or MERZIFUN (anc. *Phazemon?*), a town in the Amasia sanjak of the Sivas vilayet of Asia Minor, situated at the foot of the Tavshan Dag. Pop. about 20,000, two-thirds Mussulman. It is a centre of American missionary and educational enterprise, and the seat of Anatolia College, a theological seminary, and schools which were partly destroyed in the anti-Armenian riots of 1893 and 1895. There is also a Jesuit school. Marsivan is an unusually European place both in its aspect and the commodities procurable in the bazaar.



MARS-LA-TOUR, a village of Lorraine, between Metz and the French frontier, which formed part of the battlefield of the 16th of August 1870. The battle is often called the battle of Mars-la-Tour, though it is more usually named after Vionville. (See [METZ](#); and [FRANCO-GERMAN WAR.](#)) At Mars-la-Tour occurred the destruction of the German 38th brigade.



MARSTON, JOHN (c. 1575-1634), English dramatist and satirist, eldest son of John Marston of Coventry, at one time lecturer of the Middle Temple, was born in 1575, or early in 1576. Swinburne notes his affinities with Italian literature, which may be partially explained by his parentage, for his mother was the daughter of an Italian physician, Andrew Guarsi. He entered Brasenose College, Oxford, in 1592, taking his B.A. degree in 1594. The elder Marston in his will expresses regret that his son, to whom he left his law-books and the furniture of his rooms in the Temple, had not been willing to follow his profession. John Marston married Mary Wilkes, daughter of one of the royal chaplains, and Ben Jonson said that "Marston wrote his father-in-law's preachings, and his father-in-law his sermons." His first work was *The Metamorphosis of Pigmaliions Image, and certaine Satyres* (1598). "Pigmalion" is an erotic poem in the metre of *Venus and Adonis*, and Joseph Hall attached a rather clumsy epigram to every copy that was exposed for sale in Cambridge. In the same year Marston published, under the pseudonym of W. Kinsayder, already employed in the earlier volume, his *Scourge of Villanie*, eleven satires, in the sixth of which he asserted that Pigmalion was intended to parody the amorous poetry of the time. Both this volume and its predecessor were burnt by order of the archbishop of Canterbury. The satires, in which Marston avowedly took Persius as his model, are coarse and vigorous. In addition to a general attack on the vices of his age he avenges himself on Joseph Hall who had assailed him in *Virgidemiae*. He had a great reputation among his contemporaries. John Weever couples his name with Ben Jonson's in an epigram; Francis Meres in *Palladis tamia* (1598) mentions him among the satirists; a long passage is devoted to "Monsieur Kinsayder" in the *Return from Parnassus* (1606), and Dr Brinsley Nicholson has suggested that *Furor poeticus* in that piece may be a satirical portrait of him. But his invective by its general tone, goes far to justify Mr W. J. Courthope's¹ judgment that "it is likely enough that in seeming to satirize the world without him, he is usually holding up the mirror to his own prurient mind."

On the 28th of September 1599 Henslowe notices in his diary that he lent "unto Mr Maxton, the new poete, the sum of forty shillings," as an advance on a play which is not named. Another hand has amended "Maxton" to "Mastone." The earliest plays to which Marston's name is attached are *The History of Antonio and Mellida*. *The First Part*; and *Antonio's Revenge*. *The Second Part* (both entered at Stationers' Hall in 1601 and printed 1602). The second part is preceded by a prologue which, in its gloomy forecast of the play, moved the admiration of Charles Lamb, who also compares the situation of Andrugio and Lucia to Lear and Kent, but the scene which he quotes gives a misleading idea of the play and of the general tenor of Marston's work.

The melodrama and the exaggerated expression of these two plays offered an opportunity to Ben Jonson, who had already twice ridiculed Marston, and now pilloried him as Crispinus in *The Poetaster* (1601). The quarrel was patched up, for Marston dedicated his *Malcontent* (1604) to Jonson, and in the next year he prefixed commendatory verses to *Sejanus*. Far greater restraint is shown in *The Malcontent* than in the earlier plays. It was printed twice in 1604, the second time with additions by John Webster. *The Dutch Courtezan* (1605) and *Parasitaster, or the Fawne* (1606) followed. In 1605 *Eastward Hoe*,² a gay comedy of London life, which gave offence to the king's Scottish friends, caused the playwrights concerned in its production—Marston, Chapman and Jonson—to be imprisoned at the instance of Sir James Murray. *The Wonder of Women, or the Tragedie of Sophonisba* (1606), seems to have been put forward by Marston as a model of what could be accomplished in tragedy. In the preface he mocks at those authors who make a parade of their authorities and their learning, and the next play, *What you Will* (printed 1607; but probably written much earlier), contains a further attack on Jonson. The tragedy of *The Insatiate Countesse* was printed in 1613, and again, this time anonymously, in 1616. It was not included in the collected edition of Marston's plays in 1633, and in the Duke of Devonshire's library there is a copy bearing the name of William Barksteed, the author of the poems, *Myrrha, the Mother of Adonis* (1607), and *Hiren and the Fair Greek* (1611). The piece contains many passages superior to anything to be found in Marston's well-authenticated plays, and Mr A. H. Bullen suggests that it may be Barksteed's version of an earlier one drafted by Marston. The character and history of Isabella are taken chiefly from "The Disordered Lyfe of the Countess of Celant" in William Paynter's *Palace of Pleasure*, derived eventually from *Bandello*. There is no certain evidence of Marston's authorship in *Histriomastix* (printed 1610, but probably produced before 1599), or in *Jacke Drums Entertainment, or the Comedie of Pasquil and Katherine* (1616), though he probably had a hand in both. Mr R. Boyle (*Englische Studien*, vol. xxx., 1901), in a critical study of Shakespeare's *Troilus and Cressida*, assigns to Marston's hand the whole of the action dealing with Hector, with the

prologue and epilogue, and attributes to him the bombast and coarseness in the last scenes of the play. It will be seen that his undoubted dramatic work was completed in 1607. It is uncertain at what time he exchanged professions, but in 1616 he was presented to the living of Christchurch, Hampshire. He formally resigned his charge in 1631, and when his works were collected in 1633 the publisher, William Sheares, stated that the author "in his autumn and declining age" was living "far distant from this place." Nevertheless he died in London, in the parish of Aldermanbury, on the 25th of June 1634. He was buried in the Temple Church.

Marston's works were first published in 1633, once anonymously as *Tragedies and Comedies*, and then in the same year as *Workes of Mr John Marston*. *The Works of John Marston* (3 vols.) were reprinted by Mr J. O. Halliwell (Phillipps) in 1856, and again by Mr. A. H. Bullen (3 vols.) in 1887. His *Poems* (2 vols.) were edited by Dr A. B. Grosart in 1879. The British Museum Catalogue tentatively assigns to Marston *The Whipper of the Satyre his pennance in a white sheete; or, the Beadle's Confutation* (1601), a pamphlet in answer to *The Whipping of the Satyre*. For an account of the quarrel of Dekker and Marston with Ben Jonson see Dr R. A. Small, *The Stage Quarrel between Ben Jonson and the so-called Poetasters*; in E. Koelbing, *Forschungen zur englischen Sprache und Litteratur*, pt. i. (1899). See also three articles *John Marston als Dramatiker*, by Ph. Aronstein in *Englische Studien* (vols. xx. and xxi., 1895), and "Quellenstudien zu den Dramen Ben Jonsons, John Marstons ..." by Emil Koepfel (*Münchener Beiträge zur roman. und engl. Philologie*, pt. xi. 1895).

1 *Hist. of Eng. Poetry*, iii. 70.

2 Revived at Drury Lane (1751) as *The Prentices*, in 1775 as *Old City Manners*, and said to have suggested Hogarth's "Industrious and Idle Prentices."



MARSTON, PHILIP BOURKE (1850-1887), English poet, was born in London on the 13th of August 1850. His father, JOHN WESTLAND MARSTON (1819-1890), of Lincolnshire origin, the friend of Dickens, Macready and Charles Kean, was the author of a series of metrical dramas which held the stage in succession to the ambitious efforts of John Tobin, Talfourd, Bulwer and Sheridan Knowles. His chief plays were *The Patrician's Daughter* (1841), *Strathmore* (1849), *A Hard Struggle* (1858) and *Donna Diana* (1863). He was looked up to as the upholder of the outworn tradition of the acted poetic drama, but his plays showed little vitality, and Marston's reviews for the *Athenaeum*, including one of Swinburne's *Atalanta in Calydon*, and his dramatic criticisms embodied in *Our Recent Actors* (1888) will probably claim a more enduring reputation. His *Dramatic and Poetical Works* were collected in 1876. The son, Philip Bourke, was born in a literary atmosphere. His sponsors were Philip James Bailey and Dinah Mulock (Mrs Craik). At his father's house near Chalk Farm he met authors and actors of his father's generation, and subsequently the Rossettis, Swinburne, Arthur O'Shaughnessy and Irving. From his earliest years his literary precocity was overshadowed by misfortunes. In his fourth year, in part owing to an accident, his sight began to decay, and he gradually became almost totally blind. His mother died in 1870. His *fiancée*, Mary Nesbit, died in 1871; his closest friend, Oliver Madox Brown, in 1874; his sister Cicely, his amanuensis, in 1878; in 1879 his remaining sister, Eleanor, who was followed to the grave after a brief interval by her husband, the poet O'Shaughnessy, and her two children. In 1882 the death of his chief poetic ally and inspirer, Rossetti, was followed closely by the tragedy of another kindred spirit, the sympathetic pessimist, James Thomson ("B. V."), who was carried dying from his blind friend's rooms, where he had sought refuge from his latest miseries early in June of the same year. It is said that Marston came to dread making new friendships, for fear of evil coming to the recipients of his affection. In the face of such calamities it is not surprising that Marston's verse became more and more sorrowful and melancholy. The idylls of flower-life, such as the early and very beautiful "The Rose and the Wind" were succeeded by dreams of sleep and the repose of death. These qualities and gradations of feeling, reflecting the poet's successive ideals of action and quiescence, are traceable through his three published collections, *Songtide* (1871), *All in All* (1875) and *Wind Voices* (1883). The first and third, containing his best work, went out of print, but Marston's verse was collected in 1892 by Mrs Louise Chandler Moulton, a loyal and devoted friend, and herself a poet. Marston read little else but poetry; and of poetic values, especially of the intenser order, his judgment could not be surpassed in sensitiveness. He was saturated with Rossetti and Swinburne, and his imitative power was remarkable. In his later years he endeavoured to make money by writing short stories in *Home Chimes* and other American magazines, through the agency of Mrs Chandler Moulton. His popularity in America far exceeded that in his own country. His health showed signs of collapse from 1883; in January 1887 he lost his voice, and suffered intensely from the failure to make himself understood. He died on the 13th of February 1887.

He was commemorated in Dr Gordon Hake's "Blind Boy," and in a fine sonnet by Swinburne, beginning "The days of a man are threescore years and ten." There is an intimate sketch of the blind poet by a friend, Mr Coulson Kernahan, in *Sorrow and Song* (1894), p. 127.

(T. SE.)



MARSTON MOOR, BATTLE OF, was fought on the 2nd of July 1644 on a moor (now enclosed) seven miles west of York, between the Royalist army under Prince Rupert and the Parliamentary and Scottish armies under the earl of Manchester, Lord Fairfax and Lord Leven. For the operations that preceded the battle see **GREAT REBELLION**. Rupert had relieved York and joined forces with the marquess of Newcastle's army that had defended that city, and the Parliamentarians and Scots who had besieged it had drawn off south-westward followed by the Royalists. On the morning of the 2nd of July, however, Rupert's attack on their rearguard forced them to halt and deploy on rising ground on the south edge of the moor, their position being defined on the right and left by Long Marston and Tockwith and divided from the Royalist army on the moor by a lane connecting these two villages. The respective forces were—Royalists about 18,000, Parliamentarians and Scots about 27,000. The armies stood front to front. On the Royalist right was half the cavalry under Rupert; the infantry was in the centre in two lines and the left

wing of cavalry was under General (Lord) Goring. The lane along the front was held by skirmishers. On the other side the cavalry of the Eastern Association under Lieut.-General Cromwell and that of the Scots under Major-General Leslie (Lord Newark) formed the left, the infantry of the Eastern Association under Major-General Crawford, of the Scots under Lord Leven, and of the Yorkshire Parliamentarians under Lord Fairfax was in the centre and the Yorkshire cavalry under Sir Thomas Fairfax was on the right wing.

During the afternoon there was a desultory cannonade, but neither side advanced. At last, concluding from movements in the enemy's lines that there would be no fighting that day, Rupert and Newcastle strolled away to their coaches and their soldiers dismounted and lay down to rest. But seeing this Cromwell instantly advanced his wing to the attack (5 p.m.). His dragoons drove away the skirmishers along the lane, and the line cavalry crossed into the moor. The general forward movement spread along the Parliamentary line from left to right, the Eastern Association infantry being the first to cross the road. In Rupert's momentary absence, the surprised Royalist cavalry could make no head against Cromwell's charge, although the latter was only made piecemeal as each unit crossed the lane and formed to the front. Rupert soon galloped up with his fresh second line and drove back Cromwell's men, Cromwell himself being wounded, but Leslie and the Scots Cavalry, taking ground to their left, swung in upon Rupert's flank, and after a hard struggle the hitherto unconquered cavalry of the prince was broken and routed. Then, being unlike other cavalry of the time, a thoroughly disciplined force, the Eastern Association cavalry rallied, leaving the pursuit to the Scots light horse. On the Parliamentary right, Goring had swept away the Yorkshire horse, and although most of his troopers had followed in disorderly pursuit, Sir Charles Lucas with some squadrons was attacking the exposed right of Leven's infantry. At the same time the Parliamentary infantry had mostly crossed the lane and was fighting at close quarters and suffering severely, Newcastle's north-country "White-Coat" brigade driving back and finally penetrating their centre. Lord Leven gave up the battle as lost and rode away to Tadcaster. But the Scots on the right of the foot held firm against Lucas's attacks, and Cromwell and Leslie with their cavalry passed along the rear of the Royal army, guided by Sir Thomas Fairfax (who though wounded in the rout of his Yorkshire horse had made his way to the other flank). Then, on the ground where Goring had routed Fairfax, Cromwell and Leslie won an easy victory over Goring's scattered and disordered horsemen. The Eastern Association infantry had followed the horse and was now in rear of the Royalists. The original Parliamentary centre of foot, a remnant, but one containing only the bravest and steadiest men, held fast, and soon the Royalist infantry was broken up into isolated regiments and surrounded by the victorious horse and foot of the enemy. The White-Coats retreated into an enclosure and there defended themselves to the last man. The rest were cut down on the field or scattered in the pursuit and at nightfall the Royalist army had ceased to exist. Some of Rupert's foot regiments made their way to York, but the spirited garrison only held out for a fortnight. Rupert rallied some six thousand of the men and escaped over the hills into Lancashire, thence rejoining King Charles in the south. But the Northern army, the main hope of the Royalist cause, was destroyed.



MARSUPIALIA (from Lat. *marsupium*, a "pouch," or "bag"), the group of mammals in which the young are usually carried for some time after birth in a pouch on the under-surface of the body of the female. The group, which has also the alternative title of Didelphia, is by some authorities regarded as a sub-class of the mammalia of equal rank with the Monotremata, while by others it is brigaded with the placentals, so that the two together form a sub-class of equal grade with the one represented by the monotremes. There is much to be urged in favour of either view; and in adopting the former alternative, it must be borne in mind that the difference between monotremes and marsupials is vastly greater than that which separates the latter from placentals. In elevating the marsupials to the rank of a sub-class the name Metatheria has been suggested as the title for the higher grade, with Marsupialia as the designation for the single order by which they are now represented. It is, however, less liable to cause confusion, and in many other ways more convenient to employ the better known term Marsupialia in both senses.

Marsupials may be defined as viviparous (that is non-egg-laying) mammals, in which the young are born in an imperfect condition, and almost immediately attached to the teats of the mammary glands; the latter being generally enclosed in a pouch, and the front edge of the pelvis being always furnished with epipubic or "marsupial" bones. As a rule there is no allantoic placenta forming the means of communication between the blood of the parent and the foetus, and when such a structure does occur its development is incomplete. In all cases a more or less full series of teeth is developed, these being differentiated into incisors, canines, premolars and molars, when all are present; but only a single pair of teeth in each jaw has deciduous predecessors.

The pouch from which the marsupials take their name is supported by the two epipubic bones, but does not correspond to the temporary breeding-pouch of the monotremes. It may open either forward or backwards; and although present in the great majority of the species, and enclosing the teats, it may, as in many of the opossums, be completely absent, when the teats extend in two rows along the whole length of the under-surface of the body. Whether a pouch is present or not, the young are born in an exceedingly imperfect state of development, after a very short period of gestation, and are immediately transferred by the female parent to the teats, where they remain firmly attached for a considerable time; the milk being injected into their mouths at intervals by means of a special muscle which compresses the glands. In the case of the great grey kangaroo, for instance, the period of gestation is less than forty days, and the newly-born embryo, which is blind, naked, and unable to use its bud-like limbs, is little more than an inch in length.

As additional features of the sub-class may be mentioned the absence of a corpus callosum connecting the right and left hemispheres of the brain,¹ and of a fossa in the septum between the two auricles of the heart. In the skull there are always vacuities, or unossified spaces in the bones of the palate, while the "angle," or lower hind extremity of each half of the lower jaw is strongly bent inwards so as to form a kind of shelf, and the alisphenoid bone takes a share in the formation of the tympanum, or auditory bladder, or bulla. Didelphia, the alternative name of the group was given in allusion to the circumstance that the uterus has two separate openings; while other features are the inclusion of the openings of the alimentary canal and the urino-genital sinus in a common sphincter muscle, and the position of the scrotum in advance of the penis. The bandicoots alone possess a placenta. Lastly the number of trunk-vertebrae is always nineteen, while there are generally thirteen pairs of ribs.

As regards the teeth, in all cases except the wombats the number of upper incisors differs from that of the corresponding lower teeth. As already stated, there is no vertical displacement and succession of the functional

teeth except in the case of a single tooth on each side of each jaw, which is the third of the premolar series, and is preceded by a tooth having more or less of the characters of a molar (see fig. 1). In some cases (as in rat-kangaroos) this tooth retains its place and function until the animal has nearly, if not quite, attained its full stature, and is not shed and replaced by its successor until after all the other teeth, including the molars, are in place and use. In others, as the thylacine, it is rudimentary, being shed or absorbed before any of the other teeth have cut the gum, and therefore functionless. It may be added that there are some marsupials, such as the wombat, koala, marsupial ant-eater and the dasyures, in which no such deciduous tooth, even in a rudimentary state, has been discovered. In addition to this replacement of a single pair of functional teeth in each jaw, it has been discovered that marsupials possess rudimentary tooth-germs which never cut the gum. According to one theory, these rudimentary teeth, together with the one pair of functional teeth in each jaw that has vertical successors, represent the milk-teeth of placental mammals. On the other hand, there are those who believe that the functional dentition (other than the replacing premolar and the molars) correspond to the milk-dentition of placentals, and that the rudimentary tooth-germs represent a "prelacteal" dentition. The question, however, is of academic rather than of practical interest, and whichever way it is answered does not affect our general conception of the nature and relationships of the group.

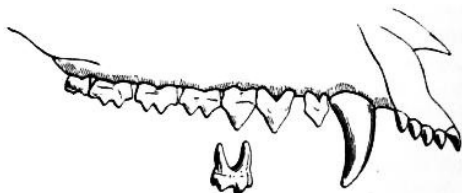


FIG. 1.—Teeth of Upper Jaw of Opossum (*Didelphys marsupialis*), all of which are unchanged, except the third premolar, the place of which is occupied in the young animal by a molariform tooth, represented in the figure below the line of the other teeth.

Unfortunately the homology of the functional series does not by any means end the uncertainty connected with the marsupial dentition; as there is also a difference of opinion with regard to the serial homology of some of the cheek-teeth. For instance, according to the older view, the dental formula in the thylacine or Tasmanian wolf is $i. \frac{4}{3}, c, \frac{1}{1} p. \frac{3}{3}, m. \frac{4}{4} = 46$. On the other hand, in the opinion of the present writer, this formula, so far as the cheek-teeth are concerned, should be altered to $p. \frac{4}{4}, m. \frac{3}{3}$, thus bringing it in accord, so far as these teeth are concerned, with the placental formula, and making the single pair of replacing teeth the third premolars. It may be added that the formula given above shows that the marsupial dentition may comprise more teeth than the 44 which form the normal full placental complement.

As regards geographical distribution, existing marsupials, with the exception of two families, *Didelphyidae* and *Epanorthidae*, are mainly limited to the Australian region, forming the chief mammalian fauna of Australia, New Guinea, and some of the adjacent islands. The *Didelphyidae* are almost exclusively Central and South American, only one or two species ranging into North America. Fossil remains of members of this family have also been found in Europe in strata of the Oligocene period.

History.—The origin and evolution of the Australian marsupials have been discussed by Mr B. A. Bensley. In broad contrast to the views of Dr A. R. Wallace, this author is of opinion that marsupials did not effect an entrance into Australia till about the middle of the Tertiary period, their ancestors being probably opossums of the American type. They were then arboreal; but they speedily entered upon a rapid, although short-lived, course of evolution, during which leaping terrestrial forms like the kangaroos were developed. The short period of this evolution is at least one factor in the primitive grade of even the most specialized members of the group. In the advance of their molar teeth from a tritubercular to a grinding type, the author traces a curious parallelism between marsupials and placentals. Taking opossums to have been the ancestors of the group, the author considers that the present writer may be right in his view that marsupials entered Australia from Asia by way of New Guinea. On the other hand there is nothing absolutely decisive against their origin being southern.

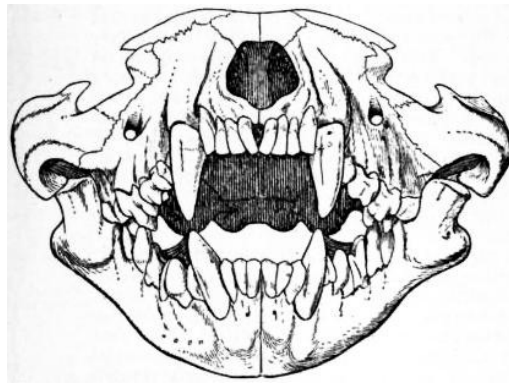
Again, taking as a text Mr L. Dollo's view that marsupials were originally arboreal, that, on account of their foot-structure, they could not have been the ancestors of placentals, and that they themselves are degenerate placentals, Mr Bensley contrasts this with Huxley's scheme of mammalian evolution. According to the latter, the early monotremes which became specialized into modern monotremes, gave rise to the ancestors of the modern marsupials; while the modern placentals are likewise an offshoot from the ancestral marsupial stock. This phylogeny, the author thinks, is the most probable of all. It is urged that the imperfect placenta of the bandicoots instead of being vestigial, may be an instance of parallelism, and that in marsupials generally the allantois failed to form a placental connexion. Owing to the antiquity of both placentals and marsupials, the arboreal character of the feet of the modern forms of the latter is of little importance. Further, it is considered that too much weight has been assigned to the characters distinguishing monotremes from other mammals, foetal marsupials showing a monotreme type of coracoid, while it is probable that in the long run it will be found impossible to maintain the essential dissimilarity between the milk-glands of monotremes and other mammals.

Another view is to regard both marsupials and placentals as derivatives from implacental ancestors more or less nearly related to the creodont carnivora, or possibly as independently descended from anomodont reptiles (see [CREODONTA](#)). Finally, there is the hypothesis that marsupials are the descendants of placentals, in which case, as was suggested by its discoverer, the placenta of the bandicoots would be a true vestigial structure.

Classification.

Existing marsupials may be divided into three main divisions or sub-orders, of which the first, or Polyprotodontia, is common to America and Australasia; the second, or Paucituberculata, is exclusively South American; while the third, or Diprotodonts, is as solely Australasian inclusive of a few in the eastern Austro-Malayan islands.

1. *Polyprotodonts.*—The Polyprotodonts are characterized by their numerous, small, sub-equal incisors, of which there are either five or four pairs in the upper and always three in the lower jaw, (fig. 2) and the generally strong and large canines, as well as by the presence of from four to five sharp cusps or tubercles on the crown of the molars. The pouch is often absent, and may open backwards. For the most part the species are carnivorous or insectivorous.



From Flower, *Quart. Jour. Geol. Soc.*

FIG. 2.—Front View of Skull of the Tasmanian Devil (*Sarcophilus ursinus*) to exhibit polyprotodont type of dentition.

The first family is that of the true or American opossums—*Didelphyidae*, in which there are five pairs of upper incisors, while the feet are of the presumed primitive arboreal type, the hind foot having the four outer toes sub-equal and separate, with the first opposable to them all. With the exception of the water-opossum, forming the genus *Chironectes*, all the living members of the family may be included in the genus *Didelphys*. The latter may, however, be split up into several sub-generic groups, such as *Metachirus*, *Philander*, *Marmosa* (*Micoureus* or *Grymaeomys*), *Peramys*, *Dromiciops*, &c. The small South American forms included in *Marmosa*, which lack the pouch, and have numerous teats, and molar teeth of a primitive type, are doubtless the most generalized representatives of the group (see [OPOSSUM](#); and [WATER-OPOSSUM](#)).

Nearly allied is the Australian family *Dasyuridae*, characterized by the presence of only four pairs of upper incisors, the generally small and rudimentary condition of the first hind toe, which can but seldom be opposed to the rest, and the absence of prehensile power in the tail; the pouch being either present or absent, and the fore feet always five-toed. The stomach is simple, and there is no caecum to the intestine, although this is present in the opossums.

The largest representative of the family is the Tasmanian wolf, or thylacine, alone representing the genus *Thylacinus*, in which the dentition numbers i. $\frac{1}{3}$, c. $\frac{1}{1}$, p. $\frac{1}{4}$, m. $\frac{2}{3}$ = 46; with the incisors small and vertical, the outer one in the upper jaw being larger than the others. Summits of the lower incisors, before they are worn, with a deep transverse groove, dividing it into an anterior and a posterior cusp. Canines long, strong and conical. Premolars with compressed crowns, increasing in size from before backwards. Molars in general characters resembling those of *Sarcophilus*, but of more simple form, the cusps being less distinct and not so sharply pointed. Deciduous molar very small, and shed before the animal leaves the mother's pouch. General form dog-like, with the head elongated, the muzzle pointed, and the ears moderate, erect and triangular. Fur short and closely applied to the skin. Tail of moderate length, thick at the base and tapering towards the apex, clothed with short hair. First hind toe (including the metacarpal bone) absent. Vertebrae: C. 7, D. 13, L. 6, S. 2, Ca. 23. Marsupial bones unossified. The gradual passage of the thick root of the tail into the body is a character common to the Tasmanian wolf and the aard-vark, and may be directly inherited from reptilian ancestors (see [THYLACINE](#)).

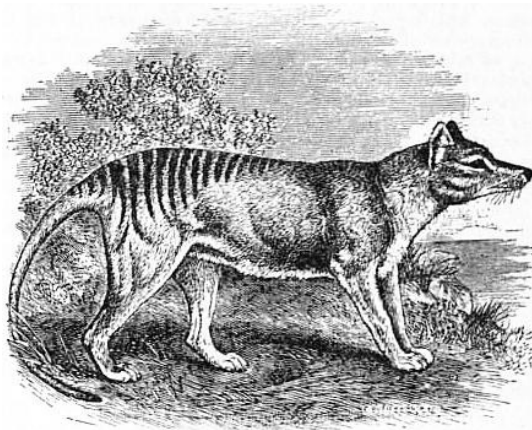


FIG. 3.—The Tasmanian Wolf, or Thylacine (*Thylacinus cynocephalus*).

The next genus is represented solely by the Tasmanian devil, *Sarcophilus* (or *Diabolus*) *ursinus*, a medium-sized animal with a dental formula similar to that of the dasyures, but with teeth (fig. 2) approximating to those of the thylacine, though markedly different in details. The first hind toe is absent.

In the "native cats," or dasyures, constituting the genus *Dasyurus*, the dental formula is i. $\frac{1}{3}$, c. $\frac{1}{1}$, p. $\frac{2}{3}$, m. $\frac{2}{3}$: total 42. The upper incisors are nearly equal and vertical, with the first slightly longer, narrower, and separated from the rest. Lower incisors sloping forward and upward. Canines large and sharply pointed. First two premolars with compressed and sharp-pointed crowns, and slightly developed anterior and posterior accessory basal cusps. Molars with numerous sharp-pointed cusps. In the upper jaw the first two with crowns having a triangular free surface; the last small, simple, narrow and placed transversely. In the lower jaw the molars more compressed, with longer cusps; the last not notably smaller than the others. Ears of moderate size, prominent and obtusely pointed. First hind toe rudimentary, clawless or absent; its metatarsal bone always present. Tail generally long and well clothed with hair. Vertebrae: C. 7, D. 13, L. 6, S. 2, Ca. 18-20 (see [DASYURE](#)).

The genus *Phascologale* comprises a number of small marsupials, none exceeding a rat in size, differing from the dasyures in possessing an additional premolar—the dentition being i. $\frac{1}{3}$, c. $\frac{1}{1}$, p. $\frac{1}{4}$, m. $\frac{2}{3}$: total 46—and in having the teeth generally developed upon an insectivorous rather than a carnivorous pattern, the upper middle incisors being larger and inclined forward, the canines relatively smaller, and the molars with broad crowns, armed with prickly tubercles. The muzzle is pointed. Ears moderately rounded, and nearly naked. Fore feet with five sub-equal toes, with compressed, slightly curved pointed claws. Hind feet with the four outer toes sub-equal, with claws similar to

those in the fore feet; the first toe almost always distinct and partially opposable, though small and nailless, sometimes absent.

In some respects intermediate between the preceding and the next genus is *Dasyuroides byrnei*, of Central Australia, an animal of the size of a rat, with one lower premolar less than in *Phascologale*, without the first hind toe, and with a somewhat thickened tail. The pouch is incomplete, with two lateral folds, and the number of teats six.

Sminthopsis includes several very small species, with the same dental formula as *Phascologale*, but distinguished from that genus by the narrowness of the hind foot, in which the first toe is present, and the granulated or hairy (in place of broad, smooth and naked) soles. A pouch is present, and there are eight or ten teats. Nearly allied is the jumping *Antechinomys laniger*, of East Central Australia, an elegant mouse-like creature, with large oval ears, elongated limbs, a long and tufted tail and no first hind toe. In connexion with the large size of the ears is the excessive inflation of the auditory bulla of the skull.

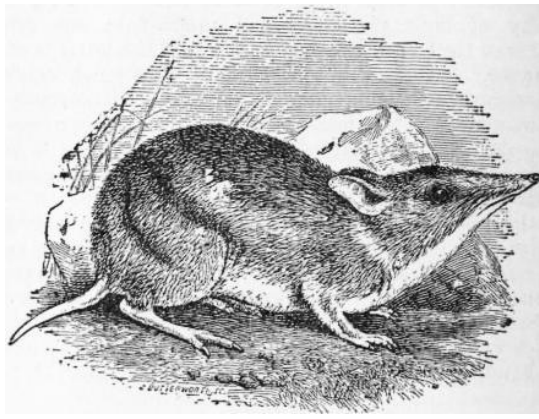
From all other members of the family the marsupial, or banded, ant-eater (*Myrmecobius fasciatus*) differs by the presence of more than seven pairs of cheek-teeth in each jaw, as well as by the exceedingly long and protrusile tongue. Hence it is made the type of a distinct sub-family, the *Myrmecobiinae*, as distinct from the *Dasyurinae*, which includes all the other members of the family. From the number of its cheek-teeth, the banded ant-eater has been regarded as related to some of the primitive Jurassic mammals; but this view is disputed by Mr Bensley, who regards this multiplicity of teeth as a degenerate feature. On the other hand, it is noteworthy that this marsupial retains in its lower jaw the so-called mylo-hyoid groove, which is found in the aforesaid Jurassic mammals. *Myrmecobius* has a total of 52 or 54 teeth, which may be classed as i. $\frac{4}{3}$, c. $\frac{1}{1}$, p. + m. (8 or 9) / (8 or 9). The teeth are all small and (except the four posterior inferior molars) separated from each other by an interval. Head elongated, but broad behind; muzzle long and pointed; ears of moderate size, ovate and rather pointed. Fore-feet with five toes, all having strong pointed, compressed claws, the second, third and fourth nearly equal, the fifth somewhat and the first considerably shorter. Hind-feet with no trace of first toe externally, but the metatarsal bone is present. Tail long, clothed with long hairs. Fur rather harsh and bristly. Female without pouch, the young when attached to the nipples being concealed by the long hair of the abdomen. Vertebrae: C. 7, D. 13, L. 6, S. 3, Ca. 23. The single species, which is a native of western and southern Australia, is about the size of an English squirrel, to which its long bushy tail gives it some resemblance; but it lives entirely on the ground, especially in sterile sandy districts, feeding on ants. Its prevailing colour is chestnut-red, but the hinder part of the back is marked with broad, white, transverse bands on a dark ground.



From Gould.

FIG. 4.—The Marsupial or Banded Ant-eater (*Myrmecobius fasciatus*).

With the bandicoots, or *Peramelidae*, we come to a family of polyprotodonts which resemble the diprotodonts in the peculiarly specialized structure of their hind limbs; an adaptation which we must apparently regard as having been independently acquired in the two groups. The dentition is i. $\frac{5}{3}$, c. $\frac{1}{1}$, p. $\frac{4}{4}$, m. $\frac{3}{3}$; total, 48; the upper incisors being small, with short, broad crowns; the lower incisors moderate, narrow, proclivous; canines well developed. Premolars compressed, pointed; and the molars with quadrate tuberculated crowns. Deciduous premolar preceded by a minute molariform tooth, which remains in place until the animal is nearly full grown. Fore feet with two or three of the middle toes of nearly equal size, and provided with strong, sharp, slightly curved claws, the other toes rudimentary. Hind feet long and narrow; the first toe rudimentary or absent; the second and third very slender and united in a common integument; the fourth very large, with a stout elongated conical claw; the fifth smaller than the fourth (see fig. 6). The terminal phalanges of the large toes of both feet cleft at their extremities. Head elongated, with the muzzle long, narrow and pointed. Stomach simple. Caecum of moderate size. Pouch complete, generally opening backwards. Alone among marsupials bandicoots have no clavicles. More remarkable still is the development of a small allantoic placenta.



From Gould.

FIG. 5.—Gunn's Bandicoot (*Perameles gunni*).

In the true bandicoots of the genus *Perameles* (fig. 5) the fore-feet have the three middle toes well developed, the third slightly larger than the second, the fourth somewhat shorter, provided with long, strong, slightly curved, pointed claws. First and fifth toes very short and without claws. Hind feet with one or two phalanges, in the first toe forming a distinct tubercle visible externally; the second and third toes very slender, of equal length, joined as far as the terminal phalange, but with distinct claws; the fifth intermediate in length between these and the largely developed fourth toe. Ears of moderate or small size, ovate, pointed. Tail rather short, clothed with short depressed hairs. Fur short and harsh. Pouch opening backwards. Vertebrae: C. 7, D. 13, L. 6, S. 1, Ca. 17. (see [BANDICOOT](#).)

The rabbit-bandicoot, *Peragale* (or *Thylacomys*) represents a genus in which the cheek-teeth are curved, with longer crowns and shorter roots than in the last. Hind extremities proportionally longer with inner toe represented only by a small metatarsal bone. Muzzle much elongated and narrow. Fur soft and silky. Ears very large, long and pointed. Tail long, its apical half-clothed on the dorsal surface with long hairs. Pouch opening forwards. Vertebrae: C. 7, D. 13, L. 6, S. 2, Ca. 23.

The one species, from Western Australia, is the largest member of the family, being about the size of a rabbit, to which it bears sufficient superficial resemblance to have acquired the name of "native rabbit" from the colonists. It burrows in the ground, but in other respects resembles bandicoots in habits.

In the pig-footed bandicoot (*Choeropus castanotis*) the dentition generally resembles that of *Perameles*, but the canines are less developed, and in the upper jaw two-rooted. Limbs very slender; posterior nearly twice the length of the anterior. Fore feet with the functional toes reduced to two, the second and third, of equal length, with closely united metacarpals and short, sharp, slightly curved, compressed claws. First toe represented by a minute rudiment of a metacarpal bone; the fourth by a metacarpal and two small phalanges without a claw, and not reaching the middle of the metacarpal of the third; fifth entirely absent. Hind foot long and narrow, mainly composed of the strongly developed fourth toe, terminating in a conical pointed nail, with a strong pad behind it; the first toe represented by a rudimentary metatarsal; the remaining toes completely developed, with claws, but exceedingly slender; the united second and third reaching a little way beyond the metatarso-phalangeal articulation of the fourth; the fifth somewhat shorter. Tail not quite so long as the body, and covered with short hairs. Ears large and pointed, and folded down when the animal is at rest. Fur soft and loose. Pouch opening backwards. Vertebrae: C. 7, D. 13, L. 6, S. 1, Ca. 20.

The only species of this genus is about the size of a small rat, found in the interior of Australia. Its general habits and food appear to resemble those of other bandicoots. A separate family, *Notoryctidae*, is represented by the marsupial mole (*Notoryctes typhlops*), of the deserts of south Central Australia, a silky, golden-haired, burrowing creature, with a curious leathery muzzle, and a short, naked stumpy tail. The limbs are five-toed, with the third and fourth toes of the front pair armed with enormous digging claws; there are no external ear-conchs; and the dentition includes four pairs of upper, and three of lower, incisors, and distinctly tritubercular cheek-teeth. The small pouch, supported by the usual epipubic bones, opens backwards. In correlation with its burrowing habits, some of the vertebrae of the neck and of the loins are respectively welded together. The eyes have degenerated to a greater extent than those of any other burrowing mammal, the retina being reduced to a mass of simple cells, and the cornea and sclerotic ("white") to a pear-shaped fibrous capsule enclosing a ball of pigment. The reason for this extreme degeneration is probably to be found in the sandy nature of the soil in which the creature burrows, a substance which would evidently irritate and inflame any functional remnant of an eye. The portion of the lachrymal duct communicating with the cavity of the nose has, on the other hand, been abnormally developed, apparently for the purpose of cleansing that chamber from particles of sand which may obtain an entrance while the animal is burrowing. (See [MARSUPIAL MOLE](#).)

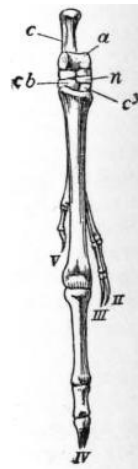
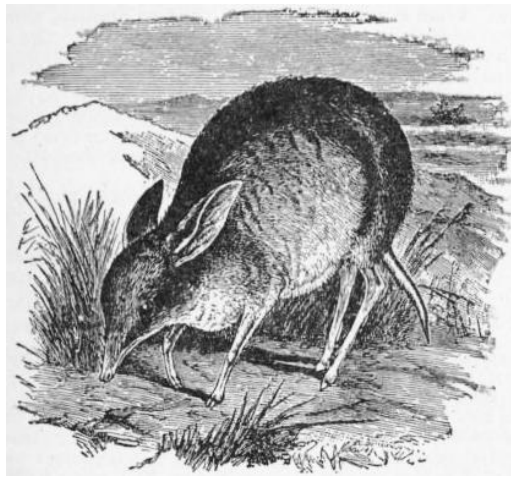


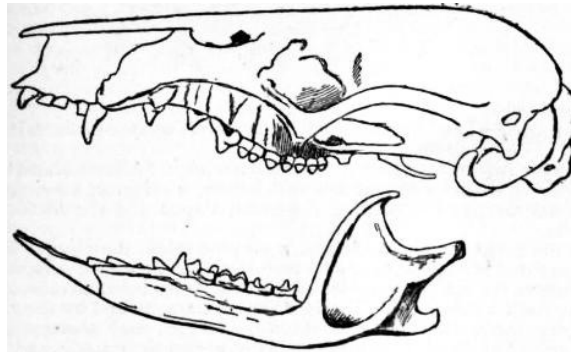
FIG. 6.—Skeleton of Hind Foot of *Choeropus castanotis*.

c, calcaneum; a, astragalus; cb, cuboid; n, navicular; c³, ectocuneiform; II. and III. the conjoined second and third digits; IV. the large and only functional digit; V. the rudimentary fifth digit.



From Gould.

FIG. 7.—The Pig-footed Bandicoot (*Choeropus castanotis*).



After Thomas.

FIG. 8.—Skull of *Caenolestes obscurus*.

2. *Paucituberculates*.—The second sub-order of marsupials, the Paucituberculata, is exclusively South American, and typically represented by the family *Epanorthidae*, the majority of the members of which are extinct, their remains being found in the probably Miocene Santa Cruz beds of Patagonia, although one existing genus (*Caenolestes*) survives in Ecuador and Colombia. One of the two living species was, indeed, described so long ago as the year 1863, under the preoccupied name of *Hyracodon*, but attracted little or no attention, as its affinities were not fully recognized. Externally *Caenolestes* has a shrew-like appearance. The elongated skull (fig. 8) has four pairs of upper incisors and long upper canines, while in the lower jaw there is a single pair of procumbent incisors, followed by several small teeth representing the canine and earlier premolars. The three pairs of molars in each jaw are, like the last premolar, quadritubercular oblong teeth. The five-toed feet are of normal structure, and the rat-like tail is prehensile towards the tip. The female has a small pouch. The extinct members of the family are represented by the genera *Epanorthus*, *Acdestis*, *Garzonia*, &c. In a second family—*Abderitidae*—also from the Patagonian Miocene, the penultimate premolar is developed into an enormous tooth, with a tall, secant and grooved crown, somewhat after the fashion of the enlarged premolar of *Plagiulax*. From the structure of the skull, it is thought probable that *Abderites* had an elongated snout, like that of many Insectivora. As a sub-order, the Paucituberculata are characterized by the presence of four pairs of upper and three of lower incisor teeth; the enlargement and forward inclination of the first pair of lower incisors, and the presence of four or five sharp cusps on the cheek-teeth, coupled with the absence of “syndactylism” in the hind limbs.



From Flower, *Quart. Journ. Geol. Soc.*

FIG. 9.—Front view of Skull of the Koala (*Phascolarctus cinereus*) to exhibit Diprotodont type of dentition.

3. *Diprotodonts*.—The third and last sub-order of marsupials is the Diprotodontia, which is exclusively Australasian and includes the wombats, koala, cuscuses, kangaroos and their relatives. There are never more than three pairs of upper and one of lower incisors, of which the middle upper and the single lower pair are large and chisel-like (fig. 9); the canines are small or absent; the cheek-teeth have bluntly tuberculate or transversely-ridged crowns in most cases; and the hind-feet are syndactylous. With one exception, the intestine has a caecum, and the pouch is large and opens forwards. It should be added that Professor Elliot Smith has pointed out a certain peculiarity in its

commissures whereby the brain of the diprotodonts differs markedly from that of the polyprotodonts and approximates to the placental type. Dr Einar Lönnberg has also recorded certain adaptive peculiarities in the stomach. Most of the species, particularly the specialized types, are more or less completely herbivorous.

The first family, *Phascolomyidae*, is typified by the wombats; but according to the view adopted by Mr H. Winge, and endorsed by Professor Max Weber, is also taken to include the koala. In this wider sense the family may be characterized as follows. The tympanic process of the alisphenoid bone of the skull is short, not covering the cavity of the tympanum, nor reaching the paroccipital process. The tail is rudimentary, the first hind-toe opposable, the first pair of upper incisors very large, but the second and third either absent or small and placed partially behind the larger pair; and only five pairs of cheek-teeth in each jaw. The stomach has a cardiac gland, and the number of teats is two.

In the wombats (*Phascolomys*) the dentition is i. $\frac{1}{1}$, c. $\frac{0}{0}$, p. + m. $\frac{5}{5}$, total 24; all the teeth growing from persistent pulps, and the incisors large and chisel-like, with enamel only on the front surface. The cheek-teeth strongly curved, forming from the base to the summit about a quarter of a circle, the concavity being directed outwards in the upper and inwards in the lower teeth. The first of the series (which appears to have no predecessor) single-lobed; the other four composed of two lobes, each subtriangular in section. Limbs equal, stout and short. Fore-feet with five distinct toes, each furnished with a long, strong and slightly curved nail, the first and fifth considerably shorter than the other three. Hind-feet with a very short nailless first toe, the second, third and fourth toes partially united by integument, of nearly equal length, the fifth distinct and rather shorter; all four with long and curved nails. In the skeleton the second and third toes are distinctly more slender than the fourth, showing a tendency towards the character so marked in the following families. Tail rudimentary. Caecum very short and wide, with a vermiform appendage (see [WOMBAT](#)).

In addition to remains referable to the existing genus, the Pleistocene deposits of Australia have yielded evidence of an extinct giant wombat constituting the genus *Phascolonus* (*Sceparnodon*).

The koala, or "native bear" (*Phascolarctus cinereus*), which differs widely from the wombats in its arboreal habits, is less specialized as regards its dentition, of which the formula is i. $\frac{3}{4}$, c. $\frac{1}{0}$, p. + m. $\frac{5}{5}$, total 30. Upper incisors crowded together, cylindrical, the first much larger than the others, with a bevelled cutting edge (fig. 9). Canine very small; a considerable interval between it and the first premolar, which is as long from before backwards but not so broad as the molars, and has a cutting edge, with a smaller parallel inner ridge. The molar-like teeth slightly diminishing in size from the first to the fourth, with square crowns, each bearing four pyramidal cusps. The lower incisors are partially inclined forwards, compressed and tapering, bevelled at the ends. Cheek-teeth in continuous series, as in the upper jaw. Fore-feet with the two inner toes slightly separated from and opposable to the remaining three, all with strong curved and much compressed claws. Hind-foot (fig. 10) with the first toe placed far back, large and broad, the second and third (united) toes considerably smaller than the other two; the fourth the largest. No external tail. Fur dense and woolly. Ears of moderate size, thickly clothed with long hair. Caecum very long and dilated, with numerous folds. Vertebrae: C. 7, D. 11, L. 8, S. 2, Ca. 8. Ribs eleven pairs (see [KOALA](#)).

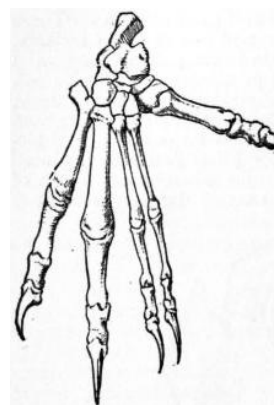
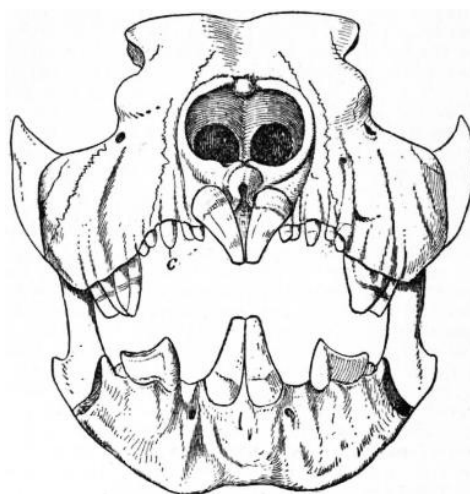


FIG. 10.—Skeleton of Right Hind-Foot of Koala (*Phascolarctus cinereus*), showing stout opposable hallux, followed by two slender toes, which in the living animal are enclosed as far as the nails in a common integument.

Here may be noticed three genera of large extinct marsupials from the Pleistocene of Australia whose affinities appear to ally them to the wombat-group on the one hand and to the phalangers on the other. The longest known is *Diprotodon*, an animal of the size of a rhinoceros, with a dental formula of i. $\frac{3}{1}$, c. $\frac{0}{0}$, p. $\frac{1}{1}$, m. $\frac{4}{4}$, total 28. The first upper incisor very large and chisel-like, molars with prominent transverse ridges, as in *Macropus*, but without the longitudinal connecting ridge. Complete skeletons disinterred by Dr E. C. Stirling indicate that in the structure of the feet this creature presents resemblances both to the wombats and the phalangers, but is nearer to the former than to the latter. On the other hand, the considerably smaller *Nototherium*, characterized by its sharp and broad skull and smaller incisors, seems to have been much more wombat-like, and may perhaps have possessed similar burrowing habits.



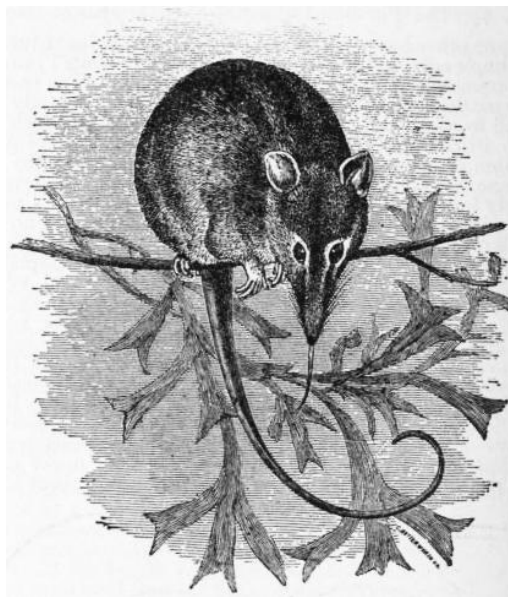
From Flower, *Quart. Journ. Geol. Soc.*
FIG. 11.—Front view of Skull of *Thylacoleo carnifex*, restored.

The last of the three is *Thylacoleo carnifex*, so named on account of its supposed carnivorous habits. In the adult the dentition (fig. 11) is i. $\frac{3}{1}$, c. $\frac{1}{0}$, p. + m. $\frac{5}{5}$, total 24. The first upper incisor is much larger than the others; canine and first two premolars rudimentary. In the lower jaw there are also one or two small and early deciduous premolars; third premolars of both jaws formed on the same type as that of the rat-kangaroos, but relatively much larger; molars rudimentary, tubercular. The functional teeth are reduced to one pair of large cutting incisors situated close to the middle line, and one great, cutting, compressed premolar, on each side above and below. As

already mentioned, *Thylacoleo* was originally regarded as a carnivorous creature, but this view was subsequently disputed, and its diet supposed to consist of soft roots, bulbs and fruits, with an occasional small bird or mammal. Recently, however, the pendulum of opinion has swung back towards the original view: and Dr R. Broom believes *Thylacoleo* to have been "a purely carnivorous animal, and one which would be quite able to, and probably did, kill animals as large or larger than itself." The affinities of the creature are clearly with the phalangers.

By means of the little musk-kangaroo, the cuscuses and phalangers constituting the family *Phalangeridae*, are so closely connected with the kangaroos, or *Macropodidae*, that in the opinion of some naturalists they ought all to be included in a single family, with three sub-families. Theoretically, no doubt, this is correct, but the typical members of the two groups are so different from one another that, as a matter of convenience, the retention of the two families seems advisable. From the *Phascolomyidae*, the two families, which may be collectively designated Phalangeroidea, differ by the circumstance that in the skull the tympanic process of the alisphenoid covers the tympanic cavity and reaches the paroccipital process. The tail is long and in some cases prehensile; the first hind-toe may be either large, small or absent; the dentition usually includes three pairs of upper and one of lower incisors, and six or seven pairs of cheek-teeth in each jaw; the stomach is either simple or sacculated, without a cardiac gland; and there are four teats.

With the exception of the aberrant long-snouted phalanger, the members of the family *Phalangeridae* have the normal number of functional incisors, in addition to which there may be one or two rudimentary pairs in the lower jaw. The first in the upper jaw is strong, curved and cutting, the other two generally somewhat smaller; the single lower functional incisor large, more or less inclined forwards; canines 1 / (1 or 0) upper small or moderate, conical and sharp-pointed; lower absent or rudimentary; premolars variable; molars $\frac{3}{5}$, or $\frac{2}{5}$, with four obtuse tubercles, sometimes forming crescents. Limbs subequal. Fore-feet with five distinct subequal toes with claws. Hind-feet short and broad, with five well-developed toes; the first large, nailless and opposable; the second and third slender and united by a common integument as far as the claws. Caecum present (except in *Tarsipes*), and usually large. The lower jaw has no pocket on the outer side. All are animals of small or moderate size and arboreal habits, feeding on a vegetable or mixed diet, and inhabiting Australia, Papua and the Moluccan Islands.



From Gould.

FIG. 12.—The Long-snouted Phalanger (*Tarsipes rostratus*).

As the first example of the group may be taken the elegant little long-snouted phalanger (*Tarsipes rostratus*, fig. 12), a west Australian creature of the size of a mouse, which may be regarded as representing by itself a sub-family (*Tarsipediinae*), characterized by the rudimentary teeth, the long and extensile tongue, and absence of a caecum. The head is elongated, with a slender muzzle and the mouth-opening small. The two lower incisors are long, very slender, sharp-pointed and horizontally placed. All the other teeth are simple, conical, minute and placed at considerable and irregular intervals apart in the jaws, the number appearing to vary in different individuals and even on different sides of the jaw of the same individuals. The formula in one specimen was i. (2 - 2) / (1 - 1), c. (1 - 1) / (0 - 0), p. + m. (3 - 4) / (2 - 3); total 20. The lower jaw is slender, nearly straight, and without a coronoid process or inflected angle. Fore-feet with five well-developed toes, carrying small, flat, scale-like nails, not reaching the extremity of the digits. Hind-feet rather long and slender, with a well-developed opposable and nailless first toe; second and third digits united, with sharp, compressed curved claws; the fourth and fifth free, with small flat nails. Ears of moderate size and rounded. Tail longer than the body and head, scantily clothed with short hairs, prehensile. Vertebrae: C. 7, D. 13, L. 5, S. 3. Ca. 24.

As indicated in the accompanying illustration, the long-snouted phalanger is arboreal in habits, extracting honey and probably small insects from long-tubed flowers by means of its extensile tongue.

The remaining members of the family may be included in the sub family *Phalangerinae*, characterized by the normal nature of the dentition (which shows rudimentary lower canines) and tongue. Cuscuses and phalangers form a numerous group, all the members of which are arboreal, and some of which are provided with lateral expansions of skin enabling them to glide from tree to tree like flying-squirrels. The typical members of the group are the cuscuses (*Phalanger*), ranging from the Moluccas and Celebes to New Guinea, in which the males are often different in colour from the females. The true phalangers, or opossums of the colonists, constitute the genus *Trichosurus*, while the ring-tailed species are known as *Pseudochirus*; the latter ranging to New Guinea. *Dactylopsila* is easily recognized by its attenuated fourth finger and parti-coloured fur; the flying species are classed as *Petauroides*, *Petaurus*, *Gymnobelideus* and *Acrobates*, the last no larger than a mouse; while *Dromicia*, *Distaechurus* and *Acrobates* are allied types without parachutes (see PHALANGER).

An equally brief notice must suffice of the kangaroo tribe or *Macropodidae*, since these receive a special notice elsewhere. The dentition is i. $\frac{3}{4}$ c. (0 or 1) / 0 p. $\frac{3}{5}$ m. $\frac{3}{5}$; the incisors being sharp and cutting, and those of the lower jaw frequently having a scissor-like action against one another. The broad molars are either bluntly tuberculated or transversely ridged; the outer side of the hind part of the lower jaw has a deep pocket; and the hind-limbs are

generally very long, with the structure of the foot similar to that of the bandicoots. The family is connected with the *Phalangeridae* by means of the musk-kangaroo (*Hypsiprymnodon moschatus*); forming the sub-family *Hypsiprymnodontinae*. Then come the rat-kangaroos, or kangaroo-rats, constituting the sub-family *Potoroinae*; while the tree-kangaroos (*Dendrolagus*), rock-wallabies (*Petrogale*), and wallabies and kangaroos (*Macropus*) form the *Macropodinae* (see [KANGAROO](#)).

Extinct Marsupials

Reference has been made to the Australasian Pleistocene genera *Phascolonus*, *Diprotodon*, *Nototherium* and *Thylacoleo*, whose affinities are with the wombats and phalangers. The same deposits have also yielded remains of extinct types of kangaroo, some of gigantic size, constituting the genera *Sthenurus*, *Procoptodon* and *Palorchestes*. Numerous types more or less nearly allied to the phalangers, such as *Burramys* and *Triclis* have also been described, as well as a flying form, *Polaopetaurus*. It is also interesting to note that fossil remains indicate the former occurrence of thylacines and Tasmanian devils on the Australian mainland. Of more interest is the imperfectly known *Wynyardia*, from older Tertiary beds in Tasmania, which apparently presents points of affinity both to phalangers and dasyures. From the Oligocene deposits of France and southern England have been obtained numerous remains of opossums referable to the American family *Didelphyidae*. These ancient opossums have been separated generically from *Didelphys* (in its widest sense) on account of certain differences in the relative sizes of the lower premolars, but as nearly the whole of the species have been formed on lower jaws, of which some hundreds have been found, it is impossible to judge how far these differences are correlated with other dental or osteological characters. In the opinion of Dr H. Filhol, the fossils themselves represent two genera, *Peratherium*, containing the greater part of the species, about twenty in number, and *Amphiperatherium*, with three species only. All are comparatively small animals, few of them exceeding the size of a rat.

Besides these interesting European fossils, a certain number of didelphian bones have been found in the caves of Brazil, but these are either closely allied to or identical with the species now living in the same region.

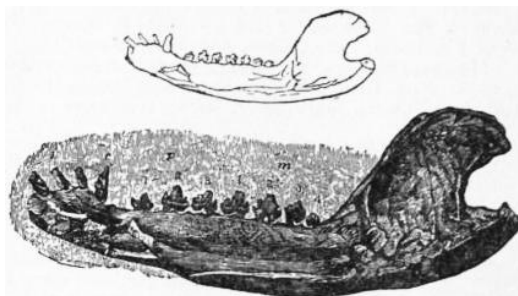
The occurrence in the Santa Cruz beds of Patagonia of fossil marsupials allied to the living *Caenolestes* has been mentioned above. The alleged occurrence in the same beds of marsupials allied to the thylacine is based on remains now more generally regarded as referable to the creodont carnivores (see [CREODONTA](#)).

Mesozoic Mammals.—Under the heading of [MULTITUBERCULATA](#) will be found a brief account of certain extinct mammals from the Mesozoic formations of Europe and North America which have been regarded as more or less nearly related to the monotremes. The same deposits have yielded remains of small mammals whose dentition approximates more nearly to that of either polyprotodont marsupials or insectivores; and these may be conveniently noticed here without prejudice to their true affinities. Before proceeding further it may be mentioned that the remains of many of these mammals are very scarce, even in formations apparently in every way suitable to the preservation of such fossils, and it hence seems probable that these creatures are stragglers from a country where primitive small mammals were abundant. Not improbably this country was either "Gondwana-land," connecting Mesozoic India with Africa, or perhaps Africa itself. At any rate, there seems little doubt that it was the region where creodonts and other primitive mammals were first differentiated from their reptilian ancestors.



From Owen.

FIG. 13.—Lower Jaw of *Triconodon mordax* (nat. size).

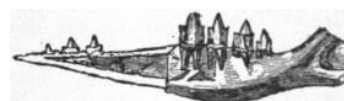


From Owen.

FIG. 14.—Lower Jaw and Teeth of *Phascolotherium bucklandi* (nat. size in outline).

Of the Old World forms, the family *Triconodontidae* is typified by the genus *Triconodon*, from the English Purbeck, in which the cheek-teeth carry three cutting cusps arranged longitudinally. There seems to have been a replacement of some of these teeth; and it has been suggested that this was of the marsupial type. To the same family are referred *Phascolotherium* (fig. 14), of the Lower Jurassic Stonesfield slate of England, and *Spalacotherium* (fig. 15), of the Dorsetshire Purbeck; the latter having the three cusps of the cheek-teeth rotated so as to assume a tritubercular type. Other genera are *Menacodon* and *Priacodon*, the former American, and the latter common to Europe and North America.

By one authority *Amphilestes* (fig. 16), of the Stonesfield Slate, is included in the same group, while by a second it is regarded as representing a family by itself. *Amphitherium*, of the Stonesfield Slate, typifies the family *Amphitheriidae*, which includes the American *Dryolestes*, and in which some would class the European Purbeck genus *Amblotherium*, although Professor H. F. Osborn has made the last the type of a distinct family. Yet another family, according to the palaeontologist last named, is typified by the genus *Stylacodon*, of the English Purbeck. To mention the other forms which have received names will be unnecessary on this occasion.



From Owen.

FIG. 15.—*Spalacotherium tricuspidens* (twice nat. size), Purbeck beds.



From Owen.

FIG. 16.—Lower Jaw and Teeth of *Amphilestes broderipi* (twice nat. size).

It will be observed from the figures of the lower jaws, which are in most cases the only parts known, that in many instances the number of cheek-teeth exceeds that found in modern marsupials except *Myrmecobius*. The latter has indeed been regarded as the direct descendant of these Mesozoic forms; but as already stated, in the opinion of Mr B. A. Bensley, this is incorrect. It may be added that the division of these teeth into premolars and molars in figs. 14 and 16 is based upon the view of Sir R. Owen, and is not altogether trustworthy, while the restoration of some of the missing teeth is more or less conjectural. As regards the affinities of the creatures to which these jaws belonged, Professor Osborn has referred the *Triconodontidae* and *Amphitheriidae*, together with the *Curtodontidae* (as represented by the English Purbeck *Curtodon*), to a primitive group of marsupials, while he has assigned the *Amblotheriidae* and *Stylacodontidae* to an ancestral assemblage of Insectivora. On the other hand, in the opinion of Professor H. Winge, a large number of these creatures are primitive monotremes. Besides the above, in the Trias of North America we have *Dromotherium* and *Microconodon*, extremely primitive forms, representing the family *Dromotheriidae*, and apparently showing decided traces of reptilian affinity. It may be added that a few traces of mammals have been obtained from the English Wealden, among which an incisor tooth foreshadows the rodent type.

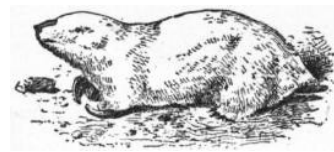
AUTHORITIES.—The above article is partly based on that by Sir W. H. Flower in the 9th edition of this work. See also O. Thomas, Catalogue of Monotremata and Marsupialia in the British Museum (1888); "On *Caenolestes*, a Survivor of the *Epanorthidae*," *Proc. Zool. Soc. London* (1895); J. D. Ogilby, Catalogue of Australian Mammals (Sydney, 1895); B. A. Bensley, "A Theory of the Origin and Evolution of the Australian Marsupialia," *American Naturalist* (1901); "On the Evolution of the Australian Marsupialia, &c.," *Trans. Linn. Soc.* (vol. ix., 1903); L. Dollo, "Arboreal Ancestry of Marsupials," *Miscell. Biologiques* (Paris, 1899); B. Spencer, "Mammalia of the Horn Expedition" (1896); "Wynyardia, a Fossil Marsupial from Tasmania," *Proc. Zool. Soc. London* (1900); J. P. Hill, "Contributions to the Morphology of the Female Urino-genital Organs in Marsupialia," *Proc. Linn. Soc. N. S. Wales*, vols. xxiv. and xxv.; "Contributions to the Embryology of the Marsupialia," *Quart. Journ. Micr. Science*, vol. xliii.; E. C. Stirling, "On *Notoryctes typhlops*," *Proc. Zool. Soc. London* (1891); "Fossil Remains of Lake Cadibona," Part I. *Diprotodon*, *Mem. R. Soc. S. Australia* (vol. i., 1889); R. Broom, "On the Affinities of *Thylacoleo*," *Proc. Linn. Soc. N. S. Wales* (1898); H. F. Osborn, "Mesozoic Mammalia," *Journ. Acad. Nat. Sci. Philadelphia* (vol. ix., 1888); E. S. Goodrich, "On the Fossil Mammalia from the Stonesfield Slate," *Quart. Journ. Micr. Science* (vol. xxxv., 1894).

(R. L.*)

- 1 The presence or absence of the corpus callosum has been much disputed; the latest researches, however, indicate its absence.



MARSUPIAL MOLE (*Notoryctes typhlops*), the "Ur-quamata" of the natives, an aberrant polyprotodont from central South Australia, constituting a family (*Noloryctidae*). This is a small burrowing animal, of a pale golden-yellow colour, with long silky hair, a horny shield on the nose, and a stumpy leathery tail. The feet are five-toed, and the third and fourth toes of the front pair armed with enormous claws adapted for digging. Neither ear-conches nor eyes are visible externally. There are but three pairs of incisor teeth in each jaw, and the upper molars are tricuspid. This animal spends most of its time burrowing in the sand in search of insects and their larvae, but occasionally makes its appearance on the surface.



Marsupial Mole (*Notoryctes typhlops*).



MARSUS, DOMITIUS, Latin poet, the friend of Virgil and Tibullus, and contemporary of Horace. He survived Tibullus (d. 19 B.C.), but was no longer alive when Ovid wrote (c. A.D. 12) the epistle from Pontus (*Ex Ponto*, iv. 16) containing a list of poets. He was the author of a collection of epigrams called *Cicuta* ("hemlock")¹ from their bitter sarcasm, and of a beautiful epitaph on the death of Tibullus; of elegiac poems, probably of an erotic character; of an epic poem *Amazonis*; and of a prose work on wit (*De urbanitate*). Martial often alludes to Marsus as one of his predecessors, but he is never mentioned by Horace, although a passage in the *Odes* (iv. 4, 19) is supposed to be an indirect allusion to the *Amazonis* (M. Haupt, *Opuscula*, iii. 332).

See J. A. Weichert, *Poetarum latinorum vitae et reliquiae* (1830); R. Unger, *De Dom. Marsi cicuta* (Friedland, 1861).

- 1 According to others, a reed-pipe made of the stalks of hemlock; the reading *scutica* ("whip") has also been proposed.



MARSYAS, in Greek mythology, a Phrygian god or Silenus, son of Hyagnis. He was originally the god of the small river of the same name near Celaenae, an old Phrygian town. He represents the art of playing the flute as opposed to the lyre—the one the accompaniment of the worship of Cybele, the other that of the worship of Apollo. According to the legend, Athena, who had invented the flute, threw it away in disgust, because it distorted the features. Marsyas found it, and having acquired great skill in playing it, challenged Apollo to a contest with his lyre. Midas, king of Phrygia, who had been appointed judge, declared in favour of Marsyas, and Apollo punished Midas by

changing his ears into ass's ears. In another version, the Muses were judges and awarded the victory to Apollo, who tied Marsyas to a tree and flayed him alive. Marsyas, as well as Midas and Silenus, are associated in legend with Dionysus and belong to the cycle of legends of Cybele. A statue of Marsyas was set up in the Roman forum and colonies as a symbol of liberty. The contest and punishment of Marsyas were favourite subjects in Greek art, both painting and sculpture. In Florence there are several statues of Marsyas hanging on the tree as he is going to be flayed (see [GREEK ART](#), fig. 54, Pl. II.); Apollo and the executioner complete the group. In the Lateran museum at Rome there is a statue representing Marsyas in the act of picking up the flute, a copy of a masterpiece by Myron (Hyginus, *Fab.* 167, 191; Apollodorus i. 4, 2; Ovid, *Metam.* vi. 382-400, xi. 145-193), for which see [GREEK ART](#), fig. 64 (Pl. III.).



MARTABAN, a town in the Thaton district of Lower Burma, on the right bank of the Salween, opposite Moulmein. It is said to have been founded in A.D. 573, by the first king of Pegu, and was once the capital of a powerful Talaing kingdom; but it is now little more than a village. Martaban is frequently mentioned by European voyagers of the 16th century; and it has given the name of "Martavans" to a class of large vessels of glazed pottery, also known in India as "Pegu jars." It was twice captured by the British, in 1824 and 1852. The Bay of Martaban receives the rivers Irrawaddy and Salween.



MARTELLO TOWER, a kind of tower formerly used in English coast defence. The name is a corruption of Mortella. The Martello tower was introduced in consequence of an incident of the French revolutionary wars. In September 1793 a British squadron of three ships of the line and two frigates was ordered to support the Corsican insurgents. It was determined in the first place to take a tower on Cape Mortella which commanded the only secure anchorage in the Gulf of San Fiorenzo. This tower, according to James, was named "after its inventor"; but the real derivation appears to be the name of a wild myrtle which grew thickly around. The tower, which mounted one 24-pounder and two 18-pounders on its top, was bombarded for a short time by the frigates, was then deserted by its little garrison, and occupied by a landing party. The tower was afterwards retaken by the French from the Corsicans. So far it had done nothing to justify its subsequent reputation. In 1794, however, a fresh attempt was made to support the insurgents. On the 7th of February 1400 troops were landed, and the tower was attacked by land and sea on the 8th. The "Fortitude" and "Juno" kept up a cannonade for 2½ hours and then hauled off, the former being on fire and having sixty-two men killed and wounded. The fire from the batteries on shore produced no impression until a hot shot set fire to the "bass junk with which, to the depth of 5 ft., the immensely thick parapet was lined." The garrison of thirty-three men then surrendered. The armament was found to consist only of two 18-pounders and one 6-pounder. The strong resistance offered by these three guns seems to have led to the conclusion that towers of this description were specially formidable, and Martello towers were built in large numbers, and at heavy expense, along the shores of England, especially on the southern and eastern coasts, which in certain parts are lined with these towers at short intervals. They are structures of solid masonry, containing vaulted rooms for the garrison, and providing a platform at the top for two or three guns, which fire over a low masonry parapet. Access is provided by a ladder, communicating with a door about 20 ft. above the ground. In some cases a deep ditch is provided around the base. The chief defect of the tower was its weakness against vertical fire; its masonry was further liable to be cut through by breaching batteries. The French *tours modèles* were somewhat similar to the Martello towers; their chief use was to serve as keeps to unrevetted works. While the Martello tower owes its reputation and its widespread adoption in Great Britain to a single incident of modern warfare, the round masonry structure entered by a door raised high above the base is to be found in many lands, and is one of the earliest types of masonry fortification.



MARTEN, HENRY (1602-1680), English regicide, was the elder son of Sir Henry Marten, and was educated at University College, Oxford. As a public man he first became prominent in 1639 when he refused to contribute to a general loan, and in 1640 he entered parliament as one of the members for Berkshire. In the House of Commons he joined the popular party, spoke in favour of the proposed bill of attainder against Strafford, and in 1642 was a member of the committee of safety. Some of his language about the king was so frank that Charles demanded his arrest and his trial for high treason. When the Great Rebellion broke out Marten did not take the field, although he was appointed governor of Reading, but in parliament he was very active. On one occasion his zeal in the parliamentary cause led him to open a letter from the earl of Northumberland to his countess, an impertinence for which, says Clarendon, he was "cudgelled" by the earl; and in 1643, on account of some remark about extirpating the royal family, he was expelled from parliament and was imprisoned for a few days. In the following year, however, he was made governor of Aylesbury, and about this time took some small part in the war. Allowed to return to parliament in January 1646, Marten again advocated extreme views. He spoke of his desire to prepare the king for heaven; he attacked the Presbyterians, and, supporting the army against the parliament, he signed the agreement of August 1647. He was closely associated with John Lilburne and the Levellers, and was one of those who suspected the sincerity of Cromwell, whose murder he is said personally to have contemplated. However, he acted with Cromwell in bringing Charles I. to trial; he was one of the most prominent of the king's judges and signed

the death warrant. He was then energetic in establishing the republic and in destroying the remaining vestiges of the monarchical system. He was chosen a member of the council of state in 1649, and as compensation for his losses and reward for his services during the war, lands valued at £1000 a year were settled upon him. In parliament he spoke often and with effect, but he took no part in public life during the Protectorate, passing part of this time in prison, where he was placed on account of his debts. Having sat among the restored members of the Long Parliament in 1659, Marten surrendered himself to the authorities as a regicide in June 1660, and with some others he was excepted from the act of indemnity, but with a saving clause. He behaved courageously at his trial, which took place in October 1660, but he was found guilty of taking part in the king's death. Through the action, or rather the inaction of the House of Lords, he was spared the death penalty, but he remained a captive, and was in prison at Chepstow Castle when he died on the 9th of September 1680. Although a leading Puritan, Marten was a man of loose morals. He wrote and published several pamphlets, and in 1662 there appeared *Henry Marten's Familiar Letters to his Lady of Delight*, which contained letters to his mistress, Mary Ward.

Marten's father, Sir Henry Marten (c. 1562-1641), was born in London and was educated at Winchester school and at New College, Oxford, becoming a fellow of the college in 1582. Having become a barrister, he secured a large practice and soon came to the front in public life. He was sent abroad on some royal business, was made chancellor of the diocese of London, was knighted, and in 1617 became a judge of the admiralty court. Later he was appointed a member of the court of high commission and dean of the arches. He became a member of parliament in 1625, and in 1628 represented the university of Oxford, taking part in the debates on the petition of right.

See J. Forster, *Statesmen of the Commonwealth* (1840); M. Noble, *Lives of the English Regicides* (1798); the article by C. H. Firth in *Dict. Nat. Biog.* (1893); and S. R. Gardiner, *History of the Great Civil War* and *History of the Commonwealth and Protectorate*.



MARTEN,¹ a name originally belonging to the pine-marten (*Mustela martes*), but now applied to all members of the same genus of carnivorous mammals (see **CARNIVORA**). Martens are limited to the northern hemisphere, ranging throughout the greater part of the northern temperate regions of both Old and New Worlds, and southwards in America to 35° N. lat., while in Asia one species is met with in Java.

The species appear to be similar in their habits. They live in woods and rocky places, and spend most of their time in trees, although descending to the ground in quest of prey. They climb with great facility, and are agile and graceful in their movements. Some are said occasionally to resort to berries and other fruit for food, but as a rule they are carnivorous, feeding chiefly on birds and their eggs, small mammals, as squirrels, hares, rabbits and moles, but chiefly mice of various kinds, and occasionally snakes, lizards and frogs. In proportion to their size they are among the most bloodthirsty of animals, though less so than the weasels. The female makes her nest of moss, dried leaves and grass in the hollow of a tree, but sometimes in a hole among rocks or ruined buildings, and produces several young at a birth, usually from four to six. Though wild and untameable to a great degree if captured when fully grown, if taken young they are docile, and have frequently been made pets, not having the strong unpleasant odour of the smaller *Mustelidae*. The pine-marten appears to have been partially domesticated by the Greeks and Romans, and used to keep houses clear from rats and mice. In the same way, according to Brian Hodgson, the yellow-bellied weasel (*Putorius kathia*) "is exceedingly prized by the Nepalese for its service in ridding houses of rats. It is easily tamed; and such is the dread of it common to all murine animals that not one will approach a house where it is domiciled." It is, however, to the great value attached to the pelts of these animals that their importance to man is chiefly due. Though all yield fur of serviceable quality, the commercial value varies immensely, not only according to the species from which it is obtained, but according to individual variation, depending upon age, sex, season, and other circumstances. The skins from northern regions are more full and of a finer colour and gloss than those from more temperate climates, as are those of animals killed in winter compared to the same individuals in summer. Fashion has, moreover, set fictitious values upon slight shades of colour. Enormous numbers of animals are caught, chiefly in traps, to supply the demand of the fur trade, Siberia and North America being the principal localities from which they are obtained.

With the exception of the pekan (*M. pennanti*), the martens are much alike in size, general colouring and cranial and dental characters. The following description by Dr Elliott Coues of the American marten (*M. americana*) will apply almost equally well to most of the others. "It is almost impossible to describe the colour of the marten, except in general terms, without going into the details of the endless diversities occasioned by age, sex, season, or other incidents. The animal is 'brown,' of a shade from orange or tawny to quite blackish; the tail and feet are ordinarily the darkest, the head lightest, often quite whitish; the ears usually have a whitish rim, while on the throat there is usually a large tawny-yellowish or orange-brown patch, from the chin to the fore legs; sometimes entire, sometimes broken into a number of smaller, irregular blotches, sometimes wanting, sometimes prolonged on the whole under surface, when the animal is bicolor like a stoat in summer. The general 'brown' has a greyish cast, as far as the under fur is concerned, and is overlaid with rich lustrous blackish-brown in places where the long bristly hairs prevail. The claws are whitish; the naked nose pad and whiskers are black. The tail occasionally shows interspersed white hairs, or a white tip."

The following are the best-known species:—

Mustela foina: the beech-marten, stone-marten or white-breasted marten.—Distinguished from the following by the greater breadth of the skull, and some minute but constant dental characters, by the dull greyish-brown colour of the fur of the upper parts and the pure white of the throat and breast. It inhabits the greater part of the continent of Europe, but is more southern than the next in its distribution, not being found in Sweden or Norway.

M. martes, the pine-marten (see figure).—Fur rich dark brown; under fur reddish-grey, with clear yellow tips; breast spot usually yellow, varying from bright orange to pale cream-colour or yellowish-white. Length of head and body 16 to 18 in., of tail (including the hair) 9 to 12 in. This species is extensively distributed throughout northern Europe and Asia, and was formerly common in most parts of Great Britain and Ireland. It is still found in the northern counties of England and North Wales, but in decreasing numbers. In Scotland it is rare, but in Ireland may be found in almost every county occasionally. Though commonly called "pine-marten," it does not appear to have any special preference for coniferous trees.



The Pine-Marten (*Mustela martes*).

Next comes *M. zibellina*, the sable (German, *Zobel* and *Zebel*; Swedish, *sabel*; Russian, *sobel*, a word probably of Turanian origin), which closely resembles the last, if indeed it differs except in the quality of the fur—the most highly valued of that of all the group. The sable is found chiefly in eastern Siberia.

Very distinct is the brilliantly coloured orange-and-black Indian marten (*M. flavigula*), found from the Himalaya and Ceylon to Java.

The North American *M. americana* is closely allied to the pine-marten and Asiatic sable. The importance of the fur of this animal as an article of commerce may be judged of from the fact that 15,000 skins were sold in one year by the Hudson's Bay Company as long ago as 1743. It is ordinarily caught in wooden traps of simple construction, being little enclosures of stakes or brush in which the bait is placed upon a trigger, with a short upright stick supporting a log of wood, which falls upon its victim on the slightest disturbance. A line of such traps, several to a mile, often extends many miles. The bait is any kind of meat, a mouse, squirrel, piece of fish or bird's head. It is principally trapped during the colder months, from October to April, when the fur is in good condition, as it is nearly valueless during the shedding in summer. It maintains its numbers partly in consequence of its shyness, which keeps it away from the abodes of men, and partly because it is so prolific, bringing forth six to eight young at a litter. Its home is sometimes a den under ground or beneath rocks, but oftener the hollow of a tree, and it is said to take possession of a squirrel's nest, driving off or devouring the rightful proprietor.

The pekan or Pennant's marten, also called fisher marten, though there appears to be nothing in its habits to justify the appellation, is the largest of the group, the head and body measuring from 24 to 30 in., and the tail 14 to 18 in. It is also more robust in form than the others, its general aspect being more that of a fox than a weasel; in fact its usual name among the American hunters is "black fox." Its general colour is blackish, lighter by mixture of brown or grey on the head and upper fore part of the body, with no light patch on the throat, and unlike other martens generally darker below than above. It was generally distributed in wooded districts throughout the greater part of North America, as far north as Great Slave Lake, lat. 63° N., and Alaska, and extending south to the parallel of 35°; but at the present time is almost exterminated in the settled parts of the United States east of the Mississippi.

(W. H. F.)

1 By all old authors, as Ray, Pennant, Shaw and Fleming, the word is written "Martin," but this form of spelling is now generally reserved for the bird (see [MARTIN](#)). The word, as applied to the animal here described, occurs in most Germanic and Romanic languages: German, *marder*; Dutch, *marter*; Swedish, *mard*; Danish, *maar*; English, *marteron*, *martern*, *marten*, *martin* and *martlett*; French, *martre* and *martre*; Italian, *martora* and *martorella*; Spanish and Portuguese, *marta*. Its earliest known use is in the form *martes* (Martial, *Ep.* x. 37), but it can scarcely be an old Latin word, as it is not found in Pliny or other classical writers, and Martial often introduced foreign words into his Latin. Its etymology has been connected with the German "martern," to torment. A second Romanic name for the same animal is *fuina*, in French *fouine*. The term "Marten Cat" is also used.



MARTENS, FRÉDÉRIC FROMMHOLD DE (1845-1909), Russian jurist, was born at Pernau in Livonia. In 1868 he entered the Russian ministry of foreign affairs, was admitted in 1871 as a *Dozent* in international law in the university of St Petersburg, and in 1871 became lecturer and then (1872) professor of public law in the Imperial School of Law and the Imperial Alexander Lyceum. In 1874 when Prince Gorchakov, then imperial chancellor, needed assistance for certain kinds of special work, Martens was chosen to afford it. His book on *The Right of Private Property in War* had appeared in 1869, and had been followed in 1873 by that upon *The Office of Consul and Consular Jurisdiction in the East*, which had been translated into German and republished at Berlin. These were the first of a long series of studies which won for their author a world-wide reputation, and raised the character of the Russian school of international jurisprudence in all civilized countries. First amongst them must be placed the great *Recueil des traités et conventions conclus par la Russie avec les puissances étrangères* (13 vols., 1874-1902). This collection, published in Russian and French in parallel columns, contains not only the texts of the treaties but valuable introductions dealing with the diplomatic conditions of which the treaties were the outcome. These introductions are based largely on unpublished documents from the Russian archives. Of Martens' original works his *International Law of Civilized Nations* is perhaps the best known; it was written in Russian, a German edition appearing in 1884-1885, and a French edition in 1887-1888. It displays much judgment and acumen, though some of the doctrines which it defends by no means command universal assent. More openly "tendencious" in character are such treatises as *Russia and England in Central Asia* (1879); *Russia's Conflict with*

China (1881), *The Egyptian Question* (1882), and *The African Conference of Berlin and the Colonial Policy of Modern States* (1887). In the delicate questions raised in some of these works Martens stated his case with learning and ability, even when it was obvious that he was arguing as a special pleader. Martens was repeatedly chosen to act in international arbitrations. Among the controversies which he helped to adjust were that between Mexico and the United States—the first case determined by the permanent tribunal of The Hague—and the difference between Great Britain and France in regard to Newfoundland in 1891. He played an important part in the negotiations between his own country and Japan, which led to the peace of Portsmouth (Aug. 1905) and prepared the way for the Russo-Japanese convention. He was employed in laying the foundations for The Hague Conferences. He was one of the Russian plenipotentiaries at the first conference and president of the fourth committee—that on maritime law—at the second conference. His visits to the chief capitals of Europe in the early part of 1907 were an important preliminary in the preparation of the programme. He was judge of the Russian supreme prize court established to determine cases arising during the war with Japan. He received honorary degrees from the universities of Oxford, Cambridge and Yale; he was also awarded the Nobel Peace Prize in 1902. In April 1907 he addressed a remarkable letter to *The Times* on the position of the second Duma, in which he argued that the best remedy for the ills of Russia would be the dissolution of that assembly and the election of another on a narrower franchise. He died suddenly on the 20th of June 1909.

See T. E. Holland, in *Journal of the Society of Comparative Legislation* for October 1909, where a list of the writings of Martens appears.



MARTENS, GEORG FRIEDRICH VON (1756-1821), German jurist and diplomatist, was born at Hamburg on the 22nd of February 1756. Educated at the universities of Göttingen, Regensburg and Vienna, he became professor of jurisprudence at Göttingen in 1783 and was ennobled in 1789. He was made a counsellor of state by the elector of Hanover in 1808, and in 1810 was president of the financial section of the council of state of the kingdom of Westphalia. In 1814 he was appointed privy cabinet-councillor (*Geheimer Kabinetsrat*) by the king of Hanover, and in 1816 went as representative of the king to the diet of the new German Confederation at Frankfurt, where he died on the 21st of February 1821.

Of his works the most important is the great collection of treaties *Recueil des traités, &c.* from 1761 onwards. Of this the first seven volumes were published at Göttingen (1791-1801), followed by four supplementary volumes partly edited by his nephew Karl von Martens (see below). These were followed by *Nouveau recueil*, of treaties subsequent to 1808, in 16 vols. (Göttingen, 1817-1842), of which G. F. von Martens edited the first four, the fifth being the work of K. von Martens, the others (6-9) by F. Saalfeld and (10-16) F. Murhard. A *Nouveau supplément*, in 3 vols., filling gaps in the previous collection, was also published by Murhard (Göttingen, 1839-1842). This was followed by *Nouveau recueil ... continuation du grand recueil de Martens*, in 20 vols. (Göttingen, 1843-1875), edited in turn by F. Murhard, C. Murhard, J. Pinhas, C. Samwer and J. Hopf, with a general index of treaties from 1494 to 1874 (1876). This was followed by *Nouveau recueil, 2me série* (Göttingen, 1876-1896; vols. xxii.-xxxv., Leipzig, 1897-1908). From vol. xi. on this series was edited by Felix Stork, professor of public law at Greifswald. In 1909 appeared vol. i. of a further *Continuation (troisième série)* under the editorship of Professor Heinrich Triepel of Kiel University.

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Of Martens' other works the most important are the *Précis du droit des gens modernes de l'Europe* (1789; 3rd ed., Göttingen, 1821; new ed., G. S. Pinheiro-Ferreira, 2 vols., 1858, 1864); *Erzählungen merkwürdiger Fälle des neueren europäischen Völkerrechts*, 2 vols. (Göttingen, 1800-1802); *Cours diplomatique ou tableau des relations des puissances de l'Europe*, 3 vols. (Berlin, 1801); *Grundriss einer diplomatischen Gesch. der europ. Staatshandel u. Friedensschlüsse seit dem Ende des 15. Jahrhunderts* (ibid. 1807).

His nephew KARL VON MARTENS (1790-1863), who at his death was minister resident of the grand-duke of Weimar at Dresden, published a *Manuel diplomatique* (Leipzig, 1823), re-issued as *Guide diplomatique* in two vols. in 1832 (5th ed. by Geffcken, 1866), a valuable textbook of the rules and customs of the diplomatic service; *Causes célèbres du droit des gens* (2 vols., ibid., 1827) and *Nouvelles causes célèbres* (2 vols., ibid., 1843), both republished, in 5 vols. (1858-1861); *Recueil manuel et pratique de traités* (7 vols., ibid., 1846-1857); continued by Geffcken in 3 vols., (1885-1888).



MARTENSEN, HANS LASSEN (1808-1884), Danish divine, was born at Flensburg on the 19th of August 1808. He studied in Copenhagen, and was ordained in the Danish Church. At Copenhagen he was lektor in theology in 1838, professor extra-ordinarius in 1840, court preacher also in 1845, and professor ordinarius in 1850. In 1854 he was made bishop of Seeland. In his studies he had come under the influence of Schleiermacher, Hegel and Franz Baader; but he was a man of independent mind, and developed a peculiar speculative theology which showed a disposition towards mysticism and theosophy. His contributions to theological literature included treatises on Christian ethics and dogmatics, on moral philosophy, on baptism, and a sketch of the life of Jakob Boehme, who exercised so marked an influence on the mind of the great English theologian of the 18th century, William Law. Martensen was a distinguished preacher, and his works were translated into various languages. The "official" eulogy he pronounced upon Bishop Jakob P. Mynster (1775-1854) in 1854, brought down upon his head the invectives of the philosopher Sören Kierkegaard. He died at Copenhagen on the 3rd of February 1884.

Amongst his works are: *Grundriss des Systems der Moralphilosophie* (1841; 3rd ed., 1879; German, 1845), *Die christl. Taufe und die baptistische Frage* (2nd ed., 1847; German, 2nd ed., 1860), *Den Christelige Dogmatik* (4th ed., 1883; Eng. trans., 1866; German by himself, 4th ed., 1897); *Christliche Ethik* (1871; Eng. trans., Part I. 1873, Part II. 1881 seq.); *Hirtenspiegel* (1870-1872); *Katholizismus und Protestantismus* (1874); *Jacob Böhme* (1882; Eng. trans., 1885). An autobiography, *Aus meinem Leben*, appeared in 1883, and after his death the *Briefwechsel zwischen Martensen und Dorner* (1888).



MARTHA'S VINEYARD, an island including the greater part of Dukes county, Massachusetts, U.S.A., lying about 3 m. off the southern coast of that state. Its extreme length (east to west) is about 20 m., and its extreme width (north to south) about 9½ m. Along its north-west and a portion of its north-east shore lies Vineyard Sound. Its principal bays are Vineyard Haven Harbor, a deep indentation at the northernmost angle of the island; and, on the eastern coast, Edgartown Harbor and Katama Bay, both formed by the juxtaposition of Chappaquiddick Island. The surface is mainly flat, excepting a strip about 2 m. broad along the north-western coast, and the two western townships (Chilmark and Gay Head), which are hilly, with several eminences of 200 to 300 ft.—the highest, Prospect Peak, in Chilmark township, 308 ft. Gay Head Light, a beacon near the western extremity, stands among picturesque cliffs, 145 ft. above the sea. Along the southern coast are many ponds, all shut off from the ocean by a narrow strip of land, excepting Tisbury Great Pond, which has a small outlet to the sea. Others are Sengekontacket Pond on the eastern coast; Lagoon Pond, which is practically an arm of Vineyard Haven Harbor; and, about a mile east of the Harbor, Chappaquonsett Pond. Martha's Vineyard is divided into the following townships (from east to west): Edgartown (in the south-eastern part of the island), pop. (1910), 1191; area, 29.7 sq. m.; Oak Bluffs (north-eastern portion), pop. (1910), 1084; area, 7.9 sq. m.; Tisbury, pop. (1910), 1196; area, 7.1 sq. m.; West Tisbury, pop. (1910), 437; area, 30.5 sq. m.; Chilmark, pop. (1910), 282; area, 19.4 sq. m.; and Gay Head, pop. (1910), 162; area 5.2 sq. m. The population of the county, including the Elizabeth Ids. (Gosnold town, pop. 152), N. W. of Martha's Vineyard; Chappaquiddick Island (Edgartown township), and No Man's Land (a small island south-west of Martha's Vineyard), was 4561 in 1900 (of whom 645 were foreign-born, including 79 Portuguese and 72 English-Canadians, and 154 Indians), and in 1910, 4504. The principal villages are Oak Bluffs on the north-east coast, facing Vineyard Sound; Vineyard Haven, in Tisbury township, beautifully situated on the west shore of Vineyard Haven Harbor, and Edgartown on Edgartown Harbor—all summer resorts. No Man's Land, included politically in Chilmark township, lies about 6½ m. south of Gay Head. It is about 1½ m. long (east and west) and about 1 m. wide, is composed of treeless swamps, and is used mainly for sheep-grazing; the neighbouring waters are excellent fishing ground. Martha's Vineyard is served by steamship lines from Wood's Hole and New Bedford to Vineyard Haven, Oak Bluffs, and Edgartown. The Martha's Vineyard railway (from Oak Bluffs to the south-east extremity of the island, by way of Edgartown), opened in 1874, was not a financial success, and had been practically abandoned in 1909, but an electric line from Oak Bluffs to Vineyard Haven provides transit facilities for that part of the island.

For more than a century whale fishing was practically the sole industry of Martha's Vineyard. It was carried on at first from the shore in small boats; but by the first decade of the 18th century vessels especially built for the purpose were being used, and by 1760 shore fishing had been practically abandoned. The industry, seriously crippled by invasions of British troops during the War of American Independence—especially by a force which landed at Holmes's Hole (Vineyard Haven) in September 1778—and again during the War of 1812, revived and was at its height in 1840-1850, only to receive another setback during the Civil War. In the last part of the 19th century its decline was rapid, not only because of the increasing scarcity of whales, but because of the introduction of the mineral oils, and by the end of the century whaling had ceased to be of any economic importance. Herring fishing, on both the north and the south shore, occupies a small percentage of the inhabitants, and there is also some deep-sea fishing. Sheep-raising, especially for wool, is an industry of considerable importance, and Dukes county is one of the three most important counties of the state in this industry.

Martha's Vineyard was discovered in 1602 by Captain Bartholomew Gosnold, who landed (May 21) on the island now called No Man's Land, and named it Martha's Vineyard,¹ which name was subsequently applied to the larger island. Captain Gosnold rounded Gay Head, which he named Dover Cliff, and established on what is now Cuttyhunk Island, which he called Elizabeth Island, the first (though, as it proved, a temporary) English settlement in New England. The entire line of sixteen islands, of which Cuttyhunk is the westernmost of the larger ones, have since been called the Elizabeth Islands; they form the dividing line between Buzzards Bay and Vineyard Sound, and in 1864 were incorporated as Gosnold township (pop. in 1905, 161) of Dukes county.

The territory within the jurisdiction of the Council for New England was parcelled in 1635 among the patentees in such terms—owing to insufficient knowledge of the geography of the coast—that both William Alexander, earl of Stirling, and Sir Ferdinando Gorges, proprietor of Maine, claimed Martha's Vineyard. In 1641 Stirling's agent, Forrett, sold to Thomas Mayhew (1592-1682),² of Watertown, Massachusetts, for \$200, the island of Nantucket, with several smaller neighbouring islands, and also Martha's Vineyard. It seems probable that Forrett acted without authority, and his successor, Forrester, was arrested by the Dutch in New Amsterdam and sent to Holland before he could confirm the transfer. In 1644 the Commissioners of the United Colonies, apparently at the request of the inhabitants of Martha's Vineyard, annexed the island to Massachusetts, but ten years later the islanders declared their independence of that colony, and apparently for the next decade managed their own affairs. Meanwhile Mayhew had recognized the jurisdiction of Maine;³ and though the officials of that province showed no disposition to press their claim, it seems that this technical suzerainty continued until 1664, when the Duke of York received from his brother, Charles II., the charter for governing New York, New Jersey, and other territory, including Martha's Vineyard. In 1671 Governor Francis Lovelace, of New York, appointed Mayhew governor for life of Martha's Vineyard; in 1683, the island, with Nantucket, the Elizabeth Islands, No Man's Land, and Chappaquiddick Island were erected into Dukes county, and in 1695 the county was re-incorporated by Massachusetts with Nantucket excluded. Under the new charter of Massachusetts Bay (1691), after some dispute between Massachusetts and New York, Martha's Vineyard became a part of Massachusetts.

There is a tradition that the first settlement of Martha's Vineyard was made in 1632, at or near the present site of Edgartown village, by several English families forming part of a company bound for Virginia, their ship having put in at this harbour on account of heavy weather. It is certain, however, that in 1642, the year after Thomas Mayhew bought the island, his son, also named Thomas Mayhew (c. 1616-1657), and several other persons established a plantation on the site of what is now Edgartown village. This settlement was at first called "Great Harbor," but soon after Mayhew was appointed governor of the island it was named Edgartown, probably in honour of the only surviving son of the Duke of York. The younger Mayhew, soon after removing to Martha's Vineyard, devoted himself to missionary work among the Indians, his work beginning at about the same time as that of John Eliot; he was lost at sea in 1657 while on his way to secure financial assistance in England, and his work was continued successfully

by his father.⁴ The township of Edgartown was incorporated in 1671, and is the county-seat of Dukes county. In 1783 several Edgartown families joined the association made up of Martha's Vineyard, Nantucket, Providence and Newport whalers, who founded Hudson, on the Hudson river, in Columbia county, New York. Oak Bluffs had its origin as a settlement in the camp meetings, which were begun here in 1835, and by 1860 had grown to large proportions. As the village expanded it took the name of Cottage City. In 1880 the township was incorporated under that name, which it retained until January 1907, when the name (and that of the village also) was changed to Oak Bluffs. Tisbury township was bought from the Indians in 1669 and was incorporated in 1671. Its principal village, Vineyard Haven, was called "Holmes's Hole" (in honour of one of the early settlers) until 1871, when the present name was adopted. West Tisbury township was set off from Tisbury, and incorporated in 1892. Chilmark township was incorporated in 1694. Gay Head township was set off from Chilmark, and incorporated in 1870.

See C. Gilbert Hine, *The Story of Martha's Vineyard* (New York, 1908); Charles E. Banks, "Martha's Vineyard and the Province of Maine" in *Collections and Proceedings of the Maine Historical Society*, 2nd series, vol. ix. p. 123 (Portland, Maine, 1898); and Walter S. Tower, *A History of the American Whale Fishery* (Philadelphia, 1907).

(G. G.*)

- 1 In the 17th century both "Martha's Vineyard" and "Martin's Vineyard" were used, and the latter appears in a book as early as 1638 and in another as late as 1699, and on a map as late as 1670. It seems probable that the original form was *Martin* the name of one of Gosnold's crew; according to some authorities the name Martha's Vineyard was adopted by Mayhew in honour of his wife or daughter.
- 2 Mayhew was born at Tisbury, Wiltshire, was a merchant in Southampton, emigrated to Massachusetts about 1633, settled at Watertown, Mass., in 1635; was a member of the Massachusetts General Court in 1636-1644, and after 1644 or 1645 lived on Martha's Vineyard.
- 3 It appears from a letter from Mayhew to Governor Andros in 1675 that about 1641 Mayhew obtained a conveyance to Martha's Vineyard from Richard Vines, agent of Gorges. See F. B. Hough, *Papers Relating to the Island of Nantucket, with Documents Relating to the Original Settlement of that Island, Martha's Vineyard, &c.* (Albany, N.Y., 1856).
- 4 In 1901, a boulder memorial was erected to the younger Mayhew on the West Tisbury road, between the village of that name and Edgartown, marking the spot where the missionary bade farewell to several hundred Indians. The Martha's Vineyard Indians were subject to the Wampanoag tribe, on the mainland, were expert watermen, and were very numerous when the whites first came. Nearly all of them were converted to Christianity by the Mayhews, and they were friendly to the settlers during King Philip's war. By 1698 their numbers had been reduced to about 1000, and by 1764 to about 300. Soon after this they began to intermarry with negroes, and now only faint traces of them remain.



MARTÍ, JUAN JOSÉ (1570?-1604), Spanish novelist, was born at Orihuela (Valencia) about 1570. He graduated as bachelor of canon law at Valencia in 1591, and in 1598 took his degree as doctor of canon law; in the latter year he was appointed co-examiner in canon law at Valencia University, and held the post for six years. He died at Valencia, and was buried in the cathedral of that city on the 22nd of December 1604. Martí joined the Valencian *Academia de los nocturnos*, under the name of "Atrevimiento," but is best known by another pseudonym, Mateo Luján de Sayavedra, under which he issued an apocryphal continuation (1602) of Alemán's *Guzmán de Alfarache* (1599). Martí obtained access to Alemán's unfinished manuscript, and stole some of his ideas; this dishonesty lends point to the sarcastic congratulations which Alemán, in the genuine sequel (1604) pays to his rival's sallies: "I greatly envy them, and should be proud that they were mine." Martí's book is clever, but the circumstances in which it was produced account for its cold reception and afford presumption that the best scenes are not original.

It has been suggested that Martí is identical with Avellaneda, the writer of a spurious continuation (1614) to *Don Quixote*; but he died before the first part of *Don Quixote* was published (1605).



MARTIAL (MARCUS VALERIUS MARTIALIS), Latin epigrammatist, was born, in one of the years A.D. 38-41, for in book x., of which the poems were composed in the years 95-98, he is found celebrating his fifty-seventh birthday (x. 24). Our knowledge of his career is derived almost entirely from himself. Reference to public events enables us approximately to fix the date of the publication of the different books of epigrams, and from these dates to determine those of various important events in his life. The place of his birth was Bilbilis, officially Augusta Bilbilis, in Spain. His name seems to imply that he was born a Roman citizen, but he speaks of himself as "sprung from the Celts and Iberians, and a countryman of the Tagus;" and, in contrasting his own masculine appearance with that of an effeminate Greek, he draws especial attention to "his stiff Spanish hair" (x. 65, 7). His parents, Fronto and Flaccilla, appear to have died in his youth (v. 34). His home was evidently one of rude comfort and plenty, sufficiently in the country to afford him the amusements of hunting and fishing, which he often recalls with keen pleasure, and sufficiently near the town to afford him the companionship of many comrades, the few survivors of whom he looks forward to meeting again after his four-and-thirty years' absence (x. 104). The memories of this old home, and of other spots, the rough names and local associations which he delights to introduce into his verse, attest the enjoyment which he had in his early life, and were among the influences which kept his spirit alive in the routine of social life in Rome. But his Spanish home could impart, not only the vigorous vitality which was one condition of his success as a wit and poet, but the education which made him so accomplished a writer. The literary distinction obtained by the Senecas, by Lucan, by Quintilian, who belonged to a somewhat older generation, and by his friends and contemporaries, Licinianus of Bilbilis, Decianus of Emerita, and Canius of Gades, proves how eagerly the novel impulse of letters was received in Spain in the first century of the empire. The success of his countrymen may have been the motive which induced Martial to remove to Rome when he had completed his education. This he

did in A.D. 64, one year before the fall of Seneca and Lucan, who were probably his earliest patrons.

Of the details of his life for the first twenty years or so after he came to Rome we do not know much. He published some juvenile poems of which he thought very little in his maturer years, and he laughs at a foolish bookseller who would not allow them to die a natural death (i. 113). Martial had neither youthful passion nor youthful enthusiasm to make him precociously a poet. His faculty ripened with experience and with the knowledge of that social life which was both his theme and his inspiration; and many of his best epigrams are among those written in his last years. From many answers which he makes to the remonstrances of friends—among others to those of Quintilian—it may be inferred that he was urged to practise at the bar, but that he preferred his own lazy Bohemian kind of life. He made many influential friends and patrons, and secured the favour both of Titus and Domitian. From them he obtained various privileges, among others the *semestris tribunatus*, which conferred on him equestrian rank. He failed, however, in his application to the latter for more substantial advantages, although he commemorates the glory of having been invited to dinner by him, and also the fact that he procured the privilege of citizenship for many persons in whose behalf he appealed to him. The earliest of his extant works, that known by the name of *Liber spectaculorum*, was first published at the opening of the Colosseum in the reign of Titus, and relates to the theatrical performances given by him; but the book as it now stands was given to the world in or about the first year of Domitian, *i.e.* about A.D. 81. The favour of the emperor procured him the countenance of some of the worst creatures at the imperial court—among them of the notorious Crispinus, and probably of Paris, the supposed author of Juvenal's exile, for whose monument Martial afterwards wrote a eulogistic epitaph. The two books, numbered by editors xiii. and xiv., and known by the names of *Xenia* and *Apophoreta*—inscriptions in two lines each for presents,—were published at the Saturnalia of 84. In 86 he gave to the world the first two of the twelve books on which his reputation rests. From that time till his return to Spain in A.D. 98 he published a volume almost every year. The first nine books and the first edition of book x. appeared in the reign of Domitian; and book xi. at the end of A.D. 96, shortly after the accession of Nerva. A revised edition of book x., that which we now possess, appeared in A.D. 98, about the time of the entrance of Trajan into Rome. The last book was written after three years' absence in Spain, shortly before his death, which happened about the year A.D. 102 or 103.

These twelve books bring Martial's ordinary mode of life between the age of five-and-forty and sixty very fully before us. His regular home for five-and-thirty years was Rome. He lived at first up three pairs of stairs, and his "garret" overlooked the laurels in front of the portico of Agrippa. He had a small villa and unproductive farm near Nomentum, in the Sabine territory, to which he occasionally retired from the bores and noises of the city (ii. 38, xii. 57). In his later years he had also a small house on the Quirinal, near the temple of Quirinus. At the time when his third book was brought out he had retired for a short time to Cisalpine Gaul, in weariness, as he tells us, of his unremunerative attendance on the levées of the great. For a time he seems to have felt the charm of the new scenes which he visited, and in a later book (iv. 25) he contemplates the prospect of retiring to the neighbourhood of Aquileia and the Timavus. But the spell exercised over him by Rome and Roman society was too great; even the epigrams sent from Forum Corneli and the Aemilian Way ring much more of the Roman forum, and of the streets, baths, porticos and clubs of Rome, than of the places from which they are dated. So too his motive for his final departure from Rome in A.D. 98 was a weariness of the burdens imposed on him by his social position, and apparently the difficulties of meeting the ordinary expenses of living in the metropolis (x. 96); and he looks forward to a return to the scenes familiar to his youth. The well-known epigram addressed to Juvenal (xii. 18) shows that for a time his ideal was realized; but the more trustworthy evidence of the prose epistle prefixed to book xii. proves that his contentment was of short duration, and that he could not live happily away from the literary and social pleasures of Rome. The one consolation of his exile was the society of a lady, Marcella, of whom he writes rather as if she were his patroness—and it seems to have been a necessity of his being to have always a patron or patroness—than his wife or mistress.

During his life at Rome, although he never rose to a position of real independence, and had always a hard struggle with poverty, he seems to have known everybody, especially every one of any eminence at the bar or in literature. In addition to Lucan and Quintilian, he numbered among his friends or more intimate acquaintances Silius Italicus, Juvenal, the younger Pliny; and there were many others of high position whose society and patronage he enjoyed. The silence which he and Statius, although authors writing at the same time, having common friends and treating often of the same subjects, maintain in regard to one another may be explained by mutual dislike or want of sympathy. Martial in many places shows an undisguised contempt for the artificial kind of epic on which Statius's reputation chiefly rests; and it seems quite natural that the respectable author of the *Thebaid* and the *Silvae* should feel little admiration for either the life or the works of the Bohemian epigrammatist.

Martial's faults are of the most glaring kind, and are exhibited without the least concealment. Living under perhaps the worst of the many bad emperors who ruled the world in the 1st century, he addresses him and his favourites with the most servile flattery in his lifetime, censures him immediately after his death (xii. 6), and offers incense at the shrine of his successor. He is not ashamed to be dependent on his wealthy friends and patrons for gifts of money, for his dinner, and even for his dress. We cannot feel sure that even what seem his sincerest tributes of regard may not be prompted by the hope of payment. Further, there are in every book epigrams which cannot be read with any other feelings than those of extreme distaste.

These faults are so unmistakable and undeniable that many have formed their whole estimate of Martial from them, and have declined to make any further acquaintance with him. Even those who greatly admire his genius, and find the freshest interest in his representation of Roman life and his sketches of manners and character, do not attempt to palliate his faults, though they may partially account for them by reference to the morals of his age and the circumstances of his life. The age was one when literature had either to be silent or to be servile. Martial was essentially a man of letters: he was bound either to gain favour by his writings or to starve. Even Statius, whose writings are in other respects irreproachable, is nearly as fulsome in his adulation. The relation of client to patron had been recognized as an honourable one by the best Roman traditions. No blame had attached to Virgil or Horace on account of the favours which they received from Augustus and Maecenas, or of the return which they made for these favours in their verse. That old honourable relationship had, however, greatly changed between Augustus and Domitian. Men of good birth and education, and sometimes even of high official position (Juv. i. 117), accepted the dole (*sportula*). Martial was merely following a general fashion in paying his court to "a lord," and he made the best of the custom. In his earlier career he used to accompany his patrons to their villas at Baiae or Tibur, and to attend their morning levées. Later on he went to his own small country house, near Nomentum, and sent a poem, or a small volume of his poems, as his representative at the early visit. The fault of grossness Martial shares with nearly all ancient and many modern writers who treat of life from the baser or more ridiculous side. That he offends more than perhaps any of them is not, apparently, to be explained on the ground that he had to amuse a peculiarly corrupt public. Although there is the most cynical effrontery and want of self-respect in Martial's use of language, there is

not much trace of the satyr in him—much less, many readers will think, than in Juvenal.

It remains to ask, What were those qualities of nature and intellect which enable us to read his best work—even the great body of his work—with the freshest sense of pleasure in the present day? He had the keenest capacity for enjoyment, the keenest curiosity and power of observation. He had also a very just discernment. It is rare to find any one endowed with so quick a perception of the ridiculous who is so little of a caricaturist. He was himself singularly free from cant, pedantry or affectation of any kind. Though tolerant of most vices, he had a hearty scorn of hypocrisy. There are few better satirists of social and literary pretenders in ancient or modern times. Living in a very artificial age, he was quite natural, hating pomp and show, and desiring to secure in life only what really gave him pleasure. To live one's own life heartily from day to day without looking before or after, and to be one's self without trying to be that for which nature did not intend him, is the sum of his philosophy. Further, while tolerant of much that is bad and base—the characters of Crispinus and Regulus, for instance—he shows himself genuinely grateful for kindness and appreciative of excellence. He has no bitterness, malice or envy in his composition. He professes to avoid personalities in his satire;—"Ludimus innocui" is the character he claims for it. Pliny, in the short tribute which he pays to him on hearing of his death, says, "He had as much good-nature as wit and pungency in his writings" (*Ep.* iii. 21).

Honour and sincerity (*fides* and *simplicitas*) are the qualities which he most admires in his friends. Though many of his epigrams indicate a cynical disbelief in the character of women, yet others prove that he could respect and almost reverence a refined and courteous lady. His own life in Rome afforded him no experience of domestic virtue; but his epigrams show that, even in the age which is known to modern readers chiefly from the *Satires* of Juvenal, virtue was recognized as the purest source of happiness. The tenderest element in Martial's nature seems, however, to have been his affection for children and for his dependents.

The permanent literary interest of Martial's epigrams arises not so much from their verbal brilliancy, though in this they are unsurpassed, as from the amount of human life and character which they contain. He, better than any other writer, enables us to revive the outward spectacle of the imperial Rome. If Juvenal enforces the lesson of that time, and has penetrated more deeply into the heart of society, Martial has sketched its external aspect with a much fairer pencil and from a much more intimate contact with it. Martial was to Rome in the decay of its ancient virtue and patriotism what Menander was to Athens in its decline. They were both men of cosmopolitan rather than of a national type, and had a closer affinity to the life of Paris or London in the 18th century than to that of Rome in the days of the Scipios or of Athens in the age of Pericles. The form of epigram was fitted to the critical temper of Rome as the comedy of manners was fitted to the dramatic genius of Greece. Martial professes to be of the school of Catullus, Pedo, and Marsus, and admits his inferiority only to the first. But, though he is a poet of a less pure and genuine inspiration he is a greater epigrammatist even than his master. Indeed the epigram bears to this day the form impressed upon it by his unrivalled skill.

AUTHORITIES.—The MSS. of Martial are divided by editors into three families according to the recension of the text which they offer. Of these the oldest and best is represented by three MSS. which contain only selected extracts. The second family is derived from an inferior source, a MS. which was edited in A.D. 401 by Torquatus Gennadius; it comprises four MSS. and contains the whole of the text. The third family, of which the MSS. are very numerous, also contains the whole of the text in a recension slightly different from that of the other two; the best representative of this family is the MS. preserved in the Advocates' Library at Edinburgh.

The best separate edition of the text is that of Lindsay (Oxford, 1902); earlier editions of importance are those of Schneidewin (1842 and 1853), and of Gilbert (Leipzig, 1886). The best commentary is that of L. Friedländer (Leipzig, 1886) in two volumes with German notes) and in the same scholar's *Sittengeschichte Roms* much will be found that explains and illustrates Martial's epigrams. There is a large selection from the epigrams with English notes by Paley and Stone (1875), a smaller selection with notes by Stephenson (1880); see also Edwin Post, *Selected Epigrams of Martial* (1908), with introduction and notes. The translation into English verse by Elphinston (London, 1782) is famous for its absurdity, which drew an epigram from Burns.

(W. Y. S.)



MARTIALIS, QUINTUS GARGILIUS, a Latin writer on horticultural subjects. He has been identified by some with the military commander of the same name, mentioned in a Latin inscription of A.D. 260 (*C. I. L.* viii. 9047) as having lost his life in the colony of Auzia (*Aumale*) in Mauretania Caesariensis. Considerable fragments of his work (probably called *De hortis*), which treated of the cultivation of trees and vegetables, and also of their medicinal properties, have survived, chiefly in the body of and as an appendix to the *Medicina Plinii* (an anonymous 4th century handbook of medical recipes based upon Pliny, *Nat. Hist.* xx.-xxxii.). Extant sections treat of apples, peaches, quinces, almonds and chestnuts. Gargilius also wrote a treatise on the tending of cattle (*De curis boum*), and a biography of the emperor Alexander Severus is attributed by two of the *Scriptores historiae Augustae* (Aelius Lampridius and Flavius Vopiscus) to a Gargilius Martialis, who may be the same person.

BIBLIOGRAPHY.—*Gargilii Martialis ... fragmenta*, ed. A. Mai (1846); *Plinii secundi quae fertur medicina*, ed. V. Rose (1876); *De curis boum*, ed. E. Lommatzsch (1903) with Vegetius Rhenanus's *Mulomedicina*; "Gargilius Martialis und die Maurenkriege," C. Cichorius in G. Curtius, *Leipziger Studien*, x. (1887), where the inscription referred to above is fully discussed: see also Teuffel-Schwabe, *Hist. of Roman Literature* (Eng. trans.), § 380.



MARTIAL LAW. "Martial law" is an unfortunate term and in a sense a misnomer. It describes a suspension of ordinary law, rendered necessary by circumstances of war or rebellion. The confusion arose from the fact that the marshal's court administered military law before the introduction of articles of war, which were in their turn merged in the Army Act. But martial law is not a law in the proper sense of the term. It is the exercise of the will of the

military commander, who takes upon himself the responsibility of suspending ordinary law in order to ensure the safety of the state. It is declared, by a proclamation issued by the executive, that ordinary law is inadequate to cope with the circumstances, and provides exceptional means of arrest and punishment of persons who resist the government or aid the enemy. But such a proclamation, while invariably issued in order to give publicity to the suspension of ordinary law, does not invest the step with the force of law. It is simply military authority exercised in accordance with the laws and usages of war, and is limited by military necessity. Yet in reality it is part of common law which justifies acts done by necessity for the defence of the commonwealth when there is war. H. W. Halleck in his work on International Law (i. 544), says, "Martial law originates either in the prerogative of the crown, as in Great Britain, or from the exigency of the occasion, as in other states: it is one of the rights of sovereignty, and is essential to the existence of a state, as is the right to declare or to carry on war."

This opinion, however, must be read, as regards the British Empire, with the passage in the Petition of Right which is reproduced in the preamble of each annual Army Act, and asserts the illegality of martial law in time of peace in the following terms:—"No man shall be fore-judged or subjected in time of peace to any kind of punishment within this realm by martial law." Therefore, whilst martial law is declared illegal in time of peace, it is indirectly declared lawful in time of war and intestinal commotion when the courts are closed, or when there is no time for their cumbrous action. C. M. Clode, in *Military Forces of the Crown*, argues that the words of the Petition of Right and of the Military Act since the reign of Anne are plain in this respect "that ... the crown possesses the right of issuing commissions in war and rebellion." But he rightly adds that the military commander may permit the usual courts to continue their jurisdiction upon such subjects as he thinks proper. Legislative enactments have also sanctioned this special jurisdiction at various times, notably in 1798, 1799, 1801, and in 1803. These enactments lay down that exceptional powers may be exercised "whether the ordinary courts shall or shall not be open." As an invariable rule an act of indemnity has been passed on the withdrawal of martial law, but only to protect any person in charge of the execution of martial law who has exceeded his powers in good faith.

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There has been much discussion as to whether, in districts where martial law has not been proclaimed, a person can be sent for trial from such district into a district where martial law was in operation. It is argued that if the ordinary courts were open and at work in the non-proclaimed district recourse should be had to them. The Privy Council in 1902 (*re Marais*) refused leave to appeal where the Supreme Court of Cape Colony had declined to issue a writ of Habeas Corpus in these circumstances. Mr Justice Blackburn in his charge in *R. v. Eyre* says, "I have come to the conclusion that, looking at what martial law was, the bringing of a person into the proclaimed district to be tried might, in a proper case, be justified." The learned judge admits that there should be a power of summary trial, observing all the substantial of justice, in order to stamp out an insurrection by speedy trial.

Whilst martial law is the will of the commanders, and is only limited by the customs of war and the discretion of those who administer it, still, as far as practicable, the procedure of military law is followed, and a military court is held on the same lines as a court-martial. Charges are simply framed without technicalities. The prisoner is present, the evidence of prosecution and prisoner is taken on oath, the proceedings are recorded, and the sentence of the court must be confirmed according to the rules of the Army Act. Sentences of death and penal servitude must be referred to headquarters for confirmation. In the South African War (1899-1902) these limits of procedure were observed, and when possible will always be.

Entering more into detail, the term martial law has been employed in several senses:—(1) As applied to the military forces of the crown, apart from the military law under the old Mutiny Acts, and the present annual Army Acts. (2) As applied to the enemy. (3) As applied to rebels. (4) As applied to civilian subjects who are not in rebellion, but in a district where the ordinary course of civil life cannot be maintained owing to war or rebellion.

Different Applications of Martial Law.

1. In regard to the military forces of the crown, the superseding of justice as administered under the Army Act could only occur in a time of great need; *e.g.* mutiny of five or six regiments in the field, with no time to take the opinion of any executive authority. The officer in command would then be bound to take measures for the purpose of suppressing such mutiny, even to putting soldiers to death if necessary. It would be a case where necessity forced immediate action.

2. Martial law as applied to the enemy or the population of the enemy's country, is in the words of the duke of Wellington, "the will of the general of the army, though it must be administered in accordance with the customs of war."

3, 4. But it is as affecting the subjects of the crown in rebellion that the subject of martial law really obtains its chief importance; and it is in this sense that the term is generally used; *i.e.* the suspension of ordinary law and the temporary government of the country, or parts of it, or all of it, by military tribunals. It has often been laid down that martial law in this sense is unknown to the law of England. A. V. Dicey, for instance, restricts martial law to only another expression for "the common right of the crown and its servants to repel force by force, in the case of invasion, insurrection, or riot, or generally of any violent resistance." But more than this is understood by the term martial law.

When the proposition was laid down that martial law in this sense is unknown to the law of England, it is to be remembered that fortunately in England there never had been a state at all similar to that prevailing in Cape Colony in 1900-1902, and it may perhaps be questioned whether the statement would have been made with such certainty if similar events had been present to the writers' minds.

In the charge delivered by Mr Justice Blackburn in the Jamaica case the law as affecting the general question of martial law is well set out.

"By the laws of this country," said Mr Justice Blackburn, "beginning at Magna Carta and getting more and more established, down to the time of the Revolution, when it was finally and completely established, the general rule was that a subject was not to be tried or punished except by due course of law; all crimes are to be determined by juries subject to the guidance of the judge; that is the general rule, and is established law. But from the earliest times there was this also which was the law, and is the law still, that when there was a foreign invasion or an insurrection, it was the duty of every good subject, in obedience to the officers and magistrates, to resist the rebels, ... in such a case as that of insurrection prevailing so far that the courts of law cannot sit, there must really be anarchy unless there is some power to keep the people in order, ... before that principle the crown claimed the prerogative to exercise summary proceedings by martial law ... in time of war when this disturbance was going on, over others than the army. And further than that, the crown made this further claim against the insurgents, that whilst it existed, pending the insurrection and for a short time afterwards, the crown had ... the power to proclaim martial law in the sense of using summary proceedings, to punish the insurgents and to check and stop the spread of the rebellion by

summary proceedings against the insurgents, so as ... to stamp out the rebellion. Now no doubt the extent to which the crown had power to do that has never been yet decided. Our law has been declared from time to time and has always been a practical science, that is, the judges have decided so much as was necessary for the particular case, and that has become part of the law. But it never has come to be decided what this precise power is."

So far as the United Kingdom is concerned the need has never arisen. It has always been found possible to employ the ordinary courts directly the rebels have been defeated in the field and have been made prisoners or surrendered. "Fortunately in England only three occasions have arisen since the Revolution when the authority of the civil power was for a time, and then only partially, suspended," 1715, 1745 and 1780. Clode, *Military Forces*, ii. 163, says: "Upon the threat of invasion followed by rebellion in 1715, the first action of the government was to issue a proclamation authorizing all officers, civil and military, by force of arms (if necessary) to suppress the rebellion." This, therefore, would only seem to fall within the limited sense in which Dicey understands martial law to be legal, "the right of the crown and its servants to repel force by force." There was no attempt to bring persons before courts-martial who ought to be tried by the common law, and all the extraordinary acts of the crown were sanctioned by parliament. After the rebellion had been suppressed two statutes were passed, one for indemnity and the other for pardon. Before the revolution of 1745 similar action was adopted, a proclamation charging civil magistrates to do their utmost to prevent and suppress all riots, and acts of parliament suspending Habeas Corpus, providing for speedy trials; and of indemnity. In the Gordon Riots of 1780 a very similar course was pursued, and nothing was done which would not fall within Dicey's limitation. No prisoners were tried by martial law.

In Ireland the ordinary law was suspended in 1798-1801 and in 1803. In 1798 an order in Council was issued to all general officers commanding H.M. forces to punish all persons acting in, aiding, or in any way assisting the rebellion, according to *martial law*, either by death or otherwise, as to them should seem expedient for the suppression and punishment of all rebels; but the order was communicated to the Irish houses of parliament, who expressed their approval by addresses to the viceroy. It was during the operation of this order that Wolfe Tone's case arose. Tone, a subject of the king, was captured on board a French man-of-war, and condemned to death by a court-martial. Curran, his counsel, applied to the king's bench at Dublin for a Habeas Corpus, on the grounds that only when war was raging could courts-martial be endured, not while the court of king's bench sat. The court granted his application; but no ultimate decision was ever given, as Tone died before it could be arrived at.

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In 1799 application was made to parliament for express sanction to martial law. The preamble of the act declared that "The Rebellion still continues ... and stopped the ordinary course of justice and of the common law; and that many persons ... who had been taken by H.M. forces ... have availed themselves of such partial restoration of the ordinary course of the common law to evade the punishment of their crimes, whereby it had become necessary for parliament to interfere." The act declared that martial law should prevail and be put in force whether the ordinary courts were or were not open, &c. And nothing in the act could be held to take away, abridge or eliminate the acknowledged prerogative of war, for the public safety to resort to the exercise of martial law against open enemies or traitors, &c.

After the suppression of the rebellion an act of indemnity was passed in 1801.

In 1803 a similar act was passed by the parliament of the United Kingdom as it was after the Act of Union. In introducing it Mr Pitt stated: "The bill is not one to enable the government in Ireland to declare martial law in districts where insurrection exists, for that is a power which His Majesty already possesses—the object will be to enable the lord-lieutenant, when any persons shall be taken in rebellion, to order them to be tried immediately by a court-martial."

During the 19th century martial law was proclaimed by the British government in the following places:—

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| 1. Barbados, 1805-1816. | 6. Cephalonia, 1848. |
| 2. Demerara, 1823. | 7. Cape of Good Hope, 1834; 1849-1851. |
| 3. Jamaica, 1831-1832; 1865. | 8. St Vincent, 1863. |
| 4. Canada, 1837-1838. | 9. South Africa, 1899-1901. |
| 5. Ceylon, 1817 and 1848. | |

The proclamation was always based on the grounds of necessity, and where any local body of a representative character existed it would seem that its assent was given, and an act of indemnity obtained after the suppression of the rebellion. (Jno. S.)



MARTIGNAC, JEAN BAPTISTE SYLVERE GAY, VICOMTE DE (1778-1832), French statesman, was born at Bordeaux on the 20th of June 1778. In 1798 he acted as secretary to Sieyès; then after serving for a while in the army, he turned to literature, producing several light plays. Under the Empire he practised with success as an advocate at Bordeaux, where in 1818 he became advocate-general of the *cour royale*. In 1819 he was appointed *procureur-général* at Limoges, and in 1821 was returned for Marmande to the Chamber of Deputies, where he supported the policy of Villèle. In 1822 he was appointed councillor of state, in 1823 he accompanied the due d'Angoulême to Spain as civil commissary; in 1824 he was created a viscount and appointed director-general of registration. In contact with practical politics his ultra-royalist views were gradually modified in the direction of the Doctrinaires, and on the fall of Villèle he was selected by Charles X. to carry out the new policy of compromise. On the 4th of January 1828 he was appointed minister of the interior, and, though not bearing the title of president, became the virtual head of the cabinet. He succeeded in passing the act abolishing the press censorship, and in persuading the king to sign the ordinances of the 16th of June 1828 on the Jesuits and the little seminaries. He was exposed to attack from both the extreme Left and the extreme Right, and when in April 1829 a coalition of these groups defeated him in the chamber, Charles X., who had never believed in the policy he represented, replaced him by the prince, de Polignac. In March 1830 Martignac voted with the majority for the address protesting against the famous ordinances; but during the revolution that followed he remained true to his legitimist principles. His last public appearance was in defence of Polignac in the Chamber of Peers in December 1830. He died on the 3rd of April 1832.



MARTIGUES, a port of south-eastern France in the department of Bouches-du-Rhône, on the southern shore of the lagoon of Berre, and at the eastern extremity of that of Caronte, by which the former is connected with the Mediterranean. Pop. (1906), 4,178. Martigues is 23 m. W.N.W. of Marseilles by rail. Divided into three quarters by canals, the place has been called the Venice of Provence. It has a harbour (used by coasting and fishing vessels), marine workshops, oil and soap manufactures and cod-drying works. A special industry consists in the preparation of *boutargue* from the roes of the grey mullet caught in the salt lagoons, which rivals Russian caviare.

Built in 1232 by Raymond Bérenger, count of Provence, Martigues was made a viscountship by Joanna I., queen of Naples. Henry IV. made it a principality, in favour of a princess of the house of Luxembourg. It afterwards passed into the hands of the duke of Villars.



MARTIN, ST (c. 316-400), bishop of Tours, was born of heathen parents at Sabaria (Stein am Agger) in Pannonia, about the year 316. When ten years old he became a catechumen, and at fifteen he reluctantly entered the army. While stationed at Amiens he divided his cloak with a beggar, and on the following night had the vision of Christ making known to his angels this act of charity to Himself on the part of "Martinus, still a catechumen." Soon afterwards he received baptism, and two years later, having left the army, he joined Hilary of Poitiers, who wished to make him a deacon, but at his own request ordained him to the humbler office of an exorcist. On a visit home he converted his mother, but his zeal against the Arians roused persecution against him and for some time he lived an ascetic life on the desert island of Gallinaria near Genoa. Between 360 and 370 he was again with Hilary at Poitiers, and founded in the neighbourhood the monasterium locociagense (Licugé). In 371-372 the people of Tours chose him for their bishop. He did much to extirpate idolatry from his diocese and from France, and to extend the monastic system. To obtain privacy for the maintenance of his personal religion, he established the monastery of Marmoutier-les-Tours (Martini monasterium) on the banks of the Loire. At Trèves, in 385, he entreated that the lives of the Priscillianist heretics should be spared, and he ever afterwards refused to hold ecclesiastical fellowship with those bishops who had sanctioned their execution. He died at Candés in the year 400, and is commemorated by the Roman Church on the 11th of November (duplex). He left no writings, the so-called *Confessio* being spurious. He is the patron saint of France and of the cities of Mainz and Würzburg. The *Life* by his disciple Sulpicius Severus is practically the only source for his biography, but it is full of legendary matter and chronological errors. Gregory of Tours gives a list of 206 miracles wrought by him after his death; Sidonius Apollinaris composed a metrical biography of him. The Feast of St Martin (Martinmas) took the place of an old pagan festival, and inherited some of its usages (such as the *Martinsmännchen*, *Martinsfeuer*, *Martinshorn* and the like, in various parts of Germany); by this circumstance is probably to be explained the fact that Martin is regarded as the patron of drinking and jovial meetings, as well as of reformed drunkards.

See A. Dupuy, *Geschichte des heiligen Martins* (Schaffhausen, 1855); J. G. Cazenove in *Dict. chr. biog.* iii. 838.



MARTIN (Martinus), the name of several popes.

MARTIN I. succeeded Theodore I. in June or July 649. He had previously acted as papal apocrisiarius at Constantinople, and was held in high repute for learning and virtue. Almost his first official act was to summon a synod (the first Lateran) for dealing with the Monothelite heresy. It met in the Lateran church, was attended by one hundred and five bishops (chiefly from Italy, Sicily and Sardinia, a few being from Africa and other quarters), held five sessions or "secretarii" from the 5th to the 31st of October 649, and in twenty canons condemned the Monothelite heresy, its authors, and the writings by which it had been promulgated. In this condemnation were included, not only the *Ecthesis* or exposition of faith of the patriarch Sergius for which the emperor Heraclius had stood sponsor, but also the Typus of Paul, the successor of Sergius, which had the support of the reigning emperor (Constans II.). Martin published the decrees of his Lateran synod in an encyclical, and Constans replied by enjoining his exarch to seize the pope and send him prisoner to Constantinople. Martin was arrested in the Lateran (June 15, 653), hurried out of Rome, and conveyed first to Naxos and subsequently to Constantinople (Sept. 17, 654). He was ultimately banished to Cherson, where he arrived on the 26th of March 655, and died on the 16th of September following. His successor was Eugenius I.

(L. D.*)

A full account of the events of his pontificate will be found in Hefele's *Conciliengeschichte*, vol. iii. (1877).

MARTIN II., the name commonly given in error to Marinus I. (*q.v.*).

MARTIN III., see Marinus II.

MARTIN IV. (Simon Mompitié de Brion), pope from the 22nd of February 1281 to the 28th of March 1285, should

have been named Martin II. He was born about 1210 in Touraine. He became a priest at Rouen and canon of St Martin's at Tours, and was made chancellor of France by Louis IX. in 1260 and cardinal-priest of Sta Cecilia by Urban IV. in 1261. As papal legate in France he held several synods for the reformation of the clergy and conducted the negotiations for the assumption of the crown of Sicily by Charles of Anjou. It was through the latter's influence that he succeeded Nicholas III., after a six-months' struggle between the French and Italian cardinals. The Romans at first declined to receive him, and he was consecrated at Orvieto on the 23rd of March 1281. Peaceful and unassuming, he relied completely on Charles of Anjou, and showed little ability as pope. His excommunication of the emperor Michael Palaeologus (Nov. 1281), who stood in the way of the French projects against Greece, weakened the union with the Eastern Christians, dating from the Lyons Council of 1274. He unduly favoured his own countrymen, and for three years after the Sicilian Vespers (Mar. 31, 1282) he employed all the spiritual and material resources at his command on behalf of his patron against Peter of Aragon. He was driven from Rome by a popular uprising and died at Perugia. His successor was Honorius IV.

(C. H. HA.)

His registers have been published in the *Bibliothèque des écoles françaises d'Athènes et de Rome* (Paris, 1901).

See A. Potthast, *Regesta pontif. roman.*, vol. 2 (Berlin, 1875); K. J. von Hefele, *Conciliengeschichte*, Bd. 6, 2nd ed.; F. Gregorovius, *Rome in the Middle Ages*, vol. 5, trans. by Mrs G. W. Hamilton (London, 1900-1902); H. H. Milman, *Latin Christianity*, vol. 6 (London, 1899); W. Norden, *Das Papsttum u. Byzanz* (Berlin, 1903); E. Choullier, "Recherches sur la vie du pape Martin IV.," in *Revue de Champagne*, vol. 4 (1878); *Processo storico dell' insurrezione di Sicilia dell' anno 1282*, ed. by G. di Marzo (Palermo, 1882).

MARTIN V. (Otto Colonna) (1417-1431) was elected at Constance on St Martin's Day, in a conclave composed of twenty-three cardinals and thirty delegates from the five different "nations" of the council. Son of Agapito Colonna, who had himself become a bishop and cardinal, the new pope belonged to one of the greatest Roman families; to Urban VI. had been due his entry, as *referendarius*, upon an ecclesiastical career. Having become a cardinal under Innocent VII., he had seceded from Gregory XII. in 1408, and together with the other cardinals at Pisa, had taken part in the election of Alexander V. and afterwards of John XXIII. At Constance, his rôle had been chiefly that of an arbiter; he was a good and gentle man, leading a simple life, free from intrigue. While refraining from making any pronouncement as to the validity of the decrees of the fourth and fifth sessions, which had seemed to proclaim the superiority of the council over the pope, Martin V. nevertheless soon revealed his personal feelings by having a constitution read in consistory which forbade any appeal from the judgment of the sovereign pontiff in matters of faith (May 10, 1418). As to the reform, of which everybody felt the necessity, the fathers in council had not succeeded in arriving at any agreement. Martin V. himself settled a great number of points, and then passed a series of special concordats with Germany, France, Italy, Spain and England. Though this was not the thorough reform of which need was felt, the council itself gave the pope a *satisfecit*. When the council was dissolved Martin V. made it his task to regain Italy. After staying for long periods at Mantua and Florence, where the deposed pope, Baldassare Cossa (John XXIII.), came and made submission to him, Martin V. was enabled to enter Rome (Sept. 30, 1420) and measure the extent of the ruins left there by the Great Schism of the West. He set to work to restore some of these ruins, to reconstitute and pacify the Papal State, to put an end to the Schism, which showed signs of continuing in Aragon and certain parts of southern France; to enter into negotiations, unfortunately unfruitful, with the Greek Church also with a view to a return to unity, to organize the struggle against heresy in Bohemia; to interpose his pacific mediation between France and England, as well as between the parties which were rending France; and, finally, to welcome and act as patron to saintly reformers like Bernardino of Siena and Francesca Romana, foundress of the nursing sisterhood of the Oblate di Tor de' Specchi (1425).

In accordance with the decree *Frequens*, and the promises which he had made, Martin V., after an interval of five years, summoned a new council, which was almost immediately transferred from Pavia to Siena, in consequence of an epidemic (1423). But the small number of fathers who attended at the latter town, and above all, the disquieting tendencies which began to make themselves felt there, induced the pope to force on a dissolution of the synod. Pending the reunion of the new council which had been summoned at Basel for the end of a period of seven years, Martin V. himself endeavoured to effect a reformation in certain points, but he was carried off by apoplexy (Feb. 20, 1431), just as he had designated the young and brilliant Cardinal Giuliano Cesarini to preside in his place over the council of Basel.

See L. Pastor, *Geschichte der Päpste* (1901), i. 205-279; J. Guiraud, *L'État pontifical après le Grand Schisme* (1896); Müntz, *Les Arts à la cour des papes pendant le xv^e et le xv^e siècle* (1878); N. Valois, *La Crise religieuse du xv^e siècle; le pape et le concile* (1909), vol. i. p. i.-xxix., 1-93.

(N. V.)



MARTIN, BON LOUIS HENRI (1810-1883), French historian, was born on the 20th of February 1810 at St Quentin (Aisne), where his father was a judge. Trained as a notary, he followed this profession for some time but having achieved success with an historical romance, *Wolfthurm* (1830), he applied himself to historical research. Becoming associated with Paul Lacroix ("le Bibliophile Jacob"), he planned with him a history of France, to consist of excerpts from the chief chroniclers and historians, with original matter filling up gaps in the continuity. The first volume, which appeared in 1833, encouraged the author to make the work his own, and his *Histoire de France*, in fifteen volumes (1833-1836), was the result. This *magnum opus*, rewritten and further elaborated (4th ed., 16 vols. and index, 1861-1865) gained for the author in 1856 the first prize of the Academy, and in 1869 the grand biennial prize of 20,000 francs. A popular abridgment in seven volumes was published in 1867. This, together with the continuation, *Histoire de France depuis 1789 jusqu'à nos jours* (6 vols. 1878-1883), gives a complete history of France, and superseded Sismondi's *Histoire des Français*.

This work is in parts defective; Martin's descriptions of the Gauls are based rather on romance than on history, and in this respect he was too much under the influence of Jean Reynaud and his cosmogonic philosophy. However he gave a great impetus to Celtic and anthropological studies. His knowledge of the middle ages is inadequate, and his criticisms are not discriminating. As a free-thinking republican, his prejudices often biassed his judgment on the political and religious history of the *ancien régime*. The last six volumes, devoted to the 17th and 18th centuries, are superior to the earlier ones. Martin sat in the *assemblée nationale* as deputy for Aisne in 1871, and was elected life

senator in 1878, but he left no mark as a politician. He died in Paris on the 14th of December 1883.

Among his minor works may be mentioned:—*De la France, de son génie et de ses destinées* (1847); *Daniel Manin* (1860), *La Russie et l'Europe* (1866); *Études d'archéologie celtique* (1872); *Les Napoléon et les frontières de la France* (1874). See his biography by Gabriel Hanotaux, *Henri Martin; sa vie, ses œuvres, son temps* (1885).



MARTIN, CLAUD (1735-1800), French adventurer and officer in the army of the English East India Company, was born at Lyons on the 4th of January 1735, the son of a cooper. He went out to India in 1751 to serve under Dupleix and Lally in the Carnatic wars. When Pondicherry fell in 1761, he seems, like others of his countrymen, to have accepted service in the Bengal army of the English, obtaining an ensign's commission in 1763, and steadily rising to the rank of major-general. He was employed on the building of the new Fort William at Calcutta, and afterwards on the survey of Bengal under Rennell. In 1776 he was allowed to accept the appointment of superintendent of the arsenal of the nawab of Oudh at Lucknow, retaining his rank but being ultimately placed on half pay. He acquired a large fortune, and on his death (Sept. 13, 1800) he bequeathed his residuary estate to found institutions for the education of European children at Lucknow, Calcutta and Lyons, all known by the name of "La Martinière." That at Lucknow is the best known. It was housed in the palace that he had built called Constantia, which, though damaged during the Mutiny, retains many personal memorials of its founder.

See S. C. Hill, *The Life of Claud Martin* (Calcutta, 1901).



MARTIN, FRANÇOIS XAVIER (1762-1846), American jurist and author, was born in Marseilles, France, on the 17th of March 1762, of Provençal descent. In 1780 he went to Martinique, and before the close of the American war of Independence went to North Carolina, where (in New Bern) he taught French and learnt English, and set up as a printer. He studied law, and was admitted to the North Carolina bar in 1789. He published various legal books, and edited *Acts of the North Carolina Assembly from 1715 to 1803* (2nd ed., 1809). He was a member of the lower house of the General Assembly in 1806-1807. In 1809 he was commissioned a judge of the superior court of the territory of Mississippi, and in March 1810 became judge of the superior court of the territory of Orleans. Here the law was in a chaotic condition, what with French law before O'Reilly's rule, then a Spanish code, and in 1808 the Digest of the Civil Laws, an adaptation by James Brown and Moreau Lislet of the code of Napoleon, which repealed the Spanish fueros, partidas, recopilaciones and laws of the Indies only as they conflicted with its provisions. Martin published in 1811 and 1813 reports of cases decided by the superior court of the territory of Orleans. For two years from February 1813 Martin was attorney-general of the newly established state of Louisiana, and then until March 1846 was a judge and (from 1836 to 1846) presiding judge of the supreme court of the state. For the period until 1830 he published reports of the decisions of the supreme court; and in 1816 he published two volumes, one French and one English, of *A General Digest of the Acts of Legislatures of the Late Territory of Orleans and of the State of Louisiana*. He won the name of the "father of Louisiana jurisprudence" and his work was of great assistance to Edward Livingston, Pierre Derbigny and Moreau Lislet in the Louisiana codification of 1821-1826. Martin's eyesight had begun to fail when he was seventy, and after 1836 he could no longer write opinions with his own hand.¹ He died in New Orleans on the 11th of December 1846.

Martin translated Robert J. Pothier *On Obligations* (1802), and wrote *The History of Louisiana from the Earliest Period* (2 vols. 1827-1829) and *The History of North Carolina* (2 vols., 1829). There is a memoir by Henry A. Bullard in part ii. of B. F. French's *Historical Collections of Louisiana* (Philadelphia, 1850), and one by W. W. Howe in John F. Condon's edition of Martin's *History of Louisiana* (New Orleans, 1882).

¹ His holographic will in favour of his brother (written in 1844 and devising property worth nearly \$400,000) was unsuccessfully contested by the state of Louisiana on the ground that the will was void as being a legal and physical impossibility, or as being an attempted fraud on the state, as under it the state would not receive a 10% tax if the property went to the heirs of Martin (as intestate) in France.



MARTIN, HOMER DODGE (1836-1897), American artist, was born at Albany, New York, on the 28th of October 1836. A pupil for a short time of William Hart, his earlier work followed the lines of the Hudson River School. He was elected as associate of the National Academy of Design, New York, in 1868, and a full academician in 1874. During a trip to Europe in 1876 he was captivated by the Barbizon school, and from 1882 to 1886 he lived in France spending much of the time in Normandy. At Villerville he painted his "Harp of the Winds," now at the Metropolitan Museum of Art, New York. Among his important canvases are "Westchester Hills," "Adirondack Scenery," "The Cinquebœuf Church," "Sand Dunes," and "A Newport Landscape." Martin is generally spoken of as one of the great trio of American landscapists, the other two being Inness and Wyant, and examples of his work are in most of the important American collections. He died at St. Paul, Minnesota, on the 2nd of February 1897.



MARTIN, JOHN (1789-1854), English painter, was born at Haydon Bridge, near Hexham, on the 19th of July 1789. He was apprenticed by his father to a coachbuilder to learn heraldic painting, but owing to a quarrel the indentures were cancelled, and he was placed under Bonifacio Musso, an Italian artist, father of the enamel painter Charles Musso. With his master Martin removed to London in 1806, where he married at the age of nineteen, and supported himself by giving drawing lessons, and by painting in water colours, and on china and glass. His leisure was occupied in the study of perspective and architecture. His first picture, "Sadak in Search of the Waters of Oblivion," was exhibited in the Royal Academy of 1812, and sold for fifty guineas. It was followed by the "Expulsion" (1813), "Paradise" (1813), "Clytie" (1814), and "Joshua" (1815). In 1821 appeared his "Belshazzar's Feast," which excited much favourable and hostile comment, and was awarded a prize of £200 at the British Institution, where the Joshua had previously carried off a premium of £100. Then came the "Destruction of Herculaneum" (1822), the "Creation" (1824), the "Eve of the Deluge" (1841), and a series of other Biblical and imaginative subjects. In 1832-1833 Martin received £2000 for drawing and engraving a fine series of designs to Milton, and with Westall he produced a set of Bible illustrations. He was also occupied with schemes for the improvement of London, and published various pamphlets and plans dealing with the metropolitan water supply, sewage, dock and railway systems. During the last four years of his life he was engaged upon his large subjects of "The Judgment," the "Day of Wrath," and the "Plains of Heaven." He was attacked with paralysis while painting, and died in the Isle of Man on the 17th of February 1854.



MARTIN, LUTHER (1748-1826), American lawyer, was born in New Brunswick, New Jersey, on the 9th of February 1748. He graduated at the college of New Jersey (now Princeton University) at the head of a class of thirty-five in 1766, and immediately afterwards removed to Maryland, teaching at Queenstown in that colony until 1770, and being admitted to the bar in 1771. He practised law for a short time in Virginia, then returned to Maryland, and became recognized as the leader of the Maryland bar and as one of the ablest lawyers in the United States. From 1778 to 1805 he was attorney-general of Maryland; in 1814-1816 he was chief judge of the court of Oyer and Terminer for the city of Baltimore; and in 1818-1822 he was attorney-general of Maryland. He was one of Maryland's representatives in the Continental Congress in 1784-1785 and in the Constitutional Convention of 1787 at Philadelphia, but opposed the constitution and refused to affix his signature. He subsequently allied himself with the Federalists, and was an opponent of Thomas Jefferson, who in 1807 spoke of him as the "Federal Bull-Dog." His ability was shown in his famous defence of Judge Samuel Chase (*q.v.*) in the impeachment trial before the United States Senate in 1804-1805, and in his defence of Aaron Burr (*q.v.*) against the charge of treason in 1807. He has been described by the historian Henry Adams, writing of the Chase trial, as at that time the "most formidable of American advocates." Though he received a large income, he was so improvident that he was frequently in want, and on the 22nd of February 1822 the legislature of Maryland passed a remarkable resolution—the only one of the kind in American history—requiring every lawyer in the state to pay an annual licence fee of five dollars, to be handed over to trustees appointed "for the appropriation of the proceeds raised by virtue of this resolution to the use of Luther Martin." This resolution was rescinded on the 6th of February 1823. Martin died at the home of Aaron Burr in New York on the 10th of July 1826. In 1783 he had married a daughter of the Captain Michael Cresap (1742-1775), who was unjustly charged by Jefferson, in his *Notes on Virginia*, with the murder of the family of the Indian chief, John Logan, and whom Martin defended in a pamphlet long out of print.

See the biographical sketch by Henry P. Goddard, *Luther Martin, the Federal Bull-Dog* (Baltimore, 1887), No. 24 of the "Peabody Fund Publications," of the Maryland Historical Society.



MARTIN, SIR THEODORE (1816-1909), British author and translator, the son of a solicitor, was born at Edinburgh on the 16th of September 1816, and educated at the Royal High School and the University, from which he subsequently received the honorary degree of LL.D. He practised for some time as a solicitor in Edinburgh, but in 1846 went to London, where he became senior partner in the firm of Martin & Leslie, parliamentary agents. He early contributed to *Fraser's Magazine* and *Tait's Magazine*, under the signature of "Bon Gaultier," and in 1856, in conjunction with Professor Aytoun, he published the *Book of Ballads* under the same pseudonym. This work at once obtained popular favour. In 1858 he published a volume of translations of the *Poems and Ballads of Goethe*, and this was followed by a rendering of the Danish poet Henrik Hertz's lyric drama, *King René's Daughter*. The principal character in this drama, Iolanthe, was sustained by Helena Faucit (*q.v.*), who in 1851 became the author's wife. Martin's translations of Öhlschläger's dramas, *Correggio* (1854) and *Aladdin, or the Wonderful Lamp* (1857), widened the fame of the Danish poet in England. In 1860 appeared Martin's metrical translation of the *Odes of Horace*; and in 1870 he wrote a volume on *Horace* for the series of "Ancient Classics for English Readers." In 1882 his Horatian labours were concluded by a translation of the poet's whole works, with a life and notes, in two volumes. A poetical translation of *Catullus* was published in 1861, followed by a privately printed volume of *Poems, Original and Translated*, in 1863. Then came translations of the *Vita Nuova* of Dante, and the first part of Goethe's *Faust*. A metrical translation of the second part of *Faust* appeared in 1866. Martin wrote a memoir of his friend Aytoun in 1867, and while engaged upon this work he was requested by Queen Victoria, to whom he was introduced by his friend Sir Arthur Helps, to undertake the *Life of His Royal Highness the Prince Consort*. The first volume of this well-known work was published in 1874. In 1878 Martin's translation of Heine's *Poems and Ballads* appeared. Two years later the *Life of the Prince Consort* was brought to a successful conclusion by the publication of the fifth volume. A knighthood was then conferred upon him. In the following November he was elected lord rector of the

university of St Andrews. Martin's *Life of Lord Lyndhurst*, based upon papers furnished by the family, was published in 1883. In 1889 appeared *The Song of the Bell, and other Translations from Schiller, Goethe, Uhland, and Others*; in 1804 *Madonna Pia, a Tragedy, and three Other Dramas*; a translation of Leopardi's poems in 1905; and in 1901 he published a biography of his wife. The kindly relations which subsisted between Queen Victoria and Sir Theodore Martin were continued after the completion of the *Life* of the prince consort up to the queen's death. Sir Theodore's account of these relations was privately printed in 1902, and, with King Edward's consent, for general publication in 1908. This little book, *Queen Victoria as I knew her*, throws a good deal of light on the Queen's character and private life. Sir Theodore Martin died on the 18th of August 1909.



MARTIN, WILLIAM (1767-1810), English naturalist, the son of a hosier, was born at Mansfield, Nottinghamshire, in 1767. He studied drawing at an early age from James Bolton at Halifax, and gained from him a taste for the study of natural history. In 1805 he was appointed drawing master in the grammar school at Macclesfield. Meanwhile he cultivated his taste for natural history, and was in 1796 elected a fellow of the Linnaean Society. He is best known for his early works on British fossils, entitled *Petrifaction derbiensia or Figures and Descriptions of Petrifications collected in Derbyshire* (1809); and *Outlines of an Attempt to establish a Knowledge of Extraneous Fossils on Scientific Principles* (1809). He died at Macclesfield on the 31st of May 1810.



MARTIN, SIR WILLIAM FANSHAWE (1801-1895), British admiral, son of Admiral of the Fleet Sir Thomas Byam Martin, comptroller of the navy, and grandson, on the mother's side, of Captain Robert Fanshawe, who commanded the "Namur" 90 in Rodney's victory of the 12th of April 1782, was born on the 5th of December 1801. Entering the navy at the age of twelve, his father's interest secured his rapid promotion: he was made a lieutenant on the 15th of December 1820; on the 8th of February 1823 he was promoted to be commander of the "Fly" sloop, his good service in which in support of the interests of British merchants at Callao secured his promotion as captain on the 5th of June 1824. He afterwards served in the Mediterranean and on the home station. In 1849-1852 he was commodore commanding the Channel squadron, and gave evidence of a remarkable aptitude for command. He was made rear-admiral in May 1853, and for the next four years was superintendent of Portsmouth dockyard. He was made vice-admiral in February 1858, and after a year as a lord of the admiralty, was appointed commander-in-chief in the Mediterranean. The discipline of the navy was then bad. It was a tradition sprung from the wholesale shipment of gaol-birds during the old war, that the men were to be treated without consideration; moreover the ships had been largely filled up with "bounty men" bought into the service with a £10 note without training. Out of this unpromising material Martin formed the fleet which was at that time the ideal of excellence. He had no war service, and, beyond the Italian disturbance of 1860-61, no opportunity for showing diplomatic ability. But his memory lives as that of the reformer of discipline and the originator of a comprehensive system of steam manœuvres. He became an admiral in November 1863, and on the 4th of December succeeded to the baronetcy which had been conferred on his grandfather. His last appointment was the command at Plymouth, 1866-1869, and in 1870 he was put on the retired list. In 1873 the G.C.B. was conferred on him, and in 1878 he was made rear-admiral. He died at Upton Grey, near Winchfield, on the 24th of March 1895. He was twice married, and left, besides daughters, one son, who succeeded to the baronetcy.



MARTIN OF TROPPAU, or **MARTIN THE POLE** (d. 1278), chronicler, was born at Troppau, and entered the order of St Dominic at Prague. Afterwards he went to Rome and became papal chaplain under Clement IV. and other popes. In 1278 Pope Nicholas III. appointed him archbishop of Gnesen, but he died at Bologna whilst proceeding to Poland to take up his new duties. Martin wrote some sermons and some commentaries on the canon law; but more important is his *Chronicon pontificum et imperatorum*, a history of the popes and emperors to 1277. Written at the request of Clement IV. the *Chronicon* is jejune and untrustworthy, and was mainly responsible for the currency of the legend of Pope Joan, and the one about the institution of seven electors by the pope. Nevertheless it enjoyed an extraordinary popularity and found many continuators; but its value to students arises solely from the fact that it was used by numerous chroniclers during the 14th, 15th and 16th centuries. In the 15th century it was translated into French, and as part of the *Chronique martiniane* was often quoted by controversialists. It has also been translated into German, Italian and Bohemian.

The Latin text is printed, with introduction by L. Weiland, in Band XXII. of the *Monumenta Germaniae historica* (Hanover and Berlin, 1826 seq.). See G. Waitz, H. Brosien and others in the *Neues Archiv der Gesellschaft für ältere deutsche Geschichtskunde* (Hanover, 1876 seq.); W. Wattenbach, *Deutschlands Geschichtsquellen*, Band II. (Berlin, 1894); and A. Molinier, *Les Sources de l'histoire de France*, Tome III. (Paris, 1903).



MARTIN¹ (Fr. *Martinet*), the *Hirundo urbica* of Linnaeus and *Chelidon urbica* of modern ornithologists, a bird well known throughout Europe, including even Lapland, where it is abundant, retiring in winter to the south of Africa. It also inhabits the western part of Asia, and appears from time to time in large flocks in India. The martin (or house-martin, as it is often called, to distinguish it from the sand-martin) commonly reaches its summer quarters a few days later than the Swallow (*q.v.*), with which it is often confused in spite of the differences between them, the martin's white rump and lower parts being conspicuous as it flies or clings to its nest attached to houses. This nest, made of the same material as the swallow's, is, however, a more difficult structure to rear, and a week or more is often occupied in laying its foundations—the builders clinging to the wall while depositing the mud of which it is composed. The base once fixed, the superstructure is often quickly added, till the whole takes the shape of the half or quarter of a hemisphere, and is finished with a lining of feathers mixed with a few bents or straws. The martin builds soon after its return, and a nest that has outlasted the winter is almost at once reoccupied. The bird usually in the course of the summer raises a second, or rarely a third, brood of offspring—though the latest broods often die in the nest, apparently through failure of food. What seem to be adults are observed in England every year so late as November, and sometimes within a few days of the winter solstice, but these late birds are almost certainly strangers.

The sand-martin, *Hirundo riparia* of Linnaeus and *Cotile riparia* of modern writers, differs much in appearance and habits from the former. Its smaller size, mouse-coloured upper surface and jerking flight distinguish it from the other British *Hirundinidae*; but it is seldom discriminated, and, being the first of the family to return to its northern home, the so-called "early swallow" is nearly always of this species. Instead of the clay-built nest of the house-martin, this bird bores horizontal galleries in an escarpment. When beginning its excavation, it clings to the face of the bank, and with its bill loosens the earth, working from the centre outwards, and often hanging head downwards. The tunnel may extend to 4, 6, or even 9 ft. The gallery seems intended to be straight, but inequalities of the ground, and especially the meeting with stones, often causes it to take a sinuous course. At the end is formed a nest lined with a few grass-stalks and feathers. The sand-martin has several broods in the year, and is more regular than other *Hirundinidae* in its departure for the south. The kind of soil needed for its nesting habits makes it somewhat local, but no species of the order *Passeres* has a geographical range that can compare with this. In Europe it is found nearly to the North Cape, and thence to the Sea of Okhotsk. In winter it visits many parts of India and South Africa to the Transvaal. In America its range extends (having due regard to the season) from Melville Island to Caiçara in Brazil, and from Newfoundland to Alaska.

The purple martin of America, *Progne purpurea*, is a favourite in Canada and the United States. Naturally breeding in hollow trees, it readily adapts itself to the nest-boxes which are commonly set up for it; but its numbers are in some years and places diminished in a manner unexplained. The limits of its range in winter are not determined, chiefly owing to the differences of opinion as to the validity of certain supposed kindred species found in South America; but according to some authorities it reaches the border of Patagonia, while in summer it is known to inhabit lands within the Arctic Circle. The male is almost wholly of a glossy steel-blue, while the female is duller in colour above, and beneath of a brownish-grey.

Birds that may be called martins occur almost all over the world except in New Zealand, which is not regularly inhabited by any member of the family. The ordinary martin of Australia is the *Petrochelidon nigricans* of most ornithologists, and another and more beautiful form is the ariel or fairy-martin of the same country, *Petrochelidon ariel*. This last builds a bottle-shaped nest of mud, as does also the rock-martin of Europe, *Cotile rupestris*. The eggs of martins are from four to seven in number, and generally white, while those of swallows usually have brown, grey or lilac markings.

(A. N.)

1 The older English form, martlet (French, *Martelet*), is, except in heralds' language, almost obsolete, and when used is now applied in some places to the Swift (*q.v.*). The bird called martin by French colonists in the Old World is a mynah (*Acridotheres*). (See [GRACKLE](#).)



MARTINEAU, HARRIET (1802-1876), English writer, was born at Norwich, where her father was a manufacturer, on the 12th of June 1802. The family was of Huguenot extraction (see [MARTINEAU, JAMES](#)) and professed Unitarian views. The atmosphere of her home was industrious, intellectual and austere; she herself was clever, but weakly and unhappy; she had no sense of taste or smell, and moreover early grew deaf. At the age of fifteen the state of her health and nerves led to a prolonged visit to her father's sister, Mrs Kentish, who kept a school at Bristol. Here, in the companionship of amiable and talented people, her life became happier. Here, also, she fell under the influence of the Unitarian minister, Dr Lant Carpenter, from whose instructions, she says, she derived "an abominable spiritual rigidity and a truly respectable force of conscience strangely mingled together." From 1819 to 1830 she again resided chiefly at Norwich. About her twentieth year her deafness became confirmed. In 1821 she began to write anonymously for the *Monthly Repository*, a Unitarian periodical, and in 1823 she published *Devotional Exercises and Addresses, Prayers and Hymns*.

In 1826 her father died, leaving a bare maintenance to his wife and daughters. His death had been preceded by that of his eldest son, and was shortly followed by that of a man to whom Harriet was engaged. Mrs Martineau and her daughters soon after lost all their means by the failure of the house where their money was placed. Harriet had to earn her living, and, being precluded by deafness from teaching, took up authorship in earnest. Besides reviewing for the *Repository* she wrote stories (afterwards collected as *Traditions of Palestine*), gained in one year (1830) three essay-prizes of the Unitarian Association, and eked out her income by needlework. In 1831 she was seeking a publisher for a series of tales designed as *Illustrations of Political Economy*. After many failures she accepted disadvantageous terms from Charles Fox, to whom she was introduced by his brother, the editor of the *Repository*. The sale of the first of the series was immediate and enormous, the demand increased with each new number, and from that time her literary success was secured. In 1832 she moved to London, where she numbered among her acquaintance Hallam, Milman, Malthus, Monckton Milnes, Sydney Smith, Bulwer, and later Carlyle. Till 1834 she continued to be occupied with her political economy series and with a supplemental series of *Illustrations of*

Taxation. Four stories dealing with the poor-law came out about the same time. These tales, direct, lucid, written without any appearance of effort, and yet practically effective, display the characteristics of their author's style. In 1834, when the series was complete, Miss Martineau paid a long visit to America. Here her open adhesion to the Abolitionist party, then small and very unpopular, gave great offence, which was deepened by the publication, soon after her return, of *Society in America* (1837) and a *Retrospect of Western Travel* (1838). An article in the *Westminster Review*, "The Martyr Age of the United States," introduced English readers to the struggles of the Abolitionists. The American books were followed by a novel, *Deerbrook* (1839)—a story of middle-class country life. To the same period belong a few little handbooks, forming parts of a *Guide to Service*. The veracity of her *Maid of All Work* led to a widespread belief, which she regarded with some complacency, that she had once been a maid of all work herself.

In 1839, during a visit to the Continent, Miss Martineau's health broke down. She retired to solitary lodgings in Tynemouth, and remained an invalid till 1844. Besides a novel, *The Hour and the Man* (1840), *Life in the Sickroom* (1844), and the *Playfellow* (1841), she published a series of tales for children containing some of her most popular work: *Settlers at Home*, *The Peasant and the Prince*, *Feats on the Fiord*, &c. During this illness she for a second time declined a pension on the civil list, fearing to compromise her political independence. Her letter on the subject was published, and some of her friends raised a small annuity for her soon after.

In 1844 Miss Martineau underwent a course of mesmerism, and in a few months was restored to health. She eventually published an account of her case, which had caused much discussion, in sixteen *Letters on Mesmerism*. On her recovery she removed to Ambleside, where she built herself "The Knoll," the house in which the greater part of her after life was spent. In 1845 she published three volumes of *Forest and Game Law Tales*. In 1846 she made a tour with some friends in Egypt, Palestine and Syria, and on her return published *Eastern Life, Present and Past* (1848). This work showed that as humanity passed through one after another of the world's historic religions, the conception of the Deity and of Divine government became at each step more and more abstract and indefinite. The ultimate goal Miss Martineau believed to be philosophic atheism, but this belief she did not expressly declare. She published about this time *Household Education*, expounding the theory that freedom and rationality, rather than command and obedience, are the most effectual instruments of education. Her interest in schemes of instruction led her to start a series of lectures, addressed at first to the school children of Ambleside, but afterwards extended, at their own desire, to their elders. The subjects were sanitary principles and practice, the histories of England and North America, and the scenes of her Eastern travels. At the request of Charles Knight she wrote, in 1849, *The History of the Thirty Years' Peace, 1816-1846*—an excellent popular history written from the point of view of a "philosophical Radical," completed in twelve months.

In 1851 Miss Martineau edited a volume of *Letters on the Laws of Man's Nature and Development*. Its form is that of a correspondence between herself and H. G. Atkinson, and it expounds that doctrine of philosophical atheism to which Miss Martineau in *Eastern Life* had depicted the course of human belief as tending. The existence of a first cause is not denied, but is declared unknowable, and the authors, while regarded by others as denying it, certainly considered themselves to be affirming the doctrine of man's moral obligation. Atkinson was a zealous exponent of mesmerism, and the prominence given to the topics of mesmerism and clairvoyance heightened the general disapprobation of the book, which caused a lasting division between Miss Martineau and some of her friends.

She published a condensed English version of the *Philosophie Positive* (1853). To the *Daily News* she contributed regularly from 1852 to 1866. Her *Letters from Ireland*, written during a visit to that country in the summer of 1852, appeared in that paper. She was for many years a contributor to the *Westminster Review*, and was one of the little band of supporters whose pecuniary assistance in 1854 prevented its extinction or forced sale. In the early part of 1855 Miss Martineau found herself suffering from heart disease. She now began to write her autobiography, but her life, which she supposed to be so near its close, was prolonged for twenty years. She died at "The Knoll" on the 27th of June 1876.

She cultivated a tiny farm at Ambleside with success, and her poorer neighbours owed much to her. Her busy life bears the consistent impress of two leading characteristics—industry and sincerity. The verdict which she records on herself in the autobiographical sketch left to be published by the *Daily News* has been endorsed by posterity. She says—"Her original power was nothing more than was due to earnestness and intellectual clearness within a certain range. With small imaginative and suggestive powers, and therefore nothing approaching to genius, she could see clearly what she did see, and give a clear expression to what she had to say. In short, she could popularize while she could neither discover nor invent." Her judgment on large questions was clear and sound, and was always the judgment of a mind naturally progressive and Protestant.

See her *Autobiography, with Memorials by Maria Weston Chapman* (1877) and Mrs. Fenwick Miller, *Harriet Martineau* (1884, "Eminent Women Series").



MARTINEAU, JAMES (1805-1900), English philosopher and divine, was born at Norwich on the 21st of April 1805, the seventh child of Thomas Martineau and Elizabeth Rankin, the sixth, his senior by almost three years, being his sister Harriet (see above). He was descended from Gaston Martineau, a Huguenot surgeon and refugee, who married in 1693 Marie Pierre, and settled soon afterwards in Norwich. His son and grandson—respectively the great-grandfather and grandfather of James Martineau—were surgeons in the same city, while his father was a manufacturer and merchant. James was educated at Norwich Grammar School under Edward Valpy, as good a scholar as his better-known brother Richard. But the boy proving too sensitive for the life of a public day school, was sent to Bristol to the private academy of Dr Lant Carpenter, under whom he studied for two years. On leaving he was apprenticed to a civil engineer at Derby, where he acquired "a store of exclusively scientific conceptions,"¹ but also experienced the hunger of mind which forced him to look to religion for satisfaction. Hence came his "conversion," and the sense of vocation for the ministry which impelled him in 1822 to enter Manchester College, then lodged at York. Here he "woke up to the interest of moral and metaphysical speculations." Of his teachers, one, the Rev. Charles Wellbeloved, was, Martineau said, "a master of the true Lardner type, candid and catholic, simple and thorough, humanly fond indeed of the counsels of peace, but piously serving every bidding of sacred truth." "He never justified a prejudice; he never misdirected our admiration; he never hurt an innocent feeling or overbore a

serious judgment; and he set up within us a standard of Christian scholarship to which it must ever exalt us to aspire."² The other, the Rev. John Kenrick, he described as a man so learned as to be placed by Dean Stanley "in the same line with Blomfield and Thirlwall,"³ and as "so far above the level of either vanity or dogmatism, that cynicism itself could not think of them in his presence."⁴

On leaving the college in 1827 Martineau returned to Bristol to teach in the school of Lant Carpenter; but in the following year he was ordained for a Unitarian church in Dublin, whose senior minister was a relative of his own. But his career there was in 1832 suddenly cut short by difficulties growing out of the "regium donum," which had on the death of the senior minister fallen to him. He conceived it as "a religious monopoly" to which "the nation at large contributes," while "Presbyterians alone receive," and which placed him in "a relation to the state" so "seriously objectionable" as to be "impossible to hold."⁵ The invidious distinction it drew between Presbyterians on the one hand, and Catholics, Friends, free-thinking Christians, unbelievers and Jews on the other, who were compelled to support a ministry they "conscientiously disapproved," offended his always delicate conscience; while possibly the intellectual and ecclesiastical atmosphere of the city proved uncongenial to his liberal magnanimity. From Dublin he was called to Liverpool, and there for a quarter of a century he exercised extraordinary influence as a preacher, and achieved a high reputation as a writer in religious philosophy. In 1840 he was appointed professor of mental and moral philosophy and political economy in Manchester New College, the seminary in which he had himself been educated, and which had now removed from York to the city after which it was named. This position he held for forty-five years. In 1853 the college removed to London, and four years later he followed it thither. In 1858 he was called to occupy the pulpit of Little Portland Street chapel in London, which he did at first for two years in conjunction with the Rev. J. J. Tayler, who was also his colleague in the college, and then for twelve years alone. In 1866 the chair of the philosophy of mind and logic in University College, London, fell vacant, and Martineau became a candidate. But potent opposition was offered to the appointment of a minister of religion, and the chair went to George Croom Robertson—then an untried man—between whom and Martineau a cordial friendship came to exist. In 1885 he retired, full of years and honours, from the principalship of the college he had so long served and adorned. Martineau, who was in his youth denied the benefit of a university education, yet in his age found famous universities eager to confer upon him their highest distinctions. He was made LL.D. of Harvard in 1872, S.T.D. of Leiden in 1874, D.D. of Edinburgh in 1884, D.C.L. of Oxford in 1888 and D.Litt. of Dublin in 1891. He died in London on the 11th of January 1900.

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The life of Martineau was so essentially the life of the thinker, and was so typical of the century in which he lived and the society within which he moved, that he can be better understood through his spoken mind than through his outward history. He was a man happy in his ancestry; he inherited the dignity, the reserve, the keen and vivid intellect, and the picturesque imagination of the French Huguenot, though they came to him chastened and purified by generations of Puritan discipline exercised under the gravest ecclesiastical disabilities, and of culture maintained in the face of exclusion from academic privileges. He had the sweet and patient temper which knew how to live, unrepining and unsoured, in the midst of the most watchful persecution, public and private; and it is wonderful how rarely he used his splendid rhetoric for the purposes of invective against the spirit and policy from which he must have suffered deeply, while, it may be added, he never hid an innuendo under a metaphor or a trope. He was fundamentally too much a man of strong convictions to be correctly described as open-minded, for if nature ever determined any man's faith, it was his; the root of his whole intellectual life, which was too deep to be disturbed by any superficial change in his philosophy, being the feeling for God. He has, indeed, described in graphic terms the greatest of the more superficial changes he underwent; how he had "carried into logical and ethical problems the maxims and postulates of physical knowledge," and had moved within the narrow lines drawn by the philosophical instructions of the class-room "interpreting human phenomena by the analogy of external nature"; how he served in willing captivity "the 'empirical' and 'necessarian' mode of thought," even though "shocked" by the dogmatism and acrid humours "of certain distinguished representatives";⁶ and how in a period of "second education" at Berlin, "mainly under the admirable guidance of Professor Trendelenburg," he experienced "a new intellectual birth" which "was essentially the gift of fresh conceptions, the unsealing of hidden openings of self-consciousness, with unmeasured corridors and sacred halls behind; and, once gained, was more or less available throughout the history of philosophy, and lifted the darkness from the pages of Kant and even Hegel."⁷ But though this momentous change of view illuminated his old beliefs and helped him to re-interpret and re-articulate them, yet it made him no more of a theist than he had been before. And as his theism was, so was his religion and his philosophy. Certainly it was true of him, in a far higher degree than of John Henry Newman, that the being of God and himself were to his mind two absolutely self-luminous truths—though both his God and his self were almost infinitely remote from Newman's. And as these truths were self-evident, so the religion he deduced from them was sufficient, not only for his own moral and intellectual nature, but also for man as he conceived him, for history as he knew it, and for society as he saw it.

We may, alternatively, describe Martineau's religion as his applied philosophy or his philosophy as his explicated religion, and both as the expression of his singularly fine ethical and reverent nature. But to understand these in their mutual and explanatory relations it will be necessary to exhibit the conditions under which his thought grew into consistency and system. His main function made him in his early life a preacher even more emphatically than a teacher. In all he said and all he thought he had the preacher's end in view. He was, indeed, no mere orator or speaker to multitudes. He addressed a comparatively small and select circle, a congregation of thoughtful and devout men, who cultivated reverence and loved religion all the more that their own beliefs were limited to the simplest and sublimest truths. He felt the majesty of these truths to be the greater that they so represented to him not only the most fundamental of human beliefs, but also all that man could be reasonably expected to believe, though to believe with his whole reason. Hence the beliefs he preached were never to him mere speculative ideas, but rather the ultimate realities of being and thought, the final truths as to the character and ways of God interpreted into a law for the government of conscience and the regulation of life. And so he became a positive religious teacher by virtue of the very ideas that made the words of the Hebrew prophets so potent and sublime. But he did more than interpret to his age the significance of man's ultimate theistic beliefs, he gave them vitality by reading them through the consciousness of Jesus Christ. His religion was what he conceived the personal religion of Jesus to have been; and He was to him more a person to be imitated than an authority to be obeyed, rather an ideal to be revered than a being to be worshipped.

Martineau's mental qualities fitted him to fulfil these high interpretative functions. He had the imagination that invested with personal being and ethical qualities the most abstruse notions. To him space became a mode of divine activity, alive with the presence and illuminated by the vision of God; time was an arena where the divine hand guided and the divine will reigned. And though he did not believe in the Incarnation, yet he held deity to be in a sense manifest in humanity; its saints and heroes became, in spite of innumerable frailties, after a sort divine; man underwent an apotheosis, and all life was touched with the dignity and the grace which it owed to its source. The 19th century had no more reverent thinker than Martineau; the awe of the Eternal was the very atmosphere that he breathed, and he looked at man with the compassion of one whose thoughts were full of God.

To his function as a preacher we owe some of his most characteristic and stimulating works, especially the discourses by which it may be said he won his way to wide and influential recognition—*Endeavours after the Christian Life*, 1st series, 1843; 2nd series, 1847; *Hours of Thought*, 1st series, 1876; 2nd series, 1879; the various hymn-books he issued at Dublin in 1831, at Liverpool in 1840, in London in 1873; and the *Home Prayers* in 1891. But besides the vocation he had freely selected and assiduously laboured to fulfil, two more external influences helped to shape Martineau's mind and define his problem and his work; the awakening of English thought to the problems which underlie both philosophy and religion, and the new and higher opportunities offered for their discussion in the periodical press. The questions which lived in the earlier and more formative period of his life concerned mainly the idea of the church, the historical interpretation of the documents which described the persons who had created the Christian religion, especially the person and work of its founder; but those most alive in his later and maturer time chiefly related to the philosophy of religion and ethics. In one respect Martineau was singularly happy; he just escaped the active and, on the whole, belittling period of the old Unitarian controversy. When his ministry began its fires were slowly dying down, though the embers still glowed. We feel its presence in his earliest notable work, *The Rationale of Religious Enquiry*, 1836; and may there see the rigour with which it applied audacious logic to narrow premisses, the tenacity with which it clung to a limited literal supernaturalism which it had no philosophy to justify, and so could not believe without historical and verbal authority. This traditional conservatism survived in the statement, which, while it caused vehement discussion when the book appeared, was yet not so much characteristic of the man as of the school in which he had been trained, that "in no intelligible sense can any one who denies the supernatural origin of the religion of Christ be termed a Christian," which term, he explained, was used not as "a name of praise," but simply as "a designation of belief."⁸ He censured the German rationalists "for having preferred, by convulsive efforts of interpretation, to compress the memoirs of Christ and His apostles into the dimensions of ordinary life, rather than admit the operation of miracle on the one hand, or proclaim their abandonment of Christianity on the other."⁹ The echoes of the dying controversy are thus distinct and not very distant in this book, though it also offers in its larger outlook, in the author's evident uneasiness under the burden of inherited beliefs, and his inability to reconcile them with his new standpoint and accepted principles, a curious forecast of his later development, while in its positive premisses it presents a still more instructive contrast to the conclusions of his later dialectic. Nor did the sound of the ancient controversy ever cease to be audible to him. In 1839 he sprang to the defence of Unitarian doctrine, which had been assailed by certain Liverpool clergymen, of whom Fielding Ould was the most active and Hugh McNeill the most famous. As his share in the controversy, Martineau published five discourses, in which he discussed "the Bible as the great autobiography of human nature from its infancy to its perfection," "the Deity of Christ," "Vicarious Redemption," "Evil," and "Christianity without Priest and without Ritual."¹⁰ He remained to the end a keen and vigilant apologist of the school in which he had been nursed. But the questions proper to the new day came swiftly upon his quick and susceptible mind—enlarged, deepened and developed it. Within his own fold new light was breaking. To W. E. Channing (*q. v.*), whom Martineau had called "the inspirer of his youth," Theodore Parker had succeeded, introducing more radical ideas as to religion and a more drastic criticism of sacred history. Blanco White, "the rationalist A' Kempis," who had dared to appear as "a religious sceptic in God's presence," had found a biographer and interpreter in Martineau's friend and colleague, John Hamilton Thom. Within the English Church men with whom he had both personal and religious sympathy rose—Whately, of whom he said, "We know no living writer who has proved so little and disproved so much";¹¹ and Thomas Arnold, "a man who could be a hero without romance";¹² F. D. Maurice, whose character, marked by "religious realism," sought in the past "the witness to eternal truths, the manifestation by time-samples of infinite realities and unchanging relations";¹³ and Charles Kingsley, "a great teacher," though one "certain to go astray the moment he becomes didactic."¹⁴ Beside these may be placed men like E. B. Pusey and J. H. Newman, whose mind Martineau said was "critical, not prophetic, since without immediateness of religious vision," and whose faith is "an escape from an alternative scepticism, which receives the *veto* not of his reason but of his will,"¹⁵ as men for whose teachings and methods he had a potent and stimulating antipathy. The philosophic principles and religious deductions of Dean Mansel he disliked as much as those of Newman, but he respected his arguments more. Apart from the Churches, men like Carlyle and Matthew Arnold—with whom he had much in common—influenced him; while Herbert Spencer in England and Comte in France afforded the antithesis needful to the dialectical development of his own views. He came to know German philosophy and criticism, especially the criticism of Baur and the Tübingen school, which affected profoundly his construction of Christian history. And these were strengthened by French influences, notably those of Renan and the Strassburg theologians. The rise of evolution, and the new scientific way of looking at nature and her creative methods, compelled him to rethink and reformulate his theistic principles and conclusions, especially as to the forms under which the relation of God to the world and His action within it could be conceived. Under the impulses which came from these various sides Martineau's mind lived and moved, and as they successively rose he promptly, by appreciation or criticism, responded to the dialectical issues which they raised.

In the discussion of these questions the periodical press supplied him with the opportunity of taking an effective part. At first his literary activity was limited to sectional publications, and he addressed his public, now as editor and now as leading contributor, in the *Monthly Repository*, the *Christian Reformer*, the *Prospective*, the *Westminster* and the *National Review*. Later, especially when scientific speculation had made the theistic problem urgent, he was a frequent contributor to the literary monthlies. And when in 1890 he began to gather together the miscellaneous essays and papers written during a period of sixty years, he expressed the hope that, though "they could lay no claim to logical consistency," they might yet show "beneath the varying complexion of their thought some intelligible moral continuity," "leading in the end to a view of life more coherent and less defective than was presented at the beginning."¹⁶ And though it is a proud as well as a modest hope, no one could call it unjustified. For his essays are fine examples of permanent literature appearing in an ephemeral medium, and represent work which has solid worth for later thought as well as for the speculation of their own time. There is hardly a name or a movement in the religious history of the century which he did not touch and illuminate. It was in this form that he criticized the "atheistic mesmerism" to which his sister Harriet had committed herself, and she never forgave his criticism. But his course was always singularly independent, and, though one of the most affectionate and most sensitive of men, yet it was his fortune to be so fastidious in thought and so conscientious in judgment as often to give offence or create alarm in those he deeply respected or tenderly loved.

The theological and philosophical discussions which thus appeared he later described as "the tentatives which gradually prepared the way for the more systematic expositions of the *Types of Ethical Theory* and *The Study of Religion*, and, in some measure, of *The Seat of Authority in Religion*."¹⁷ These books expressed his mature thought, and may be said to contain, in what he conceived as a final form, the speculative achievements of his life. They appeared respectively in 1885, 1888 and 1890, and were without doubt remarkable feats to be performed by a man who had passed his eightieth year. Their literary and speculative qualities are indeed exceptionally brilliant; they are splendid in diction, elaborate in argument, cogent yet reverent, keen while fearless in criticism. But they have also most obvious defects: they are unquestionably the books of an old man who had thought much as well as spoken and written often on the themes he discusses, yet who had finally put his material together in haste at a time when his mind had lost, if not its dialectic vigour, yet its freshness and its sense of proportion; and who had been so

accustomed to amplify the single stages of his argument that he had forgotten how much they needed to be reduced to scale and to be built into an organic whole. In the first of these books his nomenclature is unfortunate; his division of ethical theories into the "unpsychological," "idiopsychological," and the "hetero-psychological," is incapable of historical justification; his exposition of single ethical systems is, though always interesting and suggestive, often arbitrary and inadequate, being governed by dialectical exigencies rather than historical order and perspective. In the second of the above books his idea of religion is somewhat of an anachronism; as he himself confessed, he "used the word in the sense which it invariably bore half a century ago," as denoting "belief in an ever-living God, a divine mind and will ruling the universe and holding moral relations with mankind." As thus used, it was a term which governed the problems of speculative theism rather than those connected with the historical origin, the evolution and the organization of religion. And these are the questions which are now to the front. These criticisms mean that his most elaborate discussions came forty years too late, for they were concerned with problems which agitated the middle rather than the end of the 19th century. But if we pass from this criticism of form to the actual contents of the two books, we are bound to confess that they constitute a wonderfully cogent and persuasive theistic argument. That argument may be described as a criticism of man and his world used as a basis for the construction of a reasoned idea of nature and being. Man and nature, thought and being, fitted each other. What was implicit in nature had become explicit in man; the problem of the individual was one with the problem of universal experience. The interpretation of man was therefore the interpretation of his universe. Emphasis was made to fall on the reason, the conscience and the will of the finite personality; and just as these were found to be native in him they were held to be immanent in the cause of his universe. What lived in time belonged to eternity; the microcosm was the epitome of the macrocosm; the reason which reigned in man interpreted the law that was revealed in conscience and the power which governed human destiny, while the freedom which man realized was the direct negation both of necessity and of the operation of any fortuitous cause in the cosmos.

It was not possible, however, that the theistic idea could be discussed in relation to nature only. It was necessary that it should be applied to history and to the forces and personalities active within it. And of these the greatest was of course the Person that had created the Christian religion. What did Jesus signify? What authority belonged to Him and to the books that contain His history and interpret His person? This was the problem which Martineau attempted to deal with in *The Seat of Authority in Religion*. The workmanship of the book is unequal: historical and literary criticism had never been Martineau's strongest point, although he had almost continuously maintained an amount of New Testament study, as his note-books show. In its speculative parts the book is quite equal to those that had gone before, but in its literary and historical parts there are indications of a mind in which a long-practised logic had become a rooted habit. While a comparison of his expositions of the Pauline and Johannine Christologies with the earlier Unitarian exegesis in which he had been trained shows how wide is the interval, the work does not represent a mind that had throughout its history lived and worked in the delicate and judicial investigations he here tried to conduct.

Martineau's theory of the religious society or church was that of an idealist rather than of a statesman or practical politician. He stood equally remote from the old Voluntary principle, that "the State had nothing to do with religion," and from the sacerdotal position that the clergy stood in an apostolic succession, and either constituted the Church or were the persons into whose hands its guidance had been committed. He hated two things intensely, a sacrosanct priesthood and an enforced uniformity. He may be said to have believed in the sanity and sanctity of the state rather than of the Church. Statesmen he could trust as he would not trust ecclesiastics. And so he even propounded a scheme, which fell still-born, that would have repealed uniformity, taken the church out of the hands of a clerical order, and allowed the coordination of sects or churches under the state. Not that he would have allowed the state to touch doctrine, to determine polity or discipline; but he would have had it to recognize historical achievement, religious character and capacity, and endow out of its ample resources those societies which had vindicated their right to be regarded as making for religion. His ideal may have been academic, but it was the dream of a mind that thought nobly both of religion and of the state.

See *Life and Letters* by J. Drummond and C. B. Upton (2 vols., 1901); J. E. Carpenter, *James Martineau, Theologian and Teacher* (1905); J. Crawford, *Recollections of James Martineau* (1903); A. W. Jackson, *James Martineau, a Biography and a Study* (Boston, 1900); H. Sidgwick, *Lectures on the Ethics of Green, Spencer and Martineau* (1902); and J. Hunt, *Religious Thought in England in the 19th Century*.

(A. M. F.)

- 1 *Types of Ethical Theory*, i. 8.
- 2 *Essays, Reviews and Addresses*, iv. 54.
- 3 *Ibid.* i. 397.
- 4 *Essays, Reviews and Addresses*, i. 419.
- 5 Martineau's "Letter to the Dissenting Congregation of Eustace Street" (Dublin).
- 6 *Types of Ethical Theory*, i. pp. vii.-ix.
- 7 *Ibid.* p. xiii.
- 8 *Rationale*, 2nd ed., pref., p. vii.
- 9 *Ibid.* p. 133.
- 10 They stand as Lectures ii., v., vi., xi., xii. in the volume *Unitarianism Defended*, 1839.
- 11 *Essays, Reviews and Addresses*, ii. 10.
- 12 *Ibid.* i. 46.
- 13 *Ibid.* i. 258, 262.
- 14 *Ibid.* ii. 285.
- 15 *Ibid.* i. 233.
- 16 *Essays, Reviews and Addresses*, i., iii.
- 17 *Ibid.* iii., pref., p. vi.



MARTINET, a military term (more generally used in a disparaging than in a complimentary sense) implying a strict disciplinarian or drill-master. The term originated in the French army about the middle of Louis XIV.'s reign, and was derived from Jean Martinet (d. 1672), who as lieutenant-colonel of the King's regiment of foot and inspector-general of infantry drilled and trained that arm in the model regular army created by Louis and Louvois between 1660 and 1670. Martinet seems also to have introduced the copper pontoons with which Louis bridged the Rhine in 1672. He was killed, as a *maréchal de camp*, at the siege of Duisburg in the same year, being accidentally shot by his own artillery while leading the infantry assault. His death, and that of the Swiss captain Soury by the same discharge gave rise to a *bon mot*, typical of the polite ingratitude of the age, that Duisburg had only cost the king a martin and a mouse. The "martin" as a matter of fact shares with Vauban and other professional soldiers of Louis XIV. the glory of having made the French army the first and best regular army in Europe. Great nobles, such as Turenne, Condé and Luxemburg, led this army and inspired it, but their fame has obscured that of the men who made it manageable and efficient. It was about this time that the soldier of fortune, who joined a regiment with his own arms and equipment and had learned his trade by varied experience, began to give place to the soldier regularly enlisted as a recruit in permanent regiments and trained by his own officers. The consequence of this was the introduction of a uniform, or nearly uniform system of drill and training, which in all essentials has endured to the present day. Thus Martinet was the forerunner of Leopold of Dessau and Frederick William, just as Jean Jacques de Fourilles, the organizer of the cavalry, who was forced into an untimely charge at Seneffe (1674) by a brutal taunt of Condé, and there met his death, was the forerunner of Zieten and Seydlitz. These men, while differing from the creators of the Prussian army in that they contributed nothing to the tactics of their arms, at least made tactics possible by the thorough drilling and organization they imparted to the formerly heterogeneous and hardly coherent elements of an army.



MARTÍNEZ DE LA ROSA, FRANCISCO DE PAULA (1789-1862), Spanish statesman and dramatist, was born on the 10th of March 1789 at Granada, and educated at the university there. He won popularity with a series of epigrams on local celebrities published under the title of *El Cementerio de momo*. During the struggle against Napoleon he took the patriotic side, was elected deputy, and at Cadiz produced his first play, *Lo que puede un empleo*, a prose comedy in the manner of the younger Moratin. *La Viuda de Padilla* (1814), a tragedy modelled upon Alfieri, was less acceptable to the Spanish public. Meanwhile the author became more and more engulfed in politics, and in 1814 was banished to Africa, where he remained till 1820, when he was suddenly recalled and appointed prime minister. During the next three years he was the most unpopular man in Spain; denounced as a revolutionist by the Conservatives and as a reactionary by the Liberals, he alienated the sympathies of all parties, and his rhetoric earned for him the contemptuous nickname of *Rosita la Pastelera*. Exiled in 1823, he took refuge in Paris, where he issued his *Obras literarias* (1827), including his *Arte poética*, in which he exaggerated the literary theories already promulgated by Luzán. Returning to Spain in 1831, he became prime minister on the death of Ferdinand VII., but proved incapable of coping with the insurrectionary movement and resigned in 1834. He was ambassador at Paris in 1839-1840 and at Rome in 1842-1843, joined the Conservative party, held many important offices, and was president of congress and director of the Spanish academy at the time of his death, which took place at Madrid on the 7th of February 1862. As a statesman, Martínez de la Rosa never rose above mediocrity. It was his misfortune to be in place without real power, to struggle against a turbulent pseudo-democratic movement promoted by unscrupulous soldiers, and to contend with the intrigues of the king, the court camarilla and the clergy. But circumstances which hampered him in politics favoured his career in literature. He was not a great natural force; his early plays and poems are influenced by Moratin or by Meléndez Valdés; his *Espíritu del siglo* (1835) is an elegant summary of all the commonplaces concerning the philosophy of history; his *Doña Isabel de Solís* (1837-1846) is a weak imitation of Walter Scott's historical novels. Still his place in the history of Spanish literature is secure, if not eminent. Through the happy accident of his exile at Paris he was thrown into relations with the leaders of the French romantic movement, and was so far impressed with the innovations of the new school as to write in French a romantic piece entitled *Aben-Humeya* (1830), which was played at the Porte Saint-Martin. The experiment was not unsuccessful, and on his return to Madrid Martínez de la Rosa produced *La Conjuración de Venecia* (April 23, 1834), which entitles him to be called the pioneer of the romantic drama in Spain. The play is more reminiscent of Casimir Delavigne than of Victor Hugo; but it was unquestionably effective, and smoothed the way for the bolder essays of Rivas, Garcia Gutiérrez and Hartzzenbusch.



MARTINI, GIOVANNI BATTISTA (1706-1784), Italian musician, was born at Bologna on the 24th of April 1706. His father, Antonio Maria Martini, a violinist, taught him the elements of music and the violin; later he learned singing and harpsichord playing from Padre Pradieri, and counterpoint from Antonio Ricciari. Having received his education in classics from the fathers of the oratory of San Filippo Neri, he afterwards entered upon a novitiate at the Franciscan monastery at Lago, at the close of which he was received as a Minorite on the 11th of September 1722. In 1725, though only nineteen years old, he received the appointment of chapel-master in the Franciscan church at Bologna, where his compositions attracted attention. At the invitation of amateurs and professional friends he opened a school of composition at which several celebrated musicians were trained; as a teacher he consistently declared his preference for the traditions of the old Roman school of composition. Padre Martini was a zealous collector of musical literature, and possessed an extensive musical library. Burney estimated it at 17,000 volumes; after Martini's death a portion of it passed to the Imperial library at Vienna, the rest remaining in Bologna, now in the Liceo Rossini. Most contemporary musicians speak of Martini with admiration, and Mozart's father consulted him with regard to the talents of his son. Abt Vogler, however, makes reservations in his praise, condemning his philosophical principles as too much in sympathy with those of Fox, which had already been

expressed by P. Vallotti. He died at Bologna on the 4th of August 1784. His *Elogio* was published by Pietro della Valle at Bologna in the same year.

The greater number of Martini's sacred compositions remain unprinted. The Liceo of Bologna possesses the MSS. of two oratorios; and a requiem, with some other pieces of church music, are now in Vienna. *Litaniae atque antiphonae finales B. V. Mariae* were published at Bologna in 1734, as also twelve *Sonate d'intavolatura*; six *Sonate per l'organo ed il cembalo* in 1747; and *Duetti da camera* in 1763. Martini's most important works are his *Storia della musica* (Bologna, 1757-1781) and his *Saggio di contrapunto* (Bologna, 1774-1775). The former, of which the three published volumes relate wholly to ancient music, and thus represent a mere fragment of the author's vast plan, exhibits immense reading and industry, but is written in a dry and unattractive style, and is overloaded with matter which cannot be regarded as historical. At the beginning and end of each chapter occur puzzle-canon, wherein the primary part or parts alone are given, and the reader has to discover the canon that fixes the period and the interval at which the response is to enter. Some of these are exceedingly difficult, but Cherubini solved the whole of them. The *Saggio* is a learned and valuable work, containing an important collection of examples from the best masters of the old Italian and Spanish schools, with excellent explanatory notes. It treats chiefly of the tonalities of the plain chant, and of counterpoints constructed upon them. Besides being the author of several controversial works, Martini drew up a *Dictionary of Ancient Musical Terms*, which appeared in the second volume of G. B. Doni's *Works*; he also published a treatise on *The Theory of Numbers as applied to Music*. His celebrated canons, published in London, about 1800, edited by Pio Cianchettini, show him to have had a strong sense of musical humour.

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MARTINI, SIMONE (1283-1344), Sienese painter, called also Simone di Martino, and more commonly, but not correctly, Simon Memmi,¹ was born in 1283. He followed the manner of painting proper to his native Siena, as improved by Duccio, which is essentially different from the style of Giotto and his school, and the idea that Simone was himself a pupil of Giotto is therefore wide of the mark. The Sienese style is less natural, dignified and reserved than the Florentine; it has less unity of impression, has more tendency to pietism, and is marked by exaggerations which are partly related to the obsolescent Byzantine manner, and partly seem to forebode certain peculiarities of the fully developed art which we find prevalent in Michelangelo. Simone, in especial, tended to an excessive and rather affected tenderness in his female figures; he was more successful in single figures and in portraits than in large compositions of incident. He finished with scrupulous minuteness, and was elaborate in decorations of patterning, gilding, &c.

The first known fresco of Simone is the vast one which he executed in the hall of the Palazzo Pubblico in Siena—the “Madonna Enthroned, with the Infant,” and a number of angels and saints; its date is 1315, at which period he was already an artist of repute throughout Italy. In S. Lorenzo Maggiore of Naples he painted a life-sized picture of King Robert crowned by his brother Lewis, bishop of Toulouse; this also is extant, but much damaged. In 1320 he painted for the high altar of the church of S. Caterina in Pisa the Virgin and Child between six saints; above are archangels, apostles and other figures. The compartmented portions of this work are now dispersed, some of them being in the academy of Siena. Towards 1321 he executed for the church of S. Domenico in Orvieto a picture of the bishop of Savona kneeling before the Madonna attended by saints, now in the Fabriceria of the cathedral. Certain frescoes in Assisi in the chapel of San Martino, representing the life of that saint, ascribed by Vasari to Puccio Capanna, are now, upon internal evidence, assigned to Simone. He painted also, in the south transept of the lower church of the same edifice, figures of the Virgin and eight saints. In 1328 he produced for the sala del consilio in Siena a striking equestrian portrait of the victorious general Guidoriccio Fogliani de' Ricci.

Simone had married in 1324 Giovanna, the daughter of Memmo (Guglielmo) di Filippuccio. Her brother, named Lippo Memmi, was also a painter, and was frequently associated with Simone in his work; and this is the only reason why Simone has come down to us with the family-name Memmi. They painted together in 1333 the “Annunciation” which is now in the Uffizi gallery. Simone kept a bottega (or shop), undertaking any ornamental work, and his gains were large. In 1339 he settled at the papal court in Avignon, where he made the acquaintance of Petrarch and Laura; and he painted for the poet a portrait of his lady, which gave occasion for two of Petrarch's sonnets, in which Simone is eulogized. He also illuminated for the poet a copy of the commentary of Servius upon Virgil, now preserved in the Ambrosian library of Milan. He was largely employed in the decorations of the papal buildings in Avignon, and several of his works still remain—in the cathedral, in the hall of the consistory, and, in the two chapels of the palace, the stories of the Baptist, and of Stephen and other saints. One of his latest productions (1342) is the picture of “Christ Found by his Parents in the Temple,” now in the Liverpool Gallery. Simone died in Avignon in July 1344.

Some of the works with which Simone's name and fame have been generally identified are not now regarded as his. Such are the compositions, in the Campo Santo of Pisa, from the legend of S. Ranieri, and the “Assumption of the Virgin”; and the great frescoes in the Cappellone degli Spagnuoli, in S. Maria Novella, Florence, representing the Triumph of Religion through the work of the Dominican order, &c.

(W. M. R.)

¹ The ordinary account of Simone is that given by Vasari, and since repeated in a variety of forms. Modern research shows that it is far from correct, the incidents being erroneous, and the paintings attributed to Simone in various principal instances not his. We follow the authority of Crowe and Cavalcaselle.



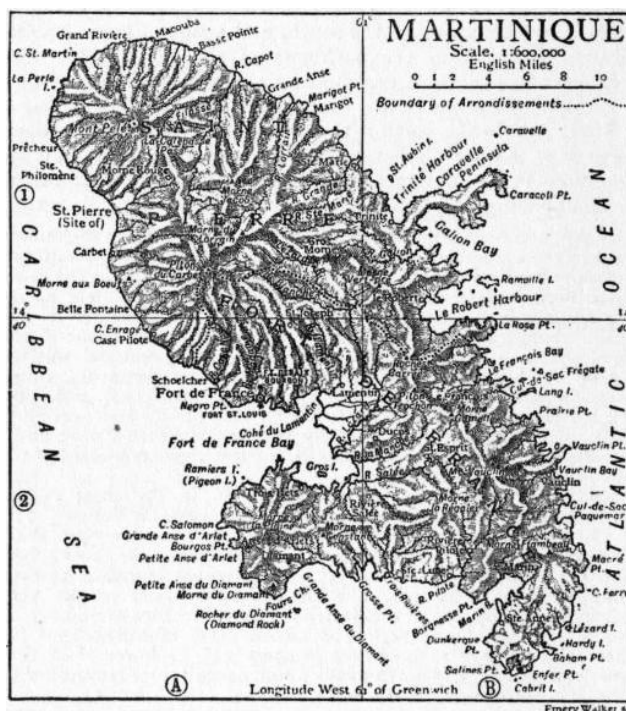
MARTINIQUE, an island of the West Indies, belonging to the chain of the Lesser Antilles, and constituting a French colony, between the British islands of Dominica and St Lucia, 25 m. S. of the one and 20 m. N. of the other, about 14° 40' N., 61° W. Its length is 40 m., its greatest width 21 m.; and the area comprises 380 sq. m. A cluster of

volcanic mountains in the north, a similar group in the south, and a line of lower heights between them, form the backbone of the island. Its deep ravines and precipitous escarpments are reduced in appearance to gentle undulations by the drapery of the forests. The massif of Mont Pelé in the north is the culminating point of the island (4430 ft.); that of Carbet is little inferior (3963 ft.), but the mountains in the south are much lower. Mont Pelé is notorious for an appalling eruption in May 1902.

Of the numerous streams which traverse the few miles of country between the watershed and the sea (the longest radiating from Mount Carbet), about seventy-five are of considerable size, and in the rainy season become deep and often destructive torrents. On the north-west and north the coast is elevated and bold; and similarly on the south, where a lateral range, branching from the backbone of the island, forms a blunt peninsula bounding the low-shored western bay of Fort de France on the south. Another peninsula, called Caravelle, projects from the middle part of the east coast, and south of this the coast is low and fretted, with many islets and cays lying off it. Coral reefs occur especially in this locality. Plains, most numerous and extensive in the south, occupy about one-third of the total area of the island.

The mean annual temperature is 80° F. in the coast region, the monthly mean for June being 83°, and that for January 77°. Of the annual rainfall of 87 in., August has the heaviest share (11.3 in.), though the rainy season extends from June to October; March, the driest month, has 3.7. Martinique enjoys a marked immunity from hurricanes. The low coastal districts are not very healthy for Europeans in the hotter months, but there are numerous sanatoria in the forest region at an elevation of about 1500 ft., where the average temperature is some 10° F. lower than that already quoted. The north winds which prevail from November to February are comparatively fresh and dry; those from the south (July to October) are damp and warm. From March to June easterly winds are prevalent.

The population increased from 162,861 in 1878 to 175,863 in 1888 and 203,781 in 1901. In 1902 the great eruption of Mont Pelé occurred, and in 1905 the population was only 182,024. The bulk of the population consists of Creole negroes and half-castes of various grades, ranging from the "Saccatra," who has retained hardly any trace of Caucasian blood, to the so-called "Sangmêlé," with only a suspicion of negro commixture. The capital of the island is Fort de France, on the west-coast bay of the same name, with a fine harbour defended by three forts, and a population of 18,000. The other principal centres of population are, on the west coast Lamentin, on the same bay as the capital, and on the east coast Le François and Le Robert. The colony is administered by a governor and a general council, and returns a senator and two deputies. There are elective municipal councils. The chief product is sugar, and some coffee, cocoa, tobacco and cotton are grown. The island is served by British, French and American steamship lines, and local communications are carried on by small coasting steamers and by subsidized mail coaches, as there are excellent roads. In 1905 the total value of the exports, consisting mainly of sugar, rum and cocoa, was £725,460, France taking by far the greater part, while imports were valued at £596,294, of which rather more than one-half by value came from France, the United States of America being the next principal importing country. In 1903, the year following the eruption of Mont Pelé, exports were valued at £604,163.



Martinique, the name of which may be derived from a native form Madiana or Mantinino, was probably discovered by Columbus on the 15th of June 1502; although by some authorities its discovery is placed in 1493. It was at that time inhabited by Caribs who had expelled or incorporated an older stock. It was not until the 25th of June 1635 that possession was taken of the island in the name of the French *Compagnie des Îles d'Amérique*. Actual settlement was carried out in the same year by Pierre Belain, Sieur d'Esnambuc, captain-general of the island of St Christopher. In 1637 his nephew Dyel Duparquet (d. 1658) became captain-general of the colony, now numbering seven hundred men, and subsequently obtained the seigneurie of the island by purchase from the company under the authority of the king of France. In 1654 welcome was given to three hundred Jews expelled from Brazil, and by 1658 there were at least five thousand people exclusive of the Caribs, who were soon after exterminated. Purchased by the French government from Duparquet's children for 120,000 livres, Martinique was assigned to the West India Company, but in 1674 it became part of the royal domain. The *habitants* (French landholders) at first devoted themselves to the cultivation of cotton and tobacco; but in 1650 sugar plantations were begun, and in 1723 the coffee plant was introduced. Slave labour having been introduced at an early period of the occupation, there were 60,000 blacks in the island by 1736. This slavery was abolished in 1860. Martinique had a full share of wars. In early days the Caribs were not brought under subjection without severe struggles. In 1666 and 1667 the island was attacked by the

British without success, and hostilities were terminated by the treaty of Breda. The Dutch made similar attempts in 1674, and the British again attacked the island in 1693. Captured by Rodney in 1762, Martinique was next year restored to the French; but after the conquest by Sir John Jervis and Sir Charles Grey in 1793 it was retained for eight years; and, seized again in 1809, it was not surrendered till 1814. The island was the birth-place of the Empress Josephine.

Martinique has suffered from occasional severe storms, as in 1767, when 1600 persons perished, and M. de la Pagerie, father of the Empress Josephine, was practically ruined, and in 1839, 1891 and 1903, when much damage was done to the sugar crop. Earthquakes have also been frequent, but the most terrible natural disaster was the eruption of Mont Pelé in 1902, by which the town of St Pierre, formerly the chief commercial centre of the island, was destroyed. During the earlier months of the year various manifestations of volcanic activity had occurred; on the 25th of April there was a heavy fall of ashes, and on the 2nd and 3rd of May a heavy eruption destroyed extensive sugar plantations north of St Pierre, and caused a loss of some 150 lives. A few days later the news that the Souffrière in St Vincent was in eruption reassured the inhabitants of St Pierre, as it was supposed that this outbreak might relieve the volcano of Pelé. But on the 8th of May the final catastrophe came without warning; a mass of fire, compared to a flaming whirlwind, swept over St Pierre, destroying the ships in the harbour, among which, however, one, the "Roddam" of Scrutton, escaped. A fall of molten lava and ashes followed the flames, accompanied by dense gases which asphyxiated those who had thus far escaped. The total loss of life was estimated at 40,000. Consternation was caused not only in the West Indies, but in France and throughout the world, and at first it was seriously suggested that the island should be evacuated, but no countenance was lent to this proposal by the French government. Relief measures were undertaken and voluntary subscriptions raised. The material losses were estimated at £4,000,000; but, besides St Pierre, only one-tenth of the island had been devastated, and although during July there was further volcanic activity, causing more destruction, the economic situation recovered more rapidly than was expected.

See *Annuaire de la Martinique* (Fort de France); H. Mouet, *La Martinique* (Paris, 1892); M. J. Guët, *Origines de la Martinique* (Vannes, 1893); G. Landes, *Notice sur la Martinique* (with full bibliography), (Paris, 1900); M. Dumoret, *Au pays du sucre* (Paris, 1902); and on the eruption of 1902, A. Heilprin, *Mont Pelée and the Tragedy of Martinique* (Philadelphia and London, 1903); A. Lacroix, *La Montagne Pelée et ses éruptions* (Paris, 1904); and the report of Drs J. S. Flett and T. Anderson (November 20, 1902), who investigated the eruptions on behalf of the Royal Society; cf. T. Anderson, "Recent Volcanic Eruptions in the West Indies," in *Geographical Journal*, vol. xxi. (1903).



MARTINSBURG, a town and the county-seat of Berkeley county, West Virginia, U.S.A., about 74 m. W.N.W. of Washington, D.C. Pop. (1890) 7226; (1900) 7564 (678 negroes); (1910) 10,698. It is served by the Baltimore & Ohio and the Cumberland Valley railways; the former has repair shops here. It lies in the Lower Shenandoah Valley at the foot of Little North mountain, in the midst of a fruit-growing region, peaches and apples being the principal crops. Slate and limestone also abound in the vicinity. The town has a fine Federal Building and a King's Daughters' hospital. There are grain elevators, and various manufactures, including hosiery, woollen goods, dressed lumber, &c. Martinsburg owns its waterworks, the supply being derived from a neighbouring spring. A town was laid out here a short time before the War of Independence and was named Martinstown in honour of Colonel Thomas Bryan Martin, a nephew of Thomas, Lord Fairfax (1692-1782); in 1778 it was incorporated under its present name. During the Civil War Martinsburg was occupied by several different Union and Confederate forces.



MARTINS FERRY, a city of Belmont county, Ohio, U.S.A., on the Ohio River, nearly opposite Wheeling, West Virginia. Pop. (1890), 6250; (1900), 7760, including 1033 foreign-born and 252 negroes; (1910), 9133. It is served by the Pennsylvania (Cleveland & Pittsburg Division), the Baltimore & Ohio, and the Wheeling & Lake Erie (Wabash System) railways, and by several steamboat lines. The city is situated on two plateaus; the lower is occupied chiefly by factories, the upper by dwellings. Coal mining and manufacturing are the principal industries; among factory products are iron, steel, tin, stoves, machinery and glassware. The municipality owns and operates the waterworks and an electric-lighting plant. A settlement was attempted here in 1785, but was abandoned on account of trouble with the Indians. In 1795 a town was laid out by Absalom Martin and was called Jefferson, but this, too, was abandoned, on account of its not being made the county-seat. The town was laid out again in 1835 by Ebenezer Martin (son of Absalom Martin) and was called Martinsville; the present name was substituted a few years later. The Martins and other pioneers are buried in Walnut Grove Cemetery within the city limits. Martins Ferry was incorporated as a town in 1865 and chartered as a city in 1885.



MARTINUZZI, GEORGE [GYÖRGY UTIEŠENOVIĆ] (1482-1551), Hungarian statesman, who, since he usually signed himself "Frater Georgius," is known in Hungarian history as FRATER GYÖRGY or simply THE FRATER, was born at Kamičić in Croatia, the son of Gregory Utiešenović, a Croatian gentleman. His mother was a Martinuzzi, a Venetian patrician family. From his eighth to his twentieth year he was attached to the court of John Corvinus; subsequently, entering the service of the Zapolya family, he saw something of warfare under John Zapolya but, tiring of a military life, he entered the Paulician Order in his twenty-eighth year. His historical career began when his old patron

Zapolya, now king of Hungary, forced to fly before his successful rival Ferdinand, afterwards the emperor Ferdinand I., sent him on a diplomatic mission to Hungary. It was due to his tact and ability that John recovered Buda (1529), and henceforth Frater György became his treasurer and chief counsellor. In 1534 he became bishop of Grosswardein; in 1538 he concluded with Austria the peace of Grosswardein, whereby the royal title and the greater part of Hungary were conceded to Zapolya. King John left the Frater the guardian of his infant son John Sigismund, who was proclaimed and crowned king of Hungary, the Frater acting as regent. He frustrated all the attempts of the queen mother, Isabella, to bring in the Austrians, and when, in 1541, an Austrian army appeared beneath the walls of Buda, he arrested the queen and applied to the Porte for help. On the 28th of August 1541, the Frater did homage to the sultan, but during his absence with the baby king in the Turkish camp, the grand vizier took Buda by subtlety. Then only the Frater recognized the necessity of a composition with both Austria and Turkey. He attained it by the treaty of Gyula (Dec. 29, 1541), whereby western Hungary fell to Ferdinand, while Transylvania, as an independent principality under Turkish suzerainty, reverted to John Sigismund. It included, besides Transylvania proper, many Hungarian counties on both sides of the Theiss, and the important city of Kassa. It was the Frater's policy to preserve Transylvania neutral and intact by cultivating amicable relations with Austria without offending the Porte. It was a difficult policy, but succeeded brilliantly for a time. In 1545, encouraged by the growing unpopularity of Ferdinand, owing to his incapacity to defend Hungary against the Turks, the Frater was tempted to unite Austrian Hungary to Transylvania and procure the election of John Sigismund as the national king. But recognizing that this was impossible, he aimed at an alliance with Ferdinand on terms of relative equality, and to this system he adhered till his death. Queen Isabella, who hated the Frater and constantly opposed him, complained of him to the sultan, who commanded that either the traitor himself or his head should be sent to Constantinople (1550). A combination was then formed against him of the queen, the hospodars of Moldavia and Wallachia and the Turks; but the Frater shut the queen up in Gyula-Fehérvár, drove the hospodars out of Transylvania, defeated the Turks at Déva, and finally compelled Isabella to accept a composition with Austria very profitable to her family and to Transylvania, at the same time soothing the rage of the sultan by flatteries and gifts. This compact, a masterpiece of statesmanship, was confirmed by the diet of Kolozsvár in August 1551. The Frater retained the governorship of Transylvania, and was subsequently consecrated archbishop of Esztergom and received the red hat. Thus Hungary was once more reunited, but the inability of Ferdinand to defend it against the Turks, as promised, forced the Frater, for the common safety, to resume the payment of tribute to the Porte in December 1551. Unfortunately, the Turks no longer trusted a diplomatist they could not understand, while Ferdinand suspected him of an intention to secure Hungary for himself. When the Turks (in 1551) took Csanád and other places, the Frater and the imperial generals Castaldo and Pallavicini combined their forces against the common foe; but when the Frater privately endeavoured to mediate between the Turks and the Hungarians, Castaldo represented him to Ferdinand as a traitor, and asked permission to kill him if necessary. The Frater's secretary Marco Aurelio Ferrari was hired, and stabbed his master from behind at the castle of Alvinczy while reading a letter, on the 18th of December 1551; but the cardinal, though in his sixty-ninth year, fought for his life, and was only despatched with the aid of Pallavicini and a band of bravos. Ferdinand took the responsibility of the murder on himself. He sent to Julius III. an accusation of treason against the Frater in eighty-seven articles, and after long hesitation, and hearing one hundred and sixteen witnesses, the pope exonerated Ferdinand of blame.

See A. Bechet, *Histoire du ministère du cardinal Martinusius* (Paris, 1715); O. M. Utiešenović, *Lebensgeschichte des Cardinals Georg Utiešenović* (Vienna, 1881); *Codex epistolaris Fratris Georgii 1535-1551*, ed. A. Károlyi (Budapest, 1881). But the most vivid presentation of Frater is to be found in M. Jókai's fine historical romance, *Brother George* (Hung.) (Budapest, 1893).

(R. N. B.)



MARTIUS, CARL FRIEDRICH PHILIPP VON (1794-1868), German botanist and traveller, was born on the 17th of April 1794 at Erlangen, where he graduated M.D. in 1814, publishing as his thesis a critical catalogue of plants in the botanic garden of the university. He afterwards devoted himself to botanical study, and in 1817 he and J. B. von Spix were sent to Brazil by the king of Bavaria. They travelled from Rio de Janeiro through several of the southern and eastern provinces of Brazil, and ascended the river Amazon to Tabatinga, as well as some of its larger affluents. On his return to Europe in 1820 he was appointed conservator of the botanic garden at Munich, and in 1826 professor of botany in the university there, and held both offices till 1864. He devoted his chief attention to the flora of Brazil, and in addition to numerous short papers he published the *Nova Genera et Species Plantarum Brasiliensium* (1823-1832, 3 vols.) and *Icones selectae Plantarum Cryptogamicarum Brasiliensium* (1827), both works being finely illustrated. An account of his travels in Brazil appeared in 3 vols. 4to, 1823-1831, with an atlas of plates, but probably the work by which he is best known is his *Historia Palmarum* (1823-1850) in 3 large folio volumes, of which one describes the palms discovered by himself in Brazil. In 1840 he began the *Flora Brasiliensis*, with the assistance of the most distinguished European botanists, who undertook monographs of the various orders. Its publication was continued after his death under the editorship of A. W. Eichler (1839-1887) until 1887, and subsequently of Ignaz von Urban. He also edited several works on the zoological collections made in Brazil by Spix, after the death of the latter in 1826. On the outbreak of potato disease in Europe he investigated it and published his observations in 1842. He also published works and short papers on the aborigines of Brazil, on their civil and social condition, on their past and probable future, on their diseases and medicines, and on the languages of the various tribes, especially the Tupi. He died at Munich on the 13th of December 1868.



MARTOS, CHRISTINO (1830-1893), Spanish politician, was born at Granada on the 13th of September 1830. He was educated there and at Madrid University, where his Radicalism soon got him into trouble, and he narrowly escaped being expelled for his share in student riots and other demonstrations against the governments of Queen Isabella. He distinguished himself as a journalist on *El Tribuno*. He joined O'Donnell and Espartero in 1854

against a revolutionary cabinet, and shortly afterwards turned against O'Donnell to assist the Democrats and Progressists under Prim, Rivero, Castelar, and Sagasta in the unsuccessful movements of 1866, and was obliged to go abroad. His political career had not prevented Martos from rising into note at the bar, where he was successful for forty years. After remaining abroad three years, he returned to Spain to take his seat in the Cortes of 1869 after the revolution of 1868. Throughout the revolutionary period he represented in cabinets with Prim, Serrano and Ruiz Zorilla, and lastly under King Amadeus, the advanced Radical tendencies of the men who wanted to give Spain a democratic monarchy. After the abdication of Amadeus of Savoy, Martos played a prominent part in the proclamation of the federal republic, in the struggle between the executive of that republic and the permanent committee of the Cortes, backed by the generals and militia, who nearly put an end to the executive and republic in April 1873. When the republicans triumphed Martos retired into exile, and soon afterwards into private life. He reappeared for a few months after General Pavia's *coup d'état* in January 1874, to join a coalition cabinet formed by Marshal Serrano, with Sagasta and Ulloa. Martos returned to the Bar in May 1874, and quietly looked on when the restoration took place at the end of that year. He stuck to his democratic ideals for some years, even going to Biarritz in 1881 to be present at a republican congress presided over by Ruiz Zorilla. Shortly afterwards Martos joined the dynastic Left organized by Marshal Serrano, General Lopez Dominguez, and Moret, Becerra, Balaguer, and other quondam revolutionaries. He sat in several parliaments of the reign of Alphonso XII. and of the regency of Queen Christina, joined the dynastic Liberals under Sagasta, and gave Sagasta not a little trouble when the latter allowed him to preside over the House of Deputies. Having failed to form a rival party against Sagasta, Martos subsided into political insignificance, despite his great talent as an orator and debater, and died in Madrid on the 16th of January 1893.



MARTOS, a town of southern Spain, in the province of Jaen, 16 m. W.S.W. of Jaen, by the Jaen-Lucena railway. Pop. (1900), 17,078. Martos is situated on an outlying western peak of the Jabalcuz mountains, which is surmounted by a ruined castle and overlooks the plain of Andalusia. In the neighbourhood are two sulphurous springs with bathing establishments. The local trade is almost exclusively agricultural.

Martos perhaps stands on or near the site of the *Tucci* of Ptolemy, which was fortified and renamed *Colonia Augusta Gemella* by the Romans. By Ferdinand III. it was taken from the Moors in 1225, and given to the knights of Calatrava; it was here that the brothers Carvajal, commanders of the order, were in 1312 executed by command of Ferdinand IV. Before their death they summoned Ferdinand to meet them within thirty days at the judgment-seat of God. Ferdinand died a month later and thus received the popular name of *el Emplazado*—"the Summoned."



MARTYN, HENRY (1781-1812), English missionary to India, was born on the 18th of February 1781, at Truro, Cornwall. His father, John Martyn, was a "captain" or mine-agent at Gwennap. The lad was educated at Truro grammar school under Dr Cardew, entered St John's College, Cambridge, in the autumn of 1797, and was senior wrangler and first Smith's prizeman in 1801. In 1802 he was chosen a fellow of his college. He had intended to go to the bar, but in the October term of 1802 he chanced to hear Charles Simeon speaking of the good done in India by a single missionary, William Carey, and some time afterwards he read the life of David Brainerd, the apostle of the Indians of North America. He resolved, accordingly, to become a Christian missionary. On the 22nd of October, 1803, he was ordained deacon at Ely, and afterwards priest, and served as Simeon's curate at the church of Holy Trinity, taking charge of the neighbouring parish of Lolworth. He was about to offer his services to the Church Missionary Society, when a disaster in Cornwall deprived him and his unmarried sister of the provision their father had made for them, and rendered it necessary that he should obtain a salary that would support her as well as himself. He accordingly obtained a chaplaincy under the East India Company and left for India on the 5th of July 1805. For some months he was stationed at Aldeen, near Serampur; in October 1806 he proceeded to Dinapur, where he was soon able to conduct worship among the natives in the vernacular, and established schools. In April 1809 he was transferred to Cawnpore, where he preached in his own compound, in spite of interruptions and threats. He occupied himself in linguistic study, and had already, during his residence at Dinapur, been engaged in revising the sheets of his Hindostani version of the New Testament. He now translated the whole of the New Testament into Hindi also, and into Persian twice. He translated the Psalms into Persian, the Gospels into Judaeo-Persic, and the Prayer-book into Hindostani, in spite of ill-health and "the pride, pedantry and fury of his chief munshi Sabat." Ordered by the doctors to take a sea voyage, he obtained leave to go to Persia and correct his Persian New Testament, whence he wished to go to Arabia, and there compose an Arabic version. Accordingly, on the 1st of October 1810, having seen his work at Cawnpore crowned on the previous day by the opening of a church, he left for Calcutta, whence he sailed on the 7th of January 1811, for Bombay, which he reached on his thirtieth birthday. From Bombay he set out for Bushire, bearing letters from Sir John Malcolm to men of position there, as also at Shiraz and Isfahan. After an exhausting journey from the coast he reached Shiraz, and was soon plunged into discussion with the disputants of all classes, "Sufi, Mahommedan, Jew, and Jewish-Mahommedan, even Armenian, all anxious to test their powers of argument with the first English priest who had visited them." Having made an unsuccessful journey to Tabriz to present the shah with his translation of the New Testament, he was seized with fever, and after a temporary recovery, had to seek a change of climate. On the 12th of September 1812, he started with two Armenian servants, crossed the Araxes, rode from Tabriz to Erivan, from Erivan to Kars, from Kars to Erzerum, from Erzerum to Chiflik, urged on from place to place by a thoughtless Tatar guide, and, though the plague was raging at Tokat (near Eski-Shehr in Asia Minor), he was compelled by prostration to stop there. On the 6th of October he died. Macaulay's youthful lines, written early in 1813, testify to the impression made by his career.

His *Journals and Letters* were published by Samuel Wilberforce in 1837. See also *Lives* by John Sargent (1819;



MARTYN, JOHN (1699-1768), English botanist, was born in London on the 12th of September 1699. Originally intended for a business career, he abandoned it in favour of medical and botanical studies. He was one of the founders (with J. J. Dillen and others) and the secretary of a botanical society which met for a few years in the Rainbow Coffee-house, Watling Street; he also started the *Grub Street Journal*, a weekly satirical review, which lasted from 1730 to 1737. In 1732 he was appointed professor of botany in Cambridge University, but, finding little encouragement and hampered by lack of appliances, he soon discontinued lecturing. He retained his professorship, however, till 1762, when he resigned in favour of his son Thomas (1735-1825), author of *Flora rustica* (1792-1794). Although he had not taken a medical degree, he long practised as a physician at Chelsea, where he died on the 29th of January 1768. His reputation chiefly rests upon his *Historia plantarum rariorum* (1728-1737), and his translation, with valuable agricultural and botanical notes, of the *Eclogues* (1749) and *Georgics* (1741) of Virgil. On resigning the botanical chair at Cambridge he presented the university with a number of his botanical specimens and books.

See memoir by Thomas Martyn in *Memoirs of John Martyn and Thomas Martyn*, by G. C. Gorham (1830).



MARTYR (Gr. μάρτυρ or μάρτυς), a word meaning literally "witness" and often used in that sense in the New Testament *e.g.* Matt. xviii. 16; Mark xiv. 63. During the conflict between Paganism and Christianity when many Christians "testified" to the truth of their convictions by sacrificing their lives, the word assumed its modern technical sense. The beginnings of this use are to be seen in such passages as Acts xxii. 20; Rev. ii. 13, xiii. 6. During the first three centuries the fortitude of these "witnesses" won the admiration of their brethren. Ardent spirits craved the martyr's crown, and to confess Christ in persecution was to attain a glory inferior only to that won by those who actually died. Confessors were visited in prison, martyrs' graves were scenes of pilgrimage, and the day on which they suffered was celebrated as the birthday of their glory. Martyrology was the most popular literature in the early Church. While the honour paid to martyrdom was a great support to early champions of the faith, it was attended by serious evils. It was thought that martyrdom would atone for sin, and imprisoned confessors not only issued to the Churches commands which were regarded almost as inspired utterances, but granted pardons in rash profusion to those who had been excommunicated by the regular clergy, a practice which caused Cyprian and his fellow bishops much difficulty. The zeal of Ignatius (*c.* 115), who begs the Roman Church to do nothing to avert from him the martyr's death, was natural enough in a spiritual knight-errant, but with others in later days, especially in Phrygia and North Africa, the passion became artificial. Fanatics sought death by insulting the magistrates or by breaking idols, and in their enthusiasm for martyrdom became self-centred and forgetful of their normal duty. None the less it is true that these men and women endured torments, often unthinkable in their cruelty, and death rather than abandon their faith. The same phenomena have been witnessed, not only in the conflicts within the Church that marked the 13th to the 16th centuries, but in the different mission fields, and particularly in Madagascar and China.

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See A. J. Mason, *The Historic Martyrs of the Primitive Church* (London, 1905); H. B. Workman, *Persecution in the Early Church* (London, 1906); Paul Allard, *Ten Lectures on the Martyrs* (London, 1907); John Foxe, *The Book of Martyrs*; Mary I. Bryson, *Cross and Crown* (London, 1904).



MARTYROLOGY, a catalogue or list of *martyrs*, or, more exactly, of saints, arranged in the order of their anniversaries. This is the now accepted meaning in the Latin Church. In the Greek Church the nearest equivalent to the martyrology is the Synaxarium (*q.v.*). As regards form, we should distinguish between simple martyrologies, which consist merely of an enumeration of names, and historical martyrologies, which also include stories or biographical details. As regards documents, the most important distinction is between local and general martyrologies. The former give a list of the festivals of some particular Church; the latter are the result of a combination of several local martyrologies. We may add certain compilations of a factitious character, to which the name of martyrology is given by analogy, *e.g.* the *Martyrologe universel* of Châtelain (1709). As types of local martyrologies we may quote that of Rome, formed from the *Depositio martyrum* and the *Depositio episcoporum* of the chronograph of 354; the Gothic calendar of Ulfila's Bible, the calendar of Carthage published by Mabillon, the calendar of fasts and vigils of the Church of Tours, going back as far as Bishop Perpetuus (*d.* 490), and preserved in the *Historia francorum* (xi. 31) of Gregory of Tours. The Syriac martyrology discovered by Wright (*Journal of Sacred Literature*, 1866) gives the idea of a general martyrology. The most important ancient martyrology preserved to the present day is the compilation falsely attributed to St Jerome, which in its present form goes back to the end of the 6th century. It is the result of the combination of a general martyrology of the Eastern Churches, a local martyrology of the Church of Rome, some general martyrologies of Italy and Africa, and a series of local martyrologies of Gaul. The task of critics is to distinguish between its various constituent elements. Unfortunately, this document has reached us in a lamentable condition. The proper names are distorted, repeated or misplaced, and in many places the text is so corrupt that it is impossible to understand it. With the exception of a few traces of borrowings from the Passions of the martyrs, the compilation is in the form of a simple martyrology. Of the best-known historical martyrologies the oldest are those which go under the name of Bede and of Florus (*Acta sanctorum Martii*, vol. ii.); of Wandelbert, a monk of Prüm (842); of Rhabanus Maurus (*c.* 845); of Ado (*d.* 875); of Notker (896); and of

Wolfhard (c. 896 v. *Analecta bollandiana*, xvii. 11). The most famous is that of Usuard (c. 875), on which the Roman martyrology was based. The first edition of the Roman martyrology appeared at Rome in 1583. The third edition, which appeared in 1584, was approved by Gregory XIII., who imposed the Roman martyrology upon the whole Church. In 1586 Baronius published his annotated edition, which in spite of its omissions and inaccuracies is a mine of valuable information.

The chief works on the martyrologies are those of Rosweyde, who in 1613 published at Antwerp the martyrology of Ado (also edition of Giorgi, Rome, 1745); of Sollerius, to whom we owe a learned edition of Usuard (*Acta sanctorum Junii*, vols. vi. and vii.); and of Fiorentini, who published in 1688 an annotated edition of the *Martyrology of St Jerome*. The critical edition of the latter by J. B. de Rossi and Mgr. L. Duchesne, was published in 1894, in vol. ii. of the *Acta sanctorum Novembris*. The historical martyrologies taken as a whole have been studied by Dom Quentin (1908). There are also numerous editions of calendars or martyrologies of less universal interest, and commentaries upon them. Mention ought to be made of the famous calendar of Naples, commented on by Mazocchi (Naples, 1744) and Sabbatini (Naples, 1744).

See C. de Smedt, *Introductio generalis ad historiam ecclesiasticam* (Gandavi, 1876), pp. 127-156; H. Matagne and V. de Buck in De Backer, *Bibliothèque des écrivains de la Compagnie de Jésus*, 2nd ed., vol. iii. pp. 369-387; De Rossi-Duchesne, *Les Sources du martyrologe hiéronymien* (Rome, 1885); H. Achelis, *Die Martyrologien, ihre Geschichte und ihr Wert* (Berlin, 1900); H. Delehaye, "Le Témoignage des martyrologes," in *Analecta bollandiana*, xxvi. 78-99 (1907); H. Quentin, *Les Martyrologes historiques du moyen âge* (Paris, 1908).

(H. DE.)



MARULLUS, MICHAEL TARCHANIOTA (d. 1500), Greek scholar, poet, and soldier, was born at Constantinople. In 1453, when the Turks captured Constantinople, he was taken to Ancona in Italy, where he became the friend and pupil of J. J. Pontanus, with whom his name is associated by Ariosto (*Orl. Fur.* xxxvii. 8). He received his education at Florence, where he obtained the patronage of Lorenzo de' Medici. He was the author of epigrams and *hymni naturales*, in which he happily imitated Lucretius. He took no part in the work of translation, then the favourite exercise of scholars, but he was understood to be planning some great work when he was drowned, on the 10th of April 1500, in the river Cecina near Volterra. He was a bitter enemy of Politian, whose successful rival he had been in the affections of the beautiful and learned Alessandra Scala. He is remembered chiefly for the brilliant emendations on Lucretius which he left unpublished; these were used for the Juntine edition (Munro's *Lucretius*, Introduction).

The hymns, some of the epigrams, and a fragment, *De Principum institutione*, were reprinted in Paris by C. M. Sathas in *Documents inédits relatifs à l'histoire de la Grèce au moyen âge*, vol. vii. (1888).



MARUM, MARTIN VAN (1750-1837), Dutch man of science, was born on the 20th of March 1750 at Groningen, where he graduated in medicine and philosophy. He began to practise medicine at Haarlem, but devoted himself mainly to lecturing on physical subjects. He became secretary of the scientific society of that city, and under his management the society was advanced to the position of one of the most noted in Europe. He was also entrusted with the care of the collection left to Haarlem by P. Teyler van der Hulst (1702-1778). His name is not associated with any discovery of the first order, but his researches (especially in connexion with electricity) were remarkable for their number and variety. He died at Haarlem on the 26th of December 1837.



MARUTS, in Hindu mythology, storm-gods. Their numbers vary in the different scriptures, usually thrice seven or thrice sixty. In the Vedas they are called the sons of Rudra. They are the companions of Indra, and associated with him in the wielding of thunderbolts, sometimes as his equals, sometimes as his servants. They are armed with golden weapons and lightnings. They split drought (*Vritra*) and bring rain, and cause earthquakes. Various myths surround their birth. A derivative word, Maruti or Maroti, is the popular name throughout the Deccan for Hanuman (*q.v.*).



MARVELL, ANDREW (1621-1678), English poet and satirist, son of Andrew Marvell and his wife Anne Pease, was born at the rectory house, Winestead, in the Holderness division of Yorkshire, on the 31st of March 1621. In 1624 his father exchanged the living of Winestead for the mastership of Hull grammar school. He also became lecturer at Holy Trinity Church and master of the Charterhouse in the same town. Thomas Fuller (*Worthies of England*, ed. 1811, i. 165) describes him as "a most excellent preacher." The younger Marvell was educated at Hull

grammar school until his thirteenth year, when he matriculated on the 14th of December 1633 (according to a doubtful statement in Wood's *Athen. oxon.*) at Trinity College, Cambridge. It is related by his early biographer, Thomas Cooke, that he was induced by some Jesuit priests to leave the university. After some months he was discovered by his father in a bookseller's shop in London, and returned to Cambridge.¹ He contributed two poems to the *Musa cantabrigiensis* in 1637, and in the following year he received a scholarship at Trinity College, and took his B.A. degree in 1639. His father was drowned in 1640 while crossing the Humber in company with the daughter of a Mrs Skinner, almost certainly connected with the Cyriack Skinner to whom two of Milton's sonnets are addressed. It is said that Mrs Skinner adopted Marvell and provided for him at her death. The Conclusion Book of Trinity College, Cambridge, registers the decision (Sept. 24, 1641) that he with others should be excluded from further advantages from the college either because they were married, or did not attend their "days" or "acts." He travelled for four years on the Continent, visiting Holland, France, Italy and Spain. In Rome he met Richard Flecknoe, whom he satirized in the amusing verses on "Flecknoe, an English priest at Rome."

Although Marvell ranks as a great Puritan poet his sympathies were at first with Charles I., and in the lines on "Tom May's Death" he found no words too strong to express his scorn for the historian of the Long Parliament. He himself was no partisan, but had a passion for law and order. He acquiesced, accordingly, in the strong rule of Cromwell, but in his famous "Horatian Ode upon Cromwell's Return from Ireland" (1650)² he inserts a tribute to the courage and dignity of Charles I., which forms the best-known section of the poem. In 1650 he became tutor to Lord Fairfax's daughter Mary, afterwards duchess of Buckingham, then in her twelfth year. During his life with the Fairfaxes at Nunappleton, Yorkshire, he wrote the poems "Upon the Hill and Grove at Billborow" and "On Appleton House." Doubtless the other poems on country life, and his exquisite "garden poetry" may be referred to this period. "Clorinda and Damon" and "The Nymph complaining for the Death of her Faun" are good examples of the beauty and simplicity of much of this early verse. But he had affinities with John Donne and the metaphysical poets, and could be obscure on occasion.

Marvell was acquainted with Milton probably through their common friends, the Skinners, and in February 1653 Milton sent him with a letter to the lord president of the council, John Bradshaw, recommending him as "a man of singular desert for the state to make use of," and suggesting his appointment as assistant to himself in his duties as foreign secretary. The appointment was, however, given at the time to Philip Meadows, and Marvell became tutor to Cromwell's ward, William Dutton. In 1653 he was established with his pupil at Eton in the house of John Oxenbridge, then a fellow of the college, but formerly a minister in the Bermudas. No doubt the well-known verses, "Bermudas," were inspired by intercourse with the Oxenbridges. At Eton he enjoyed the society of John Hales, then living in retirement. He was employed by Milton in 1654 to convey to Bradshaw a copy of the *Defensio secunda*, and the letter to Milton in which he describes the reception of the gift is preserved. When the secretaryship again fell vacant in 1657 Marvell was appointed, and retained the appointment until the accession of Charles II. During this period he wrote many political poems, all of them displaying admiration for Cromwell. His "Poem upon the Death of his late Highness the Lord Protector" has been unfavourably compared to Edmund Waller's "Panegyric," but Marvell's poem is inspired with affection.

Marvell's connexion with Hull had been strengthened by the marriages of his sisters with persons of local importance, and in January 1659 he was elected to represent the borough in parliament. He was re-elected in 1660, again in 1661, and continued to represent the town until his death. According to Milton's nephew, Edward Phillips, the poet owed his safety at the Restoration largely to the efforts of Marvell, who "made a considerable party for him" in the House of Commons. From 1663 to 1665 he acted as secretary to Charles Howard, 1st earl of Carlisle, on his difficult and unsuccessful embassy to Muscovy, Sweden, and Denmark; and this is the only official post he filled during the reign of Charles. With the exception of this absence, for which he had leave from his constituents, and of shorter intervals of travel on private business which took him to Holland, Marvell was constant in his parliamentary attendance to the day of his death. He seldom spoke in the House, but his parliamentary influence is established by other evidence. He was an excellent man of affairs, and looked after the special interests of the port of Hull. He was a member of the corporation of Trinity House, both in London and Hull, and became a younger warden of the London Trinity House. His correspondence with his constituents, from 1660 to 1678, some 400 letters in all, printed by Dr Grosart (*Complete Works*, vol. ii.), forms a source of information all the more valuable because by a resolution passed at the Restoration the publication of the proceedings of the House without leave was forbidden. He made it a point of duty to write at each post—that is, every two or three days—both on local interests and on all matters of public interest. The discreet reserve of these letters, natural at a time when the post office was a favourite source of information to the government, contrasts curiously with the freedom of the few private letters which state opinions as well as facts. Marvell's constituents, in their turn, were not unmindful of their member. He makes frequent references to their presents, usually of Hull ale and of salmon, and he regularly drew from them the wages of a member, six-and-eightpence a day during session.

The development of Marvell's political opinions may be traced in the satirical verse he published during the reign of Charles II., and in his private letters. With all his admiration for Cromwell he had retained his sympathies with the royal house, and had loyally accepted the Restoration. In 1667 the Dutch fleet sailed up the Thames, and Marvell expressed his wrath at the gross mismanagement of public affairs in "Last Instructions to a Painter," a satire which was published as a broadside and of course remained anonymous. Edmund Waller had published in 1665 a gratulatory poem on the duke of York's victory in that year over the Dutch as "Instructions to a Painter for the drawing up and posture of his Majesty's forces at sea...." A similar form was adopted in Sir John Denham's four satirical "Directions to a Painter," and Marvell writes on the same model. His indignation was well grounded, but he had no scruples in the choice of the weapons he employed in his warfare against the corruption of the court, which he paints even blacker than do contemporary memoir writers; and his satire often descends to the level of the lampoon. The most inexcusable of his scandalous verses are perhaps those on the duchess of York. In the same year he attacked Lord Clarendon, evidently hoping that with the removal of the "betrayers of England and Flanders" matters would improve. But in 1672 when he wrote his "Poem on the Statue in the Stocks-Market" he had no illusions left about Charles, whom he describes as too often "purchased and sold," though he concludes with "Yet we'd rather have him than his bigoted brother." "An Historical Poem," "Advice to a Painter," and "Britannia and Raleigh" urge the same advice in grave language. In the last-named poem, probably written early in 1674, Raleigh pleads that "'tis god-like good to save a fallen king," but Britannia has at length decided that the tyrant cannot be divided from the Stuart, and proposes to reform the state on the republican model of Venice. These and other equally bold satires were probably handed round in MS., or secretly printed, and it was not until after the Revolution that they were collected with those of other writers in *Poems on Affairs of State* (3 pts., 1689; 4 pts., 1703-1707). Marvell's controversial prose writings are wittier than his verse satires, and are free from the scurrility which defaces the "Last Instructions to a Painter." A short and brilliant example of his irony is "His Majesty's Most Gracious Speech to both Houses of Parliament" (printed in *Grosart*, ii. 431 seq.), in which Charles is made to take

the house into the friendliest confidence on his domestic affairs.

Marvell was among the masters of Jonathan Swift, who, in the "Apology" prefixed to the *Tale of a Tub*, wrote that his answer to Samuel Parker could be still read with pleasure, although the pamphlets that provoked it were long since forgotten. Parker had written a *Discourse of Ecclesiastical Politye* (1670) and other polemics against Dissenters, to which Marvell replied in *The Rehearsal Transposed* (2 pts., 1672 and 1673). The book contains some passages of dignified eloquence, and some coarse vituperation, but the prevailing tone is that of grave and ironical banter of Parker as "Mr Bayes." Parker was attacked, says Bishop Burnet (*Hist. of His Own Time*, ed. 1823, i. 451), "by the liveliest droll of the age, who writ in a burlesque strain, but with so peculiar and entertaining a conduct, that, from the king down to the tradesman, his books were read with great pleasure." He certainly humbled Parker, but whether this effect extended, as Burnet asserts, to the whole party, is doubtful. Parker had intimated that Milton had a share in the first part of Marvell's reply. This Marvell emphatically denied (*Grosart*, iii. 498). He points out that Parker had, like Milton, profited by the royal clemency, and that he had first met him at Milton's house. He takes the opportunity to praise Milton's "great learning and sharpness of wit," and to the second edition of *Paradise Lost* (1674) he contributed some verses of just and eloquent praise.

His *Mr Smirke, or the Divine in Mode ...* (1676) was a defence of Herbert Croft, bishop of Hereford, against the criticisms of Dr Francis Turner, master of St John's College, Cambridge. A far more important work was *An Account of the Growth of Popery and Arbitrary Government in England, more particularly from the Long Prorogation of Parliament ...* (1677). This pamphlet was written in the same outspoken tone as the verse satires, and brought against the court the indictment of nursing designs to establish absolute monarchy and the Roman Catholic religion at the same time. A reward was offered for the author, whose identity was evidently suspected, and it is said that Marvell was in danger of assassination. He died on the 16th of August 1678 in consequence of an overdose of an opiate taken during an attack of ague. He was buried in the church of St Giles-in-the-Fields, London. Joint administration of his estate was granted to one of his creditors, and to his widow, Mary Marvell, of whom we have no previous mention.

As a humorist, and as a great "parliament man," no name is of more interest to a student of the reign of Charles II. than that of Marvell. He had friends among the republican thinkers of the times. Aubrey says that he was intimate with James Harrington, the author of *Oceana*, and he was probably a member of the "Rota" club. In the heyday of political infamy, he, a needy man, obliged to accept wages from his constituents, kept his political virtue unspotted, and he stood throughout his career as the champion of moderate and tolerant measures. There is a story that his old schoolfellow, Danby, was sent by the king to offer the incorruptible poet a place at court and a gift of £1000, which Marvell refused with the words: "I live here to serve my constituents: the ministry may seek men for their purpose; I am not one." When self-indulgence was the ordinary habit of town life, Marvell was a temperate man. His personal appearance is described by John Aubrey: "He was of a middling stature, pretty strong set, roundish faced, cherry cheeked, hazel eyed, brown haired. In his conversation he was modest and of very few words." ("Lives of Eminent Persons," printed in *Letters ... in the 17th and 18th Centuries*, 1813).

Among Marvell's works is also a *Defence of John Howe on God's Prescience ...* (1678), and among the spurious works fathered on him are: *A Seasonable Argument ... for a new Parliament* (1677), *A Seasonable Question and a Useful Answer ...* (1676), *A Letter from a Parliament Man ...* (1675), and a translation of *Suetonius* (1672). Marvell's satires were no doubt first printed as broadsides, but very few are still extant in that form. Such of his poems as were printed during his lifetime appeared in collections of other men's works. The earliest edition of his non-political verse is *Miscellaneous Poems* (1681), edited by his wife, Mary Marvell. The political satires were printed as *A Collection of Poems on Affairs of State, by A—M—J, Esq. and other Eminent Wits* (1689), with second and third parts in the same year. The works of Andrew Marvell contained in these two publications were also edited by Thomas Cooke (2 vols., 1726), who added some letters. Cooke's edition was reprinted by Thomas Davies in 1772. Marvell's next editor was Captain Thompson of Hull, who was connected with the poet's family, and made further additions from a commonplace book since lost. Other editions followed, but were superseded by Dr A. B. Grosart's laborious work, which, in spite of many defects of style, remains indispensable to the student. *The Complete Works in Verse and Prose of Andrew Marvell, M.P.* (4 vols., 1872-1875) forms part of his "Fuller Worthies Library." See also the admirable edition of the *Poems and Satires of Andrew Marvell ...* (2 vols., 1892) in the "Muses' Library," where a full bibliography of his works and of the commentaries on them is provided; also *The Poems and some Satires of Andrew Marvell* (ed. Edward Wright, 1904), and *Andrew Marvell* (1905), by Augustine Birrell in the "English Men of Letters" series.

- 1 There is an allusion to this escapade addressed by another anxious parent to the elder Marvell in the Hull Corporation Records (No. 498) [see Grosart, i. xxviii.]. The document is without address or signature, but the identification seems safe.
- 2 This poem has been highly praised by Goldwin Smith (T. H. Ward's *English Poets*, ii. 383 (1880)). It was first printed, so far as we know, in 1776, and the only external testimony to Marvell's authorship is the statement of Captain Thompson, who had included many poems by other writers in his edition of Marvell, that this ode was in poet's own handwriting. The internal evidence in favour of Marvell may, however, be accepted as conclusive.



MARX, HEINRICH KARL (1818-1883), German socialist, and head of the International Working Men's Association, was born on the 5th of May 1818 in Trèves (Rhenish Prussia). His father, a Jewish lawyer, in 1824 went over to Christianity, and he and his whole family were baptized as Christian Protestants. The son went to the high grammar school at Trèves, and from 1835 to the universities of Bonn and Berlin. He studied first law, then history and philosophy, and in 1841 took the degree of doctor of philosophy. In Berlin he had close intimacy with the most prominent representatives of the young Hegelians—the brothers Bruno and Edgar Bauer and their circle, the so-called "Freien." He at first intended to settle as a lecturer at Bonn University, but his Radical views made a university career out of the question, and he accepted work on a Radical paper, the *Rheinische Zeitung*, which expounded the ideas of the most advanced section of the Rhenish Radical *bourgeoisie*. In October 1842 he became one of the editors of this paper, which, however, after an incessant struggle with press censors, was suppressed in the beginning of 1843. In the summer of this year Marx married Jenny von Westphalen, the daughter of a high government official. Through her mother Jenny von Westphalen was a lineal descendant of the earl of Argyle, who was beheaded under James II. She was a most faithful companion to Marx during all the vicissitudes of his career,

and died on the 2nd of December 1881; he outliving her only fifteen months.

Already in the *Rheinische Zeitung* some socialist voices had been audible, couched in a somewhat philosophical strain. Marx, though not accepting these views, refused to criticize them until he had studied the question thoroughly. For this purpose he went in the autumn of 1843 to Paris, where the socialist movement was then at its intellectual zenith, and where he, together with Arnold Ruge, the well-known literary leader of Radical Hegelianism, was to edit a review, the *Deutsch-französische Jahrbücher*, of which, however, only one number appeared. It contained two articles by Marx—a criticism of Bruno Bauer's treatment of the Jewish question, and an introduction to a criticism of Hegel's philosophy of the law. The first concluded that the social emancipation of the Jews could only be achieved together with the emancipation of society from Judaism, *i.e.* commercialism. The second declared that in Germany no partial political emancipation was possible; there was now only one class from which a real and reckless fight against authority was to be expected—namely, the proletariat. But the proletariat could not emancipate itself except by breaking all the chains, by dissolving the whole constituted society, by recreating man as a member of the human society in the place of established states and classes. "Then the day of German resurrection will be announced by the crowing of the Gallican cock." Both articles thus relegated the solution of the questions then prominent in Germany to the advent of socialism, and so far resembled in principle other socialist publications of the time. But the way of reasoning was different, and the final words of the last quoted sentence pointed to a political revolution, to begin in France as soon as the industrial evolution had created a sufficiently strong proletariat. In contradistinction to most of the socialists of the day, Marx laid stress upon the political struggle as the lever of social emancipation. In some letters which formed part of a correspondence between Marx, Ruge, Ludwig Feuerbach, and Mikhail Bakunin, published as an introduction to the review, this opposition of Marx to socialistic "dogmatism" was enunciated in a still more pronounced form: "Nothing prevents us," he said, "from combining our criticism with the criticism of politics, from participating in politics, and consequently in real struggles. We will not, then, oppose the world like doctrinaires with a new principle: here is truth, kneel down here! We expose new principles to the world out of the principles of the world itself. We don't tell it: 'Give up your struggles, they are rubbish, we will show you the true war-cry.' We explain to it only the real object for which it struggles, and consciousness is a thing it must acquire even if it objects to it."

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In Paris Marx met FRIEDRICH ENGELS (1820-1895), from whom the *Deutsch-französische Jahrbücher* had two articles—a powerfully written outline of a criticism of political economy, and a letter on Carlyle's *Past and Present*. Engels, the son of a wealthy cotton-spinner, was born in 1820 at Barmen. Although destined by his father for a commercial career, he attended a classical school, and during his apprenticeship and whilst undergoing in Berlin his one year's military service, he had given up part of his free hours to philosophical studies. In Berlin he had frequented the society of the "Freien," and had written letters to the *Rheinische Zeitung*. In 1842 he had gone to England, his father's firm having a factory near Manchester, and had entered into connexion with the Owenite and Chartist movements, as well as with German communists. He contributed to Owen's *New Moral World* and to the Chartist *Northern Star*, gave up much of his abstract speculative reasoning for a more positivist conception of things, and took to economic studies. Now, in September 1844, on a short stay in Paris, he visited Marx, and the two found that in regard to all theoretical points there was perfect agreement between them. From that visit dates the close friendship and uninterrupted collaboration and exchange of ideas which lasted during their lives, so that even some of Marx's subsequent works, which he published under his own name, are more or less also the work of Engels. The first result of their collaboration was the book *Die heilige Familie oder Kritik der kritischen Kritik, gegen Bruno Bauer und Konsorten*, a scathing exposition of the perverseness of the high-sounding speculative radicalism of Bauer and the other Berlin "Freie." By aid of an analysis, which, though not free from exaggeration and a certain diffuseness, bears testimony to the great learning of Marx and the vigorous discerning faculty of both the authors, it is shown that the supposed superior criticism—the "critical criticism" of the Bauer school, based upon the doctrine of a "self-conscious" idea, represented by or incarnated in the critic—was in fact inferior to the older Hegelian idealism. The socialist and working-class movements in Great Britain, France and Germany are defended against the superior criticism of the "holy" Bauer family.

In Paris, where he had very intimate intercourse with Heinrich Heine, who always speaks of him with the greatest respect, and some of whose poems were suggested by Marx, the latter contributed to a Radical magazine, the *Vorwärts*; but in consequence of a request by the Prussian government, nearly the whole staff of the magazine soon got orders to leave France. Marx now went to Brussels, where he shortly afterwards was joined by Engels. In Brussels he published his second great work, *La Misère de la philosophie*, a sharp rejoinder to the *Philosophie de la misère ou contradictions économiques* of J. P. Proudhon. In this he deals with Proudhon, whom in the former work he had defended against the Bauers, not less severely than with the latter. It is shown that in many points Proudhon is inferior to both the middle-class economists and the socialists, that his somewhat noisily proclaimed discoveries in regard to political economy were made long before by English socialists, and that his main remedies, the "constitution of the labour-value" and the establishment of exchange bazaars, were but a repetition of what English socialists had already worked out much more thoroughly and more consistently. Altogether the book shows remarkable knowledge of political economy. In justice to Proudhon, it must be added that it is more often his mode of speaking than the thought underlying the attacked sentences that is hit by Marx's criticism. In Brussels Marx and Engels also wrote a number of essays, wherein they criticized the German literary representatives of that kind of socialism and philosophic radicalism which was mainly influenced by the writings of Ludwig Feuerbach, and deduced its theorems or postulates from speculations on the "nature of man." They mockingly nicknamed this kind of socialism "German or True Socialism," and ridiculed the idea that by disregarding historical and class distinctions a conception of society and socialism superior to that of the English and French workers and theorists could be obtained. Some of these essays were published at the time, two or three, curiously enough, by one of the attacked writers in his own magazine; one, a criticism of Feuerbach himself, was in a modified form published by Engels in 1885, but others have remained in manuscript. They were at first intended for publication in two volumes as a criticism of post-Hegelian German philosophy, but the Revolution of 1848 postponed for a time all interest in theoretical discussions.

In Brussels Marx and Engels came into still closer contact with the socialist working-class movement. They founded a German workers' society, acquired a local German weekly, the *Brüsseller deutsche Zeitung*, and finally joined a communistic society of German workers, the "League of the Just," a secret society which had its main branches in London, Paris, Brussels and several Swiss towns. For this league, which till then had adhered to the rough-and-ready communism of the gifted German workman Wilhelm Weitling, but which now called itself "League of the Communists," and gave up its leanings towards conspiracy and became an educational and propagandist body, Marx and Engels at the end of 1847 wrote their famous pamphlet, *Manifest der Kommunisten*. It was a concise exposition of the history of the working-class movement in modern society according to their views, to which was added a critical survey of the existing socialist and communist literature, and an explanation of the attitude of the

Communists towards the advanced opposition parties in the different countries. Scarcely was the manifesto printed when, in February 1848, the Revolution broke out in France, and “the crowing of the Gallican cock” gave the signal for an upheaval in Germany such as Marx had prophesied. After a short stay in France, Marx and Engels went to Cologne in May 1848, and there with some friends they founded the *Neue rheinische Zeitung*, with the sub-title “An Organ of Democracy,” a political daily paper on a large scale, of which Marx was the chief editor. They took a frankly revolutionary attitude, and directed their criticism to a great extent against the middle-class democratic parties, who, by evading all decisive issues, delayed the achievement of the upheaval. When in November 1848 the king of Prussia dissolved the National Assembly, Marx and his friends advocated the non-payment of taxes and the organization of armed resistance. Then the state of siege was declared in Cologne, the *Neue rheinische Zeitung* was suspended, and Marx was put on trial for high treason. He was unanimously acquitted by a middle-class jury, but in May 1849 he was expelled from Prussian territory. He went to Paris, but was soon given the option of either leaving France or settling at a small provincial place. He preferred the former, and went to England. He settled in London, and remained there for the rest of his life.

At first he tried to reorganize the Communist League; but soon a conflict broke out in its ranks, and after some of its members had been tried in Germany and condemned for high treason, Marx, who had done everything to save the accused, dissolved the Communist League altogether. Nor was a literary enterprise, a review, also called the *Neue rheinische Zeitung*, more successful; only six numbers of it were issued. It contained, however, some very remarkable contributions; and a series of articles on the career of the French Revolution of 1848, which first appeared there, was in 1895 published by Engels in book form under the title of *Die Klassenkämpfe in Frankreich von 1848* by Karl Marx. Carlyle’s *Latter Day Pamphlets*, published at that time, met with a very vehement criticism in the *Neue rheinische Zeitung*. The endeavours of Ernest Jones and others to revive the Chartist movement were heartily supported by Marx, who contributed to several of the Chartist journals of the period, mostly, if not wholly, without getting or asking payment. He lived at this time in great financial straits, occupied a few small rooms in Dean Street, Soho, and all his children then born died very young. At length he was invited to write letters for the *New York Tribune*, whose staff consisted of advanced democrats and socialists of the Fourierist school. For these letters he was paid at the rate of a guinea each. Part of them, dealing with the Eastern Question and the Crimean War, were republished in 1897 (London, Sonnenschein). Some were even at the time reprinted in pamphlet form. The co-operation of Marx, who was determinedly anti-Russian, since Russia was the leading reactionary power in Europe, was obtained by David Urquhart and his followers. A number of Marx’s articles were issued as pamphlets by the Urquhartite committees, and Marx wrote a series of articles on the diplomatic history of the 18th century for the Urquhartite *Free Press* (Sheffield and London, 1856-1857). When in 1859 the Franco-Austrian War about Italy broke out, Marx denounced it as a Franco-Russian intrigue, directed against Germany on the one hand and the revolutionary movement in France on the other. He opposed those democrats who supported a war which in their eyes aimed at the independence of the Italian nation and promised to weaken Austria, whose superiority in Germany was the hindrance to German unity. Violent derogatory remarks directed against him by the well-known naturalist Karl Vogt gave occasion to a not less violent rejoinder, *Herr Vogt*, a book full of interesting material for the student of modern history. Marx’s contention, that Vogt acted as an agent of the Bonapartist clique, seems to have been well founded, whilst it must be an open question how far Vogt acted from dishonourable motives. The discussions raised by the war also resulted in a great estrangement between Marx and Ferdinand Lassalle. Lassalle had taken a similar view of the war to that advocated by Vogt, and fought tooth and nail for it in letters to Marx. In the same year, 1859, Marx published as a first result of his renewed economic studies the book *Zur Kritik der politischen Ökonomie*. It was the first part of a much larger work planned to cover the whole ground of political economy. But Marx found that the arrangement of his materials did not fully answer his purpose, and that many details had still to be worked out. He consequently altered the whole plan and sat down to rewrite the book, of which in 1867 he published the first volume under the title *Das Kapital*.

In the meantime, in 1864, the International Working Men’s Association was founded in London, and Marx became in fact though not in name, the head of its general council. All its addresses and proclamations were penned by him and explained in lectures to the members of the council. The first years of the International went smoothly enough. Marx was then at his best. He displayed in the International a political sagacity and toleration which compare most favourably with the spirit of some of the publications of the Communist League. He was more of its teacher than an agitator, and his expositions of such subjects as education, trade unions, the working day, and co-operation were highly instructive. He did not hurry on extreme resolutions, but put his proposals in such a form that they could be adopted by even the more backward sections, and yet contained no concessions to reactionary tendencies. But this condition of things was not permitted to go on. The anarchist agitation of Bakunin, the Franco-German War, and the Paris Commune created a state of things before which the International succumbed. Passions and prejudices ran so high that it proved impossible to maintain any sort of centralized federation. At the congress of the Hague, September 1872, the general council was removed from London to New York. But this was only a makeshift, and in July 1876 the rest of the old International was formally dissolved at a conference held in Philadelphia. That its spirit had not passed away was shown by subsequent international congresses, and by the growth and character of socialist labour parties in different countries. They have mostly founded their programmes on the basis of its principles, but are not always in their details quite in accordance with Marx’s views. Thus the programme which the German socialist party accepted at its congress in 1875 was very severely criticized by Marx. This criticism, reprinted in 1891 in the review *Die neue Zeit*, is of great importance for the analysis of Marx’s conception of socialism.

The dissolution of the International gave Marx an opportunity of returning to his scientific work. He did not, however, succeed in publishing further volumes of *Das Kapital*. In order to make it—and especially the part dealing with property in land—as complete as possible, he took up, as Engels tells us, a number of new studies, but repeated illness interrupted his researches, and on the 14th of March 1883 he passed quietly away.

From the manuscripts he left Engels compiled a second and a third volume of *Das Kapital* by judiciously and elaborately using complete and incomplete chapters, rough copies and excerpts, which Marx had at different times written down. Much of the copy used dates back to the ‘sixties, *i.e.* represents the work as at first conceived by Marx, so that, *e.g.*, the matter published as the third volume was in the main written much earlier than the matter which was used for compiling the second volume. The same applies to the fourth volume. Although the work thus comprises the four volumes promised in the preface to the book, it can only in a very restricted sense be regarded as complete. In substance and demonstration it must be regarded as a torso. And it is perhaps not quite accidental that it should be so. Marx, if he had lived longer and had enjoyed better health, would have given the world a much greater amount of scientific work of high value than is now the case. But it seems doubtful whether he would have brought *Das Kapital*, his main work, to a satisfactory conclusion.

Das Kapital proposes to show up historically and critically the whole mechanism of capitalist economy. The first

volume deals with the processes of producing capital, the second with the circulation of capital, the third with the movements of capital as a whole, whilst the fourth gives the history of the theories concerning capital. Capital is, according to Marx, the means of appropriating *surplus-value* as distinguished from ground rent (rent on every kind of terrestrial property, such as land, mines, rivers, &c., based upon the monopolist nature of such property). Surplus-value is created in the process of production only, it is this part of the value of the newly created product which is not given to the workman as a return—the *wage*—of the labour-force he expended in working. If at first taken by the employer, it is in the different phases of economic intercourse split up into the profit of industrial enterprise, commercial or merchants' profit, interest and ground rent. The value of every commodity consists in the labour expended on it, and is measured according to the time occupied by the labour employed on its production. Labour in itself has no value, being only the measure of value, but the labour-force of the workman has a value, the value of the means required to maintain the worker in normal conditions of social existence. Thus, in distinction to other commodities, in the determination of the value of labour-force, besides the purely economical, a *moral and historical* element enter. If to-day the worker receives a wage which covers the bare necessities of life, he is underpaid—he does not receive the real value of his labour-force. For the value of any commodity is determined by its socially necessary costs of production (or in this case, maintenance). "Socially necessary" means, further, that no more labour is embodied in a commodity than is required by applying labour-force, tools, &c., of average or normal efficiency, and that the commodity is produced in such quantity as is required to meet the effective demand for it. As this generally cannot be known in advance, the market value of a commodity only gravitates round its (abstract) value. But in the long run an equalization takes place, and for his further deductions Marx assumes that commodities exchange according to their value.

That part of an industrial capital which is employed for installations, machines, raw and auxiliary materials, is called by Marx *constant capital*, for the value of it or of its wear and tear reappears in equal proportions in the value of the new product. It is otherwise with labour. The new value of the product must by necessity be always higher than the value of the employed labour-force. Hence the capital employed in buying labour-force, *i.e.* in wages, is called *variable capital*. It is the tendency of capitalist production to reduce the amount spent in wages and to increase the amount invested in machines, &c. For with natural and social, legal and other limitations of the working day, and the opposition to unlimited reduction of wages, it is not possible otherwise to cheapen production and beat competition. According to the proportion of constant to variable capital, Marx distinguishes capitals of *lowest average* and *highest composition*, the highest composition being that where proportionately the least amount of variable (wages) capital is employed.

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The ratio of the wages which workmen receive to the surplus-value which they produce Marx calls the *rate of surplus-value*; that of the surplus-value produced to the whole capital employed is the *rate of profit*. It is evident, then, that at the same time the rate of surplus-value can increase and the rate of profit decrease, and this in fact is the case. There is a continuous tendency of the rates of profit to decrease, and only by some counteracting forces is their decrease temporarily interrupted, protracted, or even sometimes reversed. Besides, by competition and movement of capitals the rates of profit in the different branches of trade are pressed towards an *equalization* in the shape of an *average rate of profits*. This average rate of profits, added to the actual cost price of a given commodity, constitutes its *price of production*, and it is this price of production which appears to the empirical mind of the business man as the value of the commodity. The real law of value, on the contrary, disappears from the surface in a society where, as to-day, commodities are bought and sold against money and not exchanged against other commodities. Nevertheless, according to Marx, it is also to-day this law of value ("labour-value") which in the last resort rules the prices and profits.

The tendency to cheapen production by increasing the relative proportion of constant capital—the fixed capital of the classical economist plus that portion of the circulating capital which consists of raw and auxiliary materials, &c.—leads to a continuous increase in the size of private enterprises, to their growing concentration. It is the larger enterprise that beats and swallows the smaller. The number of dependent workmen—"proletarians"—is thus continually growing, whilst employment only periodically keeps pace with their number. Capital alternately attracts and repels workmen, and creates a constant surplus-population of workmen—a *reserve-army* for its requirements—which helps to lower wages and to keep the whole class in economic dependency. A decreasing number of capitalists usurp and monopolize all the benefits of industrial progress, whilst the mass of misery, of oppression, of servitude, of depravation, and of exploitation increases. But at the same time the working class continuously grows in numbers, and is disciplined, united and organized by the very mechanism of the capitalist mode of production. The centralization of the means of production and the socialization of the mode of production reach a point where they will become incompatible with their capitalist integument. Then the knell of capitalist private property will have been rung. Those who used to expropriate will be expropriated. Individual property will again be established based upon co-operation and common ownership of the earth and the means of production produced by labour.

These are the principal outlines of *Das Kapital*. Its purely economic deductions are dominated throughout by the *theory of surplus-value*. Its leading sociological principle is the *materialist conception of history*. This theory is in *Das Kapital* only laid down by implication, but it has been more connectedly explained in the preface of *Zur Kritik* and several works of Engels. According to it the material basis of life, the manner in which life and its requirements are produced, determines in the last instance the social ideas and institutions of the time or historical epoch, so that fundamental changes in the former produce in the long run also fundamental changes in the latter. A set of social institutions answer to a given mode of production, and periods where the institutions no longer answer to the mode of production are periods of social revolution, which go on until sufficient adjustment has taken place. The main *subjective* forces of the struggle between the old order and the new are *the classes* into which society is divided after the dissolution of the communistic or semi-communistic tribes and the creation of states. And as long as society is divided into classes a class war will persist, sometimes in a more latent or disguised, sometimes in a more open or acute form, according to circumstances. In advanced capitalist society the classes between whom the decisive war takes place are the capitalist owners of the means of production and the non-propertied or wage-earning workers, the "proletariate." But the proletariat cannot free itself without freeing all other oppressed classes, and thus its victory means the end of exploitation and political repression altogether. Consequently the state as a repressive power will die out, and a free association will take its place.

Almost from the first *Das Kapital* and the publications of Marx and Engels connected with it have been subjected to all kinds of criticisms. The originality of its leading ideas has been disputed, the ideas themselves have been declared to be false or only partially true, and consequently leading to wrong conclusions; and it has been said of many of Marx's statements that they are incorrect, and that many of the statistics upon which he bases his deductions do not prove what he wants them to prove. In regard to the first point, it must be conceded that the *disjecta membra* of Marx's value theory and of his materialist conception of history are already to be found in the writings of former socialists and sociologists. It may even be said that just those points of the Marxist doctrine which have become popular are in a very small degree the produce of Marx's genius, and that what really belongs to Marx, the methodical conjunction and elaboration of these points, as well as the finer deductions drawn from their application, are generally ignored. But this is an experience repeated over and over again in the history of deductive

It must further be admitted that in several places the statistical evidence upon which Marx bases his deductions is insufficient or inconclusive. Moreover—and this is one of the most damaging admissions—it repeatedly happens that he points out all the phenomena connected with a certain question, but afterwards ignores some of them and proceeds as if they did not exist. Thus, *e.g.*, he speaks at the end of the first volume, where he sketches the historical tendency of capitalist accumulation, of the decreasing number of magnates of capital as of an established fact. But all statistics show that the number of capitalists does not decrease, but increase; and in other places in *Das Kapital* this fact is indeed fully admitted, and even accentuated. Marx was, as the third volume shows, also quite aware that limited liability companies play an important part in the distribution of wealth. But he leaves this factor, too, quite out of sight, and confuses the concentration of private enterprises with the centralization of fortunes and capitals. By these and other omissions, quite apart from developments he could not well foresee, he announces a coming evolution which is very unlikely to take place in the way described.

In this and in other features of his work a *dualism* reveals itself which is also often observable in his actions in life—the alternating predominance of the spirit of the scholar and the spirit of the radical revolutionary. Marx originally entitled his great social work *Criticism of Political Economy*, and this is still the sub-title of *Das Kapital*. But the conception of *critic* or *criticize* has with Marx a very pronounced meaning. He uses them mostly as identical with fundamentally opposing. Much as he had mocked the “critical criticism” of the Bauers, he is in this respect yet of their breed and relapses into their habits. He retained in principle the Hegelian dialectical method, of which he said that in order to be rationally employed it must be “turned upside down,” *i.e.* put upon a materialist basis. But as a matter of fact he has in many respects contravened against this prescription. Strict materialist dialectics cannot conclude much beyond actual facts. Dialectical materialism is revolutionary in the sense that it recognizes no finality, but otherwise it is necessarily positivist in the general meaning of that term. But Marx's opposition to modern society was fundamental and revolutionary, answering to that of the proletariat to the *bourgeois*. And here we come to the main and fatal contradiction of his work. He wanted to proceed, and to a very great extent did proceed, scientifically. Nothing was to be deduced from preconceived ideas; from the observed evolutionary laws and forces of modern society alone were conclusions to be drawn. And yet the final conclusion of the work, as already noted, is a preconceived idea; it is the announcement of a state of society logically opposed to the given one. Imperceptibly the dialectical movement of *ideas* is substituted for the dialectical movement of facts, and the real movement of facts is only considered so far as is compatible with the former. Science is violated in the service of speculation. The picture given at the end of the first volume answers to a conception arrived at by speculative socialism in the 'forties. True, Marx calls this chapter “the historical tendency of capitalist accumulation,” and “tendency” does not necessarily mean realization in every detail. But on the whole the language used there is much too absolute to allow of the interpretation that Marx only wanted to give a speculative picture of the goal to which capitalist accumulation would lead if unhampered by socialist counteraction. The epithet “historical” indicates rather that the passage in question was meant to give in the main the true outline of the forthcoming social revolution. We are led to this conclusion also by the fact that, in language which is not in the least conditional, it is there said that the change of capitalist property into social property will mean “only the expropriation of a few usurpers by the mass of the people.” In short, the principal reason for the undeniable contradictions in *Das Kapital* is to be found in the fact that where Marx has to do with details or subordinate subjects he mostly notices the important changes which actual evolution had brought about since the time of his first socialist writings, and thus himself states how far their presuppositions have been corrected by facts. But when he comes to general conclusions, he adheres in the main to the original propositions based upon the old uncorrected presuppositions. Besides, the complex character of modern society is greatly under-estimated, so that, *e.g.*, such important features as the influence of the changes of traffic and aggregation on modern life are scarcely considered at all; and industrial and political problems are viewed only from the aspect of class antagonism, and never under their administrative aspect. With regard to the theory of surplus-value and its foundation, the theory of labour-value, so much may be safely said that, its premisses accepted, it is most ingeniously and most consistently worked out. And since its principal contention is in any case so far true that the wage-earning workers as a whole produce more than they receive, the theory has the great merit of demonstrating in an admirably lucid way the relations between wages and surplus-produce and the growth and movements of capital. But the theory of labour-value as the determining factor of the exchange or market value of commodities can with justification be disputed, and is surely not more true than those theories of value based on social demand or utility. Marx himself, in placing in the third volume what he calls the *law of value* in the background and setting out the formation of the “price of production” as the empirical determinator of prices in modern society, justifies those who look upon the conception of labour-value as an abstract formula which does not apply to individual exchanges of commodities at all, but which only serves to show an imagined typical example of what in reality to-day is only true with regard to the production of the whole of social wealth. Thus understood, the conception of labour-value is quite unobjectionable, but it loses much of the significance attributed to it by most of the disciples of Marx and occasionally by Marx himself. It is a means of analysing and exemplifying surplus labour, but quite inconclusive as to the proof of the surplus value, or as an indication of the degree of the exploitation of the workers. This becomes the more apparent the more the reader advances in the second and third volumes of *Das Kapital*, where commercial capital, money capital and ground rent are dealt with. Though full of fine observations and deductions, they form, from a revolutionary standpoint, an anti-climax to the first volume. It is difficult to see how, after all that is explained there on the functions of the classes that stand between industrial employers and workers, Marx could have returned to those sweeping conclusions with which the first volume ends.

The great scientific achievement of Marx lies, then, not in these conclusions, but in the *details* and yet more in the *method* and *principles* of his investigations in his *philosophy of history*. Here he has, as is now generally admitted, broken new ground and opened new ways and new outlooks. Nobody before him had so clearly shown the rôle of the productive agencies in historical evolution; nobody so masterfully exhibited their great determining influence on the forms and ideologies of social organisms. The passages and chapters dealing with this subject form, notwithstanding occasional exaggerations, the crowning parts of his works. If he has been justly compared with Darwin, it is in these respects that he ranks with that great genius, not through his value theory, ingenious though it be. With the great theorist of biological transformation he had also in common the indefatigable way in which he made painstaking studies of the minutest details connected with his researches. In the same year as Darwin's epoch-making work on the origin of species there appeared also Marx's work *Zur Kritik der politischen Ökonomie*, where he explains in concise sentences in the preface that philosophy of history which has for the theory of the transformation or evolution of social organisms the same significance that the argument of Darwin had for the theory of the transformation of biological organisms.

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(E. Bn.)



MARY¹ (Μαρία, Μαριάμ), the mother of Jesus. At the time when the gospel history begins, she had her home in Galilee, at the village of Nazareth. Of her parentage nothing is recorded in any extant historical document of the 1st century, for the genealogy in Luke iii. (cf. i. 27) is manifestly that of Joseph. In early life she became the wife of Joseph (*q.v.*) and the mother of Jesus Christ; that she afterwards had other children is a natural inference from Matt. i. 25, which the evangelists, who frequently allude to "the brethren of the Lord," are at no pains to obviate. The few incidents mentioned in Scripture regarding her show that she followed our Lord to the very close of His earthly career with unfailing motherliness, but the "Magnificat" assigned to her in Luke i. is the only passage which would distinctly imply on her part a high prophetic appreciation of His divine mission. It is however doubtful whether Luke really intended to assign this hymn to Mary or to Elizabeth (cf. especially *Niceta of Remesiana* by A. E. Burn, Cambridge, 1905; Harnack's "Das Magnificat der Elizabeth" in the *Sitzungsberichte* of the Berlin Academy for 1900, and Burkitt's "Who spoke the Magnificat?" in the *Journal of Theological Studies*, Jan. 1906). The original text of Luke probably mentioned no name in introducing the Magnificat; scribes supplied the ambiguity by inserting, some Mary, others Elizabeth. It is doubtful which represents the intention of the writer: there is perhaps more to be said for the view that he meant to assign the Magnificat to Elizabeth. Mary was present at the Crucifixion, where she was commended by Jesus to the care of the apostle John (John xix. 26, 27), Joseph having apparently died before this time. Mary is mentioned in Acts i. 14 as having been among those who continued in prayer along with the apostles at Jerusalem during the interval between the Ascension and Pentecost. There is no allusion in the New Testament to the time or place of her death.

The subsequent growth of ecclesiastical tradition and belief regarding Mary will be traced most conveniently under the separate heads of (1) her perpetual virginity, (2) her absolute sinlessness, (3) her peculiar relation to the Godhead, which specially fits her for successful intercession on behalf of mankind.

Her Perpetual Virginity.—This doctrine was, to say the least, of no importance in the eyes of the evangelists, and so far as extant writings go there is no evidence of its having been anywhere taught within the pale of the Catholic Church of the first three centuries. On the contrary, to Tertullian the fact of Mary's marriage after the birth of Christ is a useful argument for the reality of the Incarnation against gnostic notions, and Origen relies upon the references to the Lord's brethren as disproving the Docetism with which he had to contend. The ἀειπαρθενία though very ancient, is in reality a doctrine of non-Catholic origin, and first occurs in a work proscribed by the earliest papal *Index librorum prohibitorum* (attributed to Gelasius) as heretical,—the so-called *Protevangelium Jacobi*, written, it is generally admitted, within the 2nd century. According to this very early source, which seems to have formed the basis of the later *Liber de infantia Mariae et Christi salvatoris* and *Evangelium de nativitate Mariae*, the name of Mary's father was Joachim (in the *Liber de infantia* a shepherd of the tribe of Judah, living in Jerusalem); he had long been married to Anna her mother, whose continual childlessness had become a cause of much humiliation and sorrow to them both. The birth of a daughter was at last angelically predicted to each parent separately. From her third to her twelfth year "Mary was in the Temple as if she were a dove that dwelt there, and she received food from the hand of an angel." When she became of nubile age a guardian was sought for her by the priests among the widowers of Israel "lest she should defile the sanctuary of the Lord"; and Joseph, an elderly man with a family, was indicated for this charge by a miraculous token. Some time afterwards the annunciation took place; when the Virgin's pregnancy was discovered, Joseph and she were brought before the high priest, and, though asserting their innocence in all sincerity, were acquitted only after they had been tried with "the water of the ordeal of the Lord" (Num. v. 11). Numerous details regarding the birth at Bethlehem are then given. The perpetual physical virginity of Mary, naively insisted upon in this apocryphon, is alluded to only with a half belief and a "some say" by Clement of Alexandria (*Strom.* vii. 16), but became of much importance to the leaders of the Church in the 4th century, as for example to Ambrose, who sees in Ezek. xlv. 1-3 a prophetic indication of so great a mystery.² Those who continued to believe that Mary, after the miraculous birth of Jesus, had become the mother of other children by Joseph came

accordingly to be spoken of as her enemies—Antidicomarianitae (Epiphanius) or Antidicomaritae (Augustine)—and the first-mentioned author devotes a whole chapter (ch. 78) of his great work upon heresies to their confutation. For holding the same view Bonosus of Sardica was condemned by the synod of Capua in 391. To Jerome the perpetual virginity not only of Mary but even of Joseph appeared of so much consequence that while a young man he wrote (387) the long and vehement tract *Against Helvidius*, in which he was the first to broach the theory (which has since gained wide currency) that the brethren of our Lord were children neither of Mary by her husband nor of Joseph by a former marriage, but of another Mary, sister to the Virgin and wife of Clopas or Alphaeus. At last the epithet of ἅγιος παρθένος was authoritatively applied to the Virgin by the council of Chalcedon in 451, and the doctrine implied has ever since been an undisputed point of orthodoxy both in the Eastern and in the Roman Churches, some even seeking to hold the Anglican Church committed to it on account of the general declaration (in the *Homilies*) of concurrence in the decisions of the first four general councils.

Her Absolute Sinlessness.—While much of the apocryphal literature of the early sects in which she is repeatedly spoken of as “undefiled before God” would seem to encourage some such doctrine as this, many passages from the acknowledged fathers of the Church could be cited to show that it was originally quite unknown to Catholicism. Even Augustine repeatedly asserts that she was born in original sin (*De gen. ad lit.* x. 18); and the *locus classicus* regarding her possible immunity from actual transgression, on which the subsequent doctrine of Lombardus and his commentators was based, is simply an extremely guarded passage (*De nat. et grat.* ch. 36), in which, while contradicting the assertion of Pelagius that many had lived free from sin, he wishes exception to be made in favour of “the holy Virgin Mary, of whom out of honour to the Lord I wish no question to be made where sins are treated of—for how do we know what mode of grace wholly to conquer sin may have been bestowed upon her who was found meet to conceive and bear Him of whom it is certain that He had no sin.” A writer so late as Anselm (*Cur deus homo*, ii. 16), declares that “the Virgin herself whence He (Christ) was assumed was conceived in iniquity, and in sin did her mother conceive her, and with original sin was she born, because she too sinned in Adam in whom all sinned,” and the same view was expressed by Damiani. For the growth of the modern Roman doctrine of the immaculate conception from the time in the 12th century, when the canons of Lyons sought to institute a festival in honour of her “holy conception,” and were remonstrated with by Bernard, see [IMMACULATE CONCEPTION](#). The epithets applied to her in the Greek Church are such as ἀμόλυτος, πάναγνος, ἁγία, παναγία; but in the East generally no clear distinction is drawn between immunity from actual sin and original sinlessness.

Her Peculiar Relation to the Godhead, which specially fits Her for Successful Intercession on Behalf of Mankind.—It seems probable that the epithet θεοτόκος (“Mother of God”) was first applied to Mary by theologians of Alexandria towards the close of the 3rd century; but it does not occur in any genuine extant writing of that period, unless we are to assign an early date to the apocryphal *Transitus Mariae*, in which the word is of frequent occurrence. In the 4th century it is met with frequently, being used by Eusebius, Athanasius, Didymus and Gregory of Nazianzus,—the latter declaring that the man who believes not Mary to have been θεοτόκος has no part in God (*Orat.* li. p. 738).³ If its use was first recommended by a desire to bring into prominence the divinity of the Incarnate Word, there can be no doubt that latterly the expression came to be valued as directly honourable to Mary herself and as corresponding to the greatly increased esteem in which she personally was held throughout the Catholic world, so that when Nestorius and others began to dispute its propriety, in the following century, their temerity was resented, not as an attack upon the established orthodox doctrine of the Nicene creed, but as threatening a more vulnerable and more tender part of the popular faith. It is sufficient in illustration of the drift of the theological opinion to refer to the first sermon of Proclus, preached on a certain festival of the Virgin (παρήγουρος παρθενική) at Constantinople about the year 430 or to that of Cyril of Alexandria delivered in the church of the Virgin Mary at the opening of the council of Ephesus in 431. In the former the orator speaks of “the holy Virgin and Mother of God” as “the spotless treasure-house of virginity, the spiritual paradise of the second Adam; the workshop in which two natures were welded together ... the one bridge between God and men”;⁴ in the latter she is saluted as the “mother and virgin,” “through whom (δι’ ἧς) the Trinity is glorified and worshipped, the cross of the Saviour exalted and honoured, through whom heaven triumphs, the angels are made glad, devils driven forth, the tempter overcome, and the fallen creature raised up even to heaven.” The response which such language found in the popular heart was sufficiently shown by the shouts of joy with which the Ephesian mob heard of the deposition of Nestorius, escorting his judges with torches and incense to their homes, and celebrating the occasion by a general illumination. The causes which in the preceding century had led to this exaltation of the Mother of God in the esteem of the Catholic world are not far to seek. On the one hand the solution of the Arian controversy, however correct it may have been theoretically, undoubtedly had the practical effect of relegating the God-man redeemer for ordinary minds into a far away region of “remote and awful Godhead,” so that the need for a mediator to deal with the very Mediator could not fail to be felt. On the other hand, the religious instincts of mankind are very ready to pay worship, in grosser or more refined forms, to the idea of womanhood; at all events many of those who became professing Christians at the political fall of Paganism entered the Church with such instincts (derived from the nature-religions in which they had been brought up) very fully developed. Probably it ought to be added that the comparative colourlessness with which the character of Mary is presented, not only in the canonical gospels but even in the most copious of the apocrypha, left greater scope for the untrammelled exercise of devout imagination than was possible in the case of Christ, in the circumstances of whose humiliation and in whose recorded utterances there were many things which the religious consciousness found difficulty in understanding or in adapting to itself. At all events, from the time of the council of Ephesus, to exhibit figures of the Virgin and Child became the approved expression of orthodoxy, and the relationship of motherhood in which Mary had been formally declared to stand to God⁵ was instinctively felt to give the fullest and freest sanction of the Church to that invocation of her aid which had previously been resorted to only hesitatingly and occasionally. Previously to the council of Ephesus, indeed, the practice had obtained complete recognition, so far as we know, in those circles only in which one or other of the numerous redactions of the *Transitus Mariae* passed current.⁶ There we read of Mary’s prayer to Christ: “Do Thou bestow Thine aid upon every man calling upon, or praying to, or naming the name of Thine handmaid”; to which His answer is, “Every soul that calls upon Thy name shall not be ashamed, but shall find mercy and support and confidence both in the world that now is and in that which is to come in the presence of My Father in the heavens.” But Gregory of Nazianzus also, in his panegyric upon Justina, mentions with incidental approval that in her hour of peril she “implored Mary the Virgin to come to the aid of a virgin in her danger.”⁷ Of the growth of the Marian cultus, alike in the East and in the West, after the decision at Ephesus it would be impossible to trace the history, however slightly, within the limits of the present article. Justinian in one of his laws bespeaks her advocacy for the empire, and he inscribes the high altar in the new church of St Sophia with her name. Narses looks to her for directions on the field of battle. The emperor Heraclius bears her image on his banner. John of Damascus speaks of her as the sovereign lady to whom the whole creation has been made subject by her son. Peter Damian recognizes her as the most exalted of all creatures, and apostrophizes her as deified and endowed with all power in heaven and in earth, yet not forgetful of our race.⁸ In a word, popular devotion gradually developed the entire system of doctrine

and practice which Protestant controversialists are accustomed to call by the name of Mariolatry. With reference to this much-disputed phrase it is always to be kept in mind that the directly authoritative documents, alike of the Greek and of the Roman Church, distinguish formally between *latria* and *dulia*, and declare that the "worship" to be paid to the mother of God must never exceed that superlative degree of *dulia* which is vaguely described as *hyperdulia*. But the comparative reserve shown by the council of Trent in its decrees, and even in its catechism,⁹ on this subject has not been observed by individual theologians, and in view of the fact of the canonization of some of these (such as Liguori)—a fact guaranteeing the absence of erroneous teaching from their writings—it does not seem unfair, to hold the Roman Church responsible for the natural interpretations and just inferences which may be drawn even from apparently exaggerated expressions in such works as the well-known *Glories of Mary* and others frequently quoted in controversial literature. There is a good *résumé* of Catholic developments of the cultus of Mary in Pusey's *Eirenicon*.

The following are the principal feasts of the Virgin in the order in which they occur in the ecclesiastical year. (1) That of the Presentation (*Praesentatio B. V. M.*, τὰ εἰσόδια τῆς θεοτόκου), to commemorate the beginning of her stay in the Temple, as recorded in the *Protevangelium Jacobi*. It is believed to have originated in the East in the 8th century, the earliest allusion to it being made by George of Nicomedia (9th century); Manuel Comnenus made it universal for the Eastern Empire, and in the modern Greek Church it is one of the five great festivals in honour of the Deipara. It was introduced into the Western Church late in the 14th century, and, after having been withdrawn from the calendar by Pius V., was restored by Sixtus V., the day observed in both East and West being the 21st of November. It is not mentioned in the English calendar. (2) The Feast of the Conception (*Conceptio B. V. M.*, *Conceptio immaculata B. V. M.*, σύλληψις τῆς ἁγίας Ἄννης), observed by the Roman Catholic Church on the 8th of December, and by all the Eastern Churches on the 9th of December, has already been explained; in the Greek Church it only ranks as one of the middle festivals of Mary. (3) The Feast of the Purification (*Occursus, Obvatio, Praesentatio, Festum SS Simeonis et Annae, Purificatio, Candelaria, ὑπαπαντή, ὑπαντή*) is otherwise known as CANDLEMAS. (4) The Feast of the Annunciation of the Virgin Mary (*Annunciatio, Εὐαγγελισμός*). It may be mentioned that at the council of Toledo in 656 it was decreed that this festival should be observed on the 18th of December, in order to keep clear of Lent. (5) The Feast of the Visitation (*Visitatio B. V. M.*) was instituted by Urban VI., promulgated in 1389 by Boniface IX., and reappointed by the council of Basel in 1441 in commemoration of the visit paid by Mary to Elizabeth. It is observed on the 2nd of July, and has been retained in the English calendar. (6) The Feast of the Assumption (*Dormitio, Pausatio, Transitus, Depositio, Migratio, Assumptio, καίμησις, μετάστασις, ἀνάληψις*) has reference to the apocryphal story related in several forms in various documents of the 4th century condemned by Pope Gelasius. Their general purport is that as the time drew nigh for "the most blessed Virgin" (who is also spoken of as "Holy Mary," "the queen of all the saints," "the holy spotless Mother of God") to leave the world, the apostles were miraculously assembled round her deathbed at Bethlehem on the Lord's Day, whereupon Christ descended with a multitude of angels and received her soul. After "the spotless and precious body" had been laid in the tomb, "suddenly there shone round them (the apostles) a miraculous light," and it was taken up into heaven. The first Catholic writer who relates this story is Gregory of Tours (c. 590); Epiphanius two centuries earlier had declared that nothing was known as to the circumstances of Mary's death and burial; and one of the documents of the council of Ephesus implies a belief that she was buried in that city. The Sleep of the Theotokos is observed in the Greek Church as a great festival on the 15th of August; the Armenian Church also commemorates it, but the Ethiopic Church celebrates her death and burial on two separate days. The earliest allusion to the existence of such a festival in the Western Church seems to be that found in the proceedings of the synod of Salzburg in 800; it is also spoken of in the thirty-sixth canon of the reforming synod of Mainz, held in 813. It was not at that time universal, being mentioned as doubtful in the capitularies of Charlemagne. The doctrine of the bodily assumption of the Virgin into heaven, although extensively believed, and indeed flowing as a natural theological consequence from that of her sinlessness, has never been declared to be "de fide" by the Church of Rome, and is still merely a "pia sententia." (7) The Nativity of Mary (*Nativitas, γενέθλιον τῆς θεοτόκου*) observed on the 8th of September, is first mentioned in one of the homilies of Andrew of Crete (c. 750), and with the Feasts of the Purification, the Annunciation and the Assumption, it was appointed to be observed by the synod of Salzburg in 800, but seems to have been unknown at that time in the Gallican Church, and even two centuries later it was by no means general in Italy. In the Roman Catholic Church a large number of minor festivals in honour of the Virgin are locally celebrated; and all the Saturdays of the year as well as the entire month of May are also regarded as sacred to her.

The chief apocryphal writings concerned with Mary are the following: (1) The *Portevangelium Jacobi*, with its derivatives the *De nativitate Mariae*, the *Evangelium Ps.-Matthaei*, the *Historia Josephi fabri lignarii* (all edited by Tischendorf, *Evangelia apocrypha*; cf. Harnack, *Geschichte der altchristlichen Litteratur*, p. 20 seq. and *Chronologie*, i. 598 sqq.). (2) *Evangelium Mariae* (see *Sitzungsberichte der Berlinischen Akademie der Wissenschaften* 1896, pp. 839-847). (3) Ἰωάννου τοῦ θεολόγου λόγος εἰς τὴν κοίμησιν τῆς θεοτόκου, which appears in Latin under the title of the *Transitus Mariae* (ed. Tischendorf, *Apocalypses apocryphae* and *Evangelia apocrypha*, and see Bonnet, *Zeitschr. f. wissensch. Theol.*, 1880, pp. 222-247).

(J. S. BL.; K. L.)

- 1 The name (Heb. מַרְיָם), that of the sister of Moses and Aaron, is of uncertain etymology; many interpretations have been suggested, including *Stella maris* ("star of the sea"), which, though it has attained considerable currency through Jerome (the *Onomasticon*), may be at once dismissed. It seems to have been very common among the Jews in New Testament times: besides the subject of the present notice there are mentioned (1) "Mary (the wife) of Clopas," who was perhaps the mother of James "the little" (ὁ μικρός) and of Josès; (2) Mary Magdalene, *i.e.* of Magdala; (3) Mary of Bethany, sister of Martha and Lazarus; (4) Mary, the mother of Mark; and (5) Mary, an otherwise unknown benefactress of the apostle Paul (Rom. xvi. 6).
- 2 *De Inst. Virg.*, "quæ est hæc porta nisi Maria? ... per quam Christus intravit in hunc mundum, quando virginali fusus est partu et genitalia virginitatis claustra non solvit."
- 3 See Gieseler (*KG.*, Bd. i. Abth. 1), who points out instances in which anti-Arianizing zeal went so far as to call David θεοπάτωρ and James ἀδελφῶθεος.
- 4 Labbé, *Conc.* iii. 51. Considerable extracts are given by Augusti (*Denkw.* iii.); see also Milman (*Lat. Christ.* i. 185), who characterizes much of it as a "wild labyrinth of untranslatable metaphor."
- 5 The term θεοτόκος does not actually occur in the canons of Ephesus. It is found, however, in the creed of Chalcedon.
- 6 It is true that Irenæus (*Haer.* v. 19, 1) in the passage in which he draws his well-known parallel and contrast between the first and second Eve (cf. Justin, *Dial. c. Tryph.* 100), to the effect that "as the human race fell into bondage to death by a virgin, so is it rescued by a virgin," takes occasion to speak of Mary as the "advocata" of Eve; but it seems certain that this word is a translation of the Greek συνήγορος, and implies hostility and rebuke rather than advocacy.
- 7 It is probable that the commemorations and invocations of the Virgin which occur in the present texts of the ancient liturgies of "St James" and "St Mark" are due to interpolation. In this connexion ought also to be noted the chapter in Epiphanius (*Haer.*, 79) against the "Collyridians," certain women in Thrace, Scythia and Arabia, who were in the habit of worshipping the Virgin (ἀεὶ παρθένον) as a goddess, the offering of a cake (καλλυρίδα τυνά) being one of the features of their

worship. He rebukes them for offering the worship which was due to the Trinity alone; "let Mary be held in honour, but by no means worshipped." The cultus was probably a relic of heathenism; cf. Jer. xliv. 19.

- 8 "Numquid quia ita deificata, ideo nostrae humanitatis oblita es? Nequaquam, Domina.... Data est tibi omnis potestas in coelo et in terra. Nil tibi impossibile." *Serm. de nativ. Mariae*, ap. Gieseler, *KG*, Bd. ii. Abth. 1.
- 9 The points taught in the catechism are—that she is truly the Mother of God, and the second Eve, by whose means we have received blessing and life; that she is the Mother of Pity, and very specially our advocate; that her merits are highly exalted, and that her dispositions towards us are extremely gracious; that her images are of the utmost utility. In the *Missal* her intercessions (though alluded to in the canon and elsewhere) are seldom directly appealed to except in the Litany and in some of the later offices, such as those for the 8th of September and for the Festival of the Seven Sorrows (decree by Benedict XIII. in 1727). Noteworthy are the versicles in the office for the 8th of December (The Feast of the Immaculate Conception), "Tota pulchra es, Maria, et macula originalis non est in te," and "Gloriosa dicta sunt de te, Maria, quia fecit tibi magna qui potens est."



MARY, known as **MARY MAGDALENE**, a woman mentioned in the Gospels, first in Luke viii. 2, as one of a company who "healed of evil spirits and infirmities ... ministered unto them (Jesus and the apostles) of their substance." It is said that seven demons were cast out of her, but this need not imply simply one occasion. Her name implies that she came from Magdala (el-Mejdel, 3 m. N.W. from Tiberias: in Matt. xv. 39 the right reading is not Magdala by Magadan). She went with Jesus on the last journey to Jerusalem, witnessed the Crucifixion, followed to the burial, and returned to prepare spices. John xx. gives an account of her finding the tomb empty and of her interview with the risen Jesus. Mary of Magdala has been confounded (1) with the unnamed fallen woman who in Simon's house anointed Christ's feet (Luke vii. 37); (2) with Mary of Bethany, sister of Lazarus and Martha.



MARY I., queen of England (1516-1558), unpleasantly remembered as "the Bloody Mary" on account of the religious persecutions which prevailed during her reign, was the daughter of Henry VIII. and Catherine of Aragon, born in the earlier years of their married life, when as yet no cloud had darkened the prospect of Henry's reign. Her birth occurred at Greenwich, on Monday, the 18th February 1516, and she was baptized on the following Wednesday, Cardinal Wolsey standing as her godfather. She seems to have been a singularly precocious child, and is reported in July 1520, when scarcely four and a half years old, as entertaining some visitors by a performance on the virginals. When she was little over nine she was addressed in a complimentary Latin oration by commissioners sent over from Flanders on commercial matters, and replied to them in the same language "with as much assurance and facility as if she had been twelve years old" (Gayangos, iii. pt. 1, 82). Her father was proud of her achievements. About the same time that she replied to the commissioners in Latin he was arranging that she should learn Spanish, Italian and French. A great part, however, of the credit of her early education was undoubtedly due to her mother, who not only consulted the Spanish scholar Vives upon the subject, but was herself Mary's first teacher in Latin. She was also well instructed in music, and among her principal recreations as she grew up was that of playing on the virginals and lute.

It was a misfortune that she shared with high-born ladies generally in those days that her prospects in life were made a matter of sordid bargaining from the first. Mary was little more than two years old when she was proposed in marriage to the dauphin, son of Francis I. Three years afterwards the French alliance was broken off, and in 1522 she was affianced to her cousin the young emperor Charles V. by the Treaty of Windsor. No one, perhaps, seriously expected either of these arrangements to endure; and, though we read in grave state papers of some curious compliments and love tokens (really the mere counters of diplomacy) professedly sent by the girl of nine to her powerful cousin, not many years passed away before Charles released himself from this engagement and made a more convenient match. In 1526 a rearrangement was made of the royal household, and it was thought right to give Mary an establishment of her own along with a council on the borders of Wales, for the better government of the Marches. For some years she accordingly kept her court at Ludlow, while new arrangements were made for the disposal of her hand. She was now proposed as a wife, not for the dauphin as before, but for his father Francis I., who had just been redeemed from captivity at Madrid, and who was only too glad of an alliance with England to mitigate the severe conditions imposed on him by the emperor. Wolsey, however, on this occasion, only made use of the princess as a bait to enhance the terms of the compact, and left Francis free in the end to marry the emperor's sister.

It was during this negotiation, as Henry afterwards pretended, that the question was first raised whether Henry's own marriage with Catherine was a lawful one. Grammont, bishop of Tarbes, who was one of the ambassadors sent over by Francis to ask the princess in marriage, had, it was said, started an objection that she might possibly be considered illegitimate on account of her mother having been once the wife of her father's brother. The statement was a mere pretence to shield the king when the unpopularity of the divorce became apparent. It is proved to be untrue by the strongest evidence, for we have pretty full contemporary records of the whole negotiation. On the contrary, it is quite clear that Henry, who had already for some time conceived the project of a divorce, kept the matter a dead secret, and was particularly anxious that the French ambassadors should not know it, while he used his daughter's hand as a bait for a new alliance. The alliance itself, however, was actually concluded by a treaty dated Westminster, the 30th of April 1527, in which it was provided, as regards the Princess Mary, that she should be married either to Francis himself or to his second son Henry duke of Orleans. But the real object was only to lay the foundation of a perfect mutual understanding between the two kings, which Wolsey soon after went into France to confirm.

During the next nine years the life of Mary, as well as that of her mother, was rendered miserable by the conduct of Henry VIII. in seeking a divorce. During most of that period mother and daughter seem to have been kept apart.

Possibly Queen Catherine had the harder trial; but Mary's was scarcely less severe. Removed from court and treated as a bastard, she was, on the birth of Anne Boleyn's daughter, required to give up the dignity of princess and acknowledge the illegitimacy of her own birth. On her refusal her household was broken up, and she was sent to Hatfield to act as lady-in-waiting to her own infant half-sister. Nor was even this the worst of her trials; her very life was in danger from the hatred of Anne Boleyn. Her health, moreover, was indifferent, and even when she was seriously ill, although Henry sent his own physician, Dr Buttes, to attend her, he declined to let her mother visit her. So also at her mother's death, in January 1536, she was forbidden to take a last farewell of her. But in May following another change occurred. Anne Boleyn, the real cause of all her miseries, fell under the king's displeasure and was put to death. Mary was then urged to make a humble submission to her father as the means of recovering his favour, and after a good deal of correspondence with the king's secretary, Cromwell, she actually did so. The terms exacted of her were bitter in the extreme, but there was no chance of making life tolerable otherwise, if indeed she was permitted to live at all; and the poor friendless girl, absolutely at the mercy of a father who could brook no contradiction, at length subscribed an act of submission, acknowledging the king as "Supreme Head of the Church of England under Christ," repudiating the pope's authority, and confessing that the marriage between her father and mother "was by God's law and man's law incestuous and unlawful."

No act, perhaps, in the whole of Henry's reign gives us a more painful idea of his revolting despotism. Mary was a high-spirited girl, and undoubtedly popular. All Europe looked upon her at that time as the only legitimate child of her father, but her father himself compelled her to disown the title and pass an unjust stigma on her own birth and her mother's good name. Nevertheless Henry was now reconciled to her, and gave her a household in some degree suitable to her rank. During the rest of the reign we hear little about her except in connexion with a number of new marriage projects taken up and abandoned successively, one of which, to the count palatine Philip, duke of Bavaria, was specially repugnant to her in the matter of religion. Her privy purse expenses for nearly the whole of this period have been published, and show that Hatfield, Beaulieu or Newhall in Essex, Richmond and Hunsdon were among her principal places of residence. Although she was still treated as of illegitimate birth, it was believed that the king, having obtained from parliament the extraordinary power to dispose of the crown by will, would restore her to her place in the succession, and three years before his death she was so restored by statute, but still under conditions to be regulated by her father's will.

Under the reign of her brother, Edward VI. she was again subjected to severe trials, which at one time made her seriously meditate taking flight and escaping abroad. Edward himself indeed seems to have been personally not unkind to her, but the religious revolution in his reign assumed proportions such as it had not done before, and Mary, who had done sufficient violence to her own convictions in submitting to a despotic father, was not disposed to yield an equally tame obedience to authority exercised by a factious council in the name of a younger brother not yet come to years of discretion. Besides, the cause of the pope was naturally her own. In spite of the forced declaration formerly wrung from herself, no one really regarded her as a bastard, and the full recognition of her rights depended on the recognition of the pope as head of the Church. Hence, when Edward's parliament passed an Act of Uniformity enjoining services in English and communion in both kinds, the law appeared to her totally void of authority, and she insisted on having Mass in her own private chapel under the old form. When ordered to desist, she appealed for protection to the emperor Charles V., who, being her cousin, intervened for some time not ineffectually, threatening war with England if her religious liberty was interfered with. But Edward's court was composed of factions of which the most violent eventually carried the day. Lord Seymour, the admiral, was attainted of treason and beheaded in 1549. His brother, the Protector Somerset, met with the same fate in 1552. Dudley, duke of Northumberland, then became paramount in the privy council, and easily obtained the sanction of the young king to those schemes for altering the succession which led immediately after his death to the usurpation of Lady Jane Grey. Dudley had, in fact, overawed all the rest of the privy council, and when the event occurred he took such energetic measures to give effect to the scheme that Lady Jane was actually recognized as queen for some days, and Mary had even to fly from Hunsdon into Norfolk. But the country was really devoted to her cause, as indeed her right in law was unquestionable, and before many days she was royally received in London, and took up her abode within the Tower.

Her first acts at the beginning of her reign displayed a character very different from that which she still holds in popular estimation. Her clemency towards those who had taken up arms against her was altogether remarkable. She released from prison Lady Jane's father, Suffolk, and had difficulty even in signing the warrant for the execution of Northumberland. Lady Jane herself she fully meant to spare, and did spare till after Wyatt's formidable insurrection. Her conduct, indeed, was in every respect conciliatory and pacific, and so far as they depended on her personal character the prospects of the new reign might have appeared altogether favourable. But unfortunately her position was one of peculiar difficulty, and the policy on which she determined was far from judicious. Inexperienced in the art of governing, she had no trusty councillor but Gardiner; every other member of the council had been more or less implicated in the conspiracy against her. And though she valued Gardiner's advice she was naturally led to rely even more on that of her cousin, the emperor, who had been her mother's friend in adversity, and had done such material service to herself in the preceding reign. Following the emperor's guidance she determined almost from the first to make his son Philip her husband, though she was eleven years his senior. She was also strongly desirous of restoring the old religion and wiping out the stigma of illegitimacy upon her birth, so that she might not seem to reign by virtue of a mere parliamentary settlement.

Each of these different objects was attended by difficulties or objections peculiar to itself; but the marriage was the most unpopular of all. A restoration of the old religion threatened to deprive the new owners of abbey lands of their easy and comfortable acquisitions; and it was only with an express reservation of their interests that the thing was actually accomplished. A declaration of her own legitimacy necessarily cast a slur on that of her sister Elizabeth, and cut her off from the succession. But the marriage promised to throw England into the arms of Spain and place the resources of the kingdom at the command of the emperor's son. The Commons sent her a deputation to entreat that she would not marry a foreigner, and when her resolution was known insurrections broke out in different parts of the country. Suffolk, whose first rebellion had been pardoned, proclaimed Lady Jane Grey again in Leicestershire, while young Wyatt raised the county of Kent and, though denied access by London Bridge, led his men round by Kingston to the very gates of London before he was repulsed. In the midst of the danger Mary showed great intrepidity, and the rebellion was presently quelled; after which, unhappily, she got leave to pursue her own course unchecked. She married Philip, restored the old religion, and got Cardinal Pole to come over and absolve the kingdom from its past disobedience to the Holy See.

It was a more than questionable policy thus to ally England with Spain—a power then actually at war with France. By the treaty, indeed, England was to remain neutral; but the force of events, in the end, compelled her, as might have been expected, to take part in the quarrel. Meanwhile the country was full of faction, and seditious pamphlets

of Protestant origin inflamed the people with hatred against the Spaniards. Philip's Spanish followers met with positive ill-usage everywhere, and violent outbreaks occurred. A year after his marriage Philip went over to Brussels to receive from his father the government of the Low Countries and afterwards the kingdom of Spain. Much to Mary's distress, his absence was prolonged for a year and a half, and when he returned in March 1557 it was only to commit England completely to the war; after which he went back to Brussels in July, to return no more to England.

Hostilities with France were inevitable, because France had encouraged disaffection among Mary's subjects, even during the brief truce of Vaucelles. Conspiracies had been hatched by English refugees in Paris, and an attempt to seize Scarborough had been made with the aid of vessels from the Seine. But perhaps the strangest thing about the situation was that the pope took part with France against Spain; and so the very marriage which Mary had contracted to bring England back to the Holy See made her the wife of the pope's enemy. It was, moreover, this war with France that occasioned the final calamity of the loss of Calais, which sank so deeply into Mary's heart some time before she died.

The cruel persecution of the Protestants, which has cast so much infamy upon her reign, was not due, as commonly supposed, to inhumanity on her part. When the kingdom was reconciled to Rome and absolved by Cardinal Pole, it followed, almost as a matter of necessity, that the old heresy laws should be revived, as they were then by Act of Parliament. They had been abolished by the Protector Somerset for the express purpose of promoting changes of doctrine which did violence to what was still the prevailing religious sentiment; and now the old religion required to be protected from insult and fanatical outrages. Doubts were felt as to the result even from the first; but the law having been once passed could not be relaxed merely because the victims were so numerous; for that would only have encouraged the irreverence which it was intended to check. No doubt there were milder men among the heretics, but as a class their stern fanaticism and ill-will to the old religion made them dangerous, even to the public peace. Rogers, the first of the martyrs, was burnt on the 4th of February 1555. Hooper, bishop of Gloucester, had been condemned six days before, and suffered the same fate upon the 9th. From this time the persecution went on uninterrupted for three years and three quarters, numbering among its victims Ridley, Latimer and Cranmer. It came to an end at last on the death of Mary. It seems to have been more severe in the eastern and southern parts of England, and the largest number of sufferers was naturally in the diocese of Bonner, bishop of London. From first to last nearly three hundred victims are known to have perished at the stake; and their fate certainly created a revulsion against Rome that nothing else was likely to have effected.

Mary was of weak constitution and subject to frequent illnesses, both before and after her accession. One special infirmity caused her to believe a few months after her marriage that she was with child, and thanksgiving services were ordered throughout the diocese of London in November 1554. The same delusion recurred in March 1558, when though she did not make her expectation public, she drew up a will in anticipation of the dangers of childbirth, constituting her husband regent during the minority of her prospective heir. To this she added a codicil on the 28th of October following, when the illness that was to be her last had set in, showing that she had ceased to have much expectation of maternity, and earnestly entreating her "next heir and successor by the laws" (whom she did not name) to allow execution of the instrument. She died on the 17th of November.

Her name deserved better treatment than it has generally met with; for she was far from cruel. Her kindness to poor people is undoubted, and the severe execution of her laws seemed only a necessity. Even in this matter, moreover, she was alive to the injustice with which the law was usually strained in behalf of the prerogative; and in appointing Sir Richard Morgan chief justice of the Common Pleas she charged him "not to sit in judgment otherwise for her highness than for her subjects," and to avoid the old error of refusing to admit witnesses against the Crown (Holinshed III. 1112). Her conduct as queen was certainly governed by the best possible intentions; and it is evident that her very zeal for goodness caused most of the trouble she brought upon herself. Her subjects were entirely released, even by papal authority, from any obligation to restore the confiscated lands of the Church. But she herself made it an object, at her own expense, to restore several of the monasteries; and courtiers who did not like to follow her example, encouraged the fanatics to spread an alarm that it would even yet be made compulsory. So the worldly minded joined hands with the godly heretics in stirring up enmity against her.

(J. GA.)



MARY II. (1662-1694), queen of England and wife of king William III., elder daughter of James, duke of York, afterwards King James II., by his first wife, Anne, daughter of Edward Hyde, 1st earl of Clarendon, was born in London on the 30th of April 1662. She was educated as a Protestant, and as it was probable that she would succeed to the English throne after the deaths of her uncle, Charles II., and her father, the choice of a husband for her was a political event of high importance. About 1672 the name of William, prince of Orange, was mentioned in this connexion; and after some hesitation on both sides caused by the condition of European politics, the betrothal of William and Mary took place in October 1677, and was quickly followed by their marriage in London on the 4th of November. Mary's married life in Holland does not appear to have been a happy one. Although she soon became popular among the Dutch, she remained childless, while William treated her with neglect and even with insult; and her troubles were not diminished after her father became king of England in 1685. James had treated his daughter very shabbily in money matters; and it was increasingly difficult for her to remain loyal to both father and husband when they were so divergent in character and policy. Although Mary never entirely lost her affection for her father the wife prevailed over the daughter; and after the birth of her half-brother, the prince of Wales, in 1688, she regarded the dethronement of James as inevitable. It cannot be said, however, that William merited this confidence. Possibly he was jealous of his wife as the heiress of the English throne, contrasting her future position with his own; but according to Burnet, who was then staying at the Hague, this cause of difference was removed by the tactful interference of Burnet himself. The latter asserts that having divined the reason of the prince's jealousy he mentioned the matter to the princess, who in her ignorance of statecraft had never considered the relative positions of herself and her husband with regard to the English throne; and that Mary, by telling the prince "she would be no more but his wife, and that she would do all that lay in her power to make him king for life" (Burnet, *Supplement*, ed. Foxcroft, p. 309), probably mollified her husband's jealousy. On the other hand Macaulay's statement that henceforward there was "entire friendship and confidence" between them must be taken with some reserve. Mary shared heartily in the events which immediately preceded William's expedition to England in 1688. After the success of the undertaking she arrived in London in February 1689; and by her faithful adherence to her promise made a

satisfactory settlement of the English crown possible. William and Mary were together proclaimed king and queen of England, and afterwards of Scotland, and were crowned on the 11th of April 1689. During the king's absence from England the queen, assisted by a committee of the privy council, was entrusted with the duties of government, duties which she performed faithfully, but which she gladly laid down on William's return. In these times of danger, however, she acted when necessary with courage and promptitude, as when in 1690 she directed the arrest of her uncle Henry Hyde, 2nd earl of Clarendon; but she was constantly anxious for William's safety, and unable to trust many of her advisers. She was further distressed by a quarrel with her sister Anne in 1692 following the dismissal of Marlborough, and this event somewhat diminished her popularity, which had hitherto been one of the mainstays of the throne. Weak in body and troubled in mind, the queen died at Kensington Palace from small-pox on the 28th of December 1694, and was buried in Westminster Abbey. Mary was a woman of a remarkably modest and retiring disposition, whose outstanding virtue was perhaps her unswerving loyalty to William. Burnet has passed a remarkable panegyric upon her character. She was extremely pious and charitable; her blameless private life was in marked contrast with her surroundings, both in England and Holland; without bigotry she was greatly attached to the Protestant faith and to the Church of England; and she was always eager to improve the tone of public morals, and to secure a better observance of Sunday. Greenwich Hospital for Seamen was founded in her honour.

For the political events of Mary's life see [WILLIAM III](#). For her private life see Sir John Dalrymple, *Memoirs of Great Britain and Ireland* (London, 1790); Countess Bentinck, *Lettres et mémoires de Marie, reine d'Angleterre* (The Hague, 1880); *Memoires and Letters of Mary Queen of England* (ed. by R. Doebner, Leipzig, 1886); F. J. L. Krämer, *Maria II. Stuart* (Utrecht, 1890); Agnes Strickland, *Lives of the Queens of England*, vols. x. and xi. (London, 1847); G. Burnet, *History of my own Time* (Oxford, 1833); and O. Klopp, *Der Fall des Hauses Stuart* (Vienna, 1875-1888).



MARY QUEEN OF SCOTS¹ (1542-1587), daughter of King James V. and his wife Mary of Lorraine, was born in December 1542, a few days before the death of her father, heart-broken by the disgrace of his arms at Solway Moss, where the disaffected nobles had declined to encounter an enemy of inferior force in the cause of a king whose systematic policy had been directed against the privileges of their order, and whose representative on the occasion was an unpopular favourite appointed general in defiance of their ill-will. On the 9th of September following the ceremony of coronation was duly performed upon the infant. A scheme for her betrothal to Edward, prince of Wales, was defeated by the grasping greed of his father, whose obvious ambition to annex the crown of Scotland at once to that of England aroused instantly the general suspicion and indignation of Scottish patriotism. In 1548 the queen of six years old was betrothed to the dauphin Francis, and set sail for France, where she arrived on the 15th of August. The society in which the child was thenceforward reared is known to readers of Brantôme as well as that of imperial Rome at its worst is known to readers of Suetonius or Petronius as well as that of papal Rome at its worst is known to readers of the diary kept by the domestic chaplain of Pope Alexander VI. Only in their pages can a parallel be found to the gay and easy record which reveals without sign of shame or suspicion of offence the daily life of a court compared to which the court of King Charles II. is as the court of Queen Victoria to the society described by Grammont. Debauchery of all kinds, and murder in all forms, were the daily matter of excitement or of jest to the brilliant circle which revolved around Queen Catherine de' Medici. After ten years' training under the tutelage of the woman whose main instrument of policy was the corruption of her own children, the queen of Scots, aged fifteen years and five months, was married to the eldest and feeblest of the brood on the 24th of April 1558. On the 17th of November Elizabeth became queen of England, and the princes of Lorraine—Francis the great duke of Guise, and his brother the cardinal—induced their niece and her husband to assume, in addition to the arms of France and Scotland, the arms of a country over which they asserted the right of Mary Stuart to reign as legitimate heiress of Mary Tudor. Civil strife broke out in Scotland between John Knox and the queen-dowager—between the self-styled "congregation of the Lord" and the adherents of the regent, whose French troops repelled the combined forces of the Scotch and their English allies from the beleaguered walls of Leith, little more than a month before the death of their mistress in the castle of Edinburgh, on the 10th of June 1560. On the 25th of August Protestantism was proclaimed and Catholicism suppressed in Scotland by a convention of states assembled without the assent of the absent queen. On the 5th of December Francis II. died; in August 1561 his widow left France for Scotland, having been refused a safe-conduct by Elizabeth on the ground of her own previous refusal to ratify the treaty made with England by her commissioners in the same month of the preceding year. She arrived nevertheless in safety at Leith, escorted by three of her uncles of the house of Lorraine, and bringing in her train her future biographer, Brantôme, and Chastelard, the first of all her voluntary victims. On the 21st of August she first met the only man able to withstand her; and their first passage of arms left, as he has recorded, upon the mind of John Knox an ineffaceable impression of her "proud mind, crafty wit and indurate heart against God and His truth." And yet her acts of concession and conciliation were such as no fanatic on the opposite side could have approved. She assented, not only to the undisturbed maintenance of the new creed, but even to a scheme for the endowment of the Protestant ministry out of the confiscated lands of the Church. Her half-brother, Lord James Stuart, shared the duties of her chief counsellor with William Maitland of Lethington, the keenest and most liberal thinker in the country. By the influence of Lord James, in spite of the earnest opposition of Knox, permission was obtained for her to hear Mass celebrated in her private chapel—a licence to which, said the Reformer, he would have preferred the invasion of ten thousand Frenchmen. Through all the first troubles of her reign the young queen steered her skilful and dauntless way with the tact of a woman and the courage of a man. An insurrection in the north, headed by the earl of Huntly under pretext of rescuing from justice the life which his son had forfeited by his share in a homicidal brawl, was crushed at a blow by the Lord James against whose life, as well as against his sister's liberty, the conspiracy of the Gordons had been aimed, and on whom, after the father had fallen in fight and the son had expiated his double offence on the scaffold, the leading rebel's earldom of Murray was conferred by the gratitude of the queen. Exactly four months after the battle of Corrichie, and the subsequent execution of a criminal whom she is said to have "loved entirely," had put an end to the first insurrection raised against her, Pierre de Boscotel de Chastelard, who had returned to France with the other companions of her arrival, and in November 1562 had revisited Scotland, expiated with his head the offence or the misfortune of a second detection at night in her bedchamber. In the same month, twenty-five years afterwards, the execution of his mistress, according to the verdict of her contemporaries in France, avenged the blood of a lover who had died without uttering a word to realize the apprehension which (according to Knox) had before his trial impelled her to desire her brother "that, as he loved her, he would slay Chastelard, and let him never speak word." And in the same month, two years from the

date of Chastelard's execution, her first step was unconsciously taken on the road to Fotheringhay, when she gave her heart at first sight to her kinsman Henry, Lord Darnley, son of Matthew Stuart, earl of Lennox, who had suffered an exile of twenty years in expiation of his intrigues with England, and had married the niece of King Henry VIII., daughter of his sister Margaret, the widow of James IV., by her second husband, the earl of Angus. Queen Elizabeth, with the almost incredible want of tact or instinctive delicacy which distinguished and disfigured her vigorous intelligence, had recently proposed as a suitor to the queen of Scots her own low-born favourite, Lord Robert Dudley, the widower if not the murderer of Amy Robsart; and she now protested against the project of marriage between Mary and Darnley. Mary who had already married her kinsman in secret at Stirling Castle with Catholic rites celebrated in the apartment of David Rizzio, her secretary for correspondence with France, assured the English ambassador, in reply to the protest of his mistress, that the marriage would not take place for three months, when a dispensation from the pope would allow the cousins to be publicly united without offence to the Church. On the 29th of July 1565 they were accordingly remarried at Holyrood. The hapless and worthless bridegroom had already incurred the hatred of two powerful enemies, the earls of Morton and Glencairn; but the former of these took part with the queen against the forces raised by Murray, Glencairn and others, under the nominal leadership of Hamilton, duke of Châtelherault, on the double plea of danger to the new religion of the country, and of the illegal proceeding by which Darnley had been proclaimed king of Scots without the needful constitutional assent of the estates of the realm. Murray was cited to attend the "raid" or array levied by the king and queen, and was duly denounced by public blast of trumpet for his non-appearance. He entered Edinburgh with his forces, but failed to hold the town against the guns of the castle, and fell back upon Dumfries before the advance of the royal army, which was now joined by James Hepburn, earl of Bothwell, on his return from a three years' outlawed exile in France. He had been accused in 1562 of a plot to seize the queen and put her into the keeping of the earl of Arran, whose pretensions to her hand ended only when his insanity could no longer be concealed. Another new adherent was the son of the late earl of Huntly, to whom the forfeited honours of his house were restored a few months before the marriage of his sister to Bothwell. The queen now appealed to France for aid; but Castelnau, the French ambassador, replied to her passionate pleading by sober and earnest advice to make peace with the malcontents. This counsel was rejected, and in October 1565 the queen marched an army of 18,000 men against them from Edinburgh; their forces dispersed in face of superior numbers, and Murray, on seeking shelter in England, was received with contumely by Elizabeth, whose half-hearted help had failed to support his enterprise, and whose intercession for his return found at first no favour with the queen of Scots. But the conduct of the besotted boy on whom at their marriage she had bestowed the title of king began at once to justify the enterprise and to play into the hands of all his enemies alike. His father set him on to demand the crown matrimonial, which would at least have assured to him the rank and station of independent royalty for life. Rizzio, hitherto his friend and advocate, induced the queen to reply by a reasonable refusal to this hazardous and audacious request. Darnley at once threw himself into the arms of the party opposed to the policy of the queen and her secretary—a policy which at that moment was doubly and trebly calculated to exasperate the fears of the religious and the pride of the patriotic. Mary was invited if not induced by the king of Spain to join his league for the suppression of Protestantism; while the actual or prospective endowment of Rizzio with Morton's office of chancellor, and the projected attainder of Murray and his allies, combined to inflame at once the anger and the apprehension of the Protestant nobles. According to one account, Darnley privately assured his uncle George Douglas of his wife's infidelity; he had himself, if he might be believed, discovered the secretary in the queen's apartment at midnight, under circumstances yet more unequivocally compromising than those which had brought Chastelard to the scaffold. Another version of the pitiful history represents Douglas as infusing suspicion of Rizzio into the empty mind of his nephew, and thus winning his consent to a deed already designed by others. A bond was drawn in which Darnley pledged himself to support the confederates who undertook to punish "certain privy persons" offensive to the state, "especially a strange Italian, called Davie"; another was subscribed by Darnley and the banished lords, then biding their time in Newcastle, which engaged him to procure their pardon and restoration, while pledging them to insure to him the enjoyment of the title he coveted, with the consequent security of an undisputed succession to the crown, despite the counter claims of the house of Hamilton, in case his wife should die without issue—a result which, intentionally or not, he and his fellow-conspirators did all that brutality could have suggested to accelerate and secure. On the 9th of March the palace of Holyrood was invested by a troop under the command of Morton, while Rizzio was dragged by force out of the queen's presence and slain without trial in the heat of the moment. The parliament was discharged by proclamation issued in the name of Darnley as king; and in the evening of the next day the banished lords, whom it was to have condemned to outlawry, returned to Edinburgh. On the day following they were graciously received by the queen, who undertook to sign a bond for their security, but delayed the subscription till next morning under plea of sickness. During the night she escaped with Darnley, whom she had already seduced from the party of his accomplices, and arrived at Dunbar on the third morning after the slaughter of her favourite. From thence they returned to Edinburgh on the 28th of March, guarded by two thousand horsemen under the command of Bothwell, who had escaped from Holyrood on the night of the murder, to raise a force on the queen's behalf with his usual soldierly promptitude. The slayers of Rizzio fled to England, and were outlawed; Darnley was permitted to protest his innocence and denounce his accomplices; after which he became the scorn of all parties alike, and few men dared or cared to be seen in his company. On the 19th of June a son was born to his wife, and in the face of his previous protestations he was induced to acknowledge himself the father. But, as Murray and his partisans returned to favour and influence no longer incompatible with that of Bothwell and Huntly, he grew desperate enough with terror to dream of escape to France. This design was at once frustrated by the queen's resolution. She summoned him to declare his reasons for it in presence of the French ambassador and an assembly of the nobles; she besought him for God's sake to speak out, and not spare her; and at last he left her presence with an avowal that he had nothing to allege. The favour shown to Bothwell had not yet given occasion for scandal, though his character as an adventurous libertine was as notable as his reputation for military hardihood; but as the summer advanced his insolence increased with his influence at court and the general aversion of his rivals. He was richly endowed by Mary from the greater and lesser spoils of the Church; and the three wardenships of the border, united for the first time in his person, gave the lord high admiral of Scotland a position of unequalled power. In the gallant discharge of its duties he was dangerously wounded by a leading outlaw, whom he slew in single combat; and while yet confined to Hermitage Castle he received a visit of two hours from the queen, who rode thither from Jedburgh and back through 20 miles of the wild borderland where her person was in perpetual danger from the freebooters whom her father's policy had striven and had failed to extirpate. The result of this daring ride was a ten days' fever, after which she removed by short stages to Craigmillar, where a proposal for her divorce from Darnley was laid before her by Bothwell, Murray, Huntly, Argyle and Lethington, who was chosen spokesman for the rest. She assented on condition that the divorce could be lawfully effected without impeachment of her son's legitimacy; whereupon Lethington undertook in the name of all present that she should be rid of her husband without any prejudice to the child—at whose baptism a few days afterwards Bothwell took the place of the putative father, though Darnley was actually residing under the same roof, and it was not till after the ceremony that he was suddenly struck down by a

sickness so violent as to excite suspicions of poison. He was removed to Glasgow, and left for the time in charge of his father; but on the news of his progress towards recovery a bond was drawn up for execution of the sentence of death which had secretly been pronounced against the twice-turned traitor who had earned his doom at all hands alike. On the 22nd of the next month (Jan. 1567) the queen visited her husband at Glasgow and proposed to remove him to Craigmillar Castle, where he would have the benefit of medicinal baths; but instead of this resort he was conveyed on the last day of the month to the lonely and squalid shelter of the residence which was soon to be made memorable by his murder. Between the ruins of two sacred buildings, with the town-wall to the south and a suburban hamlet known to ill fame as the Thieves' Row to the north of it, a lodging was prepared for the titular king of Scotland, and fitted up with tapestries taken from the Gordons after the battle of Corrichie. On the evening of Sunday, the 9th of February, Mary took her last leave of the miserable boy who had so often and so mortally outraged her as consort and as queen. That night the whole city was shaken out of sleep by an explosion of gunpowder which shattered to fragments the building in which he should have slept and perished; and the next morning the bodies of Darnley and a page were found strangled in a garden adjoining it, whither they had apparently escaped over a wall, to be despatched by the hands of Bothwell's attendant confederates.

Upon a view which may be taken of Mary's conduct during the next three months depends the whole debateable question of her character. According to the professed champions of that character, this conduct was a tissue of such dastardly imbecility, such heartless irresolution and such brainless inconsistency as for ever to dispose of her time-honoured claim to the credit of intelligence and courage. It is certain that just three months and six days after the murder of her husband she became the wife of her husband's murderer. On the 11th of February she wrote to the bishop of Glasgow, her ambassador in France, a brief letter of simple eloquence, announcing her providential escape from a design upon her own as well as her husband's life. A reward of two thousand pounds was offered by proclamation for discovery of the murderer. Bothwell and others, his satellites or the queen's, were instantly placarded by name as the criminals. Voices were heard by night in the streets of Edinburgh calling down judgment on the assassins. Four days after the discovery of the bodies, Darnley was buried in the chapel of Holyrood with secrecy as remarkable as the solemnity with which Rizzio had been interred there less than a year before. On the Sunday following, Mary left Edinburgh for Seton Palace, 12 miles from the capital, where scandal asserted that she passed the time merrily in shooting-matches with Bothwell for her partner against Lords Seton and Huntly; other accounts represent Huntly and Bothwell as left at Holyrood in charge of the infant prince. Gracefully and respectfully, with statesmanlike yet feminine dexterity, the demands of Darnley's father for justice on the murderers of his son were accepted and eluded by his daughter-in-law. Bothwell, with a troop of fifty men, rode through Edinburgh defiantly denouncing vengeance on his concealed accusers. As weeks elapsed without action on the part of the royal widow, while the cry of blood was up throughout the country, raising echoes from England and abroad, the murmur of accusation began to rise against her also. Murray, with his sister's ready permission, withdrew to France. Already the report was abroad that the queen was bent on marriage with Bothwell, whose last year's marriage with the sister of Huntly would be dissolved, and the assent of his wife's brother purchased by the restitution of his forfeited estates. According to the *Memoirs* of Sir James Melville, both Lord Herries and himself resolved to appeal to the queen in terms of bold and earnest remonstrance against so desperate and scandalous a design; Herries, having been met with assurances of its unreality and professions of astonishment at the suggestion, instantly fled from court; Melville, evading the danger of a merely personal protest without backers to support him, laid before Mary a letter from a loyal Scot long resident in England, which urged upon her consideration and her conscience the danger and disgrace of such a project yet more freely than Herries had ventured to do by word of mouth; but the sole result was that it needed all the queen's courage and resolution to rescue him from the violence of the man for whom, she was reported to have said, she cared not if she lost France, England and her own country, and would go with him to the world's end in a white petticoat before she would leave him. On the 28th of March the privy council, in which Bothwell himself sat, appointed the 12th of April as the day of his trial, Lennox, instead of the crown, being named as the accuser, and cited by royal letters to appear at "the humble request and petition of the said Earl Bothwell," who, on the day of the trial, had 4000 armed men behind him in the streets, while the castle was also at his command. Under these arrangements it was not thought wonderful that Lennox discreetly declined the danger of attendance, even with 3000 men ready to follow him, at the risk of desperate street fighting. He pleaded sickness, asked for more time, and demanded that the accused, instead of enjoying special favour, should share the treatment of other suspected criminals. But, as no particle of evidence on his side was advanced, the protest of his representative was rejected, and Bothwell, acquitted in default of witnesses against him, was free to challenge any persistent accuser to the ancient ordeal of battle. His wealth and power were enlarged by gift of the parliament which met on the 14th and rose on the 19th of April—a date made notable by the subsequent supper at Ainslie's tavern, where Bothwell obtained the signatures of its leading members to a document affirming his innocence, and pledging the subscribers to maintain it against all challengers, to stand by him in all his quarrels and finally to promote by all means in their power the marriage by which they recommended the queen to reward his services and benefit the country. On the second day following Mary went to visit her child at Stirling, where his guardian, the earl of Mar, refused to admit more than two women in her train. It was well known in Edinburgh that Bothwell had a body of men ready to intercept her on the way back, and carry her to Dunbar—not, as was naturally inferred, without good assurance of her consent. On the 24th of April, as she approached Edinburgh, Bothwell accordingly met her at the head of 800 spearmen, assured her (as she afterwards averred) that she was in the utmost peril, and escorted her, together with Huntly, Lethington and Melville, who were then in attendance, to Dunbar Castle. On the 3rd of May Lady Jane Gordon, who had become countess of Bothwell on the 22nd of February of the year preceding, obtained, on the ground of her husband's infidelities, a separation which, however, would not under the old laws of Catholic Scotland have left him free to marry again; on the 7th, accordingly, the necessary divorce was pronounced, after two days' session, by a clerical tribunal which ten days before had received from the queen a special commission to give judgment on a plea of somewhat apocryphal consanguinity alleged by Bothwell as the ground of an action for divorce against his wife. The fact was studiously evaded or concealed that a dispensation had been granted by the archbishop of St Andrews for this irregularity, which could only have arisen through some illicit connexion of the husband with a relative of the wife between whom and himself no affinity by blood or marriage could be proved. On the day when the first or Protestant divorce was pronounced, Mary and Bothwell returned to Edinburgh with every prepared appearance of a peaceful triumph. Lest her captivity should have been held to invalidate the late legal proceedings in her name, proclamation was made of forgiveness accorded by the queen to her captor in consideration of his past and future services, and her intention was announced to reward them by further promotion; and on the same day (May 12), he was duly created duke of Orkney and Shetland. The duke, as a conscientious Protestant, refused to marry his mistress according to the rites of her Church, and she, the chosen champion of its cause, agreed to be married to him, not merely by a Protestant but by one who before his conversion had been a Catholic bishop, and should therefore have been more hateful and contemptible in her eyes than any ordinary heretic, had not religion as well as policy, faith as well as reason, been absorbed or superseded by some more mastering passion or emotion. This passion or emotion, according to those

who deny her attachment to Bothwell, was simply terror—the blind and irrational prostration of an abject spirit before the cruel force of circumstances and the crafty wickedness of men. Hitherto, according to all evidence, she had shown herself on all occasions, as on all subsequent occasions she indisputably showed herself, the most fearless, the most keen-sighted, the most ready-witted, the most high-gifted and high-spirited of women; gallant and generous, skilful and practical, never to be cowed by fortune, never to be cajoled by craft; neither more unselfish in her ends nor more unscrupulous in her practice than might have been expected from her training and her creed. But at the crowning moment of trial there are those who assert their belief that the woman who on her way to the field of Corrichie had uttered her wish to be a man, that she might know all the hardship and all the enjoyment of a soldier's life, riding forth “in jack and knapskull”—the woman who long afterwards was to hold her own for two days together without help of counsel against all the array of English law and English statesmanship, armed with irrefragable evidence and supported by the resentment of a nation—showed herself equally devoid of moral and of physical resolution; too senseless to realize the significance and too heartless to face the danger of a situation from which the simplest exercise of reason, principle or courage must have rescued the most unsuspecting and inexperienced of honest women who was not helplessly deficient in self-reliance and self-respect. The famous correspondence produced next year in evidence against her at the conference of York may have been, as her partisans affirm, so craftily garbled and falsified by interpolation, suppression, perversion, or absolute forgery as to be all but historically worthless. Its acceptance or its rejection does not in any degree whatever affect, for better or for worse, the rational estimate of her character. The problem presented by the simple existence of the facts just summed up remains in either case absolutely the same.

That the coarse and imperious nature of the hardy and able ruffian who had now become openly her master should no less openly have shown itself even in the first moments of their inauspicious union is what any bystander of common insight must inevitably have foreseen. Tears, dejection and passionate expressions of a despair “wishing only for death,” bore fitful and variable witness to her first sense of a heavier yoke than yet had galled her spirit and her pride. At other times her affectionate gaiety would give evidence as trustworthy of a fearless and improvident satisfaction. They rode out in state together, and if he kept cap in hand as a subject she would snatch it from him and clap it on his head again; while in graver things she took all due or possible care to gratify his ambition, by the insertion of a clause in their contract of marriage which made their joint signature necessary to all documents of state issued under the sign-manual. She despatched to France a special envoy, the bishop of Dumblane, with instructions setting forth at length the unparalleled and hitherto ill-requited services and merits of Bothwell, and the necessity of compliance at once with his passion and with the unanimous counsel of the nation—a people who would endure the rule of no foreign consort, and whom none of their own countrymen were so competent to control, alike by wisdom and by valour, as the incomparable subject of her choice. These personal merits and this political necessity were the only pleas advanced in a letter to her ambassador in England. But that neither plea would avail her for a moment in Scotland she had ominous evidence on the thirteenth day after her marriage, when no response was made to the usual form of proclamation for a raid or levy of forces under pretext of a campaign against the rieviers of the border. On the 6th or 7th of June Mary and Bothwell took refuge in Borthwick Castle, twelve miles from the capital, where the fortress was in the keeping of an adherent whom the diplomacy of Sir James Melville had succeeded in detaching from his allegiance to Bothwell. The fugitives were pursued and beleaguered by the earl of Morton and Lord Hume, who declared their purpose to rescue the queen from the thralldom of her husband. He escaped, leaving her free to follow him or to join the party of her professed deliverers. But whatever cause she might have found since marriage to complain of his rigorous custody and domineering brutality was insufficient to break the ties by which he held her. Alone, in the disguise of a page, she slipped out of the castle at midnight, and rode off to meet him at a tower two miles distant, whence they fled together to Dunbar. The confederate lords on entering Edinburgh were welcomed by the citizens, and after three hours' persuasion Lethington, who had now joined them, prevailed on the captain of the castle to deliver it also into their hands. Proclamations were issued in which the crime of Bothwell was denounced, and the disgrace of the country, the thralldom of the queen and the mortal peril of her infant son, were set forth as reasons for summoning all the lieges of the chief cities of Scotland to rise in arms on three hours' notice and join the forces assembled against the one common enemy. News of his approach reached them on the night of June 14, and they marched before dawn with 2200 men to meet him near Musselburgh. Mary meanwhile had passed from Dunbar to Haddington, and thence to Seton, where 1600 men rallied to her side. On the 15th of June, one month from their marriage day, the queen and Bothwell, at the head of a force of fairly equal numbers but visibly inferior discipline, met the army of the confederates at Carberry Hill, some six miles from Edinburgh. Du Croc, the French ambassador, obtained permission through the influence of Maitland to convey to the queen the terms proposed by their leaders—that she and Bothwell should part, or that he should meet in single combat a champion chosen from among their number. Bothwell offered to meet any man of sufficient quality; Mary would not assent. As the afternoon wore on their force began to melt away by desertion and to break up for lack of discipline. Again the trial by single combat was proposed, and thrice the proposal fell through, owing to objections on this side or on that. At last it was agreed that the queen should yield herself prisoner, and Bothwell be allowed to retire in safety to Dunbar with the few followers who remained to him. Mary took leave of her first and last master with passionate anguish and many parting kisses; but in face of his enemies, and in hearing of the cries which burst from the ranks, demanding her death by fire as a murderess and harlot, the whole heroic and passionate spirit of the woman, represented by her admirers as a spiritless imbecile, flamed out in responsive threats to have all the men hanged and crucified, in whose power she now stood helpless and alone. She grasped the hand of Lord Lindsay as he rode beside her, and swore “by this hand” she would “have his head for this.” In Edinburgh she was received by a yelling mob, which flaunted before her at each turn a banner representing the corpse of Darnley with her child beside it invoking on his knees the retribution of divine justice. From the violence of a multitude in which women of the worst class were more furious than the men she was sheltered in the house of the provost, where she repeatedly showed herself at the window, appealing aloud with dishevelled hair and dress to the mercy which no man could look upon her and refuse. At nine in the evening she was removed to Holyrood, and thence to the port of Leith, where she embarked under guard, with her attendants, for the island castle of Lochleven. On the 20th a silver casket containing letters and French verses, miscalled sonnets, in the handwriting of the queen, was taken from the person of a servant who had been sent by Bothwell to bring it from Edinburgh to Dunbar. Even in the existing versions of the letters, translated from the lost originals and retranslated from this translation of a text which was probably destroyed in 1603 by order of King James on his accession to the English throne—even in these possibly disfigured versions, the fiery pathos of passion, the fierce and piteous fluctuations of spirit between love and hate, hope and rage and jealousy, have an eloquence apparently beyond the imitation or invention of art (see [CASSET LETTERS](#)²). Three days after this discovery Lord Lindsay, Lord Ruthven and Sir Robert Melville were despatched to Lochleven, there to obtain the queen's signature to an act of abdication in favour of her son, and another appointing Murray regent during his minority. She submitted, and a commission of regency was established till the return from France of Murray, who, on the 15th of August, arrived at Lochleven with Morton and

Athole. According to his own account, the expostulations as to her past conduct which preceded his admonitions for the future were received with tears, confessions and attempts at extenuation or excuse; but when they parted next day on good terms she had regained her usual spirits. Nor from that day forward had they reason to sink again, in spite of the close keeping in which she was held, with the daughters of the house for bedfellows. Their mother and the regent's, her father's former mistress, was herself not impervious to her prisoner's lifelong power of seduction and subjugation. Her son George Douglas fell inevitably under the charm. A rumour transmitted to England went so far as to assert that she had proposed him to their common half-brother Murray as a fourth husband for herself; a later tradition represented her as the mother of a child by him. A third report, at least as improbable as either, asserted that a daughter of Mary and Bothwell, born about this time, lived to be a nun in France. It is certain that the necessary removal of George Douglas from Lochleven enabled him to devise a method of escape for the prisoner on the 25th of March, 1568, which was frustrated by detection of her white hands under the disguise of a laundress. But a younger member of the household, Willie Douglas, aged eighteen, whose devotion was afterwards remembered and his safety cared for by Mary at a time of utmost risk and perplexity to herself, succeeded on the 2nd of May in assisting her to escape by a postern gate to the lake-side, and thence in a boat to the mainland, where George Douglas, Lord Seton and others were awaiting her. Thence they rode to Seton's castle of Niddry, and next day to Hamilton palace, round which an army of 6000 men was soon assembled, and whither the new French ambassador to Scotland hastened to pay his duty. The queen's abdication was revoked, messengers were despatched to the English and French courts, and word was sent to Murray at Glasgow that he must resign the regency, and should be pardoned in common with all offenders against the queen. But on the day when Mary arrived at Hamilton Murray had summoned to Glasgow the feudatories of the Crown to take arms against the insurgent enemies of the infant king. Elizabeth sent conditional offers of help to her kinswoman, provided she would accept of English intervention and abstain from seeking foreign assistance; but the messenger came too late. Mary's followers had failed to retake Dunbar Castle from the regent, and made for Dumbarton instead, marching two miles south of Glasgow, by the village of Langside. Here Murray, with 4500 men, under leaders of high distinction, met the 6000 of the queen's army, whose ablest man, Herries, was as much distrusted by Mary as by every one else, while the Hamiltons could only be trusted to think of their own interests, and were suspected of treasonable designs on all who stood between their house and the monarchy. On the 13th of May the battle or skirmish of Langside determined the result of the campaign in three-quarters of an hour. Kirkaldy of Grange, who commanded the regent's cavalry, seized and kept the place of vantage from the beginning, and at the first sign of wavering on the other side shattered at a single charge the forces of the queen with a loss of one man to three hundred. Mary fled 60 miles from the field of her last battle before she halted at Sanquhar, and for three days of flight, according to her own account, had to sleep on the hard ground, live on oatmeal and sour milk, and fare at night like the owls, in hunger, cold and fear. On the third day from the rout of Langside she crossed the Solway and landed at Workington in Cumberland, May 16, 1568. On the 20th Lord Scrope and Sir Francis Knollys were sent from court to carry messages and letters of comfort from Elizabeth to Mary at Carlisle. On the 11th of June Knollys wrote to Cecil at once the best description and the noblest panegyric extant of the queen of Scots—enlarging, with a brave man's sympathy, on her indifference to form and ceremony, her daring grace and openness of manner, her frank display of a great desire to be avenged of her enemies, her readiness to expose herself to all perils in hope of victory, her delight to hear of hardihood and courage, commending by name all her enemies of approved valour, sparing no cowardice in her friends, but above all things athirst for victory by any means at any price, so that for its sake pain and peril seemed pleasant to her, and wealth and all things, if compared with it, contemptible and vile. What was to be done with such a princess, whether she were to be nourished in one's bosom, above all whether it could be advisable or safe to try any diplomatic tricks upon such a lady, Knollys left for the minister to judge. It is remarkable that he should not have discovered in her the qualities so obvious to modern champions of her character—easiness, gullibility, incurable innocence and invincible ignorance of evil, incapacity to suspect or resent anything, readiness to believe and forgive all things. On the 15th of July, after various delays interposed by her reluctance to leave the neighbourhood of the border, where on her arrival she had received the welcome and the homage of the leading Catholic houses of Northumberland and Cumberland, she was removed to Bolton Castle in North Yorkshire. During her residence here a conference was held at York between her own and Elizabeth's commissioners and those appointed to represent her son as a king of Scots. These latter, of whom Murray himself was the chief, privately laid before the English commissioners the contents of the famous casket. On the 24th of October the place of the conference was shifted from York to London, where the inquiry was to be held before Queen Elizabeth in council. Mary was already aware that the chief of the English commissioners, the duke of Norfolk, was secretly an aspirant to the peril of her hand; and on the 21st of October she gave the first sign of assent to the suggestion of a divorce from Bothwell. On the 26th of October the charge of complicity in the murder of Darnley was distinctly brought forward against her in spite of Norfolk's reluctance and Murray's previous hesitation. Elizabeth, by the mouth of her chief justice, formally rebuked the audacity of the subjects who durst bring such a charge against their sovereign, and challenged them to advance their proofs. They complied by the production of an indictment under five heads, supported by the necessary evidence of documents. The number of English commissioners was increased, and they were bound to preserve secrecy as to the matters revealed. Further evidence was supplied by Thomas Crawford, a retainer of the house of Lennox, tallying so exactly with the text of the casket letters as to have been cited in proof that the latter must needs be a forgery. Elizabeth, on the close of the evidence, invited Mary to reply to the proofs alleged before she could be admitted to her presence; but Mary simply desired her commissioners to withdraw from the conference. She declined with scorn the proposal made by Elizabeth through Knollys, that she should sign a second abdication in favour of her son. On the 10th of January, 1569, the judgment given at the conference acquitted Murray and his adherents of rebellion, while affirming that nothing had been proved against Mary—a verdict accepted by Murray as equivalent to a practical recognition of his office as regent for the infant king. This position he was not long to hold; and the fierce exultation of Mary at the news of his murder gave to those who believed in her complicity with the murderer, on whom a pension was bestowed by her unblushing gratitude, fresh reason to fear, if her liberty of correspondence and intrigue were not restrained, the likelihood of a similar fate for Elizabeth. On the 26th of January 1569 she had been removed from Bolton Castle to Tutbury in Staffordshire, where proposals were conveyed to her, at the instigation of Leicester, for a marriage with the duke of Norfolk, to which she gave a graciously conditional assent; but the discovery of these proposals consigned Norfolk to the Tower, and on the outbreak of an insurrection in the north Mary, by Lord Hunsdon's advice, was again removed to Coventry, when a body of her intending deliverers was within a day's ride of Tutbury. On the 23rd of January following Murray was assassinated; and a second northern insurrection was crushed in a single sharp fight by Lord Hunsdon. In October Cecil had an interview with Mary at Chatsworth, when the conditions of her possible restoration to the throne in compliance with French demands were debated at length. The queen of Scots, with dauntless dignity, refused to yield the castles of Edinburgh and Dumbarton into English keeping, or to deliver up her fugitive English partisans then in Scotland; upon other points they came to terms, and the articles were signed the 16th of October. On the same day Mary wrote to Elizabeth, requesting with graceful earnestness the favour of an interview which might

reassure her against the suggestion that this treaty was a mere pretence. On the 28th of November she was removed to Sheffield Castle, where she remained for the next fourteen years in charge of the earl of Shrewsbury. The detection of a plot, in which Norfolk was implicated, for the invasion of England by Spain on behalf of Mary, who was then to take him as the fourth and most contemptible of her husbands, made necessary the reduction of her household and the stricter confinement of her person. On the 28th of May 1572 a demand from both houses of parliament for her execution as well as Norfolk's was generously rejected by Elizabeth; but after the punishment of the traitorous pretender to her hand, on whom she had lavished many eloquent letters of affectionate protestation, she fell into "a passion of sickness" which convinced her honest keeper of her genuine grief for the ducal caitiff. A treaty projected on the news of the massacre of St Bartholomew, by which Mary should be sent back to Scotland for immediate execution, was broken off by the death of the earl of Mar, who had succeeded Lennox as regent; nor was it found possible to come to acceptable terms on a like understanding with his successor Morton, who in 1577 sent a proposal to Mary for her restoration, which she declined, in suspicion of a plot laid to entrap her by the policy of Sir Francis Walsingham, the most unscrupulously patriotic of her English enemies, who four years afterwards sent word to Scotland that the execution of Morton, so long the ally of England, would be answered by the execution of Mary. But on that occasion Elizabeth again refused her assent either to the trial of Mary or to her transference from Sheffield to the Tower. In 1581 Mary accepted the advice of Catherine de' Medici and Henry III. that she should allow her son's title to reign as king of Scotland conjointly with herself when released and restored to a share of the throne. This plan was but part of a scheme including the invasion of England by her kinsman the duke of Guise, who was to land in the north and raise a Scottish army to place the released prisoner of Sheffield beside her son on the throne of Elizabeth. After the overthrow of the Scottish accomplices in this notable project, Mary poured forth upon Elizabeth a torrent of pathetic and eloquent reproach for the many wrongs she had suffered at the hands of her hostess, and pledged her honour to the assurance that she now aspired to no kingdom but that of heaven. In the spring of 1583 she retained enough of this saintly resignation to ask for nothing but liberty, without a share in the government of Scotland; but Lord Burghley not unreasonably preferred, if feasible, to reconcile the alliance of her son with the detention of his mother. In 1584 the long-suffering earl of Shrewsbury was relieved of his fourteen years' charge through the involuntary good offices of his wife, whose daughter by her first husband had married a brother of Darnley; and their orphan child Arabella, born in England, of royal descent on the father's side, was now, in the hopeful view of her grandmother, a more plausible claimant than the king or queen of Scots to the inheritance of the English throne. In December 1583 Mary had laid before the French ambassador her first complaint of the slanders spread by Lady Shrewsbury and her sons, who were ultimately compelled to confess the falsehood of their imputations on the queen of Scots and her keeper. It was probably at the time when a desire for revenge on her calumniatress made her think the opportunity good and safe for discharge of such a two-edged dart at the countess and the queen that Mary wrote, but abstained from despatching, the famous and terrible letter in which, with many gracious excuses and professions of regret and attachment, she transmits to Elizabeth a full and vivid report of the hideous gossip retailed by Bess of Hardwick regarding her character and person at a time when the reporter of these abominations was on friendly terms with her husband's royal charge. In the autumn of 1584 she was removed to Wingfield Manor under charge of Sir Ralph Sadler and John Somers, who accompanied her also on her next removal to Tutbury in January 1585. A letter received by her in that cold, dark and unhealthy castle, of which fifteen years before she had made painful and malodorous experience, assured her that her son would acknowledge her only as queen-mother, and provoked at once the threat of a parent's curse and an application to Elizabeth for sympathy. In April 1585 Sir Amyas Paulet was appointed to the office of which Sadler, accused of careless indulgence, had requested to be relieved; and on Christmas Eve she was removed from the hateful shelter of Tutbury to the castle of Chartley in the same county. Her correspondence in cipher from thence with her English agents abroad, intercepted by Walsingham and deciphered by his secretary, gave eager encouragement to the design for a Spanish invasion of England under the prince of Parma,—an enterprise in which she would do her utmost to make her son take part, and in case of his refusal would induce the Catholic nobles of Scotland to betray him into the hands of Philip, from whose tutelage he should be released only on her demand, or if after her death he should wish to return, nor then unless he had become a Catholic. But even these patriotic and maternal schemes to consign her child and re-consign the kingdom to the keeping of the Inquisition, incarnate in the widower of Mary Tudor, were superseded by the attraction of a conspiracy against the throne and life of Elizabeth. Anthony Babington, in his boyhood a ward of Shrewsbury, resident in the household at Sheffield Castle, and thus subjected to the charm before which so many victims had already fallen, was now induced to undertake the deliverance of the queen of Scots by the murder of the queen of England. It is maintained by those admirers of Mary who assume her to have been an almost absolute imbecile, gifted with the power of imposing herself on the world as a woman of unsurpassed ability, that, while cognisant of the plot for her deliverance by English rebels and an invading army of foreign auxiliaries, she might have been innocently unconscious that this conspiracy involved the simultaneous assassination of Elizabeth. In the conduct and detection of her correspondence with Babington, traitor was played off against traitor, and spies were utilized against assassins, with as little scruple as could be required or expected in the diplomacy of the time. As in the case of the casket letters, it is alleged that forgery was employed to interpolate sufficient evidence of Mary's complicity in a design of which it is thought credible that she was kept in ignorance by the traitors and murderers who had enrolled themselves in her service,—that one who pensioned the actual murderer of Murray and a would-be murderer of Elizabeth was incapable of approving what her keen and practised intelligence was too blunt and torpid to anticipate as inevitable and inseparable from the general design. In August the conspirators were netted, and Mary was arrested at the gate of Tixall Park, whither Paulet had taken her under pretence of a hunting party. At Tixall she was detained till her papers at Chartley had undergone thorough research. That she was at length taken in her own toils even such a dullard as her admirers depict her could not have failed to understand; that she was no such dastard as to desire or deserve such defenders the whole brief course of her remaining life bore consistent and irrefragable witness. Her first thought on her return to Chartley was one of loyal gratitude and womanly sympathy. She cheered the wife of her English secretary, now under arrest, with promises to answer for her husband to all accusations brought against him, took her new-born child from the mother's arms, and in default of clergy baptized it, to Paulet's Puritanic horror, with her own hands by her own name. The next or the twin-born impulse of her indomitable nature was, as usual in all times of danger, one of passionate and high-spirited defiance on discovering the seizure of her papers. A fortnight afterwards her keys and her money were confiscated, while she, bedridden and unable to move her hand, could only ply the terrible weapon of her bitter and fiery tongue. Her secretaries were examined in London, and one of them gave evidence that she had first heard of the conspiracy by letter from Babington, of whose design against the life of Elizabeth she thought it best to take no notice in her reply, though she did not hold herself bound to reveal it. On the 25th of September she was removed to the strong castle of Fotheringay in Northamptonshire. On the 6th of October she was desired by letter from Elizabeth to answer the charges brought against her before certain of the chief English nobles appointed to sit in commission on the cause. In spite of her first refusal to submit, she was induced by the arguments of the vice-chamberlain, Sir Christopher Hatton, to appear before this tribunal on condition that her

protest should be registered against the legality of its jurisdiction over a sovereign, the next heir of the English crown.

On the 14th and 15th of October 1586 the trial was held in the hall of Fotheringay Castle. Alone, "without one counsellor on her side among so many," Mary conducted the whole of her own defence with courage incomparable and unsurpassable ability. Pathos and indignation, subtlety and simplicity, personal appeal and political reasoning, were the alternate weapons with which she fought against all odds of evidence or inference, and disputed step by step every inch of debatable ground. She repeatedly insisted on the production of proof in her own handwriting as to her complicity with the project of the assassins who had expiated their crime on the 20th and 21st of the month preceding. When the charge was shifted to the question of her intrigues with Spain, she took her stand resolutely on her own right to convey whatever right she possessed, though now no kingdom was left her for disposal, to whomsoever she might choose. One single slip she made in the whole course of her defence; but none could have been more unluckily characteristic and significant. When Burghley brought against her the unanswerable charge of having at that moment in her service, and in receipt of an annual pension, the instigator of a previous attempt on the life of Elizabeth, she had the unwary audacity to cite in her justification the pensions allowed by Elizabeth to her adversaries in Scotland, and especially to her son. It is remarkable that just two months later, in a conversation with her keepers, she again made use of the same extraordinary argument in reply to the same inevitable imputation, and would not be brought to admit that the two cases were other than parallel. But except for this single instance of oversight or perversity her defence was throughout a masterpiece of indomitable ingenuity, of delicate and steadfast courage, of womanly dignity and genius. Finally she demanded, as she had demanded before, a trial either before the estates of the realm lawfully assembled or else before the queen in council. So closed the second day of the trial; and before the next day's work could begin a note of two or three lines hastily written at midnight informed the commissioners that Elizabeth had suddenly determined to adjourn the expected judgment and transfer the place of it to the star-chamber. Here, on the 25th of October, the commissioners again met; and one of them alone, Lord Zouch, dissented from the verdict by which Mary was found guilty of having, since the 1st of June preceding, compassed and imagined divers matters tending to the destruction of Elizabeth. This verdict was conveyed to her, about three weeks later, by Lord Buckhurst and Robert Beale, clerk of the privy council. At the intimation that her life was an impediment to the security of the received religion, "she seemed with a certain unwonted alacrity to triumph, giving God thanks, and rejoicing in her heart that she was held to be an instrument" for the restoration of her own faith. This note of exultation as in martyrdom was maintained with unflinching courage to the last. She wrote to Elizabeth and the duke of Guise two letters of almost matchless eloquence and pathos, admirable especially for their loyal and grateful remembrance of all her faithful servants. Between the date of these letters and the day of her execution wellnigh three months of suspense elapsed. Elizabeth, fearless almost to a fault in face of physical danger, constant in her confidence even after discovery of her narrow escape from the poisoned bullets of household conspirators, was cowardly even to a crime in face of subtler and more complicated peril. She rejected with resolute dignity the intercession of French envoys for the life of the queen-dowager of France; she allowed the sentence of death to be proclaimed and welcomed with bonfires and bell-ringing throughout the length of England; she yielded a respite of twelve days to the pleading of the French ambassador, and had a charge trumped up against him of participation in a conspiracy against her life; at length, on the 1st of February 1587, she signed the death-warrant, and then made her secretaries write word to Paulet of her displeasure that in all this time he should not of himself have found out some way to shorten the life of his prisoner, as in duty bound by his oath, and thus relieve her singularly tender conscience from the guilt of bloodshed. Paulet, with loyal and regretful indignation, declined the disgrace proposed to him in a suggestion "to shed blood without law or warrant"; and on the 7th of February the earls of Shrewsbury and Kent arrived at Fotheringay with the commission of the council for execution of the sentence given against his prisoner. Mary received the announcement with majestic tranquillity, expressing in dignified terms her readiness to die, her consciousness that she was a martyr for her religion, and her total ignorance of any conspiracy against the life of Elizabeth. At night she took a graceful and affectionate leave of her attendants, distributed among them her money and jewels, wrote out in full the various legacies to be conveyed by her will, and charged her apothecary Gorion with her last messages for the king of Spain. In these messages the whole nature of the woman was revealed. Not a single friend, not a single enemy, was forgotten; the slightest service, the slightest wrong, had its place assigned in her faithful and implacable memory for retribution or reward. Forgiveness of injuries was as alien from her fierce and loyal spirit as forgetfulness of benefits; the destruction of England and its liberties by Spanish invasion and conquest was the strongest aspiration of her parting soul. At eight next morning she entered the hall of execution, having taken leave of the weeping envoy from Scotland, to whom she gave a brief message for her son; took her seat on the scaffold, listened with an air of even cheerful unconcern to the reading of her sentence, solemnly declared her innocence of the charge conveyed in it and her consolation in the prospect of ultimate justice, rejected the professional services of Richard Fletcher, dean of Peterborough, lifted up her voice in Latin against his in English prayer, and when he and his fellow-worshippers had fallen duly silent prayed aloud for the prosperity of her own church, for Elizabeth, for her son, and for all the enemies whom she had commended overnight to the notice of the Spanish invader; then, with no less courage than had marked every hour and every action of her life, received the stroke of death from the wavering hand of the headsman.

Mary Stuart was in many respects the creature of her age, of her creed, and of her station; but the noblest and most noteworthy qualities of her nature were independent of rank, opinion or time. Even the detractors who defend her conduct on the plea that she was a dastard and a dupe are compelled in the same breath to retract this implied reproach, and to admit, with illogical acclamation and incongruous applause, that the world never saw more splendid courage at the service of more brilliant intelligence, that a braver if not "a rarer spirit never did steer humanity." A kinder or more faithful friend, a deadlier or more dangerous enemy, it would be impossible to dread or to desire. Passion alone could shake the double fortress of her impregnable heart and ever-active brain. The passion of love, after very sufficient experience, she apparently and naturally outlived; the passion of hatred and revenge was as inextinguishable in her inmost nature as the emotion of loyalty and gratitude. Of repentance it would seem that she knew as little as of fear, having been trained from her infancy in a religion where the Decalogue was supplanted by the Creed. Adept as she was in the most exquisite delicacy of dissimulation, the most salient note of her original disposition was daring rather than subtlety. Beside or behind the voluptuous or intellectual attractions of beauty and culture, she had about her the fresher charm of a fearless and frank simplicity, a genuine and enduring pleasure in small and harmless things no less than in such as were neither. In 1562 she amused herself for some days by living "with her little troop" in the house of a burgess of St Andrews "like a burgess's wife," assuring the English ambassador that he should not find the queen there,— "nor I know not myself where she is become." From Sheffield Lodge, twelve years later, she applied to the archbishop of Glasgow and the cardinal of Guise for some pretty little dogs, to be sent her in baskets very warmly packed,— "for besides reading and working, I take pleasure only in all the little animals that I can get." No lapse of reconciling time, no extent of comparative indulgence, could break her in to resignation, submission, or toleration of even partial restraint. Three months after

the massacre of St Bartholomew had caused some additional restrictions to be placed upon her freedom of action, Shrewsbury writes to Burghley that "rather than continue this imprisonment she sticks not to say she will give her body, her son, and country for liberty"; nor did she ever show any excess of regard for any of the three. For her own freedom of will and of way, of passion and of action, she cared much; for her creed she cared something; for her country she cared less than nothing. She would have flung Scotland with England into the hell fire of Spanish Catholicism rather than forgo the faintest chance of personal revenge. Her profession of a desire to be instructed in the doctrines of Anglican Protestantism was so transparently a pious fraud as rather to afford confirmation than to arouse suspicion of her fidelity to the teaching of her church. Elizabeth, so shamefully her inferior in personal loyalty, fidelity and gratitude, was as clearly her superior on the one all-important point of patriotism. The saving salt of Elizabeth's character, with all its wellnigh incredible mixture of heroism and egotism, meanness and magnificence, was simply this, that, overmuch as she loved herself, she did yet love England better. Her best though not her only fine qualities were national and political, the high public virtues of a good public servant; in the private and personal qualities which attract and attach a friend to his friend and a follower to his leader, no man or woman was ever more constant and more eminent than Mary Queen of Scots.

(A. C. S.)

BIBLIOGRAPHY.—The biography of Mary Stuart being virtually the history of Scotland during the period covered by her life, with which the history of England at the same period is also largely concerned, the chief events in which she figured are related in all the general *Histories* of both countries. The most important original authorities are the voluminous *State Papers* of the period, with other MS. documents preserved at the British Museum, the Cambridge University Library, Hatfield and elsewhere. See especially the *Reports* of the Hist. MSS. Commission; *Calendar of State Papers relating to Scotland and Mary Queen of Scots* (Scottish Record Publ. 1898); *Calendar of Letters and State Papers relating to English Affairs, principally in the Archives at Simancas* (vols. i.-iv., 1892-1899); and the *Calendars of State Papers: Domestic Series, Edw. VI.-James I.; Foreign Series, Elizabeth; Venice Series.*

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With special reference to the controversy concerning the Casket Letters, in addition to the article [CASKET LETTERS](#) and the above-mentioned works by Sir John Skelton, the following should be consulted: Walter Goodall, *Examination of the Letters said to be written by Mary Queen of Scots to Bothwell* (2 vols., Edinburgh, 1754), which contains the letters themselves; William Tytler, *Inquiry into the Evidence against Mary Queen of Scots* (2 vols., London, 1790); John Whitaker, *Mary Queen of Scots Vindicated* (3 vols., London, 1788); F. de Peyster, *Mary Stuart, Bothwell and the Casket Letters* (London, 1890); T. F. Henderson, *The Casket Letters and Mary Queen of Scots* (Edinburgh, 1889); Andrew Lang, *The Mystery of Mary Stuart* (London, 1900).

In 1690 Giovanni Francesco Savaro published a play *La Maria Stuarda*, and since then the story of the Queen of Scots has been the subject of numerous poems and dramas, of which the most celebrated are Schiller's *Maria Stuart*, and three tragedies by A. C. Swinburne—*Chastelard* (1865), *Bothwell* (1874), and *Mary Stuart* (1881).

- 1 In a letter dated the 4th of April 1882, referring to the publication of his drama *Mary Stuart*, Swinburne wrote to Edmund Clarence Stedman: "*Mary Stuart* has procured me two satisfactions which I prefer infinitely to six columns of adulation in *The Times* and any profit thence resulting. (1) A letter from Sir Henry Taylor ... (2) An application from the editor of the *Encyclopaedia Britannica*—who might, I suppose, as in Macaulay's time, almost command the services of the most eminent scholars and historians of the country—to me, a mere poet, proposing that I should contribute to that great repository of erudition the biography of Mary Queen of Scots. I doubt if the like compliment was ever paid before to one of our 'idle trade.'" The present article is the biography contributed by the poet to the 9th ed. in response to the invitation referred to in this letter.
- 2 It is to be observed that the above conclusion as to the authenticity of the Casket Letters is the same as that arrived at upon different grounds by the most recent research on the subject.—ED. E. B.



MARY (1457-1482), duchess of Burgundy, only child of Charles the Bold, duke of Burgundy, and his wife Isabella of Bourbon, was born on the 13th of February 1457. As heiress of the rich Burgundian domains her hand was eagerly sought by a number of princes. When her father fell upon the field of Nancy, on the 5th of January 1477, Mary was not yet twenty years of age. Louis XI. of France seized the opportunity afforded by his rival's defeat and death to take possession of the duchy of Burgundy as a fief lapsed to the French crown, and also of Franche Comté, Picardy and Artois. He was anxious that Mary should marry the Dauphin Charles and thus secure the inheritance of the Netherlands for his descendants. Mary, however, distrusted Louis; declined the French alliance, and turned to her Netherland subjects for help. She obtained the help only at the price of great concessions. On the 11th of February 1477 she was compelled to sign a charter of rights, known as "the Great Privilege," by which the provinces and towns of the Netherlands recovered all the local and communal rights which had been abolished by the arbitrary decrees of the dukes of Burgundy in their efforts to create in the Low Countries a centralized state. Mary had to undertake not to declare war, make peace, or raise taxes without the consent of the States, and not to employ any but natives in official posts. Such was the hatred of the people to the old regime that two influential councillors of Charles the Bold, the Chancellor Hugonet and the Sire d'Humbercourt, having been discovered in correspondence with the French king, were executed at Ghent despite the tears and entreaties of the youthful duchess. Mary now made her choice among the many suitors for her hand, and selected the archduke Maximilian of Austria, afterwards the emperor Maximilian I., and the marriage took place at Ghent on the 18th of August 1477. Affairs now went more smoothly in the Netherlands, the French aggression was checked, and internal peace was in a large measure restored, when the duchess met her death by a fall from her horse on the 27th of March 1482. Three children had been the issue of her marriage, and her elder son, Philip, succeeded to her dominions under the guardianship of his father.

See E. Münch, *Maria von Burgund, nebst d. Leben v. Margaretha v. York* (2 vols., Leipzig, 1832), and the *Cambridge Mod. Hist.* (vol. i., c. xii., bibliography, 1903).



MARY (1496-1533), queen of France, was the daughter of Henry VII. of England and Elizabeth of York. At first it was intended to marry her to Charles of Austria, the future emperor Charles V., and by the treaty of Calais (Dec. 21, 1507) it was agreed that the marriage should take place when Charles should have attained the age of fourteen, the contract being secured by bonds taken from various princes and cities in the Low Countries. On the 17th of December 1508 the Sieur de Bergues, who had come over as Charles's representative at the head of a magnificent embassy, married the princess by proxy. The contract, originally made by Henry VII., was renewed on the 17th of October 1513 by Henry VIII. at a meeting with Margaret of Savoy at Lille, the wedding being fixed for the following year. But the emperor Maximilian I., to whom Louis XII. had proposed his daughter Renée as wife for Charles, with Brittany for dowry, postponed the match with the English princess in a way that left no doubt of his intention to withdraw from the contract altogether. He was forestalled by the diplomacy of Wolsey, at whose instance peace was signed with France on the 7th of August 1514, and on the same date a treaty was concluded for the marriage of Mary Tudor with Louis XII., who had recently lost his wife Anne of Brittany. The marriage was celebrated at Abbeville on the 9th of October. The bridegroom was a broken man of fifty-two; the bride a beautiful, well-educated and charming girl of eighteen, whose heart was already engaged to Charles Brandon, duke of Suffolk, her future husband. The political marriage was, however, no long one. Mary was crowned queen of France on the 5th of November 1514; on the 1st of January following King Louis died. Mary had only been induced to consent to the marriage with Louis by the promise that, on his death, she should be allowed to marry the man of her choice. But there was danger that the agreement would not be kept. In France the dukes of Lorraine and Savoy were mentioned as possible suitors, and meanwhile the new king, Francis I., was making advances to her, and only desisted when she confessed to him her previous attachment to Suffolk. The duke himself was at the head of the embassy which came from England to congratulate the new king, and to the detriment of his political mission he used the opportunity to win the hand of the queen. Francis good-naturedly promised to use his influence in his favour; Henry VIII. himself was not averse to the match, but Mary feared the opposition of the lords of the council, and, in spite of Suffolk's promise to the king not to take any steps in the matter until after his return, she persuaded him to marry her secretly before he left Paris. On their return to England in April, Suffolk was for a while in serious danger from the king's indignation, but was ultimately pardoned through Wolsey's intercession, on payment of a heavy fine and the surrender of all the queen's jewels and plate. The marriage was publicly solemnized at Greenwich on the 13th of May 1515. Suffolk had been already twice married, and his first wife was still alive. He thought it necessary later on (1528) to obtain a bull from Pope Clement VII. declaring his marriage with his first wife invalid and his union with Mary therefore canonical. Mary's life after this was comparatively uneventful. She lived mainly in the retirement of the country, but shared from time to time in the festivities of the court, and was present at the Field of the Cloth of Gold. She died on the 24th of June 1533. By the duke of Suffolk she had three children: Henry, born on the 11th of March 1516, created earl of Lincoln (1525), who died young; Frances, born on the 16th of July 1517, the wife of Henry Grey, marquess of Northampton, and mother of Lady Jane Grey (*q.v.*); and Eleanor.

See *Lettres de Louis XII. et du cardinal Georges d'Amboise* (Brussels, 1712); *Letters and Papers of Henry VIII.* (Cal. State Pap.); M. A. E. Green, *Lives of the Princesses of England* (vol. v., 1849-1855); Life by James Gairdner in *Dict. Nat. Biog.*



MARY OF LORRAINE (1515-1560), generally known as **MARY OF GUISE**, queen of James V. and afterwards

regent of Scotland, was born at Bar on the 22nd of November 1515. She was the eldest child of Claude of Guise and Antoinette of Bourbon, and married in 1534 Louis II. of Orleans, duke of Longueville, to whom in 1535 she bore a son, Francis (d. 1551). The duke died in June 1537, and Mary was sought in marriage by James V., whose wife Magdalene died in July, and by Henry VIII. after the death of Jane Seymour. Henry persisted in his offers after the announcement of her betrothal to James V. Mary, who was made by adoption a daughter of France, received a papal dispensation for her marriage with James, which was celebrated by proxy in Paris (May 1538) and at St Andrews on her arrival in Scotland. Her two sons, James (b. May 1540) and Robert or Arthur (b. April 1541), died within a few days of one another in April 1541, and her husband died in December 1542, within a week of the birth of his daughter and heiress, Mary, Queen of Scots. Cardinal David Beton, the head of the French and Catholic party and therefore Mary of Lorraine's friend and ally, produced a will of the late king in which the primacy in the regency was assigned to himself. John Knox accused the queen of undue intimacy with Beton, and a popular report of a similar nature, probably unfounded, was revived in 1543 by Sir Ralph Sadler, the English envoy. Beton was arrested and the regency fell to the heir presumptive James, earl of Arran, whose inclinations were towards England and the Protestant party, and who hoped to secure the hand of the infant princess for his own son. Mary of Lorraine was approached by the English commissioner, Sir Ralph Sadler, to induce her to further her daughter's marriage contract with Edward VI. She informed Sadler that Arran had asked her whether Henry had made propositions of marriage to herself, and that she had stated that "if Henry should mind or offer her such an honour she must account herself much bounden." Sadler further learnt that she was "singularly well affected to Henry's desires." The marriage treaty between Mary, not then one year old, and Edward VI. was signed on the 1st of July at Greenwich, and guaranteed that Mary should be placed in Henry's keeping when she was ten years old. The queen dowager and her daughter were carefully watched at Linlithgow, but on the 23rd of July 1543 they escaped, with the help of Cardinal Beton, to the safer walls of Stirling castle. After the queen's coronation in September Mary of Lorraine was made principal member of the council appointed to direct the affairs of the kingdom. She was constantly in communication with her kinsmen in France, and was already planning to secure for her daughter a French alliance, which was opposed on different grounds by all her advisers. She made fresh alliances with the earl of Angus and Sir George Douglas, and in 1544 she made a premature attempt to seize the regency; but a reconciliation with Arran was brought about by Cardinal Beton. The assassination of Beton left her the cleverest politician in Scotland. The English invasions of 1547, undertaken with a view to enforcing the English marriage, gave Mary the desired pretext for a French alliance. In June 1548 a French fleet, with provisions and 5000 soldiers on board, under the command of André de Montalembert, seigneur d'Essé, landed at Leith to reinforce the Scots army, and laid siege to Haddington, then in the hands of the English. The Scottish parliament agreed to the marriage of the young queen with the dauphin of France, and, on the plea of securing her safety from English designs, she set sail from Dumbarton in August 1548 to complete her education at the French court.

Mary of Lorraine now gave her energies to the expulsion of the English and to the difficult task of keeping the peace between the Scots and their French auxiliaries. In September 1550 she visited France and obtained from Henry II. the confirmation of the dukedom and revenues of Châtellerauld for the earl of Arran, in the hope of inducing him to resign the regency. On her way back to Scotland she was driven by storms to Portsmouth harbour and paid a friendly visit to Edward VI. Arran refused, however, to relinquish the regency until April 1554, when he resigned after receiving an assurance of his rights to the succession. The new regent had to deal with an empty exchequer and with a strong opposition to her daughter's marriage with the dauphin. The gift of high offices of state to Frenchmen lent to the Protestant opposition the aspect of a national resistance to foreign domination. The hostility of Arran and his brother Archbishop Hamilton forced Mary into friendly relations with the lords who favoured the Protestant party. Soon after her marriage miners had been brought from Lorraine to dig for gold at Crawford Moor, and she now carried on successful mining enterprises for coal and lead, which enabled her to meet the expenses of her government. In 1554 she took into her service William Maitland of Lethington, who as secretary of state gained very great influence over her. She also provoked a dangerous enemy in John Knox by her expressed contempt for a letter which he had written to her, but the first revolt against her authority arose from an attempt to establish a standing army. When she provoked a war with England in 1557 the nobles refused to cross the border. In matters of religion she at first tried to hold the balance between the Catholic and Protestant factions and allowed the Presbyterian preachers the practice of their religion so long as they refrained from public preachings in Edinburgh and Leith. The marriage of Francis II. and her daughter Mary in 1558 strengthened her position, and in 1559 she relinquished her conciliatory tactics to submit to the dictation of her relatives, the Guises, by falling more into line with their religious policy. She was reconciled with Archbishop Hamilton, and took up arms against the Protestants of Perth, who, incited by Knox, had destroyed the Charterhouse, where many of the Scottish kings were buried. The reformers submitted on condition that no foreign garrison was to be imposed on Perth and that the religious questions in dispute should be brought before the Scottish parliament. Mary of Lorraine broke the spirit of this agreement by garrisoning Perth with Scottish troops in the pay of France. The lords of the Congregation soon assembled in considerable force on Cupar Muir. Mary retreated to Edinburgh and thence to Dunbar, while Edinburgh opened its gates to the reformers, who issued a proclamation (Oct. 21, 1559) claiming that the regent was deposed. The lords of the Congregation sought help from Elizabeth, while the regent had recourse to France, where an expedition under her brother, René of Lorraine, marquis of Elbeuf, was already in preparation. Mary, with the assistance of a French contingent, began to fortify Leith. The strength of her opponents was increased by the defection of Châtellerauld and his son Arran, and an even more serious danger was the treachery of her secretary Maitland, who betrayed her plans to the lords of the Congregation. In October 1559 they made an unsuccessful attack on Leith and the seizure of an English convoy on the way to their army by James Hepburn, earl of Bothwell, increased their difficulties. Mary entered Edinburgh and conducted a campaign in Fife. Meanwhile Maitland of Lethington had been at the English court, and an English fleet under William Winter was sent to the Forth in January 1560 to waylay Elbeuf's fleet, which was, however, driven back by a storm to Calais. Elbeuf had been commissioned by Francis I. and Mary to take over Mary's regency on account of her failing health. An English army under Lord Grey entered Scotland on the 29th of March 1560, and the regent received an asylum in Edinburgh castle, which was held strictly neutral by John Erskine. When she knew that she was dying Mary sent for the lords of the Congregation, with whom she pleaded for the maintenance of the French alliance. She even consented to listen to the exhortations of the preacher John Willock. She died on the 11th of June 1560. Her body was taken to Reims and buried in the church of the nunnery of St Peter, of which her sister was abbess.

The chief sources for her history are the Calendar of State Papers for the reigns of Henry VIII. and Edward VI. in the Rolls Series; A. Teulet, *Papiers d'état ... relatifs à l'histoire de l'Écosse au XVI^e siècle* (Paris, 3 vols., 1851), for the Bannatyne Club; *Hamilton Papers*, ed. J. Bain (Edinburgh, 2 vols., 1890-1899); *Calendar of State Papers relating to Scotland and Mary Queen of Scots, 1547-1603* (Edinburgh, 2 vols., 1898-1900), &c. There is a Life in Miss Strickland's *Queens of Scotland* (vols. i.-ii.) based on original documents.



MARY OF MODENA [MARIA BEATRICE ANNE MARGARET ISABEL D'ESTE] (1658-1718), queen of the English king James II., was the daughter of Alphonso IV., duke of Modena, and the Duchess Laura, of the Roman family Martinuzzi. She was born at Modena on the 5th of October 1658. Her education was strict, and her own wish was to be a nun in a convent of the order of the Visitation founded by her mother. As a princess she was not free to choose for herself, and was selected, mainly by the king of France, Louis XIV., as the wife of James, duke of York, heir-presumptive to the English throne. The duke had become a Roman Catholic, and it was a point of policy with the French king to provide him with a Roman Catholic wife. Mary Beatrice of Este was chosen partly on the ground of her known religious zeal, but also because of her beauty. The marriage was celebrated by proxy on the 30th of September 1673. She reached England in November. In later life she confessed that her first feelings towards her husband could only be expressed by tears. In England the duchess, who was commonly spoken of as Madam East, was supposed to be an agent of the pope, who had indeed exerted himself to secure her consent. Her beauty and her fine manners secured her the respect of her brother-in-law, Charles II., and she lived on good terms with her husband's daughters by his first marriage, but she was always disliked by the nation. The birth of her first son (who died in infancy) on the 16th of January 1675 was regretted. During the Popish Plot, to which her secretary Coleman was a victim, she went abroad with her husband. After her husband's accession she suffered much domestic misery through his infidelity. Her influence on him was unfortunate, for she was a strong supporter of the Jesuit party which was in favour of extreme measures. Her second son, James Francis Edward, was born on the 10th of June (o.s.) 1688. The public refused to believe that the baby was Mary's child, and declared that a fraud had been perpetrated to secure a Roman Catholic heir. When the revolution had broken out she made the disastrous mistake of consenting to escape to France (Dec. 10, 1688) with her son. She urged her husband to follow her to France when it was his manifest interest to stay in England, and when he went to Ireland she pressed incessantly for his return. Her daughter, Louisa Maria, was born at St Germain on the 28th of June 1692. When her husband died on the 6th of September 1701, she succeeded in inducing King Louis to recognize her son as king of England, an act which precipitated the war of the Spanish Succession. Queen Mary survived her husband for seventeen years and her daughter for two. She received a pension of 100,000 crowns, which was largely spent in supporting Jacobite exiles. At the close of her life she had some success in obtaining payment of her jointure. She lived at St Germain or at Chaillot, a religious house of the Visitation. Her death occurred on the 7th of May 1718, and is said by Saint-Simon to have been that of a saint.

See Miss Strickland, *Queens of England* (vols. 9 and 10, London, 1846); Campana di Cavelli, *Les Derniers Stuarts à Saint-Germain en-Laye* (London, 1871); and Martin Haile, *Mary of Modena* (London, 1905).



MARY OF ORANGE (1631-1660), eldest daughter of the English king Charles I., was born in London on the 4th of November 1631. Her father wished her to marry a son of Philip IV., king of Spain, while her cousin, the elector palatine, Charles Louis, was also a suitor for her hand, but both proposals fell through and she became the wife of a Dutch prince, William, son of Frederick Henry, prince of Orange. The marriage took place in London on the 2nd of May 1641, but owing to the tender years of the bride it was not consummated for several years. However in 1642 Mary crossed over to Holland with her mother, Queen Henrietta Maria, and in 1644, as the daughter-in-law of the stadtholder, she began to take her place in public life. In 1647 her husband, William II., succeeded his father as stadtholder, but three years later, just after his attempt to capture Amsterdam, he died; a son, afterwards the English king William III., being born to him a few days later (Nov. 14, 1650). Mary was obliged to share the guardianship of her infant son with his grandmother Amelia, the widow of Frederick Henry, and with Frederick William, elector of Brandenburg; moreover, she was unpopular with the Dutch owing to her sympathies with her kinsfolk, the Stuarts, and at length public opinion having been further angered by the hospitality which she showed to her brothers, Charles II. and James, duke of York, she was forbidden to receive her relatives. From 1654 to 1657 the princess passed most of her time away from Holland. In 1657 she was appointed regent on behalf of her son for the principality of Orange, but the difficulties of her position led her to implore the assistance of Louis XIV., and the French king answered by seizing Orange himself. The position both of Mary and of her son in Holland was greatly bettered through the restoration of Charles II. in Great Britain. In September 1660 Mary journeyed to England. She was taken ill of small-pox, and died in London on the 24th of December 1660, her death, says Bishop Burnet, being "not much lamented."



MARYBOROUGH, a market town and the county town of Queen's County, Ireland. Pop. (1901), 2957. It lies in the broad lowland east of the Slieve Bloom mountains, on the river Triogue, an affluent of the Barrow, and on the main line of the Great Southern & Western railway, by which it is 51 m. W.S.W. of Dublin. The town was chosen as county town in the reign of Mary (1556), in whose honour both town and county received their names. Its charter was granted in 1570, but its present appearance, save a bastion of the ancient castle, is wholly modern. There are flour-mills and a considerable general trade. Maryborough returned two members to the Irish parliament from 1585 until the union in 1800. The singular lofty rock of Dunamase or Dunmall, about 3 m. from the town, bears on its summit extensive ruins of a castle, originally belonging to the kings of Leinster, but probably built in the main by William Bruce (c. 1200) and dismantled in 1650 by Cromwell's troops.



MARYBOROUGH, a town of March county, Queensland, Australia, on the left bank and 25 m. from the mouth of the Mary river, 180 m. by rail N. of Brisbane. Pop. (1901), 10,159. Besides a handsome court-house and town hall, the principal buildings are the hospital, a technical college, a library, the Anglican Church of St Paul with a fine tower and peal of bells, and the grammar schools. There is a large shipbuilding yard, and breweries, distilleries, a tannery, boot factories, soap works, saw-mills, flour-mills, carriage works and iron foundries, besides extensive sugar factories in the neighbourhood. The largest smelting works in Australia are 5 m. distant, in which ore from all the states is treated. Maryborough is the port of shipment for a wide agricultural district yielding maize and sugar, and also for the Gympie gold-fields. Timber abounds in the neighbourhood and is exported. Maryborough is also the second coaling port in Queensland, the government railway wharf being in direct communication with the Burrum coal-fields.



MARYBOROUGH, a municipal town of Talbot county, Victoria, Australia, 112 m. by rail N.W. of Melbourne. Pop. (1901), 5633. It has fine government buildings, a town hall, a botanical garden, and numerous park lands. It is an important railway centre, and has extensive railway workshops, as well as coach factories, breweries and foundries. The gold mining of the district is deep alluvial. Wheat, oats and wine are the chief agricultural products of the neighbourhood.



MARYLAND, a South Atlantic state of the United States, and one of the original thirteen, situated between latitudes 37° 53' and 39° 44' N. and longitudes 75° 4' and 79° 33' W. (the precise western boundary has not been determined). It is bounded N. by Pennsylvania and Delaware; E. by Delaware and the Atlantic Ocean; S. and W. by the Potomac river and its north branch, which separate it, except on the extreme W. border, from Virginia and West Virginia; W., also, by West Virginia. It is one of the small states of the Union—only seven are smaller—its total area being 12,327 sq. m. of which 2386 sq. m. are water surface.

Physical Features.—Maryland is crossed from north to south by each of the leading topographical regions of the east section of the United States—the Coastal Plain, the Piedmont Plateau, the Appalachian Mountains, and the Appalachian Plateau—hence its great diversity of surface. The portion within the Coastal Plain embraces nearly the whole of the south-east half of the state and is commonly known as tide-water Maryland. It is marked off from the Piedmont Plateau by a “Fall Line” extending from Washington (D.C.) north-east through Baltimore to a point a little south of the north-east corner of the state, and is divided by the Chesapeake Bay into two parts known as the East Shore and the West Shore. The East Shore is a low level plain, the least elevated section of the state. Along its entire Atlantic border extends the narrow sandy Sinepuxent Beach, which encloses a shallow lagoon or bay also called Sinepuxent at the north, where, except in the extreme north, it is very narrow, and Chincoteague at the south, where its width is in most places from 4 to 5 m. Between this and the Chesapeake to the west and north-west there is a slight general rise, a height of about 100 ft. being reached in the extreme north. A water-parting extending from north-east to south-west and close to the Atlantic border separates the East Shore into two drainage systems, though that next to the Atlantic is insignificant. That on the Chesapeake side is drained chiefly by the Pocomoke, Nanticoke, Choptank and Chester rivers, together with their numerous branches, the general direction of all of which is south-west. The branches as well as the upper parts of the main streams flow through broad and shallow valleys; the middle courses of the main streams wind their way through reed-covered marshes, the water ebbing and flowing with the tide; in their lower courses they become estuarine and the water flows between low banks. The West Shore is somewhat more undulating than the East and also more elevated. Its general slope is from north-west to south-east; along the west border are points 300 ft. or more in height. The principal rivers crossing this section are the Patuxent, Patapsco and Gunpowder, with which may be grouped the Potomac, forming the state’s southern boundary. These rivers, lined in most instances with terraces 30 to 40 ft. high on one or both sides, flow south-east into the Chesapeake Bay through valleys bounded by low hills. The Fall Line, which forms the boundary between the Coastal Plain and the Piedmont Plateau, is a zone in which a descent of about 100 ft. or more is made in many places within a few miles and in consequence is marked by waterfalls, cascades and rapids.

The part of Maryland within the Piedmont Plateau extends west from the Fall Line to the base of Catoctin Mountain, or the west border of Frederick county, and has an area of about 2500 sq. m. In general it has a broad rolling surface. It is divided into two sections by an elevated strip known as Parr’s Ridge, which extends from north-east to south-west a short distance west of the middle. The east section rises from about 450 ft. along the Fall Line to from 850 to 900 ft. along the summit of Parr’s Ridge. Its principal streams are those that cross the West Shore of the Coastal Plain and here wind their way from Parr’s Ridge rapidly toward the south-east in narrow steep-sided gorges through broad limestone valleys. To the west of Parr’s Ridge the surface for the most part slopes gently down to the east bank of the Monocacy river (which flows nearly at a right angle with the streams east of the Ridge), and then from the opposite bank rises rapidly toward the Catoctin Mountain; but just above the mouth of the Monocacy on the east side of the valley is Sugar Loaf Mountain, which makes a steep ascent of 1250 ft.

The portion of the state lying within the Appalachian Region is commonly known as Western Maryland. To the eastward it abounds in mountains and valleys; to the westward it is a rolling plateau. West of Catoctin Mountain (1800 ft.) is Middletown Valley, with Catoctin Creek running through it from north to south, and the Blue Ridge Mountains (2400 ft.), near the Pennsylvania border, forming its west slope. Farther west the serrated crests of the

Blue Ridge overlook the Greater Appalachian Valley, here 73 m. in width, the broad gently-rolling slopes of the Great Cumberland or Hagerstown Valley occupying its eastern and the Appalachian Ridges its western portion. Through the eastern portion Antietam Creek to the east and Conococheague Creek to the west flow rapidly in meandering trenches that in places exceed 75 ft. in depth. The Appalachian Ridges of the western portion begin with North Mountain on the east and end with Wills Mountain on the west. They are long, narrow, uniformly-sloping and level-crested mountains, extending along parallel lines from north-east to south-west, and reaching a maximum height in Martin's Ridge of more than 2000 ft. Overlooking them from the west are the higher ranges of the Alleghenies, among which the Savage, Backbone and Negro Mountains reach elevations of 3000 ft. or more. In the extreme west part of the state these mountains merge, as it were, into a rolling plateau, the Appalachian Plateau, having an average elevation of 2500 ft. All rivers of Western Maryland flow south into the Potomac except in the extreme west, where the waters of the Youghiogheny and its tributaries flow north into the Monongahela.

Fauna and Flora.—In primitive times deer, ducks, turkeys, fish and oysters were especially numerous, and wolves, squirrels and crows were a source of annoyance to the early settlers. Deer, black bears and wild cats (lynx) are still found in some uncultivated sections. Much more numerous are squirrels, rabbits, "groundhogs" (woodchucks), opossums, skunks, weasels and minks. Many species of ducks are also still found; and the reed-bird (bobolink), "partridge" (elsewhere called quail or "Bob White"), ruffed grouse (elsewhere called partridge), woodcock, snipe, plover and Carolina rail still abound. The waters of the Chesapeake Bay are especially rich in oysters and crabs, and there, also, shad, alewives, "striped" (commonly called "rock") bass, menhaden, white perch and weak-fish ("sea-trout") occur in large numbers. Among the more common trees are several species of oak, pine, hickory, gums and maple, and the chestnut, the poplar, the beech, the cypress and the red cedar; the merchantable pine has been cut, but the chestnut and other hard woods of West Maryland are still a product of considerable value. Among wild fruit-trees are the persimmon and Chickasaw plum; grape-vines and a large variety of berry-bushes grow wild and in abundance.

Climate.—The climate of Maryland in the south-east is influenced by ocean and bay—perhaps also by the sandy soil—while in the west it is influenced by the mountains. The prevailing winds are westerly; but generally north-west in winter in the west section and south-west in summer in the south section. In the south the normal winter is mild, the normal summer rather hot; in the west the normal winter is cold, the normal summer cool. The normal average annual temperature for the entire state is between 53° and 54° F., ranging from 48° at Grantsville in the north-west to 53° at Darlington in the north-east, and to 57° at Princess Anne in the south-east. The normal temperature for the state during July (the warmest month) is 75.2° F., and during January (the coldest month) 32.14° F. Although the west section is generally much the cooler in summer, yet both of the greatest extremes recorded since 1891 were at points not far apart in Western Maryland: 109° F. at Boettcherville and -26° F. at Sunnyside. The normal annual precipitation for the state is about 43 in. It is greatest, about 53 in., on the east slope of Catoctin Mountain, owing to the elevations which obstruct the moisture-bearing winds, and is above the average along the middle of the shores of the Chesapeake. It is least, from 25 to 35 in., in the Greater Appalachian Valley, in the south on the West Shore, and along the Atlantic border. During spring and summer the precipitation throughout the state is about 2 in. more than during autumn and winter.

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Soils and Agriculture.—The great variety of soils is one of the more marked features of Maryland. On the East Shore to the north is a marly loam overlying a yellowish-red clay sub-soil, to the south is a soil quite stiff with light coloured clay, while here and there, especially in the middle and south, are considerable areas both of light sandy soils and tidal marsh loams. On the West Shore the soils range from a light sandy loam in the lower levels south from Baltimore to rather heavy loams overlying a yellowish clay on the rolling uplands and on the terraces along the Potomac and Patuxent. Crossing the state along the lower edge of the Fall Line is a belt heavy with clay, but so impervious to water as to be of little value for agricultural purposes. The soils of the Piedmont Plateau east of Parr's Ridge are, like the underlying rocks, exceptionally variable in composition, texture and colour. For the most part they are considerably heavier with clay than are those of the Coastal Plain, and better adapted to general agricultural purposes. Light loams, however, are found both in the north-east and south-east. A soil of very close texture, the gabbro, is found, most largely in the north-east. Alluvial loams occupy the narrow river valleys; but the most common soil of the section is that formed from gneiss with a large per cent. of clay in the subsoil. West of Parr's Ridge in the Piedmont, the principal soils are those the character of which is determined either by decomposed red sandstone or by decomposed limestone. In the east portion of the mountainous region the soil so well adapted to peach culture contains much clay, together with particles of Cambrian sandstone. In Hagerstown Valley are rich red or yellow limestone-clay soils. The Allegheny ridges have only a thin stony soil; but good limestone, sandstone, shale and alluvial soils, occur in the valleys and in some of the plateaus of the extreme west.

Of the total land surface of the state 82% was in 1900 included in farms and 68% of the farmland was improved. There were 46,012 farms, of which 15,833 contained less than 50 acres, 3940 contained 260 acres or more, and 79 contained 1,000 acres or more—the average size being 112.4 acres. In 1890, 69% of the farms were worked by the owners or their managers, in 1900 only 66.4%; but share tenants outnumber cash tenants by almost three to one. Of the total number of farms about seven times as many are operated by white as by negro farmers, though the number of farms operated by white share tenants outnumber those operated by negro share tenants by only about five to one. Of all the inhabitants of the state, at least ten years old, who in 1900 were engaged in gainful occupations, 20.8% were farmers. The leading agricultural pursuits are the growing of Indian corn and wheat and the raising of livestock, yet it is in the production of fruits, vegetables and tobacco, that Maryland ranks highest as an agricultural state, and in no other state except South Carolina is so large a per cent. of the value of the crop expended for fertilizers. In 1907, according to the *Year Book* of the U.S. Department of Agriculture, the Indian corn crop was 22,196,000 bushels, valued at \$11,986,000; the wheat crop was 14,763,000 bushels, valued at \$14,172,000; the oat crop was 825,000 bushels, valued at \$404,000; and the crop of rye was 315,000 bushels, valued at \$236,000. Of the livestock, hogs were the most numerous in 1900, cattle next, sheep third, and horses fourth. The hay and forage crop of 1899 (exclusive of corn-stalks) grew on 374,848 acres. Until after the middle of the 18th century tobacco was the staple crop of Maryland, and the total yield did not reach its maximum until 1860 when the crop amounted to 51,000 hhds.; from this it decreased to 14,000 hhds., or 12,356,838 lb in 1889; in 1899 it rose again to 24,589,480 lb , in 1907 the crop was only 16,962,000 lb , less than that of nine other states. In market-garden products, including small fruits, Maryland ranked in 1899 sixth among the states of the Union, the crop being valued at \$4,766,760, an increase of 350.9% over that of 1889. In the yield both of strawberries and of tomatoes it ranked first; the yield of raspberries and blackberries is also large. In its crop of green-peas Maryland was exceeded (1899) by New York only; in sweet Indian corn it ranked fifth; in kale, second; in spinach, third; in cabbages, ninth. The number of peach-trees, especially in the west part of the state, where the quality is of the best, is rapidly increasing, and in the yield of peaches and nectarines the state ranked thirteenth in 1899; in the yield of pears it ranked fifth; in apples seventeenth.

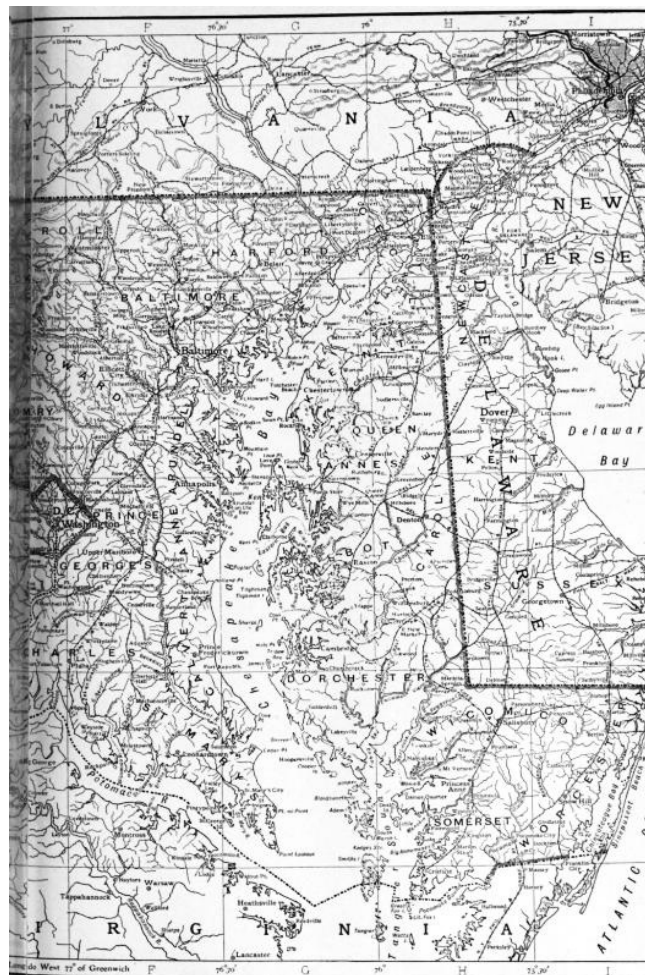
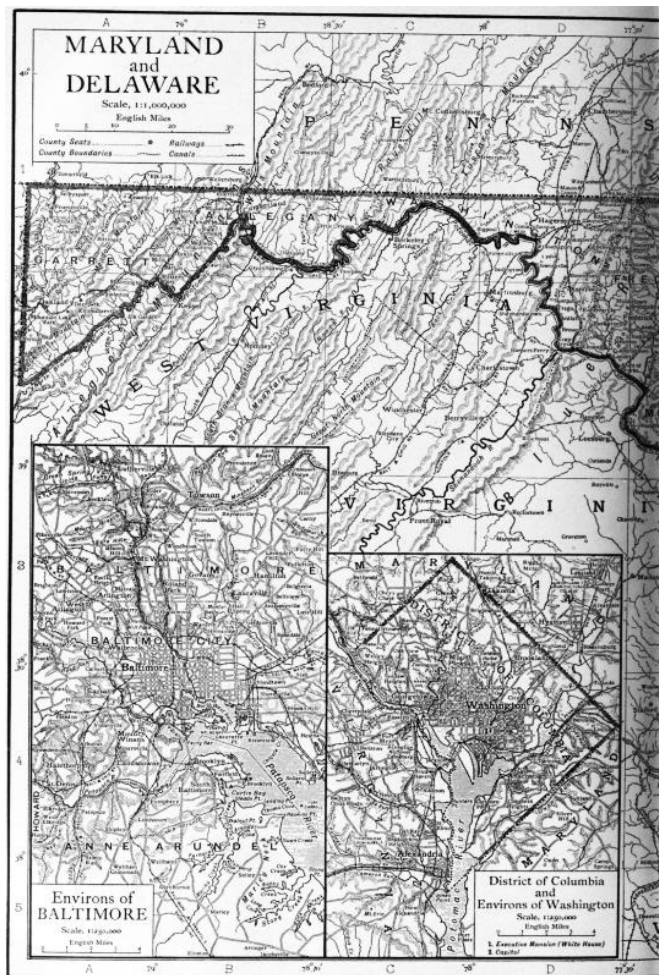
The Indian-corn, wheat and livestock sections of the state, are in the Piedmont Plateau, the Hagerstown Valley and the central portion of the East Shore. Garrett county in the extreme north-west, however, raises the largest number of sheep. Most of the tobacco is grown in the south counties of the West Shore. The great centre for vegetables and

small fruits is in the counties bordering on the north-west shore of the Chesapeake, and in Howard, Frederick and Washington counties, directly west, Anne Arundel county producing the second largest quantity of strawberries of all the counties in the Union in 1899. Peaches and pears grow in large quantities in Kent and neighbouring counties on the East Shore and in Washington and Frederick counties; apples grow in abundance in all parts of the Piedmont Plateau.

The woodland area of the state in 1900 was 4400 sq. m., about 44% (estimated in 1907 to be 3450 sq. m., about 35%) of the total land area, but with the exception of considerable oak and chestnut, some maple and other hard woods in west Maryland, about all of the merchantable timber has been cut. The lumber industry, nevertheless, has steadily increased in importance, the value of the product in 1860 amounting to only \$605,864, that in 1890 to \$1,600,472, and that in 1900 to \$2,650,082, of which sum \$2,495,169 was the value of products under the factory system; in 1905 the value of the factory product was \$2,750,339.

Fisheries.—In 1897 the value of the fishery product of Maryland was exceeded only by that of Massachusetts, but by 1901, although it had increased somewhat during the four years, it was exceeded by the product of New Jersey, of Virginia and of New York. Oysters constitute more than 80% of the total value, the product in 1901 amounting to 5,685,561 bushels, and being valued at \$3,031,518. The supply on natural beds has been diminishing, but the planting of private beds promises a large increase. Crabs are next in value and are caught chiefly along the East Shore and in Anne Arundel and Calvert counties on the West Shore. Shad, to the number of 3,111,181 and valued at \$120,602, were caught during 1901. In Somerset and Worcester counties clams are a source of considerable value. The terrapin catch decreased in value from \$22,333 in 1891 to \$1,139 in 1901. The total value of the fish product of 1901 was \$3,767,461. The state laws for the protection of fish and shell-fish were long carelessly enforced because of the fishermen's strong feeling against them, but this sentiment has slowly changed and enforcement has become more vigorous.

Minerals and Manufactures.—The coal deposits, which form a part of the well-known Cumberland field, furnish by far the most important mineral product of the state; more than 98% of this, in 1901, was mined in Allegany county from a bed about 20 m. long and 5 m. wide and the remainder in Garrett county, whose deposits, though undeveloped, are of great value. The coal is of two varieties: bituminous and semi-bituminous. The bituminous is of excellent quality for the manufacture of coke and gas, but up to 1902 had been mined only in small quantities. Most of the product has been of the semi-bituminous variety and of the best quality in the country for the generation of steam. Nearly all the high grade blacksmithing coal mined in the United States comes from Maryland. The deposits were discovered early in the 19th century (probably first in 1804 near the present Frostburg), but were not exploited until railway transport became available in 1842, and the output was not large until after the close of the Civil War; in 1865 it was 1,025,208 short tons, from which it steadily increased to 5,532,628 short tons in 1907. From 1722 until the War of Independence the iron-ore product of North and West Maryland was greater than that of any of the other colonies, but since then ores of superior quality have been discovered in other states and the output in Maryland, taken chiefly from the west border of the Coastal Plain in Anne Arundel and Prince George's counties, has become comparatively of little importance—24,367 long tons in 1902 and only 8269 tons in 1905. Gold, silver and copper ores, have been found in the state, and attempts have been made to mine them, without much success. The Maryland building stone, of which there is an abundance of good quality, consists chiefly of granites, limestones, slate, marble and sandstones, the greater part of which is quarried in the east section of the Piedmont Plateau especially in Cecil county, though some limestones, including those from which hydraulic cement is manufactured, and some sandstones are obtained from the western part of the Piedmont Plateau and the east section of the Appalachian region; the value of stone quarried in the state in 1907 was \$1,439,355, of which \$1,183,753 was the value of granite, \$142,825 that of limestone, \$98,918 that of marble, and \$13,859 that of sandstone. Brick, potter's and tile clays are obtained most largely along the west border of the Coastal Plain, and fire-clay from the coal region of West Maryland; in 1907 the value of clay products was \$1,886,362. Materials for porcelain, including flint, feldspar and kaolin, abound in the east portion of the Piedmont, the kaolin chiefly in Cecil county, and material for mineral paint in Anne Arundel and Prince George's counties, as well as farther north-west.



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Between 1850 and 1900, while the population increased 103.8%, the average number of wage-earners employed in manufacturing establishments increased 258.5%, constituting 5.2% of the total population in 1850 and 9.1% in 1900. In 1900 the total value of manufactured goods was \$242,552,990, an increase of 41.1% over that of 1890. Of the total given for 1900, \$211,076,143 was the value of products under the factory system; and in 1905 the value of factory products was \$243,375,996, being 15.3% more than in 1900. The products of greatest value in 1905 were: custom-made men's clothing; fruits and vegetables and oysters, canned and preserved; iron and steel; foundry and machine-shop products, including stoves and furnaces; flour and grist mill products; tinware, coppersmithing and sheet iron working; fertilizers; slaughtering and meat-packing; cars and repairs by steam railways; shirts; cotton goods; malt liquors; and cigars and cigarettes. In the value of fertilizers manufactured, and in that of oysters canned and preserved, Maryland was first among the states in 1900 and second in 1905; in 1900 and in 1905 it was fourth among the states in the value of men's clothing. Baltimore is still the great manufacturing centre, but of the state's total product the percentage in value of that manufactured there decreased from 82.5 in 1890 to 66.5 in 1900, and to 62.3 (of the factory product) in 1905. The largest secondary centres are Cumberland, Hagerstown and Frederick the total value of whose factory products in 1905 was less than \$10,000,000.

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Communications.—Tide-water Maryland is afforded rather unusual facilities of water transportation by the Chesapeake Bay, with its deep channel, numerous deep inlets and navigable tributaries, together with the Chesapeake and Delaware Canal, which crosses the state of Delaware and connects its waters with those of the Delaware river and bay. As early as 1783 steps were taken to extend these facilities to the navigable waters of the Ohio, chiefly by improving the navigation of the Potomac above Georgetown. By 1820 this project was merged into a movement for a Chesapeake and Ohio canal along the same line. Ground was broken in 1828 and in 1850 the canal was opened to navigation from Georgetown to Cumberland, a distance of 186 m. In 1878 and again in 1889 it was wrecked by a freshet, and since then has been of little service.¹ However, on the same day that ground was broken for this canal, ground was also broken for the Baltimore & Ohio railway, of which 15 m. was built in 1828-1830 and which was one of the first steam railway lines in operation in the United States. Since then railway building has progressed steadily. In Maryland (and including the District of Columbia) there were 259 m. of railway in 1850, 386 m. in 1860, 671 m. in 1870, and 1040 m. in 1880; in Maryland alone, the mileage was 1270.04 m., and in 1909 it was 1394.19 m. The more important railway lines are the Baltimore & Ohio, the Philadelphia, Baltimore & Washington (controlled by the Pennsylvania and a consolidation of the Philadelphia, Wilmington & Baltimore, and the Baltimore & Potomac), the Western Maryland, the West Virginia Central & Pittsburg (leased by the Western Maryland), the Northern Central, the Maryland electric railways (including what was formerly the Baltimore & Annapolis Short Line), and the Washington, Baltimore & Annapolis electric railway. Baltimore is the chief railway centre and its harbour is one of the most important in the country.

Inhabitants.—The population of Maryland in 1880 was 934,943; in 1890, 1,042,390, an increase of 11.5%; in 1900, 1,188,044 (14%); in 1910, 1,295,346 (increase 9%).² Of the total population in 1900 there were 952,424 whites, 235,064 negroes, 544 Chinese, 9 Japanese and 3 Indians, the increase in the white population from 1890 to 1900 being 15.2%, while that of the negroes was only 9%. In 1900 there were 1,094,110 native born to 93,934 foreign-born, and of the foreign-born 44,990 were natives of Germany and 68,600 were residents of the city of Baltimore. The urban population, *i.e.* total population of cities of 4000 or more inhabitants, in 1900, was 572,795, or 48.2% of the total and an increase of 16.6% over that of 1890; while the rural population, *i.e.* population outside of incorporated places, was 539,685, an increase of about 8% over that of 1890. There are about 59 religious sects, of

which the members of the Roman Catholic Church, which was prominent in the early history of Maryland, are far the most numerous, having in 1906 166,941 members out of 473,257 communicants of all denominations; in the same year there were 137,156 Methodists, 34,965 Protestant Episcopalians, 32,246 Lutherans, 30,928 Baptists, 17,895 Presbyterians and 13,442 members of the Reformed Church in the United States. The chief cities are Baltimore, pop. (1910) 558,485, Cumberland 21,839, Hagerstown 16,507, Frederick 10,411 and Annapolis 8609.

Government.—The state constitution of 1867, the one now in force, has been frequently amended, all that is required for its amendment being a three-fifths vote of all of the members elected to each of the two houses of the General Assembly, followed by a majority vote of the state electorate, and it is further provided that once in twenty years, beginning with 1887, the wish of the people in regard to calling a convention for altering the constitution shall be ascertained by a poll. Any constitution or constitutional amendment proposed by such constitutional convention comes into effect only if approved by a majority of the votes cast in a popular election. Since 1870 suffrage has been the right of all male citizens (including negroes) twenty-one years of age or over who shall have lived within the state for one year and within the county or the legislative district of the city of Baltimore in which they may offer to vote for six months immediately preceding an election; persons convicted of larceny or other infamous crime and not since pardoned by the governor, as well as lunatics or those who have been convicted of bribery at a previous election are excepted. In 1908 the General Assembly passed a law providing for annual direct primary elections (outside of Baltimore; and making the Baltimore special primary law applicable to state as well as city officials), but, as regards state officers, making only a slight improvement upon previous conditions inasmuch as the county or district is the unit and the vote of county or district merely “instructs” delegates to the party’s state nominating convention, representation in which is not strictly in proportion to population, the rural counties having an advantage over Baltimore; no nomination petition is required. In the same year a separate law was passed providing for primary elections for the choice of United States senators; but here also the method is not that of nomination by a plurality throughout the state, but by the vote of counties and legislative districts, so that this measure, like the other primary law, is not sufficiently direct to give Baltimore a vote proportional to its population.

The chief executive authority is vested in a governor elected by popular vote for a term of four years. Since becoming a state Maryland has had no lieutenant-governor except under the constitution of 1864; and the office of governor is to be filled in case of a vacancy by such person as the General Assembly may elect.³ Any citizen of Maryland may be elected to the office who is thirty years of age or over, who has been for ten years a citizen of the state, who has lived in the state for five years immediately preceding election, and who is at the time of his election a qualified voter therein. Until 1838 the governor had a rather large appointing power, but since that date most of the more important offices have been filled by popular election. He, however, still appoints, subject to the confirmation of the senate, the secretary of state, the superintendent of public education, the commissioner of the land office, the adjutant-general, justices of the peace, notaries public, the members of numerous administrative boards, and other administrative officers. He is himself one of the board of education, of the board of public works, and of the board for the management of the house of correction. No veto power whatever was given to the governor until 1867, when, in the present constitution, it was provided that no bill vetoed by him should become a law unless passed over his veto by a three-fifths vote of the members elected to each house, and an amendment of 1890 (ratified by the people in 1891) further provides that any item of a money bill may likewise be separately vetoed. The governor’s salary is fixed by the constitution at \$4500 a year. Other executive officers are a treasurer, elected by joint ballot of the General Assembly for a term of two years, a comptroller elected by popular vote for a similar term, and an attorney-general elected by popular vote for four years.

The legislature, or General Assembly, meets biennially in even-numbered years, at Annapolis, and consists of a Senate and a House of Delegates. Senators are elected, one from each of the twenty-three counties and one from each of the four legislative districts of the city of Baltimore, for a term of four years, the terms of one-half expiring every two years. Delegates are elected for a term of two years, from each county and from each legislative district of Baltimore, according to population, as follows: for a population of 18,000 or less, two delegates; 18,000 to 28,000, three; 28,000 to 40,000, four; 40,000 to 55,000, five; 55,000 and upwards, six. Each legislative district of Baltimore is entitled to the number of delegates to which the largest county shall or may be entitled under the foregoing apportionment, and the General Assembly may from time to time alter the boundaries of Baltimore city districts in order to equalize their population. This system of apportionment gives to the rural counties a considerable political advantage over the city of Baltimore, which, with 42.8% of the total population according to the census of 1900, has only 4 out of 27 members of the Senate and only 24 out of 101 members of the House of Delegates. Since far back in the colonial era, no minister, preacher, or priest has been eligible to a seat in either house. A senator must be twenty-five years of age or over, and both senators and delegates must have lived within the state at least three years and in their county or legislative district at least one year immediately preceding their election.

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The constitution provides that no bill or joint resolution shall pass either house except by an affirmative vote of a majority of all the members elected to that house and requires that on the final vote the yeas and nays be recorded.

Justice, &c.—The administration of justice is entrusted to a court of appeals, circuit courts, special courts for the city of Baltimore, orphans’ courts, and justices of the peace. Exclusive of the city of Baltimore, the state is divided into seven judicial circuits, in each of which are elected for a term of fifteen years one chief judge and two associate judges, who at the time of their election must be members of the Maryland bar, between the ages of thirty and seventy, and must have been residents of the state for at least five years. The seven chief judges so elected, together with one elected from the city of Baltimore, constitute the court of appeals, the governor with the advice and consent of the senate designating one of the eight as chief judge of that court. The court has appellate jurisdiction only. The three judges elected in each circuit constitute the circuit court of each of the several counties in such circuit. The courts have both original and appellate jurisdiction and are required to hold at least two sessions to which jurors shall be summoned every year in each county of its circuit, and if only two such terms are held, there must be two other and intermediate terms to which jurors shall not be summoned. Three other judges are elected for four-year terms, in each county and in the city of Baltimore to constitute an orphans’ court. The number of justices of the peace for each county is fixed by local law; they are appointed by the governor, subject to the confirmation of the Senate, for a term of two years.

In the colonial era Maryland had an interesting list of governmental subdivisions—the manor, the hundred, the parish, the county, and the city—but the two last are about all that remain and even these are in considerable measure subject to the special local acts of the General Assembly. In general, each county has from three to seven commissioners—the number is fixed by county laws—elected on a general ticket of each county for a term of from two to six years, entrusted with the charge and control of property owned by the county, empowered to appoint constables, judges of elections, collectors of taxes, trustees of the poor, and road supervisors, to levy taxes, to revise taxable valuations of real property, and open or close public roads.

In Maryland a wife holds her property as if single except that she can convey real estate only by a joint deed with her husband (this requirement being for the purpose of effecting a release of the husband’s “dower interest”),

neither husband nor wife is liable for the separate debts of the other, and on the death of either the rights of the survivor in the estate of the other are about equal. Wife-beating is made punishable by whipping in gaol, not exceeding forty lashes. Prior to 1841 a divorce was granted by the legislature only, from then until 1851 it could be granted by either the legislature or the equity courts, since 1851 by the courts only. The grounds for a divorce *a mensa et thoro*, which may be granted for ever or for a limited time only, are cruelty, excessively vicious conduct, or desertion; for a divorce *a vinculo matrimonii* the chief grounds are impotence at the time of marriage, adultery or deliberate abandonment for three years. There is no homestead exemption law and exemptions from levy for the satisfaction of debts extend only to \$100 worth of property, besides wearing apparel and books and tools used by the debtor in his profession or trade, and to all money payable in the nature of insurance. Employers of workmen in a clay or coal mine, stone quarry, or on a steam or street railway are liable for damage in case of an injury to any of their workmen where such injury is caused by the negligence of the employer or of any servant or employee of the employer. The chief of the bureau of labour statistics is directed in case of danger of a strike or lockout to seek to mediate between the parties and if unsuccessful in that, then to endeavour to secure their consent to the formation of a board of arbitration.

The state penal and charitable institutions include a penitentiary at Baltimore; a house of correction at Jessups, two houses of refuge at Baltimore; a house of reformation in Prince George's county; St Mary's industrial school for boys at Baltimore; an industrial home for negro girls at Melvale; an asylum and training school for the feeble-minded at Owings Mills; an infirmary at Cumberland; the Maryland hospital for the insane at Catonsville; the Springfield state hospital for the insane; the Maryland school for the deaf and dumb at Frederick city; and the Maryland school for the blind at Baltimore. Each of these is under the management of a board appointed by the governor subject to the confirmation of the senate. Besides these there are a large number of state-aided charitable institutions. In 1900 there was created a board of state aid and charities, composed of seven members appointed by the governor for a term of two years, not more than four to be reappointed. There is also a state lunacy commission of four members, who are appointed for terms of four years, one annually, by the governor.

Education.—The basis of the present common school system was laid in 1865, after which a marked development was accompanied by some important changes in the system and its administration, and the percentage of total illiteracy (*i.e.* inability to write among those ten years old and over) decreased from 19.3 in 1800 to 11.1 in 1900, while illiteracy among the native whites decreased during the same period from 7.8 to 4.1 and among negroes from 59.6 to 35.2. At the head of the system is a state board and a state superintendent, and under these in each county is a county board which appoints a superintendent for the county and a board of trustees for each school district none of which is to be more than four miles square. The state board is composed of the governor as its president, the state superintendent as its secretary, six other members appointed by the governor for a term of six years, and, as *ex-officio* members without the right to vote, the principals of the state and other normal schools. Prior to 1900 the principal of the state normal was *ex-officio* state superintendent, but since then the superintendent has been appointed by the governor for a term of four years. Each county board is also appointed by the governor for a term of six years. In both the state and the county boards at least one-third of the members appointed by the governor are not to be of the dominant political party and only one-third of the members are to be appointed every two years. The state board enacts by-laws for the administration of the system; its decision of controversies arising under the school law is final; it may suspend or remove a county superintendent for inefficiency or incompetency; it issues life state certificates, but applicants must have had seven years of experience in teaching, five in Maryland, and must hold a first-class certificate or a college or normal school diploma; and it pensions teachers who have taught successfully for twenty-five years in any of the public or normal schools of the state, who have reached the age of sixty, and who have become physically or mentally incapable of teaching longer, the pension amounting to \$200 a year. The legislature of 1908 passed a law under which the minimum pay for a teacher holding a first-class certificate should be \$350 a year after three years' teaching, \$400 after five years' teaching and \$450 after eight years' teaching. By a law of 1904 all teachers who taught an average of 15 pupils were to receive at least \$300. School books are purchased out of the proceeds of the school tax, but parents may purchase if they prefer. In 1908 the average school year was nine and seven-tenths months—ten in the cities and nine and four-tenths in the counties; the aim is ten months throughout, and a law of 1904 provides that if a school is taught less than nine months a portion of the funds set apart for it shall be withheld. A compulsory education law of 1902—to operate, however, only in the city of Baltimore and in Allegany county—requires the attendance for the whole school year of children between the ages of eight and twelve and also of those between the ages of twelve and sixteen who are not employed at home or elsewhere. A separate school for negro children is to be maintained in every election district in which the population warrants it. The system is maintained by a state tax of 16 cents on each \$100 of taxable property.

The higher state educational institutions are two normal schools and one agricultural college. One of the normal schools was opened in Baltimore in 1866, the other at Frostburg in 1904. Both are under the management of the state Board of Education, which appoints the principals and teachers and prescribes the course of study. There is besides, in Washington College at Chestertown, a normal department supported by the state and under the supervision of the state Board of Education. The Maryland Agricultural College, to which an experiment station has been added, was opened in 1859; it is at College Park in Prince George's county, and is largely under state management. Maryland supports no state university, but Johns Hopkins University, one of the leading institutions of its kind in the country, receives \$25,000 a year from the state; the medical department of the university of Maryland receives an annual appropriation of about \$2500, and St John's College, the academic department of the university of Maryland, receives from the state \$13,000 annually and gives for each county in the state one free scholarship and one scholarship covering all expenses. Among the principal institutions in the state are the university of Maryland, an outgrowth of the medical college of Maryland (1807) in Baltimore, with a law school (reorganized in 1869), a dental school (1882), a school of pharmacy (1904), and, since 1907, a department of arts and science in St John's College (non-sect., opened in 1789) at Annapolis; Washington College, with a normal department (non-sect., opened in 1782) at Chestertown; Mount St Mary's College (Roman Catholic, 1808) at Emmitsburg; New Windsor College (Presbyterian, 1843) at New Windsor; St Charles College (Roman Catholic, opened in 1848) and Rock Hill College (Roman Catholic, 1857) near Ellicott City; Loyola College (Roman Catholic, 1852) at Baltimore; Western Maryland College (Methodist Protestant, 1867) at Westminster; Johns Hopkins University (non-sect., 1876) at Baltimore; Morgan College (coloured, Methodist, 1876) at Baltimore; Goucher College (Methodist, founded 1884, opened 1888) at Baltimore; several professional schools mostly in Baltimore (*q.v.*); the Peabody Institute at Baltimore; and the United States Naval Academy at Annapolis.

Revenue.—The state's revenue is derived from a general direct property tax, a licence tax, corporation taxes, a collateral inheritance tax, fines, forfeitures and fees; and the penitentiary yields an annual net revenue of about \$40,000. There is no provision for a general periodic assessment, but a state tax commissioner appointed by the governor, treasurer and comptroller assesses the corporations, and the county commissioners (in the counties) and the appeal tax court (in the city of Baltimore) revise valuations of real property every two years. From 1820 to 1836 Maryland, in its enthusiasm over internal improvements, incurred an indebtedness of more than \$16,000,000. To meet the interest, such heavy taxes were levied that anti-tax associations were formed to resist the collection, and in 1842 the state failed to pay what was due; but the accumulated interest had been funded by 1848 and was paid soon

afterwards, the expenses of the government were curtailed by the constitution of 1851, and after the Civil War the amount of indebtedness steadily decreased until in 1902 the funded debt was \$6,909,326 and the net debt only \$2,797,269.13, while on the 1st of October 1908 the net debt was \$366,643.91. As a result of incurring the large debt, a clause in the constitution prohibits the legislature from contracting a debt without providing by the imposition of taxes for the payment of the interest annually and the principal within fifteen years, except to meet a temporary deficiency not exceeding \$50,000. The first bank of the state was established in 1790, and by 1817 there was one in each of twelve counties and several in Baltimore; in 1818-1820 and in 1837-1839 there were several serious bank failures, but there have been no serious failures since. A constitutional provision makes each stockholder in a state bank liable to the amount of his share or shares for all the bank's debts and liabilities. A savings bank is taxed on its deposits, and a state bank is taxed on its capital-stock.

History.—The history of Maryland begins in 1632 with the procedure of Charles I. to grant a charter conveying almost unlimited territorial and governmental rights therein to George Calvert, first Lord Baltimore (1580?-1632), and styling him its absolute lord and proprietor. George Calvert died before the charter had passed the great seal, but about two months later in the same year it was issued to his eldest son, Cecilius. In November 1633 two vessels, the "Ark" and the "Dove," carrying at least two hundred colonists under Leonard Calvert (c. 1582-1647), a brother of the proprietor, as governor, sailed from Gravesend and arrived in Maryland late in March of the following year. Friendly relations were at the outset established with the Indians, and the province never had much trouble with that race; but with William Claiborne (1589?-1676?), the arch-enemy of the province as long as he lived, it was otherwise. He had opposed the grant of the Maryland charter, had established a trading post on Kent Island in Chesapeake Bay in 1631, and when commanded to submit to the new government he and his followers offered armed resistance. A little later, during his temporary absence in England, his followers on the island were reduced to submission; but in 1644, while the Civil War in England was in progress, he was back in the province assisting Richard Ingle, a pirate who claimed to be acting in the interest of parliament, in raising an insurrection which deprived Governor Calvert of his office for about a year and a half. Finally, the lord proprietor was deprived of his government from 1654 to 1658 in obedience to instructions from parliament which were originally intended to affect only Virginia, but were so modified, through the influence of Claiborne and some Puritan exiles from Virginia who had settled in Maryland, as to apply also to "the plantations within Chesapeake Bay." Then the long continued unrest both in the mother country and in the province seems to have encouraged Josias Fendall, the proprietor's own appointee as governor, to strike a blow against the proprietary government and attempt to set up a commonwealth in its place; but this revolt was easily suppressed and order was generally preserved in the province from the English Restoration of 1660 to the English Revolution of 1688.

Meanwhile an interesting internal development had been in progress. The proprietor was a Roman Catholic and probably it was his intention that Maryland should be an asylum for persecuted Roman Catholics, but it is even more clear that he was desirous of having Protestant colonists also. To this end he promised religious toleration from the beginning and directed his officers accordingly; this led to the famous toleration act passed by the assembly in 1649, which, however, extended its protection only to sects of Trinitarian Christianity. Again, although the charter reserved to the proprietor the right of calling an assembly of the freemen or their delegates at such times and in such form and manner as he should choose, he surrendered in 1638 his claim to the sole right of initiating legislation. By 1650 the assembly had been divided into two houses, in one of which sat only the representatives of the freemen without whose consent no bill could become a law, and annual sessions as well as triennial elections were coming to be the usual order. When suffrage had thus come to be a thing really worth possessing, the proprietor, in 1670, sought to check the opposition by disfranchising all freemen who did not have a freehold of fifty acres or a visible estate of forty pounds sterling. But this step was followed by more and more impassioned complaints against him, such as: that he was interfering with elections, that he was summoning only a part of the delegates elected, that he was seeking to overawe those summoned, that he was abusing his veto power, and that he was keeping the government in the hands of Roman Catholics, who were mostly members of his own family. About this time also the north and east boundaries of the province were beginning to suffer from the aggressions of William Penn. The territory now forming the state of Delaware was within the boundaries defined by the Maryland charter, but in 1682 it was transferred by the duke of York to William Penn and in 1685 Lord Baltimore's claim to it was denied by an order in council, on the ground that it had been inhabited by Christians before the Maryland charter was granted. In the next place, although it was clear from the words of the charter that the parallel of 40° N. was intended for its north boundary, and although Penn's charter prescribed that Pennsylvania should extend on the south to the "beginning of the fortieth degree of Northern Latitude," a controversy arose with regard to the boundary between the two provinces, and there was a long period of litigation; in 1763-1767 Charles Mason and Jeremiah Dixon, two English mathematicians, established the line named from them (see [MASON AND DIXON LINE](#)), which runs along the parallel 39° 43' 26".3 N. and later became famous as the dividing line between the free states and the slave states. While the proprietor was absent defending his claims against Penn the English Revolution of 1688 was started. Owing to the death of a messenger there was long delay in proclaiming the new monarchs in Maryland; this delay, together with a rumor of a Popish plot to slaughter the Protestants, enabled the opposition to overthrow the proprietary government, and then the crown, in the interest of its trade policy, set up a royal government in its place, in 1692, without, however, divesting the proprietor of his territorial rights. Under the royal government the Church of England was established, the people acquired a strong control of their branch of the legislature and they were governed more by statute law and less by executive ordinance. The proprietor having become a Protestant, the proprietary government was restored in 1715. Roman Catholics were disfranchised immediately afterward. In 1730 Germans began to settle in considerable numbers in the west-central part of the colony, where they greatly promoted its industrial development but at the same time added much strength to the opposition. The first great dispute between proprietor and people after the restoration of 1715 was with regard to the extension of the English statutes to Maryland, the popular branch of the legislature vigorously contending that all such statutes except those expressly extended to the province, and the lord proprietor contending that only those in which the dominions were expressly mentioned were in force there. Many other disputes speedily followed and when the final struggle between the English and French for possession in America came, although appropriations were made at its beginning to protect her own west frontier from the attacks of the enemy, a deadlock between the two branches of the assembly prevented Maryland from responding to repeated appeals from the mother country for aid in the latter part of that struggle. This failure was used as an argument in favour of imposing the famous Stamp Act. Nevertheless, popular clamour against parliament on account of that measure was even greater than it had been against the proprietor. The stamp distributor was driven out, and the arguments of Daniel Dulany (1721-1797), the ablest lawyer in the province, against the act were quoted by speakers in parliament for its repeal.

In the years immediately preceding the Declaration of Independence Maryland pursued much the same course as did other leading colonies in the struggle—a vessel with tea on board was even burned to the water's edge—and yet

when it came to the decisive act of declaring independence there was hesitation. As the contest against the proprietor had been nearly won, the majority of the best citizens desired the continuance of the old government and it was not until the Maryland delegates in the Continental Congress were found almost alone in holding back that their instructions not to vote for independence were rescinded. The new constitution drawn and adopted in 1776 to take the place of the charter was of an aristocratic rather than a democratic nature. Under it the property qualification for suffrage was a freehold of 50 acres or £30 current money, the property qualifications for delegates £500, for senators £1000, and for governor £5000. Four delegates were chosen from each county and two each from Baltimore and Annapolis, the same as under the proprietary government, population not being taken into account. Senators were chosen by a college of fifteen electors elected in the same manner as the delegates, and the governor by a joint ballot of the two houses of assembly. In 1802 negroes were disfranchised, and in 1810 property qualifications for suffrage and office were abolished. The system of representation that, with the rapid growth of population in the north-east sections, especially in the city of Baltimore, placed the government in the hands of a decreasing minority also began to be attacked about this time; but the fear of that minority which represented the tobacco-raising and slave-holding counties of south Maryland, with respect to the attitude of the majority toward slavery prevented any changes until 1837, when the opposition awakened by the enthusiasm over internal improvements effected the adoption of amendments which provided for the election of the governor and senators by a direct vote of the people, a slight increase in the representation of the city of Baltimore and the larger counties, and a slight decrease in that of the smaller counties. Scarcely had these amendments been carried when the serious financial straits brought on by debt incurred through the state's promotion of internal improvements gave rise to the demand for a reduction of governmental expenses and a limitation of the power of the General Assembly to contract debts. The result was the new constitution of 1851, which fully established representation in the counties on the basis of population and further increased that of Baltimore. The constitution of 1851 was however chiefly a patchwork of compromises. So, when during the Civil War Maryland was largely under Federal control and the demand arose for the abolition of slavery by the state, another constitutional convention was called, in 1864, which framed a constitution providing that those who had given aid to the Rebellion should be disfranchised and that only those qualified for suffrage in accordance with the new document could vote on its adoption. This was too revolutionary to stand long and in 1867 it was superseded by the present constitution. In national affairs Maryland early took a stand of perhaps far-reaching consequences in refusing to sign the Articles of Confederation (which required the assent of all the states before coming into effect), after all the other states had done so (in 1779), until those states claiming territory between the Alleghany Mountains and the Mississippi and north of the Ohio—Virginia, New York, Massachusetts and Connecticut—should have surrendered such claims. As those states finally yielded, the Union was strengthened by reason of a greater equality and consequently less jealousy among the original states, and the United States came into possession of the first territory in which all the states had a common interest and out of which new states were to be created. In the War of 1812 Frederick, Havre de Grace, and Frenchtown were burned by the British; but particularly noteworthy were the unsuccessful movements of the enemy by land and by sea against Baltimore, in which General Robert Ross (*c.* 1766-1814), the British commander of the land force, was killed before anything had been accomplished and the failure of the fleet to take Fort McHenry after a siege of a day and a night inspired the song *The Star-spangled Banner*, composed by Francis Scott Key who had gone under a flag of truce to secure from General Ross the release of a friend held as a prisoner by the British and during the attack was detained on his vessel within the British lines. In 1861 Maryland as a whole was opposed to secession but also opposed to coercing the seceded states. During the war that followed the west section was generally loyal to the north while the south section favoured the Confederacy and furnished many soldiers for its army; but most of the state was kept under Federal control, the writ of habeas corpus being suspended. The only battle of much importance fought on Maryland soil during the war was that of Sharpsburg or Antietam on the 16th and 17th of September 1862. As between political parties the state has usually been quite equally divided. From 1820 to 1860, however, the Whigs were in general a trifle the stronger; and from 1866 to 1895 the Democrats were triumphant; in 1895 a Republican governor was elected; in 1896 Maryland gave McKinley 32,232 votes more than it gave Bryan; and in 1904 seven Democratic electors and one Republican were chosen; and in 1908 five Democratic and three Republican.

The proprietors of Maryland were: Cecilius Calvert, second Lord Baltimore (1605[?]-1675) from 1632 to 1675; Charles Calvert, third Lord Baltimore (1629-1715) from 1675 to 1715; Benedict Leonard Calvert, fourth Lord Baltimore (1684?-1715) 1715; Charles Calvert, fifth Lord Baltimore (1699-1751) from 1715 to 1751; Frederick Calvert, sixth and last Lord Baltimore (1731-1771) from 1751 to 1771; Henry Harford, from 1771 to 1776.

Governors of Maryland.

<i>Proprietary.</i>	
Leonard Calvert	1633-1645
Richard Ingle (usurper)	1645
Edward Hill (chosen by the council)	1646
Leonard Calvert	1646-1647
Thomas Greene	1647-1649
William Stone	1649-1652
Richard Bennett	(commissioners of parliament)
Edmund Curtis	
William Claiborne	
William Stone	1652-1654
William Fuller and others (appointed by the commissioners of parliament)	1654-1658
Josias Fendall	1658-1660
Philip Calvert	1660-1661
Charles Calvert	1661-1675
Charles Calvert, third Lord Baltimore	1675-1676
Cecilius Calvert (titular) and Jesse Wharton (real)	1676
Thomas Notley	1676-1679
Charles Calvert, third Lord Baltimore	1679-1684
Benedict Leonard Calvert (titular) and council (real)	1684-1688
William Joseph (president of the council)	1688-1689
Protestant Associators under John Coode	1689-1692

Royal.	
Sir Lionel Copley	1692-1693
Sir Edmund Andros	1693-1694
Francis Nicholson	1694-1699
Nathaniel Blackistone	1699-1702
Thomas Tench (president of the council)	1702-1704
John Seymour	1704-1709
Edward Lloyd (president of the council)	1709-1714
John Hart	1714-1715
John Hart	1715-1720
Charles Calvert	1720-1727
Benedict Leonard Calvert	1727-1731
Samuel Ogle	1731-1732
Charles Calvert, fifth Lord Baltimore	1732-1733
Samuel Ogle	1733-1742
Thomas Bladen	1742-1747
Samuel Ogle	1747-1752
Benjamin Tasker (president of the council)	1752-1753
Horatio Sharpe	1752-1769
Robert Eden	1769-1774
Robert Eden (nominal) and Convention and Council of Safety (real)	1774-1776

STATE	
Thomas Johnson	1777-1779
Thomas Sim Lee	1779-1782
William Paca	1782-1785
William Smallwood	1785-1788
John Eager Howard	1788-1791
George Plater ⁴	1791-1792
James Brice (acting)	1792
Thomas Sim Lee	1792-1794
John H. Stone	1794-1797
John Henry	Democratic Republican 1797-1798
Benjamin Ogle	Federalist 1798-1801
John Francis Mercer	Democratic Republican 1801-1803
Robert Bowie	" "
Robert Wright ⁵	" "
James Butcher (acting)	" "
Edward Lloyd	Whig 1809-1811
Robert Bowie	Democratic Republican 1811-1812
Levin Winder	Federalist 1812-1815
Charles Ridgely	" 1815-1818
Charles Goldsborough	" 1818-1819
Samuel Sprigg	Democratic Republican 1819-1822
Samuel Stevens, jun.	" "
Joseph Kent	" "
Daniel Martin	Anti-Jackson 1828-1829
Thomas King Carroll	Jackson Democrat 1829-1830
Daniel Martin	Anti-Jackson 1830-1831
George Howard (acting)	Whig 1831-1832
George Howard	" 1832-1833
James Thomas	" 1833-1835
Thomas W. Veazey	" 1835-1838
William Grason	Democrat 1838-1841
Francis Thomas	" 1841-1844
Thomas G. Pratt	Whig 1844-1847
Philip Francis Thomas	Democrat 1847-1850
Enoch Louis Lowe	" 1850-1853
Thomas Watkins Ligon	" 1853-1857
Thomas Holliday Hicks	American or Know Nothing 1857-1861
Augustus W. Bradford	Unionist 1861-1865
Thomas Swann	" 1865-1868
Oden Bowie	Democrat 1868-1872
William Pinkney Whyte ⁶	" 1872-1874
James Black Groome	" 1874-1876
John Lee Carroll	" 1876-1880
William T. Hamilton	" 1880-1884
Robert M. McLane	" 1884-1885
Henry Lloyd	" 1885-1888
Elihu E. Jackson	" 1888-1892
Frank Brown	" 1892-1896
Lloyd Lowndes	Republican 1896-1900
John Walter Smith	Democrat 1900-1904
Edwin Warfield	" 1904-1908
Austin L. Crothers	" 1908-

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of the agitation from 1835 to 1850 for constitutional reform; B. C. Steiner, *History of Education in Maryland*, Circulars of Information of the United States Bureau of Education (Washington, 1894), a general historical survey of the common schools, public and private, and a particular account of each college, university and professional school; A. D. Mayo, *The Final Establishment of the American School System in West Virginia, Maryland, Virginia and Delaware*, Report of the Commissioner of Education (Washington, 1905) contains an interesting account of the development of the public school system of the state from 1864 to 1900; F. S. Adams, *Taxation in Maryland*, Johns Hopkins University Studies (Baltimore, 1900), an historical account of the sources of the state's revenue and administration of its taxing system; A. V. Bryan, *History of State Banking in Maryland*, Johns Hopkins University Studies (Baltimore, 1899), a careful study of the state's experience with banks from 1790 to 1864; J. L. Bozman, *History of Maryland from 1633 to 1660* (Baltimore, 1837), a compilation of much of the more important material relating to the early history of the province; J. V. L. McMahon, *An Historical View of the Government of Maryland from its Colonization to the Present Day* (Baltimore, 1833), an able treatment of the subject by a learned jurist; J. T. Scharf, *History of Maryland* (Baltimore, 1879), the most extensive general history of the state, but it contains numerous errors and the arrangement is poor; W. H. Browne, *Maryland: the History of a Palatinate* (Boston, 1884 and 1895), an excellent outline of the colonial history; N. D. Mereness, *Maryland as a Proprietary Province* (New York, 1901), a constitutional history of the province in the light of its industrial and social development, contains a bibliography; and Bernard C. Steiner, *Maryland during the English Civil War* (2 vols., Baltimore, 1906-1907), one of the Johns Hopkins University Studies.

(N. D. M.)

- 1 Maryland and Delaware together began the construction of the Chesapeake and Delaware canal (13½ m. long) across the north part of the state of Delaware, between the Delaware river and Chesapeake Bay; this canal received Federal aid in 1828, was completed in 1829, and in 1907 was chosen as the most practicable route for a proposed ship waterway between the Chesapeake and the Delaware.
- 2 The population at previous censuses was as follows: 319,728 in 1790; 341,548 in 1800; 380,546 in 1810; 407,350 in 1820; 447,040 in 1830; 470,019 in 1840; 583,034 in 1850; 687,049 in 1860; and 780,894 in 1870.
- 3 The General Assembly regularly elected the governor during the period 1776-1838.
- 4 Died in office.
- 5 Resigned on the 6th of May 1808.
- 6 Resigned in 1874 to become (March 4, 1875) U.S. senator from Maryland.



MARYPORT, a market town and seaport in the Cockermouth parliamentary division of Cumberland, England, 25 m. W.S.W. of Carlisle, on the Maryport & Carlisle railway. Pop. of urban district (1901), 11,897. It is irregularly built on the shore of the Irish Sea and on the cliffs above, at the mouth of the river Ellen. Until 1750 there were only a few huts here, the spot being called Ellenfoot, but at this time the harbour was built by Humphrey Senhouse. In 1892 Maryport became an independent port with Workington, Whitehaven and Millom subordinate to it. Coal and pig-iron are exported from the mining district inland, and shipbuilding is carried on. There are also rope and sail works, iron-foundries, saw-mills, breweries and tanneries. On the hill north of the town there is a Roman fort which guarded the coast, and many remains of this period have been discovered. The fort was called Uxellodunum.



MARZABOTTO, a village of Emilia, Italy, in the province of Bologna, 17 m. S.S.W. of Bologna by rail. Pop. (1901), 617 (village); 5272 (commune). It lies in the valley of the Reno, 443 ft. above sea-level. In and below the grounds of the Villa Aria, close to it, are the remains of an Etruscan town of the 5th century B.C., protected on the west by the mountains, on the east and south by the river, which by a change of course has destroyed about half of it. The acropolis was just below the villa: here remains of temples were found. The town lay below the modern high-road and was laid out on a rectangular plan divided by main streets into eight quarters, and these in turn into blocks or *insulae*. Cemeteries were found on the east and north of the site. The name of the place is unknown: it was partially inhabited later by the Gauls, but was not occupied by the Romans.

The discoveries of 1888-1889 (with references to previous works) are described by E. Brizio in *Monumenti dei Lincei* (1891), i. 249 sqq.

(T. As.)



MASACCIO (1402-1429), Italian painter. Tommaso Guidi, son of a notary, Ser Giovanni di Simone Guidi, of the family of the Scheggia, who had property in Castel S. Giovanni di Val d'Arno, was born in 1402 (according to Milanese, on the 21st of December 1401), and acquired the nickname of Masaccio, which may be translated "Lubberly Tom," in consequence of his slovenly dressing and deportment. From childhood he showed a great inclination for the arts of design, and he is said to have studied under his contemporary Masolino da Panicale. In 1421, or perhaps 1423, he was enrolled in the gild of the *speziali* (druggists) in Florence, in 1424 in the gild of painters. His first attempts in painting were made in Florence, and then in Pisa. Next he went to Rome, still no doubt very young; although the statement that he returned from Rome to Florence, in 1420, when only eighteen or

nineteen, seems incredible, considering the works he undertook in the papal city. These included a series of frescoes still extant in a chapel of the church of S. Clemente, a Crucifixion, and scenes from the life of St Catherine and of St Clement, or perhaps some other saint. Though much inferior to his later productions, these paintings are, for naturalism and propriety of representation, in advance of their time. Some critics, however, consider that the design only, if even that, was furnished by Masaccio, and the execution left to an inferior hand; this appears highly improbable, as Masaccio, at his early age, can scarcely have held the position of a master laying out work for subordinates; indeed Vasari says that Lubberly Tom was held in small esteem at all times of his brief life. In the Crucifixion subject the group of the Marys is remarkable; the picture most generally admired is that of Catherine, in the presence of Maxentius, arguing against and converting eight learned doctors. After returning to Florence, Masaccio was chiefly occupied in painting in the church of the Carmine, and especially in that "Brancacci Chapel" which he has rendered famous almost beyond rivalry in the annals of painting.

The chapel, had been built early in the 15th century by Felice Michele di Piuvichese Brancacci, a noble Florentine. Masaccio's work in it began probably in 1423, and continued at intervals until he finally quitted Florence in 1428. There is a whole library-shelf of discussion as to what particular things were done by Masaccio and what by Masolino, and long afterwards by Filippino Lippi, in the Brancacci Chapel, and also as to certain other paintings by Masaccio in the Carmine. He began with a trial piece, a majestic figure of St Paul, not in the chapel; this has perished. A monochrome of the Procession for the Consecration of the Chapel, regarded as a wonderful example, for that early period, of perspective and of grouping, has also disappeared; it contains portraits of Brunelleschi, Donatello and many others. In the cloister of the Carmine was discovered in recent years a portion of a fresco by Masaccio representing a procession; but this, being in colours and not in monochrome, does not appear to be the Brancacci procession. As regards the works in the Brancacci chapel itself, the prevalent opinion now is that Masolino, who used to be credited with a considerable portion of them, did either nothing, or at most the solitary compartment which represents St Peter restoring Tabitha to life, and the same saint healing a cripple. The share which Filippino Lippi bore in the work admits of little doubt; to him are due various items on which the fame of Masaccio used principally to be based—as for instance the figure of St Paul addressing Peter in prison, which Raphael partly appropriated; and hence it may be observed that an eloquent and often-quoted outpouring of Sir Joshua Reynolds in praise of Masaccio ought in great part to be transferred to Filippino. What Masaccio really painted in the chapel appears with tolerable certainty to be as follows, and is ample enough to sustain the high reputation he has always enjoyed:—(1) The "Temptation of Adam and Eve"; (2) "Peter and the Tribute-Money"; (3) The "Expulsion from Eden"; (4) "Peter Preaching"; (5) "Peter Baptizing"; (6) "Peter Almsgiving"; (7) "Peter and John curing the Sick"; (8) "Peter restoring to Life the Son of King Theophilus of Antioch" was begun by Masaccio, including the separate incident of "Peter Enthroned," but a large proportion is by Filippino; (9) the double subject already allotted to Masolino may perhaps be by Masaccio, and in that case it must have been one of the first in order of execution. A few words may be given to these pictures individually. (1) The "Temptation" shows a degree of appreciation of nude form, corresponding to the feeling of the antique, such as was at that date unexampled in painting. (2) The "Tribute-Money," a full, harmonious and expressive composition, contains a head reputed to be the portrait of Masaccio himself—one of the apostles, with full locks, a solid resolute countenance and a pointed beard. (3) The "Expulsion" was so much admired by Raphael that, with comparatively slight modifications, he adopted it as his own in one of the subjects of the Logge of the Vatican. (5) "Peter Baptizing" contains some nude figures of strong naturalistic design; that of the young man, prepared for the baptismal ceremony, who stands half-shivering in the raw air, has always been a popular favourite and an object of artistic study. (8) The restoration of the young man to life has been open to much discussion as to what precise subject was in view, but the most probable opinion is that the legend of King Theophilus was intended.

In 1427 Masaccio was living in Florence with his mother, then for the second time a widow, and with his younger brother Giovanni, a painter of no distinction; he possessed nothing but debts. In 1428 he was working, as we have seen, in the Brancacci chapel. Before the end of that year he disappeared from Florence, going, as it would appear, to Rome, to evade the importunities of creditors. Immediately afterwards, in 1429, when his age was twenty-seven or twenty-eight, he was reported dead. Poisoning by jealous rivals in art was rumoured, but of this nothing is known. The statement that several years afterwards, in 1443, he was buried in the Florentine Church of the Carmine, without any monument, seems to be improbable, and to depend upon a confused account of the dates, which have now, after long causing much bewilderment, been satisfactorily cleared up from extant documents.

It has been said that Masaccio introduced into painting the plastic boldness of Donatello, and carried out the linear perspective of Paolo Uccello and Brunelleschi (who had given him practical instruction), and he was also the first painter who made some considerable advance in atmospheric perspective. He was the first to make the architectural framework of his pictures correspond in a reasonable way to the proportions of the figures. In the Brancacci chapel he painted with extraordinary swiftness. The contours of the feet and articulations in his pictures are imperfect; and his most prominent device for giving roundness to the figures (a point in which he made a great advance upon his predecessors) was a somewhat mannered way of putting the high lights upon the edges. His draperies were broad and easy, and his landscape details natural, and superior to his age. In fact, he led the way in representing the objects of nature correctly, with action, liveliness and relief. Soon after his death, his work was recognized at its right value, and led to notable advances; and all the greatest artists of Italy, through studying the Brancacci chapel, became his champions and disciples.

Of the works attributed to Masaccio in public or private galleries hardly any are authentic. The one in the Florentine Academy, the "Virgin and Child in the Lap of St Anna," is an exception. The so-called portrait of Masaccio in the Uffizi Gallery is more probably Filippino Lippi; and Filippino, or Botticelli, may be the real author of the head, at first termed a Masaccio, in the National Gallery, London.

An early work on Masaccio was that of T. Patch, *Life with Engravings* (Florence, 1770-1772). See Layard, *The Brancacci Chapel*, &c. (1868); H. Eckstein, *Life of Masaccio, Giotto*, &c. (1882); Charles Yriarte, *Tommaso dei Guidi* (1894).

(W. M. R.)



MASAI, an Eastern Equatorial African people of Negro-Hamitic stock, speaking a Nilotic language. The Hamitic element, which is not great, has probably been derived from the Galla. The Masai were probably isolated in the high mountains or plateaus which lie between the Nile and the Karamojo country. There they originally had their home,

and there to-day the Latuka, who show affinities with them, still live. Famine or inter-tribal wars drove the Masai in the direction of Mount Elgon and Lake Rudolf. After a long settlement there they split into two groups, the Masai proper and the Wa-Kuafi or agricultural Masai, and this at no very remote date, as the two tribes speak practically the same language. The more powerful Masai were purely nomadic and pastoral, their wealth consisting in enormous herds. The Wa-Kuafi, losing their cattle to their stronger kinsmen, split up again into the Burkeneji, the Gwas Ngishu, and the Nyarusi (Enjamusi) and settled as agriculturists. Meantime the Masai became masters of the greater part of inner East Africa from Ugogo and the Unyamwezi countries on the south and west to Mount Kenya and Galla-land on the north, and eastward to the hundred-mile strip of more or less settled Bantu country on the coast of the Indian Ocean.

The Masai physical type is slender, but among the finest in Africa. A tall, well-made people, the men are often well over six feet, with slim wiry figures, chocolate-coloured, with eyes often slightly oblique like the Mongolians, but the nose especially being often almost Caucasian in type, with well formed bridge and finely cut nostrils. Almost all the men and women knock out the two lower incisor teeth. For this custom they give the curious explanation that lockjaw was once very common in Masai-land, and that it was found to be easy to feed the sufferer through the gap thus made. All the hair on the body of both sexes is pulled out with iron tweezers; a Masai with a moustache or beard is unknown. The hair of the head is shaved in women and married men; but the hair of a youth at puberty is allowed to grow till it is long enough to have thin strips of leather plaited into it. In this way the hair, after a coating of red clay and mutton fat, is made into pigtails, the largest of which hangs down the back, another over the forehead, and one on each side. The warriors smear their whole bodies with the clay and fat, mixed in equal proportion.

No tattooing or scarring is performed on the men, but Sir Harry Johnston noticed women with parallel lines burnt into the skin round the eyes. In both sexes the lobes of the ears are distended into great loops, through holes in which large disks of wood are thrust. Bead necklaces, bead and wood armbands are worn by men, and before marriage the Masai girl has thick iron wire wound round her legs so tightly as to check the calf development. The women wear dressed hides or calico; the old men wear a skin or cloth cape. The warriors wind red calico round their waists, a circle of ostrich feathers round their face (or a cap of lion or colobus skin) and fringes of long white fur round the knee. Masai houses are of two kinds. The agricultural tribes build round huts with walls of reeds or sticks, and conical, grass-thatched roofs. The true Masai nomads, however, have houses unlike those of any other neighbouring negro tribe. Long, low (not more than 6 ft. high), flat-roofed, they are built on a framework of sticks with strong partitions dividing the structure into separate compartments, each a dwelling, with low, oblong door. Mud and cow-dung are plastered on to the brushwood used in the roofing. Beds are made of brushwood neatly stacked and covered with hides. The fireplace is a circle of stones. The only furniture, besides cooking-pots, consists of long gourds used as milkcans, half-gourds as cups, and small three-legged stools cut out of a single block of wood and used by the elder men to sit on. The Masai are not hunters of big game except lions, but they eat the eland and kudu. The domestic animals are cattle, sheep, goats, donkeys and dogs. Only women and the married men smoke. The dead are ordinarily not buried, but the bodies are carried a short distance from the village and left on the ground to be devoured by hyenas, jackals and vultures. Important chiefs are buried, however, and a year later the eldest son or successor recovers the skull, which is treasured as a charm. The medicine men of Masai are often the chiefs, and the supreme chief is almost always a medicine man.

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The Masai believe in a nature-god as a supreme being—Ngai (“sky”)—and his aid is invoked in cases of drought by a ceremonial chant of the children, standing in a circle after sunset, each with a bunch of grass in its hand. They have creation-myths involving four gods, the black, white, grey and red deities. They believe there is no future for women or common people, but that such distinction is reserved for chiefs. Pythons and a species of snake are revered as the reincarnated forms of their more celebrated ancestors. A kind of worship is paid to the hyena in some districts: the whole tribe going into mourning if the beast crosses their path. The Masai also have a vague tree-worship, and grass is a sacred symbol. When making peace a tuft is held in the right hand, and when the warriors start out on a raid their sweethearts throw grass after them or lay it in the forks of trees. But the oddest of their superstitious customs is the importance attached to spitting. To spit upon a person or thing is regarded as a sign of reverence and goodwill, as among other Nilotic tribes. Newly born children are spat on by every one who sees them. Johnston states that every Masai before extending his hand to him spat on it first. They spit when they meet and when they part, and bargains are sealed in this way. Joseph Thomson writes, “being regarded as a wizard of the first water, the Masai flocked to me ... and the more copiously I spat on them the greater was their delight.” The Masai has no love for work, and practises no industries. The women attend to his personal needs; and trades such as smelting and forging are left to enslaved tribes such as the Dorobo (Wandorobo). These manufacture spears with long blades and butts and the peculiar swords or *simés* like long slender leaves, very narrow towards the hilt and broad at the point. Most of the Masai live in the British East Africa Protectorate.

See A. C. Hollis, *The Masai, their Language and Folklore* (1905); M. Merker, *Die Nasai* (1904); Sir H. H. Johnston, *Kilimanjaro Expedition* (1886) and *Uganda Protectorate* (1902); Joseph Thomson, *Through Masai-land* (1885); O. Baumann, *Durch Massai-land zur Nilquelle* (1894); F. Kallenberg, *Auf dem Kriegspfad gegen die Massai* (1892).



MASANIELLO, an abbreviation of TOMMASO ANIELLO (1622-1647), an Amalfi fisherman, who became leader of the revolt against Spanish rule in Naples in 1647. Misgovernment and fiscal oppression having aroused much discontent throughout the two Sicilies, a revolt broke out at Palermo in May 1647, and the people of Naples followed the example of the Sicilians. The immediate occasion of the latter rising was a new tax on fruit, the ordinary food of the poor, and the chief instigator of the movement was Masaniello, who took command of the malcontents. The outbreak began on the 7th of July 1647 with a riot at the city gates between the fruit-vendors of the environs and the customs officers; the latter were forced to flee, and the customs office was burnt. The rioters then poured into Naples and forced their way into the palace of the viceroy, the hated Count d’Arcos, who had to take refuge first in a neighbouring convent, then in Castel Sant’ Elmo, and finally in Castelnuovo. Masaniello attempted to discipline the mob and restrain its vandalic instincts, and to some extent he succeeded; attired in his fisherman’s garb, he gave audiences and administered justice from a wooden scaffolding outside his house. Several rioters, including the duke of Maddaloni, an opponent of the viceroy, and his brother Giuseppe Caraffa, who had come to Naples to make trouble, were condemned to death by him and executed. The mob, which every day obtained more arms and was becoming more intractable, terrorized the city, drove off the troops summoned from outside, and elected Masaniello

"captain-general"; the revolt was even spreading to the provinces. Finally, the viceroy, whose negotiations with Masaniello had been frequently interrupted by fresh tumults, ended by granting all the concessions demanded of him. On the 13th of July, through the mediation of Cardinal Filomarino, archbishop of Naples, a convention was signed between D'Arcos and Masaniello as "leader of the most faithful people of Naples," by which the rebels were pardoned, the more oppressive taxes removed, and the citizens granted certain rights, including that of remaining in arms until the treaty should have been ratified by the king of Spain. The astute D'Arcos then invited Masaniello to the palace, confirmed his title of "captain-general of the Neapolitan people," gave him a gold chain of office, and offered him a pension. Masaniello refused the pension and laid down his dignities, saying that he wished to return to his old life as a fisherman; but he was entertained by the viceroy and, partly owing to the strain and excitement of the past days, partly because he was made dizzy by his astonishing change of fortune, or perhaps, as it was believed, because he was poisoned, he lost his head and behaved like a frenzied maniac. The people continued to obey him for some days, until, abandoned by his best friends, who went over to the Spanish party, he was murdered while haranguing a mob on the market-place on the 16th of July 1647; his head was cut off and brought by a band of roughs to the viceroy and the body buried outside the city. But the next day the populace, angered by the alteration of the measures for weighing bread, repented of its insane fury; the body of Masaniello was dug up and given a splendid funeral, at which the viceroy himself was represented.

Masaniello's insurrection appealed to the imagination of poets and composers, and formed the subject of several operas, of which the most famous is Auber's *La Muelle de Portici* (1828).

See Saavedra, *Insurreccion de Napoli en 1647* (2 vols., Madrid, 1849); A. von Reumont, *Die Caraffa von Maddaloni* (2 vols., Berlin, 1849); Capasso, *La Casa e famiglia di Masaniello* (Naples, 1893); V. Spinazzola, *Masaniello e la sua famiglia, secondo un codice bolognese del sec. xvi.* (in the review *Flegrea*, 1900); A. G. Meissner, *Masaniello* (in German); E. Bourg, *Masaniello* (in French); F. Palermo, *Documenti diversi sulle novità accadute in Napoli l'anno 1647* (in the *Archivio storico italiano*, 1st series, vol. ix.). See also [NAPLES](#).



MASAYA, the capital of the department of Masaya, Nicaragua, 13 m. W.N.W. of Lake Nicaragua and the city of Granada, on the eastern shore of Lake Masaya, and on the Granada-Managua railway. Pop. (1905), about 20,000. The city is built in the midst of a very fertile lowland region, which yields large quantities of tobacco. The majority of the inhabitants are Indians or half-castes. Lake Masaya occupies an extinct crater; the isolated volcano of Masaya (3000 ft.) on the opposite side of the lake was active at the time of the conquest of Nicaragua in 1522, and the conquerors, thinking the lava they saw was gold, had themselves lowered into the crater at the risk of their lives. The volcano was in eruption in 1670, 1782, 1857 and 1902.



MASCAGNI, PIETRO (1863-), Italian operatic composer, was born at Leghorn, the son of a baker, and educated for the law; but he neglected his legal studies for music, taking secret lessons at the Instituto Luigi Cherubini. There a symphony by him was performed in 1879, and various other compositions attracted attention, so that money was provided by a wealthy amateur for him to study at the Milan Conservatoire. But Mascagni chafed at the teaching, and soon left Milan to become conductor to a touring operatic company. After a somewhat chequered period he suddenly leapt into fame by the production at Rome in 1890 of his one-act opera *Cavalleria Rusticana*, containing a tuneful "intermezzo," which became wildly popular. Mascagni was the musical hero of the hour, and *Cavalleria Rusticana* was performed everywhere. But his later work failed to repeat this success. *L'Amico Fritz* (1891), *I Rantzau* (1892), *Guglielmo Ratcliff* (1895), *Silvano* (1895), *Zanetto* (1896), *Iris* (1898), *Le Maschere* (1901), and *Amica* (1905), were coldly or adversely received; and though *Cavalleria Rusticana*, with its catchy melodies, still held the stage, this succession of failures involved a steady decline in the composer's reputation. From 1895 to 1903 Mascagni was director of the Pesaro Conservatoire, but in the latter year, having left his post in order to tour through the United States, he was dismissed from the appointment.



MASCARA, chief town of an arrondissement in the department of Oran, Algeria, 60 m. S.E. of Oran. It lies 1800 ft. above the sea, on the southern slope of a range forming part of the Little Atlas Mountains, and occupies two small hills separated by the Wad Tudman, which is crossed by three stone bridges. The walls, upwards of two miles in circuit, and strengthened by bastions and towers, give the place a somewhat imposing appearance. Mascara is a town of the French colonial type, few vestiges of the Moorish period remaining. Among the public buildings are two mosques, in one of which Abd-el-Kader preached the *jihad*. The town also contains the usual establishments attaching to the seat of a sub-prefect and the centre of a military subdivision. The principal industry is the making of wine, the white wines of Mascara being held in high repute. There is also a considerable trade in grains and oil. A branch railway eight miles long connects Mascara with the line from the seaport of Arzeu to Ain Sefra. Access is also gained by this line to Oran, Algiers, &c. Pop. (1906) of the town, 18,989; of the commune, which includes several villages, 22,934; of the arrondissement, comprising eleven communes, 190,154.

Mascara (*i.e.* "mother of soldiers") was the capital of a Turkish beylik during the Spanish occupation of Oran from the 16th to the close of the 18th century; but for the most of that period it occupied a site about two miles distant

from the present position. On the removal of the bey to Oran its importance rapidly declined; and it was an insignificant place when in 1832 Abd-el-Kader, who was born in the neighbourhood, chose it as the seat of his power. It was laid in ruins by the French under Marshal Clausel and the duke of Orleans in 1835, the amir retreating south. Being reoccupied by Abd-el-Kader in 1838, Mascara was again captured in 1841 by Marshal Bugeaud and General Lamoricière.



MASCARENE ISLANDS (occasionally MASCARENHAS), the collective title of a group in the Indian Ocean east of Madagascar, viz. Mauritius, Réunion and Rodriguez (*q.v.*). The collective title is derived from the Portuguese navigator Mascarenhas, by whom Réunion, at first called Mascarenhas, was discovered.



MASCARON, JULES (1634-1703), French preacher, was the son of a barrister at Aix. Born at Marseilles in 1634, he early entered the French Oratory, and obtained great reputation as a preacher. Paris confirmed the judgment of the provinces; in 1666 he was asked to preach before the court, and became a great favourite with Louis XIV., who said that his eloquence was one of the few things that never grew old. In 1671 he was appointed bishop of Tulle; eight years later he was transferred to the larger diocese of Agen. He still continued, however, to preach regularly at court, being especially in request for funeral orations. A panegyric on Turenne, delivered in 1675, is considered his masterpiece. His style is strongly tinged with *préciosité*; and his chief surviving interest is as a glaring example of the evils from which Bossuet delivered the French pulpit. During his later years he devoted himself entirely to his pastoral duties at Agen, where he died in 1703.

Six of his most famous sermons were edited, with a biographical sketch of their author, by the Oratorian Borde in 1704.



MASCHERONI, LORENZO (1750-1800), Italian geometer, was professor of mathematics at the university of Pavia, and published a variety of mathematical works, the best known of which is his *Geometria del compasso* (Pavia, 1797), a collection of geometrical constructions in which the use of the circle alone is postulated. Many of the solutions are most ingenious, and some of the constructions of considerable practical importance.

There is a French translation by A. M. Carette (Paris, 1798), who also wrote a biography of Mascheroni. See Poggendorff, *Biog. Lit. Handwörterbuch*.



MASCOT (Fr. slang: perhaps from Port. *mascottto*, "witchcraft"), the term for any person, animal, or thing supposed to bring luck. The word was first popularized by Edmond Audran through his comic opera *La Mascotte* (1880), but it had been common in France long before among gamblers. It has been traced back to a dialectic use in Provence and Gascony, where it meant something which brought luck to a household. The suggestion that it is from *masqué* (masked or concealed), the provincial French for a child born with a caul, in allusion to the lucky destiny of such children, is improbable.



MASDEU, JUAN FRANCISCO (1744-1817), Spanish historian, was born at Palermo on the 4th of October 1744. He joined the Company of Jesus on the 19th of December 1759, and became professor in the Jesuit seminaries at Ferrara and Ascoli. He visited Spain in 1799, was exiled, and returned in 1815, dying at Valencia on the 11th of April 1817. His *Storia critica di Spagna e della cultura spagnuola in ogni genere* (2 vols., 1781-1784) was finally expanded into the *Historia critica de España y de la cultura española* (1783-1805), which, though it consists of twenty volumes, was left unfinished; had it been continued on the same scale, the work would have consisted of fifty volumes. Masdeu wrote in a critical spirit and with a regard for accuracy rare in his time; but he is more concerned with small details than with the philosophy of history. Still, his narrative is lucid, and later researches have not yet rendered his work obsolete.



MASERU, the capital of Basutoland, British South Africa. It is pleasantly situated on the left bank of the Caledon river, 90 m. by rail E. by S. of Bloemfontein, and 40 m. N.E. of Wepener. It is in the centre of a fertile grain-growing district. Pop. (1904), 862, of whom 99 were Europeans. The principal buildings are Government House, the church of the Paris Evangelical Missionary Society, the hospital, and the railway station. (See [BASUTOLAND](#).)



MASHAM, ABIGAIL, LADY (d. 1734), favourite of Anne, queen of England, was the daughter of Francis Hill, a London merchant, her mother being an aunt of Sarah Jennings, duchess of Marlborough. The family being reduced to poor circumstances through Hill's speculations, Lady Churchill (as she then was), lady of the bedchamber to the Princess Anne, befriended her cousin Abigail, whom she took into her own household at St Albans, and for whom after the accession of the princess to the throne she procured an appointment in the queen's household about the year 1704. It was not long before Abigail Hill began to supplant her powerful and imperious kinswoman in the favour of Queen Anne. Whether she was guilty of the deliberate ingratitude charged against her by the duchess of Marlborough is uncertain. It is not unlikely that, in the first instance at all events, Abigail's influence over the queen was not so much due to subtle scheming on her part as to the pleasing contrast between her gentle and genial character and the dictatorial temper of the duchess, which after many years of undisputed sway had at last become intolerable to Anne. The first intimation of her protégé's growing favour with the queen came to the duchess in the summer of 1707, when she learned that Abigail Hill had been privately married to a gentleman of the queen's household named Samuel Masham, and that the queen herself had been present at the marriage. Inquiry then elicited the information that Abigail had for some time enjoyed considerable intimacy with her royal mistress, no hint of which had previously reached the duchess. Abigail was said to be a cousin of Robert Harley, earl of Oxford, and after the latter's dismissal from office in February 1708 she assisted him in maintaining confidential relations with the queen. The completeness of her ascendancy was seen in 1710 when the queen compelled Marlborough, much against his will, to give an important command to Colonel John Hill, Abigail's brother; and when Sunderland, Godolphin, and the other Whig ministers were dismissed from office, largely owing to her influence, to make way for Oxford and Bolingbroke. In the following year the duchess of Marlborough was also dismissed from her appointment at court, Mrs Masham taking her place as keeper of the privy purse. In 1711 the ministers, intent on bringing about the disgrace of Marlborough and arranging the Peace of Utrecht, found it necessary to secure their position in the House of Lords by creating twelve new peers; one of these was Samuel Masham, the favourite's husband, though Anne showed some reluctance to raise her bedchamber woman to a position in which she might show herself less ready to give her personal services to the queen. Lady Masham soon quarrelled with Oxford, and set herself to foster by all the means in her power the queen's growing personal distaste for her minister. Oxford's vacillation between the Jacobites and the adherents of the Hanoverian succession to the Crown probably strengthened the opposition of Lady Masham, who now warmly favoured the Jacobite party led by Bolingbroke and Atterbury. Altercations took place in the queen's presence between Lady Masham and the minister; and finally, on the 27th of July 1714, Anne dismissed Oxford from his office of lord high treasurer, and three days later gave the staff to the duke of Shrewsbury. Anne died on the 1st of August, and Lady Masham then retired into private life. She died on the 6th of December 1734.

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Lady Masham was by no means the vulgar, ill-educated person she was represented to have been by her defeated rival, the duchess of Marlborough; her extant letters, showing not a little refinement of literary style, prove the reverse. Swift, with whom both she and her husband were intimate, describes Lady Masham as "a person of a plain sound understanding, of great truth and sincerity, without the least mixture of falsehood or disguise." The barony of Masham became extinct when Lady Masham's son, Samuel, the 2nd baron, died in June 1776.

AUTHORITIES.—Gilbert Burnet, *History of My Own Time*, vol. vi. (2nd ed., 6 vols., Oxford, 1833); F. W. Wyon, *History of Great Britain during the Reign of Queen Anne* (2 vols., London, 1876); Earl Stanhope, *History of England, comprising the Reign of Queen Anne until the Peace of Utrecht* (London, 1870), and *History of England from the Peace of Utrecht*, vol. i. (7 vols., London, 1836-1854); Justin McCarthy, *The Reign of Queen Anne* (2 vols., London, 1902); *An Account of the Conduct of the Dowager Duchess of Marlborough from first coming to Court to 1710*, edited by Nathaniel Hooke, with an anonymous reply entitled *A Review of a Late Treatise* (London, 1842); *Private Correspondence of Sarah, Duchess of Marlborough* (2 vols., London, 1838); *Letters of Sarah, Duchess of Marlborough* (London, 1875); Mrs Arthur Colville, *Duchess Sarah* (London, 1904). Numerous references to Lady Masham will also be found scattered through Swift's *Works* (2nd ed., 19 vols., Edinburgh, 1824).

(R. J. M.)



MASHAM, SAMUEL CUNLIFFE LISTER, 1ST BARON (1815-1906), English inventor, born at Calverley Hall, near Bradford, on the 1st of January 1815, was the fourth son of Ellis Cunliffe (1774-1853), who successively took the names of Lister and Lister-Kay, and was the first member of parliament elected for Bradford after the Reform Act of 1832. It was at first proposed that he should take orders, but he preferred a business career and became a clerk at Liverpool. In 1838 he and his elder brother John started as worsted spinners and manufacturers in a new mill which their father built for them at Manningham, and about five years later he turned his attention to the problem of mechanical wool-combing, which, in spite of the efforts of E. Cartwright and numerous other inventors, still awaited a satisfactory solution. Two years of hard work spent in modifying and

improving existing devices enabled him to produce a machine which worked well, and subsequently he consolidated his position by buying up rival patents, as well as by taking out additional ones of his own. His combing machines came into such demand that though they were made for only £200 apiece he was able to sell them for £1200, and the saving they effected in the cost of production not only brought about a reduction in the price of clothing, but in consequence of the increase in the sales created the necessity for new supplies of wool, and thus contributed to the development of Australian sheep-farming. In 1855 he was sent a sample of silk waste (the refuse left in reeling silk from the cocoons) and asked whether he could find a way of utilizing the fibre it contained. The task occupied his time for many years and brought him to the verge of bankruptcy, but at last he succeeded in perfecting silk-combing appliances which enabled him to make yarn that in one year sold for 23s. a pound, though produced from raw material costing only 6d. or 1s. a pound. Another important and lucrative invention in connexion with silk manufacture was his velvet loom for piled fabrics; and this, with the silk comb worked at his Manningham mill, yielded him an annual income of £200,000 for many years. But the business was seriously affected by the prohibitory duties imposed by America, and this was one reason why he was an early and determined critic of the British policy of free imports. In 1891 he was made a peer; he took his title from the little Yorkshire town of Masham, close to which is Swinton Park, purchased by him in 1888. In 1886 an Albert medal was awarded him for his inventions, which were mostly related to the textile industries, though he occasionally diverged to other subjects, such as an air-brake for railways. He was fond of outdoor sports, especially coursing and shooting, and was a keen patron of the fine arts. He died at Swinton Park on the 2nd of February 1906, and was succeeded in the title by his son.



MASHONA, a Bantu-negro people, inhabitants of Mashonaland, Southern Rhodesia. The name Mashona has been derived from the contemptuous term *Amashuina* applied by the Matabele to the aborigines owing to the habit of the latter of taking refuge in the rocky hills with which the country abounds. Before the Matabele invasion about 1840 most of Southern Rhodesia was occupied by the Makalanga, the Makorikori and the Banyai, all closely related. Most of them became subject to the Matabele, but although they suffered severely from their attacks, the Mashona preserved a certain national unity. In 1890 the Mashona came under British protection (see [RHODESIA](#)). They are in general a peaceful, mild-mannered people, industrious and successful farmers, skilful potters, and weavers of bark cloth.

The crafts, however, in which they excel are the smelting and forging of iron and wood-carving. They are also great hunters; and they are very fond of music, the most usual instrument being the "piano" with iron keys. Bows and arrows, assegais and axes are the native weapons, but all who can get them now use guns. Up to their conquest by the Matabele the Mashona worked the gold diggings which are scattered over their country; indeed as late as 1870 certain Mashona were still extracting gold from quartz (*Geog. Jour.* April 1906).

For the possible connexion of these people with the builders of the ruins at Zimbabwe and elsewhere, see [RHODESIA: Archaeology](#); and [ZIMBABWE](#).



MASK (Fr. *masque*, apparently from med. Lat. *mascus*, *masca*, spectre, through Ital. *maschera*, Span. *maskara*), a covering for the face, taking various forms, used either as a protective screen or as a disguise. In the latter sense masks are mostly associated with the artificial faces worn by actors in dramatic representations, or assumed for exciting terror (*e.g.* in savage rites). The spelling "masque," representing the same word, is now in English used more specially for certain varieties of drama in which masks were originally worn (see [DRAMA](#)); so also "masquerade," particularly in the sense of a masked ball or an entertainment where the personages are disguised. Both "mask" and "masquerade" have naturally passed into figurative and technical meanings, the former especially for various senses of face and head (head of a fox, grotesque faces in sculpture), or as equivalent to "cloak" or "screen" (as in fortification or other military uses, fencing, &c.). And in the case of "death-masks" the term is employed for the portrait-casts, generally of plaster or metallic foil, taken from the face of a dead person (also similarly from the living), an ancient practice of considerable interest in art. An interesting collection made by Laurence Hutton (see his *Portraits in Plaster*, 1894), is at Princeton University in the United States. (For the historical mystery of the "man in the iron mask," see [IRON MASK](#).)

The ancient Greek and Roman masks worn by their actors—hollow figures of heads—had the double object of identifying the performers with the characters assumed, and of increasing the power of the voice by means of metallic mouthpieces. They were derived like the drama from the rural religious festivities, the wearing of mock faces or beards being a primitive custom, connected no doubt with many early types of folk-lore and religion. The use of the dramatic mask was evolved in the later theatre through the mimes and the Italian popular comedy into pantomime; and the masquerade similarly came from Italy, where the *domino* was introduced from Venice. The *domino* (originally apparently an ecclesiastical garment) was a loose cloak with a small half-mask worn at masquerades and costume-balls by persons not otherwise dressed in character; and the word is applied also to the person wearing it.

See generally Altmann, *Die Masken der Schauspieler* (1875; new ed., 1896); and Dale, *Masks, Labrets and Certain Aboriginal Customs* (1885); also [DRAMA](#).



MASKELYNE, NEVIL (1732-1811), English astronomer-royal, was born in London on the 6th of October 1732. The solar eclipse of 1748 made a deep impression upon him; and having graduated as seventh wrangler from Trinity College, Cambridge, in 1754, he determined to devote himself wholly to astronomy. He became intimate with James Bradley in 1755, and in 1761 was deputed by the Royal Society to make observations of the transit of Venus at St Helena. During the voyage he experimented upon the determination of longitude by lunar distances, and ultimately effected the introduction of the method into navigation (*q.v.*). In 1765 he succeeded Nathaniel Bliss as astronomer-royal. Having energetically discharged the duties of his office during forty-six years, he died on the 9th of February 1811.

Maskelyne's first contribution to astronomical literature was "A Proposal for Discovering the Annual Parallax of Sirius," published in 1760 (*Phil. Trans.* li. 889). Subsequent volumes of the same series contained his observations of the transits of Venus (1761 and 1769), on the tides at St Helena (1762), and on various astronomical phenomena at St Helena (1764) and at Barbados (1764). In 1763 he published the *British Mariner's Guide*, which includes the suggestion that in order to facilitate the finding of longitude at sea lunar distances should be calculated beforehand for each year and published in a form accessible to navigators. This important proposal, the germ of the *Nautical Almanac*, was approved of by the government, and under the care of Maskelyne the *Nautical Almanac* for 1767 was published in 1766. He continued during the remainder of his life the superintendence of this invaluable annual. He further induced the government to print his observations annually, thereby securing the prompt dissemination of a large mass of data inestimable from their continuity and accuracy. Maskelyne had but one assistant, yet the work of the observatory was perfectly organized and methodically executed. He introduced several practical improvements, such as the measurement of time to tenths of a second; and he prevailed upon the government to replace Bird's mural quadrant by a repeating circle 6 ft. in diameter. The new instrument was constructed by E. Troughton; but Maskelyne did not live to see it completed. In 1772 he suggested to the Royal Society the famous Schehallion experiment for the determination of the earth's density and carried out his plan in 1774 (*Phil. Trans.* 1. 495), the apparent difference of latitude between two stations on opposite sides of the mountain being compared with the real difference of latitude obtained by triangulation. From Maskelyne's observations Charles Hutton deduced a density for the earth 4.5 times that of water (*ib.* lxxviii. 782). Maskelyne also took a great interest in various geodetical operations, notably the measurement of the length of a degree of latitude in Maryland and Pennsylvania (*ibid.* lviii. 323), executed by Mason and Dixon in 1766-1768, and later the determination of the relative longitude of Greenwich and Paris (*ib.* lxxvii. 151). On the French side the work was conducted by Count Cassini, Legendre, and Méchain; on the English side by General Roy. This triangulation was the beginning of the great trigonometrical survey which has since been extended all over the country. His observations appeared in four large folio volumes (1776-1811). Some of them were reprinted in S. Vince's *Astronomy* (vol. iii.).

(A. M. C.)



MASOLINO DA PANICALE (1383-c. 1445), Florentine painter, was said to have been born at Panicale di Valdelsa, near Florence. It is more probable, however, that he was born in Florence itself, his father, Cristoforo Fini, who was an "imbiancatore," or whitewasher, having been domiciled in the Florentine quarter of S. Croce. There is reason to believe that Tommaso, nicknamed Masolino, was a pupil of the painter Starnina, and was principally influenced in style by Antonio Veneziano; he may probably enough have become in the sequel the master of Masaccio. He was born in 1383; he died later than 1429, perhaps as late as 1440 or even 1447. Towards 1423 he entered the service of Filippo Scolari, the Florentine-born *obergespann* of Temeswar in Hungary, and stayed some time in that country, returning towards 1427 to Italy. The only works which can with certainty be assigned to him are a series of wall paintings executed towards 1428, commissioned by Cardinal Branda Castiglione, in the church of Castiglione d'Olona, not far from Milan, and another series in the adjoining baptistery. The first set is signed as painted by "Masolinus de Florentia." It was recovered in 1843 from a coating of whitewash, considerably damaged; its subject matter is taken from the lives of the Virgin and of SS Lawrence and Stephen. The series in the baptistery relates to the life and death of John the Baptist. The reputation of Masolino had previously rested almost entirely upon the considerable share which he was supposed to have had in the celebrated frescoes of the Brancacci Chapel, in the Church of the Carmine in Florence; he was regarded as the precursor of Masaccio, and by many years the predecessor of Filippino Lippi, in the execution of a large proportion of these works. But from a comparison of the Castiglione with the Brancacci frescoes, and from other data, it is very doubtful whether Masolino had any hand at all in the latter series. Possibly he painted in the Brancacci Chapel certain specified subjects which are now either destroyed or worked over. Several paintings assigned to Masolino on the authority of Vasari are now ascribed to Masaccio.

(W. M. R.)



MASON, FRANCIS (1799-1874), American missionary, was born in York, England, on the 2nd of April 1799. His grandfather, Francis Mason, was the founder of the Baptist Society in York, and his father, a shoemaker by trade, was a Baptist lay preacher there. After working with his father as a shoemaker for several years, he emigrated in 1818 to the United States, and in Massachusetts was licensed to preach as a Baptist in 1827. In 1830 he was sent by the American Baptist Missionary Convention to labour among the Karens in Burma. Besides conducting a training college for native preachers and teachers at Tavoy, he translated the Bible into the two principal dialects of the Karens, the Sgaw and the Pwo (his translation being published in 1853), and Matthew, Genesis, and the Psalms into the Bghai dialect. He also published *A Pali Grammar on the Basis of Kachchayano, with Chrestomathy and Vocabulary* (1868). In 1852 he published a book of great value on the fauna and flora of British Burma, of which an improved edition appeared in 1860 under the title *Burmah, its People and Natural Productions*, and a third edition (2 vols.) revised and enlarged by W. Theobald in 1882-1883. He died at Rangoon on the 3rd of

See his autobiography, *The Story of a Working Man's Life, with Sketches of Travel in Europe, Asia, Africa and America* (New York, 1870).



MASON, GEORGE (1725-1792), American statesman, was born in Stafford county (the part which is now Fairfax county), Virginia, in 1725. His family was of Royalist descent and emigrated to America after the execution of Charles I. His colonial ancestors held official positions in the civil and military service of Virginia. Mason was a near neighbour and a lifelong friend of George Washington, though in later years they disagreed in politics. His large estates and high social standing, together with his personal ability, gave Mason great influence among the Virginia planters, and he became identified with many enterprises, such as the organization of the Ohio Company and the founding of Alexandria (1749). He was a member of the Virginia House of Burgesses in 1759-1760. In 1769 he drew up for Washington a series of non-importation resolutions, which were adopted by the Virginia legislature. In July 1774 he wrote for a convention in Fairfax county a series of resolutions known as the Fairfax Resolves, in which he advocated a congress of the colonies and suggested non-intercourse with Great Britain, a policy subsequently adopted by Virginia and later by the Continental Congress. He was a member of the Virginia Committee of Safety from August to December 1775, and of the Virginia Convention in 1775 and 1776; and in 1776 he drew up the Virginia Constitution and the famous Bill of Rights, a radically democratic document which had great influence on American political institutions. In 1780 he outlined the plan which was subsequently adopted by Virginia for ceding to the Federal government her claim to the "back lands," *i.e.* to territory north and north-west of the Ohio river. From 1776 to 1788 he represented Fairfax county in the Virginia Assembly. He was a member of the Virginia House of Delegates in 1776-1780 and again in 1787-1788, and in 1787 was a member of the convention that framed the Federal Constitution, and as one of its ablest debaters took an active part in the work. Particularly notable was his opposition to the compromises in regard to slavery and the slave-trade. Indeed, like most of the prominent Virginians of the time, Mason was strongly in favour of the gradual abolition of slavery. He objected to the large and indefinite powers given by the completed Constitution to Congress, so he joined with Patrick Henry in opposing its ratification in the Virginia Convention (1788). Failing in this he suggested amendments, the substance of several of which was afterwards embodied in the present Bill of Rights. Declining an appointment as a United States Senator from Virginia, he retired to his home, Gunston Hall (built by him about 1758 and named after the family home in Staffordshire, England), where he died on the 7th of October 1792. With James Madison and Thomas Jefferson, Mason carried through the Virginia legislature measures disestablishing the Episcopal Church and protecting all forms of worship. In politics he was a radical republican, who believed that local government should be kept strong and central government weak; his democratic theories had much influence in Virginia and other southern and western states.

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See Kate Mason Rowland, *Life and Writings of George Mason* (2 vols., New York, 1892).



MASON, GEORGE HEMMING (1818-1872), English painter, was born at Wetley Abbey, the eldest son of a Staffordshire county gentleman. He was educated at King Edward's School, Birmingham, and studied for the medical profession for five years under Dr Watt of that city. But all his thoughts being given to art, he abandoned medicine in 1844 and travelled for a time on the Continent, finally settling in Rome, where he remained for some years and sought to make a living as an artist. During this period he underwent many privations which permanently affected his health; but he continued to labour assiduously, making studies of the picturesque scenery that surrounded him, and with hardly any instruction except that received from Nature and from the Italian pictures he gradually acquired the painter's skill. At least two important works are referable to this period: "Ploughing in the Campagna," shown in the Royal Academy of 1857, and "In the Salt Marshes, Campagna," exhibited in the following year. After Mason's return from the continent, in 1858, when he settled at Wetley Abbey, he continued for a while to paint Italian subjects from studies made during his stay abroad, and then his art began to touch in a wonderfully tender and poetic way the peasant life of England, especially of his native Staffordshire, and the homely landscape in the midst of which that life was set. The first picture of this class was "Wind on the Wold," and it was followed—along with much else of admirable quality—by the painter's three greatest works: The "Evening Hymn" (1868), a band of Staffordshire mill-girls returning from their work; "Girls dancing by the Sea" (1869); and the "Harvest Moon" (1872). He left Staffordshire in 1865 and went to live at Hammersmith; and he was elected an associate of the Royal Academy in 1869. By that time he had fully established his position as an artist of unusual power and individuality. Mason died on the 22nd of October 1872. In his work he laboured under the double disadvantage of feeble and uncertain health, and a want of thorough art-training, so that his pictures were never produced easily, or without strenuous and long-continued effort. His art is great in virtue of the solemn pathos which pervades it, of the dignity and beauty in rustic life which it reveals, of its keen perception of noble form and graceful motion, and of rich effects of colour and subdued light. In *motif* and treatment it has something in common with the art of Millet and Jules Breton, as with that of Frederick Walker among Englishmen; though he had neither the occasional uncouth robustness of Millet nor the firm actuality of Jules Breton. His pictures "Wind on the Wold" and "The Cast Shoe" are in the National Gallery of British Art.



MASON, JAMES MURRAY (1798-1871), American political leader, was born in Fairfax county, Virginia, on the 3rd of November 1798, the grandson of George Mason (1723-1792). Educated at the university of Pennsylvania and the college of William and Mary, he was admitted to the bar in 1820. He was a member of the Virginia House of Delegates in 1826-1827 and 1828-1831, of the state Constitutional Convention of 1829, of the National House of Representatives (1837-1839), of the United States Senate from 1847 until July 1861 (when, with other Southern senators he was formally expelled—he had previously withdrawn), and of the Virginia Secession Convention in April 1861. Entering politics as a Jacksonian Democrat, Mason was throughout his career a consistent strict constructionist, opposing protective tariffs, internal improvements by the national government, and all attempts to restrict or control the spread of slavery, which he sincerely believed to be essential to the social and political welfare of the South. He was the author of the Fugitive Slave Act of 1850, and in 1860 was chairman of the Senate committee which investigated the John Brown raid. After Lincoln's election as President he was one of the strongest advocates of secession in Virginia. He was appointed in August 1861 commissioner of the Confederate States to Great Britain. The British ship "Trent," upon which he and John Slidell, the commissioner to France, sailed, was intercepted (Nov. 8, 1861) by a United States ship-of-war (the "San Jacinto," Captain Charles Wilkes), and the two commissioners were seized and carried as prisoners to Boston. Great Britain immediately demanded their release, and war for a time seemed imminent; but owing mainly to the tactful diplomacy of the prince consort, Lincoln acknowledged that the seizure of Mason and Slidell was a violation of the rights of Great Britain as a neutral, and on the 1st of January 1862 released the commissioners. The incident has become known in history as the "Trent Affair." Mason at once proceeded to London, where, however, he was unable to secure official recognition, and his commission to Great Britain was withdrawn late in 1863. He remained in Europe, spending most of his time at Paris and holding blank commissions which he was authorized to fill in at his discretion in case the presence of a Confederate commissioner should seem desirable at any particular European court. These commissions, however, he did not use. After the war he lived for several years in Canada, but returned in 1869 to Virginia, and on the 28th of April 1871 died at Alexandria.

See *The Public Life and Diplomatic Correspondence of James M. Mason, with some Personal History* (Roanoke, Va., 1903), by his daughter, Virginia Mason; Sir Theodore Martin, *Life of the Prince Consort*.



MASON, SIR JOHN (1503-1566), English diplomatist, was born of humble parentage at Abingdon in 1503, and was educated at Oxford, where he became Fellow of All Souls in 1521. He was ordained before 1531. Most of his early years were spent on the Continent, where he witnessed the meeting between Henry VIII. and Francis I. at Calais in 1532, and where he was employed in collecting information for the English government, gaining in this work the reputation of a capable diplomatist. By his never-failing caution, moderation and pliancy, Mason succeeded in keeping himself in favour with four successive sovereigns of the Tudor monarchy. In 1537 he became secretary to the English ambassador at Madrid, Sir Thomas Wyatt; but when the latter was put on his trial for treason in 1541 Mason was unmolested, and soon afterwards was appointed clerk of the privy council, and procured for himself sundry other posts and privileges. Mason was knighted and made dean of Winchester by Edward VI. He was one of the commissioners to negotiate the treaty by which Boulogne was restored to France in 1550, and in the same year he became English ambassador in Paris, where he helped to arrange the betrothal of Edward VI. to the princess Elizabeth of France. He returned to England at the end of 1551, became clerk of parliament, received extensive grants of land, and in 1552 was made chancellor of Oxford University. He was elected member of parliament in the same year. On the death of Edward VI., he at first joined the party of Northumberland and the Lady Jane Grey; but quickly perceiving his mistake he took an active part in procuring the proclamation of Mary as queen. Mason now received fresh tokens of royal favour, being confirmed in all his secular, though not in his ecclesiastical, offices; and in 1553 he was appointed English ambassador at the court of the emperor Charles V., of whose abdication at Brussels in October 1555 he wrote a vivid account. He took a prominent share in the administrative business of the government in the first years of Elizabeth's reign, and largely influenced her foreign policy until his death, which occurred on the 20th of April 1566. Sir John Mason married Elizabeth, daughter of Sir Thomas Isley of Sundridge, Kent, and widow of Richard Hill. He had no children, and his heir was Anthony Wyckes, whom he had adopted, and who assumed the name of Mason and left a large family.

See J. A. Froude, *History of England* (12 vols., London, 1856-1870); Charles Wriothesley, *Chronicle of England during the Reigns of the Tudors*, edited by W. D. Hamilton (Camden Soc., 2 vols., London, 1875); P. F. Tytler, *England under the Reigns of Edward VI. and Mary* (2 vols., London, 1839); John Strype, *Ecclesiastical Memorials* (3 vols., Oxford, 1824) and *Memorials of Thomas Cranmer* (3 vols., Oxford, 1848); *Acts of the Privy Council of England* (new series), edited by J. R. Dasent, vols. i.-vii.



MASON, JOHN (1586-1635), founder of New Hampshire, U.S.A., was born in King's Lynn, Norfolk, England. In 1610 he commanded a small naval force sent by James I. to assist in subduing the Hebrides Islands. From 1615 to 1621 he was governor of the English colony on the north side of Conception Bay in Newfoundland; he explored the island, made the first English map of it (published in 1625), and wrote a descriptive tract entitled *A Briefe Discourse of the Newfoundland* (Edinburgh, 1620) to promote the colonization of the island by Scotsmen. Here he was brought into official relations with Sir Ferdinando Gorges, then a commissioner to regulate the Newfoundland fisheries. In March 1622 Mason obtained from the Council for New England, of which Gorges was the most influential member, a grant of the territory (which he named Mariana) between the Naumkeag or Salem river and the Merrimac, and in the following August he and Gorges together received a grant of the region between the Merrimac and Kennebec rivers, and extending 60 m. inland. From 1625 to 1629 Mason was engaged as treasurer and paymaster of the

English army in the wars which England was waging against Spain and France. Towards the close of 1629 Mason and Gorges agreed upon a division of the territory held jointly by them, and on the 7th of November 1629 Mason received from the Council a separate grant of the tract between the Merrimac and the Piscataqua, which he now named New Hampshire. Thinking that the Piscataqua river had its source in Lake Champlain, Mason with Gorges and a few other associates secured, on the 17th of November 1629, a grant of a region which was named Laconia (apparently from the number of lakes it was supposed to contain), and was described as bordering on Lake Champlain, extending 10 m. east and south from it and far to the west and north-west, together with 1000 acres to be located along some convenient harbour, presumably near the mouth of the Piscataqua. In November 1631 Mason and his associates obtained, under the name of the Piscataway Grant, a tract on both sides of the Piscataqua river, extending 30 m. inland and including also the Isles of Shoals. Mason became a member of the Council for New England in June 1632, and its vice-president in the following November; and in 1635, when the members decided to divide their territory among themselves and surrender their charter, he was allotted as his share all the region between the Naumkeag and Piscataqua rivers extending 60 m. inland, the southern half of the Isles of Shoals, and a ten-thousand acre tract, called Masonia, on the west side of the Kennebec river. In October 1635 he was appointed vice-admiral of New England, but he died early in December, before crossing the Atlantic. He was buried in Westminster Abbey. Forty-four years after his death New Hampshire was made a royal province.

See *Captain John Mason, the Founder of New Hampshire* (Boston, 1887; published by the Prince Society), which contains a memoir by C. W. Tuttle and historical papers relating to Mason's career, edited by J. W. Dean.



MASON, JOHN YOUNG (1799-1859), American political leader and diplomatist, was born in Greensville county, Virginia, on the 18th of April 1799. Graduating at the university of North Carolina in 1816, he studied law in the famous Litchfield (Connecticut) law school, and in 1819 was admitted to practice in Southampton county, Virginia. He served in the Virginia house of delegates in 1823-1827, in the state constitutional convention of 1829-1830, and from 1831 to 1837 in the National House of Representatives, being chairman of the committee on foreign affairs in 1835-1836. He was secretary of the navy in President Tyler's cabinet (1844-1845), and was attorney-general (1845-1846) and secretary of the navy (1846-1849), succeeding George Bancroft, under President Polk. He was president of the Virginia constitutional convention of 1851, and from 1853 until his death at Paris on the 3rd of October 1859, was United States minister to France. In this capacity he attracted attention by wearing at the court of Napoleon III. a simple diplomatic uniform (for this he was rebuked by Secretary of State W. L. Marcy, who had ordered American ministers to wear a plain civilian costume), and by joining with James Buchanan and Pierre Soulé, ministers to Great Britain and Spain respectively, in drawing up (Oct. 1854) the famous Ostend Manifesto. Hawthorne called him a "fat-brained, good-hearted, sensible old man"; and in politics he was a typical Virginian of the old school, a state's rights Democrat, upholding slavery and hating abolitionism.



MASON, SIR JOSIAH (1795-1881), English pen-manufacturer, was born in Kidderminster on the 23rd of February 1795, the son of a carpet-weaver. He began life as a street hawker of cakes, fruits and vegetables. After trying his hand in his native town at shoemaking, baking, carpentering, blacksmithing, house-painting and carpet-weaving, he moved in 1814 to Birmingham. Here he found employment in the gilt-toy trade. In 1824 he set up on his own account as a manufacturer of split-rings by machinery, to which he subsequently added the making of steel pens. Owing to the circumstance of his pens being supplied through James Perry, the London stationer whose name they bore, he was less well known than Joseph Gillott and other makers, although he was really the largest producer in England. In 1874 the business was converted into a limited liability company. Besides his steel-pen trade Mason carried on for many years the business of electro-plating, copper-smelting, and india-rubber ring making, in conjunction with George R. Elkington. Mason was almost entirely self-educated, having taught himself to write when a shoemaker's apprentice, and in later life he felt his deficiencies keenly. It was this which led him in 1860 to establish his great orphanage at Erdington, near Birmingham. Upon it he expended about £300,000, and for this munificent endowment he was knighted in 1872. He had previously given a dispensary to his native town and an almshouse to Erdington. In 1880 Mason College, since incorporated in the university of Birmingham, was opened, the total value of the endowment being about £250,000. Mason died on the 16th of June 1881.

See J. T. Bunce, *Josiah Mason* (1882).



MASON, LOWELL (1792-1872), American musician, was born at Medfield, Massachusetts. For some years he led a business life, but was always studying music; and in 1827, as the result of his work in forming the collection of church music published in 1821 at Boston by the Handel and Haydn Society, he moved to Boston and there first became president of the society and then founder of the Boston Academy of Music (1832). He published some successful educational books, and was a pioneer of musical instruction in the public schools, adopted in 1838. He received the degree of doctor of music from New York University in 1855. He died at Orange, New Jersey, on the 11th of August 1872.

His son William Mason (1829-1908), an accomplished pianist and composer, published an interesting volume of



MASON, WILLIAM (1725-1797), English poet, son of William Mason, vicar of Holy Trinity, Hull, was born on the 12th of February 1725, was educated at St John's College, Cambridge, and took holy orders. In 1744 he wrote *Musaeus*, a lament for Pope in imitation of *Lycidas*, and in 1749 through the influence of Thomas Gray he was elected a fellow of Pembroke College. He became a devoted friend and admirer of Gray, who addressed him as "Skroddles," and corrected the worst solecisms in his verses. In 1748 he published *Isis*, a poem directed against the supposed Jacobitism of the university of Oxford, which provoked Thomas Warton's *Triumph of Isis*. Mason conceived the ambition of reconciling modern drama with ancient forms by strict observance of the unities and the restoration of the chorus. These ideas were exemplified in *Elfrida* (1752) and *Caractacus* (1759), two frigid performances no doubt intended to be read rather than acted, but produced with some alterations at Covent Garden in 1772 and 1776 respectively. Horace Walpole described *Caractacus* as "laboured, uninteresting, and no more resembling the manners of Britons than of Japanese"; while Gray declared he had read the manuscript "not with pleasure only, but with emotion." In 1754 Mason was presented to the rectory of Aston, near Rotherham, Yorkshire, and in 1757 through the influence of the duke of Devonshire he became one of the king's chaplains. He also received the prebend of Holme in York Minster (1756), was made canon residentiary in 1762, and in 1763 became precentor and prebendary of Driffild. He married in 1764 Mary Sherman, who died three years later. When Gray died in 1771 he made Mason his literary executor. In the preparation of the *Life and Letters of Gray*, which appeared in 1774, he had much help from Horace Walpole, with whom he corresponded regularly until 1784 when Mason opposed Fox's India Bill, and offended Walpole by thrusting on him political advice unasked. Twelve years of silence followed, but in the year before his death the correspondence was renewed on friendly terms. Mason died at Aston on the 7th of April 1797.

His correspondence with Gray and Walpole shows him to have been a man of cultivated tastes. He was something of an antiquarian, a good musician, and an amateur of painting. He is said to have invented an instrument called the celestina, a modified pianoforte. Gray rewarded his faithful admiration with good-humoured kindness. He warned him against confounding Mona with the Isle of Man, or the Goths with the Celts, corrected his grammar, pointed out his plagiarisms, and laughed gently at his superficial learning. His powers show to better advantage in the unacknowledged satirical poems which he produced under the pseudonym of Malcolm Macgregor. In editing Gray's letters he took considerable liberties with his originals, and did not print all that related to himself.

Mason's other works included *Odes* (1756); *The English Garden*, a didactic poem in blank verse, the four books of which appeared in 1772, 1777, 1779 and 1782; *An Heroic Epistle to Sir William Chambers* (1774); an *Ode to Mr Pinchbeck* (1776) and an *Epistle to Dr Shebbeare* (1777)—all these by "Malcolm Macgregor"; *Essay, Historical and Critical, of Church Music* (1795), and a lyrical drama, *Sappho* (1797).

His poems were collected in 1764 and 1774, and an edition of his *Works* appeared in 1811. His poems with a *Life* are included in Alexander Chalmers's *English Poets*. His correspondence with Walpole was edited by J. Mitford in 1851; and his correspondence with Gray by the same editor in 1853. See also the standard editions of the letters of Gray and of Walpole. There is a very pleasant picture of Mason's character in Southey's *Doctor* (ch. cxxvi.).



MASON AND DIXON LINE, in America, the boundary line (lat. 39° 43' 26.3" N.) between Maryland and Pennsylvania, U.S.A.; popularly the line separating "free" states and "slave" states before the Civil War. The line derives its name from Charles Mason (1730-1787) and Jeremiah Dixon, two English astronomers, whose survey of it to a point about 244 m. west of the Delaware between 1763 and 1767¹ marked the close of the protracted boundary dispute (arising upon the grant of Pennsylvania to William Penn in 1681) between the Baltimores and Penns, proprietors respectively of Maryland and Pennsylvania. The dispute arose from the designation, in the grant to Penn, of the southern boundary of Pennsylvania mainly as the parallel marking the "beginning of the fortieth degree of Northerne Latitude," after the northern boundary of Maryland had been defined as a line "which lieth under the fortieth degree of north latitude from the equinoctial." The eastern part of the line as far as Sideling Hill in the western part of the present Washington county, was originally marked with milestones brought from England, every fifth of which bore on one side the arms of Baltimore and on the opposite side those of Penn; but the difficulties in transporting them to the westward were so great that many of them were not set up. Owing to the removal of the stone marking the north-east corner of Maryland, this point was again determined and marked in 1849-1850 by Lieut.-Colonel J. D. Graham of the U.S. topographical engineers; and as the western part of the boundary was not marked by stones, and local disputes arose, the line was again surveyed between 1901 and 1903 under the direction of a commission appointed by Pennsylvania and Maryland.

The use of the term "Mason and Dixon Line" to designate the boundary between the free and the slave states (and in general between the North and the South) dates from the debates in Congress over the Missouri Compromise in 1819-1820. As so used it may be defined as not only the Mason and Dixon Line proper, but also the line formed by the Ohio River from its intersection with the Pennsylvania boundary to its mouth, thence the eastern, northern and western boundaries of Missouri, and thence westward the parallel 36° 30'—the line established by the Missouri Compromise to separate free and slave territory in the "Louisiana Purchase," except as regards Missouri. It is to be noted, however, that the Missouri Compromise did not affect the territory later acquired from Mexico.

¹ These surveyors also surveyed and marked the boundary between Maryland and Delaware.



MASON CITY, a city and the county-seat of Cerro Gordo county, Iowa, U.S.A., on Lime Creek, in the northern part of the state. Pop. (1905, state census), 8357 (929 foreign-born); (1910) 11,230. It is served by the Chicago Milwaukee & St Paul, the Chicago & North-Western, the Chicago Great Western, the Iowa Central and the St Paul & Des Moines railways, and also by the Mason City & Clear Lake (electric) railway, which connects Mason City with Clear Lake, a pleasure resort, 10 m. west of the city. At Mason City is Memorial University (co-educational; founded in 1900 by the National Encampment of the Sons of Veterans, and opened in 1902), dedicated to the Grand Army of the Republic, the special aim of which is to teach American history. The city is situated in a good agricultural region, and there are valuable stone quarries in the vicinity. The manufactures include lime, Portland cement, brick and tile. Mason City was settled in 1853, laid out in 1855, incorporated as a town in 1870 and chartered as a city in 1881.



MASONRY,¹ the art of building in stone. The earliest remains (apart from the primitive work in rude stone—see **STONE MONUMENTS**; **ARCHAEOLOGY**, &c.) are those of the ancient temples of India and Egypt. Many of these early works were constructed of stones of huge size, and it still remains a mystery how the ancients were able to quarry and raise to a considerable height above the ground blocks seven or eight hundred tons in weight. Many of the early buildings of the middle ages were entirely constructed of masses of concrete, often faced with a species of rough cast. The early masonry seems to have been for the most part worked with the axe and not with the chisel. A very excellent example of the contrast between the earlier and later Norman masonry may be seen in the choir of Canterbury Cathedral. In those times the groining was frequently filled in with a light tufa stone, said by some to have been brought from Italy, but more probably from the Rhine. The Normans imported a great quantity of stone from Caen, it being easily worked, and particularly fit for carving. The freestones of England were also much used; and in the first Pointed period, Purbeck and Bethersden marbles were employed for column shafts, &c. The methods of working and setting stone were much the same as at present, except that owing to difficulties of conveyance the stones were used in much smaller sizes. As time went on the art of masonry advanced till in England, in point of execution, it at length rivalled that of any country.

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Tools.—The mason's tools may be grouped under five heads—hammers and mallets, saws, chisels, setting-out and setting tools, and hoisting appliances.

There are several different kinds of iron hammers used by the stone worker; the mash hammer has a short handle and heavy head for use with chisels; the iron hammer, used in carving, in shape resembles a carpenter's mallet but is smaller; the waller's hammer is used for roughly shaping stones in rubble work; the spalling hammer for roughly dressing stones in the quarry; the scabbling-hammer, for the same purpose, has one end pointed for use on hard stone; the pick has a long head pointed at both ends, weighs from 14 to 20 lb, and is used for rough dressing and splitting; the axe has a double wedge-shaped head and is used to bring stones to a fairly level face preparatory to their being worked smooth; the patent axe, or patent hammer, is formed with a number of plates with sharpened edges bolted together to form a head; the mallet of hard wood is used for the finishing chisel work and carving; and the dummy is of similar shape but smaller.

Hammers and Mallets.

A hand saw similar to that used by the carpenter is used for cutting small soft stones. Larger blocks are cut with the two-handed saw worked by two men. For the largest blocks the frame saw is used, and is slung by a rope and pulleys fitted with balance weights to relieve the operator of its weight. The blade is of plain steel, the cutting action being supplied by sand with water as a lubricant constantly applied.

Saws.

There are perhaps even more varieties of chisels than of hammers. The point and the punch have very small cutting edges, a quarter of an inch or less in width. The former is used on the harder and the latter on the softer varieties of stone after the rough hammer dressing. The pitching tool has a wide thick edge and is used in rough dressing. Jumpers are shafts of steel having a widened edge, and are used for boring holes in hard stone. Chisels are made with edges from a quarter-inch to one and a half inches wide; those that exceed this width are termed boasters. The claw chisel has a number of teeth from one-eighth to three-eighths wide, and is used on the surface of hard stones after the point has been used. The drag is a semi-circular steel plate, the straight edge having teeth cut on it. It is used to level down the surfaces of soft stones. Cockscombs are used for the same purpose on mouldings and are shaped to various curves. Wedges of various sizes are used in splitting stones and are inserted either in holes made with the jumper or in chases cut with the stone-pick.

Chisels.

The implements for setting out the work are similar to those used, by the bricklayer and other tradesmen, comprising the rule, square, set square, the bevel capable of being set to any required angle, compasses, spirit level, plumb-rule and bob and mortar trowels. Gauges and moulds are required in sinking moulds to the proper section.

Setting-out and Setting Tools.

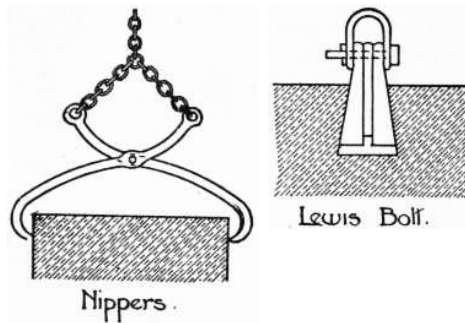


FIG. 1.—($\frac{1}{2}$ in. = 1 ft.)

FIG. 2.—(1 in. = 1 ft.)

The *nippers* (fig. 1), or *scissors*, as they are sometimes termed, have two hooked arms fitting into notches in the opposite sides of the block to be lifted. These arms are riveted together in the same way as a pair of scissors, the upper ends having rings attached for the insertion of a rope or chain which when pulled tight in the operation of lifting causes the hooked ends to grip the stone. *Lewis* (fig. 2.) are wedge-shaped pieces of steel which are fitted into a dovetailed mortise in the stone to be hoisted. They are also used for setting blocks too large to be set by hand, and are made in several forms. These are the usual methods of securing the stone to the hoisting rope or chain, the hoisting being effected by a pulley and fall, by a crane, or by other means.

Hoisting Appliances. *Scaffolding.*—For rubble walls single scaffolds, resting partly on the walls, similar to those used for brickwork (*q.v.*), are employed; for ashlar and other gauged stonework (see below) self-supporting scaffolds are used with a second set of standards and ledgers erected close to the wall, the whole standing entirely independent. The reason for the use of this double scaffold is that otherwise holes for the putlogs to rest in would have to be left in the wall, and obviously in an ashlar stone wall it would be impossible properly to make these good on the removal of the scaffold (see further [SCAFFOLD](#)).

Seasoning Stone.—Stone freshly quarried is full of sap, and thus admits of being easily worked. On being exposed to the air the sap dries out, and the stone becomes much harder in consequence. For this reason, and because carriage charges are lessened by the smaller bulk of the worked stone as compared with the rough block, the stone for a building is often specified to be quarry-worked. Vitruvius recommended that stone should be quarried in summer when driest, and that it should be seasoned by being allowed to lie two years before being used, so as to allow the natural sap to evaporate. In the erection of St Paul's Cathedral, Sir Christopher Wren required that the stone after being quarried should be exposed for three years on the sea-beach before its introduction into the building.

The regular and determined form of bricks makes it to a large extent a matter of practice to enable a man to become a good bricklayer, but beyond these a continual exercise of judgment is required of the workman in stone, who has for the most part to deal with masses of all forms and of all sizes.

Setting Stones.—All beds and joints should be truly worked and perfectly level. If the surface be convex it will give rise to wide unsightly joints; if concave the weight thrown on the stone will rest on the edges and probably cause them to "flush" or break off and disfigure the work. Large stones are placed in position with the aid of hoisting appliances and should be tried in position before being finally set. Great care should be taken to avoid fracturing or chipping the stone in the process of handling, as it is impossible to make good such damage. All stratified stones—and this includes by far the largest proportion of building stones—when set in a level position should be laid on their natural bed, *i.e.* with their laminae horizontal. The greatest strength of a stone is obtained when the laminae lie at right angles to the pressure placed upon it. In the case of arches these layers should be parallel with the centre line of the voussoirs and at right angles to the face of the arch. For cornices (except the corner-stones) and work of a like nature, the stone is set with the laminae on edge and perpendicular to the face of the work. With many stones it is easy to determine the bed by moistening with water, when the laminae will become apparent. Some stones, however, it is impossible to read in this way, and it is therefore advisable to have them marked in the quarry. A horizontal line in a quarry does not in all cases give the proper bed of the stone, for since the deposits were made ages ago natural upheavals have possibly occurred to alter the "lie" of the material.

For the shafts of columns especially it is necessary to have the layers horizontally placed, and a stone should be selected from a quarry with a bed of the required depth. An example of the omission of this precaution is visible in the arcading of the Royal Courts of Justice, London, where the small shafts of the front arcade in red sandstone have been turned with the laminae in a vertical position, with the result that nearly every shaft is flaking away or is cracked.

Use of Mortar.—See [BRICKWORK](#). Of whatever quality the stone may be of which a wall is built, it should consist as much of stone and as little of mortar as possible. Only fine mortar is admissible if we are to obtain as thin joints as possible. The joints should be well raked out and pointed in Portland cement mortar. This applies only to some sandstones, as marbles and many limestones are stained by the use of Portland cement. For these a special cement must be employed, composed of plaster of Paris, lime, and marble or stone-dust.

Bonding.—Bond (see [BRICKWORK](#)) is of not less importance in stone walling than in brickwork. In ashlar-work the work is bonded uniformly, the joints being kept perpendicularly one over the other; but in rubble-work, instead of making the joints recur one over the other in alternate courses they should be carefully made to lock, so as to give the strength of two or three courses or layers between a joint in one course and the joint that next occurs vertically above it in another course. In the through or transverse bonding of a wall a good proportion of header stones running about two-thirds of the distance through the width of the wall should be provided to bind the whole structure together. The use of through stones, *i.e.* stones running through the whole thickness of the wall from front to back, is not to be recommended. Such stones are liable to fracture and convey damp to the internal face.

Slip Joints.—As with brickwork so in masonry great care must be exercised to prevent the different parts of a building settling unequally. When two portions of a building differing considerably in height come together, it is usual to employ a slip or housed joint instead of bonding the walls into each other. This arrangement allows the heavier work to settle to a greater extent than the low portion without causing any defect in the stones.

Footings.—The footings of stone walls should consist of large stones of even thickness proportionate to their length; if possible they should be the full breadth in one piece. Each course should be well bedded and levelled.

Walling.—There are broadly speaking two classes of stone walling: rubble and ashlar. Rubble walls are built of stones more or less irregular in shape and size and coarsely jointed. Ashlar walls are constructed of carefully worked

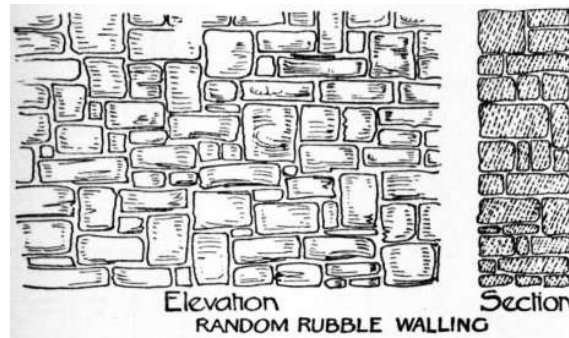


FIG. 3.—(¼ in. = 1 ft.)

Random Rubble (fig. 3) is the roughest form of stonework. It is built with irregular pieces of stone usually less than 9 in. thick, loosely packed without much regard to courses, the interstices between the large stones being occupied by small ones, the remaining crevices filled up with mortar. Bond stones or headers should be used frequently in every course. This form of walling is much used in stone districts for boundary walls and is often set dry without mortar. For this work the mason uses no tool but the trowel to lay on the mortar, the scabbling hammer to break off the most repulsive irregularities from the stone, and the plumb-rule to keep his work perpendicular.

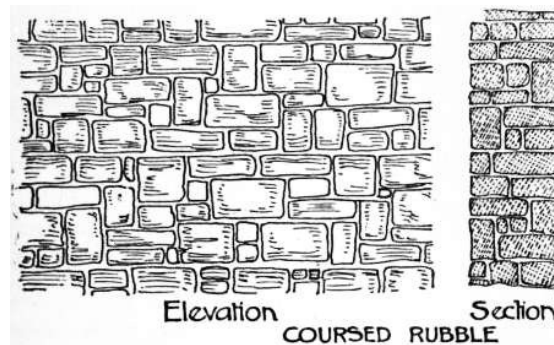


FIG. 4.—(¼ in. = 1 ft.)

Coursed Rubble (fig. 4) is levelled up in courses 12 or 18 in. deep, the depth varying in different courses according to the sizes of the stones. The stones are dressed by the workman before he begins building, to obtain a fairly level bed and perpendicular face.

Irregularly Coursed Squared Rubble is a development of uncoursed random rubble, the stones in this case being squared with the hammer and roughly faced up with the axe. The courses jump abruptly from one level to another as the sizes of the blocks demand; the interstices are filled in with small pieces of stone called "snecks."

For *Coursed Squared Rubble* the stone is faced in a similar manner and set in courses, the depth of each course being made up of one or more stones.

In *Regular Coursed Rubble* all the stones in one course are of the same height.

Block-in-course is the name applied to a form of stone walling that has some of the characteristics of ashlar but the execution of which is much rougher. The courses are usually less than 12 in. high. It is much used by engineers for waterside and railway work where a good appearance is desired.

The *Angles* or *Quoins* of rubble-work are always carefully and precisely worked and serve as a gauge for the rest of the walling. Frequently the quoins and jambs are executed in ashlar, which gives a neat and finished appearance and adds strength to the work.

The name *Ashlar* is given, without regard to the finish of the face of the stone, to walling composed of stones carefully dressed, from 12 to 18 in. deep, the mortar joints being about an eighth of an inch or less in thickness. No stone except the hardest should exceed in length three times its depth when required to resist a heavy load and its breadth should be from one and a half to three times its depth. The hardest stone may have a length equal to four or perhaps five times its depth and a width three times its depth. The face of ashlar-work may be plain and level, or have rebated, chamfered, or moulded joints.

The great cost of this form of stonework renders the employment of a backing of an inferior nature very general. This backing varies according to the district in which the building operations are being carried on, being rubble stonework in stone districts and brick or concrete elsewhere, the whole being thoroughly tied together both transversely and longitudinally with bondstones. In England a stone much used for backing ashlar and Kentish rag rubble-work is a soft sandstone called "hassock." In the districts

Backing to Stonework.

where it is quarried it is much cheaper than brickwork. (For brickbacking see [BRICKWORK.](#)) Ashlar facing usually varies from 4 to 9 in. in thickness. The work must not be all of one thickness, but should vary in order that effective bond with the backing may be obtained. If the work is in courses of uneven depth the narrow courses are made of the greater thickness and the deep courses are narrow. It is sometimes necessary to secure the stone facing back with iron ties, but this should be avoided wherever possible, as they are liable to rust and split the stonework. When it is necessary to use them they should be covered with some protective coating. The use of a backing to a stone wall, besides lessening the cost, gives a more equable temperature inside the building and prevents the transmission of wet by capillary attraction to the interior, which would take place if single stones were used for the entire thickness.

All work of this description must be executed in Portland cement, mortar of good strength, to avoid as much as possible the unequal settlement of the deep courses of stone facing and the narrower courses of the brick or rough stone backing. If the backing is of brick it should never be less than 9 in. thick, and whether of stone or brick it should be levelled up in courses of the same thickness as the ashlar.

There are many different sorts of walling, or modes of structure, arising from the nature of the materials available in various localities. That is perhaps of most frequent occurrence in which either squared, broken, or round flints are used. This, when executed with care, has a distinctly decorative appearance. To give stability to the structure, lacing courses of tiles, bricks or dressed stones are introduced, and brick or stone piers are built at intervals, thus forming a flint panelled wall. The quoins, too, in this type of wall are formed in dressed stone or brick work.

Uncoursed rubble built with irregular blocks of ragstone, an unstratified rock quarried in Kent, is in great favour for facing the external walls of churches and similar works (fig. 5).

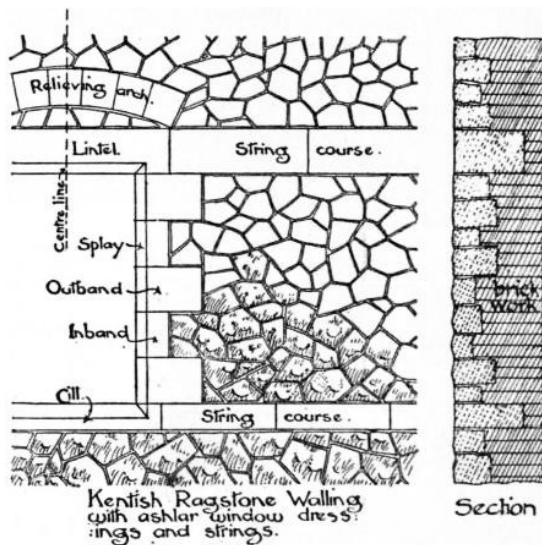


FIG. 5.—(1/4 in. = 1 ft.)

Pointing.—As with brickwork this is generally done when the work is completed and before the scaffolding is removed. Suitable weather should be chosen, for if the weather be either frosty or too hot the pointing will suffer. The joints are raked out to a depth of half an inch or more, well wetted, and then refilled with a fine mortar composed specially to resist the action of the weather. This is finished flat or compressed with a special tool to a shaped joint, the usual forms of which are shown in fig. 6.

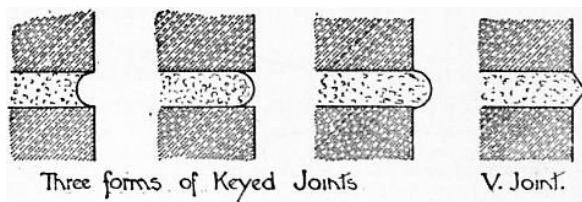


FIG. 6.—(3/4 full size).

Stonewash.—To give a uniform appearance to the stonework and preserve the finished face until a hardened skin has formed, it is usual to coat the surface of exposed masonry with a protective compound of ordinary limewhite with a little size mixed in it, or a special mixture of stone-dust, lime, salt, whiting and size with a little ochre to tone it down. After six months or more the work is cleaned down with water and stiff bristle or wire brushes. Sometimes muriatic acid much diluted with water is used.

Technical Terms.—Of the following technical terms, many will be found embodied in the drawing of a gable wall (fig. 7), which shows the manner and position in which many different members are used.

Apex Stone.—The topmost stone of a gable forming a finial for the two sloping sides; it is sometimes termed a "saddle" (fig. 7).

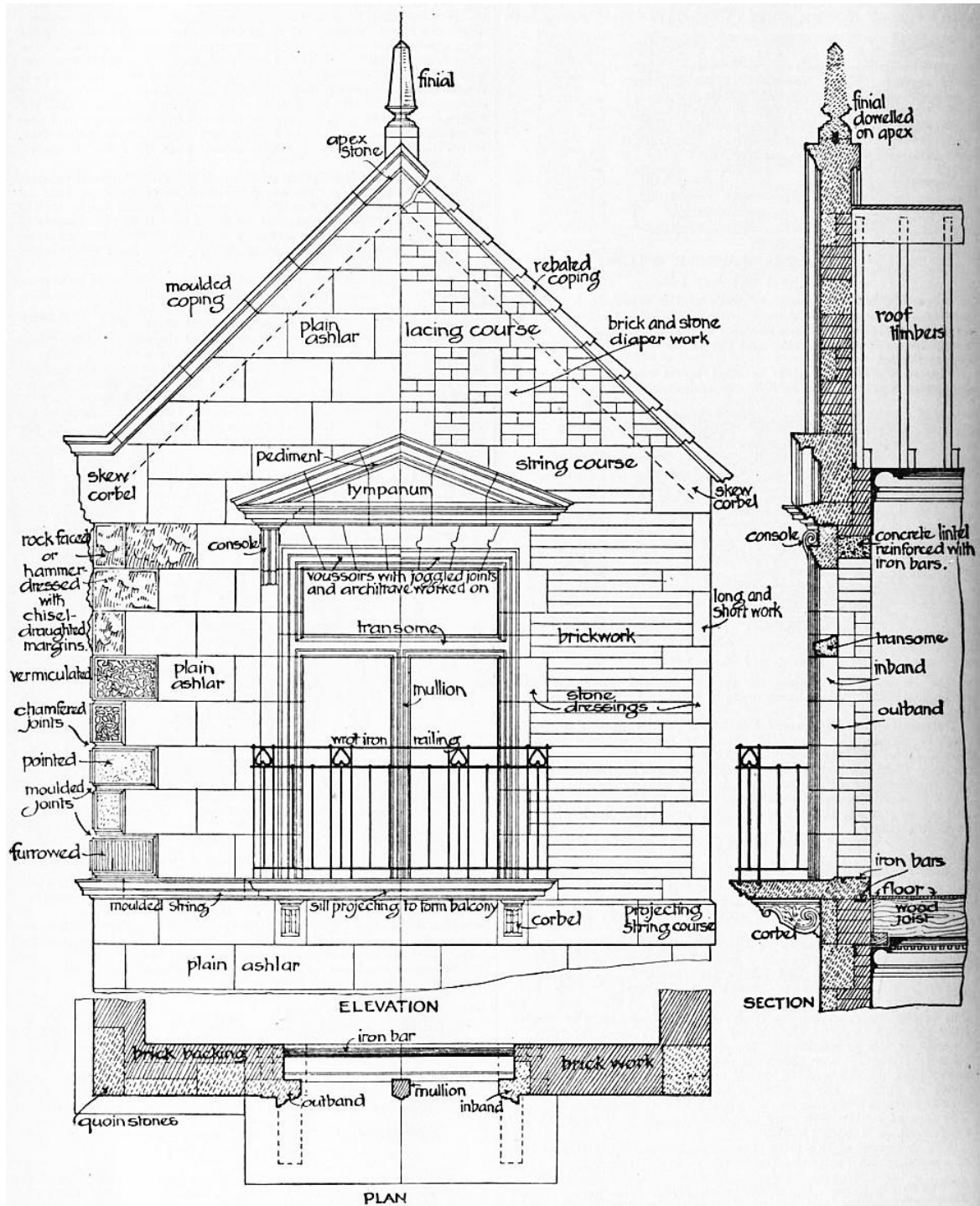


FIG. 7.—(Scale—approximately 1/2 in. = 1 ft.)

Blocking Course, a heavy course of stone above a cornice to form a parapet and weigh down the back of the cornice (fig. 8).

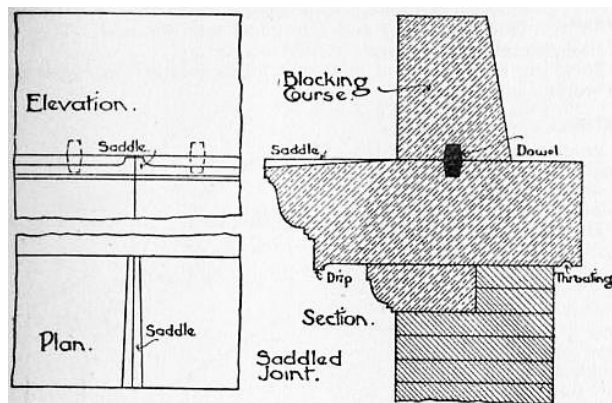


FIG. 8.—(1/2 in. = 1 ft.)

Bed.—The *bed* surface upon which a stone is set or bedded should be worked truly level in every part. Many workmen to form a neat thin joint with a minimum amount of labour hollow the bed and thus when the stone is set all weight is thrown upon the edges with the frequent result that these are crushed.

Coping.—The *coping* or *capping* stones are placed on the top of walls not covered by a roof, spanning their entire

width and throwing off the rain and snow, thus keeping the interior of the wall dry. The fewer the number of joints the better the security, and for this reason it is well to form copings with as long stones as possible. To throw water off clear, and prevent it from running down the face of the wall, the coping should project an inch or two on each side and have a throat worked on the under-side of the projections (fig. 7).

Cornice, a projecting course of moulded stone crowning a structure, forming a cap or finish and serving to throw any wet clear of the walls. A deep drip should always be worked in the upper members of a cornice to prevent the rain trickling down and disfiguring the face of the moulding and the wall below (fig. 8).

Corbel, a stone built into a wall and projecting to form a cantilever, supporting a load beyond the face of the wall. It is frequently richly ornamented by carving (fig. 7).

Skew Corbel, a stone placed at the base of the sloping side of a gable wall to resist any sliding tendency of the sloping coping. Stones placed for a similar purpose at intervals along the sloping side, tailing into the wall, are termed "kneelers" and have the section of the coping worked upon them (fig. 7).

Corbel Table, a line of small corbels placed at short distances apart supporting a parapet or arcade. This forms an ornamental feature which was much employed in early Gothic times. It probably originates from the machicolations of ancient fortresses.

Dressings, the finished stones of window and door jambs and quoins. For example, a "brick building with stone dressings" would have brick walls with stone door and window jambs, heads and sills, and perhaps also stone quoins (fig. 7).

Diaper, a square pattern formed on the face of the stonework by means of stones of different colours and varieties or by patterns carved on the surface (fig. 7).

Finial, a finishing ornament applied usually to a gable end (fig. 7).

Gablet, small gable-shaped carved panels frequently used in Gothic stonework for apex stones, and in spires, &c.

Gargoyle, a detail, not often met with in modern work, which consists of a waterspout projecting so as to throw the rain-water from the gutters clear of the walls. In early work it was often carved into grotesque shapes of animal and other forms.

Galleting.—The joints of rubble are sometimes enriched by having small pebbles or chips of flint pressed into the mortar whilst green. The joints are then said to be "galleted."

Jamb.—Window and door jambs should always be of dressed stone, both on account of the extra strength thus gained and in order to give a finish to the work. The stones are laid alternately as stretchers and headers; the former are called outbands, the latter inbands (fig. 7).

Label Moulding, a projecting course of stone running round an arch. When not very large it is sometimes cut on the voussoirs, but is usually made a separate course of stone. Often, and especially in the case of door openings, a small sinking is worked on the top surface of the moulding to form a gutter which leads to the sides any water that trickles down the face of the wall.

Lacing Stone.—This is placed as a voussoir in brick arches of wide span, and serves to bond or lace several courses together (see [BRICKWORK](#)).

Lacing Course, a course of dressed stone, bricks or tiles, run at intervals in a wall of rubble or flint masonry to impart strength and tie the whole together (fig. 7).

Long and Short Work, a typical Saxon method of arranging quoin stones, flat slabs and long narrow vertical stones being placed alternately. Earls Barton church in Northamptonshire is an example of their use in old work. In modern work long and short work, sometimes termed "block and start," is little used (fig. 7).

Parapet, a fence wall at the top of a wall at the eaves of the roof. The gutter lies behind, and waterways are formed through the parapet wall for the escape of the rain-water.

Plinth, a projecting base to a wall serving to give an appearance of stability to the work.

Quoin, the angle at the junction of two walls. Quoins are often executed in dressed stone (fig. 7).

Rag-bolt, the end of an iron bolt when required to be let into stone is roughed or ragged. A dovetailed mortise is prepared in the stone and the ragged end of the bolt placed in this, and the mortise filled in with molten lead or sand and sulphur (fig. 9).

Sill, the stone which forms a finish to the wall at the bottom of an opening. Sills should always be weathered, slightly in the case of door sills, more sharply for windows, and throated on the under side to throw off the wet. The weathering is not carried through the whole length of the sill, but a stool is left on at each end to form a square end for building in (fig. 7).

String Courses, horizontal bands of stone, either projecting beyond or flush with the face of the wall and often moulded or carved. They are frequently continuations of the sills or head lines of windows (figs. 5 and 7).

Scontion.—In a thick wall the dressed stones forming the inside angles of the jamb of a window or door opening are termed scontions.

Spalls, small pieces chipped off whilst working a stone.

Templates, slabs of hard stone set in a wall to take the ends of a beam or girder so as to distribute the load over a larger area of the wall.

Tympanum, the triangular filling of masonry in a pediment between the cornices, or between the horizontal head of a window or door and the under-side of the relieving arch above it. It is often panelled or enriched with carved ornament (fig. 7).

Throat, a groove worked on the under-side of projecting external members to intercept rain-water and cause it to drop off the member clear of the work beneath (fig. 8).

Weathering.—The surface of an exposed stone is weathered when it is worked to a slope so as to throw off the water. Cornices, copings, sills and string courses should all be so weathered.

Voussoirs, the wedge-shaped blocks of which an arch is built up.

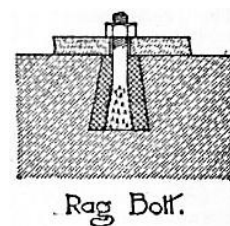


FIG. 9.—(1 in. = 1 ft.)

Methods of finishing Face of Stones.—The *self face* or *quarry face* is the natural surface formed when the stone is detached from the mass in the quarry or when a stone is split.

Saw-face, the surface formed by sawing.

Hammer-dressed, Rock-faced, or Pitch-faced.—This face is used for ashlar-work, usually with a chisel-draughted margin around each block. It gives a very massive and solid appearance to the lower storeys of masonry buildings, and is formed with little labour, and is therefore the cheapest face to adopt for ashlar-work (fig. 7).

Broached and Pointed Work.—This face is also generally used with a chisel-draughted margin. The stone as left from the scabbling hammer at the quarry has its rocky face worked down to an approximate level by the point. In broached work the grooves made by the tool are continuous, often running obliquely across the face of the block. In pointed work the lines are not continuous; the surface is rough or fine pointed according as the point is used over every inch or half-inch of the stone. The point is used more upon hard stones than soft ones (fig. 7).

Tooth-chiselled Work.—The cheapest method of dressing soft stones is by the toothed chisel which gives a surface very much like the pointed work of hard stones.

Droved Work.—This surface is obtained with a chisel about two and a half inches wide, no attempt being made to keep the cuts in continuous lines.

Tooled Work is somewhat similar to droved work and is done with a flat chisel, the edge of which is about four inches wide, care being taken to make the cuts in continuous lines across the width of the stone.

Combed or Dragged Work.—For soft stones the steel comb or drag is often employed to remove all irregularities from the face and thus form a fine surface. These tools are specially useful for moulded work, as they are formed to fit a variety of curves.

Rubbed Work.—For this finish the surface of the stone is previously brought with the chisel to a level and approximately smooth face, and then the surface is rubbed until it is quite smooth with a piece of grit stone aided by fine sand and water as a lubricant. Marbles are polished by being rubbed with gritstone, then with pumice, and lastly with emery powder.

Besides these, the most usual methods of finishing the faces of stonework, there are several kinds of surface formed with hammers or axes of various descriptions. These types of hammers are more used on the continent of Europe and in America perhaps than in England, but they deserve notice here.

The *toothed axe* has its edges divided into teeth, fine or coarse according to the work to be done. It is used to reduce the face of limestones and sandstones to a condition ready for the chisel. The *bush hammer* has a heavy square-shaped double-faced head, upon which are cut projecting pyramidal points. It is used to form a surface full of little holes, and with it the face of sand and limestones may be brought to a somewhat ornamental finish. The *patent hammer* is used on granite and other hard rocks, which have been first dressed to a medium surface with the point. The fineness of the result is determined by the number of blades in the hammer, and the work is said to be "six," "eight" or "ten-cut" work according to the number of blades inserted or bolted in the hammer head. The *crandall* has an iron handle slotted at one end with a hole $\frac{3}{8}$ in. wide and 3 in. long. In this slot are fixed by a key ten or eleven double-headed points of $\frac{1}{4}$ in. square steel about 9 in. long. It is used for finishing sandstone and soft stones after the surface has been levelled down with the axe or chisel. It gives a fine pebbly sparkling appearance.

There are several methods of finishing stone which involve a great deal of labour and are therefore expensive to work, but which result in imparting a very stiff and unnatural appearance to the masonry.

Vermiculated Work.—This is formed by carving a number of curling worm-like lines over the face of the block, sinking in between the worms to a depth of a fourth of an inch. The surface of the strings is worked smooth, and the sinkings are pock-marked with a pointed tool (fig. 7).

Furrowed Work.—In this face the stone is cut with a chisel into a number of small parallel grooves or furrows (fig. 7).

Reticulated Face is a finish somewhat similar to vermiculated work, but the divisions are more nearly squares.

Face Joints of Ashlar.—The face joints of ashlar stonework are often sunk or rebated to form what are termed rusticated joints; sometimes the angles of each block are moulded or chamfered to give relief to the surface or to show a massive effect (fig. 7).

Joints in Stonework.—The joints between one block of stone and another are formed in many ways by cramps, dowels and joggles of various descriptions.

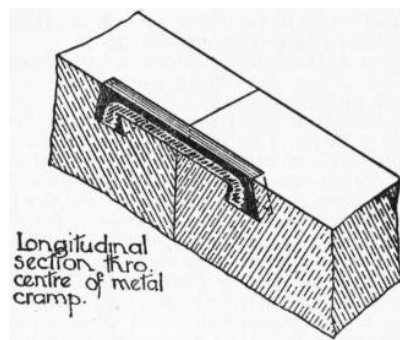


FIG. 10.—(1 in. = 1 ft.)

The stones of copings, cornices and works of a similar nature, are often tied together with metal cramps to check any tendency for the stones to separate under the force of the wind (figs. 10 and 11). Cramps are made of iron (plain or galvanized), copper or gun-metal, of varying sections and lengths to suit the work. A typical

Cramps.

A typical cramp would be about 9 in. long, 1 or 1½ in. wide, and from $\frac{1}{4}$ to $\frac{1}{2}$ in. thick, and turned down about 1½ in. at each end. A dovetailed mortise is formed at a suitable point in each of the stones to be joined and connected by a chase. The cramp is placed in this channel with its turned-down ends in the mortises, and it is then fixed with molten lead, sulphur and sand, or Portland cement. Lead shrinks on cooling, and if used at all should be well caulked when cold. Double dovetailed slate cramps bedded in Portland cement are occasionally used (fig. 11).

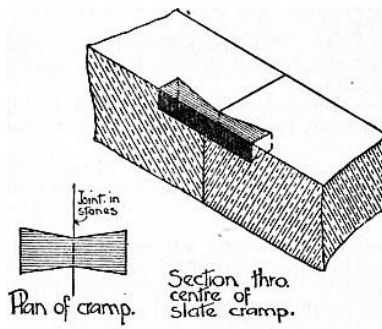


FIG. 11.—($\frac{3}{4}$ in. = 1 ft.)

Dowels. Dowels are used for connecting stones where the use of cramps would be impracticable, as in the joints of window mullions, the shafts of small columns, and in similar works (figs. 7, 8 and 20). Dowels for bed and side joints may be used. They are of slate, metal, or sometimes of hard wood.

There are many ways of making a joggle joint. The joggle may be worked on one of the stones so as to fit into a groove in the adjoining stone, or grooves may be cut in both the stones and an independent joggle of slate, pebbles, or Portland cement fitted, the joggle being really a kind of dowel. The pebble joggle joint is formed with the aid of pebbles as small dowels fitted into mortises in the

Joggles. jointing faces of two stones and set with Portland cement; but joggles of slate have generally taken the place of pebbles. Portland cement joggles are formed by pouring cement grout into a vertical or oblique mortise formed by cutting a groove in each of the joining surfaces of the stones. What is known as a he-and-she joggle, worked on the edges of the stones themselves, is shown in fig. 13.

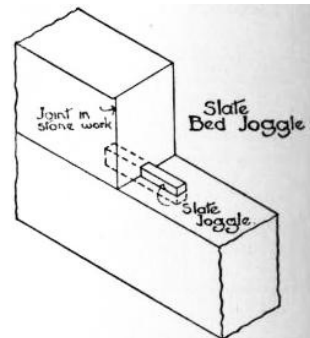


FIG. 12.—($\frac{1}{2}$ in. = 1 ft.)

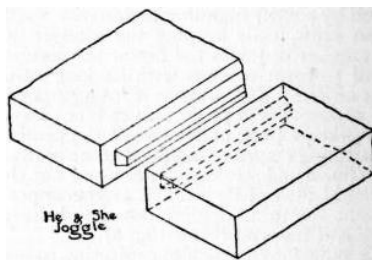


FIG. 13.—($\frac{1}{2}$ in. = 1 ft.)

Plugs or dowels of lead are formed by pouring molten lead through a channel into dovetailed mortises in each stone (figs. 14 and 15). When cold the metal is caulked to compress it tightly into the holes.

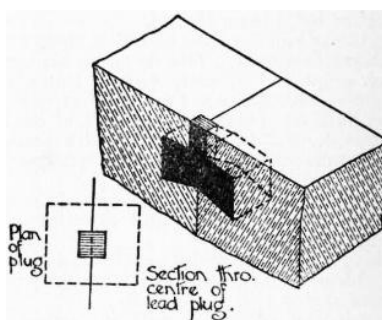


FIG. 14.—($\frac{3}{4}$ in. = 1 ft.)

The saddle joint is used for cornices, and is formed when a portion of the stone next the joint is left raised so as to guide rain-water away from the joint (fig. 8).

Two forms of rebated joints for stone copings and roofs are common. In one form (shown in fig. 7) the stones forming the coping are thicker at their lower and rebated edge than at the top plain edge, giving a stepped surface. The other form has a level surface and the stone is of the same thickness throughout and worked to a rebate on top and bottom edges. In laying stone roofs the joints are usually lapped over with an upper slab of stone.

Joints in Spires.—Four forms of jointing for the battering stonework of spires are shown in fig. 16. **A** is a plain horizontal joint. **B** is a similar joint formed at right angles to the face of the work. This is the most economical form of joint, the stone being cut with its sides square with each other; but if the mortar in the joint decay moisture is allowed to penetrate. With these forms dowelling is frequently necessary for greater stability. The joints **C** and **D** are more elaborate and much more expensive on account of the extra labour involved in working and fitting.

Where a concentrated weight is carried by piers or columns the bed joints are in many cases formed without the use of mortar, a thin

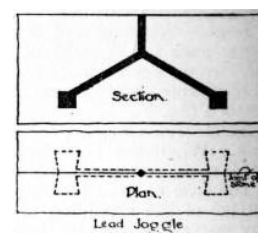


FIG. 15.—(1 in. = 1 ft.)

sheet of milled lead being placed between the blocks of stone to fill up any slight inequalities.

Moulded Work.—The working of mouldings in stone is an important part of the mason's craft, and forms a costly item in the erection of a stone structure. Much skill and care is required to retain the arrises sharp and the curved members of accurate and proportionate outline. As in the case of wood mouldings, machinery now plays an important part in the preparation of stone moulded work. The process of working a stone by hand labour is as follows: The profile of the moulding is marked on to a zinc template on opposite ends of the stone to be worked; a short portion, an inch or two in length termed a "draught," is at each end worked to the required section. The remaining portion is then proceeded with, the craftsman continually checking the accuracy of his work with a straight-edge and zinc templates. A stone to be moulded by machinery is fixed to a moving table placed under a shaped tool which is fixed in an immovable portion of the machine, and is so adjusted as to cut or chip off a small layer of stone. Each time the stone passes under the cutter it is automatically moved a trifle nearer, and thus it gradually reduces the stone until the required shape is attained.

Iron in Stonework.—The use of iron dowels or cramps in stonework, unless entirely and permanently protected from oxidation is attended by the gravest risks; for upon the expansion of the iron by rusting the stone may split, and perhaps bring about a more or less serious failure in that portion of the building. A case in point is that of the church of St Mary-le-Strand, London, where the ashlar facing was secured to the backing with iron cramps; these were inefficiently protected from damp, with the result that many of the blocks have been split in consequence of rusting. John Smeaton in his Eddystone Lighthouse used dowels of Purbeck marble.

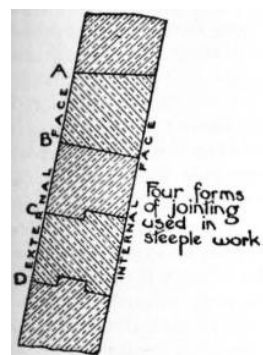


FIG. 16.—(½ in. = 1 ft.)

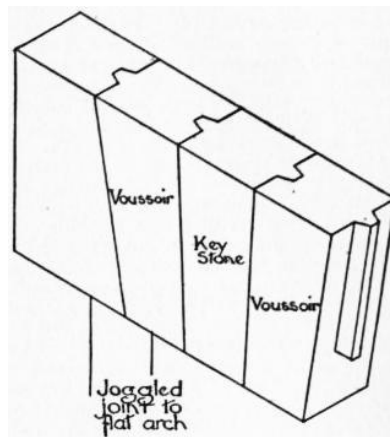


FIG. 17.—(1 in. = 1 ft.)

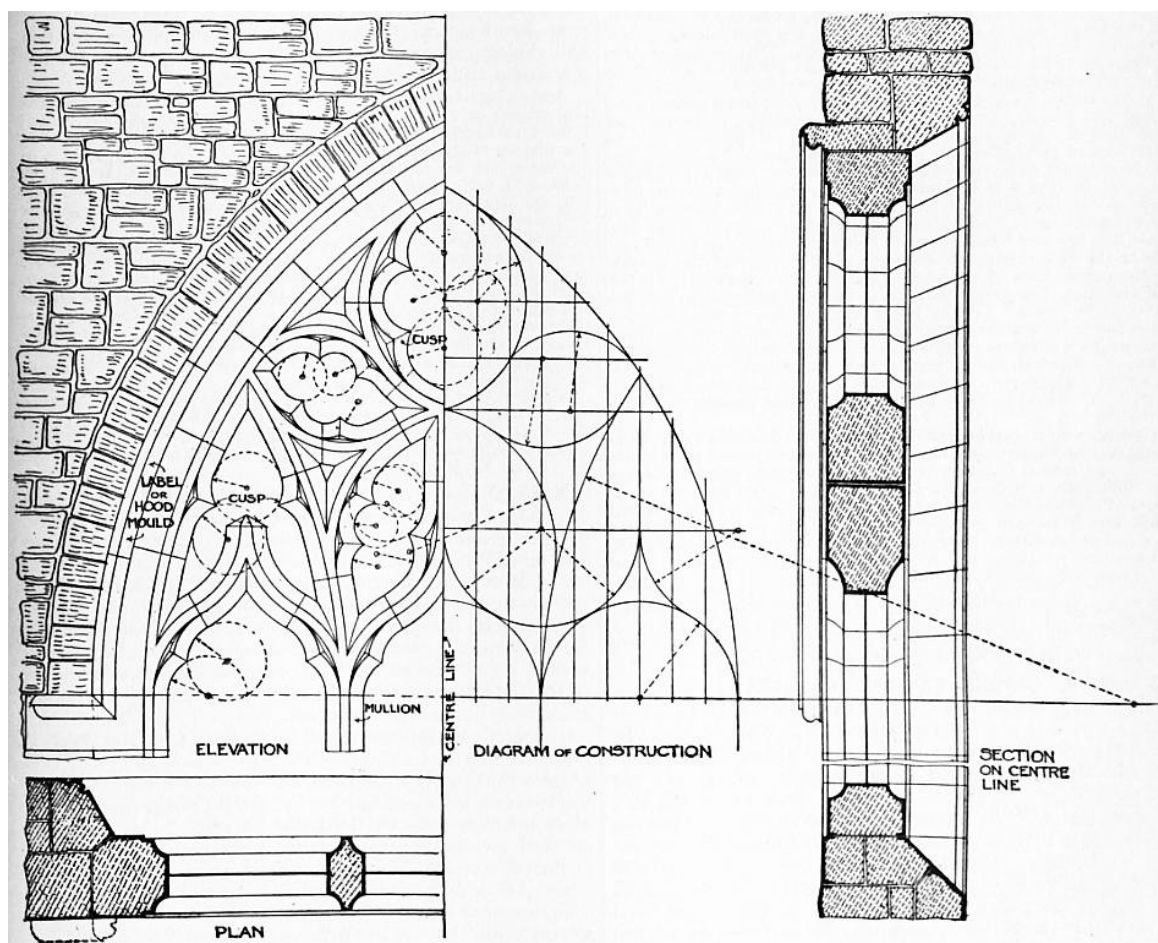


FIG. 18.—(½ in. = 1 ft.)

Stone Arches.—Stone arches are very frequently used both in stone and brick buildings. (For general definitions and terms see **BRICKWORK**.) They may be built in a great variety of styles, either flat, segmental, circular, elliptical or pointed. Each block or voussoir should be cut to fit exactly in its appointed place, the joints being made as fine as possible. The joints should radiate from the centre from which the soffit or intrados is struck, or in the case of an elliptical arch they should be at right angles to a tangent drawn to the intrados at that point. The extrados or back of the arch is usually concentric with the intrados, but is sometimes made thicker in one portion than in another; thus the arch may be deeper at the crown than at the sides, or at the sides than in the centre. In some cases two or more voussoirs are of one stone, having a false joint cut in the centre; this is economical, and in some cases adds to the stability of the arch. Generally the arch is divided into an uneven number of voussoirs so as to give a keystone, the voussoirs being laid from each side of the keystone and fitting exactly in the centre of the arch. The keystone is not a

necessity, arches being frequently formed with an even number of voussoirs; some architects hold that the danger of the voussoirs cracking is thereby lessened. Where lintels are used in a stone wall over openings of small span it is usual to build a relieving arch above to take the superincumbent weight of masonry; or the same purpose may be effected in walls of ashlar by a flat relieving or "save" arch, formed in the next course of three stones above the lintel, the tapering keystone resting between the two side stones which are tailed well into the wall.

In very many cases it is desired to form square heads to openings of greater span than it is convenient to obtain lintels for in one piece, and some form of flat arch must therefore be adopted. The voussoirs are connected by joggles worked on their joints, as in fig. 17. The weight of the superimposed wall is taken by a lintel with relieving arch above at the back of the arch.

Arches built to an elliptical form when used for large spans (if of flat curve they should bridge over 8 ft. or 10 ft.) are liable if heavily loaded to fail by the voussoirs at the centre being forced down, or else to burst up at the haunches. With arches of this description there is a large amount of outward thrust, and abutments of ample strength must be placed to receive the springers.

Stone Tracery.—The designs of Gothic and other tracery stonework are almost infinite, and there are many methods, ingenious and otherwise, of setting out such work. Nearly all diagrams of construction are planned on the principle of geometrical intersections. In the example illustrated in fig. 18 the method of setting out and finishing the design is very clearly shown, together with the best positions for the joints of the various parts. The jointing is a matter which must be carefully considered in order to avoid any waste of stone and labour. It will be observed that the right-hand side of the elevation shows the method of setting out the tracery by the centre lines of the various intersecting branches, the other half giving the completed design with the cusping drawn in and the positions of joints. All the upper construction of windows and doors and of aisle arches should be protected from superincumbent pressure by strong relieving arches above the labels, as shown in the figure, which should be worked with the ordinary masonry, and so set that the weight above should avoid pressure on the fair work, which would be liable to flush or otherwise destroy the joints of the tracery.

Carving.—Stone carving is a craft quite apart from the work of the ordinary stonemason, and like carving in wood needs an artistic feeling and special training. Carving-stone should be of fine grain and sufficiently soft to admit of easy working. The Bath stones in England and the Caen stone of France are largely used for internal work, but if for the exterior they should be treated with some chemical preservative. Carving is frequently done after the stone is built into position, the face being left rough—"boasted"—and projecting sufficiently for the intended design.

See E. Viollet-le-Duc, *Dictionnaire raisonné de l'architecture française*; W. R. Purchase, *Practical Masonry*; J. O. Baker, *A Treatise on Masonry Construction*; C. F. Mitchell, *Brickwork and Masonry*; W. Diack, *The Art of Masonry in Britain*.

(J. Br.)

- 1 The English word "mason" is from the French, which appears in the two forms, *machun* and *masson* (from the last comes the modern Fr. form *maçon*, which means indifferently a bricklayer or mason). In O. H. Ger. the word is *mezzo*, which survives in the German for a stone-mason, *Steinmetz*. The med. Lat. form, *machio*, was connected with *machina*—obviously a guess. The Low Lat., *macheria* or *maceria* (see Du Cange, *Glossarium*, s.v. *macio*), a wall, has been suggested as showing some connexion. Some popular Lat. form as *macio* or *mattio* is probably the origin. No Teut. word, according to the *New English Dictionary*, except that which appears in "mattock," seems to have any bearing on the ultimate origin.



MASPERO, GASTON CAMILLE CHARLES (1846-), French Egyptologist, was born in Paris on the 23rd of June 1846, his parents being of Lombard origin. While at school he showed a special taste for history, and when fourteen years old was already interested in hieroglyphic writing. It was not until his second year at the École Normale in 1867 that Maspero met with an Egyptologist in the person of Mariette, who was then in Paris as commissioner for the Egyptian section of the exhibition. Mariette gave him two newly discovered hieroglyphic texts of considerable difficulty to study, and, self-taught, the young scholar produced translations of them in less than a fortnight, a great feat in those days when Egyptology was still almost in its infancy. The publication of these in the same year established his reputation. A short time was spent in assisting a gentleman in Peru, who was seeking to prove an Aryan affinity for the dialects spoken by the Indians of that country, to publish his researches; but in 1868 Maspero was back in France at more profitable work. In 1869 he became a teacher (*répétiteur*) of Egyptian language and archaeology at the École des Hautes Études; in 1874 he was appointed to the chair of Champollion at the Collège de France.

In November 1880 Professor Maspero went to Egypt as head of an archaeological mission despatched thither by the French government, which ultimately developed into the well-equipped Institut Français de l'Archéologie Orientale. This was but a few months before the death of Mariette, whom Maspero then succeeded as director-general of excavations and of the antiquities of Egypt. He held this post till June 1886; in these five years he had organized the mission, and his labours for the Bulak museum and for archaeology had been early rewarded by the discovery of the great cache of royal mummies at Deir el-Bahri in July 1881. Maspero now resumed his professorial duties in Paris until 1899, when he returned to Egypt in his old capacity as director-general of the department of antiquities. He found the collections in the Cairo Museum enormously increased, and he superintended their removal from Gizeh to the new quarters at Kasr en-Nil in 1902. The vast catalogue of the collections made rapid progress under Maspero's direction. Twenty-four volumes or sections were already published in 1909. The repairs and clearances at the temple of Karnak, begun in his previous tenure of office, led to the most remarkable discoveries in later years (see [KARNAK](#)), during which a vast amount of excavation and exploration has been carried on also by unofficial but authorized explorers of many nationalities.

Among his best-known publications are the large *Histoire ancienne des peuples de l'Orient classique* (3 vols., Paris, 1895-1897, translated into English by Mrs McClure for the S.P.C.K.), displaying the history of the whole of the nearer East from the beginnings to the conquest by Alexander; a smaller *Histoire des peuples de l'Orient*, 1 vol., of the same scope, which has passed through six editions from 1875 to 1904; *Études de mythologie et d'archéologie égyptiennes* (Paris, 1893, &c.), a collection of reviews and essays originally published in various journals, and especially important as contributions to the study of Egyptian religion; *L'Archéologie égyptienne* (latest ed., 1907), of which several editions have been published in English. He also established the journal *Recueil de travaux relatifs*

à la philologie et à l'archéologie égyptiennes et assyriennes; the *Bibliothèque égyptologique*, in which the scattered essays of the French Egyptologists are collected, with biographies, &c.; and the *Annales du service des antiquités de l'Égypte*, a repository for reports on official excavations, &c.

Maspero also wrote: *Les Inscriptions des pyramides de Saqqarah* (Paris, 1894); *Les Momies royales de Deir el-Baharî* (Paris, 1889); *Les Contes populaires de l'Égypte ancienne* (3rd ed., Paris, 1906); *Causeries d'Égypte* (1907), translated by Elizabeth Lee as *New Light on Ancient Egypt* (1908).



MASS (O.E. *maesse*; Fr. *messe*; Ger. *Messe*; Ital. *messa*; from eccl. Lat. *missa*), a name for the Christian eucharistic service, practically confined since the Reformation to that of the Roman Catholic Church. The various orders for the celebration of Mass are dealt with under **LITURGY**; a detailed account of the Roman order is given under **MISSAL**; and the general development of the eucharistic service, including the Mass, is described in the article **EUCCHARIST**. The present article is confined (1) to the consideration of certain special meanings which have become attached to the word Mass and are the subject of somewhat acute controversy, (2) to the Mass in music.

The origin of the word *missa*, as applied to the Eucharist, is obscure. The first to discuss the matter is Isidore of Seville (*Etym.* vi. 19), who mentions an "evening office" (*officium vespertinum*), a "morning office" (*officium matutinum*), and an office called *missa*. Of the latter he says: "Missa tempore sacrificii est, quando catechumeni foras mittuntur, clamante levita 'si quis catechumenus remansit, exeat foras.' Et inde 'missa,' quia sacramentis altaris interesse non possunt, qui nondum regenerati sunt" ("The *missa* is at the time of the sacrifice, when the catechumens are sent out, the deacon crying, 'If any catechumen remain, let him go forth.'" Hence *missa*, because those who are as yet unregenerate—*i.e.* unbaptized—may not be present at the sacraments of the altar). This derivation of the word Mass, which would connect it with the special formula of dismissal still preserved in the Roman liturgy—*Ite, missa est*—once generally accepted, is now disputed. It is pointed out that the word *missa* long continued to be applied to any church service, and more particularly to the lections (see Du Cange for numerous examples), and it is held that such services received their name of *missal* from the solemn form of dismissal with which it was customary to conclude them; thus, in the 4th century *Pilgrimage of Etheria* (*Silvia*) the word *missa* is used indiscriminately of the Eucharist, other services, and the ceremony of dismissal. F. Kattenbusch (Herzog-Hauck, *Realencyklop.* s. "Messe") ingeniously, but with little evidence, suggests that the word may have had a double origin and meaning: (1) in the sense of *dimissio*, "dismissal"; (2) in that of *commissio*, "commission," "official duty," *i.e.* the exact Latin equivalent of the Greek λειτουργία (see **LITURGY**), and hence the conflicting use of the term. It is, however, far more probable that it was a general term that gradually became crystallized as applying to that service in which the dismissal represented a more solemn function. In the narrower sense of "Mass" it is first found in St Ambrose (*Ep.* 20, 4, ed. Ballerini): "Missam facere coepi. Dum offero ..." which evidently identifies the *missa* with the sacrifice. It continued, however, to be used loosely, though its tendency to become proper only to the principal Christian service is clear from a passage in the 12th homily of Caesarius, bishop of Arles (d. 542): "If you will diligently attend, you will recognize that *missae* are not celebrated when the divine readings are recited in the church, but when gifts are offered and the Body and Blood of the Lord are consecrated." The complete service (*missa ad integrum*), the bishop goes on to say, cannot be had at home by reading and prayer, but only in the house of God, where, besides the Eucharist, "the divine word is preached and the blessing is given to the people."

Whatever its origin, the word Mass had by the time of the Reformation been long applied only to the Eucharist; and, though in itself a perfectly colourless term, and used as such during the earlier stages of the 16th century controversies concerning the Eucharist, it soon became identified with that sacrificial aspect of the sacrament of the altar which it was the chief object of the Reformers to overthrow. In England, so late as the first Prayer-book of Edward VI., it remained one of the official designations of the Eucharist, which is there described as "The Supper of the Lorde and holy Communion, commonly called the Masse." This, however, like the service itself, represented a compromise which the more extreme reformers would not tolerate, and in the second Prayer-book, together with such language in the canon as might imply the doctrine of transubstantiation and of the sacrifice, the word Mass also disappears. That this abolition of the word Mass, as implying the offering of Christ's Body and Blood by the priest for the living and the dead was deliberate is clear from the language of those who were chiefly responsible for the change. Bishops Ridley and Latimer, the two most conspicuous champions of "the new religion," denounced "the Mass" with unmeasured violence; Latimer said of "Mistress Missa" that "the devil hath brought her in again"; Ridley said: "I do not take the Mass as it is at this day for the communion of the Church, but for a popish device," &c. (*Works*, ed. Parker Soc., pp. 121, 120), and again: "In the stead of the Lord's holy table they give the people, with much solemn disguising, a thing which they call their mass; but in deed and in truth it is a very masking and mockery of the true Supper of the Lord, or rather I may call it a crafty juggling, whereby these false thieves and jugglers have bewitched the minds of the simple people ... unto pernicious idolatry" (ib. p. 409). This language is reflected in the 31st of the Articles of Religion of the Church of England: "Wherefore the sacrifices of Masses, in which it was commonly said that the Priest did offer Christ for the quick and the dead, to have remission of pain and guilt, were blasphemous fables and dangerous deceits." Clearly the word Mass had ceased to be a colourless term generally applicable to the eucharistic service; it was, in fact, not only proscribed officially, but in the common language of English people it passed entirely out of use except in the sense in which it is defined in Johnson's Dictionary, *i.e.* that of the "Service of the Romish Church at the celebration of the Eucharist." In connexion with the Catholic reaction in the Church of England, which had its origin in the "Oxford Movement" of the 19th century, efforts have been made by some of the clergy to reintroduce the term "Mass" for the Holy Communion in the English Church.

See Du Cange, *Glossarium*, s.v. "Missa"; F. Kattenbusch in Herzog-Hauck, *Realencyklopädie* (ed. 1903), s.v. "Messe, dogmengeschichtlich"; for the facts as to the use of the word "Mass" at the time of the Reformation see the article by J. H. Round in the *Nineteenth Century* for May 1897.

(W. A. P.)

MASS, IN MUSIC: 1. *Polyphonic Masses*.—The composition of musical settings of the Mass plays a part in the history of music which is of special importance up to and including the 16th century. As an art-form the musical Mass is governed to a peculiar degree by the structure of its text. It so happens that the supremely important parts of the Mass are those which have the smallest number of words, namely the *Kyrie*, important as being the opening prayer;

the *Sanctus* and *Benedictus*, embodying the central acts and ideas of the service; and the *Agnus Dei*, the prayer with which it concludes. The 16th-century methods were specially fitted for highly developed music when words were few and embodied ideas of such important emotional significance or finality that they could be constantly repeated without losing force. Now the texts of the *Gloria* and *Credo* were more voluminous than any others which 16th-century composers attempted to handle in a continuous scheme. The practical limits of the church service made it impossible to break them up by setting each clause to a separate movement, a method by which 16th-century music composers contrived to set psalms and other long texts to compositions lasting an hour or longer. Accordingly, Palestrina and his great contemporaries and predecessors treated the *Gloria* and *Credo* in a style midway in polyphonic organization and rhythmic breadth between that of the elaborate motet (adopted in the *Sanctus*) and the homophonic reciting style of the Litany. The various ways in which this special style could be modified by the scale of the work, and contrasted with the broader and more elaborate parts, gave the Mass (even in its merely technical aspects) a range which made it to the 16th-century composer what the symphony is to the great instrumental classics. Moreover, as being inseparably associated with the highest act of worship, it inspired composers in direct proportion to their piety and depth of mind. Of course there were many false methods of attacking the art-problem, and many other relationships, true and false, between the complexity of the settings of the various parts of the Mass and of motets. The story of the action of the council of Trent on the subject of corruption of church music is told elsewhere (see [MUSIC](#) and [PALESTRINA](#)); and it has been recently paralleled by a decree of Pope Pius X., which has restored the 16th-century polyphonic Mass to a permanent place in the Roman Catholic Church music.

2. *Instrumental Masses in the Neapolitan Form.*—The next definite stage in the musical history of the Mass was attained by the Neapolitan composers who were first to reach musical coherence after the monodic revolution at the beginning of the 17th century. The fruit of their efforts came to maturity in the Masses of Mozart and Haydn. By this time the resources of music were such that the long and varied text of the *Gloria* and *Credo* inevitably either overbalanced the scheme or met with an obviously perfunctory treatment. It is almost impossible, without asceticism of a radically inartistic kind, to treat with the resources of instrumental music and free harmony such passages as that from the *Crucifixus* to the *Resurrexit*, without an emotional contrast which inevitably throws any natural treatment of the *Sanctus* into the background, and makes the *Agnus Dei* an inadequate conclusion to the musical scheme. So unfavourable were the conditions of 18th-century music for the formation of a good ecclesiastical style that only a very small proportion of Mozart's and Haydn's Mass music may be said to represent their ideas of religious music at all. The best features of their Masses are those that combine faithfulness to the Neapolitan forms with a contrapuntal richness such as no Neapolitan composer ever achieved. Thus Mozart's most perfect as well as most ecclesiastical example is his extremely terse Mass in F, written at the age of seventeen, which is scored simply for four-part chorus and solo voices accompanied by the organ with a largely independent bass and by two violins mostly in independent real parts. This scheme, with the addition of a pair of trumpets and drums and, occasionally, oboes, forms the normal orchestra of 18th-century Masses developed or degenerated from this model. Trombones often played with the three lower voices, a practice of high antiquity surviving from a time when there were soprano trombones or *cornetti* (*Zincken*, a sort of treble *serpent*) to play with the sopranos.

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3. *Symphonic Masses.*—The enormous dramatic development in the symphonic music of Beethoven made the problem of the Mass with orchestral accompaniment almost insoluble. This makes it all the more remarkable that Beethoven's second and only important Mass (in D, *Op.* 123) is not only the most dramatic ever penned but is, perhaps, the last classical Mass that is thoughtfully based upon the liturgy, and is not a mere musical setting of what happens to be a liturgic text. It was intended for the installation of Beethoven's friend, the archduke Rudolph, as archbishop of Olmütz; and, though not ready until two years after that occasion, it shows the most careful consideration of the meaning of a church service, no doubt of altogether exceptional length and pomp, but by no means impossible for its unique occasion. Immense as was Beethoven's dramatic force, it was equalled by his power of sublime repose; and he was accordingly able once more to put the supreme moment of the music where the service requires it to be, viz. in the *Sanctus* and *Benedictus*. In the *Agnus Dei* the circumstances of the time gave him something special to say which has never so imperatively demanded utterance since. Europe had been shattered by the Napoleonic wars. Beethoven read the final prayer of the Mass as a "prayer for inward and outward peace," and, giving it that title, organized it on the basis of a contrast between terrible martial sounds and the triumph of peaceful themes, in a scheme none the less spiritual and sublime because those who first heard it had derived their notions of the horror of war from living in Vienna during its bombardment. Critics who have lived in London during the relief of Mafeking have blamed Beethoven for his realism.

Schubert's Masses show rather the influence of Beethoven's not very impressive first Mass, which they easily surpass in interest, though they rather pathetically show an ignorance of the meaning of the Latin words. The last two Masses are later than Beethoven's Mass in D and contain many remarkable passages. It is evident from them that a dramatic treatment of the *Agnus Dei* was "in the air"; all the more so, since Schubert does not imitate Beethoven's realism.

4. *Lutheran Masses.*—Music with Latin words is not excluded from the Lutheran Church, and the *Kyrie* and *Gloria* are frequently sung in succession and entitled a Mass. Thus the *Four Short Masses* of Bach are called short, not because they are on a small scale, which is far from being the case, but because they consist only of the *Kyrie* and *Gloria*. Bach's method is to treat each clause of his text as a separate movement, alternating choruses with groups of arias; a method which was independently adopted by Mozart in those larger masses in which he transcends the Neapolitan type, such as the great unfinished Mass in C minor. This method, in the case of an entire Mass, results in a length far too great for a Roman Catholic service; and Bach's B minor Mass, which is such a setting of the entire text, must be regarded as a kind of oratorio. It thus has obviously nothing to do with the Roman liturgy; but as an independent setting of the text it is one of the most sublime and profoundly religious works in all art; and its singular perfection as a design is nowhere more evident than in its numerous adaptations of earlier works.

The most interesting of all these adaptations is the setting of the words: "Et expecto resurrectionem mortuorum et vitam venturi saeculi.—AMEN." Obviously the greatest difficulty in any elaborate instrumental setting of the *Credo* is the inevitable anti-climax after the *Resurrexit*. Bach contrives to give this anti-climax a definite artistic value; all the more from the fact that his *Crucifixus* and *Resurrexit*, and the contrast between them, are among the most sublime and directly impressive things in all music. To the end of his *Resurrexit* chorus he appends an orchestral *ritornello*, summing up the material of the chorus in the most formal possible way, and thereby utterly destroying all sense of finality as a member of a large group, while at the same time not in the least impairing the force and contrast of the whole—that contrast having ineffaceably asserted itself at the moment when it occurred. After this the aria "Et in spiritum sanctum," in which the next dogmatic clauses are enshrined like relics in a casket, furnishes a beautiful decorative design on which the listener can repose his mind; and then comes the voluminous ecclesiastical fugue, *Confiteor unum baptismam*, leading, as through the door and world-wide spaces of the Catholic Church, to that veil

which is not all darkness to the eye of faith. At the words “Et expecto resurrectionem mortuorum” the music plunges suddenly into a slow series of some of the most sublime and mysterious modulations ever written, until it breaks out as suddenly into a *vivace e allegro* of broad but terse design, which comes to its climax very rapidly and ends as abruptly as possible, the last chord being carefully written as a short note without a pause. This gives the utmost possible effect of finality to the whole *Credo*, and contrasts admirably with the coldly formal instrumental end of the *Resurrexit* three movements further back. Now, such subtleties seem as if they must be unconscious on the part of the composer; yet here Bach is so far aware of his reasons that his *vivace e allegro* is an arrangement of the second chorus of a church cantata, *Gott man lobet dich in der Stille*; and in the cantata the chorus has introductory and final symphonies and a middle section with a *da capo*!

5. *The Requiem*.—The *Missa pro defunctis* or *Requiem Mass* has a far less definite musical history than the ordinary Mass; and such special musical forms as it has produced have little in common with each other. The text of the *Dies Irae* so imperatively demands either a very dramatic elaboration or none at all, that even in the 16th century it could not possibly be set to continuous music on the lines of the *Gloria* and *Credo*. Fortunately, however, the Gregorian *canto fermo* associated with it is of exceptional beauty and symmetry; and the great 16th century masters either, like Palestrina, left it to be sung as plain-chant, or obviated all occasion for dramatic expression by setting it in versicles (like their settings of the *Magnificat* and other canticles) for two groups of voices alternatively, or for the choir in alternation with the plain chant of the priests.

With modern orchestral conditions the text seems positively to demand an unecclasiastical, not to say sensational, style, and probably the only instrumental Requiem Masses which can be said to be great church music are the sublime unfinished work of Mozart (the antecedents of which would be a very interesting subject) and the two beautiful works by Cherubini. These latter, however, tend to be funereal rather than uplifting. The only other artistic solution of the problem is to follow Berlioz, Verdi and Dvořák in the complete renunciation of all ecclesiastical style.

Brahms's *Deutsches requiem* has nothing to do with the Mass for the dead, being simply a large choral work on a text compiled from the Bible by the composer.

(D. F. T.)



MASSA, a town of Tuscany, Italy, the joint capital with Carrara of the province of Massa and Carrara, and sharing with it the episcopal see, 20 m. S.E. of Spezia by rail, 246 ft. above sea-level. Pop. (1901), 10,559 (town); 26,118 (commune). The Palazzo Ducale (now the prefecture) was erected in 1701, and was a summer residence of Napoleon's sister, Elisa Baciocchi, princess of Lucca, who caused the ancient cathedral opposite to be destroyed. The hills round the town yield marble, and there is a narrow-gauge railway to the Marina d'Avenza, where the marble is shipped.



MASSACHUSETTS (an Indian name, originally applied to a tribe of Indians), one of the original thirteen states of the American Union, bounded on the N. by Vermont and New Hampshire, on the E. by the Atlantic, on the S. by Rhode Island and Connecticut, and on the W. by New York. It lies approximately between 41° 15' and 42° 50' N. lat. and 69° 55' and 73° 30' W. long. The bulk of its area—which is about 8266 sq. m. (of which 227 are water)—forms a parallelogram of 130 m. E. and W., 46 m. N. and S., the additional area lying in a projection at the S.E. and a lesser one at the N.E., which give the mainland a breadth of 90 m. where it borders upon the ocean, while the general irregularity of the coast-line gives a sea frontage of about 250 m.

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Physical Features.—The east and south-east portions are in general undulating or level, the central hilly and broken, and the west rugged and mountainous. (For geological details see [UNITED STATES: Geology, ad fin.](#)) The Hoosac Hills (1200-1600 ft. high), separating the valleys of the Housatonic and Connecticut, are a range of the Berkshires, a part of the Appalachian system, and a continuation of the Green Mountains of Vermont, and with the Taconic range on the west side of the Housatonic Valley—of which the highest peaks are Greylock, or “Saddleback” (3535 ft.), and Mt Williams (3040 ft.)—in the extreme north-west corner of the state, form the only considerable elevated land.¹ Bordering on the lowlands of the Connecticut, Mt Tom (1214 ft.) and a few other hills (Mt Holyoke, 954 ft.; Mt Toby, 1275) form conspicuous landmarks. East of this valley the country continues more or less hilly and rocky, but the elevations eastward become increasingly slight and of little consequence. Mt Lincoln (1246 ft.) and especially Mt Wachusett (2108 ft.), to the east in a level country, are very exceptional. The Blue Hills in Milton are the nearest elevations to the coast, and are conspicuous to navigators approaching Boston. The south-east corner of the state is a sandy lowland, generally level with a slightly elevated ridge (Manomet) south of Plymouth, and well watered by ponds.

With the exception of this corner, Massachusetts is a part of the slanting upland that includes all of southern New England. This upland is an uplifted peneplain of subaerial denudation,² now so far advanced in a “second” cycle of weathering and so thoroughly dissected that to an untrained eye it appears to be only a country of hills confusedly arranged. The general contour of the upland, marked by a remarkably even sky-line, is evident at almost every locality in the state. In the nature and position of the upland rocks—mainly crystalline schists and gneisses, excessively complicated and disordered in mass, and also internally deformed—there is found abundant proof that the peneplain is a degraded mountain region. The upland is interrupted by the rivers, and on the coast by great lowlands, and is everywhere marked by hills somewhat surmounting the generally even skyline. Monadnock (in New Hampshire, near N.E. Massachusetts), the Blue Hills near Boston, Greylock, in the north-west, and Wachusett in the centre, are the most commanding remnant-summits (known generically as “Monadnocks”) of the original mountain system. But in the derivant valley peneplains developed in the present cycle of denudation, and there are residual summits also; in the Connecticut Valley trap ridges, of which Mt Tom and Mt Holyoke are the best examples; at Mt Holyoke, lava necks; occasionally in the lowlands, ridges of resistant sandstone, like Deerfield Mountain near Northampton; in the Berkshire Valley, summits of resistant schists, like Greylock, the highest summit in the state.

The larger streams have cut their channels to very moderate gradients, but the smaller ones are steeper. The Housatonic and Millers (and the Connecticut also, but not in its course within Massachusetts alone) afford beautiful examples of the dependence of valley breadth upon the strike of soft or harder rocks across the stream. The Connecticut lowland is cut from 5 to 18 m. wide in soft sandstones and shales. The glacial era has left abundant evidences in the topography of the state. The ice covered even the Monadnocks. Till drumlins, notably abundant on the lowland about Boston and the highland near Spencer; morainic hills, extending, *e.g.* all along Cape Cod; eskers, kames and river terraces afford the plainest evidences of the extent of the glacial sheet. The Berkshire country—Berkshire, Hampden, Hampshire and Franklin counties—is among the most beautiful regions of the United States. It is a rolling highland dominated by long, wooded hill-ridges, remarkably even-topped in general elevation, intersected and broken by deep valleys. Scores of charming lakes lie in the hollows. The district is often called the Lake Region of America, partly from the comparableness of its scenic beauties with the English Lake Country (Matthew Arnold, however, wrote: "The country is pleasing but not to be compared with Westmoreland. It is wider and opener, and neither hills nor lakes are so effective."), and partly from the parallelism of literary associations. It has become since 1850, and especially in much more recent years, a favoured resort of summer residents. Owing to topography, and also to the manner in which Massachusetts was settled, the western counties were long connected commercially more closely with New York than with Massachusetts, and this territory was long in dispute between these two states.

The Connecticut is the most considerable stream, and is navigable by small craft. Its valley, much the richest portion of the state agriculturally, is celebrated for the quiet variety and beauty of its scenery. The Housatonic, in portions placid, in others wild and rapid, winding along the deflecting barrier of the Hoosac Hills, is the most beautiful river of the state, despite the mercantile use of its water-power. The Merrimac, the second stream of the state in volume, runs in a charming valley through the extreme north-east corner, and affords immensely valuable water-power at Lowell, Lawrence and Haverhill.

South of Cohasset the shore is sandy, with a few isolated rocky ledges and boulders. About Boston, and to the north of it, the shore is rocky and picturesque. Cape Cod, like a human arm doubled at the elbow, 40 m. from shoulder to elbow and 30 from elbow to hand, is nowhere more than a few miles broad. It is a sandy ridge, dotted with summer resorts and cottages. Cape Ann has a rugged interior and a ragged, rocky coast. It, too, is a summer recreation ground, with much beautiful scenery. Boston Harbor (originally known as Massachusetts Bay, a name which now has a much broader signification) is the finest roadstead on the coast. The extreme hook of the Cape Cod Peninsula forms Provincetown Harbor, which is an excellent and capacious port of refuge for vessels approaching Boston. Salem Harbor is the most considerable other haven on Massachusetts Bay; on Buzzard's Bay New Bedford has a good harbour, and on the Atlantic coast are the excellent harbours of Gloucester and Marblehead, both frequented by summer residents. Gloucester has the largest fishery interests of any place in the country, and is one of the chief fishing ports of the world. Buzzard's Bay is also a popular yachting ground, and all about its shores are towns of summer residence. Wood's Hole is a station of the United States Bureau of Fisheries, and a marine biological laboratory is there.

The principal islands lie off the south coast. The largest is Martha's Vineyard, about 20 m. long, with an extreme breadth of about 9½ m. It has in Vineyard Haven (Holmes's Hole) a spacious harbour, much frequented by wind-bound vessels seeking a passage round Cape Cod. The island is covered with stunted trees. Its population was formerly dependent wholly upon the sea, but its climate has made it a popular summer resort, Oak Bluffs being one of the chief resorts of the Atlantic coast. Farther east, Nantucket, a smaller island of triangular shape, is likewise the home of a seafaring folk who still retain in some degree primitive habits, though summer visitors are more and more affecting its life.

Flora and Fauna.—Massachusetts lies entirely in the humid area of the Transition life-zone, with the exception of the extreme north-western corner of the state, which lies in the Boreal zone. Thus the original native trees and plants were those common to New England and northern New York. The presence of a dense population has driven out some, and brought in others, including some noxious weeds. The larger wild animals have disappeared, excepting an occasional black bear or deer. Of the smaller fur-bearing animals, the beaver was long ago exterminated, the otter is seen very rarely, and the mink only in the most isolated districts; but foxes, skunks, weasels, musk-rats, rabbits, and grey and red squirrels are not uncommon. Copperhead snakes and rattlesnakes are occasionally seen, and there are several species of harmless serpents. Of game birds the most characteristic is the partridge (ruffed grouse), exclusively a woodland bird; the Wilson's snipe and the woodcock are not uncommon in favourable localities, and several species of ducks are found especially in the bays and marshes near the coast during the seasons of migration. A stray eagle is sometimes seen. Very interesting to ornithologists are the few heath hens, the eastern representative of the prairie hen (pinnated grouse), which are found on the island of Martha's Vineyard, and are the sole survivors in the eastern states of one of the finest of American game birds, now practically exterminated even on the western plains. There are many insectivorous birds; among the song birds are the hermit thrush, the wood thrush, the Wilson's thrush, the brown thrasher, the bobolink, the catbird, the oven bird, the house wren, the song sparrow, the fox sparrow, the vesper sparrow, the white-throated sparrow (Peabody bird), the gold-finch and the robin. Brook trout are found, especially in the streams in the western part of the state, and bass, pickerel, perch and smaller fish occur in the rivers and other inland waters. Fish are so abundant on the coast that the cod is sometimes used as an emblem of the state; thus a figure of one hangs in the representatives' chamber at the State House. The artificial propagation and preservation of salmon and other edible fresh-water fish have been carried on successfully under the supervision of a state commission. The commonwealth has expended large sums since 1890 in a vain attempt to exterminate the gipsy moth (*Ocneria*, or more exactly *Porthetria dispar*), accidentally allowed to escape in 1869 by a French naturalist.

Climate.—The climate is trying, showing great extremes of temperature (20° F. below zero to 100° above) and marked local variations. The south-eastern coast and islands are mildest. The mean average temperature of Boston is 48° F. In the interior it is slightly lower. The mean summer temperature generally over the state is about 70° F. Changes are often sudden, and the passage from winter to summer is through a rapid spring. The ocean tempers the climate considerably on the seaboard. Boston Harbor has been frozen over in the past, but steamtugs plying constantly now prevent the occurrence of such obstruction. In the elevated region in the west the winters are decidedly severe, and the springs and summers often late and cold. Williamstown has a winter mean of about 23° F. The yearly precipitation is about 39 to 45 in., decreasing inland, and is evenly distributed throughout the year. Fogs are common on the coast, and east wind drizzles; the north-east winds being the weather bane of spring and late autumn. In the summer and the autumn the weather is commonly fine, and often most beautiful; and especially in the Berkshires a cool, pure and elastic atmosphere prevails, relatively dry, and altogether delightful.

Agriculture.—The soil, except in some of the valleys, is not naturally fertile; and sandy wastes are common in the south-east parts. High cultivation, however, has produced valuable market-gardens about Boston and the larger towns; and industry has made tillage remunerative in most other parts. The gross value of agricultural products is not great compared with that of other industries, but they are of great importance in the economy of the state. The total value of farm property in 1900 was \$182,646,704, including livestock valued at \$15,798,464. Of the increase in

the total value of farm property between 1850 and 1900 more than half was in the decade 1890-1900; this increase being due partly to the rising value of suburban realty, but also to a development of intensive farming that has been very marked since 1880. The total value of farm products in 1899 was \$42,298,274 (expenditure for fertilizers \$1,320,600); crops representing 54.7 and animal products 45.3% of this total. The leading crops and their percentages of the total crop value were hay and forage (39.1%), vegetables (23.9%), fruits and nuts (11.7%), forest products (8.4%), and flowers and plants (7.1%). Of the animal products 67.3% were dairy products, and 20.8% poultry and eggs. Cereals³ have been for many years declining, although Indian corn is a valuable subsidiary to the dairy interest, which is the most thriving farm industry. The value of farms on which dairying was the chief source of income in 1900 was 46% of the total farm value of the state; the corresponding percentages for livestock, vegetables, hay and grain, flowers and plants, fruit and tobacco, being respectively 14.6, 10.2, 8.0, 4.2, 3.2, and 1.8%. The shrinkage of cereal crops has been mainly responsible for the idea that Massachusetts is agriculturally decadent. Parallel to this shrinkage was the decrease in ranging sheep (82.0% from 1850-1900; 34.2% from 1890-1900), and cattle, once numerous in the hill counties of the west, and in the Connecticut Valley; Boston, then ranking after London as the second wool market of the world, and being at one time the chief packing centre of the country. Dairy cows increased, however, from 1850 to 1900 by 41.9% (1890-1900, 7.3%). The amount of improved farmland decreased in the same period 39.4%, decreasing even more since 1880 than earlier, and amounting in 1900 to no more than 25.1% of the area of the state; but this decrease has been compensated by increased value of products, especially since the beginning of intensive agriculture. An unusual density of urban settlement, furnishing excellent home markets and transportation facilities, are the main props of this new interest. Worcester and Middlesex counties are agriculturally foremost. Tobacco, which has been cultivated since colonial times, especially since the Civil War, is grown exclusively in the Connecticut Valley or on its borders. In the swamps and bogs of the south-east coast cranberry culture is practised, this district producing in 1900 three-fifths of the entire yield of the United States. "Abandoned farms" (aggregating, in 1890, 3.4% of the total farm area, and 6.85% in Hampshire county) are common, especially in the west and south-east.

Mines and Mining.—Granite is the chief mineral, and granite quarrying is the principal mineral industry of the state. In 1900 the value of manufactures based primarily upon the products of mines and quarries was \$196,930,979, or 19% of the state's total manufactured product. In 1906 Massachusetts led all states in the value of its granite output, but in 1907 and 1908 it was second to Vermont. The value of the product (including a small output of igneous rocks) was in 1903, \$2,351,027; 1904, \$2,554,748; 1905, \$2,251,319; 1906, \$3,327,416; 1907, \$2,328,777; 1908, \$2,027,463.

Granite boulders were used for construction in Massachusetts as early as 1650. Systematic quarrying of siliceous crystalline rocks in New England began at Quincy in about 1820. The Gloucester quarries, opened in 1824, were probably the next to be worked regularly. The principal granite quarries are in Milford, (Worcester county), Quincy and Milton (Norfolk county), Rockport (Essex county) and Becket (Berkshire county). Of the fourteen quarries of "Milford granite," twelve are in the township of that name, and two in Hopkinton township, Middlesex county. B. K. Emerson and J. H. Perry classify this granite as post-Cambrian. They describe it⁴ as "a compact, massive rock, somewhat above medium grain, and of light colour. The light flesh colour of the feldspar, and the blue of the quartz give it in some places a slight pinkish tint, and it is now much used as a building-stone under the name of 'pink granite.'"

The Quincy granite district lies around the north-east end of the Blue Hill region, about 11 m. south of Boston. For monumental purposes this granite is classified as "medium," "dark," and "extra dark." Quincy granite takes a very high polish, owing to the absence of mica and to the coarser cleavage of its hornblende and augite. The lightest of the monumental stone quarried at Quincy is called gold-leaf; it is bluish-green gray, speckled with black and light yellow brown. Another variety has small, rather widely separated cherry-red dots.

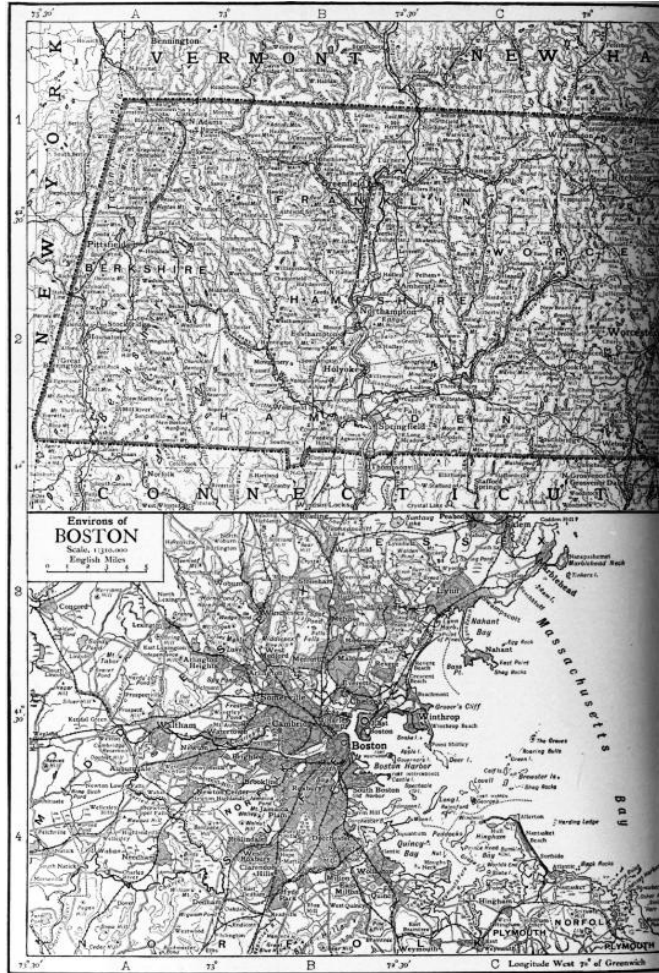
The Rockport granite is found along or near the seashore, between Rockport and Bay View, and within about three-quarters of a mile of Cape Ann. The granite is of two kinds, known commercially as "grey granite" and "green granite." Both varieties are hard and take a very high polish.

The Becker granite (known as "Chester dark" and "Chester light") is a muscovite-biotite granite varying from medium grey to medium bluish grey colour, and fine in texture. It is used principally for monuments.

In 1907 Massachusetts ranked sixth among the states in the value of its trap rock product (\$432,604), and eighth in sandstone (\$243,328). The value of the marble produced in the same year was \$212,438, the state ranking fifth in the value of the total product and fourth in building-marble. Other minerals are emery, limestone and quartz. The state ranked fifth in 1906 in the total value of stone quarried (\$4,333,616), and eighth in 1908 (\$2,955,195). The output of lime in 1908 was 107,813 tons, valued at \$566,022. Second in value to the various stones were the clay products of the state, which were valued in 1906 at \$2,172,733 (of which \$1,415,864 was the value of common brick) and in 1908 at \$1,647,362 (of which \$950,921 was the value of common brick). There are many mineral springs in the state, more than half being in Essex and Middlesex counties. The total amount of mineral waters sold in 1908 was valued at \$227,907. In that year the total value of the minerals and mining products of the state was \$5,925,949. Gold has been found in small quantities in Middlesex, Norfolk and Plymouth counties.

Manufactures.—Though only four states of the Union are smaller, only three exceeded Massachusetts in 1905 in the value of manufactured products (six exceeding it in population); and this despite very scant native resources of raw materials and a very limited home market. Historical priority of development, exceptionally extensive and well utilized water-power, and good transportation facilities are largely responsible for the exceptional rank of Massachusetts as a manufacturing state. Vast water-power is developed on the Merrimac at Lawrence and Lowell, and on the Connecticut at South Hadley, and to a less extent at scores of other cities on many streams and artificial ponds; many of the machines that have revolutionized industrial conditions since the beginning of the factory system have been invented by Massachusetts men; and the state contains various technical schools of great importance. In 1900 the value of manufactures was \$1,035,198,989, an increase from 1890 of 16.6%; that from 1880 to 1890 having been 40.7%. In textiles—cottons, worsteds, woollens and carpets—in boots and shoes, in rubber foot-wear, in fine writing paper, and in other minor products, it is the leading state of the country. The textile industries (the making of carpets and rugs, cotton goods, cotton smallwares, dyeing and finishing textiles, felt goods, felt hats, hosiery and knit goods, shoddy, silk and silk goods, woollen goods, and worsted goods), employed 32.5% of all manufacturing wage earners in 1905, and their product (\$271,369,816) was 24.1% of the total, and of this nearly one-half (\$129,171,449) was in cotton goods, being 28.9% of the total output of the country, as compared with 11% for South Carolina, the nearest competitor of Massachusetts. There is a steadily increasing product of fine grade fabrics. The output of worsted goods in 1905 (\$51,973,944) was more than three-tenths that of the entire country, Rhode Island being second with \$44,477,596; in Massachusetts the increase in the value of this product was 28.2% between 1900 and 1905. The value of woollen goods in 1905 (\$44,653,940) was more than three-tenths of the entire product for the country; and it was 44.6% more than that of 1900. The value of boots and shoes and cut stock in 1905 was \$173,612,660, being 23% greater than in 1900; the value of boots and shoes in 1905 (\$144,291,426) was 45.1% of the country's output, that of New York, the second state, being only 10.7%. In this industry, as in the manufacture of

cotton goods, Massachusetts has long been without serious rivalry; Brockton, Lynn, Haverhill, Marlboro and Boston, in the order named, being the principal centres. The third industry in 1905 was that of foundry and machine-shop products (\$58,508,793), of which Boston and Worcester are the principal centres. Lesser interests, in the order of importance, with the product value of each in 1905, were: rubber goods (\$53,133,020), tanned, curried and finished leather (\$33,352,999), in the manufacture of which Massachusetts ranked second among the states; paper and wood pulp⁵ (\$32,012,247), in the production of which the state ranked second among the states of the Union; slaughtering and meat packing (\$30,253,838); printing and publishing (\$33,900,748, of which \$21,020,237 was the value of newspapers and periodicals); clothing (\$21,724,056); electrical machinery, apparatus and supplies (\$15,882,216); lumber (\$12,636,329); iron and steel, steel works and rolling-mills products (\$11,947,731; less than in 1900); cordage and twine (\$11,173,521), in the manufacture of which Massachusetts was second only to New York; furniture (\$11,092,581); malt liquors (\$11,080,944); jewelry (\$10,073,595), Massachusetts ranking second to Rhode Island; confectionery (\$9,317,996), in which Massachusetts was third among the states.



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Many of these industries have a history going back far into colonial times, some even dating from the first half of the 17th century. Textile products were really varied and of considerable importance before 1700. The policy of the British government towards such industries in the colonial period was in general repressive. The non-importation sentiment preceding the War of Independence fostered home manufactures considerably, and the Embargo and Non-Intercourse Acts before the war of 1812, as well as that war itself (despite the subsequent glut of British goods) had a much greater effect; for they mark the introduction of the factory system, which by 1830 was firmly established in the textile industry and was rapidly transforming other industries. Improvements were introduced much more slowly than in England, the cost of cotton machinery as late as 1826 being 50-60% greater in America. The first successful power loom in America was set up at Waltham in 1814. Carding, roving and spinning machines were constructed at Bridgewater in 1786. The first cotton mill had been established in Beverly in 1788, and the first real woollen factory at Byfield in 1794. Woolcard machinery destined to revolutionize the industry was devised by Amos Whittemore (1759-1828) in 1797; spinning jennies were in operation under water-power before 1815. Carpet-weaving was begun at Worcester in 1804. "Not a yard of fancy wool fabric had ever been woven by the power-loom in any country till done by William Crompton at the Middlesex Mills, Lowell, in 1840" (Samuel Lawrence).⁶ The introduction of the remarkably complete machinery of the shoe industry was practically complete by 1865, this being the last of the great industries to come under the full dominance of machinery. At Pittsfield and at Dalton is centred the manufacture of fine writing papers, including that of paper used by the national government for bonds and paper money. Four-fifths of all loft-dried paper produced in the country from 1860-1897 was made within 15 m. of Springfield; Holyoke and South Hadley being the greatest producers. Vulcanized rubber is a Massachusetts invention. Most of the imitation jewelry of the United States is produced at Attleboro and North Attleboro, and in Providence, Rhode Island. In 1905 Boston produced 16.4% of all the manufactures of the state, and Lynn, the second city, which had been fifth in 1900, 4.9%. Some industries which have since become dead or of relatively slight magnitude were once of much greater significance, economically or socially: such as the rum-distilling connected with the colonial slave trade, and various interests concerned with shipbuilding and navigation. The packing of pork and beef formerly centred in Boston; but, while the volume of this business has not diminished, it has been greatly exceeded in the west. For many years Massachusetts controlled a vast lumber trade, drawing upon the forests of Maine, but the growth of the west changed the old channels of trade, and Boston carpenters came to make use of western timber. It was between 1840 and 1850 that the cotton manufactures of Massachusetts began to assume

large proportions; and about the same time the manufacture of boots and shoes centred there. Medford ships began to be famous shortly after the beginning of the 19th century, and by 1845 that town employed one quarter of all the shipwrights in the state.

Fishing is an important industry. Drift whales were utilized in the earliest years of the colony, and shore boating for the baleen (or "right") whale—rich in bone and in blubber yielding common oil—was an industry already regulated by various towns before 1650; but the pursuit of the sperm whale did not begin until about 1713. The former industry had died out before the War of Independence; the latter is not yet quite extinct. Nantucket and New Bedford were the centres of the whaling trade, which, for the energy and skill required and the length (three to five years when sailing vessels were employed) of the ever-widening voyages which finally took the fishermen into every quarter of the globe, contributes the most romantic chapters in the history of American commerce. At one time it gave occupation to a thousand ships, but the introduction of petroleum gradually diminished this resource of the lesser ports. The Newfoundland Bank fisheries were of greater economic importance and are still very important. Gloucester is the chief centre of the trade. The value of fishery products in 1895 was \$5,703,143, and in 1905 \$7,025,249; and 15,694 persons were engaged in the fisheries. Though cod is much the most important fish (in 1905 fresh cod were valued at \$991,679, and salted cod at \$696,928), haddock (fresh, \$1,051,910; salted, \$17,194), mackerel (value in 1905, including horse mackerel, \$970,876), herring (fresh, \$266,699; salted, \$114,997), pollock (\$267,927), hake (\$258,438), halibut (\$218,232), and many other varieties are taken in great quantities. The shell fisheries are less important than those of Maine.

Commerce.—Already by 1660 New England products were an "important element in the commerce and industries of the mother country" (Weeden). Codfish was perhaps the truest basis of her commerce, which soon came to include the West Indies, Africa and southern Europe. Of fundamental importance was the trade with the French West Indies, licit and illicit, particularly after the Peace of Utrecht (1713). Provisions taken to Newfoundland, poor fish to the West Indies, molasses to New England, rum to Africa and good cod to France and Spain, were the commonest ventures of foreign trade. The English Navigation Acts were generally evaded, and were economically of little effect; politically they were of great importance in Massachusetts as a force that worked for independence. Privateering, piracy and slave-trading—which though of less extent than in Rhode Island became early of importance, and declined but little before the American War of Independence—give colour to the history of colonial trade.

Trade with China and India from Salem was begun in 1785 (first voyage from New York, 1784), and was first controlled there, and afterwards in Boston till the trade was lost to New York. The Boston trade to the Canadian north-west coast was begun in 1788. The first regular steamship line from Boston to other American Atlantic ports was established in 1824. In commercial relations the chief port of Massachusetts attained its greatest importance about 1840, when it was selected as the American terminus of the first steamship line (Cunard) connecting Great Britain with the United States; but Boston lost the commercial prestige then won by the failure of the state to promote railway communication with the west, so as to equal the development effected by other cities. The decline of commerce, however, had already begun, manufacturing supplanting it in importance; and this decline was rapid by 1850. From 1840 to 1860 Massachusetts-built ships competed successfully in the carrying trade of the world. Before 1840 a ship of 500 tons was a large ship, but after the discovery of gold in California the size of vessels increased rapidly and their lines were more and more adapted to speed. The limit of size was reached in an immense clipper of 4555 tons, and the greatest speed was attained in a passage from San Francisco to Boston in seventy-five days, and from San Francisco to Cork in ninety-three days. The development of steam navigation for the carrying of large cargoes has driven this fleet from the sea. Only a small part of the exports and imports of Massachusetts is now carried in American bottoms.⁷ The first grain elevator built in Boston, and one of the first in the world, was erected in 1843, when Massachusetts sent Indian corn to Ireland. When the Civil War and steam navigation put an end to the supremacy of Massachusetts wooden sailing ships, much of the capital which had been employed in navigation was turned into developing railway facilities and coasting steamship lines. In 1872 the great fire in Boston made large drains upon the capital of the state, and several years of depression followed. But in 1907 Boston was the second port of the United States in the magnitude of its foreign commerce. In that year the value of imports at the Boston-Charlestown customs district was \$123,411,168, and the value of exports was \$104,610,908; for 1909 the corresponding figures were \$127,025,654 and \$72,936,869. Other ports of entry in the state in 1909 were Newburyport, Gloucester, Salem, Marblehead, Plymouth, Barnstable, Nantucket, Edgartown, New Bedford and Fall River. A protective tariff was imposed in early colonial times and protection was generally approved in the state until toward the close of the 19th century, when a strong demand became apparent for reciprocity with Canada and for tariff reductions on the raw materials (notably hides) of Massachusetts manufactures.

At the end of 1908 the length of railway lines within the state was 2,109.33 miles. The Hoosac Tunnel, 5¾ m. long, pierces the Hoosac Mountain in the north-west corner of the state, affording a communication with western lines. It cost about \$20,000,000, the state lending its credit, and was built between 1855 and 1874. The inter-urban electric railways are of very great importance in the state; in 1908 the total mileage of street and inter-urban electric railways was 2841.59 m. (2233.85 m. being first main track). The Cape Cod canal, 12 m. long, from Sandwich on Barnstable Bay to Buzzard's Bay, was begun in June 1909, with a view to shortening the distance by water from Boston to New York and eliminating the danger of the voyage round Cape Cod.

Population.—The population of the state in 1910 was 3,366,416, the increases in successive decades after 1790 being respectively 11.6, 11.6, 11.9, 16.6, 20.9, 34.8, 23.8, 18.4, 22.4, 25.6, 25.3 and 20%.⁸ With the exception of Rhode Island, it is the most densely populated state in the Union, the average number to the square mile in 1900 being 349 (in 1910, 418.8), and the urban population, *i.e.* the population of places having above 8000 or more inhabitants, being 69.9% in 1890 and in 1900 76.0% of the total population (in places above 2500, 91.5%; in places above 25,000, 58.3%). The female population is greater (and has been since 1765, at least) than the male, the percentage being in 1900 greater than in any other state of the Union (51.3%; District of Columbia, owing to clerks in government service 52.6%). In 1900 less than 1.3% of the population was coloured; 30.2% were foreign-born (this element having almost continuously risen from 16.49% in 1855), and 62.3% of all inhabitants and 46.5% of those native-born had one or both parents of foreign birth. Ireland contributed the largest proportion of the foreign-born (29.5%), although since 1875 the proportion of Irish in the total population has considerably fallen. After the Irish the leading foreign elements are Canadian English (18.7%), Canadian French (15.8%) and English (9.7%), these four constituting three-fourths of the foreign population. Since 1885 the natives of southern Italy have greatly increased in number. Of the increase in total population from 1856-1895 only a third could be attributed to the excess of births over deaths; two-thirds being due to immigration from other states or from abroad. Boston is the second immigrant port of the country. A large part of the transatlantic immigrants pass speedily to permanent homes in the west, but by far the greater part of the Canadian influx remains.

According to the census of 1910 there were 32 incorporated cities⁹ in Massachusetts, of which 6 had between 12,000 and 20,000 inhabitants; 3 between 20,000 and 25,000 (Gloucester, Medford and North Adams); 11 between 25,000 and 50,000 (Maiden, Haverhill, Salem, Newton, Fitchburg, Taunton, Everett, Quincy, Pittsfield, Waltham,

Chicopee); 7 between 50,000 and 100,000 (New Bedford, Lynn, Springfield, Lawrence, Somerville, Holyoke, Brockton); and 5 more than 100,000 (Boston, 670,585; Worcester, 145,986; Fall River, 119,295; Lowell, 106,294; Cambridge, 104,839).

Taking quinquennial periods from 1856-1905 the birth-rates were 29.5, 25.3, 26.0, 27.6, 24.2, 25.0, 25.8, 27.6, 27.0 and 24.2 per 1,000; and the death-rates 17.7, 20.7, 18.2, 20.8, 18.8, 19.8, 19.4, 19.8, 18.0 and 16.4.¹⁰ Pneumonia and consumption, approximately of equal fatality (15 to 18 per 10,000 each), exceed more than twofold the diseases of next lower fatality, cancer and cholera infantum.

Of males (1,097,581) engaged in 1900 in gainful occupations 47.1% were engaged in manufacturing and mechanical pursuits (77.9 in every 100 in 1870 and 73 in 1900), 27.1 in trade and transportation, 14.2 in domestic and personal service, 7.4 in agricultural pursuits and 4.2 in professional service. The corresponding percentages for females (1,169,467) were 46.4 in manufacturing (in 1890, 52%), 32.3 in domestic and personal service, 13.6 in trade and transportation, 7.1 in professional service and 0.6 in agriculture. Formerly farmers' daughters of native stock were much employed in factories; but since operatives of foreign birth or parentage have in great part taken their places, they have sought other occupations, largely in the manufacture of small wares in the cities, and particularly in departments of trade where skilled labour is essential. Household service is seldom now done, as it formerly was, by women of native stock. The federal census of 1900 showed that of every 100 persons employed for gain only 37.5% were of native descent (that is, had a native-born father). Natives heavily predominated in agriculture and the professions, slightly in trade, and held barely more than half of all governmental positions; but in transportation, personal service, manufactures, labour and domestic service, the predominance of the foreign element warranted the assertion of the state Bureau of Statistics of Labour that "the strong industrial condition of Massachusetts has been secured and is held not by the labour of what is called the 'native stock,' but by that of the immigrants." After the original and exclusively English immigration from 1620 to 1640 there was nothing like regular foreign immigration until the 19th century; and it was a favourite assertion of Dr Palfrey that the blood of the fishing folk on Cape Cod was more purely English through two centuries than that of the inhabitants of any English county.

With foreign immigration the strength of the Roman Catholic Church has greatly increased: in 1906 of every 1000 of estimated population 355 were members of the Roman Catholic Church (a proportion exceeded only in New Mexico and in Rhode Island; 310 was the number per 1000 in Louisiana), and only 148 were communicants of Protestant bodies; in 1906 there were 1,080,706 Roman Catholics (out of a total of 1,562,621 communicants of all denominations), 119,196 Congregationalists, 80,894 Baptists, 65,498 Methodists and 51,636 Protestant Episcopalians.

Reference has been made to "abandoned farms" in Massachusetts. The desertion of farms was an inevitable result of the opening of the great cereal regions of the west, but it is by no means characteristic of Massachusetts alone. The Berkshire district affords an excellent example of the interrelations of topography, soil and population. Many hill towns once thriving have long since become abandoned, desolate and comparatively inaccessible; though with the development of the summer resident's interests many will probably eventually regain prosperity. Almost half of the highland towns reached their maximum population before the opening of the 19th century, although Berkshire was scarcely settled till after 1760, and three-fourths of them before 1850. On the other hand three-fourths of the lowland towns reached their maximum since that date, and half of them since 1880. The lowland population increased six and a half times in the century, the upland diminished by an eighth. Socially and educationally the upland has furnished an interesting example of decadence. Since 1865 (at least) various parts of Cape Cod have shrunk greatly in population, agriculture and manufactures, and even in fishing interests; this reconstruction of industrial and social interests being, apparently, simply part of the general urban movement—a movement toward better opportunities. What prosperity or stability remains in various Cape Cod communities is largely due to foreign immigrants—especially British-Americans and Portuguese from the Azores; although the population remains, to a degree exceptional in northern states, of native stock.

Government.—Representative government goes back to 1634, and the bicameral legislature to 1644. The constitution of 1780, which still endures (the only remaining state constitution of the 18th century), was framed in the main by Samuel Adams, and as an embodiment of colonial experience and revolutionary principles, and as a model of constitution-making in the early years of independence, is of very great historical interest. It has been amended with considerable freedom (37 amendments up to 1907), but with more conservatism than has often prevailed in the constitutional reform of other states; so that the constitution of Massachusetts is not so completely in harmony with modern democratic sentiment as are the public opinion and statute law of the state. The commonwealth, for example, is still denominated "sovereign," and education is not declared a constitutional duty of the commonwealth. One unique feature is the duty of the supreme court to give legal advice, on request, to the governor and council. Another almost equally exceptional feature is the persistence of the colonial executive council, consisting of members chosen to represent divisions of the state, who assist the governor in his executive functions. Massachusetts is also one of the few states in which the legislature meets in annual session.¹¹ Townships were represented as such in this body (called the General Court) until 1856. Religious qualifications for suffrage and office-holding were somewhat relaxed, except in the case of Roman Catholics, after 1691.¹² Real toleration in public opinion grew slowly through the 18th century, removing the religious tests of voters; and a constitutional amendment in 1821 explicitly forbade such tests in the case of office-holders. Property qualifications for the suffrage and for office-holding—universal through colonial times—were abolished in the main in 1780. From 1821 to 1891 the payment of at least a poll-tax was a condition precedent to the exercise of the suffrage. An educational test (dating from 1857) is exacted for the privilege of voting, every voter being required to be able to read the constitution of the commonwealth in the English language, and to write his name. The property qualification of the governor was not abolished until 1892. In the presidential election of 1896, when an unprecedentedly large vote was cast, the number of voters registered was nearly 20% of the population, and of these nearly 82% actually voted. Massachusetts is one of the only two states in the Union in which elections for state officers are held annually. In 1888 an act was passed providing for the use in state elections of a blanket ballot, on which the names of all candidates for each office are arranged alphabetically under the heading of that office, and there is no arrangement in party columns. This was the first state law of the kind in the country. The same method of voting has been adopted in about two-thirds of the townships of the state. A limited suffrage was conferred upon women in 1879. Every female citizen having the qualifications of a male voter may vote in the city and town elections for members of the school committee.

A householder with a family may, by recording the proper declaration in a registry of deeds, hold exempt from attachment, levy on execution, and sale for the payment of debts thereafter contracted an estate of homestead, not exceeding \$800 in value, in a farm or lot with buildings thereon which he lawfully possesses by lease or otherwise and occupies as his residence. The exemption does not extend, however, to the prohibition of sale for taxes, and in case the householder's buildings are on land which he has leased those buildings are not exempt from sale or levy for the ground rent. If the householder has a wife he can mortgage or convey his estate of homestead only with her

consent, and if he dies leaving a widow or minor children the homestead exemption survives until the youngest child is twenty-one years of age, or until the death or marriage of the widow, provided the widow or a child continues to occupy it.

The scope of state activity has become somewhat remarkable. In addition to the usual state boards of education (1837), agriculture (1852), railroad commissioners (1869), health (1869), statistics of labour, fisheries and game, charity (1879), the dairy bureau (1891), of insanity (1898), prison, highways, insurance and banking commissions, there are also commissions on ballot-law, voting machines, civil service (1884), uniformity of legislation, gas and electric lighting corporations, conciliation and arbitration in labour disputes (1886), &c. There are efficient state boards of registration in pharmacy, dentistry and medicine. Foods and drugs have been inspected since 1882. In general it may be said that the excellence of administrative results is noteworthy. The work of the Bureau of Statistics of Labor, of the Bureau of Health, of the Board of Railroad Commissioners, and of the Board of Conciliation and Arbitration, and the progress of civil service, have been remarkable for value and efficiency. Almost all state employees are under civil service rules; the same is true of the city of Boston; and of the clerical, stenographic, prison, police, civil engineering, fire, labour-foreman, inspection and bridge tender services of all cities; and under a law (1894) by which cities and towns may on petition enlarge the application of their civil service rules. Various other public services, including even common labourers of the larger towns, are rapidly passing under civil service regulation. Veterans of the Civil War have privileges in the administration of the state service. In the settlement of labour disputes conciliatory methods were successful in the formative period, when the parties to disputes adopted customary attitudes of hostility and fought to the end unless they were reconciled by the Board to a final agreement or to an agreement to arbitrate.¹³ In this earlier period (before 1900), thanks to the efforts of the board there was an increase in the frequency of appeal to arbitration, and settlements by compromise were often made. Afterwards the number of arbitrations by the board increased in number: from 1900 to 1908 (inclusive), of 568 controversies submitted to the board, 525 were settled by an award and 43 by an induced agreement. In the same period the mediation of the Board settled disputes affecting 5560 establishments; and in the latter half of this period labour disputes involving hostilities and of the magnitude contemplated by the statute governing the Board of Conciliation and Arbitration had almost disappeared. The laws relating to labour are full, but, as compared with those of other states, present few features calling for comment.¹⁴ In 1899 eight hours were made to constitute a day's work for all labourers employed by or for any city or town adopting the act at an annual election. Acts have been passed extending the common-law liability of employers, prohibiting the manufacture and sale of sweat-shop clothing, and authorizing cities and towns to provide free lectures and to maintain public baths, gymnasia and playgrounds. Boston has been a leader in the establishment of municipal baths. The state controls and largely maintains two beaches magnificently equipped near the city. The Massachusetts railroad commission, though preceded in point of time by that of New Hampshire of 1844, was the real beginning of modern state commissions. Its powers do not extend to direct and mandatory regulation, being supervisory and advisory only, but it can make recommendations at its discretion, appealing if necessary to the General Court; and it has had great influence and excellent results. The Torrens system of land registration was adopted in 1898, and a court created for its administration. In the case of all quasi-public corporations rigid laws exist prohibiting the issue of stock or bonds unless the par value is first paid in; prohibiting the declaration of any stock or scrip dividend, and requiring that new stock shall be offered to stockholders at not less than its market value, to be determined by the proper state officials, any shares not so subscribed for to be sold by public auction. These laws are to prevent fictitious capitalization and "stock-watering." In the twenty years preceding 1880 60% of all sentences for crime were found traceable to liquor. In 1881 a local option law was passed, by which the granting of licences for the sale of liquor was confined to cities and towns voting at the annual election to authorize their issue. In 1888 the number of licences to be granted in municipalities voting in favour of their issue was limited to one for each 1000 inhabitants, except in Boston, where one licence may be issued for every 500 inhabitants. The vote varies from year to year, and it is not unusual for a certain number of municipalities to change from "licence" to "no licence," and vice versa. The general result has been that centres of population, especially where the foreign element is large, usually vote for licence, while those in which native population predominates, as well as the smaller towns, usually vote for prohibition. Through a growing acquiescence in the operation of the local option law, the relative importance of the vote of the Prohibition Party has diminished. Since 1895 indeterminate sentences have been imposed on all convicts sentenced to the state prison otherwise than for life or as habitual criminals; *i.e.* maximum and minimum terms are established by law and on the expiration of the latter a revocable permit of liberty may be issued. Execution by electricity has been the death penalty since 1898. Stringent legislation controls prison labour.

The extension of state activity presents some surprising features in view of the strength of local self-sufficiency nurtured by the old system of township government. But this form of pure democracy was in various cases long since inevitably abandoned: by Boston reluctantly in 1822, and subsequently by many other townships or cities, as growing population made action in town meeting unbearably cumbersome. In modern times state activity has encroached on the cities. Especially has the commonwealth undertaken certain noteworthy enterprises as the agent of the several municipalities in the immediate vicinity of Boston, constituting what is known as the Metropolitan District; as, for example, in bringing water thither from the Nashua River at Clinton, 40 m. from Boston, and in the development of a magnificent park system of woods, fells, river-banks and seashore, unrivalled elsewhere in the country. The commonwealth joined the city of Boston in the construction of a subway beneath the most congested portion of the city for the passage of electric cars. For the better accommodation of the increasing commerce of the port of Boston, the commonwealth bought a considerable frontage upon the harbour lines and constructed a dock capable of receiving the largest vessels, and has supplemented the work of the United States government in deepening the approaches to the wharves. It has secured as public reservations the summit and sides of Greylock (3535 ft.) in the north-west corner of the state, and of Wachusett (2108 ft.) near the centre. Since 1885 a large expenditure has been incurred in the abolition of grade crossings of railways and highways,¹⁵ and in 1894 the commonwealth began the construction and maintenance of state highways.¹⁶

Since 1885, in Boston, and since 1894, in Fall River, the administration of the city police departments, including the granting of liquor licences, has been in the hands of state commissioners (one commissioner in Boston, a board in Fall River) appointed by the governor. But though in each case the result has been an improved administration, it has been generally conceded that only most exceptional circumstances can justify such interference with local self-government, and later attempts to extend the practice have failed. The referendum has been sparingly used in matters of local concern. Beginning in 1892 various townships and cities, numbering 18 in 1903, adopted municipal ownership and operation of lighting works. The gasworks have been notably more successful than the electric plants.

In Massachusetts, as in New England generally, the word "town" is used, officially and colloquially, to designate a township, and during the colonial era the New England town-meeting was a notable school for education in self-government. The members of the first group of settlers in these colonies were mostly small farmers, belonged to the same church, and dwelt in a village for protection from the Indians. They adapted to these conditions some of the methods for managing local affairs with which they had been familiar in England, and called the resultant institution a town. The territorial extent of each town was determined by its grant or grants from the general court, which the towns served as agents in the management of land. A settlement or "plantation" was sometimes incorporated first as

a "district" and later as a town, the difference being that the latter had the right of corporate representation in the general court, while the former had no such right. The towns elected (until 1856) the deputies to the general court, and were the administrative units for the assessment and collection of taxes, maintaining churches and schools, organizing and training the militia, preserving the peace, caring for the poor, building and repairing roads and bridges, and recording deeds, births, deaths and marriages; and to discuss questions relating to these matters as well as other matters of peculiarly local concern, to determine the amount of taxes for town purposes, and to elect officers. All the citizens were expected to attend the annual town-meeting, and such male inhabitants as were not citizens were privileged to attend and to propose and discuss measures, although they had no right to vote. Generally several villages have grown up in the same "town," and some of the more populous "towns," usually those in which manufacturing has become more important than farming, have been incorporated as "cities"; thus either a town or a city may now include a farming country and various small villages. Although the tendency in Massachusetts is towards chartering as cities "towns" which have a population of 12,000 or more, the democratic institution of the town-meeting persists in many large municipalities which are still technically towns.¹⁷ Most "towns" hold their annual meeting in March, but some hold them in February and others in April. In the larger "towns" the officers elected at this meeting may consist of five, seven or nine selectmen, a clerk, a treasurer, three or more assessors, three or more overseers of the poor, one or more collectors of taxes, one or more auditors, one or more surveyors of highways, a road commissioner, a sewer commissioner, a board of health, one or more constables, two or more field drivers, two or more fence viewers, and a tree warden; but in the smaller "towns" the number of selectmen may be limited to three, the selectmen may assess the taxes, be overseers of the poor, and act as a board of health, and the treasurer or constable may collect the taxes. The term of all these officers may be limited to one year, or the selectmen, clerk, assessors and overseers of the poor may be elected for a term of three years, in which case a part only of the selectmen, assessors and overseers of the poor are elected each year. The selectmen have the general management of a "town's" affairs during the interval between town-meetings. They may call special town-meetings; they appoint election officers and may appoint additional constables or public officers, and such minor officials as inspectors of milk, inspectors of buildings, gauger of measures, cullers of staves and hoops, fish warden and forester. A school committee consisting of any number of members divisible by three is chosen, one-third each year, at the annual town-meeting or at a special meeting which is held in the same month. Any "town" having a village or district within its limits that contains 1000 inhabitants or more may authorize that village or district to establish a separate organization for lighting its streets, building and maintaining sidewalks, and employing a watchman or policeman, the officers of such organization to include at least a prudential committee and a clerk. All laws relative to "towns" are applied to "cities" in so far as they are not inconsistent with general or special laws relative to the latter, and the powers of the selectmen are vested in the mayor and aldermen.

Education.—For cities of above 8000 inhabitants (for which alone comparative statistics are annually available), in 1902-1903 the ratio of average attendance to school enrolment, the average number of days' attendance of each pupil enrolled, and the value of school property per capita of pupils in average attendance were higher than in any other state; the average length of the school term was slightly exceeded in eight states; and the total cost of the schools per capita of pupils in average attendance (\$39.05) was exceeded in six other states. In 1905-1906 the percentage of average attendance in the public schools to the number of children (between 5 and 15 years) in the state was 80; in Barnstable county it was 95, and in Plymouth 92; and the lowest rate of any county was 68, that of Bristol. In the same year the amount of the various school taxes and other contributions was \$30.53 for each child in the average membership of the public schools, and the highest amount for each child in any county was \$35.77 in Suffolk county, and in any township or city \$68.01—in Lincoln. The school system is not one of marked state centralization—as contrasted, *e.g.* with New York. A state board of education has general control, its secretary acting as superintendent of the state system in conjunction with local superintendents and committees. Women are eligible for these positions, and among the teachers in the schools they are greatly in excess over men (more than 10 to 1), especially in lower grades. No recognition exists in the schools of race, colour or religion. The proportion of the child population that attends schools is equalled in but two or three states east of the Mississippi river. The services of Horace Mann (*q.v.*) as secretary of the state board (1837-1848) were productive of almost revolutionary benefits not only to Massachusetts but to the entire country. His reforms, which reached every part of the school system, were fortunately introduced just at the beginning of railway and city growth. Since 1850 truant and compulsory attendance laws (the first compulsory education law was passed in 1642) have been enforced in conjunction with laws against child labour. In 1900 the average period of schooling per inhabitant for the United States was 4.3 years, for Massachusetts 7 years. (The same year the ratio of wealth productivity was as 66 to 37.) Massachusetts stands "foremost in the Union in the universality of its provision for secondary education."¹⁸ The laws practically offer such education free to every child of the commonwealth. Illiterate persons not less than ten years of age constituted in 1900 5.9% of the population; and 0.8, 14.6, 10.7% respectively of native whites, foreign-born whites and negroes. More patents are issued, relatively, to citizens of Massachusetts than to those of any other state except Connecticut. Post office statistics indicate a similarly high average of intelligence.

The public school system includes common, high and normal schools, and various evening, industrial and truant schools. Many townships and cities maintain free evening schools. In 1894 manual training was made a part of the curriculum in all municipalities having 20,000 inhabitants. There are also many private business colleges, academic schools and college-preparatory schools. The high schools enjoy an exceptional reputation. An unusual proportion of teachers in the public schools are graduates of the state normal schools, of which the first were founded in 1839 at Lexington and Barre, the former being the first normal school of the United States.¹⁹ These two schools were removed subsequently to Framingham (1853) and Westfield (1844), where they are still active; while others flourish at Bridgewater (1840), Salem (1854), Worcester (1874), Fitchburg (1895), North Adams (1897), Hyannis (1897) and Lowell (1897), that at Framingham being open to women only. There is also a state normal art school at Boston (1873) for both sexes.

The commonwealth contributes to the support of textile schools in cities in which 450,000 spindles are in operation. Such schools exist (1909) in Lowell, Fall River and New Bedford. The commonwealth also maintains aboard a national ship a nautical training school (1891) for instruction in the science and practice of navigation. During the Spanish-American War of 1898 more than half of the graduates and cadets of the school enlisted in the United States service.

There are several hundred private schools, whose pupils constituted in 1905-1906 15.7% of the total school-enrolment of the state. Of higher academies and college-preparatory schools there are scores. Among those for boys Phillips Academy, at Andover, the Groton school, and the Mount Hermon school are well-known examples. For girls the largest school is the Northfield Seminary at East Northfield. In Boston and in the towns in its environs are various famous schools, among them the boys' classical school in Boston, founded in 1635, one of the oldest secondary schools in the country. The leading educational institution of the state, as it is the oldest and most famous of the country, is Harvard University (founded 1636) at Cambridge. In the extreme north-west of the state, at Williamstown, is Williams College (1793), and in the Connecticut Valley is Amherst College (1821), both of these

unsectarian. Boston University (Methodist Episcopal, 1867); Tufts College (1852), a few miles from Boston in Medford, originally a Universalist school; Clark University (1889, devoted wholly to graduate instruction until 1902, when Clark College was added), at Worcester, are important institutions. Two Roman Catholic schools are maintained—Boston College (1863) and the College of the Holy Cross (1843), at Worcester. Of various institutions for the education of women, Mount Holyoke (1837) at South Hadley, Smith College (1875) at Northampton, Wellesley College (1875) at Wellesley near Boston, Radcliffe College (1879) in connexion with Harvard at Cambridge and Simmons College (1899) at Boston, are of national repute. The last emphasizes scientific instruction in domestic economy.

For agricultural students the state supports a school at Amherst (1867), and Harvard University the Bussey Institution. In technological science special instruction is given—in addition to the scientific departments of the schools already mentioned—in the Worcester Polytechnic Institute (1865), and the Massachusetts Institute of Technology (opened in 1865). There are schools of theology at Cambridge (Protestant Episcopal), Newton (Baptist) and Waltham (New Church), as well as in connexion with Boston University (Methodist), Tufts College (Universalist) and Harvard (non-sectarian, and the affiliated Congregational Andover Theological Seminary at Cambridge). Law and medical schools are maintained in Boston and Harvard universities.

Public Institutions.—Massachusetts was in 1903, in proportion to the population, more richly provided with public collections of books than any other state: in that year she had nearly a seventh of all books in public, society and school libraries in the country, and a much larger supply of books per capita (2.56) than any other state. The rate for New York, the only state having a larger number of books in such libraries, being only 1.19. The Boston public library, exceeded in size in the United States by the library of Congress at Washington—and probably first, because of the large number of duplicates in the library of Congress—and the largest free municipal library in the world; the library of Harvard, extremely well chosen and valuable for research; the collections of the Massachusetts Historical Society (1791); the Boston Athenaeum (1807); the State Library (1826); the New England Historic Genealogical Society (1845); the Congregational Library; the American Academy of Arts and Sciences (1780); and the Boston Society of Natural History (1830), all in Boston, leave it easily unrivalled, unless by Washington, as the best research centre of the country. The collections of the American Antiquarian Society (1812) at Worcester are also notable. Massachusetts led, about 1850, in the founding of town and city libraries supported by public taxes, and by 1880 had established more of such institutions than existed in all other states combined. In 1900 out of 353 towns and cities only five, representing less than half of 1%, were without free library facilities, and three of these five had association libraries charging only a small fee.

The state is very well supplied with charitable and reformatory institutions, in which noteworthy methods have been employed with success. The state institutions, each governed by a board of trustees, and all under the supervision of the state board of charity, include a state hospital at Tewksbury, for paupers (1866); a state farm at Bridgewater (1887) for paupers and petty criminals; the Lyman school for boys at Westboro, a reformatory for male criminals under fifteen years of age sentenced to imprisonment for terms less than life in connexion with which a very successful farm is maintained for the younger boys at Berlin; an industrial school for girls at Lancaster, also a reformatory school—a third reformatory school for boys was planned in 1909; a state sanatorium at Rutland for tuberculous patients (the first public hospital for such in the United States) and a hospital school at Canton for the care and instruction of crippled and deformed children. Three more hospitals for consumptives were planned in 1909. Under the supervision of the state board of insanity, and each under the government of a board of seven trustees (of whom two are women) are state hospitals for the insane at Worcester (1833), Taunton, Northampton, Danvers, Westboro and Medford, a state colony for the insane at Gardner, a state hospital for epileptics at Palmer, a state school for the feeble-minded at Waltham (governed by six trustees), a state school at Wrentham, state "hospital cottages for children" (1882) at Baldwinville (governed by five trustees), and the Foxboro state hospital for dipsomaniacs and insane. There are also semi-state institutions for the insane at Waverley, Barre, Wrentham and Baldwinville, and nineteen small private institutions, all under the supervision of the state board of insanity. Under the supervision of a board of prison commissioners, which appoints the superintendent and warden of each, are a reformatory prison for women at Sherborn (1877), a state reformatory for men at Concord (1884), a state prison at Boston (Charlestown), and a prison camp and hospital at Rutland (1905). There is a prison department at the state farm which receives misdemeanants. Other institutions receiving state aid, each governed by trustees appointed by the governor, are the Massachusetts general hospital at Boston, the Massachusetts charitable eye and ear infirmary at Boston, the Massachusetts homoeopathic hospital at Boston, the Perkins Institution and Massachusetts school for the blind at South Boston and the soldiers' home in Massachusetts at Boston. The Horace Mann school in Boston, a public day school for the deaf, the New England industrial school for deaf mutes at Beverly and the Clarke school for the deaf at Northampton are maintained in part by the state. Finally, many private charitable corporations (about 500 in 1905) report to the state board of charity, and town and city almshouses (205 in 1904) are subject to visitation. The Perkins Institution is memorable for its association with the fame of S. G. Howe (g.v.), whose reforms in charity methods were felt through all the charitable interests of the state. The net yearly cost of support and relief from 1884 to 1904 averaged \$2,136,653, exclusive of vagrancy cases (average \$31,714). The whole number of paupers, besides vagrants, in 1908 was 23.02 per 1000 of state population, and the cost of relief (\$5,104,255) was \$1.699 for each inhabitant of the state. The number of sane paupers declined steadily and markedly from 1863 to 1904.

Finance.—Massachusetts is a very rich state, and Boston a very wealthy city. The debt of the state (especially the contingent debt, secured by sinking funds) has been steadily rising since 1888, and especially since 1896, chiefly owing to the erection of important public buildings, the construction of state highways and metropolitan park roadways, the improvement of Boston harbour, the abolition of grade crossings on railways, and the expenses incurred for the Spanish-American War of 1898.

The net direct funded debt (also secured by accumulating sinking funds) in December 1908 was \$17,669,372 (3.61 millions in 1893). The average interest on this and the contingent debt (\$60,428,223 in December 1908) combined was only 3.35%. The net debts of towns and cities rose in the years 1885-1908 from \$63,306,213 to \$163,558,325. The county debts in 1908 aggregated \$6,076,867. The assessed valuation of realty in the state in 1908 was \$2,799,062,707 and of personalty \$1,775,073,438. No other state has given so vigorous a test of the ordinary American general-property tax, and the results have been as discouraging as elsewhere. The "dooming" process (*i.e.* estimation by assessors, without relief for overvaluation except for excess more than 50% above the proper valuation) was introduced in 1868 as a method of securing returns of personalty. But the most rigorous application of the dooming law has only proved its complete futility as an effort to reach unascertained corporate and personal property.²⁰ Various special methods are used for the taxation of banks, insurance companies, railways, tramways, trust companies and corporations, some of them noteworthy. In the case of corporations realty and machinery are taxed generally by the local authorities, and stock values by the commonwealth. The Boston stock exchange is the second of the country in the extent of the securities in which it deals. The proportion of holders of U.S. bonds among the total population is higher than that in any other state.

History.—It is possible that the coasts of Massachusetts were visited by the Northmen, and by the earliest navigators who followed Cabot, but this is only conjecture. In 1602 Bartholomew Gosnold landed at and named Cape Cod and coasted as far south as the present No-Man's Land, which he named Martin's or Martha's Vineyard, a name later transferred to a neighbouring larger island. Pring and Champlain at a later date coasted along what is now Massachusetts, but the map of Champlain is hardly recognizable. The first sufficient explorations for cartographical record were made by John Smith in 1614, and his map was long the basis—particularly in its nomenclature—of later maps. Permanency of occupation, however, dates from the voyage of the "Mayflower," which brought about a hundred men, women and children who had mostly belonged to an English sect of Separatists, originating in Yorkshire, but who had passed a period of exile for religion's sake in Holland. In the early winter of 1620 they made the coast of Cape Cod; they had intended to make their landing farther south, within the jurisdiction of the Virginia Company, which had granted them a patent; but stress of weather prevented their doing so. Finding themselves without warrant in a region beyond their patent, and threatened with the desertion of disaffected members of their company (probably all servants or men of the "lesser" sort) unless concessions were made to these, they drew up and signed before landing a democratic compact of government which is accounted the earliest written constitution in history.²¹ After some exploration of the coast they made a permanent landing on the 21st of December 1620 (N.S.) at Plymouth, a harbour which had already been so named by John Smith in his maps of 1614 and 1616. During the first winter nearly one-half their number died from exposure, and the relations of the survivors with their partners of the London Company, who had insisted that for seven years the plantation should be managed as a joint stock company, were unsatisfactory. However, about thirty-five new colonists arrived in 1622 and ninety-six more in 1623. The abandonment of the communal system was begun in the latter year, and with the dissolution of the partnership with the adventurers of the London Company in 1627 Plymouth became a corporate colony with its chief authority vested in the whole body of freemen convened in the General Court. Upon the death of the first governor, John Carver, in the spring of 1621, the General Court chose William Bradford as his successor, and with him was chosen one assistant. The subsequent elections were annual, and within a few years the number of assistants was increased to seven. The General Court was the legislature and the electorate; the governor and assistants were the executive and the judiciary. The whole body of freemen composed the General Court until other towns than Plymouth had been organized, the first of which were Scituate in 1636 and Duxbury in 1637, and then the representative form of government was adopted and there was a gradual differentiation between Plymouth the town and Plymouth the colony. When it had become known that the colony was within the territory of the New England Council, John Pierce, in 1621, procured from that body a grant which made the colonists its tenants. A year later Pierce surrendered this and procured another, which in effect made him proprietor of the colony, but he was twice shipwrecked and was forced to assign to the adventurers his second patent. In 1629 Governor Bradford procured from the same council a definite grant of the tract which corresponds to the south-eastern portion of the present state. But all attempts to procure a royal charter for Plymouth Colony were unsuccessful, and in 1691 it was annexed to the Colony of Massachusetts Bay under what is termed the Provincial Charter.

King James having by patent in 1620 created a Council for New England to whom he made a large grant of territory, the council in 1628 made a sub-grant, confirmed by a royal charter that passed the seals on the 4th of March 1629, to the "Governor and Company of the Massachusetts Bay in Newe England." There had been various minor expeditions during the few years since Smith was on the coast before this company, in the Puritan interests, had sent over John Endecott with a party in 1628 to what is now Salem. In 1630 the government of the company, with questionable right (for the charter seems evidently to have contemplated the residence of the company in England), transferred itself to their territory, and under the leadership of John Winthrop laid the foundations anew of the Massachusetts colony, when they first settled Boston in the autumn of that year. Winthrop served repeatedly, though not continuously, as governor of the colony till his death in 1649, his rejection in 1636 being due to a party of theological revolt which chose Henry Vane (afterwards Sir Henry) to the office. This was an incident in a famous episode, important rather as a symptom than in itself, namely, the Antinomian controversy, "New England's earliest protest against formulas," in which Vane and Ann Hutchinson took the lead in criticizing the official orthodoxy of the colony.

The magistrates successfully asserted themselves to the discomfiture of their critics (Ann Hutchinson being banished), and this was characteristic of the colony's early history. The charter gave the company control over the admission of "freemen" (co-partners in the enterprise, and voters), "full and absolute power and authority to correct, punish and rule" subjects settling in the territory comprised in their grant, and power to "resist ... by all fitting ways and means whatever" all persons attempting the "destruction, invasion, detriment or annoyance" of the plantation. Some writers deny the company's right under this instrument to rule as they proceeded to do; but at any rate what they did was to make the suffrage dependent on stringent religious tests, and to repress with determined zeal all theological "vagaries" and "whimsies." Criticism of church or magistrates was not tolerated. Laws were modelled closely on the Bible. The clergy were a ruling class. The government was frankly theocratic. Said Winthrop (1637): "We see not that any should have authority to set up any other exercises besides what authority hath already set up"; and a synod at Cambridge in 1637 catalogued eighty-two "opinions, some blasphemous, others erroneous and all unsafe," besides nine "unwholesome expressions," all of which were consigned "to the devil of hell from whence they came." Another synod at Cambridge in 1647 more formally established the principle of state control. The legislation against Baptists (about 1644-1678) and the persecution of the Quakers (especially 1656-1662) partook of the brutality of the time, including scourging, boring of tongues, cutting of ears and in rare cases capital punishment. It cannot be denied that men like Roger Williams and some of the persecuted Quakers, though undeniably contentious and aggressive in their conscientious dissent, showed a spirit which to-day seems sweeter in tolerance and humanity than that of the Puritans. And it seems necessary to emphasize these facts because until about 1870 it was almost unchallenged tradition to regard the men of Massachusetts Bay as seekers and champions of "religious liberty." They left England, indeed, for liberty to discard the "poperies" of the English Church, and once in Massachusetts they even discarded far more than those "poperies." But religious liberty in our modern sense they did not seek for themselves, nor accord to others; they abhorred it, they trampled on it, and their own lives they subjected to all the rigid restrictions to which they subjected others. They were narrow but strong; no better example can be imagined of what the French call "the defects of one's qualities." Their failures were small compared with those of their contemporaries in England and elsewhere in Europe, and public opinion did not long sustain violent persecution of opinion. More than once mobs freed Quaker prisoners. Also it is to be said that with the single exception of religious toleration the record of the state in devotion to human rights has been from the first a splendid one, whether in human principles of criminal law, or in the defence of the civil rights commonly declared in American constitutions. It was once generally assumed that the repression practised attained its end of securing harmony of opinion. The fact seems to be that intellectual speculation was as strong in America as in Puritan England; the assumption that the inhibition of its expression was good seems wholly gratuitous, and contrary to general convictions underlying modern freedom of speech. A safer opinion is probably that "the spiritual growth of

Massachusetts withered under the shadow of dominant orthodoxy; the colony was only saved from mental atrophy by its vigorous political life" (J. A. Doyle). In literature the second half of the 17th century is a sterile waste of forbidding theology; and its life, judged by the present day, singularly sombre.

In addition to the few persons banished to Rhode Island, theological and political differences led many to emigrate thither. Others, discontented with Massachusetts autocracy and wishing, too, "to secure more room," went to Connecticut (*q.v.*) where they established a bulwark against the Dutch of New York.

A witchcraft scare (at its worst in 1691-1697, though the earliest Connecticut case was in 1646-1647 and the earliest in Boston in 1648) led to another tragedy of ignorance. In all thirty-two persons were executed (according to W. F. Poole, about a thousandth part of those executed for witchcraft in the British Isles in the 16th and 17th centuries). Salem was the scene of the greatest excitement in 1691-1692.

Exceptionally honourable to the early colonists was their devotion to education (see [HARVARD UNIVERSITY](#) and [BOSTON](#)). Massachusetts Bay had a large learned element; it is supposed that about 1640 there was an Oxford or Cambridge graduate to every 250 persons in the colony. The earliest printing in the British-American colonies was done at Cambridge in 1639; it was not until 1674 that the authorities of the colony permitted printing, except at Cambridge. Boston and Cambridge remain leading publishing centres to-day. The first regular newspaper of Boston, the *Boston Newsletter*, was the pioneer of the American newspaper press.

The early history was rendered unquiet at times by wars with the Indians, the chief of which were the Pequot War in 1637, and King Philip's War in 1675-76; and for better combining against these enemies, Massachusetts, with Connecticut, New Haven and New Plymouth, formed a confederacy in 1643, considered the prototype of the larger union of the colonies which conducted the War of American Independence (1775-83). The struggle with the Crown, which ended in independence, began at the foundation of the colony, with assumptions of power under the charter which the colonial government was always trying to maintain, and the crown was as assiduously endeavouring to counteract. After more than half a century of struggle, the crown finally annulled the charter of the colony in 1684, though not until 1686 was the old government actually supplanted on the arrival of Joseph Dudley, a native of the colony, as president of a provisional council; later, Sir Edmund Andros was sent over with a commission to unite New York and New England under his rule. The colonists had been for many years almost independent; they made their own laws, the Crown appointed natives as officials, and the colonial interpretation of the old charter had in general been allowed to stand. Massachusetts had excluded the English Book of Common Prayer, she had restricted the franchise, laid the death penalty on religious opinions, and passed various other laws repugnant to the Crown, notably to Charles II. and James II.; she had caused laws and writs to run in her own name, she had neglected to exact the oath of allegiance to the sovereign, though carefully exacting an oath of fidelity to her own government, she had protected the regicides, she had coined money with her own seal, she had blocked legal appeals to the English courts, she had not compelled the observance of the navigation acts. The revocation of the charter aroused the strongest fears of the colonists Andros speedily met determined opposition by measures undertaken relative to taxation and land titles, by efforts to secure a church for Episcopal service, and an attempt to curb the town meetings. His government was supported by a small party (largely an Anglican Church party), but was intensely unpopular with the bulk of the people; and—it is a disputed question, whether before or after news arrived of the landing in England of William of Orange—in April 1689 the citizens of Boston rose in revolution, deposed Andros, imprisoned him and re-established their old colonial form of government. Then came a struggle, carried on in England by Increase Mather as agent (1688-1692) of the colony, to secure such a form of government under a new charter as would preserve as many as possible of their old liberties. Plymouth Colony, acting through its agent in London, endeavoured to secure a separate existence by royal charter, but accepted finally union with Massachusetts when association with New York became the probable alternative. The province of Maine was also united in the new provincial charter of 1691, and Sir William Phips came over with it, commissioned as the first royal governor. As has been mentioned already, the new charter softened religious tests for office and the suffrage, and accorded "liberty of conscience" except to Roman Catholics. The old religious exclusiveness had already been greatly lessened: the clergy were less powerful, heresy had thrived under repression, Anglican churchmen had come to the colony and were borne with perforce, devotion to trade and commerce had weakened theological tests in favour of ideals of mere good order and prosperity, and a spirit of toleration had grown.

Throughout the continuance of the government under the provincial charter, there was a constant struggle between a prerogative party, headed by the royal governor, and a popular party who cherished recollections of their practical independence under the colonial charter, and who were nursing the sentiments which finally took the form of resistance in 1775. The inter-charter period, 1686-1691, is of great importance in this connexion. The popular majority kept up the feeling of hostility to the royal authority in recurrent combats in the legislative assembly over the salary to be voted to the governor; though these antagonisms were from time to time forgotten in the wars with the French and Indians. During the earl of Bellomont's administration, New York was again united with Massachusetts under the same executive (1697-1701). The scenes of the recurrent wars were mostly distant from Massachusetts proper, either in Maine or on Canadian or Acadian territory, although some savage inroads of the Indians were now and then made on the exposed frontier towns, as, for instance, upon Deerfield in 1704 and upon Haverhill in 1708. Phips, who had succeeded in an attack on Port Royal, had ignominiously failed when he led the Massachusetts fleet against Quebec in 1690; and the later expedition of 1711 was no less a failure. The most noteworthy administration was that of William Shirley (1741-1749 and 1753-1756), who at one time was the commanding officer of the British forces in North America. He made a brilliant success of the expedition against Louisburg in 1745, William Pepperell, a Maine officer, being in immediate command. Shirley with Massachusetts troops also took part in the Oswego expedition of 1755; and Massachusetts proposed, and lent the chief assistance in the expedition of Nova Scotia in 1755 which ended in the removal of the Acadians. Her officers and troops also played an important part in the Crown Point and second Louisburg expedition (1758).

The first decided protests against the exercise of sovereign power by the crown, the first general moral and political revolt that marked the approach of the American War of Independence, took place in Massachusetts; so that the most striking events in the general history of the colonies as a whole from 1760 to 1775 are an intimate part of her annals. The beginning of the active opposition to the crown may be placed in the resistance, led by James Otis, to the issuing of writs (after 1752, Otis's famous argument against them being made in 1760-1761) to compel citizens to assist the revenue officers; followed later by the outburst of feeling at the imposition of the Stamp Act (1765), when Massachusetts took the lead in confronting the royal power. The governors put in office at this time by the crown were not of conciliatory temperaments, and the measures instituted in parliament (see [UNITED STATES](#)) served to increase bitterness of feeling. Royal troops sent to Boston (several regiments, 1768) irritated the populace, who were highly excited at the time, until in an outbreak on the 5th of March 1770 a file of garrison troops shot down in self-defence a few citizens in a crowd which assailed them. This is known as the "Boston Massacre." The

merchants combined to prevent the importation of goods which by law would yield the crown a revenue; and the patriots—as the anti-prerogative party called themselves—under the lead of Samuel Adams, instituted regular communication between the different towns, and afterwards, following the initiative of Virginia, with the other colonies, through “committees of correspondence”; a method of the utmost advantage thereafter in forcing on the revolution by intensifying and unifying the resistance of the colony, and by inducing the co-operation of other colonies. In 1773 (Dec. 16) a party of citizens, disguised as Indians and instigated by popular meetings, boarded some tea-ships in the harbour of Boston, and to prevent the landing of their taxable cargoes threw them into the sea; this incident is known in history as the “Boston tea-party.” Parliament in retaliation closed the port of Boston (1774), a proceeding which only aroused more bitter feeling in the country towns and enlisted the sympathy of the other colonies. The governorship was now given to General Thomas Gage, who commanded the troops which had been sent to Boston. Everything foreboded an outbreak. Most of the families of the highest social position were averse to extreme measures; a large number were not won over and became expatriated loyalists. The popular agitators, headed by Samuel Adams—with whom John Hancock, an opulent merchant and one of the few of the richer people who deserted the crown, leagued himself—forced on the movement, which became war in April 1775, when Gage sent an expedition to Concord and Lexington to destroy military stores accumulated by the patriots and to capture Adams and Hancock, temporarily staying at Lexington. This detachment, commanded by Lord Percy, was assaulted, and returned with heavy loss. The country towns now poured their militia into Cambridge, opposite Boston; troops came from neighbouring colonies, and Artemas Ward, a Massachusetts general, was placed in command of the irregular force, which with superior numbers at once shut the royal army up in Boston. An attempt of the provincials to seize and hold a commanding hill in Charlestown brought on the battle of Bunker Hill (June 17, 1775), in which the provincials were driven from the ground, although they lost much less heavily than the royal troops. Washington, chosen by the Continental Congress to command the army, arrived in Cambridge in July 1775, and stretching his lines around Boston, forced its evacuation in March 1776. The state was not again the scene of any conflict during the war. Generals Henry Knox and Benjamin Lincoln were the most distinguished officers contributed by the state to the revolutionary army. Out of an assessment at one time upon the states of \$5,000,000 for the expenses of the war, Massachusetts was charged with \$820,000, the next highest being \$800,000 for Virginia. Of the 231,791 troops sent by all the colonies into the field, reckoning by annual terms, Massachusetts sent 67,907, the next highest being 31,939 from Connecticut, Virginia furnishing only 26,678; and her proportion of sailors was very much greater still. In every campaign in every colony save in 1770-80 her soldiery were in absolute, and still more in relative, number greater than those of any other colony.

After the outbreak of the war a somewhat indefinite, heterogeneous provisional government was in power till a constitution was adopted in 1780, when John Hancock became the first governor. Governor James Bowdoin in 1786-1787 put down with clemency an almost bloodless insurrection in the western counties (there was strong disaffection, however, as far east as Middlesex), known as the Shays Rebellion, significant of the rife ideas of popular power, the economic distress, and the unsettled political conditions of the years of the Confederation. Daniel Shays (1747-1825), the leader, was a brave Revolutionary captain of no special personal importance. The state debt was large, taxation was heavy, and industry was unsettled; worthless paper money was in circulation, yet some men demanded more; debtors were made desperate by prosecution; the state government seemed weak, the Federal government contemptibly so; the local courts would not, or from intimidation feared to, punish the turbulent, and demagogues encouraged ideas of popular power. A convention of delegates representing the malcontents of numerous towns in Worcester county met at Worcester on the 15th of August 1786 to consider grievances, and a week later a similar convention assembled at Hatfield, Hampshire county. Encouraged by these and other conventions in order to obstruct the collection of debts and taxes, a mob prevented a session of the Court of Common Pleas and General Sessions of the Peace at Northampton on the 29th of August, and in September other mobs prevented the same court from sitting in Worcester, Middlesex and Berkshire counties. About 1000 insurgents under Shays assembled at Springfield on the 26th of September to prevent the sitting there of the Supreme Court, from which they feared indictments. To protect the court and the national arsenal at Springfield, for which the Federal government was powerless to provide a guard, Major-General William Shepard (1737-1817) ordered out the militia, called for volunteers, and supplied them with arms from the arsenal, and the court sat for three days. The Federal government now attempted to enlist recruits, ostensibly to protect the western frontier from the Indians, but actually for the suppression of the insurrection; but the plan failed from lack of funds, and the insurgents continued to interrupt the procedure of the courts. In January 1787, however, Governor Bowdoin raised an army of 4400 men and placed it under the command of Major-General Benjamin Lincoln (1733-1810). While Lincoln was at Worcester Shays planned to capture the arsenal at Springfield, but on the 25th of January Shepard's men fired upon Shays's followers, killing four and putting the rest to flight. Lincoln pursued them to Petersham, Worcester county, where on the 4th of February he routed them and took 150 prisoners. Subsequently the insurgents gathered in small bands in Berkshire county; but here, a league having been formed to assist the government, 84 insurgents were captured at West Stockbridge, and the insurrection practically terminated in an action at Sheffield on the 27th of February, in which the insurgents lost 2 killed and 30 wounded and the militia 2 killed and 1 wounded. Two of the insurgent leaders, Daniel Shays and Eli Parsons, escaped to Vermont soon after the rout at Petersham. Fourteen other insurgents who were tried by the Supreme Court in the spring of 1787 were found guilty of treason and sentenced to death. They were, however, held rather as hostages for the good behaviour of worse offenders who had escaped, and were pardoned in September. In February 1788 Shays and Parsons petitioned for pardon, and this was granted by the legislature in the following June. The outcome of the uprising was an encouraging test of loyalty to the commonwealth; and the insurrection is regarded as having been very potent in preparing public opinion throughout the country for the adoption of a stronger national government. The Federal Constitution was ratified by Massachusetts by only a small majority on the 6th of February 1788, after its rejection had been at one time imminent; but Massachusetts became a strong Federalist state. Indeed, the general interest of her history in the quarter-century after the adoption of the Constitution lies mainly in her connexion with the fortunes of that great political party. Her leading politicians were out of sympathy with the conduct of national affairs (in the conduct of foreign relations, the distribution of political patronage, naval policy, the question of public debt) from 1804—when Jefferson's party showed its complete supremacy—onward; and particularly after the passage of the Embargo Act of 1807, which caused great losses to Massachusetts commerce, and, so far from being accepted by her leaders as a proper diplomatic weapon, seemed to them designed in the interests of the Democratic party. The Federalist preference for England over France was strong in Massachusetts, and her sentiment was against the war with England of 1812-15. New England's discontent culminated in the Hartford Convention (Dec. 1814), in which Massachusetts men predominated. The state, however, bore her full part in the war, and much of its naval success was due to her sailors.

During the interval till the outbreak of the Civil War in 1861, Massachusetts held a distinguished place in national life and politics. As a state she may justly be said to have been foremost in the struggle against slavery.²² She

opposed the policy that led to the Mexican War in 1846, although a regiment was raised in Massachusetts by the personal exertions of Caleb Cushing. The leaders of the ultra non-political abolitionists (who opposed the formation of the Liberty party) were mainly Massachusetts men, notably W. L. Garrison and Wendell Phillips. The Federalist domination had been succeeded by Whig rule in the state; but after the death of the great Whig, Daniel Webster, in 1852, all parties disintegrated, re-aligning themselves gradually in an aggressive anti-slavery party and the temporizing Democratic party. First, for many years the Free-Soilers gained strength; then in 1855 in an extraordinary party upheaval the Know-Nothings quite broke up Democratic, Free-Soil and Whig organizations; the Free-Soilers however captured the Know-Nothing organization and directed it to their own ends; and by their junction with the anti-slavery Whigs there was formed the Republican party. To this the original Free-Soilers contributed as leaders Charles Sumner and C. F. Adams; the Know-Nothings, Henry Wilson and N. P. Banks; and later, the War Democrats, B. F. Butler—all men of mark in the history of the state. Charles Sumner, the most eminent exponent of the new party, was the state's senator in Congress (1851-1874). The feelings which grew up, and the movements that were fostered till they rendered the Civil War inevitable, received something of the same impulse from Massachusetts which she had given a century before to the feelings and movements forerunning the War of American Independence. When the war broke out it was her troops who first received hostile fire in Baltimore, and turning their mechanical training to account opened the obstructed railroad to Washington. In the war thus begun she built, equipped and manned many vessels for the Federal navy, and furnished from 1861 to 1865 26,163 (or, including final credits, probably more than 30,000) men for the navy. During the war all but twelve small townships raised troops in excess of every call, the excess throughout the state amounting in all to more than 15,000 men; while the total recruits to the Federal army (including re-enlistments) numbered, according to the adjutant-general of the state, 159,165 men, of which less than 7000 were raised by draft.²³ The state, as such, and the townships spent \$42,605,517.19 in the war; and private contributions of citizens are reckoned in addition at about \$9,000,000, exclusive of the aid to families of soldiers, paid then and later by the state.

Since the close of the war Massachusetts has remained generally steadfast in adherence to the principles of the Republican party, and has continued to develop its resources. Navigation, which was formerly the distinctive feature of its business prosperity, has under the pressure of laws and circumstances given place to manufactures, and the development of carrying facilities on the land rather than on the sea.

In the Spanish-American War of 1898 Massachusetts furnished 11,780 soldiers and sailors, though her quota was but 7388; supplementing from her own treasury the pay accorded them by the national government.

No statement of the influence which Massachusetts has exerted upon the American people, through intellectual activity, and even through vagary, is complete without an enumeration of the names which, to Americans at least, are the signs of this influence and activity. In science the state can boast of John Winthrop, the most eminent of colonial scientists; Benjamin Thompson (Count Rumford); Nathaniel Bowditch, the translator of Laplace; Benjamin Peirce and Morse the electrician; not to include an adopted citizen in Louis Agassiz. In history, Winthrop and Bradford laid the foundations of her story in the very beginning; but the best example of the colonial period is Thomas Hutchinson, and in later days Bancroft, Sparks, Palfrey, Prescott, Motley and Parkman. In poetry, a pioneer of the modern spirit in American verse was Richard Henry Dana; and later came Bryant, Longfellow, Whittier, Lowell and Holmes. In philosophy and the science of living, Jonathan Edwards, Franklin, Channing, Emerson and Theodore Parker. In education, Horace Mann; in philanthropy, S. G. Howe. In oratory, James Otis, Fisher Ames, Josiah Quincy, junr., Webster, Choate, Everett, Sumner, Winthrop and Wendell Phillips; and, in addition, in statesmanship, Samuel Adams, John Adams and John Quincy Adams. In fiction, Hawthorne and Mrs Stowe. In law, Story, Parsons and Shaw. In scholarship, Ticknor, William M. Hunt, Horatio Greenough, W. W. Story and Thomas Ball. The "transcendental movement," which sprang out of German affiliations and produced as one of its results the well-known community of Brook Farm (1841-1847), under the leadership of Dr George Ripley, was a Massachusetts growth, and in passing away it left, instead of traces of an organization, a sentiment and an aspiration for higher thinking which gave Emerson his following. When Massachusetts was called upon to select for Statuary Hall in the capitol at Washington two figures from the long line of her worthies, she chose as her fittest representatives John Winthrop, the type of Puritanism and state-builder, and Samuel Adams (though here the choice was difficult between Samuel Adams and John Adams) as her greatest leader in the heroic period of the War of Independence.

Governors of Plymouth Colony

(Chosen annually by the people).

John Carver	1620-1621
William Bradford	1621-1633
Edward Winslow	1633-1634
Thomas Prence (or Prince)	1634-1635
William Bradford	1635-1636
Edward Winslow	1636-1637
William Bradford	1637-1638
Thomas Prence (or Prince)	1638-1639
William Bradford	1639-1644
Edward Winslow	1644-1645
William Bradford	1645-1657
Thomas Prence (or Prince)	1657-1673
Josiah Winslow	1673-1680
Thomas Hinckley	1680-1686
Sir Edmund Andros	1686-1689
Thomas Hinckley	1689-1692

Governors of Massachusetts

(Under the First Charter—chosen annually)

John Endecott ²⁴	1629-1630
John Winthrop	1630-1634
Thomas Dudley	1634-1635
John Haynes	1635-1636
Henry Vane	1636-1637

John Winthrop	1637-1640
Thomas Dudley	1640-1641
Richard Bellingham	1641-1642
John Winthrop	1642-1644
John Endecott	1644-1645
Thomas Dudley	1645-1646
John Winthrop	1646-1649
John Endecott	1649-1650
Thomas Dudley	1650-1651
John Endecott	1651-1654
Richard Bellingham	1654-1655
John Endecott	1655-1665
Richard Bellingham	1665-1672
John Leverett (acting, 1672-1673)	1672-1679
Simon Bradstreet	1679-1686

Sir Edmund Andros	1686-1689
Simon Bradstreet	1689-1692

Under Second Charter—appointed by the Crown²⁵

Sir William Phips	1692-1694
William Stoughton (acting)	1694-1699
Richard Coote, earl of Bellomont	1699-1700
William Stoughton (acting)	1700-1701
Joseph Dudley	1702-1715
William Tailer (acting)	1715-1716
Samuel Shute	1716-1722
William Dummer (acting)	1722-1728
William Burnet	1728-1729
William Dummer (acting)	1729-1730
William Tailer (acting)	1730
Jonathan Belcher	1730-1741
William Shirley	1741-1749
Spencer Phips (acting)	1749-1753
William Shirley	1753-1756
Spencer Phips (acting)	1756-1757
Thomas Pownall	1757-1760
Thomas Hutchinson (acting)	1760
Sir Francis Bernard, Bart	1760-1769
Thomas Hutchinson (acting)	1769-1771
Thomas Hutchinson	1771-1774
Thomas Gage ²⁶	1774-1775

Under the Constitution

John Hancock		1780-1785
James Bowdoin		1785-1787
John Hancock		1787-1793
Samuel Adams (acting)		1793-1794
Samuel Adams		1794-1797
Increase Sumner	Federalist	1797-1799
Moses Gill (lieut-governor; acting)	"	1799-1800
Caleb Strong	"	1800-1807
Jas Sullivan	Democratic-Republican	1807-1808
Levi Lincoln (acting)	"	1808-1809
Christopher Gore	Federalist	1809-1810
Elbridge Gerry	Democratic-Republican	1810-1812
Caleb Strong	Federalist	1812-1816
John Brooks	"	1816-1823
William Eustis	Democratic-Republican	1823-1825
Levi Lincoln	"	1825-1834
John Davis	Whig	1834-1835
Edward Everett	"	1836-1840
Marcus Morton	Democrat	1840-1841
John Davis	Whig	1841-1843
Marcus Morton	Democrat	1843-1844
George N Briggs	Whig	1844-1851
George S Boutwell	Free-Soil Democrat	1851-1853
John H Clifford	Whig	1853-1854
Emory Washburn	"	1854-1855
Henry J Gardner	Know-Nothing	1855-1858
Nathaniel P Banks	Republican	1858-1861
Marcus Morton	Democrat	1840-1841
John A. Andrew	Republican	1861-1866
Alexander H. Bullock	"	1866-1869
William Claflin	"	1869-1872
William B. Washburn	"	1872-1874
Thomas Talbot (acting)	"	1874-1875
William Gaston	Democrat	1875-1876
Alexander H. Rice	Republican	1876-1879
Thomas Talbot	"	1879-1880
John Davis Long	"	1880-1883
Benjamin F. Butler	Democrat	1883-1884
George D. Robinson	Republican	1884-1887
Oliver Ames	"	1887-1890
John Q. A. Brackett	"	1890-1891
William E. Russell	Democrat	1891-1894
Frederic T. Greenhalge	Republican	1894-1896
Roger Wolcott	"	1896-1897
Roger Wolcott	"	1897-1900
W. Murray Crane	"	1900-1903
John L. Bates	"	1903-1905

William L. Douglas	Democrat	1905-1906
Curtis L. Guild	Republican	1906-1909
Eben S. Draper	"	1909-1911
Eugene N. Foss	Democrat	1911-

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In many cases the most valuable material on various periods is indicated under the biographies (or autobiographies in some cases) of the public men named in the above article, to which add Timothy Pickering, George Cabot, Joseph Warren, Elbridge Gerry, Benjamin F. Butler, G. S. Boutwell and George F. Hoar. Many townships have published their local records, and many township and county histories contain valuable matter of general interest (e.g. as showing in detail township action before the War of Independence), though generally weighted heavily with genealogy and matters of merely local interest. In American works of fiction, particularly of New England authors, the reader will find a wealth of description of Massachusetts and New England life, past and present, as in the writings of William D. Howells, Sarah O. Jewett, Mary E. Wilkins-Freeman, Harriet B. Stowe and others.

- 1 At least seventy hills in the state, mainly in this quarter, have an elevation of 1500 ft. (twenty-four above 2000 ft.).
- 2 In some localities it is not easy to establish irrefutably and in detail the inter-arrangement of drainage and rock structure that proves it to be a subaerial peneplain instead of an uplifted submarine platform; but the general proof is very clear.
- 3 The yield of cereals and of such other crops in 1907 as are recorded in the *Yearbook* of the United States Department of Agriculture was as follows: Indian corn, 1,584,000 bushels; oats, 245,000 bushels; barley, 64,000 bushels; buckwheat, 42,000 bushels; potatoes, 3,600,000 bushels; hay, 760,000 tons; tobacco, 7,167,500 lb. In the same year, according to the same authority, there were in the state 196,000 milch cows, 92,000 other neat cattle, 45,000 sheep and 70,000 swine.
- 4 *The Green Schists and Associated Granites and Porphyries of Rhode Island*, Bulletin, U.S. Geological Survey, No. 311, 1907.
- 5 In 1905 Massachusetts produced 60.7% of the writing paper manufactured in the country. Besides writing paper, book paper and building paper are made in the state, but very little newspaper.
- 6 It must be noted, however, that the first successful construction of cards, drawing and roving, and of spindles, on the Arkwright principle was by S. Slater at Pawtucket, Rhode Island in 1790.
- 7 The tax valuation on ships engaged in foreign trade was lowered between 1884 and 1900 from \$2,801,405 to \$147,768.
- 8 The population of the state was 378,787 in 1790; 422,845 in 1800; 472,040 in 1810; 523,287 in 1820; 610,408 in 1830; 737,699 in 1840; 994,514 in 1850; 1,231,066 in 1860; 1,457,351 in 1870; 1,783,085 in 1880; 2,238,943 in 1890; and 2,805,346 in 1900. In 1905, according to the state census, the population was 3,003,680, or about 7.7% more than in 1900.
- 9 In 1910 the following townships each had populations of more than 15,000: Revere, Leominster, Westfield, Attleborough, Peabody, Hyde Park.
- 10 The birth-rates every fifth (census) year up to 1895 varied for natives from 14.48 to 19.49; for foreigners from 45.87 to 66.68. The marriage rates in quinquennial periods up to 1905 were 19.6, 18.6, 21.0, 19.8, 15.6, 18.6, 18.6, 17.4 and 17.4; the ratio of marriages to the marriageable population was for males (above 16 years) 61.5, for females (above 14) 46.0; the fecundity of marriages seemed to have increased, being about twice as high for foreigners as for natives. See *Annual Report* of the Board of Health (1896), by S. W. Abbott; and *Sixty-fourth Report of Births, Marriages and Deaths in Massachusetts* (1906).
- 11 The number of representatives from 1832 to 1908 varied from 240 to 635, and the length of session from 58 to 206 days (since 1867 none of under 100 days), with an almost continual increase in both respects.
- 12 However, every office-holder was, and every subject might be, required to take (though this was not a condition of the franchise) the oaths enjoined by parliament in the first year of the reign of William and Mary as a substitute for the oaths of Allegiance and Supremacy; and the same still applies to the signing of the Declaration.
- 13 From 1887-1900, out of 290 cases settled, only 107 were formal arbitrations, 124 agreements were effected by the mediation of the Board, 100 were effected otherwise while proceedings were pending, and in 59 cases the Board interposed when the parties preferred hostilities.
- 14 For a summary statement of state labour laws in the United States in 1903 see *Bulletin 54* of the United States Bureau of Labor, September 1904; and for a summary of labour laws in force at the end of 1907 see *22nd Annual Report* (for 1907) of the U.S. Commissioner of Labor (Washington, 1908).
- 15 The usual allotment of the cost of this work is as follows: 65% is paid by the railway company, 25% by the commonwealth and 10% by the municipality in which the crossing is located.
- 16 The cost was apportioned between the commonwealth and the local government in the proportion of 3 to 1.
- 17 Boston remained a township, governed by town-meetings, until 1822, when it had a population of some 47,000. The government of Brookline (pop. in 1905, 23,436) is an interesting example of the adaptation of the township system to urban conditions. The town is frequently referred to as a model residential suburb; its budgets are very large, its schools are excellent, and, among other things, it has established a township gymnasium. The town hall is not large enough for an assemblage of all the voters, but actually the attendance is usually limited to about 200, and since 1901 there has been in force a kind of referendum, under which any measure passed by a town-meeting attended by 700 or more voters may be referred, upon petition of 100 legal voters, to a regular vote at the polls. Much of the work of the town-meetings is done through special committees.
- 18 E. G. Brown, in *Monographs on Education in the United States* prepared for the Paris Exposition of 1900 and edited by N. M. Butler.
- 19 This is an especially honourable distinction, for William T. Harris has said that "The history of education since the time of Horace Mann is very largely an account of the successive modifications introduced into elementary schools through the direct or indirect influence of the normal school."
- 20 In 1869 the personalty valuation was 60% that of realty; but it steadily fell thereafter, amounting in 1893 to 32%. From 1874-1882 the assessment of realty increased nearly twelve times as much as personalty. In the intervening period the assessed valuation of realty in Boston increased more than 100%, while that of personalty slightly diminished (the corresponding figures for the entire United States from 1860 to 1890 being 172% and 12%), yet the most competent business and expert opinions regarded the true value of personalty as at least equal to and most likely twice as great as that of realty.
- 21 In this document, whose democracy is characteristic of differences between the Plymouth Colony and that of Massachusetts Bay, the signatories "solemnly and mutually ... covenant and combine ourselves together into a civil body politic, for our better ordering and preservation and furtherance of the ends aforesaid; and by virtue hereof to enact, constitute and frame—[laws]—unto which we promise all due submission and obedience." This was signed 11/21 of November 1620 by 41 persons.
- 22 Slavery had existed as a social fact from the earliest years, and legally after 1641; but it was never profitable, and was virtually abolished long before the War of American Independence; still it was never abolished explicitly by Massachusetts, though the slave trade was prohibited in 1788, and though a number of negroes were declared free after the adoption of the constitution of 1780 on the strength of the sweeping declaration of human rights in that instrument.
- 23 According to the final report of the U.S. Adjutant-General in 1885, the enlistments were 146,730 men, of whom 13,942 died in war. These figures are probably less accurate than those of the state.
- 24 Endecott, by commission dated the 30th of April 1629, was made "governor of London's plantation in the Massachusetts Bay." Matthew Cradock, first governor of the Company, from the 4th of March 1629 to the 20th of October 1629, was succeeded on the latter date by John Winthrop, who, on reaching Salem on the 12th of June 1630 with the charter, superseded Endecott.
- 25 During three periods, 1701-1702, in February 1715, and from April to August 1757 the affairs of the colony were administered by the Executive Council.



MASSACRE, a wholesale indiscriminate killing of persons, and also, in a transferred sense, of animals. The word is adopted from the French; but its origin is obscure. The meaning and the old form *macecle* seem to point to it being a corruption of the Lat. *macellum*, butcher's shop or shambles, hence meat market; this is probably from the root *mac-*, seen in μάχεσθαι, to fight, μάχαιρα, sword, and Lat. *mactare*, to sacrifice. Another derivation connects with the Old Low Ger. *matsken*, to cut in pieces; cf. mod. Ger. *metzeln*, to massacre.



MASSAGE. The word *massage* has of late years come into general use to signify the method of treating disease or other physical conditions by manipulating the muscles and joints. According to Littré the word is derived from the Arabic *mass*, and has the specific meaning of "pressing the muscular parts of the body with the hands, and exercising traction on the joints in order to give suppleness and stimulate vitality." It was probably adopted from the Arabian physicians by the French, who have played a leading part in reviving this method of treatment, which has been practised from time immemorial, and by the most primitive people, but has from time to time fallen into disuse among Western nations. In the *Odyssey* the women are described as rubbing and kneading the heroes on their return from battle. In India, under the name "shampoo" (*tshāmpuā*), the same process has formed part of the native system of medicine from the most remote times; professional massers were employed there by Alexander the Great in 327 B.C. In China the method is also of great antiquity, and practised by a professional class; the Swedish gymnastic system instituted by Pehr Henrik Ling is derived from the book of Cong-Fou, the bonze of Tao-Sse. Hippocrates describes and enjoins the use of manipulation, especially in cases of stiff joints, and he was followed by other Greek physicians. Oribasius gives an account of the application of friction with the bare hands, which exactly corresponds with the modern practice of massage. It is worthy of note that the treatment, after being held in high esteem by the leading Greek physicians, fell into disrepute with the profession, apparently on account of its association with vicious abuses. The same drawback has made itself felt in the present day, and can only be met by the most scrupulous care in the choice of agents and the manner of their employment. Among the Greeks, Romans, Egyptians, and later the Turks, massage came to be part of the ordinary procedure of the bath without any special therapeutic intention, and the usage has survived until to-day; but that mode of application was no doubt a refinement of civilized life. Medical rubbing is older and more elementary than bathing, as we see from its employment by savages. Probably it was evolved independently among different races from the natural instinct—shared by the lower animals—which teaches to rub, press or lick any part of the body in which uneasiness is felt, and is therefore the oldest of all therapeutic means.

According to Weiss, the therapeutic use of massage was revived in Europe by Hieronymus Fabricius ab Aquapendente (1537-1619), who applied it to stiff joints and similar conditions. Paracelsus in his *De medicina Aegyptiorum* (1591), gives a description of methodical massage as practised by the Egyptians quite on modern lines. Thereafter it appears to have been adopted here and there by individual practitioners, and various references are made to it, especially by French writers. The word "massage" occurs in an essay written by Pierre Adolphe Piorry (1794-1879) for a large encyclopaedia which appeared in 1818, but it was probably used before. The practice was gradually advocated by an increasing number of medical men. In Great Britain it was called "medical rubbing," and at Edinburgh Beveridge had a staff of eight trained male rubbers. A book published by Estradère in 1863 attracted much attention, but the man who contributed most to the modern popularity of massage was Metzger of Amsterdam, who began to use it tentatively in 1853, and then proceeded to study and apply it methodically. He published an essay on the subject in 1868. The modern refinements of the treatment are chiefly due to him. At the same time, its application by Dr Silas Weir Mitchell to hysterical and other nervous conditions, in conjunction with the "rest cure," has done much to make it known.

Massage, as now practised, includes several processes, some of which are passive and others active. The former are carried out by an operator, and consist of rubbing and kneading the skin and deeper tissues with the hands, and exercising the joints by bending the patient's limbs. The active movements consist of a special form of gymnastics, designed to exercise particular muscles or groups of muscles. In what is called "Swedish massage" the operator moves the limbs while the patient resists, thus bringing the opposing muscles into play. Some writers insist on confining the word "massage" to the rubbing processes, and use the general term "manipulation" to cover all the movements mentioned; but this is a verbal subtlety of no importance. It is evident that alike among the Greeks, the Orientals, and savage races, the two processes have always been applied as part of the same treatment, and the definition quoted above from Littré goes to show that the word "massage" is properly applied to both.

Massage has been subdivided into several processes, namely (1) stroking, (2) kneading, (3) rubbing, and (4) tapping, and some practitioners attach great importance to the application of a particular process in a particular way. As a rule, oils and other lubricants are not used. But, however it may be applied, the treatment acts essentially by increasing circulation and improving nutrition. It has been shown by Lauder Brunton that more blood actually flows through the tissues during and after rubbing. The number of red corpuscles, and, to some extent, their haemoglobin value, are also said to be increased (Mitchell). At the same time the movement of the lymph stream is accelerated. In order to assist the flow of blood and lymph, stroking is applied centripetally, that is to say, upwards along the limbs and the lower part of the body, downwards from the head. The effects of the increased physiological activity set up are numerous. Functional ability is restored to exhausted muscles by the removal of fatigue products and the induction of a fresh blood supply; congestion is relieved; collections of serous fluid are dispersed; secretion and excretion are stimulated; local and general nutrition are improved. These effects indicate the conditions in which massage may be usefully applied. Such are various forms of paralysis and muscular wasting, chronic and subacute affections of the joints, muscular rheumatism, sciatica and other neuralgias, local congestions, sprains,

contractions, insomnia and some forms of headache, in which downward stroking from the head relieves cerebral congestion. It has also been used in anaemia, hysteria and "neurasthenia," disorders of the female organs, melancholia and other forms of insanity, morphinism, obesity, constipation, inflammatory and other affections of the eye, including even cataract. General massage is sometimes applied, as a form of passive exercise, to indolent persons whose tissues are overloaded with the products of incomplete metabolism.

As with other methods of treatment, there has been a tendency on the part of some practitioners to exalt it into a cure-all, and of others to ignore it altogether. Of its therapeutic value, when judiciously used, there is no doubt, but it is for the physician or surgeon to say when and how it should be applied. Affections to which it is not applicable are fevers, pregnancy, collections of pus, acute inflammation of the joints, inflamed veins, fragile arteries, wounds of the skin and, generally speaking, those conditions in which it is not desirable to increase the circulation, or in which the patient cannot bear handling. In such conditions it may have a very injurious and even dangerous effect, and therefore should not be used in a haphazard manner without competent advice.

The revival of massage in Europe and America has called into existence a considerable number of professional operators, both male and female, who may be regarded as forming a branch of the nursing profession. Some of these are trained in hospitals or other institutions, some by private practitioners and some not at all. Similarly some are attached to organized societies or institutions while others pursue their calling independently. Several things are required for a good operator. One is physical strength. Deep massage is very laborious work, and cannot be carried on for an hour, or even half an hour, without unusual muscular power. Feeble persons cannot practise it effectively at all. The duration of a sitting may vary from five or ten minutes to an hour. For general massage at least half an hour is required. A masser should have strength enough to do the work without too obvious exhaustion, which gives the patient an unpleasant impression. A second requirement is tactile and muscular sensibility. A person not endowed with a fine sense of touch and resistance is liable to exert too great or too little pressure; the one hurts the patient, the other is ineffective. Then skill and knowledge, which can only be acquired by a course of instruction, are necessary. Finally, some guarantee of cleanliness and character is almost indispensable. Independent massers may possess all these qualifications in a higher degree than those connected with an institution, but they may also be totally devoid of them, whereas connexion with a recognized hospital or society is a guarantee for a certain standard of efficiency. In London there are several such institutions, which train and send out both male and female massers. The fee is 5s. an hour, or from two to four guineas a week. On the European continent, where trained massers are much employed by some practitioners, the fee is considerably lower; in the United States it is higher. For reasons mentioned above, it is most desirable that patients should be attended by operators of their own sex. If this is not insisted upon, a valuable therapeutic means will be in danger of falling into disrepute both with the medical profession and the general public.

(A. S.L.)



MASSAGETAE, an ancient warlike people described by Herodotus (i. 203-216; iv. 22, 172) as dwelling beyond the Araxes (*i.e.* the Oxus) in what is now Balkh and Bokhara. It was against their queen Tomyris that Cyrus undertook the expedition in which according to one story he met his end. In their usages some tribes were nomads like the people of Scythia (*q.v.*), others with their community of wives and habit of killing and eating their parents recalled the Issedones (*q.v.*); while the dwellers in the islands of the river were fish-eating savages. Probably the name denoted no ethnic unity, but included all the barbarous north-eastern neighbours of the Persians. Herodotus says they only used gold and copper (or bronze), not silver or iron. Their lavish use of gold has caused certain massive ornaments from southern Siberia, now in the Hermitage at St Petersburg, to be referred to the Massagetæ.

(E. H. M.)



MASSA MARITTIMA, a town and episcopal see of the province of Grosseto, Tuscany, Italy, 24 m. N.N.W. of Grosseto direct and 16 m. by rail N.E. of Follonica (which is 28 m. N.W. of Grosseto on the main coast railway), 1444 ft. above sea-level. Pop. (1901), (town) 9219; (commune) 17,519. It has a cathedral of the 13th century containing a Romanesque font (1267 with a cover of 1447) and a Gothic reliquary (1324) of the saint Cerbone, to whom the cathedral is dedicated. The battlemented municipal palace of the 13th century is picturesque. There are mineral springs, mines of iron, mercury, lignite and copper, with foundries, ironworks and olive-oil mills. At Follonica on the coast, but in this commune, are the furnaces in which are smelted the iron ore of Elba.



MASSAWA, or MASSOWAH, a fortified town on the African coast of the Red Sea, chief port of the Italian colony of Eritrea, in 15° 36' N. and 39° 28' E. Pop. about 10,000. The town stands at the north end of the bay of Massawa and is built partly on a coral island of the same name—where was the original settlement—and partly on the islets of Tautlub and Sheik Said, and the neighbouring mainland. Massawa Island is from 20 to 25 ft. above the sea, its length does not exceed ½ m. and its breadth is about ¼ m. The harbour is formed by the channel between the island and the mainland. It affords good anchorage in from 5 to 9 fathoms. The town possesses several good public buildings, chiefly built of coral, as are the houses of the principal European and Arab merchants. Landward the town is guarded by forts erected by the Italians since 1885. Water was formerly scarce; but in 1872 an ancient aqueduct from Mokullu (5 m. distant westward) was restored and continued by an embankment to the town. A railway connects Massawa with Asmara, the capital of the colony. Besides the Abyssinians, who speak a Tigré dialect

corrupted with Arabic, the inhabitants comprise Italian officials and traders, Greeks, Indians, Arabs from Yemen and Hadramut, Gallas and Somalis. Massawa is the natural port for northern Abyssinia but commerce is undeveloped owing to the lack of rapid means of communication. The trade done consists mainly in exporting hides, butter, Abyssinian coffee and civet, and importing European and Indian cotton goods and silks. It increased in value from about £65,000 per annum in 1865 (the last year of Turkish control) to from £240,000 to £280,000 between 1879 and 1881, when under the administration of Egypt. Under the Italians trade greatly developed. The returns for the five years 1901-1905 showed an average annual value of £1,800,000, about two-thirds being imports.

The island of Massawa has probably been inhabited from a very early date. It appears to have formed part of the Abyssinian dominions for many centuries. It was at Massawa (Matzua, as it is called by the Portuguese chroniclers) that Christopher da Gama and his comrades landed in July 1541 on their way to aid the Abyssinians against the Moslem invaders. Captured by the Turks in 1557, the island remained a Turkish possession over two hundred years. A military colony of Bosnians settled at Arkiko (a port on the bay 4 m. south of Massawa Island) was appointed not only to defend it in case of attack from the mainland, but to keep it supplied with water in return for \$1400 per month from the town's customs. For some time at the close of the 18th century Massawa was held by the sherif of Mecca, and it afterwards passed to Mehemet Ali of Egypt. The Turks were reinstated about 1850, but in 1865 they handed the island back to Egypt for an annual tribute of 2½ million piastres. In February 1885 Massawa was occupied by an Italian force, the Egyptian garrison stationed there being withdrawn in the November following (see [EGYPT](#); [ITALY](#); [ABYSSINIA](#)). The port was the capital of the Italian colony until 1900 when the seat of administration was removed to Asmara (see [ERITREA](#)).

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For a description of the town in 1769 see the *Travels* of James Bruce. At that time the governor, though appointed by the Turks, paid one half of the customs receipts to the negus of Abyssinia in return for the protection of that monarch.



MASSÉNA, ANDRÉ, or *Andrea*, duke of Rivoli, prince of Essling (1756-1817), the greatest of Napoleon's marshals, son of a small wine merchant, it is said of Jewish origin, was born at Nice on the 6th of May 1756. His parents were very poor, and he began life as a cabin boy, but he did not care much for the sea, and in 1775 he enlisted in the Royal-Italien regiment. He quickly rose to be under-officer-adjutant; but, finding his birth would prevent his ever getting a commission, he left the army in 1789, retired to his native city, and married. At the sound of war, however, and the word republic, his desire to see service increased, and he once more left Italy, and joined the 3rd battalion of the volunteers of the Var in 1791. In those days when men elected their officers, and many of the old commissioned officers had emigrated, promotion to a man with a knowledge of his drill was rapid, and by February 1792 Masséna was a lieutenant-colonel. His regiment was one of those in the army which occupied Nice, and in the advance to the Apennines which followed, his knowledge of the country, of the language, and of the people was so useful that in December 1793 he was already a general of division. In command of the advanced guard he won the battle of Saorgio in August 1794, capturing ninety guns, and after many successes he at last, on the 23rd of November 1795, with the right wing of the army of Italy, had the greatest share in the victory of Loano, won by Schérer over the Austrians and Sardinians. In Bonaparte's great campaign of 1796-97 Masséna was his most trusted general of division; in each battle he won fresh laurels, up to the crowning victory of Rivoli, from which he afterwards took his title. It was during this campaign that Bonaparte gave him the title of *enfant gâté de la victoire*, which he was to justify till he met the English in 1810. In 1798 he commanded the army of Rome for a short time, but was displaced by the intrigues of his subordinate Berthier. Masséna's next important service was in command of the army in Switzerland, which united the army in Germany under Moreau, and that in Italy under Joubert. There he proved himself a great captain, as he had already proved himself a great lieutenant; the archduke Charles and Suvarov had each been successful in Germany and in Italy, and now turned upon Masséna in Switzerland. That general held his ground well against the archduke, and then suddenly, leaving Soult to face the Austrians, he transported his army to Zürich, where, on the 26th of September 1799, he entirely defeated Korsakov, taking 200 guns and 5000 prisoners. This campaign and battle placed his reputation on a level with that of his compatriot Bonaparte, and he might have made the revolution of Brumaire, but he was sincerely attached to the republic, and had no ambition beyond a desire to live well and to have plenty of money to spend. Bonaparte, now First Consul, sent him to Genoa to command the débris of the army of Italy, and he nobly defended Genoa from February to June to the very last extremity, giving time for Bonaparte to strike his great blow at Marengo. He now went to Paris, where he sat in the Corps Législatif in 1803, and actually defended Moreau without drawing upon himself the ill-will of Napoleon, who well knew his honesty and lack of ambition.

In 1804 he was made one of the first marshals of France of the new régime, and in 1805 was decorated with the Grand Eagle of the Legion of Honour. In that year Napoleon needed an able general to keep in check the archduke Charles in Italy, while he advanced through Germany with the grand army. Masséna was chosen; he kept the archduke occupied till he received news of the surrender of Ulm, and then on the 30th of October defeated him in the battle of Caldiero. After the peace of Pressburg had been signed, Masséna was ordered to take possession of the kingdom of Naples, and to place Joseph Bonaparte on the throne. This task done, Napoleon summoned Masséna to Poland, where he as usual distinguished himself, and where he for the time gave up his republican principles. In 1808 he was made duke of Rivoli. In 1808 he was accidentally wounded by his old enemy Berthier when both were in attendance on the emperor at a shooting party, and he lost the sight of one eye. In the campaign in 1809 he covered himself with glory at Landshut and at Eckmühl, and finally at the battle of Aspern-Essling his magnificent leadership made what would without him have been an appalling disaster into a mere reverse of which the enemy could make no use. On the field of Wagram Masséna, though too ill to ride, directed from his carriage the movements of the right wing. For his great services he was created prince of Essling, and given the princely castle of Thouars. He was then ordered to Spain to "drive the English into the sea." (For the campaigns of 1810 and 1811, the advance to and the retreat from Torres Vedras see [PENINSULAR WAR](#).) Masséna himself, with some justice, ascribed his failure to the frequent disobedience of his subordinates Ney, Reynier and Junot, and public opinion attributed this disobedience to the presence with the army of Masséna's mistress, and to the resentment thereat felt by the wives of the three generals. Still, unsuccessful as he was, Masséna displayed the determination of the defence of Genoa and the fertility in expedients of the campaign of Zürich, and kept his army for five weary months close up to Wellington's impregnable position before retiring. His retreat through a devastated country was terrible, but his

force of character kept his men together, and Ney having shown the worst side of his character now showed the best in the frequent and brilliant rearguard actions, until a new act of insubordination at last made the old marshal dismiss Ney from his command. Soon Masséna was once again ready to try his fortune, and he nearly defeated Wellington at Fuentes d'Oñoro, though much hampered by Bessières. But his recall soon followed this and he returned home to find his prestige gone. The old marshal felt he had a right to complain of Ney and of Napoleon himself, and, it is said, opened communications with Fouché and the remnant of the republican party. Whether this be true or not, Napoleon gave his greatest marshal no more employment in the field, but made him merely a territorial commandant at Marseilles. This command he still held at the restoration, when Louis XVIII. confirmed him in it, and with true Bourbon stupidity gave him letters of naturalization, as if the great leader of the French armies had not ceased to be an Italian. When Napoleon returned from Elba, Masséna, probably by the advice of Fouché, kept Marseilles quiet to await events, the greatest service he could do the royalists, but afterwards imputed to him as a fault. After the second restoration Masséna was summoned to sit on the court-martial which tried Marshal Ney, but, though he had been on bad terms with that general, and attributed his own disgrace to him, the old soldier would not be his comrade's judge. This refusal was used by the royalists to attack the marshal, against whom they raked up every offence they could think of. This annoyance shortened his life, and on the 4th of April 1817 the old hero died. He was buried in Père-la-Chaise, with only the word "Masséna" upon his tombstone.

In private life indolent, greedy, rapacious, ill-educated and morose, in war Masséna was, like Napoleon, the incarnation of battle. Only his indolence and his consequent lack of far-ranging imagination prevented him being as great in strategy as in tactics. His genius needed the presence of the enemy to stimulate it, but once it sprang to life Masséna became an ideal leader, absolutely brave, resourceful, unrelenting and indefatigable. He was as great a master of the strategy of forces in immediate contact—of gathering up as it were the threads of the fugue into a "stretto." For the planning of a whole perfect campaign he had neither knowledge nor inclination, and he falls short therefore of the highest rank amongst great generals; but his place amongst the greatest of soldiers is beyond challenge.

See Thiébauld's *Éloge funèbre*, and Koch's *Mémoires de Masséna* (4 vols., 1849), a valuable work, carefully compiled. In more modern times E. Gachot has produced several important works dealing with Masséna's campaigns.

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MASSENBACH, CHRISTIAN KARL AUGUST LUDWIG VON (1758-1827), Prussian soldier, was born at Schmalkalden on the 16th of April 1758, and educated at Heilbronn and Stuttgart, devoting himself chiefly to mathematics. He became an officer of the Württemberg army in 1778, and left this for the service of Frederick the Great in 1782. The pay of his rank was small, and his appointment on the quartermaster-general's staff made it necessary to keep two horses, so that he had to write mathematical school-books in his spare time to eke out his resources. He was far however from neglecting the science and art of war, for thus early he had begun to make his name as a theorist as well as a mathematician. After serving as instructor in mathematics to the young prince Louis, he took part with credit in the expedition into Holland, and was given the order *Pour le mérite*. On returning to Prussia he became mathematical instructor at the school of military engineering, leaving this post in 1792 to take part as a general staff officer in the war against France. He was awarded a prebend at Minden for his services as a topographical engineer on the day of Valmy, and after serving through the campaigns of 1793 and 1794 he published a number of memoirs on the military history of these years. He was chiefly occupied however with framing schemes for the reorganization of the then neglected general staff of the Prussian army, and many of his proposals were accepted. Bronsart von Schellendorf in his *Duties of the General Staff* says of Massenbach's work in this connexion, "the organization which he proposed and in the main carried out survived even the catastrophes of 1806-1807, and exists even at the present moment in its original outline." This must be accounted as high praise when it is remembered how much of the responsibility for these very disasters must be laid to Massenbach's account. The permanent gain to the service due to his exertions was far more than formal, for it is to him that the general staff owes its tradition of thorough and patient individual effort. But the actual doctrine taught by Massenbach, who was now a colonel, may be summarized as the doctrine of positions carried to a ludicrous excess; the claims put forward for the general staff, that it was to prepare cut-and-dried plans of operations in peace which were to be imposed on the troop leaders in war, were derided by the responsible generals; and the memoirs on proposed plans of campaign to suit certain political combinations were worked out in quite unnecessary detail. It was noteworthy that none of the proposed plans of campaign considered France as an enemy.

In 1805 came threats of the war with Napoleon which Massenbach had strongly opposed. He was made quartermaster-general (chief of staff) to Prince Hohenlohe, over whom he soon obtained a fatal ascendancy. War was averted for a moment by the result of the battle of Austerlitz, but it broke out in earnest in October 1806. Massenbach's influence clouded all the Prussian operations. The battles of Jena and Auerstädt were lost, and the capitulation of Prince Hohenlohe's army was negotiated. Even suggestions of disloyalty were not wanting; an attempt to try him by court-martial was only frustrated by Prince Hohenlohe's action in taking upon himself, as commander-in-chief, the whole responsibility for Massenbach's actions. He then retired to his estate in the Posen province, and occupied himself in writing pamphlets, memoirs, &c. When his estates passed into the grand duchy of Warsaw, he chose to remain a Prussian subject, and on the outbreak of the war of liberation he asked in vain for a post on the Prussian staff. After the fall of Napoleon he took part in Württemberg politics, was expelled from Stuttgart and Heidelberg, and soon afterwards arrested at Frankfurt, delivered over to the Prussian authorities and condemned to fourteen years' fortress imprisonment for his alleged publication of state secrets in his memoirs. He was kept in prison till 1826, when Frederick William III., having recovered from an accident, pardoned those whom he considered to have wronged him most deeply. He died on the 21st of November 1827, at his estate of Bialokosc, Posen.

The obituary in *Neuer Nekrolog der Deutschen*, pt. ii. (Ilmenau, 1827) is founded on a memoir (*Der Oberst C. v. Massenbach*) which was published at the beginning of his imprisonment.



MASSENET, JULES ÉMILE FRÉDÉRIC (1842-), French composer, was born at Montaud, on the 12th of May 1842. He studied at the Paris Conservatoire, where he obtained the Grand Prix de Rome in 1863 with the cantata *David Rizzio*. Massenet became one of the most prolific composers of his time. His operas include the following: *La Grande tante*, one act, opéra comique (1867); *Don César de Bazan*, three acts, opéra comique (1872); *Le Roi de Lahore*, five acts, opera (1877); *Hérodiade*, five acts (Brussels, 1881); *Manon*, five acts, opéra comique (1884); *Le Cid*, four acts, opera (1885); *Esclarmonde*, four acts, opéra comique (1889); *Le Mage*, five acts, opera (1891); *Werther*, four acts (Vienna, 1892); *Thaïs*, three acts, opera (1894); *Le Portrait de Manon*, one act, opéra comique (1894); *La Navarraise*, two acts (Covent Garden, 1894); *Sapho*, opéra comique (1897); *Cendrillon*, opéra comique (1900); *Grisélidis*, opéra comique (1901); *Le Jongleur de Notre Dame* (Mentone, 1902). Of these the most popular is *Manon*. Massenet's other works include *Marie Madeleine*, sacred drama (1873); *Eve*, a mystery (1875); *La Vierge*, sacred legend (1880); six orchestral suites entitled *Scènes hongroises*, *Scènes pittoresques*, *Scènes dramatiques*, *Scènes napolitaines*, *Scènes de féerie*, *Scènes alsaciennes*; music to the tragedy *Les Erynnies*, to *Théodora*, *Le Crocodile*, *L'Hetman*; a requiem, *Narcisse*; an idyll, *Biblis*; a *Scène antique*; several sets of songs, entitled *Poème d'avril*, *Poème d'amour*, *Poème d'hiver*, *Poème d'octobre*, *Poème pastoral*, *Poème du souvenir*; also a large number of detached songs. He was professor of composition at the Conservatoire from 1878 to 1896, among his pupils being Hillemecher, Marty, Bruneau, Vidal, Pierné, Leroux and Charpentier. Massenet undoubtedly possesses a style of his own. He is at his best in music descriptive of the tender passion, and many of the love scenes in his operas are very beautiful.



MASSEREENE, JOHN CLOTWORTHY, 1ST VISCOUNT (d. 1665), Anglo-Irish politician, was a son of Sir Hugh Clotworthy, sheriff of county Antrim. He was elected to the Irish parliament as member for county Antrim in 1634, and was a member both of the Short and of the Long Parliament in England. Clotworthy was a vehement opponent of the earl of Stafford, in whose impeachment he took an active share. He also took part in the prosecution of Archbishop Laud. Having unsuccessfully negotiated with Ormond for the surrender of Dublin to the Parliamentary forces in 1646, he was accused in the following year of having betrayed his cause, and also of embezzlement; in consequence of these charges he fled to the Continent, but returned to parliament in June 1648. On the 12th of December in that year he was arrested, and remained in prison for nearly three years. Having taken an active part in forwarding the Restoration, he was employed in Ireland in arranging the affairs of the soldiers and other adventurers who had settled in Ireland. Clotworthy in no way abated his old animosity against "papists" and high Anglicans, and he championed the cause of the Irish Presbyterians; but being personally agreeable to Charles II., his ecclesiastical views were overlooked, and on the 21st of November 1660 he was created Baron Loughneagh and Viscount Massereene in the Irish peerage, with remainder in default of male heirs to his son-in-law, Sir John Skeffington. Massereene died without male issue in September 1665, and the title devolved on Skeffington, whose great-grandson, the fifth viscount, was created earl of Massereene in 1756. The earldom became extinct on the death of the fourth earl without male issue in 1816, the viscounty and barony of Loughneagh descending to his daughter Harriet, whose husband, Thomas Foster, took the name of Skeffington, and inherited from his mother in 1824 the titles of Viscount Ferrard and Baron Oriel of Collon in the Irish peerage, and from his father in 1828 that of Baron Oriel of Ferrard in the peerage of the United Kingdom.



MASSEY, SIR EDWARD (c. 1619-c. 1674), English soldier in the Great Rebellion, was the son of John Massey of Coddington, Cheshire. Little is known of his early life, but it is said that he served in the Dutch army against the Spaniards. In 1639 he appears as a captain of pioneers in the army raised by Charles I. to fight against the Scots. At the outbreak of the Great Rebellion he was with the king at York, but he soon joined the Parliamentary army. As lieutenant-colonel under the earl of Stamford he became deputy governor of Gloucester, where he remained till towards the end of the first Civil War, becoming governor early in 1643. He conducted minor operations against numerous small bodies of Royalists, and conducted the defence of Gloucester against the king's main army in August 1643, with great steadiness and ability, receiving the thanks of parliament and a grant of £1000 for his services. In 1644 Massey continued to keep the field and to disperse the local Royalists, and on several occasions he measured swords with Prince Rupert. In May 1644 he was made general of the forces of the Western Association. In 1645 he took the offensive against Lord Goring and the western Royalists, advanced to the relief of Taunton, and in the autumn co-operated effectively with Sir Thomas Fairfax and the New Model army in the Langport campaign. After taking part in the desultory operations which closed the first war, he took his seat in the House of Commons as member for Gloucester. He then began to take an active part in politics on the Presbyterian side, and was one of the generals who was impeached by the army on the ground that they were attempting to revive the Civil War in the Presbyterian interests. Massey fled from England in June 1647, and though he resumed his seat in the house in 1648 he was again excluded by Pride's Purge, and after a short imprisonment escaped to Holland. Thence, taking the side of the king openly and definitely like many other Presbyterians, he accompanied Charles II. to Scotland. He fought against Cromwell at the bridge of Stirling and Inverkeithing, and commanded the advanced guard of the Royalist army in the invasion of England in 1651. It was hoped that Massey's influence would win over the towns of the Severn valley to the cause of the king, and the march of the army on Worcester was partly inspired by this expectation. However, he effected little, and after riding with the king for some distance from the field of Worcester, fell into the hands of his former comrades and was lodged in the Tower. He again managed to escape to Holland. While negotiating with the English Presbyterians for the restoration of Charles, he visited

England twice, in 1654 and 1656. In 1660 he was active in preparing for Charles's return, and was rewarded by a knighthood and a grant of £3000. The rest of his life was spent in political, and occasionally in military and administrative business, and he is said to have died in Ireland in 1674 or 1675.



MASSEY, GERALD (1828-1907), English poet, was born near Tring, Hertfordshire, on the 29th of May 1828. His parents were in humble circumstances, and Massey was little more than a child when he was set to hard work in a silk factory, which he afterwards deserted for the equally laborious occupation of straw-plaiting. These early years were rendered gloomy by much distress and deprivation, against which the young man strove with increasing spirit and virility, educating himself in his spare time, and gradually cultivating his innate taste for literary work. He was attracted by the movement known as Christian Socialism, into which he threw himself with whole-hearted vigour, and so became associated with Maurice and Kingsley. His first public appearance as a writer was in connexion with a journal called the *Spirit of Freedom*, of which he became editor, and he was only twenty-two when he published his first volume of poems, *Voices of Freedom and Lyrics of Love*. These he followed in rapid succession by *The Ballad of Babe Christabel* (1854), *War Waits* (1855), *Havelock's March* (1860), and *A Tale of Eternity* (1869). Many years afterwards in 1889, he collected the best of the contents of these volumes, with additions, into a two-volume edition of his poems called *My Lyrical Life*. He also published works dealing with spiritualism, the study of Shakespeare's sonnets (1872 and 1890), and theological speculation. It is generally understood that he was the original of George Eliot's *Felix Holt*. Massey's poetry has a certain rough and vigorous element of sincerity and strength which easily accounts for its popularity at the time of its production. He treated the theme of Sir Richard Grenville before Tennyson thought of using it, with much force and vitality. Indeed, Tennyson's own praise of Massey's work is still its best eulogy, for the Laureate found in him "a poet of fine lyrical impulse, and of a rich half-Oriental imagination." The inspiration of his poetry is essentially British; he was a patriot to the core. It is, however, as an Egyptologist that Gerald Massey is best known in the world of letters. He first published *The Book of the Beginnings*, followed by *The Natural Genesis*; but by far his most important work is *Ancient Egypt: The Light of the World*, published shortly before his death. He died on the 29th of October 1907.

See an article by J. Churton Collins in the *Contemporary Review* (May 1904).



MASSICUS, MONS, a mountain ridge of ancient Italy, in the territory of the Aurunci, and on the border of Campania and Latium adjectum—attributed by most authors to the latter. It projects south-west from the volcanic system of Rocca Monfina (see [SUESSA AURUNCA](#)) as far as the sea, and separates the lower course of the Liris from the plain of Campania. It consists of limestone, with a superstratum of pliocenic and volcanic masses, and was once an island; its highest point is 2661 ft. above sea-level.

It was very famous for its wine in ancient times. There was just room along the coast for the road to pass through; the pass was guarded by the Auruncan town of Vescia (probably on the mountain side), which ceased to exist in 314 B.C. after the defeat of the Ausones, but left its name to the spot. Its successor, Sinuessa, on the coast, a station on the Via Appia, was constructed in 312 B.C., and a colony was founded there in 295 B.C. It is not infrequently mentioned by classical writers as a place in which travellers halted. Here Virgil joined Horace on the famous journey to Brundisium. Domitian considerably increased its importance by the construction of the Via Domitiana, which left the Via Appia here and ran to Cumae and Puteoli, and it was he, no doubt, who raised it to the position of *colonia Flavia*. The town was destroyed by the Saracens, but some ruins of it are still visible two miles north-west of the modern village of Mondragone. The mineral springs which still rise here were frequented in antiquity.



MASSIF, a French term, adopted in geology and physical geography for a mountainous mass or group of connected heights, whether isolated or forming part of a larger mountain system. A "massif" is more or less clearly marked off by valleys.



MASSILLON, JEAN BAPTISTE (1663-1742), French bishop and preacher, was born at Hyères on the 24th of June 1663, his father being a royal notary of that town. At the age of eighteen he joined the Congregation of the Oratory and taught for a time in the colleges of his order at Pézenas, and Montbrison and at the Seminary of Vienne. On the death of Henri de Villars, archbishop of Vienne, in 1693, he was commissioned to deliver a funeral oration, and this was the beginning of his fame. In obedience to Cardinal de Noailles, archbishop of Paris, he left the Cistercian abbey of Sept-Fonds, to which he had retired, and settled in Paris, where he was placed at the head of the famous seminary of Saint Magloire. He soon gained a wide reputation as a preacher and was selected to be the

Advent preacher at the court of Versailles in 1699. He was made bishop of Clermont in 1717, and two years later was elected a member of the French Academy. The last years of his life were spent in the faithful discharge of his episcopal duties; his death took place at Clermont on the 18th of September 1742. Massillon enjoyed in the 18th century a reputation equal to that of Bossuet and of Bourdaloue, and has been much praised by Voltaire, D'Alembert and kindred spirits among the *Encyclopaedists*. His popularity was probably due to the fact that in his sermons he lays little stress on dogmatic questions, but treats generally of moral subjects, in which the secrets of the human heart and the processes of man's reason are described with poetical feeling. He has usually been contrasted with his predecessor Bourdaloue, the latter having the credit of vigorous denunciation, Massillon that of gentle persuasiveness. Besides the *Petit Carême*, a sermon which he delivered before the young king Louis XV. in 1718, his sermons on the Prodigal Son, on the small number of the elect, on death, for Christmas Day, and for the Fourth Sunday in Advent, may be perhaps cited as his masterpieces. His funeral oration on Louis XIV. is only noted now for the opening sentence: "Dieu seul est grand." But in truth Massillon is singularly free from inequality. His great literary power, his reputation for benevolence, and his known toleration and dislike of doctrinal disputes caused him to be much more favourably regarded than most churchmen by the *philosophes* of the 18th century.

The first edition of Massillon's complete works was published by his nephew, also an Oratorian (Paris, 1745-1748), and upon this, in the absence of MSS., succeeding reprints were based. The best modern edition is that of the Abbé Blampignon (Paris, 1865-1868, 4 vols.; new ed. 1886).

See Abbé Blampignon, *Massillon, d'après des documents inédits* (Paris, 1879); and *L'Épiscopat de Massillon d'après des documents inédits, suivi de sa correspondance* (Paris, 1884); F. Brunetière "L'Éloquence de Massillon" in *Études critiques* (Paris, 1882); Père Ingold, *L'Oratoire et le jansénisme au temps de Massillon* (Paris, 1880); and Louis Petit de Julleville's *Histoire de la langue et de la littérature française*, v. 372-385 (Paris, 1898).



MASSILLON, a city of Stark county, Ohio, U.S.A., on the Tuscarawas river and the Ohio canal, 8 m. W. of Canton, and about 50 m. S. by E. of Cleveland. Pop. (1900), 11,944 (1693 foreign-born); (1910), 13,879. It is served by the Pennsylvania (Pittsburg, Ft Wayne & Chicago Division), the Baltimore & Ohio and the Wheeling & Lake Erie railways. Massillon is built among hills in a part of the state noted for its large production of coal and wheat and abounding in white sandstone, iron ore and potter's clay. The city has various manufactures, including iron, engines, furnaces, reapers, threshers and bottles. The total value of the factory products in 1905 was \$3,707,013, an increase of 34.8% over that of 1900. The first settlement was made in 1825; in 1826 the town was laid out and named in honour of Jean Baptiste Massillon; it was incorporated a village in 1853, and became a city in 1868.



MASSIMO, or **MASSIMI**, a Roman princely family of great antiquity, said to be descended from the ancient Maximus of republican Rome. The name is first mentioned in 1012 in the person of Leo de Maximis, and the family played a considerable part in the history of the city in the middle ages. The brothers Pietro and Francesco Massimi acquired fame by protecting and encouraging the German printer Ulrich Hahn, who came to Rome in 1467. In the 16th century the Massimi were the richest of the Roman nobles. A marquisate was conferred on them in 1544, and the lordship of Arsoli in 1574. To-day there are two branches of the Massimi, viz. the Principi Massimo, descended from Camillo Massimiliano (1770-1840), and the dukes of Rignano, descended from Francesco Massimo (1773-1844). One of the sons of the present Prince Camillo Carlo Alberto, Don Fabrizio, married Princess Beatrice, daughter of Don Carlos of Bourbon (duke of Madrid), the pretender to the Spanish throne. The Palazzo Massimo in Rome was built by Baldassare Peruzzi by order of Pietro Massimo, on the ruins of an earlier palace destroyed in the sack of Rome in 1527.

See F. Gregorovius, *Geschichte der Stadt Rom* (Stuttgart, 1880); A. von Reumont, *Geschichte der Stadt Rom* (Berlin, 1868); *Almanach de Gotha*; J. H. Douglas, *The Principal Noble Families of Rome* (Rome, 1905).



MASSINGER, PHILIP (1583-1640), English dramatist, son of Arthur Massinger or Messenger, was baptized at St Thomas's, Salisbury, on the 24th of November 1583. He apparently belonged to an old Salisbury family, for the name occurs in the city records as early as 1415. He is described in his matriculation entry at St Alban Hall, Oxford (1602), as the son of a gentleman. His father, who had also been educated at St Alban Hall, was a member of parliament, and was attached to the household of Henry Herbert, 2nd earl of Pembroke, who recommended him in 1587 for the office of examiner in the court of the marches. The 3rd earl of Pembroke, the William Herbert whose name has been connected with Shakespeare's sonnets, succeeded to the title in 1601. It has been suggested that he supported the poet at Oxford, but the significant omission of any reference to him in any of Massinger's prefaces points to the contrary. Massinger left Oxford without a degree in 1606. His father had died in 1603, and he was perhaps dependent on his own exertions. The lack of a degree and the want of patronage from Lord Pembroke may both be explained on the supposition that he had become a Roman Catholic. On leaving the university he went to London to make his living as a dramatist, but his name cannot be definitely affixed to any play until fifteen years later, when *The Virgin Martyr* (ent. at Stationers' Hall, Dec. 7, 1621) appeared as the work of Massinger and Dekker. During these years he worked in collaboration with other dramatists. A joint letter, from

Nathaniel Field, Robert Daborne and Philip Massinger, to Philip Henslowe, begs for an immediate loan of five pounds to release them from their "unfortunate extremitie," the money to be taken from the balance due for the "play of Mr Fletcher's and ours." A second document shows that Massinger and Daborne owed Henslowe £3 on the 4th of July 1615. The earlier note probably dates from 1613, and from this time Massinger apparently worked regularly with John Fletcher, although in editions of Beaumont and Fletcher's works his co-operation is usually unrecognized. Sir Aston Cokayne, Massinger's constant friend and patron, refers in explicit terms to this collaboration in a sonnet addressed to Humphrey Moseley on the publication of his folio edition of Beaumont and Fletcher (*Small Poems of Divers Sorts*, 1658), and in an epitaph on the two poets he says:—

"Plays they did write together, were great friends,
And now one grave includes them in their ends."

After Philip Henslowe's death in 1616 Massinger and Fletcher began to write for the King's Men. Between 1623 and 1626 Massinger produced unaided for the Lady Elizabeth's Men then playing at the Cockpit three pieces, *The Parliament of Love*, *The Bondman* and *The Renegado*. With the exception of these plays and *The Great Duke of Florence*, produced in 1627 by the Queen's servants, Massinger continued to write regularly for the King's Men until his death. The tone of the dedications of his later plays affords evidence of his continued poverty. Thus in the preface to *The Maid of Honour* (1632) he wrote, addressing Sir Francis Foljambe and Sir Thomas Bland: "I had not to this time subsisted, but that I was supported by your frequent courtesies and favours." The prologue to *The Guardian* (licensed 1633) refers to two unsuccessful plays and two years of silence, when the author feared he had lost the popular favour. S. R. Gardiner, in an essay on "The Political Element in Massinger" (*Contemp. Review*, Aug. 1876), maintained that Massinger's dramas are before all else political, that the events of his day were as openly criticized in his plays as current politics are in the cartoons of *Punch*. It is probable that this break in his production was owing to his free handling of public matters. In 1631 Sir Henry Herbert, the master of the revels, refused to license an unnamed play by Massinger because of "dangerous matter as the deposing of Sebastian, King of Portugal," calculated presumably to endanger good relations between England and Spain. There is little doubt that this was the same piece as *Believe as You List*, in which time and place are changed, Antiochus being substituted for Sebastian, and Rome for Spain. In the prologue Massinger ironically apologizes for his ignorance of history, and professes that his accuracy is at fault if his picture comes near "a late and sad example." The obvious "late and sad example" of a wandering prince could be no other than Charles I.'s brother-in-law, the elector palatine. An allusion to the same subject may be traced in *The Maid of Honour*. In another play by Massinger, not extant, Charles I. is reported to have himself struck out a passage put into the mouth of Don Pedro, king of Spain, as "too insolent." The poet seems to have adhered closely to the politics of his patron, Philip Herbert, earl of Montgomery, and afterwards 4th earl of Pembroke, who had leanings to democracy and was a personal enemy of the duke of Buckingham. In *The Bondman*, dealing with the history of Timoleon, Buckingham is satirized as Gisco. The servility towards the Crown displayed in Beaumont and Fletcher's plays reflected the temper of the court of James I. The attitude of Massinger's heroes and heroines towards kings is very different. Camiola's remarks on the limitations of the royal prerogative (*Maid of Honour*, act iv. sc. v.) could hardly be acceptable at court.

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Massinger died suddenly at his house near the Globe theatre, and was buried in the churchyard of St Saviour's, Southwark, on the 18th of March 1640. In the entry in the parish register he is described as a "stranger," which, however, implies nothing more than that he belonged to another parish.

The supposition that Massinger was a Roman Catholic rests upon three of his plays, *The Virgin Martyr* (licensed 1620), *The Renegado* (licensed 1624) and *The Maid of Honour* (c. 1621). The religious sentiment is certainly such as would obviously best appeal to an audience sympathetic to Roman Catholic doctrine. *The Virgin Martyr*, in which Dekker probably had a large share, is really a miracle play, dealing with the martyrdom of Dorothea in the time of Diocletian, and the supernatural element is freely used. Little stress can be laid on this performance as elucidating Massinger's views. It is not entirely his work, and the story is early Christian, not Roman Catholic. In *The Renegado*, however, the action is dominated by the beneficent influence of a Jesuit priest, Francisco, and the doctrine of baptismal regeneration is enforced. In *The Maid of Honour* a complicated situation is solved by the decision of the heroine, Camiola, to take the veil. For this she is held up "to all posterity a fair example for noble maids to imitate." Among all Massinger's heroines Camiola is distinguished by genuine purity and heroism.

His plays have generally an obvious moral intention. He sets himself to work out a series of ethical problems through a succession of ingenious and effective plots. In the art of construction he has, indeed, few rivals. But the virtue of his heroes and heroines is rather morbid than natural, and often singularly divorced from common-sense. His *dramatis personae* are in general types rather than living persons, and their actions do not appear to spring inevitably from their characters, but rather from the exigencies of the plot. The heroes are too good, and the villains too wicked to be quite convincing. Moreover their respective goodness and villainy are too often represented as extraneous to themselves. This defect of characterization shows that English drama had already begun to decline.

It seems doubtful whether Massinger was ever a popular playwright, for the best qualities of his plays would appeal rather to politicians and moralists than to the ordinary playgoer. He contributed, however, at least one great and popular character to the English stage. Sir Giles Overreach, in *A New Way to Pay Old Debts*, is a sort of commercial Richard III., a compound of the lion and the fox, and the part provides many opportunities for a great actor. He made another considerable contribution to the comedy of manners in *The City Madam*. In Massinger's own judgment *The Roman Actor* was "the most perfect birth of his Minerva." It is a study of the tyrant Domitian, and of the results of despotic rule on the despot himself and his court. Other favourable examples of his grave and restrained art are *The Duke of Milan*, *The Bondman* and *The Great Duke of Florence*.

Massinger was a student and follower of Shakespeare. The form of his verse, especially in the number of run-on lines, approximates in some respects to Shakespeare's later manner. He is rhetorical and picturesque, but rarely rises to extraordinary felicity. His verse is never mean, but it sometimes comes perilously near to prose, and in dealing with passionate situations it lacks fire and directness.

The plays attributed to Massinger alone are: *The Duke of Milan, a Tragedy* (c. 1618, pr. 1623 and 1638); *The Unnatural Combat, a Tragedy* (c. 1619, pr. 1639); *The Bondman, an Antient Storie* (licensed 1623, pr. 1624); *The Renegado, a Tragaecomédie* (lic. 1624, pr. 1630); *The Parliament of Love* (lic. 1624; ascribed, no doubt erroneously, in the Stationers' Register, 1660, to W. Rowley; first printed by Gifford from an imperfect MS. in 1805); *A New Way to Pay Old Debts, a Comoedie* (c. 1625, pr. 1632); *The Roman Actor. A Tragaedie* (lic. 1626, pr. 1629); *The Maid of Honour* (dating perhaps from 1621, pr. 1632); *The Picture, a Tragaecomédie* (lic. 1629, pr. 1630); *The Great Duke of Florence, a Comicall Historie* (lic. 1627, pr. 1635); *The Emperor of the East, a Tragaecomodie* (lic. and pr. 1631), founded on the story of Theodosius the Younger; *Believe as You List* (rejected by the censor in January, but licensed

in May, 1631; pr. 1848-1849 for the Percy Society); *The City Madam, a Comedie* (lic. 1632, pr. 1658), which Mr Fleay (*Biog. Chron. of the Eng. Drama*, i. 226), however, considers to be a *rifacimento* of an older play, probably by Jonson; *The Guardian* (lic. 1633, pr. 1655); and *The Bashful Lover* (lic. 1636, pr. 1655). *A Very Woman, or The Prince of Tarent*, licensed in 1634 as the work of Massinger alone, is generally referred to his collaboration with Fletcher. The “exquisite temperance and justice” of this piece are, according to Swinburne, foreign to Fletcher’s genius, and afford a striking example of Massinger’s artistic skill and moderation.

Twelve plays of Massinger are said to be lost, but the titles of some of these may be duplicates of those of existing plays. Five of these lost plays were MSS. used by John Warburton’s cook for pie-covers. The numerous plays in which Massinger’s co-operation with John Fletcher is generally assumed are dealt with under [BEAUMONT AND FLETCHER](#). But it may be here noted that Mr R. Boyle has constructed an ingenious case for the joint authorship by Fletcher and Massinger of the two “Shakespearian” plays, *Henry VIII.* and *Two Noble Kinsmen* (see the New Shakspeare Society’s *Transactions*, 1884 and 1882). Mr Boyle sees the touch of Massinger in the first two acts of the *Second Maiden’s Tragedy* (Lansdowne MS., lic. 1611), a play with which the names of Fletcher and Tourneur are also associated by different critics. *The Fatall Dowry, a Tragedy* (c. 1619, pr. 1632), which was adapted without acknowledgment by Nicholas Rowe in his *Fair Penitent*, was written in conjunction with Nathaniel Field; and *The Virgin Martir, a Tragedie* (lic. 1620, pr. 1621), with Thomas Dekker.

Massinger’s independent works were collected by Coxeter (4 vols., 1759, revised edition with introduction by Thomas Davies, 1779), by J. Monck Mason (4 vols., 1779), by William Gifford (4 vols., 1805, 1813), by Hartley Coleridge (1840), by Lieut.-Colonel Cunningham (1867), and selections by Mr Arthur Symons in the *Mermaid Series* (1887-1889). Gifford’s remains the standard edition, and formed the basis of Cunningham’s text. It contains “An Essay on the Dramatic Writings of Massinger” by Dr John Ferriar.

Massinger has been the object of a good deal of criticism. A metrical examination of the plays in which Massinger was concerned is given in *Englische Studien* (Halle, v. 74, vii. 66, viii. 39, ix. 209 and x. 383), by Mr R. Boyle, who also contributed the life of the poet in the *Dictionary of National Biography*. The sources of his plays are dealt with by E. Koeppel in *Quellen Studien zu den Dramen Chapman’s, Massinger’s und Ford’s* (Strassburg, 1897). For detailed criticism, beside the introductions to the editions quoted, see A. W. Ward, *Hist. of Eng. Dram. Lit.* (1899), iii. 1-47, and F. G. Fleay, *Biog. Chron. of the Eng. Drama* (1891), under *Fletcher*; a general estimate of Massinger, dealing especially with his moral standpoint, is given in Sir Leslie Stephen’s *Hours in a Library* (3rd series, 1879); Swinburne, in the *Fortnightly Review* (July 1889), while acknowledging the justice of Sir L. Stephen’s main strictures, found much to say in praise of the poet.



MASSINISSA (c. 238-149 B.C.), king of Massylian or eastern Numidia. He was educated, like many of the Numidian chiefs, at Carthage, learnt Latin and Greek, and was an accomplished as well as a naturally clever man. Although his kingdom was nominally independent of Carthage, it really stood to it in a relation of vassalage; it was directly under Carthaginian influences, and was imbued to a very considerable extent with Carthaginian civilization. It was to this that Massinissa owed his fame and success; he was a barbarian at heart, but he had a varnish of culture, and to this he added the craft and cunning in which Carthaginian statesmen were supposed to excel. While yet a young man (212) he forced his neighbour Syphax, prince of western Numidia, who had recently entered into an alliance with Rome, to fly to the Moors in the extreme west of Africa. Soon afterwards he appeared in Spain, fighting for Carthage with a large force of Numidian cavalry against the Romans under the two Scipios. The defeat of the Carthaginian army in 206 led him to cast in his lot with Rome. Scipio Africanus is said to have cultivated his friendship. Massinissa now quitted Spain for a while for Africa, and was again engaged in a war with Syphax in which he was decidedly worsted. Scipio’s arrival in Africa in 204 gave him another chance, and no sooner had he joined the Roman general than he crushed his old enemy Syphax, and captured his capital Cirta (Constantine). Here occurs the romantic story of Sophonisba, daughter of the Carthaginian Hasdrubal, who had been promised in marriage to Massinissa, but had subsequently become the wife of Syphax. Massinissa, according to the story, married Sophonisba immediately after his victory, but was required by Scipio to dismiss her as a Carthaginian, and consequently an enemy to Rome. To save her from such humiliation he sent her poison, with which she destroyed herself. Massinissa was now accepted as a loyal ally of Rome, and was confirmed by Scipio in the possession of his kingdom. In the battle of Zama (202) (see [PUNIC WARS](#)), he commanded the cavalry on Scipio’s right wing, and materially assisted the Roman victory. For his services he received the kingdom of Syphax, and thus under Roman protection he became master of the whole of Numidia, and his dominions completely enclosed the Carthaginian territories, now straitened and reduced at the close of the Second Punic War. It would seem that he had thoughts of annexing Carthage itself with the connivance of Rome. In a war which soon followed he was successful; the remonstrances of Carthage with Rome on the behaviour of her ally were answered by the appointment of Scipio as arbitrator; but, as though intentionally on the part of Rome, no definite settlement was arrived at, and thus the relations between Massinissa and the Carthaginians continued strained. Rome, it is certain, deliberately favoured her ally’s unjust claims with the view of keeping Carthage weak, and Massinissa on his part was cunning enough to retain the friendship of the Roman people by helping them with liberal supplies in their wars against Perseus of Macedon and Antiochus. As soon as Carthage seemed to be recovering herself, and some of Massinissa’s partisans were driven from the city into exile, his policy was to excite the fears of Rome, till at last in 149 war was declared—the Third Punic War, which ended in the final overthrow of Carthage. The king took some part in the negotiations which preceded the war, but died soon after its commencement in the ninetieth year of his age and the sixtieth of his reign.

Massinissa was an able ruler and a decided benefactor to Numidia. He converted a plundering tribe into a settled and civilized population, and out of robbers and marauders made efficient and disciplined soldiers. To his sons he bequeathed a well-stored treasury, a formidable army, and even a fleet. Cirta (*q.v.*), his capital, became a famous centre of Phoenician civilization. In fact Massinissa changed for the better the whole aspect of a great part of northern Africa. He had much of the Arab nature, was singularly temperate, and equal to any amount of fatigue. His fidelity to Rome was merely that of temporary expediency. He espoused now one side, and now the other, but on the whole supported Rome, so that orators and historians could speak of him as “a most faithful ally of the Roman people.”



MASSON, DAVID (1822-1907), Scottish man of letters, was born at Aberdeen on the 2nd of December 1822, and educated at the grammar school there and at Marischal College. Intending to enter the Church, he proceeded to Edinburgh University, where he studied theology under Dr Chalmers, whose friendship he enjoyed until the divine's death in 1847. However, abandoning his project of the ministry, he returned to his native city to undertake the editorship of the *Banner*, a weekly paper devoted to the advocacy of Free Kirk principles. After two years he resigned this post and went back to the capital, bent upon pursuing a purely literary career. There he wrote a great deal, contributing to *Fraser's Magazine*, *Dublin University Magazine* (in which appeared his essays on Chatterton) and other periodicals. In 1847 he went to London, where he found wider scope for his energy and knowledge. He was secretary (1851-1852) of the "Society of the Friends of Italy." In a famous interview with Mrs Browning at Florence he contested her admiration for Napoleon III. He had known De Quincey, whose biography he contributed in 1878 to the "English Men of Letters" series, and he was an enthusiastic friend and admirer of Carlyle. In 1852 he was appointed professor of English literature at University College, London, in succession to A. H. Clough, and from 1858 to 1865 he edited the newly established *Macmillan's Magazine*. In 1865 he was selected for the chair of rhetoric and English literature at Edinburgh, and during the early years of his professorship actively promoted the movement for the university education of women. In 1879 he became editor of the Register of the Scottish Privy Council, and in 1893 was appointed Historiographer Royal for Scotland. Two years later he resigned his professorship. His *magnum opus* in his *Life of Milton in Connexion with the History of His Own Time* in six volumes, the first of which appeared in 1858 and the last in 1880. He also edited the library edition of Milton's *Poetical Works* (3 vols., 1874), and De Quincey's *Collected Works* (14 vols., 1889-1890). Among his other publications are *Essays, Biographical and Critical* (1856, reprinted with additions, 3 vols., 1874), *British Novelists and their Styles* (1859), *Drummond of Hawthornden* (1873), *Chatterton* (1873) and *Edinburgh Sketches* (1892). He died on the 6th of October 1907. A bust of Masson was presented to the senate of the university of Edinburgh in 1897. Professor Masson had married Rosaline Orme. His son Orme Masson became professor of chemistry in the university of Melbourne, and his daughter Rosaline is known as a writer and novelist.



MASSON, LOUIS CLAUDE FRÉDÉRIC (1847-), French historian, was born at Paris on the 8th of March 1847. His father, Francis Masson, a solicitor, was killed on the 23rd of June 1848, when major in the *garde nationale*. Young Masson was educated at the college of Sainte Barbe, and at the lycée Louis-le-Grand, and then travelled in Germany and in England; from 1869 to 1880 he was librarian at the Foreign Office. At first he devoted himself to the history of diplomacy, and published between 1877 and 1884 several volumes connected with that subject. Later he published a number of more or less curious memoirs illustrating the history of the Revolution and of the empire. But he is best known for his books connected with Napoleon. In *Napoléon inconnu* (1895), Masson, together with M. Guido Biagi, brought out the unpublished writings (1786-1793) of the future emperor. These were notes, extracts from historical, philosophical and literary books, and personal reflections in which one can watch the growth of the ideas later carried out by the emperor with modifications necessitated by the force of circumstances and his own genius. But this was only one in a remarkable series: *Joséphine de Beauharnais, 1763-1796* (1898); *Joséphine, impératrice et reine* (1899); *Joséphine répudiée 1809-1814* (1901); *L'Impératrice Marie Louise* (1902); *Napoléon et les femmes* (1894); *Napoléon et sa famille* (9 vols., 1897-1907); *Napoléon et son fils* (1904); and *Autour de l'Île d'Elbe* (1908). These works abound in details and amusing anecdotes, which throw much light on the events and men of the time, laying stress on the personal, romantic and dramatic aspects of history. The author was made a member of the Académie française in 1903. From 1886 to 1889 he edited the review *Arts and Letters*, published in London and New York.

A bibliography of his works, including anonymous ones and those under an assumed name, has been published by G. Vicaire (*Manuel de l'amateur des livres du XIX^e siècle*, tome v., 1904). *Napoléon et les femmes* has been translated into English as *Napoleon and the Fair Sex* (1894).



MAST (1) (O. Eng. *maest*; a common Teutonic word, cognate with Lat. *malus*; from the medieval latinized form *mastus* comes Fr. *mât*), in nautical language, the name of the spar, or straight piece of timber, or combination of spars, on which are hung the yards and sails of a vessel of any size. It has been ingeniously supposed that man himself was the first mast. He discovered by standing up in his prehistoric "dugout," or canoe, that the wind blowing on him would carry his craft along. But the origin of the mast, like that of the ship, is lost in times anterior to all record. The earliest form of mast which prevailed till the close of the middle ages, and is still in use for small vessels, was and is a single spar made of some tough and elastic wood; the conifers supply the best timber for the purpose. In sketching the history of the development of the mast, we must distinguish between the increase in the number erected, and the improvements made in the mast itself. The earliest ships had only one, carrying a single sail. So little is known of the rigging of classical ships that nothing can be affirmed of them with absolute confidence. The Norse vessels carried one mast placed in the middle. The number gradually increased till it reached four or five. All were at first upright, but the mast which stood nearest the bow was by degrees lowered forward till

it became the bow-sprit of modern times, and lost the name of mast. The next from the bows became the foremast—called in Mediterranean sea language *mizzana*, in French *misaine*. Then came the main-mast—in French *grand mât*; and then the mizen—in French, which follows the Mediterranean usage, the *artimon*, *i.e.* “next the rudder,” *timon*. A small mast was sometimes erected in the very end of the ship, and called in English a “bonaventure mizen.” It had a close resemblance to the jigger of yawl-rigged yachts. By the close of the 16th century it had become the established rule that a ship proper had three masts—fore, main and mizen. The third takes its name not as the other two do, from its place, but from the lateen sail originally hoisted on it (see **RIGGING**), which was placed fore and aft in the middle (Italian, *mizzo*) of the ship, and did not lie across like the courses and topsails. With the development of very large sailing clippers in the middle of the 19th century a return was made to the practice of carrying more than three masts. Ships and barques are built with four or five. Some of the large schooners employed in the American coast trade have six or seven, and some steamers have had as many.

The mast was for long made out of a single spar. Thence the Mediterranean name of “palo” (spar) and the Spanish “arbol” (tree). The typical Mediterranean mast of “lateen” (Latin) vessels is short and bends forward. In other classes it is upright, or bends slightly backwards with what is called a “rake.” The mast is grounded, or in technical language “stepped,” on the keelson (or keelson), the solid timber or metal beam lying parallel with, and above the keel. As the 15th century advanced the growth of the ship made it difficult, or even impossible, to find spars large enough to make a mast. The practice of dividing it into lower, and upper or topmast, was introduced. At first the two were fastened firmly, and the topmast could not be lowered. In the 16th century the topmast became movable. No date can be given for the change, which was gradual, and was not simultaneously adopted. When the masting of sailing ships was fully developed, the division was into lower or standing mast, topmast, topgallant mast, and topgallant royal. The topgallant royal is a small spar which is often a continuation of the topgallant mast, and is fixed. Increase of size also made it impossible to construct each of these subdivisions out of single timbers. A distinction was made between “whole” or single-spar masts and “armed” and “made masts.” The first were used for the lighter spars, for small vessels and the Mediterranean craft called “polacras.” Armed masts were composed of two single timbers. Made masts were built of many pieces, bolted and “coaked,” *i.e.* dovetailed and fitted together, fastened round by iron hoops, and between them by twelve or thirteen close turns of rope, firmly secured. “Made masts” are stronger than those made of a single tree and less liable to be sprung. The general principle of construction is that it is built round a central shaft, called in English the “spindle” or “upper tree,” and in French the *mèche* or wick. The other pieces—“side trees,” “keel pieces,” “side fishes,” “cant pieces” and “fillings” are “coaked,” *i.e.* dovetailed and bolted on to and around the “spindle,” which itself is made of two pieces, coaked and bolted. The whole is bound by iron bands, and between the bands, by rope firmly “woulded” or turned round, and nailed tight. The art of constructing made masts, like that of building wooden ships, is in process of dying out. In sailing men-of-war the mizen-mast often did not reach to the keelson, but was stepped on the orlop deck. Hollow metal cylinders are now used as masts. In the case of a masted screw steamer the masts abaft the engines could not be stepped on the keelson because they would interfere with the shaft of the screw. It is therefore necessary to step them on the lower deck, where they are supported by stanchions, or on a horseshoe covering the screw shaft. The size of masts naturally varies very much. In a 110-gun ship of 2164 tons the proportions of the mainmast were: for the lower mast, length 117 ft., diameter 3 ft. 3 in.; topmast, 70 ft., and 20¼ in.; topgallant mast, 35 ft., and 11⅝ in., 222 ft. in all. At the other end of the scale, a cutter of 200 tons had a lower mast of 88 ft., of 22 in. diameter, and a topgallant mast (there was no topmast between them) of 44 ft., of 9¾ in. in diameter, 132 ft. in all; topgallant mast of 44 ft., and 9¾ in. in diameter. The masts of a warship were more lofty than those of a merchant ship of the same tonnage. At present masts are only used by warships for signalling and military purposes. In sailing merchant ships, the masts are more lofty than they were about a century ago. A merchant ship of 1300 tons, in 1830, had a mainmast 179 ft. in height; a vessel of the same size would have a mast of 198 ft. to-day.

A “jury mast” is a temporary mast put up by the crew when the spars have been carried away in a storm or in action, or have been cut away to relieve pressure in a storm. The word has been supposed without any foundation to be short for “injury” mast; it may be a mere fanciful sailor adaptation of “jury” in some connexion now lost. Skeat suggests that it is short for O. Fr. *ajourie*, Lat. *adjutare*, to aid. There is no reason to connect with *jour*, day.

See L. Jal, *Glossaire Nautique* (Paris, 1848); Sir Henry Manwayring, *The Seaman’s Dictionary* (London, 1644); N. Hutchinson, *Treatise on Naval Architecture and Practical Seamanship* (Liverpool, 1777); David Steel, *Elements and Practice of Rigging, Seamanship and Naval Tactics* (London, 1800); William Burney’s *Falconer’s Dictionary* (London, 1830); Sir Gervais Nares’s *Seamanship* (Portsmouth, 1882); and John Fincham, *On Masting Ships and Mast Making* (London, 1829).

(D. H.)

MAST (2) (Anglo-Saxon *maest*, food, common to some Teutonic languages, and ultimately connected with “meat”), the fruit of the beech, oak, and other forest trees, used as food for swine.



MASTABA (Arab. for “bench”), in Egyptian architecture, the term given to the rectangular tombs in stone with raking sides and a flat roof. There were three chambers inside. In one the walls were sometimes richly decorated with paintings and had a low bench of stone in them on which incense was burnt. The second chamber was either closed, with holes pierced in the wall separating it from the first chamber, or entered through a narrow passage through which the fumes of the incense passed; this chamber contained the *serdab* or figure of the deceased. A vertical well-hole cut in the rock descended to a third chamber in which the mummy was laid.



MASTER (Lat. *magister*, related to *magis*, more, as the corresponding *minister* is to *minus*, less; the English form is due partly to the O. Eng. *maegister*, and partly to O. Fr. *maistre*, mod. *maitre*; cf. Du. *meester*, Ger. *Meister*, Ital. *maestro*), one holding a position of authority, disposition or control over persons or things. The various

applications of the word fall roughly into the following main divisions; as the title of the holder of a position of command or authority; as that of the holder of certain public or private offices, and hence a title of address; and as implying the relationship of a teacher to his pupils or of an employer to the persons he employs. As a title of the holder of an office, the use of the Lat. *magister* is very ancient. *Magister equitum*, master of the horse, goes back to the early history of the Roman Republic (see [DICTATOR](#); and for the British office, [MASTER OF THE HORSE](#)). In medieval times the title was of great frequency. In Du Cange (*Glossarium*) the article *magister* contains over 120 sub-headings. In the British royal household most of the offices bearing this title are now obsolete. Of the greater offices, that of master of the buckhounds was abolished by the Civil List Act 1901. The master of the household, master of the ceremonies, master of the king's music still survive. Since 1870 the office of master of the mint has been held by the chancellor of the exchequer, all the administrative and other duties being exercised by the deputy master.

At sea, a "master" is more properly styled "master mariner." In the merchant service he is the commander of a ship, and is by courtesy known as the captain. In the British navy he was the officer entrusted with the navigation under the captain. He had no royal commission, but a warrant from the Navy Board. Very often he had been a merchant captain. His duties are now performed by the staff commander or navigating lieutenant. The master-at-arms is the head of the internal police of a ship; the same title is borne by a senior gymnastic instructor in the army. In the United States navy, the master is a commissioned officer below the rank of lieutenant.

"Master" appears as the title of many legal functionaries (for the masters of the supreme court see [CHANCERY](#); and [KING'S BENCH, COURT OF](#); for masters in lunacy see [INSANITY: § Law](#), see also [MASTER OF THE ROLLS](#), below). The "master of the faculties" is the chief officer of the archbishop of Canterbury in his court of faculties. His duties are concerned with the appointment of notaries and the granting of special licences of marriage. The duties are performed *ex officio* by the judge of the provincial courts of Canterbury and York, who is also dean of Arches, in accordance with § 7 of the Public Worship Regulation Act 1874. The "master of the Temple" is the title of the priest-in-charge of the Temple Church in London. It was formerly the title of the grand master of the Knights Templars. The priest-in-charge of the Templars' Church was properly styled the *custos*, and this was preserved by the Knights Hospitallers when they were granted the property of the Templars at the dissolution of that order. The act of 1540 (32 Henry VIII.), which dissolved the order of the Hospitallers, wrongly styled the *custos* master of the Temple, and the mistake has been continued. The proper title of a bencher of the Inns of Court is "master of the Bench" (see [INNS OF COURT](#)). The title of "Master-General of the Ordnance" was revived in 1904 for the head of the Ordnance Department in the British military administration.

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"Master" is the ordinary word for a teacher, very generally used in the compound "schoolmaster." The word also is used in a sense transferred from this to express the relation between the founder of a school of religion, philosophy, science, art, &c., and his disciples. It is partly in this sense and partly in that of one whose work serves as a model or type of superlative excellence that such terms as "old masters" are used. In medieval universities *magister* was particularly applied to one who had been granted a degree carrying with it the *licentia docendi*, the licence to teach. In English usage this survives in the faculty of arts. The degree is that of *artium magister*, master of arts, abbreviated M.A. In the other faculties the corresponding degree is doctor. Some British universities give a master's degree in surgery, *magister chirurgiae*, C.M. or M.Ch., and also in science, *magister scientiae*, M.Sc. The academic use of "master" as the title of the head of certain colleges at the universities of Oxford and Cambridge is to be referred to the frequent application of the term to the holder of a presiding office in an institution.

Master was the usual prefix of address to a man's name, though originally confined to people of some social standing. Probably under the influence of "mistress," it was corrupted in sound to "mister," and was abbreviated to "Mr." In the case of the puisne judges of the High Court "Mr Justice" is still used as the proper official form of written address. The Speaker of the House of Commons is also formally addressed as "Mr Speaker." In some Scottish peerages below the rank of earl, "master" is used in the courtesy title of the heir, *e.g.* the "Master of Ruthven."



MASTER AND SERVANT. These are scarcely to be considered as technical terms in English law. The relationship which they imply is created when one man hires the labour of another for a term. Thus it is not constituted by merely contracting with another for the performance of a definite work, or by sending an article to an artificer to be repaired, or engaging a builder to construct a house. Nor would the employment of a man for one definite act of personal service—*e.g.* the engagement of a messenger for a single occasion—generally make the one master and the other servant. It was held, however, in relation to the offence of embezzlement, that a drover employed on one occasion to drive cattle home from market was a servant within the statute. On the other hand, there are many decisions limiting the meaning of "servants" under wills giving legacies to the class of servants generally. Thus "a person who was not obliged to give his whole time to the master, but was yet in some sense a servant," was held not entitled to share in a legacy to the servants. These cases are, however, interpretations of wills where the intention obviously is to benefit domestic servants only. And so in other connexions questions may arise as to the exact nature of the relations between the parties—whether they are master and servant, or principal and agent, or landlord and tenant, or partners, &c.

The terms of the contract of service are for the most part such as the parties choose to make them, but in the absence of express stipulations terms will be implied by the law. Thus, "where no time is limited either expressly or by implication for the duration of a contract of hiring and service, the hiring is considered as a general hiring, and in point of law a hiring for a year." But "in the case of domestic and menial servants there is a well-known rule, founded solely on custom, that their contract of service may be determined at any time by giving a month's warning or paying a month's wages, but a domestic or other yearly servant, *wrongfully* quitting his master's service, forfeits all claim to wages for that part of the current year during which he has served, and cannot claim the sum to which his wages would have amounted had he kept his contract, merely deducting therefrom one month's wages. Domestic servants have a right by custom to leave their situations at any time on payment of a calendar month's wages in advance, just as a master may discharge them in a similar manner" (Manley Smith's *Law of Master and Servant*, chs. ii. and iii.). The following are sufficient grounds for discharging a servant: (1) wilful disobedience of any lawful

order; (2) gross moral misconduct; (3) habitual negligence; (4) incompetence or permanent disability caused by illness. A master has a right of action against any person who deprives him of the services of his servant, by enticing him away, harbouring or detaining him after notice, confining or disabling him, or by seducing his female servant. Indeed, the ordinary and only available action for seduction in English law is in form of a claim by a parent for the loss of his daughter's services. The death of either master or servant in general puts an end to the contract. A servant wrongfully discharged may either treat the contract as rescinded and sue for services actually rendered, or he may bring a special action for damages for the breach. The common law liabilities of a master towards his servants have been further regulated by the Workmen's Compensation Acts (see [EMPLOYER'S LIABILITY](#)). A master is bound to provide food for a servant living under his roof, and wilful breach of duty in that respect is a misdemeanour under the Offences against the Person Act 1861.

A servant has no right to demand "a character" from an employer, and if a character be given it will be deemed a privileged communication, so that the master will not be liable thereon to the servant unless it be false and malicious. A master by knowingly giving a false character of a servant to an intending employer may render himself liable—should the servant for example rob or injure his new master.

Reference may be made to the articles on [LABOUR LEGISLATION](#) for the cases in which special terms have been introduced into contracts of service by statute (*e.g.* Truck Acts).



MASTER OF THE HORSE, in England, an important official of the sovereign's household. The master of the horse is the third dignitary of the court, and is always a member of the ministry (before 1782 the office was of cabinet rank), a peer and a privy councillor. All matters connected with the horses and hounds of the sovereign, as well as the stables and coach-houses, the stud, mews and kennels, are within his jurisdiction. The practical management of the royal stables and stud devolves on the chief or crown equerry, formerly called the gentleman of the horse, who is never in personal attendance on the sovereign and whose appointment is permanent. The clerk marshal has the supervision of the accounts of the department before they are submitted to the Board of Green Cloth, and is in waiting on the sovereign on state occasions only. Exclusive of the crown equerry there are seven regular equeries, besides extra and honorary equeries, one of whom is always in attendance on the sovereign and rides at the side of the royal carriage. They are always officers of the army, and each of them is "on duty" for about the same time as the lords and grooms in waiting. There are also several pages of honour in the master of the horse's department, who must not be confounded with the pages of various kinds who are in the department of the lord chamberlain. They are youths aged from twelve to sixteen, selected by the sovereign in person, to attend on him at state ceremonies, when two of them, arrayed in an antique costume, assist the groom of the stole in carrying the royal train.

In France the master of the horse ("Grand Écuyer," or more usually "Monsieur le grand") was one of the seven great officers of the crown from 1617. As well as the superintendence of the royal stables, he had that of the retinue of the sovereign, also the charge of the funds set aside for the religious functions of the court, coronations, &c. On the death of a sovereign he had the right to all the horses and their equipment in the royal stables. Distinct from this officer and independent of him, was the first equerry ("Premier Écuyer"), who had charge of the horses which the sovereign used personally ("la petite écurie"), and who attended on him when he rode out. The office of master of the horse existed down to the reign of Louis XVI. Under Louis XVIII. and Charles X. the duties were discharged by the first equerry, but under Napoléon I. and Napoléon III. the office was revived with much of its old importance.

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In Germany the master of the horse (Oberstallmeister) is a high court dignitary; but his office is merely titular, the superintendence of the king's stables being carried out by the Oberstallmeister, an official corresponding to the crown equerry in England.



MASTER OF THE ROLLS, the third member of the Supreme Court of Judicature in England, the lord chancellor, president of the chancery division, being the first, and the lord chief justice, president of the king's bench division, being the second. At first he was the principal clerk of the chancery, and as such had charge of the records of the court, especially of the register of original writs and of all patents and grants under the Great Seal. Until the end of the 15th century he was called either the clerk or the keeper of the rolls, and he is still formally designated as the master or keeper of the rolls. The earliest mention of him as master of the rolls is in an act of 1495; and in another act of the same year he is again described as clerk of the rolls, showing that his official designation still remained unsettled. About the same period, however, the chief clerks of the chancery came to be called masters in chancery, and the clerk, master or keeper of the rolls was always the first among them, whichever name they bore. In course of time, from causes which are not very easy to trace, his original functions as keeper of the records passed away from him and he gradually assumed a jurisdiction in the court of chancery second only to that of the lord chancellor himself. In the beginning he only heard causes in conjunction with the other masters in chancery, and his decrees were invalid until they had been approved and signed by the lord chancellor. Sitting in the Rolls chapel or in the court in Rolls yard, he heard causes without assistance, and his decrees held good until they were reversed on petition either to the lord chancellor or afterwards to the lords justices of appeal. Before any judge with the formal title of vice-chancellor was appointed the master of the rolls was often spoken of as vice-chancellor, and in theory acted as such, sitting only when the lord chancellor was not sitting and holding his court in the evening from six o'clock to ten. Only since 1827 has the master of the rolls sat in the morning hours. By the Public Record Office Act 1838 the custody of the records was restored to him, and he is chairman of the State Papers and Historical Manuscripts Commissions. Under the Judicature Act 1875, and the Appellate Jurisdiction Act 1876, he now always sits with the lords justices in the court of appeal (which usually sits in two divisions of three judges, the master of the rolls presiding over one division), whose decisions can be questioned only in the House of

Lords. The master of the rolls was formerly eligible to a seat in the House of Commons—a privilege enjoyed by no other member of the judicial bench;¹ but he was deprived of it by the Supreme Court of Judicature Act 1873, which provides that all judges of the High Court of Justice and the court of appeal shall be incapable of being elected to or sitting in the House of Commons. The master of the rolls is always sworn of the privy council. His salary is £6000 a year.

See Lord Hardwicke, *Office of the Master of the Rolls*.

- 1 Sir John Romilly, M.P. for Devonport, 1847 to 1852, was the last master of the rolls to sit in Parliament. He was appointed master of the rolls in 1851.



MASTIC, or MASTICH (Gr. μαστίχη, probably connected with μασᾶσθαι, to chew, since mastic is used in the East as a chewing gum), a resinous exudation obtained from the lentisk, *Pistacia lentiscus*, an evergreen shrub of the natural order Anacardiaceae. The lentisk or mastic plant is indigenous to the Mediterranean coast region from Syria to Spain, but grows also in Portugal, Morocco and the Canaries. Although experiments have proved that excellent mastic might be obtained in other islands in the archipelago, the production of the substance has been, since the time of Dioscorides, almost exclusively confined to the island of Chios. The mastic districts of that island are for the most part flat and stony, with little hills and few streams. The shrubs are about 6 ft. high. The resin is contained in the bark and not in the wood, and in order to obtain it numerous vertical incisions are made, during June, July and August, in the stem and chief branches. The resin speedily exudes and hardens into roundish or oval tears, which are collected, after about fifteen days, by women and children, in little baskets lined with white paper or cotton wool. The ground around the trees is kept hard and clean, and flat pieces of stone are often laid beneath them to prevent any droppings of resin from becoming contaminated with dirt. The collection is repeated three or four times between June and September, a fine tree being found to yield about 8 or 10 lb of mastic during the season. Besides that obtained from the incisions, mastic of very fine quality spontaneously exudes from the small branches. The harvest is affected by showers of rain during the period of collection, and the trees are much injured by frost, which is, however, of rare occurrence in the districts where they grow. Mastic occurs in commerce in the form of roundish tears about the size of peas. They are transparent, with a glassy fracture, of a pale yellow or faint greenish tinge, which darkens slowly by age. During the 15th, 16th and 17th centuries mastic enjoyed a high reputation as a medicine, and formed an ingredient in a large number of medical compounds; but its use in medicine is now obsolete, and it is chiefly employed for making varnish.

Pistacia Khinjuk and *P. cabulica*, trees growing throughout Sindh, Baluchistan and Cabul, yield a kind of mastic which is met with in the Indian bazaars under the name of *Mustagirūmī*, i.e. Roman mastic. This when occurring in the European market is known as East Indian or Bombay mastic. In Algeria *P. Atlantica* yields a solid resin, which is collected and used by the Arabs as a masticatory. Cape mastic is the produce of *Euryops multifidus*, the resin bush, or *harpais bosch* of the Boers—a plant of the composite order growing abundantly in the Clanwilliam district. Dammar resin is sometimes sold under the name of mastic. The West Indian mastic tree is the *Bursera gummifera* and the Peruvian mastic is *Schinus molle*; but neither of these furnishes commercial resins. The name mastic tree is also applied to a timber tree, *Sider oxylon mastichodendron*, nat. ord. Sapotaceae, which grows in the West Indies and on the coast of Florida.



MASTIGOPHORA, a group of Protozoa, moving and ingesting food by long flagella (Gr. μάστιξ, whip), usually few in number, and multiplying by fission, usually longitudinal, in the active condition. They were separated off from the rest of the old "Infusoria" by K. Düsing, and subdivided by O. Bütschli and E. R. Lankester into (1) Flagellata (*q.v.*), including Haemoflagellata (*q.v.*), (2) Dinoflagellata (*q.v.*) and Rhyncho = Cystoflagellata E. Haeckel (*q.v.*) = Rhynchoflagellata E. R. Lankester. The Mastigophora are frequently termed Flagellata or Flagellates.



MASTODON (Gr. μαστός, breast, ὀδούς, tooth), a name given by Cuvier to the Pliocene and Miocene forerunners of the elephants, on account of the nipple-like prominences on the molar teeth of some of the species (fig. 2), which are of a much simpler type than those of true elephants. Mastodons, like elephants, always have a pair of upper tusks, while the earlier ones likewise have a short pair in the lower jaw, which is prolonged into a snout-like symphysis for their support. These long-chinned mastodons are now regarded as forming a genus by themselves (*Tetralodon*), well-known examples of this group being *Tetralodon angustidens* from the Miocene and *T. longirostris* (fig. 1 C.) from the Lower Pliocene of the Continent. In the former the upper tusks are bent down so as to cross the tips of the short and chisel-like lower pair. These long-chinned mastodons must have had an extremely elongated muzzle, formed by the upper lip and nose above and the lower lip below, with which they were able to reach the ground, the neck being probably rather longer than in elephants. On the other hand, in the short-chinned mastodons, as represented by the Pleistocene North American *Mastodon americanus* and the Pliocene European *M. turicensis* (fig. 1), the chin had shrunk to the dimensions characteristic of elephants, with the loss of the lower incisors (or with temporary retention of rudimentary ones), while at the same time a true elephant-like trunk must have been developed by the shortening of the lower lip and the prolongation of the combined upper lip

and nose.

Mastodons are found in almost all parts of the world. In Asia they gave rise to the elephants, while they themselves originated in Africa from ungulates of more normal type. (See [PROBOSCIDEA](#).)

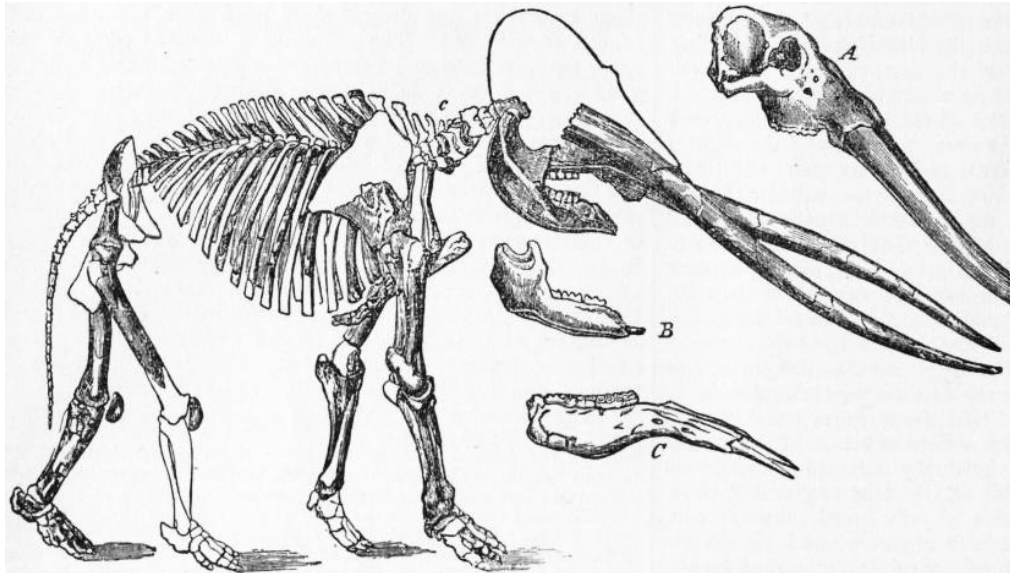


FIG. 1.—*Mastodon turicensis* (Pliocene).
A, B, Skull and Lower Jaw of *Mastodon americanus*. C, Lower Jaw of *Tetrabelodon longirostris*.

The upper tusks of the early mastodons differ from those of elephants in retaining longitudinal bands of enamel. The molar teeth are six in number on each side, increasing in size from before backwards, and, as in the elephants, with a horizontal succession, the anterior teeth being lost before the full development of the posterior ones, which gradually move forward, taking the place of those that are destroyed by wear. This process is, however, less fully developed than in elephants, and as many as three teeth may be in place in each jaw at one time. There is, moreover, in many species a vertical succession, affecting either the third, or the third and second, or (in one American species, *Tetrabelodon productus*) the first, second and third of the six molar teeth. These three are therefore reckoned as milk-molars, and their successors as premolars, while the last three correspond to the true molars of other mammals. The mode of succession of the teeth in the mastodons exhibits so many stages of the process by which the dentition of elephants has been derived from that of more ordinary mammals. It also shows that the anterior molars of elephants do not correspond to the premolars of other ungulates, but to the milk-molars, the early loss of which in consequence of the peculiar process of horizontal forward-moving succession does not require their replacement by premolars. Specialized species like *Mastodon americanus* have completely lost the rudimentary premolars.



(From Owen.)

FIG. 2.—Upper Molar of *Mastodon arvernensis*, viewed from below.

Mastodons have fewer ridges on their molar teeth than elephants; the ridges are also less elevated, wider apart, with a thicker enamel covering, and scarcely any cement filling the space between them. Sometimes (as in *M. americanus*) the ridges are simple transverse wedge-shaped elevations, with straight or concave edges. In other species the summits of the ridges are divided into conical cusps, and may have accessory cusps clustering around them (as in *M. arvernensis*, fig. 2). When the summits of these are worn by mastication their surfaces present circles of dentine surrounded by a border of enamel, and as attrition proceeds different patterns are produced by the union of the bases of the cusps, a trefoil form being characteristic of some species.

Certain of the molar teeth of the middle of the series in both elephants and mastodons have the same number of principal ridges; those in front having fewer, and those behind a greater number. These teeth are distinguished as "intermediate" molars. In elephants there are only two, the last milk-molar and the first true molar (or the third and fourth of the whole series), which are alike in the number of ridges; whereas in mastodons there are three such teeth, the last milk-molar and the first and second molars (or the third, fourth and fifth of the whole series). In elephants the number of ridges on the intermediate molars always exceeds five, but in mastodons it is nearly always three or four, and the tooth in front has usually one fewer and that behind one more, so that the ridge-formula (*i.e.* a formula expressing the number of ridges on each of the six molar teeth) of most mastodons can be reduced either to 1, 2, 3, 3, 3, 4, or 2, 3, 4, 4, 4, 5. Three-ridged and four-ridged types occur both in *Mastodon* and *Tetrabelodon*.

(R. L.*)



MAS'ŪDĪ (ABŪ-L ḤASAN 'ALĪ IBN ḤUSAIN IBN 'ALĪ UL-MAS'ŪDĪ) (d. c. 956), Arabian historian, was born at Bagdad towards the close of the 9th century. Much of his life was spent in travel. After he had been in Persia and Kerman, he visited Istakhr in 915, and went in the following year to Mūltān and Manṣūra, thence to Cambay, Saimur and Ceylon, to Madagascar and back to Oman. He seems about this time to have been as far as China. After a visit to the shores of the Caspian Sea he visited Tiberias in Palestine, examined the Christian church there, and described its relics. In 943 he was in Antioch, studying the ruins, and two years later in Damascus. The last ten years of his life he spent in Syria and Egypt. His great object in life had been to study with his own eyes the peculiarities of every land and to collect whatever was of interest for archaeology, history and manners. Himself a Mo'tazilite (see [MAHOMMEDAN RELIGION: Sects](#)), he was singularly free from bigotry, and took his information, when necessary, from Persians, Jews, Indians, and even the chronicle of a Christian bishop.

His most extensive work was the *Kitāb akhbār uz-Zamān* or *Annals*, in 30 volumes with a supplement, the *Kitāb ul-Ausat*, a chronological sketch of general history. Of these the first part only of the former is extant in MS. in Vienna, while the latter seems to be in the Bodleian Library, also in MS. The substance of the two was united by him in the work by which he is now best known, the *Murūj udh-Dhahab wa Ma'ādin ul-Jawāhir* ("Meadows of Gold and Mines of Precious Stones"), an historical work which he completed in 947. In 956 he finished a second edition of this and made it double its former size, but no copy of this seems to be extant. The original edition has been published at Bulāq and Cairo, and with French translation by C. Barbier de Meynard and Pavet de Courteille (9 vols., Paris, 1861-1877). Another work of Mas'ūdī, written in the last year of his life, is the *Kitāb ut-Tanbīh wal Ishrāf* (the "Book of Indication and Revision"), in which he summarizes the work of his life and corrects and completes his former writings. It has been edited by M. J. de Goeje (Leiden, 1894), and a French translation has been made by Carra de Vaux (Paris, 1896); cf. also the memoir of S. de Sacy published in Meynard's edition of the *Murūj*.

An account of Mas'ūdī's works is to be found in de Sacy's memoir and in Goeje's preface to his edition of the *Tanbīh*, and of the works extant in C. Brockelmann's *Gesch. der Arabischen Litteratur*, i. 144-145 (Weimar, 1898). C. Field's *Tales of the Caliphs* (1909) is based on Mas'ūdī.

(G. W. T.)



MASULIPATAM, or **BANDAR**, a seaport of British India, administrative headquarters of the Kistna district of Madras, on one of the mouths of the river Kistna, 215 m. N. of Madras city. Pop. (1901), 39,507. Masulipatam was the earliest English settlement on the Coromandel coast, its importance being due to the fact that it was the *bandar* or port of Golconda. An agency was established there in 1611. During the wars of the Carnatic, the English were temporarily expelled from the town, which was held by the French for some years. In 1759 the town and fort were carried by storm by Colonel Forde, an achievement followed by the acquisition of the Northern Circars (*q.v.*). In 1864 a great storm-wave swept over the entire town and is said to have destroyed 30,000 lives. Weavers form a large portion of the inhabitants, though their trade has greatly declined since the beginning of the 19th century. Their operations, besides weaving, include printing, bleaching, washing and dressing. In former days the chintzes of Masulipatam had a great reputation abroad for the freshness and permanency of their dyes. Masulipatam is a station of the Church Missionary Society. The port is only a roadstead, where vessels anchor 5 m. out. A branch line from Bezwada on the Southern Mahratta railway was opened in 1908. The chief educational institution is the Noble College of the C.M.S.

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MAT (O. Eng. *meatt*, from late Lat. *matta*, whence Ital. *matta*, Ger. and Dan. *matte*, Du. *mat*, &c.), an article of various sizes and shapes, according to the purpose for which it is intended, and made of plaited or woven materials, such as coir, hemp, coco-nut fibre, straw, rushes, &c., or of rope or coarse twine. The finer fabrics are known as "matting" (*q.v.*). Mats are mainly used for covering floors, or in horticulture as a protection against cold or exposure for plants and trees. When used near the entrance to a house for people to wipe their boots on "door mats" are usually made of coarse coco-nut fibre, or india-rubber, cork, or of thickly coiled wire. Bags, rolls or sacks made of matting are used to hold coffee, flax, rice and other produce, and the term is often used with reference to the specific quantities of such produce, *e.g.* so many "mats" of coffee, rice, &c.

To be distinguished from the above is the term "mat" in glass-painting or gilding, meaning dull, unpolished or unburnished. This is the same as Ger. *matt*, dead, dull, cf. *matt-blau*, Med. Lat. *mattus*, adapted from Persian *māt*, dazed, astonished, at a loss, helpless, and seen in "mate" in chess, from Pers. *shāh māt* the king is dead.



MATABELE ("vanishing" or "hidden" people, so called from their appearance in battle, hidden behind enormous oxhide shields), a people of Zulu origin who began national life under the chief Mosilikatze. Driven out of the Transvaal by the Boers in 1837, Mosilikatze crossed the Limpopo with a military host which had been recruited from every tribe conquered by him during his ten years' predominance in the Transvaal. In their new territories the Matabele absorbed into their ranks many members of the conquered Mashona tribes and established a military despotism. Their sole occupation was war, for which their laws and organization were designed to fit them. This system of constant warfare is, since the conquest of Matabeleland by the British in 1893, a thing of the past. The Matabele are now herdsmen and agriculturists. (See [RHODESIA](#).)



MATACHINES (Span. *matachin*, clown, or masked dancer), bands of mummers or itinerant players in Mexico, especially popular around the Rio Grande, who wander from village to village during Lent, playing in rough-and-ready style a set drama based on the history of Montezuma. Dressed in fantastic Indian costumes and carrying rattles as their orchestra, the chief characters are *El Monarca* "the monarch" (Montezuma); *Malinche*, or *Malintzin*, the Indian mistress of Hernando Cortes; *El Toro*, "the bull," the malevolent "comic man" of the play, dressed in buffalo skin with the animal's horns on his head; *Aguelo*, the "grandfather," and *Aguela*, "grandmother." With the help of a chorus of dancers they portray the desertion of his people by Montezuma, the luring of him back by the wiles and smiles of Malinche, the final reunion of king and people, and the killing of El Toro, who is supposed to have made all the mischief.



MATADOR, a Spanish word meaning literally "killer," from *matar*, Lat. *mactare*, especially applied to the principal performer in a bull-fight, whose function it is to slay the bull (see [BULL-FIGHTING](#)). The word is also used of certain important cards in such games as quadrille, ombre, &c., and more particularly of a special form of the game of dominoes.



MATAMOROS, a town and port of the state of Tamaulipas, Mexico, on the S. bank of the Rio Grande, 28 m. from its mouth, opposite Brownsville, Texas. Pop. (1900), 8347. Matamoros stands in an open plain, the commercial centre for a large district, but its import trade is prejudiced by the bar at the mouth of the Rio Grande, which permits the entrance of small vessels only. The exports include hides, wool and live stock. The importance of the town in the foreign trade of northern Mexico, however, has been largely diminished by the great railways. Formerly it was the centre of a large contraband trade with Brownsville, Texas. Matamoros was founded early in the 19th century, and was named in honour of the Mexican patriot Mariano Matamoros (c. 1770-1814). In the war between the United States and Mexico, Matamoros was easily taken by the Americans on the 18th of May 1846, following General Zachary Taylor's victories at Palo Alto and Resaca de la Palma. Matamoros was occupied by the Mexican imperialists under Mejia in 1864, and by the French in 1866.



MATANZAS, an important city of Cuba, capital of Matanzas Province, situated on a large deep bay on the N. coast, about 54 m. (by rail) E. of Havana. Pop. (1907), 36,009. There are railway outlets W., S. and E., and Matanzas is served by steamships to New York and by the coast steamers of the Herrera Line. The bay, unlike all the other better harbours of the island, has a broad mouth, 2 m. across, but there is good shelter against all winds except from the N.E. A coral reef lies across the entrance. Three rivers emptying into the bay—the San Juan, Canimar and Yumuri—have deposited much silt, necessitating the use of lighters in loading and unloading large ships. The city is finely placed at the head of the bay, on a low, sloping plain backed by wooded hills, over some of which the city itself has spread. The conical Pan de Matanzas (1277 ft.) is a striking land-mark for sailors. The San Juan and Yumuri rivers divide Matanzas into three districts. The Teatro Esteban, Casino Español and Government House are noteworthy among the buildings. The broad Paseo de Marti (Alameda de Versailles, Paseo de Santa Cristina) extends along the edge of the harbour, and is perhaps the handsomest parkway and boulevard in Cuba. At one end is a statue of Ferdinand VII., at the other a monument to 63 Cubans executed by the Spanish Government as traitors for bearing arms in the cause of independence. A splendid military road continues the Paseo to the Castillo de San Serverino (built in 1694-1695, reconstructed in 1773 and following years). There are two smaller forts, established in the 18th century. Near Matanzas are two of the most noted natural resorts of Cuba: the valley of the Yumuri, and the caves of Bellamar. Commanding the Yumuri Valley is the hill called Cumbre, on which is the Hermitage of Monteserrate (1870), with a famous shrine. Matanzas is the second port of the island in commerce. Sugar and molasses are the chief exports. The city is the chief outlet for the sugar product of the province, which, with the province of Santa Clara, produces two-thirds of the crop of the island. There are many large warehouses, rum distilleries, sugar-mills and railway machine-shops. Matanzas is frequently mentioned in the annals of the 16th and 17th centuries, when its bay was frequented by buccaneers; but the city was not laid out until 1693. In the next year it received an *ayuntamiento* (council). Its prosperity rapidly increased after the establishment of free commerce early in the 19th century. In 1815 it was made a department capital. The mulatto poet, Gabriel de la Concepción Valdés, known as Plácido (1809-1844), was born in Matanzas, and was executed there for participation in the supposed conspiracy of negroes in 1844, which is one of the most famous episodes in Cuban history. The hurricanes of 1844 and 1846 are the only other prominent local events. American commercial influence has always been particularly strong.



MATARÓ (anc. *Iluro*), a seaport of north-eastern Spain, in the province of Barcelona, on the Mediterranean Sea and the Barcelona-Perpignan railway. Pop. (1900), 19,704. The streets of the new town, lying next the sea, are wide and regularly built; those of the old town, farther up the hill, still preserve much of their ancient character. The parish church of Santa Maria has some good pictures and wood carvings. The wine of the neighbourhood, which resembles port, is shipped in large quantities from Barcelona; and the district furnishes fine roses and strawberries for the Barcelona market. The leading industries are manufactures of linen and cotton goods, especially canvas and tarpaulin, and of soap, paper, chemicals, starch, glass, leather, spirits and flour. The railway to Barcelona, opened in October 1848, was the first to be constructed in Spain. Outside the town is the much-frequented carbonated mineral spring of Argentona.



MATCH: 1. O. Eng. *gemaecca*, a cognate form of "make," meaning originally "fit" or "suitable"; a pair, or one of a pair of objects, persons or animals. As particularly applied to a husband and wife, and hence to a marriage, the word is especially used of two persons or things which correspond exactly to each other. The verb "to match" has also the meaning to "pit one against each other," and so is applied in sport to an arranged contest between individuals or sides.

2. O. Fr. *mesche*; apparently from a latinized form of Gr. $\mu\acute{\upsilon}\xi\alpha$, mucus from the nose, applied to the nozzle of a lamp; primarily the wick which conveys oil or molten wax to the flame of a lamp or candle (this use is now obsolete), the word being then applied to various objects having the property of carrying fire. With early firearms a match, consisting of a cord of hemp or similar material treated with nitre and other substances so that it continued to smoulder after it had been ignited, was used for firing the charge, being either held in the gunner's hand or attached to the cock of the musket or arquebus and brought down by the action of the trigger on the powder priming ("matchlock"); and more or less similar preparations, made to burn more or less rapidly as required ("quick-match" and "slow-match"), are employed as fuses in blasting and demolition work in military operations. The word "match" was further used of a splint of wood, tipped with sulphur so that it would readily ignite, but it now most commonly means a slip of wood or other combustible material, having its end covered with a composition which takes fire when rubbed either on any rough surface or on another specially prepared composition.

The first attempt to make matches in the modern sense may probably be ascribed to Godfrey Haukwitz, who, in 1680, acting under the direction of Robert Boyle, who at that time had just discovered how to prepare phosphorus, employed small pieces of that element, ignited by friction, to light splints of wood dipped in sulphur. This device, however, did not come into extensive use owing to its danger and inconvenience and to the cost of the phosphorus, and till the beginning of the 19th century flint and steel with tinder-box and sulphur-tipped splints of wood—"spunks" or matches—were the common means of obtaining fire for domestic and other purposes. The sparks struck off by the percussion of flint and steel were made to fall among the tinder, which consisted of carbonized fragments of cotton and linen; the entire mass of the tinder was set into a glow, developing sufficient heat to ignite the sulphur with which the matches were tipped, and thereby the splints themselves were set on fire. In 1805 one Chancel, assistant to Professor L. J. Thénard of Paris, introduced an apparatus consisting of a small bottle containing asbestos, saturated with strong sulphuric acid, with splints or matches coated with sulphur, and tipped with a mixture of chlorate of potash and sugar. The matches so prepared, when brought into contact with the sulphuric acid in the bottle, ignited, and thus, by chemical action, fire was produced. In 1823 a decided impetus was given to the artificial production of fire by the introduction of the Döbereiner lamp, so called after its inventor, J. W. Döbereiner of Jena. The first really practical friction matches were made in England in 1827, by John Walker, a druggist of Stockton-on-Tees. These were known as "Congreves" after Sir William Congreve, the inventor of the Congreve rocket, and consisted of wooden splints or sticks of cardboard coated with sulphur and tipped with a mixture of sulphide of antimony, chlorate of potash and gum. With each box which was retailed at a shilling, there was supplied a folded piece of glass paper, the folds of which were to be tightly pressed together, while the match was drawn through between them. The same idea occurred to Sir Isaac Holden independently two and a half years later. The so-called "Prometheans," patented by S. Jones of London in 1830, consisted of a short roll of paper with a small quantity of a mixture of chlorate of potash and sugar at one end, a thin glass globule of strong sulphuric acid being attached at the same point. When the sulphuric acid was liberated by pinching the glass globule, it acted on the mixed chlorate and sugar, producing fire. The phosphorus friction-match of the present day was first introduced on a commercial scale in 1833. It appears to have been made almost simultaneously in several distinct centres. The name most prominently connected with the early stages of the invention is that of J. Preschel of Vienna, who in 1833 had a factory in operation for making phosphorus matches, fusees, and amadou slips tipped with igniting composition. At the same time also matches were being made by F. Moldenhauer in Darmstadt; and for a long series of years Austria and the South-German states were the principal centres of the new industry.

But the use of ordinary white or yellow phosphorus as a principal ingredient in the igniting mixture of matches was found to be accompanied with very serious disadvantages. It is a deadly poison, and its free dissemination has led to many accidental deaths, and to numerous cases of wilful murder and suicide. Workers also who are exposed to phosphoric vapours are subject to a peculiarly distressing disease which attacks the jaw, and ultimately produces necrosis of the jaw-bone ("phossy jaw"), though with scrupulous attention to ventilation and cleanliness much of the risk of the disease may be avoided. The most serious objections to the use of phosphorus, however, were overcome by the discovery of the modified form of that body known as red or amorphous phosphorus. That substance was utilized for the manufacture of the well-known "safety matches" by J. E. Lundström, of Jönköping, Sweden, in 1852; its employment for this purpose had been patented eight years previously by another Swede, G. E. Pasch, who, however, regarded it as an oxide of phosphorus. Red phosphorus is in itself a perfectly innocuous substance, and no

evil effects arise from freely working the compositions of which it forms an ingredient. The fact again that safety matches ignite only in exceptional circumstances on any other than the prepared surfaces which accompany the box—which surfaces and not the matches themselves contain the phosphorus required for ignition—makes them much less liable to cause accidental fires than other kinds.

The processes carried out in a match factory include preparing the splints, dipping them first in molten paraffin wax and then in the igniting composition, and filling the matches into boxes. All these operations are performed by complicated automatic machinery, in the development of which the Diamond Match Company of America has taken a leading part, with the minimum of manual intervention.

The chief element in the igniting mixture of ordinary or “strike anywhere” matches used to be common yellow phosphorus, combined with one or more other bodies which readily part with oxygen under the influence of heat. Chief among these latter substances is chlorate of potash, others being red lead, nitrate of lead, bichromate of potash and peroxide of manganese. But at the beginning of the 20th century many countries took steps to stop the use of yellow phosphorus owing to the danger to health attending its manipulation. In Sweden, matches made with it have been prohibited for home consumption, but not for export, since 1901. In 1905 and 1906 two conferences, attended by representatives of most of the governments of Europe, were held at Berne to consider the question of prohibiting yellow phosphorus, but no general agreement was reached owing to the objections entertained by Sweden, Norway, Spain and Portugal, and also Japan. Germany, France, Italy, Denmark, Holland, Switzerland and Luxemburg, however, agreed to a convention whereby yellow phosphorus was prohibited as from 1912, and to this Great Britain expressed her adherence after the passing of the White Matches Prohibition Act 1908, which forbade the manufacture and importation of such matches from the 1st of January 1910; though to avoid hardship to retailers and others holding large stocks it permitted their sale for a year longer. Phosphorous sulphide (sesquisulphide of phosphorus) is one of the substances widely employed as a substitute for yellow phosphorus in matches which will strike anywhere without the need of a specially prepared surface.

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Safety matches contain no phosphorus in the heads; according to one formula that has been published the mixture with which they are tipped consists of chlorate of potash, 32 parts; bichromate of potash, 12; red lead, 32; sulphide of antimony, 24; while the ingredients of a suitable rubbing surface are eight parts of amorphous phosphorus to nine of sulphide of antimony. There is no doubt, however, that there is considerable diversity in the composition of the mixtures actually employed.

“Vestas” are matches in which short pieces of thin “wax taper” are used in place of wooden splints. Fusees or vesuvians consist of large oval heads fixed on a round splint. These heads consist of a porous mixture of charcoal, saltpetre, cascarilla or other scented bark, glass and gum, tipped with common igniting composition. When lighted they form a glowing mass, without flame.

It is calculated that in the principal European countries from six to ten matches are used for each inhabitant daily, and the world’s annual output must reach a total which requires twelve or thirteen figures for its expression. In the United States the manufacture is under the control of the Diamond Match Company, formed in 1881; which company also has an important share in the industry in Great Britain, where it has established large works. Similarly the manufacture of safety matches in Sweden is largely controlled by one big combination. In France matches are a government monopoly, and are both dear in price and inferior in quality, as compared with other countries where the industry is left to private enterprise. The French government formerly leased the manufacture to a company (*Société générale des allumettes chimiques*), but since 1890 it has been undertaken directly by the state.



MATE (a corruption of *make*, from O. Eng. *gemaca*, a “comrade”), a companion. In the language of the sea, the mate is the companion or assistant of the master, or of any officer at the head of a division of the crew. In the merchant service the mates are the officers who serve under the master, commonly called the captain, navigate the vessel under his direction, and replace him if he dies, or is disabled. In a war-ship mates serve under the gunner, boatswain, carpenter, &c. They are officers told off to attend to a particular part of the ship, as for example mate of the upper deck, whose duty is to see that it is kept clean, or mate of the hold, who is employed to serve out the water and other stores, and to keep the weights adjusted so as to preserve the trim—or balance—of the ship. (For “mate” in chess, see [CHESS](#).)



MATÉ, or PARAGUAY TEA, the dried leaves of *Ilex paraguariensis*,¹ an evergreen shrub or small tree belonging to the same genus as the common holly, a plant to which it bears some resemblance in size and habit. The leaves are from 6 to 8 in. long, shortly stalked, with a somewhat acute tip and finely toothed at the margin. The small white flowers grow in forked clusters in the axils of the leaves; the sepals, petals and stamens are four in number, or occasionally five; and the berry is 4-seeded. The plant grows abundantly in Paraguay, and the south of Brazil, forming woods called *yerbales*. One of the principal centres of the maté industry is the Villa Real, a small town above Asuncion on the Paraguay river; another is the Villa de San Xavier, in the district between the rivers Uruguay and Parana.

Although maté appears to have been used from time immemorial by the Indians, the Jesuits were the first to attempt its cultivation. This was begun at their branch missions in Paraguay and the province of Rio Grande de San Pedro, where some plantations still exist, and yield the best tea that is made. From this circumstance the names Jesuits’ tea, tea of the Missions, St Bartholomew’s tea, &c., are sometimes applied to maté. Under cultivation the quality of the tea improves, but the plant remains a small shrub with numerous stems, instead of forming, as in the wild state, a tree with a rounded head. From cultivated plants the leaves are gathered every two or three years, that interval being necessary for restoration to vigorous growth. The collection of maté is, however, chiefly effected by Indians employed for that purpose by merchants, who pay a money consideration to government for the privilege.

When a yerbal or maté wood is found, the Indians, who usually travel in companies of about twenty-five in number, build wigwams and settle down to the work for about six months. Their first operation is to prepare an open space, called a *tatacua*, about 6 ft. square, in which the surface of the soil is beaten hard and smooth with mallets. The leafy branches of the maté are then cut down and placed on the *tatacua*, where they undergo a preliminary roasting from a fire kindled around it. An arch of poles, or of hurdles, is then erected above it, on which the maté is placed, a fire being lighted underneath. This part of the process demands some care, since by it the leaves have to be rendered brittle enough to be easily pulverized, and the aroma has to be developed, the necessary amount of heat being only learned by experience. After drying, the leaves are reduced to coarse powder in mortars formed of pits in the earth well rammed. Maté so prepared is called *caa gazu* or *yerva do polos*, and is chiefly used in Brazil. In Paraguay and the vicinity of Parana in the Argentine Republic, the leaves are deprived of the midrib before roasting; this is called *caa-miri*. A very superior quality, or *caa-cuys*, is also prepared in Paraguay from the scarcely expanded buds. Another method of drying maté has been adopted, the leaves being heated in large cast-iron pans set in brickwork, in the same way that tea is dried in China; it is afterwards powdered by machinery.



Maté (*Ilex paraguariensis*).

Portion of plant, half natural size. Flower, drupe and nuts, twice natural size. Part of under-side of leaf showing minute glands, natural size.

The different methods of preparation influence to a certain extent the value of the product, the maté prepared in Paraguay being considered the best, that of Oran and Paranagua very inferior. The leaves when dried are packed tightly in serons or oblong packages made of raw hides, which are then carefully sewed up. These shrink by exposure to the sun, and in a couple of days form compact parcels each containing about 200 lb of tea; in this form it keeps well. The tea is generally prepared for use in a small silver-mounted calabash, made of the fruit of *Crescentia cujete* (Cuca) or of *Lagenaria* (Cabaço), usually about the size of a large orange, the tapering end of the latter serving for a handle. In the top of the calabash, or *maté*,² a circular hole about the size of a florin is made, and through this opening the tea is sucked by means of a bombilla. This instrument consists of a small tube 6 or 7 in. long, formed either of metal or a reed, which has at one end a bulb made either of extremely fine basket-work or of metal perforated with minute holes, so as to prevent the particles of the tea-leaves from being drawn up into the mouth. Some sugar and a little hot water are first placed in the gourd, the yerva is then added, and finally the vessel is filled to the brim with boiling water, or milk previously heated by a spirit lamp. A little burnt sugar or lemon juice is sometimes added instead of milk. The beverage is then handed round to the company, each person being furnished with a bombilla. The leaves will bear steeping about three times. The infusion, if not drunk soon after it is made, rapidly turns black. Persons who are fond of maté drink it before every meal, and consume about 1 oz. of the leaves per day. In the neighbourhood of Parana it is prepared and drunk like Chinese tea. Maté is generally considered disagreeable by those unaccustomed to it, having a somewhat bitter taste; moreover, it is the custom to drink it so hot as to be unpleasant. But in the south-eastern republics it is a much-prized article of luxury, and is the first thing offered to visitors. The *gaucho* of the plains will travel on horseback for weeks asking no better fare than dried beef washed down with copious draughts of maté, and for it he will forego any other luxury, such as sugar, rice or biscuit. Maté acts as a restorative after great fatigue in the same manner as tea. Since it does not lose its flavour so quickly as tea by exposure to the air and damp it is more valuable to travellers.

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Since the beginning of the 17th century maté has been drunk by all classes in Paraguay, and it is now used throughout Brazil and the neighbouring countries.

The virtues of this substance are due to the occurrence in it of caffeine, of which a given quantity of maté, as prepared for drinking, contains definitely less than a similar quantity of tea or coffee. It is less astringent than either of these, and thus is, on all scores, less open to objection.

See Scully, *Brazil* (London, 1866); Mansfield, *Brazil* (London, 1856); Christy, *New Commercial Plants*, No. 3 (London, 1880); *Kew Bulletin* (1892), p. 132.

1 *I. gigantea*, *I. ovalifolia*, *I. Humboldtiana*, and *I. nigropunctata*, besides several varieties of these species, are also used for preparing maté.

2 The word *caa* signified the plant in the native Indian language. The Spaniards gave it a similar name, *yerba*. *Maté* comes from the language of the Incas, and originally means a calabash. The Paraguay tea was called at first *yerva do maté*, and then, the *yerva* being dropped, the name *maté* came to signify the same thing.



MATERA, a city of Basilicata, Italy, in the province of Potenza, from which it is 68 m. E. by road (13 m. S. of the station of Altamura), 1312 ft. above sea-level. Pop. (1901), 17,801. Part of it is built on a level plateau and part in deep valleys adjoining, the tops of the campaniles of the lower portions being on a level with the streets of the upper. The principal building is the cathedral of the archbishopric of Acerenza and Matera, formed in 1203 by the union of the two bishoprics, dating respectively from 300 and 398. The western façade of the cathedral is plain, while the utmost richness of decoration is lavished on the south front which faces the piazza. Almost in the centre of this south façade is an exquisitely sculptured window, from which letters from the Greek patriarch at Constantinople used to be read. The campanile is 175 ft. high. In the vicinity are the troglodyte caverns of Monte Scaglioso, still inhabited by some of the lower classes, and other caves with 13th-century frescoes.

Neolithic pottery has been found here, but the origin of the town is uncertain. Under the Normans Matera was a countship for William Bras de Fer and his successors. It was the chief town of the Basilicata from 1664 till 1811, when the French transferred the administration to Potenza.



MATERIALISM (from Lat. *materia*, matter), in philosophy, the theory which regards all the facts of the universe as explainable in terms of matter and motion, and in particular explains all psychical processes by physical and chemical changes in the nervous system. It is thus opposed both to natural realism and to idealism. For the natural realist stands upon the common-sense position that minds and material objects have equally effective existence; while the idealist explains matter by mind and denies that mind can be explained by matter. The various forms into which materialism may be classified correspond to the various causes which induce men to take up materialistic views. *Naïve materialism* is due to a cause which still, perhaps, has no small power, the natural difficulty which persons who have had no philosophic training experience in observing and appreciating the importance of the immaterial facts of consciousness. The pre-Socratics may be classed as naïve materialists in this sense; though, as at that early period the contrast between matter and spirit had not been fully realized and matter was credited with properties that belong to life, it is usual to apply the term hylozoism (*q.v.*) to the earliest stage of Greek metaphysical theory. It is not difficult to discern the influence of naïve materialism in contemporary thinking. We see it in Huxley, and still more in Haeckel, whose materialism (which he chooses to term "monism") is evidently conditioned by ignorance of the history and present position of speculation. *Cosmological materialism* is that form of the doctrine in which the dominant motive is the formation of a comprehensive world-scheme: the Stoics and Epicureans were cosmological materialists. In *anti-religious materialism* the motive is hostility to established dogmas which are connected, in the Christian system especially, with certain forms of spiritual doctrine. Such a motive weighed much with Hobbes and with the French materialists of the 18th century, such as La Mettrie and d'Holbach. The cause of *medical materialism* is the natural bias of physicians towards explaining the health and disease of mind by the health and disease of body. It has received its greatest support from the study of insanity, which is now fully recognized as conditioned by disease of the brain. To this school belong Drs Maudsley and Mercier. The highest form of the doctrine is *scientific materialism*, by which term is meant the doctrine so commonly adopted by the physicist, zoologist and biologist.

It may perhaps be fairly said that materialism is at present a necessary methodological postulate of natural-scientific inquiry. The business of the scientist is to explain everything by the physical causes which are comparatively well understood and to exclude the interference of spiritual causes. It was the great work of Descartes to exclude rigorously from science all explanations which were not scientifically verifiable; and the prevalence of materialism at certain epochs, as in the enlightenment of the 18th century and in the German philosophy of the middle 19th, were occasioned by special need to vindicate the scientific position, in the former case against the Church, in the latter case against the pseudo-science of the Hegelian dialectic. The chief definite periods of materialism are the pre-Socratic and the post-Aristotelian in Greece, the 18th century in France, and in Germany the 19th century from about 1850 to 1880. In England materialism has been endemic, so to speak, from Hobbes to the present time, and English materialism is more important perhaps than that of any other country. But, from the national distrust of system, it has not been elaborated into a consistent metaphysic, but is rather traceable as a tendency harmonizing with the spirit of natural science. Hobbes, Locke, Hume, Mill and Herbert Spencer are not systematic materialists, but show tendencies towards materialism.

See [METAPHYSICS](#); and Lange's *History of Materialism*.



MATER MATUTA (connected with Lat. *mane*, *matutinus*, "morning"), an old Italian goddess of dawn. The idea of light being closely connected with childbirth, whereby the infant is brought into the light of the world, she came to be regarded as a double of Juno, and was identified by the Greeks with Eilithyia. Matuta had a temple in Rome in the Forum Boarium, where the festival of Matralia was celebrated on the 11th of June. Only married women were admitted, and none who had been married more than once were allowed to crown her image with garlands. Under hellenizing influences, she became a goddess of sea and harbours, the Ino-Leucothea of the Greeks. In this connexion it is noticeable that, as Ino tended her nephew Dionysus, so at the Matralia the participants prayed for

the welfare of their nephews and nieces before that of their own children. The transformation was complete in 174 B.C., when Tiberius Sempronius Gracchus, after the conquest of Sardinia, placed in the temple of Matuta a map commemorative of the campaign, containing a plan of the island and the various engagements. The progress of navigation and the association of divinities of the sky with maritime affairs probably also assisted to bring about the change, although the memory of her earlier function as a goddess of childbirth survived till imperial times.

Ovid, *Fasti*, vi. 475; Livy xli. 28; Plutarch, *Quaestiones romanae*, 16, 17.



MATHEMATICS (Gr. μαθηματική, sc. τέχνη or ἐπιστήμη; from μάθημα, “learning” or “science”), the general term for the various applications of mathematical thought, the traditional field of which is number and quantity. It has been usual to define mathematics as “the science of discrete and continuous magnitude.” Even Leibnitz,¹ who initiated a more modern point of view, follows the tradition in thus confining the scope of mathematics properly so called, while apparently conceiving it as a department of a yet wider science of reasoning. A short consideration of some leading topics of the science will exemplify both the plausibility and inadequacy of the above definition. Arithmetic, algebra, and the infinitesimal calculus, are sciences directly concerned with integral numbers, rational (or fractional) numbers, and real numbers generally, which include incommensurable numbers. It would seem that “the general theory of discrete and continuous quantity” is the exact description of the topics of these sciences. Furthermore, can we not complete the circle of the mathematical sciences by adding geometry? Now geometry deals with points, lines, planes and cubic contents. Of these all except points are quantities: lines involve lengths, planes involve areas, and cubic contents involve volumes. Also, as the Cartesian geometry shows, all the relations between points are expressible in terms of geometric quantities. Accordingly, at first sight it seems reasonable to define geometry in some such way as “the science of dimensional quantity.” Thus every subdivision of mathematical science would appear to deal with quantity, and the definition of mathematics as “the science of quantity” would appear to be justified. We have now to consider the reasons for rejecting this definition as inadequate.

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Types of Critical Questions.—What are numbers? We can talk of five apples and ten pears. But what are “five” and “ten” apart from the apples and pears? Also in addition to the cardinal numbers there are the ordinal numbers: the fifth apple and the tenth pear claim thought. What is the relation of “the fifth” and “the tenth” to “five” and “ten”? “The first rose of summer” and “the last rose of summer” are parallel phrases, yet one explicitly introduces an ordinal number and the other does not. Again, “half a foot” and “half a pound” are easily defined. But in what sense is there “a half,” which is the same for “half a foot” as “half a pound”? Furthermore, incommensurable numbers are defined as the limits arrived at as the result of certain procedures with rational numbers. But how do we know that there is anything to reach? We must know that $\sqrt{2}$ exists before we can prove that any procedure will reach it. An expedition to the North Pole has nothing to reach unless the earth rotates.

Also in geometry, what is a point? The straightness of a straight line and the planeness of a plane require consideration. Furthermore, “congruence” is a difficulty. For when a triangle “moves,” the points do not move with it. So what is it that keeps unaltered in the moving triangle? Thus the whole method of measurement in geometry as described in the elementary textbooks and the older treatises is obscure to the last degree. Lastly, what are “dimensions”? All these topics require thorough discussion before we can rest content with the definition of mathematics as the general science of magnitude; and by the time they are discussed the definition has evaporated. An outline of the modern answers to questions such as the above will now be given. A critical defence of them would require a volume.²

Cardinal Numbers.—A one-one relation between the members of two classes α and β is any method of correlating all the members of α to all the members of β , so that any member of α has one and only one correlate in β , and any member of β has one and only one correlate in α . Two classes between which a one-one relation exists have the same cardinal number and are called cardinally similar; and the cardinal number of the class α is a certain class whose members are themselves classes—namely, it is the class composed of all those classes for which a one-one correlation with α exists. Thus the cardinal number of α is itself a class, and furthermore α is a member of it. For a one-one relation can be established between the members of α and α by the simple process of correlating each member of α with itself. Thus the cardinal number one is the class of unit classes, the cardinal number two is the class of doublets, and so on. Also a unit class is any class with the property that it possesses a member x such that, if y is any member of the class, then x and y are identical. A doublet is any class which possesses a member x such that the modified class formed by all the other members except x is a unit class. And so on for all the finite cardinals, which are thus defined successively. The cardinal number zero is the class of classes with no members; but there is only one such class, namely—the null class. Thus this cardinal number has only one member. The operations of addition and multiplication of two given cardinal numbers can be defined by taking two classes α and β , satisfying the conditions (1) that their cardinal numbers are respectively the given numbers, and (2) that they contain no member in common, and then by defining by reference to α and β two other suitable classes whose cardinal numbers are defined to be respectively the required sum and product of the cardinal numbers in question. We need not here consider the details of this process.

With these definitions it is now possible to *prove* the following six premisses applying to finite cardinal numbers, from which Peano³ has shown that all arithmetic can be deduced:—

- i. Cardinal numbers form a class.
- ii. Zero is a cardinal number.
- iii. If a is a cardinal number, $a + 1$ is a cardinal number.
- iv. If s is any class and zero is a member of it, also if when x is a cardinal number and a member of s , also $x + 1$ is a member of s , then the whole class of cardinal numbers is contained in s .
- v. If a and b are cardinal numbers, and $a + 1 = b + 1$, then $a = b$.
- vi. If a is a cardinal number, then $a + 1 \neq 0$.

It may be noticed that (iv) is the familiar principle of mathematical induction. Peano in an historical note refers its first explicit employment, although without a general enunciation, to Maurolycus in his work, *Arithmeticonum libri*

But now the difficulty of confining mathematics to being the science of number and quantity is immediately apparent. For there is no self-contained science of cardinal numbers. The proof of the six premisses requires an elaborate investigation into the general properties of classes and relations which can be deduced by the strictest reasoning from our ultimate logical principles. Also it is purely arbitrary to erect the consequences of these six principles into a separate science. They are excellent principles of the highest value, but they are in no sense the necessary premisses which must be proved before any other propositions of cardinal numbers can be established. On the contrary, the premisses of arithmetic can be put in other forms, and, furthermore, an indefinite number of propositions of arithmetic can be proved directly from logical principles without mentioning them. Thus, while arithmetic may be defined as that branch of deductive reasoning concerning classes and relations which is concerned with the establishment of propositions concerning cardinal numbers, it must be added that the introduction of cardinal numbers makes no great break in this general science. It is no more than an interesting subdivision in a general theory.

Ordinal Numbers.—We must first understand what is meant by “order,” that is, by “serial arrangement.” An order of a set of things is to be sought in that relation holding between members of the set which constitutes that order. The set viewed as a class has many orders. Thus the telegraph posts along a certain road have a space-order very obvious to our senses; but they have also a time-order according to dates of erection, perhaps more important to the postal authorities who replace them after fixed intervals. A set of cardinal numbers have an order of magnitude, often called *the* order of the set because of its insistent obviousness to us; but, if they are the numbers drawn in a lottery, their time-order of occurrence in that drawing also ranges them in an order of some importance. Thus the order is defined by the “serial” relation. A relation (R) is serial⁴ when (1) it implies diversity, so that, if x has the relation R to y, x is diverse from y; (2) it is transitive, so that if x has the relation R to y, and y to z, then x has the relation R to z; (3) it has the property of connexity, so that if x and y are things to which any things bear the relation R, or which bear the relation R to any things, then *either* x is identical with y, *or* x has the relation R to y, *or* y has the relation R to x. These conditions are necessary and sufficient to secure that our ordinary ideas of “preceding” and “succeeding” hold in respect to the relation R. The “field” of the relation R is the class of things ranged in order by it. Two relations R and R' are said to be ordinally similar, if a one-one relation holds between the members of the two fields of R and R', such that if x and y are any two members of the field of R, such that x has the relation R to y, and if x' and y' are the correlates in the field of R' of x and y, then in all such cases x' has the relation R' to y', and conversely, interchanging the dashes on the letters, *i.e.* R and R', x and x', &c. It is evident that the ordinal similarity of two relations implies the cardinal similarity of their fields, but not conversely. Also, two relations need not be serial in order to be ordinally similar; but if one is serial, so is the other. The relation-number of a relation is the class whose members are all those relations which are ordinally similar to it. This class will include the original relation itself. The relation-number of a relation should be compared with the cardinal number of a class. When a relation is serial its relation-number is often called its serial type. The addition and multiplication of two relation-numbers is defined by taking two relations R and S, such that (1) their fields have no terms in common; (2) their relation-numbers are the two relation-numbers in question, and then by defining by reference to R and S two other suitable relations whose relation-numbers are defined to be respectively the sum and product of the relation-numbers in question. We need not consider the details of this process. Now if n be any finite cardinal number, it can be proved that the class of those serial relations, which have a field whose cardinal number is n, is a relation-number. This relation-number is the ordinal number corresponding to n; let it be symbolized by \dot{n} . Thus, corresponding to the cardinal numbers 2, 3, 4 ... there are the ordinal numbers 2, 3, 4.... The definition of the ordinal number 1 requires some little ingenuity owing to the fact that no serial relation can have a field whose cardinal number is 1; but we must omit here the explanation of the process. The ordinal number 0 is the class whose sole member is the null relation—that is, the relation which never holds between any pair of entities. The definitions of the finite ordinals can be expressed without use of the corresponding cardinals, so there is no essential priority of cardinals to ordinals. Here also it can be seen that the science of the finite ordinals is a particular subdivision of the general theory of classes and relations. Thus the illusory nature of the traditional definition of mathematics is again illustrated.

Cantor's Infinite Numbers.—Owing to the correspondence between the finite cardinals and the finite ordinals, the propositions of cardinal arithmetic and ordinal arithmetic correspond point by point. But the definition of the cardinal number of a class applies when the class is not finite, and it can be proved that there are different infinite cardinal numbers, and that there is a least infinite cardinal, now usually denoted by \aleph_0 , where \aleph is the Hebrew letter aleph. Similarly, a class of serial relations, called *well-ordered* serial relations, can be defined, such that their corresponding relation-numbers include the ordinary finite ordinals, but also include relation-numbers which have many properties like those of the finite ordinals, though the fields of the relations belonging to them are not finite. These relation-numbers are the infinite ordinal numbers. The arithmetic of the infinite cardinals does not correspond to that of the infinite ordinals. The theory of these extensions of the ideas of number is dealt with in the article [NUMBER](#). It will suffice to mention here that Peano's fourth premiss of arithmetic does not hold for infinite cardinals or for infinite ordinals. Contrasting the above definitions of number, cardinal and ordinals, with the alternative theory that number is an ultimate idea incapable of definition, we notice that our procedure exacts a greater attention, combined with a smaller credulity; for every idea, assumed as ultimate, demands a separate act of faith.

The Data of Analysts.—Rational numbers and real numbers in general can now be defined according to the same general method. If m and n are finite cardinal numbers, the rational number m/n is the relation which any finite cardinal number x bears to any finite cardinal number y when $n \times x = m \times y$. Thus the rational number one, which we will denote by 1_r , is not the cardinal number 1; for 1_r is the relation 1/1 as defined above, and is thus a relation holding between certain pairs of cardinals. Similarly, the other rational integers must be distinguished from the corresponding cardinals. The arithmetic of rational numbers is now established by means of appropriate definitions, which indicate the entities meant by the operations of addition and multiplication. But the desire to obtain general enunciations of theorems without exceptional cases has led mathematicians to employ entities of ever-ascending types of elaboration. These entities are not created by mathematicians, they are employed by them, and their definitions should point out the construction of the new entities in terms of those already on hand. The real numbers, which include irrational numbers, have now to be defined. Consider the serial arrangement of the rationals in their order of magnitude. A real number is a class (α , say) of rational numbers which satisfies the condition that it is the same as the class of those rationals each of which precedes at least one member of α . Thus, consider the class of rationals less than 2_r ; any member of this class precedes some other members of the class—thus 1/2 precedes 4/3, 3/2 and so on; also the class of predecessors of predecessors of 2_r is itself the class of predecessors of 2_r . Accordingly this class is a real number; it will be called the real number 2_R . Note that the class of rationals less than or equal to 2_r is not a real number. For 2_r is not a predecessor of some member of the class. In the above example 2_R is an integral real number, which is distinct from a rational integer, and from a cardinal number. Similarly, any rational real number is distinct from the corresponding rational number. But now the irrational real numbers have all made their appearance. For example, the class of rationals whose squares are less than 2_r satisfies the definition

of a real number; it is the real number $\sqrt{2}$. The arithmetic of real numbers follows from appropriate definitions of the operations of addition and multiplication. Except for the immediate purposes of an explanation, such as the above, it is unnecessary for mathematicians to have separate symbols, such as 2 , $2_{\mathbb{F}}$ and $2_{\mathbb{R}}$, or $2/3$ and $(2/3)_{\mathbb{R}}$. Real numbers with signs (+ or -) are now defined. If a is a real number, $+a$ is defined to be the relation which any real number of the form $x + a$ bears to the real number x , and $-a$ is the relation which any real number x bears to the real number $x + a$. The addition and multiplication of these "signed" real numbers is suitably defined, and it is proved that the usual arithmetic of such numbers follows. Finally, we reach a complex number of the n th order. Such a number is a "one-many" relation which relates n signed real numbers (or n algebraic complex numbers when they are already defined by this procedure) to the n cardinal numbers $1, 2 \dots n$ respectively. If such a complex number is written (as usual) in the form $x_1e_1 + x_2e_2 + \dots + x_n e_n$, then this particular complex number relates x_1 to 1 , x_2 to 2 , ... x_n to n . Also the "unit" e_1 (or e_2) considered as a number of the system is merely a shortened form for the complex number $(+1)e_1 + 0e_2 + \dots + 0e_n$. This last number exemplifies the fact that one signed real number, such as 0 , may be correlated to many of the n cardinals, such as $2 \dots n$ in the example, but that each cardinal is only correlated with one signed number. Hence the relation has been called above "one-many." The sum of two complex numbers $x_1e_1 + x_2e_2 + \dots + x_n e_n$ and $y_1e_1 + y_2e_2 + \dots + y_n e_n$ is always defined to be the complex number $(x_1 + y_1)e_1 + (x_2 + y_2)e_2 + \dots + (x_n + y_n)e_n$. But an indefinite number of definitions of the product of two complex numbers yield interesting results. Each definition gives rise to a corresponding algebra of higher complex numbers. We will confine ourselves here to algebraic complex numbers—that is, to complex numbers of the second order taken in connexion with that definition of multiplication which leads to ordinary algebra. The product of two complex numbers of the second order—namely, $x_1e_1 + x_2e_2$ and $y_1e_1 + y_2e_2$, is in this case defined to mean the complex $(x_1y_1 - x_2y_2)e_1 + (x_1y_2 + x_2y_1)e_2$. Thus $e_1 \times e_1 = e$, $e_2 \times e_2 = -e_1$, $e_1 \times e_2 = e_2 \times e_1 = e_2$. With this definition it is usual to omit the first symbol e_1 , and to write i or $\sqrt{-1}$ instead of e_2 . Accordingly, the typical form for such a complex number is $x + yi$, and then with this notation the above-mentioned definition of multiplication is invariably adopted. The importance of this algebra arises from the fact that in terms of such complex numbers with this definition of multiplication the utmost generality of expression, to the exclusion of exceptional cases, can be obtained for theorems which occur in analogous forms, but complicated with exceptional cases, in the algebras of real numbers and of signed real numbers. This is exactly the same reason as that which has led mathematicians to work with signed real numbers in preference to real numbers, and with real numbers in preference to rational numbers. The evolution of mathematical thought in the invention of the data of analysis has thus been completely traced in outline.

Definition of Mathematics.—It has now become apparent that the traditional field of mathematics in the province of discrete and continuous number can only be separated from the general abstract theory of classes and relations by a wavering and indeterminate line. Of course a discussion as to the mere application of a word easily degenerates into the most fruitless logomachy. It is open to any one to use any word in any sense. But on the assumption that "mathematics" is to denote a science well marked out by its subject matter and its methods from other topics of thought, and that at least it is to include all topics habitually assigned to it, there is now no option but to employ "mathematics" in the general sense⁵ of the "science concerned with the logical deduction of consequences from the general premisses of all reasoning."

Geometry.—The typical mathematical proposition is: "If $x, y, z \dots$ satisfy such and such conditions, then such and such other conditions hold with respect to them." By taking fixed conditions for the hypothesis of such a proposition a definite department of mathematics is marked out. For example, geometry is such a department. The "axioms" of geometry are the fixed conditions which occur in the hypotheses of the geometrical propositions. The special nature of the "axioms" which constitute geometry is considered in the article [GEOMETRY \(Axioms\)](#). It is sufficient to observe here that they are concerned with special types of classes of classes and of classes of relations, and that the connexion of geometry with number and magnitude is in no way an essential part of the foundation of the science. In fact, the whole theory of measurement in geometry arises at a comparatively late stage as the result of a variety of complicated considerations.

Classes and Relations.—The foregoing account of the nature of mathematics necessitates a strict deduction of the general properties of classes and relations from the ultimate logical premisses. In the course of this process, undertaken for the first time with the rigour of mathematicians, some contradictions have become apparent. That first discovered is known as Burali-Forti's contradiction,⁶ and consists in the proof that there both is and is not a greatest infinite ordinal number. But these contradictions do not depend upon any theory of number, for Russell's contradiction⁷ does not involve number in any form. This contradiction arises from considering the class possessing as members all classes which are not members of themselves. Call this class w ; then to say that x is a w is equivalent to saying that x is not an x . Accordingly, to say that w is a w is equivalent to saying that w is not a w . An analogous contradiction can be found for relations. It follows that a careful scrutiny of the very idea of classes and relations is required. Note that classes are here required in extension, so that the class of human beings and the class of rational featherless bipeds are identical; similarly for relations, which are to be determined by the entities related. Now a class in respect to its components is many. In what sense then can it be one? This problem of "the one and the many" has been discussed continuously by the philosophers.⁸ All the contradictions can be avoided, and yet the use of classes and relations can be preserved as required by mathematics, and indeed by common sense, by a theory which denies to a class—or relation—existence or being in any sense in which the entities composing it—or related by it—exist. Thus, to say that a pen is an entity and the class of pens is an entity is merely a play upon the word "entity"; the second sense of "entity" (if any) is indeed derived from the first, but has a more complex signification. Consider an incomplete proposition, incomplete in the sense that some entity which ought to be involved in it is represented by an undetermined x , which may stand for any entity. Call it a propositional function; and, if ϕx be a propositional function, the undetermined variable x is the argument. Two propositional functions ϕx and ψx are "extensionally identical" if any determination of x in ϕx which converts ϕx into a true proposition also converts ψx into a true proposition, and conversely for ψ and ϕ . Now consider a propositional function F_χ in which the variable argument χ is itself a propositional function. If F_χ is true when, and only when, χ is determined to be either ϕ or some other propositional function extensionally equivalent to ϕ , then the proposition F_ϕ is of the form which is ordinarily recognized as being about the class determined by ϕx taken in extension—that is, the class of entities for which ϕx is a true proposition when x is determined to be any one of them. A similar theory holds for relations which arise from the consideration of propositional functions with two or more variable arguments. It is then possible to define by a parallel elaboration what is meant by classes of classes, classes of relations, relations between classes, and so on. Accordingly, the number of a class of relations can be defined, or of a class of classes, and so on. This theory⁹ is in effect a theory of the use of classes and relations, and does not decide the philosophic question as to the sense (if any) in which a class in extension is one entity. It does indeed deny that it is an entity in the sense in which one of its members is an entity. Accordingly, it is a fallacy for any determination of x to consider "x is an x" or "x is not an x" as having the meaning of propositions. Note that for any determination of x , "x is an x" and "x is not an x," are neither of them fallacies but are both meaningless, according to this theory. Thus Russell's contradiction vanishes, and an examination of the other contradictions shows that they vanish also.

Applied Mathematics.—The selection of the topics of mathematical inquiry among the infinite variety open to it has been guided by the useful applications, and indeed the abstract theory has only recently been disentangled from the empirical elements connected with these applications. For example, the application of the theory of cardinal numbers to classes of physical entities involves in practice some process of counting. It is only recently that the *succession* of processes which is involved in any act of counting has been seen to be irrelevant to the idea of number. Indeed, it is only by experience that we can know that any definite process of counting will give the true cardinal number of some class of entities. It is perfectly possible to imagine a universe in which any act of counting by a being in it annihilated some members of the class counted during the time and only during the time of its continuance. A legend of the Council of Nicea¹⁰ illustrates this point: “When the Bishops took their places on their thrones, they were 318; when they rose up to be called over, it appeared that they were 319; so that they never could make the number come right, and whenever they approached the last of the series, he immediately turned into the likeness of his next neighbour.” Whatever be the historical worth of this story, it may safely be said that it cannot be disproved by deductive reasoning from the premisses of abstract logic. The most we can do is to assert that a universe in which such things are liable to happen on a large scale is unfitted for the practical application of the theory of cardinal numbers. The application of the theory of real numbers to physical quantities involves analogous considerations. In the first place, some physical process of addition is presupposed, involving some inductively inferred law of permanence during that process. Thus in the theory of masses we must know that two pounds of lead when put together will counterbalance in the scales two pounds of sugar, or a pound of lead and a pound of sugar. Furthermore, the sort of continuity of the series (in order of magnitude) of rational numbers is known to be different from that of the series of real numbers. Indeed, mathematicians now reserve “continuity” as the term for the latter kind of continuity; the mere property of having an infinite number of terms between any two terms is called “compactness.” The compactness of the series of rational numbers is consistent with quasi-gaps in it—that is, with the possible absence of limits to classes in it. Thus the class of rational numbers whose squares are less than 2 has no upper limit among the rational numbers. But among the real numbers all classes have limits. Now, owing to the necessary inexactness of measurement, it is impossible to discriminate directly whether any kind of continuous physical quantity possesses the compactness of the series of rationals or the continuity of the series of real numbers. In calculations the latter hypothesis is made because of its mathematical simplicity. But, the assumption has certainly no a priori grounds in its favour, and it is not very easy to see how to base it upon experience. For example, if it should turn out that the mass of a body is to be estimated by counting the number of corpuscles (whatever they may be) which go to form it, then a body with an irrational measure of mass is intrinsically impossible. Similarly, the continuity of space apparently rests upon sheer assumption unsupported by any a priori or experimental grounds. Thus the current applications of mathematics to the analysis of phenomena can be justified by no a priori necessity.

In one sense there is no science of applied mathematics. When once the fixed conditions which any hypothetical group of entities are to satisfy have been precisely formulated, the deduction of the further propositions, which also will hold respecting them, can proceed in complete independence of the question as to whether or no any such group of entities can be found in the world of phenomena. Thus rational mechanics, based on the Newtonian Laws, viewed as mathematics is independent of its supposed application, and hydrodynamics remains a coherent and respected science though it is extremely improbable that any perfect fluid exists in the physical world. But this unbendingly logical point of view cannot be the last word upon the matter. For no one can doubt the essential difference between characteristic treatises upon “pure” and “applied” mathematics. The difference is a difference in method. In pure mathematics the hypotheses which a set of entities are to satisfy are given, and a group of interesting deductions are sought. In “applied mathematics” the “deductions” are given in the shape of the experimental evidence of natural science, and the hypotheses from which the “deductions” can be deduced are sought. Accordingly, every treatise on applied mathematics, properly so-called, is directed to the criticism of the “laws” from which the reasoning starts, or to a suggestion of results which experiment may hope to find. Thus if it calculates the result of some experiment, it is not the experimentalist’s well-attested results which are on their trial, but the basis of the calculation. Newton’s *Hypotheses non fingo* was a proud boast, but it rests upon an entire misconception of the capacities of the mind of man in dealing with external nature.

Synopsis of Existing Developments of Pure Mathematics.—A complete classification of mathematical sciences, as they at present exist, is to be found in the *International Catalogue of Scientific Literature* promoted by the Royal Society. The classification in question was drawn up by an international committee of eminent mathematicians, and thus has the highest authority. It would be unfair to criticize it from an exacting philosophical point of view. The practical object of the enterprise required that the proportionate quantity of yearly output in the various branches, and that the liability of various topics as a matter of fact to occur in connexion with each other, should modify the classification.

Section A deals with pure mathematics. Under the general heading “*Fundamental Notions*” occur the subheadings “*Foundations of Arithmetic*,” with the topics rational, irrational and transcendental numbers, and aggregates; “*Universal Algebra*,” with the topics complex numbers, quaternions, ausdehnungslehre, vector analysis, matrices, and algebra of logic; and “*Theory of Groups*,” with the topics finite and continuous groups. For the subjects of this general heading see the articles [ALGEBRA](#), [UNIVERSAL](#); [GROUPS](#), [THEORY OF](#); [INFINITESIMAL CALCULUS](#); [NUMBER](#); [QUATERNIONS](#); [VECTOR ANALYSIS](#). Under the general heading “*Algebra and Theory of Numbers*” occur the subheadings “*Elements of Algebra*,” with the topics rational polynomials, permutations, &c., partitions, probabilities; “*Linear Substitutions*,” with the topics determinants, &c., linear substitutions, general theory of quantics; “*Theory of Algebraic Equations*,” with the topics existence of roots, separation of and approximation to, theory of Galois, &c.; “*Theory of Numbers*,” with the topics congruences, quadratic residues, prime numbers, particular irrational and transcendental numbers. For the subjects of this general heading see the articles [ALGEBRA](#); [ALGEBRAIC FORMS](#); [ARITHMETIC](#); [COMBINATORIAL ANALYSIS](#); [DETERMINANTS](#); [EQUATION](#); [FRACTION, CONTINUED](#); [INTERPOLATION](#); [LOGARITHMS](#); [MAGIC SQUARE](#); [PROBABILITY](#). Under the general heading “*Analysis*” occur the subheadings “*Foundations of Analysis*,” with the topics theory of functions of real variables, series and other infinite processes, principles and elements of the differential and of the integral calculus, definite integrals, and calculus of variations; “*Theory of Functions of Complex Variables*,” with the topics functions of one variable and of several variables; “*Algebraic Functions and their Integrals*,” with the topics algebraic functions of one and of several variables, elliptic functions and single theta functions, Abelian integrals; “*Other Special Functions*,” with the topics Euler’s, Legendre’s, Bessel’s and automorphic functions; “*Differential Equations*,” with the topics existence theorems, methods of solution, general theory; “*Differential Forms and Differential Invariants*,” with the topics differential forms, including Pfaffians, transformation of differential forms, including tangential (or contact) transformations, differential invariants; “*Analytical Methods connected with Physical Subjects*,” with the topics harmonic analysis, Fourier’s series, the differential equations of applied mathematics, Dirichlet’s problem; “*Difference Equations and Functional Equations*,” with the topics recurring series, solution of equations of finite differences and functional equations. For the subjects of this heading see the articles [DIFFERENTIAL EQUATIONS](#); [FOURIER’S SERIES](#); [CONTINUED FRACTIONS](#); [FUNCTION](#); [FUNCTION OF REAL VARIABLES](#); [FUNCTION](#)

COMPLEX; GROUPS, THEORY OF; INFINITESIMAL CALCULUS; MAXIMA AND MINIMA; SERIES; SPHERICAL HARMONICS; TRIGONOMETRY; VARIATIONS, CALCULUS OF. Under the general heading "Geometry" occur the subheadings "Foundations," with the topics principles of geometry, non-Euclidean geometries, hyperspace, methods of analytical geometry; "Elementary Geometry," with the topics planimetry, stereometry, trigonometry, descriptive geometry; "Geometry of Conics and Quadrics," with the implied topics; "Algebraic Curves and Surfaces of Degree higher than the Second," with the implied topics; "Transformations and General Methods for Algebraic Configurations," with the topics collineation, duality, transformations, correspondence, groups of points on algebraic curves and surfaces, genus of curves and surfaces, enumerative geometry, connexes, complexes, congruences, higher elements in space, algebraic configurations in hyperspace; "Infinitesimal Geometry: applications of Differential and Integral Calculus to Geometry," with the topics kinematic geometry, curvature, rectification and quadrature, special transcendental curves and surfaces; "Differential Geometry: applications of Differential Equations to Geometry," with the topics curves on surfaces, minimal surfaces, surfaces determined by differential properties, conformal and other representation of surfaces on others, deformation of surfaces, orthogonal and isothermic surfaces. For the subjects under this heading see the articles CONIC SECTIONS; CIRCLE; CURVE; GEOMETRICAL CONTINUITY; GEOMETRY, AXIOMS OF; GEOMETRY, EUCLIDEAN; GEOMETRY, PROJECTIVE; GEOMETRY, ANALYTICAL; GEOMETRY, LINE; KNOTS, MATHEMATICAL THEORY OF; MENSURATION; MODELS; PROJECTION; SURFACE; TRIGONOMETRY.

This survey of the existing developments of pure mathematics confirms the conclusions arrived at from the previous survey of the theoretical principles of the subject. Functions, operations, transformations, substitutions, correspondences, are but names for various types of relations. A group is a class of relations possessing a special property. Thus the modern ideas, which have so powerfully extended and unified the subject, have loosened its connexion with "number" and "quantity," while bringing ideas of form and structure into increasing prominence. Number must indeed ever remain the great topic of mathematical interest, because it is in reality the great topic of applied mathematics. All the world, including savages who cannot count beyond five, daily "apply" theorems of number. But the complexity of the idea of number is practically illustrated by the fact that it is best studied as a department of a science wider than itself.

Synopsis of Existing Developments of Applied Mathematics.—Section B of the *International Catalogue* deals with mechanics. The heading "Measurement of Dynamical Quantities" includes the topics units, measurements, and the constant of gravitation. The topics of the other headings do not require express mention. These headings are: "Geometry and Kinematics of Particles and Solid Bodies"; "Principles of Rational Mechanics"; "Statics of Particles, Rigid Bodies, &c."; "Kinetics of Particles, Rigid Bodies, &c."; "General Analytical Mechanics"; "Statics and Dynamics of Fluids"; "Hydraulics and Fluid Resistances"; "Elasticity." For the subjects of this general heading see the articles MECHANICS; DYNAMICS, ANALYTICAL; GYROSCOPE; HARMONIC ANALYSIS; WAVE; HYDROMECHANICS; ELASTICITY; MOTION, LAWS OF; ENERGY; ENERGY; ASTRONOMY (Celestial Mechanics); TIDE. Mechanics (including dynamical astronomy) is that subject among those traditionally classed as "applied" which has been most completely transfused by mathematics—that is to say, which is studied with the deductive spirit of the pure mathematician, and not with the covert inductive intention overlaid with the superficial forms of deduction, characteristic of the applied mathematician.

Every branch of physics gives rise to an application of mathematics. A prophecy may be hazarded that in the future these applications will unify themselves into a mathematical theory of a hypothetical substructure of the universe, uniform under all the diverse phenomena. This reflection is suggested by the following articles: AETHER; MOLECULE; CAPILLARY ACTION; DIFFUSION; RADIATION, THEORY OF; and others.

The applications of mathematics to statistics (see STATISTICS and PROBABILITY) should not be lost sight of; the leading fields for these applications are insurance, sociology, variation in zoology and economics.

The History of Mathematics.—The history of mathematics is in the main the history of its various branches. A short account of the history of each branch will be found in connexion with the article which deals with it. Viewing the subject as a whole, and apart from remote developments which have not in fact seriously influenced the great structure of the mathematics of the European races, it may be said to have had its origin with the Greeks, working on pre-existing fragmentary lines of thought derived from the Egyptians and Phœnicians. The Greeks created the sciences of geometry and of number as applied to the measurement of continuous quantities. The great abstract ideas (considered directly and not merely in tacit use) which have dominated the science were due to them—namely, ratio, irrationality, continuity, the point, the straight line, the plane. This period lasted¹¹ from the time of Thales, c. 600 B.C., to the capture of Alexandria by the Mahommedans, A.D. 641. The medieval Arabians invented our system of numeration and developed algebra. The next period of advance stretches from the Renaissance to Newton and Leibnitz at the end of the 17th century. During this period logarithms were invented, trigonometry and algebra developed, analytical geometry invented, dynamics put upon a sound basis, and the period closed with the magnificent invention of (or at least the perfecting of) the differential calculus by Newton and Leibnitz and the discovery of gravitation. The 18th century witnessed a rapid development of analysis, and the period culminated with the genius of Lagrange and Laplace. This period may be conceived as continuing throughout the first quarter of the 19th century. It was remarkable both for the brilliance of its achievements and for the large number of French mathematicians of the first rank who flourished during it. The next period was inaugurated in analysis by K. F. Gauss, N. H. Abel and A. L. Cauchy. Between them the general theory of the complex variable, and of the various "infinite" processes of mathematical analysis, was established, while other mathematicians, such as Poncelet, Steiner, Lobatschewsky and von Staudt, were founding modern geometry, and Gauss inaugurated the differential geometry of surfaces. The applied mathematical sciences of light, electricity and electromagnetism, and of heat, were now largely developed. This school of mathematical thought lasted beyond the middle of the century, after which a change and further development can be traced. In the next and last period the progress of pure mathematics has been dominated by the critical spirit introduced by the German mathematicians under the guidance of Weierstrass, though foreshadowed by earlier analysts, such as Abel. Also such ideas as those of invariants, groups and of form, have modified the entire science. But the progress in all directions has been too rapid to admit of any one adequate characterization. During the same period a brilliant group of mathematical physicists, notably Lord Kelvin (W. Thomson), H. V. Helmholtz, J. C. Maxwell, H. Hertz, have transformed applied mathematics by systematically basing their deductions upon the Law of the conservation of energy, and the hypothesis of an ether pervading space.

BIBLIOGRAPHY.—References to the works containing expositions of the various branches of mathematics are given in the appropriate articles. It must suffice here to refer to sources in which the subject is considered as one whole. Most philosophers refer in their works to mathematics more or less cursorily, either in the treatment of the ideas of number and magnitude, or in their consideration of the alleged a priori and necessary truths. A bibliography of such references would be in effect a bibliography of metaphysics, or rather of epistemology. The founder of the modern point of view, explained in this article, was Leibnitz, who, however, was so far in advance of contemporary thought that his ideas remained neglected and undeveloped until recently; cf. *Opuscles et fragments inédits de Leibnitz. Extraits des manuscrits de la bibliothèque royale de Hanovre*, by Louis Couturat (Paris, 1903), especially pp. 356-

399, "Generales inquisitiones de analysi notionum et veritatum" (written in 1686); also cf. *La Logique de Leibnitz*, already referred to. For the modern authors who have rediscovered and improved upon the position of Leibnitz, cf. *Grundgesetze der Arithmetik, begriffsschriftlich abgeleitet von Dr G. Frege, a.o. Professor an der Univ. Jena* (Bd. i., 1893; Bd. ii., 1903, Jena); also cf. Frege's earlier works, *Begriffsschrift, eine der arithmetischen nachgebildete Formelsprache des reinen Denkens* (Halle, 1879), and *Die Grundlagen der Arithmetik* (Breslau, 1884); also cf. Bertrand Russell, *The Principles of Mathematics* (Cambridge, 1903), and his article on "Mathematical Logic" in *Amer. Quart. Journ. of Math.* (vol. xxx., 1908). Also the following works are of importance, though not all expressly expounding the Leibnitzian point of view: cf. G. Cantor, "Grundlagen einer allgemeinen Mannigfaltigkeitslehre," *Math. Annal.*, vol. xxi. (1883) and subsequent articles in vols. xlvi. and xlix.; also R. Dedekind, *Stetigkeit und irrationales Zahlen* (1st ed., 1872), and *Was sind und was sollen die Zahlen?* (1st ed., 1887), both tracts translated into English under the title *Essays on the Theory of Numbers* (Chicago, 1901). These works of G. Cantor and Dedekind were of the greatest importance in the progress of the subject. Also cf. G. Peano (with various collaborators of the Italian school), *Formulaire de mathématiques* (Turin, various editions, 1894-1908; the earlier editions are the more interesting philosophically); Felix Klein, *Lectures on Mathematics* (New York, 1894); W. K. Clifford, *The Common Sense of the exact Sciences* (London, 1885); H. Poincaré, *La Science et l'hypothèse* (Paris, 1st ed., 1902), English translation under the title, *Science and Hypothesis* (London, 1905); L. Couturat, *Les Principes des mathématiques* (Paris, 1905); E. Mach, *Die Mechanik in ihrer Entwicklung* (Prague, 1883), English translation under the title, *The Science of Mechanics* (London, 1893); K. Pearson, *The Grammar of Science* (London, 1st ed., 1892; 2nd ed., 1900, enlarged); A. Cayley, *Presidential Address* (Brit. Assoc., 1883); B. Russell and A. N. Whitehead, *Principia Mathematica* (Cambridge, 1911). For the history of mathematics the one modern and complete source of information is M. Cantor's *Vorlesungen über Geschichte der Mathematik* (Leipzig, 1st Bd., 1880; 2nd Bd., 1892; 3rd Bd., 1898; 4th Bd., 1908; 1st Bd., *von den ältesten Zeiten bis zum Jahre 1200, n. Chr.*; 2nd Bd., *von 1200-1668*; 3rd Bd., *von 1668-1758*; 4th Bd., *von 1795 bis 1790*); W. W. R. Ball, *A Short History of Mathematics* (London 1st ed., 1888, three subsequent editions, enlarged and revised, and translations into French and Italian).

(A. N. W.)

- 1 Cf. *La Logique de Leibnitz*, ch. vii., by L. Couturat (Paris, 1901).
- 2 Cf. *The Principles of Mathematics*, by Bertrand Russell (Cambridge, 1903).
- 3 Cf. *Formulaire mathématique* (Turin, ed. of 1903); earlier formulations of the bases of arithmetic are given by him in the editions of 1898 and of 1901. The variations are only trivial.
- 4 Cf. Russell, *loc. cit.*, pp. 199-256.
- 5 The first unqualified explicit statement of *part* of this definition seems to be by B. Peirce, "Mathematics is the science which draws necessary conclusions" (*Linear Associative Algebra*, § i. (1870), republished in the *Amer. Journ. of Math.*, vol. iv. (1881)). But it will be noticed that the second half of the definition in the text—"from the general premisses of all reasoning"—is left unexpressed. The full expression of the idea and its development into a philosophy of mathematics is due to Russell, *loc. cit.*
- 6 "Una questione sui numeri transfiniti," *Rend. del circolo mat. di Palermo*, vol. xi. (1897); and Russell, *loc. cit.*, ch. xxxviii.
- 7 Cf. Russell, *loc. cit.*, ch. x.
- 8 Cf. *Pragmatism: a New Name for some Old Ways of Thinking* (1907).
- 9 Due to Bertrand Russell, cf. "Mathematical Logic as based on the Theory of Types," *Amer. Journ. of Math.* vol. xxx. (1908). It is more fully explained by him, with later simplifications, in *Principia mathematica* (Cambridge).
- 10 Cf. Stanley's *Eastern Church*, Lecture v.
- 11 Cf. *A Short History of Mathematics*, by W. W. R. Ball.



MATHER, COTTON (1663-1728), American Congregational clergyman and author, was born in Boston, Massachusetts, on the 12th of February 1663. He was the grandson of Richard Mather, and the eldest child of Increase Mather (*q.v.*), and Maria, daughter of John Cotton. After studying under the famous Ezekiel Cheever (1614-1708), he entered Harvard College at twelve, and graduated in 1678. While teaching (1678-1685), he began the study of theology, but soon, on account of an impediment in his speech, discontinued it and took up medicine. Later, however, he conquered the difficulty and finished his preparation for the ministry. He was elected assistant pastor in his father's church, the North, or Second, Church of Boston, in 1681 and was ordained as his father's colleague in 1685. In 1688, when his father went to England as agent for the colony, he was left at twenty-five in charge of the largest congregation in New England, and he ministered to it for the rest of his life. He soon became one of the most influential men in the colonies. He had much to do with the witchcraft persecution of his day; in 1692 when the magistrates appealed to the Boston clergy for advice in regard to the witchcraft cases in Salem he drafted their reply, upon which the prosecutions were based; in 1689 he had written *Memorable Providences Relating to Witchcraft and Possessions*, and even his earlier diaries have many entries showing his belief in diabolical possession and his fear and hatred of it. Thinking as he did that the New World had been the undisturbed realm of Satan before the settlements were made in Massachusetts, he considered it natural that the Devil should make a peculiar effort to bring moral destruction on these godly invaders. He used prayer and fasting to deliver himself from evil enchantment; and when he saw ecstatic and mystical visions promising him the Lord's help and great usefulness in the Lord's work, he feared that these revelations might be of diabolic origin. He used his great influence to bring the suspected persons to trial and punishment. He attended the trials, investigated many of the cases himself, and wrote sermons on witchcraft, the *Memorable Providences* and *The Wonders of the Invisible World* (1693), which increased the excitement of the people. Accordingly, when the persecutions ceased and the reaction set in, much of the blame was laid upon him; the influence of Judge Samuel Sewall, after he had come to think his part in the Salem delusion a great mistake, was turned against the Mathers; and the liberal leaders of Congregationalism in Boston, notably the Brattles, found this a vulnerable point in Cotton Mather's armour and used their knowledge to much effect, notably by assisting Robert Calef (*d. c.* 1723) in the preparation of *More Wonders of the Invisible World* (1700) a powerful criticism of Cotton Mather's part in the delusion at Salem.

Mather took some part as adviser in the Revolution of 1689 in Massachusetts. In 1690 he became a member of

the Corporation (probably the youngest ever chosen as Fellow) of Harvard College, and in 1707 he was greatly disappointed at his failure to be chosen president of that institution. He received the degree of D.D. from the University of Glasgow in 1710, and in 1713 was made a Fellow of the Royal Society. Like his father he was deeply grieved by the liberal theology and Church polity of the new Brattle Street Congregation, and conscientiously opposed its pastor Benjamin Colman, who had been irregularly ordained in England and by a Presbyterian body; but with his father he took part in 1700 in services in Colman's church. Harvard College was now controlled by the Liberals of the Brattle Street Church, and as it grew farther and farther away from Calvinism, Mather looked with increasing favour upon the college in Connecticut; before September 1701 he had drawn up a "scheme for a college," the oldest document now in the Yale archives; and finally (Jan. 1718) he wrote to a London merchant, Elihu Yale, and persuaded him to make a liberal gift to the college, which was named in his honour. During the small-pox epidemic of 1721 he attempted in vain to have treatment by inoculation employed, for the first time in America; and for this he was bitterly attacked on all sides, and his life was at one time in danger; but, nevertheless, he used the treatment on his son, who recovered, and he wrote *An Account of the Method and further Success of Inoculating for the Small Pox in London* (1721). In addition he advocated temperance, missions, Bible societies, and the education of the negro; favoured the establishing of libraries for working men and of religious organizations for young people, and organized societies for other branches of philanthropic work. His later years were clouded with many sorrows and disappointments; his relations with Governor Joseph Dudley were unfriendly; he lost much of his former prestige in the Church—his own congregation dwindled—and in the college; his uncle John Cotton was expelled from his charge in the Plymouth Church; his son Increase turned out a ne'er-do-well; four of his children and his second wife died in November 1713; his wife's brothers and the husbands of his sisters were ungodly and violent men; his favourite daughter Katherine, who "understood Latin and read Hebrew fluently," died in 1716; his third wife went mad in 1719; his personal enemies circulated incredible scandals about him; and in 1724-1725 he saw a Liberal once more preferred to him as a new president of Harvard. He died in Boston on the 13th of February 1728 and is buried in the Copps Hill burial-ground, Boston. He was thrice married—to Abigail Phillips (d. 1702) in 1686, to Mrs Elizabeth Hubbard (d. 1713) in 1703, and in 1715 to Mrs Lydia George (d. 1734). Of his fifteen children only two survived him.

Though self-conscious and vain, Cotton Mather had on the whole a noble character. He believed strongly in the power of prayer and repeatedly had assurances that his prayers were heard; and when he was disappointed by non-fulfilment his grief and depression were terrible. His spiritual nature was high-strung and delicate; and this condition was aggravated by his constant study, his long fasts and his frequent vigils—in one year, according to his diary, he kept sixty fasts and twenty vigils. In his later years his diaries have less and less of personal detail, and repeated entries prefaced by the letters "G.D." meaning Good Device, embodying precepts of kindness and practical Christianity. He was remarkable for his godliness, his enthusiasm for knowledge, and his prodigious memory. He became a skilled linguist, a widely read scholar—though much of his learning was more curious than useful—a powerful preacher, a valued citizen, and a voluminous writer, and did a vast deal for the intellectual and spiritual quickening of New England. He worked with might and main for the continuation of the old theocracy, but before he died it had given way before an increasing Liberalism—even Yale was infected with the Episcopalianism that he hated.

Among his four hundred or more published works, many of which are sermons, tracts and letters, the most notable is his *Magnalia Christi Americana: or the Ecclesiastical History of New England, from Its First Planting in the Year 1620 unto the Year of Our Lord, 1698*. Begun in 1693 and finished in 1697, this work was published in London, in 1702, in one volume, and was republished in Hartford in 1820 and in 1853-1855, in two volumes. It is in seven books and concerns itself mainly with the settlement and religious history of New England. It is often inaccurate, and it abounds in far-fetched conceits and odd and pedantic features. Its style, though in the main rather unnatural and declamatory, is at its best spontaneous, dignified and rhythmical; the book is valuable for occasional facts and for its picture of the times, and it did much to make Mather the most eminent American writer of his day. His other writings include *A Poem Dedicated to the Memory of the Reverend and Excellent Mr Urian Oakes* (1682); *The Present State of New England* (1690); *The Life of the Renowned John Eliot* (1691), later included in Book III. of the *Magnalia*; *The Short History of New England* (1694); *Bonifacius*, usually known as *Essays To Do Good* (Boston, 1710; Glasgow, 1825; Boston, 1845), one of his principal books and one which had a shaping influence on the life of Benjamin Franklin; *Psalterium Americanum* (1718), a blank verse translation of the Psalms from the original Hebrew; *The Christian Philosopher: A Collection of the Best Discoveries in Nature, with Religious Improvements* (1721); *Parentator* (1724), a memoir of his father; *Ratio Disciplinae* (1726), an account of the discipline in New England churches; *Manuductio ad Ministerium: Directions for a Candidate of the Ministry* (1726), one of the most readable of his books. He also left a number of works in manuscript, including diaries, a medical treatise and a huge commentary on the Bible, entitled "Biblia Americana."

See *The Life of Cotton Mather* (Boston, 1729), by his son, Samuel Mather; William B. O. Peabody, *The Life of Cotton Mather* (1836) (in Jared Sparks's "Library of American Biography," vol. vi.); Enoch Pond, *The Mather Family* (Boston, 1844); John L. Sibley, *Biographical Sketches of Graduates of Harvard University*, vol. iii. (Cambridge, 1885); Barrett Wendell, *Cotton Mather, the Puritan Priest* (New York, 1891), a remarkably sympathetic study and particularly valuable for its insight into (and its defence of) Mather's attitude toward witchcraft; Abijah P. Marvin, *The Life and Times of Cotton Mather* (Boston, 1892); M. C. Tyler, *A History of American Literature during the Colonial Period*, vol. ii. (New York, 1878); and Barrett Wendell, *A Literary History of America* (New York, 1900).

Cotton Mather's son, SAMUEL MATHER (1706-1785), also a clergyman, graduated at Harvard in 1723, was pastor of the North Church, Boston, from 1732 to 1742, when, owing to a dispute among his congregation over revivals, he resigned to take charge of a church established for him in North Bennett Street.

Among his works are *The Life of Cotton Mather* (1729); *An Apology for the Liberties of the Churches in New England* (1738), and *America Known to the Ancients* (1773).

(W. L. C.*)



MATHER, INCREASE (1639-1723), American Congregational minister, was born in Dorchester, Massachusetts, on the 21st of June 1639, the youngest son of Richard Mather.¹ He entered Harvard in 1651, and graduated in 1656. In 1657, on his eighteenth birthday, he preached his first sermon; in the same year he went to visit his eldest brother in Dublin, and studied there at Trinity College, where he graduated M.A. in 1658. He was

chaplain to the English garrison at Guernsey in April-December 1659 and again in 1661; and in the latter year, refusing valuable livings in England offered on condition of conformity, he returned to America. In the winter of 1661-1662 he began to preach to the Second (or North) Church of Boston, and was ordained there on the 27th of May 1664. As a delegate from Dorchester, his father's church, to the Synod of 1662, he opposed the Half-Way Covenant adopted by the Synod and defended by Richard Mather and by Jonathan Mitchell (1624-1668) of Cambridge; but soon afterwards he "surrendered a glad captive" to "the truth so victoriously cleared by Mr Mitchell," and like his father and his son became one of the chief exponents of the Half-Way Covenant. He was bitterly opposed, however, to the liberal practices that followed the Half-Way Covenant and (after 1677) in particular to "Stoddardeanism," the doctrine of Solomon Stoddard (1643-1729) that all "such Persons as have a good Conversation and a Competent Knowledge may come to the Lord's Supper," only those of openly immoral life being excluded. In May 1679 Mather was a petitioner to the General Court for the call of a Synod to consider the reformation in New England of "the Evils that have Provoked the Lord to bring his Judgments,"² and when the "Reforming Synod" met in September it appointed him one of a committee to draft a creed; this committee reported in May 1680, at the Synod's second session, of which Mather was moderator, the Savoy Declaration (slightly modified, notably in ch. xxiv., "Of the Civil Magistrate"), which was approved but was not made mandatory on the churches by the General Court, and in 1708 was reaffirmed at Saybrook, Connecticut. With the Cambridge Platform of 1646, drafted by his father, the Confession of 1680, for which Increase Mather was largely responsible, was printed as a book of doctrine and government for the churches of Massachusetts.

After the threat of a *Quo Warranto* writ in 1683 for the surrender of the Massachusetts charter, Mather used all his tremendous influence to persuade the colonists not to give up the charter; and the Boston freemen unanimously voted against submission. The royal agents immediately afterwards sent to London a treasonable letter, falsely attributed to Mather; but its spuriousness seems to have been suspected in England and Mather was not "fetch'd over and made a Sacrifice." He became a leader in the opposition to Sir Edmund Andros, to his secretary Edward Randolph, and to Governor Joseph Dudley. He was chosen by the General Court to represent the colony's interests in England, eluded officers sent to arrest him,³ and in disguise boarded a ship on which he reached Weymouth on the 6th of May 1688. In London he acted with Sir Henry Ashurst, the resident agent, and had two or three fruitless audiences with James II. His first audience with William III. was on the 9th of January 1689; he was active in influencing the Commons to vote (1689) that the New England charters should be restored; and he published *A Narrative of the Miseries of New-England, By Reason of an Arbitrary Government Erected there Under Sir Edmund Andros* (1688), *A Brief Relation for the Confirmation of Charter Privileges* (1691), and other pamphlets. In 1690 he was joined by Elisha Cooke (1638-1715) and Thomas Oakes (1644-1719), additional agents, who were uncompromisingly for the renewal of the old charter. Mather, however, was instrumental in securing a new charter (signed on Oct. 7, 1691), and prevented the annexation of the Plymouth Colony to New York. The nomination of officers left to the Crown was reserved to the agents. Mather had expressed strong dissatisfaction with the clause giving the governor the right of veto, and regretted the less theocratic tone of the charter which made all freemen (and not merely church members) electors. With Sir William Phips, the new governor, a member of Mather's church, he arrived in Boston on the 14th of May 1692. The value of his services to the colony at this time is not easily over-estimated. In England he won the friendship of divines like Baxter, Tillotson and Burnet, and effectively promoted the union in 1691 of English Presbyterians and Congregationalists. He was at heavy expense throughout his stay, and even greater than his financial loss was his loss of authority and control in the church and in Harvard College because of his absence.

Mather had been acting president of Harvard College in 1681-1682, and in June 1685 he again became acting president (or rector), but still preached every Sunday in Boston and would not comply with an order of the General Court that he should reside in Cambridge. In 1701 after a short residence there he returned to Boston and wrote to the General Court to "think of another President for the Colledge." The opposition to him had been increasing in strength, his resignation was accepted, and Samuel Willard took charge of the college as vice-president, although he also refused to reside in Cambridge. That Mather's administration of the college was excellent is admitted even by his harsh critic, Josiah Quincy, in his *History of Harvard University*.⁴ The Liberal party, which now came into control in the college repeatedly disappointed the hopes of Cotton Mather (*q.v.*) that he might be chosen president, and by its ecclesiastical laxness and its broader views of Church polity forced the Mathers to turn from Harvard to Yale as a truer school of the prophets.

The Liberal leaders, John Leverett (1662-1724), William Brattle (1662-1713)—who graduated with Leverett in 1680, and with him as tutor controlled the college during Increase Mather's absence in England—William Brattle's eldest brother, Thomas Brattle (1658-1713), and Ebenezer Pemberton (1671-1717), pastor of the Old South Church, desired an "enrichment of the service," and greater liberality in the matter of baptism. In 1697 the Second Boston Church, in which Cotton Mather had been his father's colleague since 1685, upbraided the Charlestown Church "for betraying the liberties of the churches in their late putting into the hands of the whole inhabitants the choice of a minister." In 1699 Increase Mather published *The Order of the Gospel*, which severely (although indirectly), criticized the methods of the "Liberals" in establishing the Brattle Street Church and especially the ordination of their minister Benjamin Colman by a Presbyterian body in London; the Liberals replied with *The Gospel Order Revived*, which was printed in New York to lend colour to the (partly true) charge of its authors that the printers of Massachusetts would print nothing hostile to Increase Mather.⁵ The autocracy of the Mathers in church, college, colony and press, had slipped from them. The later years of Mather's life were spent almost entirely in the work of the ministry, now beginning to be a less varied career than when he entered on it. He died on the 23rd of August 1723. He married in 1662 Maria, daughter of Sarah and John Cotton. His first wife died in 1714; and in 1715 he married Ann Lake, widow of John Cotton, of Hampton, N.H., a grandson of John Cotton of Boston.

Increase Mather was a great preacher with a simple style and a splendid voice, which had a "Tonitruous Cogency," to quote his son's phrase. His style was much simpler and more vernacular than his son's. He was an assiduous student, commonly spending sixteen hours a day among his books; but his learning (to quote Justin Winsor's contrast between Increase and Cotton Mather) "usually left his natural ability and his education free from entanglements." He was not so much self-seeking and personally ambitious as eager to advance the cause of the church in which he so implicitly believed. That it is a mistake to consider him a narrow churchman is shown by his assisting in 1718 at the ordination of Elisha Callender in the First Baptist Church of Boston. Like the most learned men of his time he was superstitious and a firm believer in "praesagious impressions"; his *Essay for the Recording of Illustrious Providences: Wherein an Account is Given of many Remarkable and very Memorable Events which have Hapned in this Last Age, Especially in New England* (1684) shows that he believed only less thoroughly than his son in witchcraft, though in his *Cases of Conscience Concerning Evil Spirits* (1693) he considered some current proofs of witchcraft inadequate. The revulsion of feeling after the witchcraft delusion undermined his authority greatly, and Robert's Calef's *More Wonders of the Spiritual World* (1700) was a personal blow to him as well as to

his son. With Jonathan Edwards, than whom he was much more of a man of affairs, and with Benjamin Franklin, whose mission in England somewhat resembled Mather's, he may be ranked among the greatest Americans of the period before the War of Independence.

The first authority for the life of Increase Mather is the work of his son Cotton Mather, *Parentator: Memoirs of Remarkables in the Life and Death of the Ever Memorable Dr Increase Mather* (Boston, 1724); there are also a memoir and constant references in Cotton Mather's *Magnalia* (London, 1702) especially vol. iv.; there is an excellent sketch in the first volume of J. L. Sibley's *Biographical Sketches of Graduates of Harvard University* (Cambridge, 1873), with an exhaustive list of Mather's works (about 150 titles); there is much valuable matter in Williston Walker's *Ten New England Leaders* (New York, 1901) and in his *Creeds and Platforms of Congregationalism* (New York, 1893); for literary criticism of the Mathers see ch. xii. of M. C. Tyler's *History of American Literature, 1607-1676* (New York, 1878), and Barrett Wendell's *Cotton Mather* (New York, 1891). Mather's worth has been underestimated by Josiah Quincy, Justin Winsor and other historians out of sympathy with his ecclesiastical spirit, who represent him as only an ambitious narrow-minded schemer.

(R. WE.)

- 1 He was so christened "because of the never-to-be-forgotten increase, of every sort, wherewith God favoured the country about the time of his nativity." He often latinized his name, spelling it *Crescentius Matherus*.
- 2 That is, King Philip's War, the Boston fires of 1676, when Mather's church and home were burned, and 1679, the threatened introduction of Episcopacy, and the general spiritual decay of the country.
- 3 He had previously been arrested and acquitted on a charge of having attributed the forged letter to Randolph.
- 4 Mather led the resistance to the royal demand instigated by Edward Randolph in 1683, for the annulment of the college charter, and after its vacation in 1684 strove for the grant of a new charter; King James promised him a confirmation of the former charter; the new provincial charter granted by William and Mary confirmed all gifts and grants to colleges; in 1692 Mather drafted an act incorporating the college, which was signed by Phips but was disallowed in England; and in 1696, 1697, 1699, and 1700, Mather repeated his efforts for a college charter.
- 5 Mather was made a licenser of the Press in 1674 when the General Court abolished the monopoly of the Cambridge Press.



MATHER, RICHARD (1596-1669), American Congregational clergyman, was born in Lowton, in the parish of Winwick, near Liverpool, England, of a family which was in reduced circumstances but entitled to bear a coat-of-arms. He studied at Winwick grammar school, of which he was appointed a master in his fifteenth year, and left it in 1612 to become master of a newly established school at Toxteth Park, Liverpool. After a few months at Brasenose College, Oxford, he began in November 1618 to preach at Toxteth, and was ordained there, possibly only as deacon, early in 1619. In August-November 1633 he was suspended for nonconformity in matters of ceremony; and in 1634 was again suspended by the visitors of Richard Neile, archbishop of York, who, hearing that he had never worn a surplice during the fifteen years of his ministry, refused to reinstate him and said that "it had been better for him that he had gotten Seven Bastards." He had a great reputation as a preacher in and about Liverpool; but, advised by letters of John Cotton and Thomas Hooker, and persuaded by his own elaborate formal "Arguments tending to prove the Removing from Old-England to New ... to be not only lawful, but also necessary for them that are not otherwise tyed, but free," he left England and on the 17th of August 1635, and landed in Boston after an "extraordinary and miraculous deliverance" from a terrible storm. As a famous preacher "he was desired at Plimouth, Dorchester, and Roxbury." He went to Dorchester, where the Church had been greatly depleted by migrations to Windsor, Connecticut; and where, after a delay of several months, in August 1636 there was constituted by the consent of magistrates and clergy a church of which he was "teacher" until his death in Dorchester on the 22nd of April 1669.

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He was an able preacher, "aiming," said his biographer, "to shoot his arrows not over his people's heads, but into their Hearts and Consciences"; and he was a leader of New England Congregationalism, whose policy he defended and described in the tract *Church Government and Church Covenant Discussed, in an Answer of the Elders of the Severall Churches of New England to Two and Thirty Questions* (written 1639; printed 1643), and in his *Reply to Mr Rutherford* (1647), a polemic against the Presbyterianism to which the English Congregationalists were then tending. He drafted the Cambridge Platform, an ecclesiastical constitution in seventeen chapters, adopted (with the omission of Mather's paragraph favouring the "Half-way Covenant," of which he strongly approved) by the general synod in August 1646. In 1657 he drafted the declaration of the Ministerial Convention on the meaning and force of the Half-way Covenant; this was published in 1659 under the title: *A Disputation concerning Church Members and their Children in Answer to XXI. Questions*. With Thomas Welde and John Eliot he wrote the "Bay Psalm Book," or, more accurately, *The Whole Booke of Psalmes Faithfully Translated into English Metre* (1640), probably the first book printed in the English colonies.

He married in 1624 Katherine Hoult or Holt (d. 1655), and secondly in 1656 Sarah Hankredge (d. 1676), the widow of John Cotton. Of six sons, all by his first wife, four were ministers: SAMUEL (1626-1671), the first fellow of Harvard College who was a graduate, chaplain of Magdalen College, Oxford, in 1650-1653, and pastor (1656-1671, excepting suspension in 1660-1662) of St Nicholas's in Dublin; NATHANIEL (1630-1697), who graduated at Harvard in 1647, was vicar of Barnstaple, Devon, in 1656-1662, pastor of the English Church in Rotterdam, his brother's successor in Dublin in 1671-1688, and then until his death pastor of a church in London; ELEAZAR (1637-1669), who graduated at Harvard in 1656 and after preaching in Northampton, Massachusetts, for three years, became in 1661 pastor of the church there; and INCREASE MATHER (q.v.). Horace E. Mather, in his *Lineage of Richard Mather* (Hartford, Connecticut, 1890), gives a list of 80 clergymen descended from Richard Mather, of whom 29 bore the name Mather and 51 other names, the more famous being Storrs and Schauffler.

See *The Life and Death of That Reverend Man of God, Mr Richard Mather* (Cambridge, 1670; reprinted 1850, with his *Journal* for 1635, by the Dorchester Antiquarian and Historical Society), with an introduction by Increase Mather, who may have been the author; W. B. Sprague's *Annals of the American Pulpit*, vol. i. (New York, 1857); Cotton Mather's *Magnalia* (London, 1702); an essay on Richard Mather in Williston Walker's *Ten New England Leaders* (New York, 1901); and the works referred to in the article on Increase Mather.

(R. WE.)



MATHERAN, a hill sanatorium in India, in the Kolaba district of Bombay, 2460 ft. above the sea, and about 30 m. E. of Bombay city. Pop. (1901), 3060. It consists of several thickly wooded ridges, on a spur of the Western Ghats, with a magnificent outlook over the plain below and the distant sea. First explored in 1850, it has since become the favourite resort of the middle classes of Bombay (especially the Parsis) during the spring and autumn months. It has recently been connected by a 2 ft. gauge mountain line with Neral station on the Great Indian Peninsula railway, 54 m. from Bombay.



MATHESON, GEORGE (1842-1906), Scottish theologian and preacher, was born in Glasgow in 1842, the son of George Matheson, a merchant. He was educated at the university of Glasgow, where he graduated first in classics, logic and philosophy. In his twentieth year he became totally blind, but he held to his resolve to enter the ministry, and gave himself to theological and historical study. His first ministry began in 1868 at Innellan, on the Argyllshire coast between Dunoon and Toward. His books on *Aids to the Study of German Theology*, *Can the Old Faith live with the New?* *The Growth of the Spirit of Christianity from the First Century to the Dawn of the Lutheran Era*, established his reputation as a liberal and spiritually minded theologian; and Queen Victoria invited him to preach at Balmoral. In 1886 he removed to Edinburgh, where he became minister of St Bernard's Parish Church. Here his chief work as a preacher was done. In 1879 the university of Edinburgh conferred upon him the honorary degree of D.D., and the same year he declined an invitation to the pastorate of Crown Court, London, in succession to Dr John Cumming (1807-1881). In 1881 he was chosen as Baird lecturer, and took for his subject "Natural Elements of Revealed Theology," and in 1882 he was the St Giles lecturer, his subject being "Confucianism." In 1890 he was elected a fellow of the Royal Society of Edinburgh, Aberdeen gave him its honorary LL.D., and in 1899 he was appointed Gifford lecturer by that university, but declined on grounds of health. In the same year he severed his active connexion with St Bernard's. One of his hymns, "O love that will not let me go," has passed into the popular hymnology of the Christian Church. He died suddenly of apoplexy on the 28th of August 1906. His exegesis owes its interest to his subjective resources rather than to breadth of learning; his power lay in spiritual vision rather than balanced judgment, and in the vivid apprehension of the factors which make the Christian personality, rather than in constructive doctrinal statement.



MATHEW, THEOBALD (1790-1856), Irish temperance reformer, popularly known as Father Mathew, was descended from a branch of the Llandaff family, and was born at Thomastown, Tipperary, on the 10th of October 1790. He received his school education at Kilkenny, whence he passed for a short time to Maynooth; from 1808 to 1814 he studied at Dublin, where in the latter year he was ordained to the priesthood. Having entered the Capuchin order, he, after a brief time of service at Kilkenny, joined the mission in Cork, which was the scene of his religious and benevolent labours for many years. The movement with which his name is most intimately associated began in 1838 with the establishment of a total abstinence association, which in less than nine months, thanks to his moral influence and eloquence, enrolled no fewer than 150,000 names. It rapidly spread to Limerick and elsewhere, and some idea of its popularity may be formed from the fact that at Nenagh 20,000 persons are said to have taken the pledge in one day, 100,000 at Galway in two days, and 70,000 in Dublin in five days. In 1844 he visited Liverpool, Manchester and London with almost equal success. Meanwhile the expenses of his enterprise had involved him in heavy liabilities, and led on one occasion to his arrest for debt; from this embarrassment he was only partially relieved by a pension of £300 granted by Queen Victoria in 1847. In 1849 he paid a visit to the United States, returning in 1851. He died at Queenstown on the 8th of December, 1856.

See *Father Mathew, a Biography*, by J. F. Maguire, M.P. (1863).



MATHEWS, CHARLES (1776-1835), English actor, was born in London on the 28th of June 1776. His father was "a serious bookseller," who also officiated as minister in one of Lady Huntingdon's chapels. Mathews was educated at Merchant Taylors' School. His love for the stage was formed in his boyhood, when he was apprentice to his father, and the latter in 1794 unwillingly permitted him to enter on a theatrical engagement in Dublin. For several years Mathews had not only to content himself with thankless parts at a low salary, but in May 1803 he made his first London appearance at the Haymarket as Jabel in Cumberland's *The Jew* and as Lingo in *The Agreeable Surprise*. From this time his professional career was an uninterrupted triumph. He had a wonderful gift of mimicry, and could completely disguise his personality without the smallest change of dress. The versatility and originality of his powers were admirably displayed in his "At Homes," begun in the Lyceum theatre in 1818, which,

according to Leigh Hunt, "for the richness and variety of his humour, were as good as half a dozen plays distilled." Off the stage his simple and kind-hearted disposition won him affection and esteem. In 1822 Mathews visited America, his observation on his experiences there forming for the reader a most entertaining portion of his biography. From infancy his health had been uncertain, and the toils of his profession gradually undermined it. In 1834 he paid a second visit to America. His last appearance in New York was on the 11th of February 1835, when he played Samuel Coddle in *Married Life* and Andrew Steward in *The Lone House*. He died at Plymouth on the 28th of June 1835. In 1797 he had married Eliza Kirkham Strong (d. 1802), and in 1803 Anne Jackson, an actress, the author of the popular and diverting *Memoirs, by Mrs Mathews* (4 vols., 1838-1839).

His son CHARLES JAMES MATHEWS (1803-1878), who was born at Liverpool on the 26th of December 1803, became even better known as an actor. After attending Merchant Taylors' School he was articled as pupil to an architect, and continued for some years nominally to follow this profession. His first public appearance on the stage was made on the 7th of December 1835, at the Olympic, London, as George Rattleton in his own play *The Humpbacked Lover*; and as Tim Topple the Tiger in Lemar Rode's *Old and Young Stager*. In 1838 he married Madame Vestris, then lessee of the Olympic, but neither his management of this theatre, nor subsequently of Covent Garden, nor of the Lyceum, resulted in pecuniary success, although the introduction of scenery more realistic and careful in detail than had hitherto been employed was due to his enterprise. In the year of his marriage he visited America, but without receiving a very cordial welcome. As an actor he held in England an unrivalled place in his peculiar vein of light eccentric comedy. The easy grace of his manner, and the imperturbable solemnity with which he perpetrated his absurdities, never failed to charm and amuse; his humour was never broad, but always measured and restrained. It was as the leading character in such plays as the *Game of Speculation*, *My Awful Dad*, *Cool as a Cucumber*, *Patter versus Clatter*, and *Little Toddlekins*, that he specially excelled. In 1856 Mme Vestris died, and in the following year Mathews again visited the United States, where in 1858 he married Mrs A. H. Davenport. In 1861 they gave a series of "At Homes" at the Haymarket theatre, which were almost as popular as had been those of the elder Mathews. Charles James Mathews was one of the few English actors who played in French successfully,—his appearance in Paris in 1863 in a French version of *Cool as a Cucumber*, written by himself, being received with great approbation. He also played there again in 1865 as Sir Charles Coldcream in the original play *L'Homme blasé* (English version by Boucicault, *Used up*). After reaching his sixty-sixth year, Mathews set out on a tour round the world, in which was included a third visit to America, and on his return in 1872 he continued to act without interruption till within a few weeks of his death on the 24th of June 1878. He made his last appearance in New York at Wallack's theatre on the 7th of June 1872, in H. J. Byron's *Not such a Fool as he Looks*. His last appearance in London was at the Opéra Comique on the 2nd of June 1877, in *The Liar* and *The Cosy Couple*. At Stalybridge he gave his last performance on the 8th of June 1878, when he played Adonis Evergreen in his own comedy *My Awful Dad*.

See the *Life of Charles James Mathews*, edited by Charles Dickens (2 vols., 1879); H. G. Paine in *Actors and Actresses of Great Britain and the United States* (New York, 1886).



MATHEWS, THOMAS (1676-1751), British admiral, son of Colonel Edward Mathews (d. 1700), and grandson on his mother's side of Sir Thomas Armstrong (1624-1684), who was executed for the Rye House Plot, was born at Llandaff Court, Llandaff. He entered the navy and became lieutenant in 1699, being promoted captain in 1703. During the short war with Spain (1718-20) he commanded the "Kent" in the fleet of Sir George Byng (Lord Torrington), and from 1722 to 1724 he had the command of a small squadron sent to the East Indies to repress the pirates of the coast of Malabar. He saw no further service till March 1741, when he was appointed to the command in the Mediterranean, and plenipotentiary to the king of Sardinia and the other courts of Italy. It is impossible to understand upon what grounds he was selected. As an admiral he was not distinguished; he was quite destitute of the experience and the tact required for his diplomatic duties; and he was on the worst possible terms with his second in command, Richard Lestock (1679?-1746). Yet the purpose for which he was sent out in his double capacity was not altogether ill performed. In 1742 Mathews sent a small squadron to Naples to compel King Charles III., afterwards king of Spain, to remain neutral. It was commanded by commodore, afterwards admiral, William Martin (1696?-1756), who refused to enter into negotiations, and gave the king half an hour in which to return an answer. In June of the same year a squadron of Spanish galleys, which had taken refuge in the Bay of Saint Tropez, was burnt by the fireships of Mathews' fleet. In the meantime a Spanish squadron of line-of-battleships had taken refuge in Toulon, and was watched by the British fleet from its anchorage at Hyères. In February 1744 the Spaniards put to sea in company with a French force. Mathews, who had now returned to his flagship, followed, and an engagement took place on the 11th of February. The battle was highly discreditable to the British fleet, and not very honourable to their opponents, but it is of the highest historical importance in the history of the navy. It marked the lowest pitch reached in discipline and fighting and efficiency by the fleet in the 18th century, and it had a very bad effect in confirming the pedantic system of tactics set up by the old Fighting Instructions. The British fleet followed the enemy in light winds on the 10th of February, and became scattered. Mathews hoisted the signal to form the line, and then when night fell, to lie to. At that moment Lestock, who commanded in the rear, was at a considerable distance from the body of the fleet, and he ought undoubtedly to have joined his admiral before lying to, but he obeyed the second order, with the result, which it is impossible not to feel that he foresaw and desired, that when morning came he was a long way off the flag of Mathews. The enemy were within striking distance of the van and centre of the British fleet, and Mathews attacked their rear. The battle was ill fought, as it had been ill prepared. Lestock never came into action at all. One Spanish line-of-battleship, the "Poder" (74), was taken, but afterwards burnt. Several of the British captains behaved very badly, and Mathews in a heat of confused anger bore down on the enemy out of his line, while the signal to keep the line was still flying at his mast head. The French and Spaniards got away, and were not pursued by Mathews, though they were of inferior strength.

Deep indignation was aroused at home by this naval miscarriage, and the battle led to more than twenty courts-martial and a parliamentary inquiry. The evils which had overrun the navy were clearly displayed, and in so far some good was done. It was shown for instance that one of the captains whose ship behaved worst was a man of extreme age who was nearly blind and deaf. One of the captains was so frightened at the prospect of a trial that he deserted on his way home and disappeared into Spain. Mathews resigned and returned home after the battle. In consequence of the parliamentary motion for inquiry, Lestock was brought to trial, and acquitted on the ground that he had obeyed orders. Then Mathews was tried in 1746, and was condemned to be dismissed the service on the ground that

he had not only failed to pursue the enemy but had taken his fleet into action in a confused manner. He had in fact not waited till he had his fleet in a line with the enemy before bearing down on them, and he had disordered his own line. To the country at large it appeared strange that the admiral who had actually fought should be condemned, while the admiral who had kept at a distance was acquitted. Mathews looked upon his condemnation as the result of mere party spirit. Sheer pedantry on the part of the officers forming the court-martial affords a more satisfactory explanation. They judged that a naval officer was bound not to go beyond the Fighting Instructions as Mathews had undoubtedly done, and therefore condemned him. Their decision had a serious effect in fixing the rule that all battles, at any rate against enemies of equal or nearly equal numbers, were to be fought on one pattern. Mathews died on the 2nd of October 1751 in London. There is a portrait of him in the Painted Hall at Greenwich.

In Beatson's *Naval and Military Memoirs*, vol. i., will be found a fair account of the battle of February 1744. It is fully dealt with by Montagu Burrows in his *Life of Hawke*. The French account may be found in Tronde's *Batailles Navales de la France*. The Spanish view is in the *Vida de Don Josef Navarro* by Don Josef de Vargas. The battle led to a violent pamphlet controversy. The charges and findings at the courts-martial on both Lestock and Mathews were published at the time. The minor trials arising out of the action are collected in a folio under the title "Copies of all the Minutes and Proceedings taken at and upon the several Tryals of Captain George Burrish" (1746). A "Narrative" was published by, or for, Lestock in 1744, and answered by, or on behalf of, Mathews under the title "Ad—l M—w's Conduct in the late Engagement Vindicated" in 1745.

(D. H.)



MATHY, KARL (1807-1868), Badenese statesman, was born at Mannheim on the 17th of March 1807. He studied law and politics at Heidelberg, and entered the Baden government department of finance in 1829. His sympathy with the revolutionary ideas of 1830, expressed in his paper the *Zeitgeist*, cost him his appointment in 1834, and he made his way to Switzerland, where he contributed to the *Jeune Suisse* directed by Mazzini. On his return to Baden in 1840 he edited the *Landtagszeitung* at Carlsruhe, and in 1842 he entered the estates for the town of Constance. He became one of the opposition leaders and in 1847 helped to found the *Deutsche Zeitung*, a paper which eventually did much to further the cause of German unity. He took part in the preliminary parliament and in the assembly of Frankfort in 1848-1849, where he supported the policy of H. W. A. von Gagern, and after the refusal of Frederick William IV. to accept the imperial crown he still worked for the cause of unity. He was made finance minister in Baden in May 1849, but was dismissed after a few days of office. He then applied his financial knowledge to banking business in Cologne, Berlin, Gotha and Leipzig. He was recalled to Baden in 1862, and in 1864 became president of the new ministry of commerce. He sought to bring Baden institutions into line with those of northern Germany with a view to ultimate union, and when in 1866 Baden took sides with Austria against Prussia he sent in his resignation. After the war he became president of a new cabinet, but he did not live to see the realization of the policy for which he had striven. He died at Carlsruhe on the 3rd of February 1868.

His letters during the years 1846-1848 were edited by Ludwig Mathy (Leipzig, 1899), and his life was written by G. Freytag (Leipzig, 2nd ed., 1872).



MATILDA (1102-1164), queen of England and empress, daughter of Henry I. of England, by Matilda, his first wife, was born in 1102. In 1109 she was betrothed to the emperor-elect, Henry V., and was sent to Germany, but the marriage was delayed till 1114. Her husband died after eleven years of wedlock, leaving her childless; and, since both her brothers were now dead, she was recalled to her father's court in order that she might be recognized as his successor in England and Normandy. The Great Council of England did homage to her under considerable pressure. Their reluctance to acknowledge a female sovereign was increased when Henry gave her in marriage to Geoffrey Plantagenet, the heir of Anjou and Maine (1129); nor was it removed by the birth of the future Henry II. in 1133. On the old king's death both England and Normandy accepted his nephew, Stephen, of Mortain and Boulogne. Matilda and her husband were in Anjou at the time. They wasted the next few years in the attempt to win Normandy; but Earl Robert of Gloucester, the half-brother of the empress, at length induced her to visit England and raise her standard in the western shires, where his influence was supreme. Though on her first landing Matilda only escaped capture through the misplaced chivalry of her opponent, she soon turned the tables upon him with the help of the Church and the barons of the west. Stephen was defeated and captured at Lincoln (1141); the empress was acclaimed lady or queen of England (she used both titles indifferently) and crowned at London. But the arrogance which she displayed in her prosperity alienated the Londoners and the papal legate, Bishop Henry of Winchester. Routed at the siege of Winchester, she was compelled to release Stephen in exchange for Earl Robert, and thenceforward her cause steadily declined in England. In 1148, having lost by the earl's death her principal supporter, she retired to Normandy, of which her husband had in the meantime gained possession. Henceforward she remained in the background, leaving her eldest son Henry to pursue the struggle with Stephen. She outlived Henry's coronation by ten years; her husband had died in 1151. As queen-mother she played the part of a mediator between her sons and political parties. Age mellowed her temper, and she turned more and more from secular ambitions to charity and religious works. She died on the 30th of January 1164.

See O. Rössler, *Kaiserin Mathilde* (Berlin, 1897); J. H. Round, *Geoffrey de Mandeville* (London, 1892).

(H. W. C. D.)



MATILDA (1046-1115), countess or margravine of Tuscany, popularly known as the Great Countess, was descended from a noble Lombard family. Her great-grandfather, Athone of Canossa, had been made count of Modena and Reggio by the emperor Otto I., and her grandfather had, in addition, acquired Mantua, Ferrara and Brescia. Her own father, Boniface II., the Pious, secured Tuscany, the duchy of Spoleto, the county of Parma, and probably that of Cremona; and was loyal to the emperor until Henry plotted against him. Through the murder of Count Boniface in 1052 and the death of her older brother and sister three years later, Matilda was left, at the age of nine, sole heiress to the richest estate in Italy. She received an excellent education under the care of her mother, Beatrice of Bar, the daughter of Frederick of Lorraine and aunt of Henry III., who, after a brief detention in Germany by the emperor, married Godfrey IV. of Lorraine, brother of Pope Stephen IX. (1057-1058). Thenceforth Matilda's lot was cast against the emperor in the great struggle over investiture, and for over thirty years she maintained the cause of the successive pontiffs, Gregory VII., Victor III., Urban II., Paschal II., with varying fortune, but with undaunted resolution. She aided the pope against the Normans in 1074, and in 1075 attended the synod at which Guibert was condemned and deprived of the archbishopric of Ravenna. Her hereditary fief of Canossa was the scene (Jan. 28, 1077) of the celebrated penance of Henry IV. before Gregory VII. She provided an asylum for Henry's second wife, Praxides, and urged his son Conrad to revolt against his father. In the course of the protracted struggle her villages were plundered, her fortresses demolished, and Pisa and Lucca temporarily lost, but she remained steadfast in her allegiance, and, before her death, had, by means of a league of Lombard cities which she formed, recovered all her possessions. The donation of her estates to the Holy See, originally made in 1077 and renewed on the 17th of November 1102, though never fully consummated on account of imperial opposition, constituted the greater part of the temporal dominion of the papacy. Matilda was twice married, first to Godfrey V. of Lorraine, surnamed the Humpbacked, who was the son of her step-father and was murdered on the 26th of February 1076; and secondly to the 17-year-old Welf V. of Bavaria, from whom she finally separated in 1095—both marriages of policy, which counted for little in her life. Matilda was an eager student: she spoke Italian, French and German fluently, and wrote many Latin letters; she collected a considerable library; she supervised an edition of the Pandects of Justinian; and Anselm of Canterbury sent her his *Meditations*. She combined her devotion to the papacy and her learning with very deep personal piety. She died after a long illness at Bodeno, near Modena, on the 24th of July 1115, and was buried in the Benedictine church at Polirone, whence her remains were taken to Rome by order of Urban VIII. in 1635 and interred in St Peter's.

The contemporary record of Matilda's life in rude Latin verse, by her chaplain Domnizone (Donizo or Domenico), is preserved in the Vatican Library. The best edition is that of Bethmann in the *Monumenta germ. hist. scriptores*, xii. 348-409. The text, with an Italian translation, was published by F. Davoli under the title *Vita della grande contessa Matilda di Canossa* (Reggio nell' Emilia 1888 seq.).

See A. Overmann, *Gräfin Mathilde von Tuscien; ihre Besitzungen ... u. ihre Regesten* (Innsbruck, 1895); A. Colombo, *Una Nuova vita della contessa Matilda in R. accad. d. sci. Atti*, vol. 39 (Turin, 1904); L. Tosti, *La Contessa Matilda ed i romani pontefici* (Florence, 1859); A. Pannenberg, *Studien zur Geschichte der Herzogin Matilde von Canossa* (Göttingen, 1872); F. M. Fiorentini, *Memorie della Matilda* (Lucca, 1756); and Nora Duff, *Matilda of Tuscany* (1910).

(C. H. HA.)



MATINS (Fr. *matines*, med. Lat. *matutinae*, sc. possibly vigiliae, morning watches; from *matutinus*, "belonging to the morning"), a word now only used in an ecclesiastical sense for one of the canonical hours in the Roman Breviary, originally intended to be said at midnight, but sometimes said at dawn, after which "lauds" were recited or sung. In the modern Roman Catholic Church, outside monastic services, the office is usually said on the preceding afternoon or evening. The word is also used in the Roman Catholic Church for the public service held on Sunday mornings before the mass (see **BREVIARY**; and **HOURS, CANONICAL**). In the Church of England since the Reformation matins is used for the order of public morning prayer.



MATLOCK, a market town in the western parliamentary division of Derbyshire, England, on the river Derwent, 17 m. N. by W. of Derby on the Midland railway. Pop. (1901), of urban district of Matlock, 5979; of Matlock Bath and Scarthin Nick, 1819. The entire township includes the old village of Matlock, the commercial and manufacturing district of Matlock Bridge, and the fashionable health resorts of Matlock Bath and Matlock Bank. The town possesses cotton, corn and paper mills, while in the vicinity there are stone-quarries and lead mines. A peculiar local industry is the manufacture of so-called "petrified" birds' nests, plants, and other objects. These are steeped in water from the mineral springs until they become encrusted with a calcareous deposit which gives them the appearance of fossils. Ornaments fashioned out of spar and stalactites have also a considerable sale.

MATLOCK BATH, one and a half miles south of Matlock, having a separate railway station, overlooks the narrow and precipitous gorge of the Derwent, and stands in the midst of woods and cliffs, deriving its name from three medicinal springs, which first became celebrated towards the close of the 17th century. They were not known to the Romans, although lead-mining was carried on extensively in the district in the 1st and 2nd centuries A.D. The mean temperature of the springs is 68° F. Extensive grounds have been laid out for public use; and in the neighbourhood there are several fine stalactite caverns.

Sheltered under the high moorlands of Darley, **MATLOCK BANK** has grown up about a mile north-east of the old village, and has become celebrated for the number and excellence of its hydropathic establishments. A tramway, worked by a single cable, over a gradient said to be the steepest in the world, affords easy communication with Matlock Bridge.



MATOS FRAGOSO, JUAN DE (1614?-1689), Spanish dramatist, of Portuguese descent, was born about 1614 at Alsito (Alemtejo). After taking his degree in law at the university of Evora, he proceeded to Madrid, where he made acquaintance with Perez de Montalbán, and thus obtained an introduction to the stage. He quickly displayed great cleverness in hitting the public taste, and many contemporaries of superior talent eagerly sought his aid as a collaborator. The earliest of his printed plays is *La Defensa de la fé y principe prodigioso* (1651), and twelve more pieces were published in 1658. But though his popularity continued long after his death (January 4, 1689), Matos Fragoso's dramas do not stand the test of reading. His emphatic preciousness and sophistical insistence on the "point of honour" are tedious and unconvincing; in *La Venganza en el despeño*, in *A lo que obliga un agravio*, and in other plays, he merely recasts, very adroitly, works by Lope de Vega.



MATRASS (mod. Lat. *matracium*), a glass vessel with a round or oval body and a long narrow neck, used in chemistry, &c., as a digester or distiller. The Florence flask of commerce is frequently used for this purpose. The word is possibly identical with an old name "matrass" (Fr. *materas, matelas*) for the bolt or quarrel of a cross-bow. If so, some identity of shape is the reason for the application of the word; "bolt-head" is also used as a name for the vessel. Another connexion is suggested with the Arabic *matra*, a leather bottle.



MATRIARCHATE ("rule of the mother"), a term used to express a supposed earliest and lowest form of family life, typical of primitive societies, in which the promiscuous relations of the sexes result in the child's father being unknown (see [FAMILY](#)). In such communities the mother took precedence of the father in certain important respects, especially in line of descent and inheritance. Matriarchate is assumed on this theory to have been universal in prehistoric times. The prominent position then naturally assigned women did not, however, imply any personal power, since they were in the position of mere chattels: it simply constituted them the sole relatives of their children and the only centre of any such family life as existed. The custom of tracing descent through the female is still observed among certain savage tribes. In Fiji father and son are not regarded as relatives. Among the Bechuanas the chieftainship passes to a brother, not to a son. In Senegal, Loango, Congo and Guinea, relationship is traced through the female. Among the Tuareg Berbers a child takes rank, freeman's or slave's, from its mother.

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MATRIMONY (Lat. *matrimonium*, marriage, which is the ordinary English sense), a game at cards played with a full whist pack upon a table divided into three compartments labelled "Matrimony," "Intrigue" and "Confederacy," and two smaller spaces, "Pair" and "Best." These names indicate combinations of two cards, any king and queen being "Matrimony," any queen and knave "Intrigue," any king and knave "Confederacy"; while any two cards of the same denomination form a "Pair" and the diamond ace is "Best." The dealer distributes a number of counters, to which an agreed value has been given, upon the compartments, and the other players do likewise. The dealer then gives one card to each player, face down, and a second, face up. If any turned-up card is the diamond ace, the player holding it takes everything on the space and the deal passes. If not turned, the diamond ace has only the value of the other three aces. If it is not turned, the players, beginning with the eldest hand, expose their second cards, and the resulting combinations, if among the five successful ones, win the counters of the corresponding spaces. If the counters on a space are not won, they remain until the next deal.



MATRIX, a word of somewhat wide application, chiefly used in the sense of a bed or enclosing mass in which something is shaped or formed (Late Lat. *matrix*, womb; in classical Latin *matrix* was only applied to an animal kept

for breeding). Matrix is thus used of a mould of metal or other substance in which a design or pattern is made in intaglio, and from which an impression in relief is taken. In die-sinking and coining, the matrix is the hardened steel mould from which the die-punches are taken. The term "seal" should strictly be applied to the impression only on wax of the design of the matrix, but is often used both of the matrix and of the impression (see [SEALS](#)). In mineralogy, the matrix is the mass in which a crystal mineral or fossil is embedded. In mathematics, the name "matrix" is used of an arrangement of numbers or symbols in a rectangular or square figure. (See [ALGEBRAIC FORMS](#).)

In med. Latin *matrix* and the diminutive *matricula* had the meaning of a roll or register, particularly one containing the names of the members of an institution, as of the clergy belonging to a cathedral, collegiate or other church, or of the members of a university. From this use is derived "matriculation," the admission to membership of a university, also the name of the examination for such admission. *Matricula* was also the name of the contributions in men and money made by the various states of the Holy Roman Empire, and in the modern German Empire the contributions made by the federal states to the imperial finances are called *Matrikularbeiträge*, matricular contributions. (See [GERMANY: Finance](#).)



MATROSS, the name (now obsolete) for a soldier of artillery, who ranked next below a gunner. The duty of a matross was to assist the gunners in loading, firing and sponging the guns. They were provided with firelocks, and marched with the store-wagons, acting as guards. In the American army a matross ranked as a private of artillery. The word is probably derived from Fr. *matelot*, a sailor.



MATSUKATA, MARQUIS (1835-), Japanese statesman, was born at Kagoshima in 1835, being a son of a *samurai* of the Satsuma clan. On the completion of the feudal revolution of 1868 he was appointed governor of the province of Tosa, and having served six years in this office, was transferred to Tōkyō as assistant minister of finance. As representative of Japan at the Paris Exhibition of 1878, he took the opportunity afforded by his mission to study the financial systems of the great European powers. On his return home, he held for a short time in 1880 the portfolio of home affairs, and was in 1881 appointed minister of finance. The condition of the currency of Japan was at that time deplorable, and national bankruptcy threatened. The coinage had not only been seriously debased during the closing years of the Tokugawa régime, but large quantities of paper currency had been issued and circulated, both by many of the feudal lords, and by the central government itself, as a temporary expedient for filling an impoverished exchequer. In 1878 depreciation had set in, and the inconvertible paper had by the close of 1881 grown to such an extent that it was then at a discount of 80% as compared with silver. Matsukata showed the government the danger of the situation, and urged that the issue of further paper currency should be stopped at once, the expenses of administration curtailed, and the resulting surplus of revenue used in the redemption of the paper currency and in the creation of a specie reserve. These proposals were acted upon: the Bank of Japan was established, and the right of issuing convertible notes given to it; and within three years of the initiation of these financial reforms, the paper currency, largely reduced in quantity, was restored to its full par value with silver, and the currency as a whole placed on a solvent basis. From this time forward Japan's commercial and military advancement continued to make uninterrupted progress. But *pari passu* with the extraordinary impetus given to its trade by the successful conclusion of the war with China, the national expenditure enormously increased, rising within a few years from 80 to 250 million yen. The task of providing for this expenditure fell entirely on Matsukata, who had to face strong opposition on the part of the diet. But he distributed the increased taxation so equally, and chose its subjects so wisely, that the ordinary administrative expenditure and the interest on the national debt were fully provided for, while the extraordinary expenditure for military purposes was met from the Chinese indemnity. As far back as 1878 Matsukata perceived the advantages of a gold standard, but it was not until 1897 that his scheme could be realized. In this year the bill authorizing it was under his auspices submitted to the diet and passed; and with this financial achievement Matsukata saw the fulfilment of his ideas of financial reform, which were conceived during his first visit to Europe. Matsukata, who in 1884 was created Count, twice held the office of prime minister (1891-1892, 1896-1898), and during both his administrations he combined the portfolio of finance with the premiership; from October 1898 to October 1900 he was minister of finance only. His name in Japanese history is indissolubly connected with the financial progress of his country at the end of the 19th century. In 1902 he visited England and America, and he was created G.C.M.G., and given the Oxford degree of D.C.L. In September 1907 he was advanced to the rank of Marquis.



MATSYS (MASSYS OR METZYS), **QUINTIN** (1466-1530), Flemish artist, was born at Louvain, where he first learned a mechanical art. During the greater part of the 15th century the centres in which the painters of the Low Countries most congregated were Bruges, Ghent and Brussels. Towards the close of the same period Louvain took a prominent part in giving employment to workmen of every craft. It was not till the opening of the 16th century that Antwerp usurped the lead which it afterwards maintained against Bruges and Ghent, Brussels, Mechlin and Louvain. Quintin Matsys was one of the first men of any note who gave repute to the guild of Antwerp. A legend relates how the smith of Louvain was induced by affection for the daughter of an artist to change his trade and acquire proficiency in painting. A less poetic but perhaps more real version of the story tells that Quintin had a brother with

whom he was brought up by his father Josse Matsys, a smith, who held the lucrative offices of clockmaker and architect to the municipality of Louvain. It came to be a question which of the sons should follow the paternal business, and which carve out a new profession for himself. Josse the son elected to succeed his father, and Quintin then gave himself to the study of painting. We are not told expressly by whom Quintin was taught, but his style seems necessarily derived from the lessons of Dierick Bouts, who took to Louvain the mixed art of Memlinc and Van der Weyden. When he settled at Antwerp, at the age of twenty-five, he probably had a style with an impress of its own, which certainly contributed most importantly to the revival of Flemish art on the lines of Van Eyck and Van der Weyden. What particularly characterizes Quintin Matsys is the strong religious feeling which he inherited from earlier schools. But that again was permeated by realism which frequently degenerated into the grotesque. Nor would it be too much to say that the facial peculiarities of the boors of Van Steen or Ostade have their counterparts in the pictures of Matsys, who was not, however, trained to use them in the same homely way. From Van der Weyden's example we may trace the dryness of outline and shadeless modelling and the pitiless finish even of trivial detail, from the Van Eycks and Memlinc through Dierick Bouts the superior glow and richness of transparent pigments, which mark the pictures of Matsys. The date of his retirement from Louvain is 1491, when he became a master in the guild of painters at Antwerp. His most celebrated picture is that which he executed in 1508 for the joiners' company in the cathedral of his adopted city. Next in importance to that is the Marys of Scripture round the Virgin and Child, which was ordered for a chapel in the cathedral of Louvain. Both altar-pieces are now in public museums, one at Antwerp, the other at Brussels. They display great earnestness in expression, great minuteness of finish, and a general absence of effect by light or shade. As in early Flemish pictures, so in those of Matsys, superfluous care is lavished on jewelry, edgings and ornament. To the great defect of want of atmosphere such faults may be added as affectation, the result of excessive straining after tenderness in women, or common gesture and grimace suggested by a wish to render pictorially the brutality of gaolers and executioners. Yet in every instance an effort is manifest to develop and express individual character. This tendency in Matsys is chiefly illustrated in his pictures of male and female market bankers (Louvre and Windsor), in which an attempt is made to display concentrated cupidity and avarice. The other tendency to excessive emphasis of tenderness may be seen in two replicas of the "Virgin and Child" at Berlin and Amsterdam, where the ecstatic kiss of the mother is quite unreal. But in these examples there is a remarkable glow of colour which makes up for many defects. Expression of despair is strongly exaggerated in a Lucretia at the museum of Vienna. On the whole the best pictures of Matsys are the quietest; his "Virgin and Christ" or "Ecce Homo" and "Mater Dolorosa" (London and Antwerp) display as much serenity and dignity as seems consistent with the master's art. He had considerable skill as a portrait painter. Egidius at Longford, which drew from Sir Thomas More a eulogy in Latin verse, is but one of a numerous class, to which we may add the portrait of Maximilian of Austria in the gallery of Amsterdam. Matsys in this branch of practice was much under the influence of his contemporaries Lucas of Leiden and Mabuse. His tendency to polish and smoothness excluded to some extent the subtlety of modulation remarkable in Holbein and Dürer. There is reason to think that he was well acquainted with both these German masters. He probably met Holbein more than once on his way to England. He saw Dürer at Antwerp in 1520. Quintin died at Antwerp in 1530. The puritan feeling which slumbered in him was fatal to some of his relatives. His sister Catherine and her husband suffered at Louvain in 1543 for the then capital offence of reading the Bible, he being decapitated, she buried alive in the square fronting the cathedral.

Quintin's son, Jan Matsys, inherited the art but not the skill of his parent. The earliest of his works, a "St Jerome," dated 1537, in the gallery of Vienna, the latest, a "Healing of Tobias," of 1564, in the museum of Antwerp, are sufficient evidence of his tendency to substitute imitation for original thought.



MATTEAWAN, a village of Fishkill township, Dutchess county, New York, U.S.A., on the eastern bank of the Hudson river, opposite Newburgh and 15 m. S. of Poughkeepsie. Pop. (1890), 4278; (1900), 5807 (1044 foreign-born); (1905, state census), 5584; (1910), 6727. The village is served by the Central New England railway, and is the seat of the Matteawan state hospital for the criminal insane, the Highland hospital, and the Sargeant industrial school. The Teller House dates back to the beginning of the 18th century. Near Matteawan is Beacon Hill, the highest of the highlands, which has an electric railway to its summit. There are manufactures of hats, rubber goods, machinery (notably "fuel-economizers"), &c., water-power being furnished by Fishkill Creek. The village owns its waterworks, the supply for which is derived from Beacon Hill. Matteawan was incorporated as a village in 1886.



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