Trilobites and Brachiopoda have been added to the list through the indefatigable exertions of Prof. Linnarsson, Mr Hicks, and others. The Brachiopoda, along with the groups mentioned by Barrande, are in all probability the earliest representatives of life at present known; for Mr Hicks has obtained undoubted examples of *Lingula* or *Lingulella* (*L. primæva*) from the very base of the whole Cambrian series of St David's in Wales. It is impossible for the present to offer more than an approximate comparison, based on numbers, of the genera and species that have existed during the various geological more or less extended periods; and many years will have to pass away before some master mind will be able to grapple with the accumulated observations of a century or more, and reduce the number of genera and species within reasonable limits, from which something like reliable data may be formed. Lyell has stated that nothing is more remarkable in the Silurian strata generally of all countries than the preponderance of the Brachiopoda over other forms of Mollusca. Their proportional numbers can by no means be explained by supposing them to have inhabited seas of great depth, for the contrast between the Palæozoic and the present state of things has not been essentially altered by the late discoveries made in our deep-sea dredgings. We find the living Brachiopoda so rare as to form about one forty-fourth of the whole bivalve fauna, whereas in the Lower Silurian rocks, and where the Brachiopoda reach their maximum, they are represented by more than twice as many species as the Lamellibranchiate bivalves. There may indeed be said to be a continuous decrease of the proportional number of this lower tribe of Mollusca as we proceed from the older to the newer rocks. Owing to the great number of synonyms it would not be possible at present to offer even an approximate statement with reference to the number of known species. Bigsby states that some 1754 species of Cambrian, Silurian, Devonian, and Carboniferous species of Brachiopoda have been found in America; 1905 in Europe. It is probable that as many as between four or five thousand species of Brachiopoda have been described, and it is noteworthy that the species, so immensely abundant during the Cambrian, Silurian, Devonian, and Carboniferous periods, became much less numerous during the Permian and Triassic, while they again became abundant, although comparatively reduced in number, during the Jurassic and Cretaceous periods. In the Tertiaries they had materially decreased in number, and they are represented at the present time by about 100 species. It has also been clearly ascertained that a certain number of genera and species passed from one system or formation into the one that followed it. Thus, approximately, it may be said that nine genera appeared for the first time in the Cambrian system, fifty-two in the Silurian, twenty-one in the Devonian, seven in the Carboniferous, two in the Permian, three in the Triassic, eleven in the Jurassic, five in the Cretaceous, three in the Tertiary, and nine in the recent periods. But what wonderful changes have been operating during the incalculable number of ages in which the creation and extinction of a large number of genera and thousands of species have taken place,—some few only of the primordial or first created genera, such as *Lingula*, *Discina*, and *Crania*, having fought their way and struggled for existence through the entire sequence of geological time. Many were destined to comparatively ephemeral duration, while others had a greater or lesser prolongation of existence.

The importance of the study of the Brachiopoda must be obvious to all. They are, as already stated, among the first well-known indications of life in this world, and they have continued to be very extensively represented up to the present time. They are also very characteristic fossils by which rocks at great distances, whether in New Zealand or Spitzbergen, in the Himalayas or the Andes, can be identified, without its being even necessary for the Palæontologist to visit the district whence the fossils are derived; they are, as Mantell would have termed them, sure medals of creation, the date of their appearance firmly stamped upon them, and their distinctive characters so legibly impressed as to defy misinterpretation. (T. D.)

BRACHYLOGUS, a title applied, for the first time in the middle of the 16th century, to a work which contains a systematic exposition of the Roman law, and which some writers have assigned to the reign of the Emperor Justinian, and others have treated as an apocryphal work of the 16th century. The earliest extant edition of this work was published at Lyons in 1549, under the title of *Corpus Legum per modum Institutionum*; and the title *Brachylogus totius Juris Civilis* appears for the first time in an edition published at Lyons in 1553. The origin of the work may be referred with great probability to the 12th century. There is internal evidence that it was composed subsequently to the reign of Louis le Débonnaire, as it contains a Lombard law of that king's, which forbids the testimony of a clerk to be received against a layman. On the other hand its style and reasoning is far superior to that of the law writers of the 10th and 11th centuries; whilst the circumstance that the method of its author has not been in the slightest degree influenced by the school of the Gloss-writers (Glossatores) leads fairly to the conclusion that he wrote before that school became dominant at Bologna. Savigny, who has traced the history of the *Brachylogus* with great care, is disposed to think that it is the work of Irnerius himself. Its value is chiefly historical, as it furnishes evidence that a knowledge of Justinian's legislation was always maintained in Northern Italy. The author of the work has adopted the *Institutes* of Justinian as the basis of it, and draws largely on the *Digest*, the *Code*, and the *Novells*; whilst certain passages, evidently taken from the *Sententiæ Receptæ* of Julius Paulus, imply that the author was also acquainted with the Visigothic code of Roman law compiled by order of Alaric II. An edition by Professor Bocking was published at Berlin in 1829, under the title of *Corpus Legum sive Brachylogus Juris Civilis*.

BRACTON, HENRY DE, a learned ecclesiastic, who was chief justiciary in the reign of Henry III. He is supposed to have been born at Bretton-Clovelly in Devonshire. He studied at Oxford, where he took the degree of doctor of laws, and is believed to have delivered lectures in that university. He was appointed a justice itinerant for the counties of Nottingham and Derby in 1245, and his name appears as a justiciary or judge of the Aula Regis on the Fine Rolls in 1249 and in each of the next seventeen years, written indifferently Bratton and Bretton, which circumstance has led Selden and others to attribute to him the authorship of the earliest treatise on the law of England in the French tongue, known as Bretone or Bretoun. In 1254 the king assigned to him by letters patent, in which he was designated "dilectus clericus noster," the use of a house in London belonging to William late earl of Derby during the minority of the heir, and in 1263 he was collated to the archdeaconry of Barnstaple. This office, however, he resigned in the following year; and in 1265 he was appointed chief justiciary, and held that office until the end of 1267, when all notice of him ceases. He wrote a most comprehensive and systematic work on the laws of England in five volumes, entitled *De Legibus et Consuetudinibus Angliæ*, which is modelled after the *Institutes* of Justinian, and is supposed, from internal evidence, to have been completed about the time when he was appointed chief justiciary, as it contains references to changes in the law made shortly before that time, but takes no notice of the statute of Marlborough passed in 52 Henry III. A Latin abridgment of Bracton's work was written by Gilbert de Thornton, who was appointed Chief-Justice of the King's Bench in the 17th year of the reign of Edward I., of which Selden possessed a copy, but no copy of it is at present known to exist. There are numerous MSS. extant of Bracton's work, but only two editions of it have been printed, the first in folio in 1569, the second in quarto in 1640. The text of these editions is identical, as well as the paging.

BRADFORD, a parliamentary and municipal borough of England, situated in the northern division of the West Riding of Yorkshire and the wapentake of Morley, on an affluent of the Aire, 34 miles S.W. of York, 9 miles W. of Leeds, and 192 miles from London by rail. The borough comprises 7220 acres, and is divided into five townships —Bradford, Manningham, Horton, Bowling, and Bolton. Bradford has returned two members to parliament since 1832, was incorporated in 1847, and is governed by a mayor, 15 aldermen, and 45 councillors. The parish includes the thirteen townships of Allerton, Bowling, Bradford, Clayton, Eccleshill, Haworth, Heaton, Horton, Manningham, North Bierley, Shipley, Thornton, and Wilsden, and comprises 34,146 acres. The population of the borough in 1871 was 145,830,—68,905 males and 76,925 females.

During the Saxon period Bradford was included in the parish of Dewsbury; but William the Conqueror, who mentions it in *Domesday Book*, included it in the barony of Pontefract, which he granted to Ilbert de Lacy. The manor of Bradford remained in the hands of the De Lacies until the beginning of the 14th century, when it passed by marriage to the family of the earl of Lancaster, John of Gaunt holding it at the time of his death in 1399. The manor was held by the Crown from that time down to the reign of Charles I., who sold it for a small yearly rent to the corporation of London. Afterwards it passed into the possession of the Marsdens of Hornby Castle, but since 1795 it has been held by the Rawson family, from whom the corporation have recently purchased all manorial rights. In the struggle between Charles I. and the Parliamentarians, Bradford adhered to the cause of the latter, and twice successfully resisted the royal forces that besieged the town. Subsequently the earl of Newcastle defeated Lord Fairfax at Atherton Moor, a few miles distant, and the Parliamentarian general retreated upon Bradford, giving the defence of the town over to his son, Sir Thomas Fairfax, who, however, was ultimately compelled to yield to the superior numbers of the Royalists. From that time the career of Bradford has been almost entirely a commercial one.

Situated in a populous, well-watered valley, abundantly supplied with iron, coal, and stone, Bradford has, since the introduction of steam, made exceedingly rapid progress. During the Plantagenet and Tudor periods the manufacture of woollen cloth was carried on in Bradford, the trade being greatly assisted by the settlement of a number of Flemish weavers in the district. About the end of the 17th century, however, the worsted trade, which till then had been chiefly confined to Norwich, was introduced into Bradford, and in course of time became the staple trade of the town. In 1773 a piece hall was erected, and for many years served as a market-place for the manufacturers and merchants of the district. On the introduction of steam-power and machinery the worsted trade advanced with great rapidity. The first mill in Bradford was built in 1798; there were 20 mills in the town in 1820, 34 in 1833, and 70 in 1841; and at the present time there are between 200 and 300, of much greater magnitude than the earlier factories. In the seventy years between 1801 and 1871 the population of the town increased tenfold, during which period the worsted trade has been developed to an astonishing extent. In 1833 Mr (now Sir Titus) Salt developed the alpaca manufacture in the town; mohair was shortly afterwards introduced; and more recently Mr S. C. Lister has introduced the silk and velvet manufacture, having invented a process of manipulating silk waste, whereby what was previously treated as refuse is made into goods that will compete with those manufactured from the perfect cocoon. In the Bradford staple trade alone it is estimated that there is now an annual turn-over of between £60,000,000 and £70,000,000.

Bradford has been greatly improved in appearance during the last few years, many important public buildings having been erected, and new and spacious thoroughfares opened out where narrow and ungainly streets formerly existed. Amongst the more prominent public buildings may be mentioned—St George's Hall, used for public meetings, concerts, &c., and capable of accommodating nearly 4000 persons, built in 1853; the Exchange, built in 1867, at a cost of £40,000; the market buildings, opened in 1872; and the Town-Hall, opened in 1873, and built at a cost of £100,000. The town is built entirely of the freestone which is so plentiful in the district. Many of the warehouses are large and of considerable architectural beauty, and the factories are mostly of great extent, some single establishments giving employment to between 3000 and 4000 workpeople.

The parish church, built in 1485, on the site of an old Norman church, is dedicated to St Peter. The living is valued at £1300 per annum. There was no other church in the town until 1815, when Christ Church was built. In 1838 St James's Church was erected, and between that date and 1853 five others were built. More recently ten additional churches have been built by the Bradford Church Building Society, the last of the ten (St Bartholomew's) being opened in 1872. There are now over twenty churches in the town. The dissenters have upwards of forty places of worship in Bradford, many of which are large and handsome edifices. The Roman Catholics likewise possess several churches.

The educational facilities of the town are considerable. The Airedale College, for the education of students intended for the Independent ministry, is situated here, and has a large annual revenue. Until a few years ago there was also a Baptist college here, but it has been removed to Rawdon, six miles distant. The Bradford Grammar School existed in the 16th century, and in 1663 received a charter of incorporation from Charles II. Latterly, the Endowed Schools Commissioners have reconstituted the school; a new building, giving accommodation to between 300 and 400 scholars, was erected in 1873, and Mr Forster M.P., Mr Henry Brown, and others, have presented a number of scholarships to the school. Since 1832 there has been a Mechanics' Institute in the town, and in 1871 a new one was erected at a cost of £32,500. There are several other educational institutions, including a Church Literary Institute and a Female Educational Institute, and a Free Library was established in 1872. Under the direction of the school board eight or ten handsome and commodious schools have been erected.

Bradford possesses a general infirmary, a fever hospital, an eye and ear hospital, an institution for the blind, and several other charitable institutions. It has two theatres and several music halls. There are two public parks.—Peel

Park and Lister Park,—each comprising over 50 acres, and also two smaller parks. The first temperance hall in England was erected at Bradford in 1837. There are two courthouses for the holding of the county and West Riding courts; the borough court is held in the town-hall. Numerous political and social clubs flourish in the town. Three daily and four weekly papers are published. Statues of the late Sir Robert Peel and Richard Oastler, "the factory king," were put up in advantageous positions some years ago; and recently the statues of two local commercial celebrities, Sir Titus Salt and Mr S. C. Lister, have been erected. Bradford has communication with all parts of the country by the Midland, Great Northern, Lancashire and Yorkshire, and London and North-Western Railways. A branch canal in connection with the Leeds and Liverpool canal was opened in 1774, but in 1871 it was closed by injunction, in consequence of the polluted condition of its water. Since then, however, it has been purified and re-opened.

In addition to its extensive operations in connection with the worsted trade, Bradford is largely engaged in the machine, stone, coal, and iron trades. The well-known Bowling and Low Moor Ironworks are within a short distance of the town. Formerly a septennial festival was held at Bradford in honour of Bishop Blaize, the patron saint of the wool-combers, but after 1825 it was discontinued. The market days are Monday and Thursday.

BRADFORD, JOHN, was born at Manchester in the early part of the reign of Henry VIII. Being a good penman and accountant, he became secretary to Sir John Harrington, who was paymaster of the English forces in France. Bradford at this time was gay and thoughtless, and to support his extravagance he appropriated some of the money entrusted to him; but being unable to bear the load of his guilt, he made restitution, and relinquished his employment. About 1547 he took chambers in the Inner Temple, and began to study law; but finding divinity more congenial to his taste, he removed, in the following year, to Catherine Hall, Cambridge, where he studied with such assiduity that in little more than a year he was admitted to the degree of master of arts, and was soon after made fellow of Pembroke Hall. Bishop Ridley, who in 1550 was translated to the see of London, sent for him to the metropolis and appointed him his chaplain. In 1553 he was also made chaplain to Edward VI., and became one of the most popular preachers in the kingdom. Soon after the accession of Mary he was arrested on a charge of sedition and confined in the Tower, where he continued a year and a half. During this time he wrote several epistles which were dispersed in various parts of the kingdom. He was afterwards removed to Southwark, and was at last brought to trial before the court in which Gardiner sat as chief, where he defended his principles to the last, in defiance of all attempts to effect his conversion. He was condemned to the flames, and suffered in Smithfield, July 1, 1555. His writings, which consist chiefly of sermons, meditations, tracts, letters, and prayers, have been published in 12mo by the Religious Tract Society.

BRADLEY, DR JAMES, one of the most eminent British astronomers, was born at Sherborne in Gloucestershire in March 1692. He entered Balliol College, Oxford, in 1710, and graduated as B.A. in 1714 and as M.A. in 1717. At the house of his uncle, the Rev. James Pound, himself known as an acute observer, he had found instruments and means for carrying on a regular series of astronomical observations. He became a member of the Royal Society in 1718, and though he took orders in the following year, and was presented to the vicarage of Bridstow, he did not give up his scientific pursuits. He also obtained a small sinecure living in Wales, but in 1721, on his appointment to the Savilian professorship of astronomy at Oxford, he resigned all his ecclesiastical preferments. In 1727 he communicated to the Royal Society his great paper on aberration, a remarkable combination of exact observation and profound induction. Some years afterwards Bradley began his lectures at the Oxford Museum, and in 1742 he was appointed to succeed Harley as astronomer royal. In 1747 his minute observations led him to the second of his great discoveries, the nutation of the earth's axis. The remainder of Bradley's life was devoted to the Greenwich Observatory. In 1748 he succeeded in getting a small grant for instruments from the public funds, and in 1752 he was rewarded with a pension of £250. He continued his labours till 1761, when his health began to give way. He then retired into the country and died at Chalford, Gloucestershire, in July 1762. The immense mass of useful observations left by him at Greenwich was singularly neglected by English astronomers; but since Bessel presented them in systematic form to the world (see BESSEL, vol. iii. p. 616) their true value has been recognized. For an account of Bradley's scientific discoveries see ASTRONOMY and ABERRATION.

Copious information as to Bradley's life and works will be found in Prof. Rigaud's Memoir prefixed to *Miscellaneous Works and Correspondence of the Rev. James Bradley*, 1832.

BRADSHAW, HENRY, an English poet, born at Chester about the middle of the 15th century. Early displaying a taste for religion and literature, he was received while a boy into the Benedictine monastery of St Werberg in that city; and he was afterwards sent to Gloucester (now Worcester) College, Oxford. After studying there for a time with the novices of his order he returned to his convent, where, in the latter part of his life, he applied himself chiefly to the study of history. He died in 1513. His poetry in some respects is not inferior to that of any of his contemporaries. His works are,—(1), *De antiquitate et magnificentia Urbis Cestriæ;* (2), *Chronicon;* (3), *The Life of the Glorious Virgin St Werberg*, printed at London, 1521, 4to, in verse, and now extremely rare. The life of St Werberg forms only part of this work, which contains also a description of the kingdom of Mercia, a life of St Etheldred, a life of St Sexburg, the foundation and history of Chester, and the chronicles of some kings.

BRADSHAW, JOHN, president of the High Court of Justice which tried Charles I., appears to have been born in 1602 at Marple Hill, near Stockport in Cheshire. He was of good family, and is believed to have been connected with Milton, the mother of the latter having married a Bradshaw. At all events, whether connected or not, the two knew and respected each other. Milton gives a highly eulogistic account of Bradshaw's character in his *Defensio Secunda*, and Bradshaw left by will £10 to Milton. His education seems to have been carried on, at Stockport free school, and afterwards at Bunbury and Middleton. He was called to the bar at Gray's Inn in April 1627, and in 1645 became a bencher. For some time he acted as judge in the Sheriff-Courts of London. As a lawyer he had considerable chamber practice, especially among those whom Clarendon calls the "factious." In 1644 he was employed by Parliament as one of the prosecutors of the Irish Lords Macguire and Macmahon. In October 1646 he was voted by the Commons as one of the commissioners of the Great Seal, and in March of the following year he was appointed chief-justice of Cheshire. On October 12, 1648, he was raised to the rank of serjeant. In January 1649, when it was found difficult to compose a court of justice for the trial of the king, Bradshaw was proposed as president, and at once elected. His demeanour on the trial is well known, but has been variously judged. He continued to retain the title of Lord President for some time after the trial, and received large rewards from Parliament for his valuable services. On the formation of a council of state Bradshaw was elected a member, and for three years held office as president. After that time the presidents were elected in rotation, and held their appointment for a month. When, on the 20th April 1653, Cromwell, after dismissing the Parliament, came to dissolve the council, Bradshaw is said to have confronted him boldly, and denied his power to dissolve the Parliament. This story rests on the authority of Ludlow, who was not a witness, and who does not say that Bradshaw was president of the council on that occasion. Bradshaw, an ardent republican, ever afterwards showed himself an uncompromising adversary of Cromwell. He was returned for Cheshire in the Parliament of 1654, and spoke strongly against vesting the power in a single person. He refused to sign the "engagement" drawn up by Cromwell, and in consequence withdrew from Parliament. Some time afterwards he was concerned with Harrison and others in one of the numerous republican conspiracies, and it has even been suspected that he was at least cognizant of some of the fifth monarchy men's desperate plots. He failed to obtain a seat in the Parliament of 1656, and on 1st August of the same year Cromwell ordered him to be dismissed from the chief-justiceship of Chester. It is not quite certain that this order was carried out. After the abdication of Richard Cromwell, Bradshaw again entered Parliament and became a member of the council of state. His health, however, was bad, and his last public effort was a vehement speech on the seizure of Speaker Lenthall, in which he denounced the military despotism of the time. He died on the 22d November 1659, and was buried in Westminster Abbey. His body was disinterred at the Restoration, and exposed on a gibbet along with those of Cromwell and Ireton. Bradshaw's character will be found very differently drawn by Clarendon (*History of the Rebellion*, bk. xi.) and Milton (*Defensio Secunda*).

See Foss, *Lives of Judges;* Ormerod's *Chester*, iii. 408-9; *Beauties of England and Wales*, ii. 264, *sqq.;* Noble, *Lives of the English Regicides*, vol. i.; Caulfield, *High Court of Justice;* Godwin, *History of the Commonwealth;* Ludlow's *Memoirs;* Forster's *Statesmen of the Commonwealth*. On Bradshaw's connection with Milton see Masson, *Life of Milton*, i.

BRADWARDIN, THOMAS, Archbishop of Canterbury, surnamed the Profound Doctor, was born at Hartfield in Sussex towards the close of the 13th century. He was educated at Merton College, Oxford, where he took the degree of doctor of divinity, and acquired the reputation of a profound scholar, a skilful mathematician, and an able divine. He was afterwards raised to the high offices of chancellor of the university and professor of divinity. From being chancellor of the diocese of London, he became chaplain and confessor to Edward III., whom he attended during his wars in France. After his return from the war he was made prebendary of Lincoln and subsequently archbishop of Canterbury. He died of the plague at Lambeth, in the year 1349, forty days after his consecration. Chaucer in his *Nun's Priest's Tale* ranks Bradwardin with St Augustine.

His great work is a treatise against the Pelagians, entitled *De causa Dei*, printed at London, 1618, folio, by Sir Henry Savile. He wrote also *De Geometria speculativa*, Paris, 1495, 1512, 1530; *De Arithmetica practica*, Paris, 1502, 1512; *De Proportionibus*, Paris, 1495, Venice, 1505, folio; *De Quadratura Circuli*, Paris, 1495, folio.

BRADY, NICHOLAS, D.D., whose name is familiar as the translator, in conjunction with Tate, of a new metrical version of the Psalms, was born at Bandon in the county of Cork in October 1659. He received his early education at Westminster school, and then studied at Christ Church, Oxford; but he graduated at Trinity College, Dublin. He was in due time made a prebendary of Cork. He was a zealous promoter of the Revolution and suffered in consequence. When the troubles broke out in Ireland in 1690, Brady, by his influence, thrice prevented the burning of the town of Bandon, after James II. had given orders for its destruction; and the same year he was employed by the people of Bandon to lay their grievances before the English parliament. He soon afterwards settled in London, where he obtained various preferments. At the time of his death in 1726 he held the livings of Clapham and Richmond. Besides his version of the Psalms, which was licensed in 1696, he translated Virgil's *Æneid*, and wrote several smaller poems and dramas. His prose works consist of sermons.

BRAGA, a city of Portugal, capital of a district in the province of Minho, is situated on an elevated plain near the River Cavado (*Navbis*), in 41° 43′ N. lat. and 8° 16′ W. long. The city proper, which has extensive suburbs, is surrounded by walls and towers, and has broad and well-built streets. The cathedral, which dates from the 12th century, is an imposing structure, and contains a large number of interesting objects of art. Among the other churches Santa Cruz is pre-eminent. There are also several convents in the city, an archiepiscopal palace, a lyceum, a library, an orphan asylum, and a large hospital; also the ruins of a theatre, a temple, and an aqueduct of Roman workmanship, and a great variety of minor antiquities of different ages. The principal manufactures are fire-arms, jewellery, and cutlery; and weaving and wax-bleaching are also carried on. A large cattle market is held in June and September. About two and a half miles distant is the celebrated sanctuary of Jesus de Monte, to which pilgrimages are frequently made. Population, 18,467.

Braga is identified with the *Bracara Augusta* of the Romans, the capital of the Callaici Bracarii. About the 5th century it became the chief city of the Suevi; it passed successively into the hands of the Goths and the Moors, and was captured from the latter by Alphonso of Castile. It has for a long time been the seat of the primate of Portugal, who also claimed to be head of the Spanish church, and before the conquest of Coimbra and Lisbon it was the residence of the Portuguese court.

BRAGANCA, a town of Portugal, the capital of the province of Tras-os-Montes on the Fervenza, 26 miles N.W. of Miranda. It consists of an upper and lower town; the former surrounded with walls, is the seat of the bishop of Braganca and Miranda, and has a citadel, a college, a hospital, and a poor-house, and some manufactures of silk and velvet. The reigning houses of Portugal and Brazil are descendants of the old dukes of Braganca. Population, 4503.

BRAHAM, JOHN, a celebrated English vocalist, was born in London in 1774, of Jewish parentage, his family name being Abraham. He received his first lessons in singing from Leoni, a well-known Italian artist, and made his appearance on the stage of the Covent Garden Theatre so early as 1787, when he sang bravura airs composed for Madame Mara. On the breaking of his voice his public career was interrupted for a time, and he had to support himself by teaching the pianoforte. In a few years, however, he recovered his voice, which proved to be a tenor of exceptionally pure and rich quality. His second *début* was made in 1794 at the Bath concerts, to the conductor of which, Rauzzini, he was indebted for careful training, extending over a period of more than two years. In 1796 he reappeared in London at Drury Lane, the opera being Storace's *Mahmoud*. With the view of perfecting himself in his art he set out for Italy in the autumn of the following year. On the way he gave some concerts at Paris, which proved so successful that he was induced to remain, contrary to his original intention, for eight months in that city. His career in Italy was one of continuous triumph: he appeared in all the principal opera-houses,

and was universally recognized as being without a rival even in that land of song. In 1801 he returned to his native country, and appeared once more at Covent Garden in the opera *Chains of the Heart* by Mazzinghi and Reeve. So great was his popularity that an engagement he had made when abroad to return after a year to Vienna was renounced, and he remained henceforward in England. For nearly forty years from this date his powers continued unimpaired, and he sang occasionally in public till within a year or two of his death, which occurred on the 17th February 1856. There is, perhaps, no other case upon record in which a vocalist of the first rank enjoyed the use of his organ so long; between his first and last public appearances considerably more than sixty years intervened, during forty of which he held the undisputed supremacy alike in opera, oratorio, and the concert-room. Braham was the composer of a number of vocal pieces, which being sung by himself had great temporary popularity, though they had little intrinsic merit, and are now deservedly forgotten. A partial exception must be made in favour of *The Death of Nelson*, which still keeps its place as a standard popular English song.

BRAHE, Tycho, an illustrious astronomer, descended from a noble family, of Swedish origin, which had settled in Denmark, was born on the 14th December 1546, at Knudstorp, in the county of Schonen. He learned Latin at the age of seven, and studied five years under private tutors. On the death of his father his uncle sent him, in April 1559, to study philosophy and rhetoric at Copenhagen. The great eclipse of the sun, on the 21st of August 1560, happening at the precise time foretold by astronomers, he began to look upon astronomy as something divine; and having purchased the *Ephemerides* of Stadius, he gained some knowledge of the theory of the planets. In 1562 he was sent by his uncle to Leipsic to study law; but astronomy wholly engrossed his thoughts, and he employed all his pocket-money in purchasing books on that science. Having procured a small celestial globe, he used to wait till his tutor went to bed, in order to examine the constellations and learn their names; and when the sky was clear, he spent whole nights in viewing the stars. He returned to Denmark in 1565, but soon left for Wittenberg, whence he was driven by the plague to Rostock. There in the following year his choleric disposition involved him in a duel with a Danish nobleman, in which he had the misfortune to lose part of his nose; but this defect he so skilfully supplied by means of gold, silver, and wax, that it was scarcely perceptible. In 1569 he took up his residence at Augsburg and remained there two years, busily engaged in astronomical and chemical researches. In 1571 he returned to Denmark, and was favoured by his maternal uncle Steno Belle with a convenient place at his castle of Herritzvad near Knudstorp for making his observations, and building a laboratory. But his marrying a peasant girl occasioned a violent quarrel between him and his relatives, and the king was obliged to interpose in order to reconcile them. In 1574, by royal command, he read some lectures at Copenhagen; and the year following he began his travels through Germany, and proceeded as far as Venice. He then resolved to remove his family, and settle at Basel; but Frederick II., unwilling that Denmark should lose the honour of his residence, bestowed upon him for life the Island of Huen in the Sound, for the erection of an observatory and laboratory, and conferred on him a fee in Norway, a pension of two thousand crowns out of the treasury, and the canonry of Roschild, which brought him a thousand more. The first stone of the observatory was laid on the 8th of August 1576. James VI. of Scotland, afterwards James I. of England, on his visit to Denmark to marry the Princess Anne, went to see Tycho Brahe in his retirement at Uranienburg, made him several presents, and wrote some verses in his praise. Soon after the death of King Frederick, the astronomer was deprived of his pension, fee, and canonry. Finding himself unable to defray the expenses of his observatory he went to Copenhagen, whither he carried some of his instruments, and continued his astronomical observations in that city, till, by the order of Christian IV., he was obliged to discontinue them. He then removed his family to Rostock, and afterwards to Holstein in order to solicit Henry Ranzau to introduce him to the emperor; and accordingly he was received by Rudolph II. at Prague with the most gratifying marks of respect. That prince gave him a magnificent house till he could procure for him one better fitted for astronomical observations, assigned him a pension of three thousand crowns, and promised, upon the first opportunity, a fee for him and his descendants. But he did not long enjoy his good fortune; for, on the 24th of October 1601, he died of a strangury, in the 55th year of his age. He was interred in a magnificent manner in the principal church at Prague, where a noble monument was erected to his memory. Shortly before his death he had been joined by Kepler, who owes his fame to the lessons of careful observation and cautious inference impressed on him by Tycho.

The materials for Brahe's life are to be found in Gassendi, *Vita T. Brahei*, 1654. For later surveys of his life and labours, see Delambre, *Astronomie moderne*; Lalande, *Bibliographie astronom.*; Bertrand, *Les Fondateurs de l'Astronomie moderne*; Brewster, *Martyrs of Science*. For Brahe's contributions to astronomy, see Grant, *History of Physical Astronomy*, and the article Astronomy.

BRÁHMA SAMÁJ, the new theistic church in India, owes its origin to Rájá Rám Mohan Rái, one of the leading men whom India has produced in later times. Rám Mohan Rái was born in the district of Bardwán in 1772. He mastered at an early age the Sanskrit, Arabic, and Persian languages. Impressed with the fallacy of the religious ceremonies practised by his countrymen, he impartially investigated the Hindu Shastras, the Koran, and the Bible, repudiated the polytheistic worship of the Shastras as false, and inculcated the reformed principles of monotheism as found in the ancient Upanishads of the Vedas. In 1816 he established a society, consisting only of Hindus, in which texts from the Vedas were recited and theistic hymns chanted. This, however, soon died away on account of the opposition it met from the Hindu community. In 1830 the Rájá organized a Hindu society for prayer-meetings, which may be considered as the foundation of the present Bráhma Samáj. The following extract from the trust-deed of the building dedicated to it will show the religious belief and the purposes of its founder. The building was intended to be "a place of public meeting for all sorts and descriptions of people, without distinction, who shall behave and conduct themselves in an orderly, sober, religious, and devout manner, for the worship and adoration of the eternal, unsearchable, and immutable Being, who is the author and preserver of the universe, but not under and by any other name, designation, or title, peculiarly used for and applied to any particular being or beings by any man or set of men whatsoever; and that no graven image, statue, or sculpture, carving, painting, picture, portrait, or the likeness of anything shall be admitted within the said messuage, building, land, tenements, hereditament, and premises; and that no sacrifice, offering, or oblation of any kind or thing shall ever be permitted therein; and that no animal or living creature shall within or on the said messuage, &c., be deprived of life either for religious purposes or food, and that no eating or drinking (except such as shall be necessary by any accident for the preservation of life), feasting, or rioting be permitted

therein or thereon; and that in conducting the said worship or adoration, no object, animate or inanimate, that has been, or is, or shall hereafter become or be recognized as an object of worship by any man or set of men, shall be reviled or slightingly or contemptuously spoken of or alluded to, either in preaching or in the hymns or other mode of worship that may be delivered or used in the said messuage or building; and that no sermon, preaching, discourse, prayer, or hymns be delivered, made, or used in such worship, but such as have a tendency to the contemplation of the Author and Preserver of the universe, or to the promotion of charity, morality, piety, benevolence, virtue, and the strengthening of the bonds of union between men of all religious persuasions and creeds." The new faith at this period held to the Vedas as its basis. Rám Mohan Rái soon after left India for England, and took up his residence in Bristol, where he died in 1835. The Bráhma Samáj maintained a bare existence till 1841, when Bábu Debendra Náth Tagore, of the Tagore family of Calcutta, devoted himself to it. He gave a printing-press to the Samáj, and established a monthly journal called the *Tattwabodhiní Patriká* to which the Bengali language now owes much for its strength and elegance. About the year 1850 some of the followers of the new religion discovered that the greater part of the Vedas is polytheistic, and a schism took place,—the advanced party holding that nature and intuition form the basis of faith. Between the years 1847 and 1858 branch societies were formed in different parts of India, especially in Bengal, and the new church made rapid progress, for which it was largely indebted to the spread of English education and the labours of the Christian missionaries.

The Bráhma creed was definitively formulated as follows. (1.) The book of nature and intuition supplies the basis of religious faith. (2.) Although the Bráhmas do not consider any book written by man the basis of their religion, yet they do accept with respect and pleasure any religious *truth* contained in any book. (3.) The Bráhmas believe that the religious condition of man is progressive, like the other departments of his condition in this world. (4.) They believe that the fundamental doctrines of their religion are also the basis of every true religion. (5.) They believe in the existence of one Supreme God—a God endowed with a distinct personality, moral attributes worthy of His nature, and an intelligence befitting the Governor of the universe, and they worship Him alone. They do not believe in any of his incarnations. (6.) They believe in the immortality and progressive state of the soul, and declare that there is a state of conscious existence succeeding life in this world and supplementary to it as respects the action of the universal moral government. (7.) They believe that repentance is the only way to salvation. They do not recognize any other mode of reconcilement to the offended but loving father. (8.) They pray for *spiritual* welfare, and believe in the *efficacy* of such prayers. (9.) They believe in the providential care of the divine Father. (10.) They avow that love towards Him, and the performances of the works which He loves, constitute His worship. (11.) They recognize the necessity of public worship, but do not believe that communion with the Father depends upon meeting in any fixed place at any fixed time. They maintain that they can adore Him at any time and at any place, provided that the time and the place are calculated to compose and direct the mind towards Him. (12.) They do not believe in pilgrimages, and declare that holiness can only be attained by elevating and purifying the mind. (13.) They put no faith in rites or ceremonies, nor do they believe in penances, as instrumental in obtaining the grace of God. They declare that moral righteousness, the gaining of wisdom, divine contemplation, charity, and the cultivation of devotional feelings are their rites and ceremonies. They further say, Govern and regulate your feelings, discharge your duties to God and to man, and you will gain everlasting blessedness; purify your heart, cultivate devotional feelings, and you will see Him who is unseen. (14.) Theoretically there is no distinction of caste among the Bráhmas. They declare that we are all the children of God, and therefore must consider ourselves as brothers and sisters.

For long the Bráhmas did not attempt any social reforms. But about 1860 the younger Bráhmas, headed by Bábu Kesab Chandra Sen, tried to carry their religious theories into practice by excluding all idolatrous rites from their social and domestic ceremonies, and by rejecting the distinction of caste altogether. This, however, the older members opposed, declaring such innovations to be premature. The theoretical schism now widened into a visible separation, and henceforth the two parties of the Bráhmas were known as the Conservatives and the Progressives. The progressive Bráhmas, or, as they call their church, the "Bráhma Samáj of India," have made considerable progress. They have built a chapel in Calcutta, which is crowded every Sunday evening; and they encourage the establishment of branch Samájes in different parts of the country. The number of avowed Bráhmas probably does not exceed 3000, but the greater part of the educated natives of Bengal sympathize more or less with the movement. (W. W. H.)

BRAHMANISM is a term commonly used to denote a system of religious institutions originated and elaborated by the *Brāhmans*, the sacerdotal and, from an early period, the dominant caste of the Hindū community. In like manner, as the language of the Āryan Hindūs has undergone continual processes of modification and dialectic division, so their religious belief has passed through various stages of development broadly distinguished from one another by certain prominent features. The earliest phases of religious thought in India of which a clear idea can now be formed are exhibited in a body of writings, looked upon by later generations in the light of sacred writ, under the collective name of *Veda* ("knowledge") or *Śruti* ("revelation"). The Hindū scriptures consist of four separate collections, or *Sanhitās*, of sacred texts, or *Mantras*, including hymns, incantations, and sacrificial forms of prayer, viz., the *Rich* (nom. sing. *rik*) or *Rigveda*, the *Sāman* or *Sāmaveda*, the *Yajush* or *Yajurveda*, and the *Atharvan* or *Atharvaveda*. Each of these four text-books has attached to it a body of prose writings, called *Brāhmanas*, which presuppose the Sanhitās, purporting as they do to explain chiefly the ceremonial application of the texts and the origin and import of the sacrificial rites for which these were supposed to have been composed. Besides the *Brāhmanas* proper, these theological works, and in a few isolated cases some of the Sanhitās, include two kinds of appendages, the *Āranyakas* and *Upanishads*, both of which, and especially the latter, by their language and contents, generally betray a more modern origin than the works to which they are annexed. The subject of the former class of these treatises is on the whole similar to that of the *Brāhmanas*, which they supplement, giving at the same time somewhat more prominence to the mystical sense of the rites of worship. The *Upanishads*, on the other hand, are taken up to a great extent with speculations on the problems of the universe and the religious aims of man,—subjects often touched upon in the earlier writings, but here dealt with in a more mature and systematic way. Two of the *Sanhitās*, the *Sāman* and the *Yajush*, owing their existence to purely ritual purposes, and being, besides, the one almost entirely, the other partly, composed of verses taken from the *Rigveda* are only of secondary importance for our present inquiry. The hymns of the *Rigveda* constitute the