

Louis Blanc, the kinship and even identity of ethical spirit with that of Christianity are unmistakable.

In their revolutionary impatience the anarchists have avowed their hostility to all the existing political forms except the free commune, which alone will be left standing amid the general wreck they contemplate. The Marx school, as represented by its ablest living exponent, Friedrich Engels, also look forward to a period in the evolution of society when the state will become superfluous, and, having no longer any function to perform, will die away. The state they regard as an exploiting institution, an organization of the ruling classes for retaining the workers in economic subjection. The International was an attempt to supersede the exploiting states by a combination of the workers of all countries without distinction of creed, colour, or nationality. When the workers in the name of the whole society seize political power and take over the control of production, the rule of classes, their conflicts and the excesses of the struggle for existence among them, will cease. Instead of a government over persons we shall have an administration of things and the control of productive processes. Obviously the Marx school reserve the realization of this idea till the evolution of society has prepared the way for it. In the conduct of the International they insisted on a strongly centralized form of organization as against the free federalism and the rejection of all authority maintained by Bakunin and his followers. This opposition between centralization and federalism does not concern us here; it is a question common to theoretical and practical politics. It is necessary, however, to say a word about the opposition between the national tendency of the Lassalle school and the international socialism of Marx. As we have seen, a compromise was effected in the Gotha programme of 1875, in which the importance of the nation as an existing form of human society is amply recognized. The question is still discussed in the organs of the social democrats; but the international tendency is decidedly the prevalent one. "Want of patriotism" is one of the current epithets of reproach cast at them. It is needless to point out that as most new movements of importance have been revolutionary, so also have they for good or evil been international. In becoming international the labour movement has only followed the example set by commerce, finance, diplomacy, religion, philosophy, art, music.

We have now reviewed the most important aspects of the socialist movement. As we have seen, socialism is a new form of social organization, based on a fundamental change in the economic order of society. Socialists believe that the present economic order, in which industry is carried on by private competitive capital, must and ought to pass away, and that the normal economic order of the future will be one with collective means of production and associated labour working for the general good. This principle of socialism is cardinal and fundamental. All the other theories so often connected with it and so important in relation to religion, philosophy, marriage, patriotism, &c., are with regard to socialism non-essential. Questions of method, though supremely important, must also be distinguished from the essential principle. At the same time it will be seen that an economic change, such as that contemplated in socialism, would most powerfully affect every other department of human life. Socialism, in short, means that in industry, in the economic arrangements of society, the collective or co-operative principle shall become normal or universal, that all who are able should contribute to the service of society, and that all should share in the fruits of the associated labour according to some good and equitable principle. In such a condition of things the noblest field for ambition will be in the

service of society,—an ideal which is already partially realized in the democratic state. It is in this fundamental sense that J. S. Mill declared himself a socialist.¹ It is in this sense also that Albert Schäffle, one of the first living authorities on economics and sociology, has, after long years of study of the subject, come to the conclusion that "the future belongs to the purified socialism."²

Scientific socialists strongly insist that this economic order of the future cannot be realized by utopian schemes or arbitrary legislation or mere revolutionary disturbance. If it come at all, it must come as the consummation of the dominant tendencies of modern social development; it must be realized under the conditions prescribed by our nature and environment. In discussing the doctrines of Marx we stated that the central point of the question was this—do the strongest forces of the social development of our time really tend towards the superseding of the present economic order and towards the establishment of a new and wider order based on collective capital and associated labour? Socialists maintain that they do, and that there is at present going forward a double process of dissolution and reconstruction,—the dissolution of individualism with a constructive tendency towards collectivism. From the socialist point of view the following may be signalized as indicative of such a process. (1) The tendency towards economic anarchy already explained in treating of Marx's views. Over the whole industrial world we see great crises succeeding each other, resulting in stagnation and depression which now threaten to be chronic and permanent. While the productive forces of the world are enormously increasing, they only tend the more to intensify national and international competition, and to render labour superfluous, precarious, and dependent. Under this system the worker has neither freedom nor security. All this variety of symptoms are only a sign of the break-down of the present economic order both in principle and method. They are the necessary results of the competitive system, which has thus finally revealed its real nature and tendency,—economic and social anarchy. (2) The constant and inevitable tendency towards concentration in industrial operations, which began with the introduction of steam and of the factory system, through which the small producer has been superseded by the capitalist, the smaller capitalist by the larger. And now the single capitalist is being absorbed in the company, a growing proportion of the world's business being so large that only a great company can provide the requisite capital and organization; whilst in the large companies there is a tendency, in case they cannot drive each other out of the field, to bring about a fusion of interests. In all this we see a great constructive process inevitably going on as the result of the inherent tendencies of industrial development. Thus the control of industry will be concentrated in a few colossal companies and their chiefs. It is obvious how this process could simplify the transference of the whole to a collective management by society. (3) This leads us to a third important point, the growing tendency towards state control of industry, and the growing sense of the responsibility of society for all its members, observable in German politics, not less than under the more democratic conditions of France and England. It is apparent how under this influence the existing state might absorb one by one all the large social functions, as has already happened with regard to education, means of communication, &c. Naturally this could be accomplished only through a most comprehensive development of local and subordinate bodies of every kind. Socialism by no means implies that such an enormous burden of

¹ See his *Autobiography*; also his *Pol. Economy*, chapter on the probable future of the labouring classes.

² *Bau und Leben*, vol. ii. 120.

work should be thrown on the central government. Most socialist schools have contemplated a vast increase of communal or local autonomy,—a course which, on the other hand, does not carry with it the subversion of the central government. (4) In England during the last half century we have seen a long succession of efforts, partially successful, towards a new organization of society rendered necessary by the changes due to the industrial revolution. In economics as in other spheres the watchword of the new era has been freedom, the removal of restraint. But it has been found that positive measures of reconstruction were also necessary. Factory legislation carried in opposition to the prevailing economic theory, trades unions, employers' combinations, industrial partnerships, boards of conciliation, the co-operative system,—all these are real, if partial, endeavours towards a new organization of society suited to the new conditions. Socialism claims to be the comprehensive scheme of organization which embraces in a complete and consistent unity all these partial efforts. (5) But the great social force which is destined to work out the vast transformation consists of the human beings most directly interested in the colossal struggle,—the modern democracy. This democracy is marked by a combination of characteristics which are new to history. It is being educated and enlightened in the school and by the cheap press; it is being drilled and organized in large factories, in the national armies, by vast popular demonstrations, in the gigantic electoral struggles of the time. Thus it is becoming conscious of its enormous power, and able to make use of it. It is becoming conscious also of its unsatisfactory social and economic position. The democracy which has become the master-force of the civilized world are economically a mass of proletarians dependent on precarious wage-labour. Having transformed the political condition of things, they are ready now for an economic transformation. But, the inevitable process of concentration of industrial operations already referred to is entirely against the continuance or restoration of the small producer, whether workman or peasant proprietor. Such efforts of continuance or restoration are reactionary; they are economically unsound and must fail. Production and distribu-

tion ever tend to larger dimensions. The only issue out of the present economic condition is concentrated collective industry under the control of the new democracy and its chosen leaders. On the irresistible momentum of these two inevitable and ever-growing forces—the concentration of industry and the growth of the new democracy—socialism depends for the realization of its scheme of transformation.

Such are the tendencies to which philosophic socialists point as already working towards a transformation of society of the kind they expect. It is essentially a question of the future, with which we have no concern in this article. Our duty has simply been to point out the forces which socialists believe to be actually at work for the realization of their theory of social organization; and here we must leave the subject.

Literature.—The literature of socialism is enormous and rapidly growing; besides those named under the special articles we now give a list of some of the leading works which are in whole or in part devoted to it:—Karl Marx, *Das Kapital* (1st vol., 3d ed., Hamburg, 1883; 2d vol., 1st ed., Hamburg, 1885); Friedrich Engels, *Eugen Dühring's Umwälzung der Wissenschaft*, a controversial work, but containing a remarkably clear and able exposition of the Marx position by its best living exponent (2d ed., Hottingen-Zurich, 1886); Albert Schäffle, *Bau und Leben des sozialen Körpers* (Tübingen, 1878; the third vol. of this work supersedes his *Kapitalismus und Sozialismus*, Tübingen, 1870), *Quintessenz des Sozialismus* (7th ed., Gotha, 1879); Adolf Held, *Sozialismus, Sozial-Demokratie, und Sozial-Politik* (Leipzig, 1878); Von Sybel, *Die Lehren des heutigen Sozialismus und Communismus* (Bonn, 1872); Lujo Brentano, *Die christlich-soziale Bewegung in England* (Leipzig, 1883); Von Scheel, *Die Theorie der sozialen Frage* (Jena, 1871); Alphons Thun, *Geschichte der revolutionären Bewegungen in Russland* (Leipzig, 1883); Rudolf Meyer, *Der Emancipationskampf des vierten Standes* (2d ed., Berlin, 1882); Franz Mehring, *Die Deutsche Sozialdemokratie, ihre Geschichte und ihre Lehre* (Bremen, 1879); Laveleye, *Le Socialisme Contemporain* (2d ed., Paris, 1883); Paul Janet, *Les Origines du Socialisme Contemporain* (Paris, 1883); Paul Leroy-Beaulieu, *Le Collectivisme* (Paris, 1884); *Le Procès des Anarchistes* (Lyons, 1883); John Rae, *Contemporary Socialism* (London, 1884); Stepiak, *Underground Russia* (London, 1883); Hyndman, *Historical Basis of Socialism in England* (London, 1884). See also the relative chapters in Roscher's *Grundlagen der Nationalökonomie*; Adolf Wagner's *Lehrbuch der politischen Oekonomie* (vol. i., *Grundlegung*, 2d ed., Leipzig, 1879); Mill's *Political Economy and Autobiography*; and Sidgwick's *Principles of Political Economy*. (T. K.)

SOCIETIES. Under ACADEMY will be found an account of the various bodies of which that word forms part of the titles, usually denoting some kind of state support or patronage. The present article is restricted to scientific, archaeological, and literary societies, chiefly those founded and carried on by private collective effort. Certain academies omitted in the previous article are, however, referred to. Governmental, collegiate, and university institutions do not come within our scope, neither as a rule do endowed societies, nor yet institutions which, although they bear the name, carry on no kind of joint literary or scientific work. With a few exceptions here and there, the societies mentioned are still flourishing.

In their modern form learned and literary societies have their origin in the Italian academies of the Renaissance; but private scientific societies have arisen chiefly during the 19th century, being due to the necessity of increased organization of knowledge and the desire among scholars for a common ground to meet and compare results and collect facts for future generalization. These bodies rapidly tend to increase in number and to become more and more specialized. Many efforts have been made from time to time to tabulate and analyse the literature published in their proceedings, as, for instance, in the indexes of Reuss (1801-21) and the Royal Society (1867-79) for physics and natural science, and those of Walther (1845) and Koner (1852-56) for history. A further development

of the work done by societies was made in 1822, when, chiefly owing to Humboldt, the *Gesellschaft deutscher Naturforscher und Aerzte* first met at Leipsic. This inauguration of the system of national congresses was followed in 1831 by the *British Association for the Advancement of Science*, which has served as the model for similar societies in France, America, and elsewhere. The merit of introducing the idea of migratory congresses into France is due to the distinguished archaeologist, M. Arcisse de Caumont (1802-73), who established the *Association Normande*, which since 1845 has held a reunion in one or other of the towns of the province for the discussion of matters relating to history, archaeology, science, and agriculture, with local exhibitions. From the same initiation came the *Congrès Archéologique de France* (1834), which was organized by the *Société Française pour la Conservation des Monuments Historiques*, the *Congrès Scientifique*, which held its first meeting at Caen in 1833 (directed by the *Institut des Provinces*), and the *Congrès des Sociétés Savantes des Départements*, which for many years after 1850 held its annual sittings at Paris. The idea received the sanction of the French Government in 1861, when a *Congrès des Sociétés Savantes* was first convoked at the Sorbonne by the minister of public instruction. In Italy Charles Bonaparte, prince of Canino, started an association with like objects, which held its first meeting at Pisa in 1839. Russia has had an itinerant gathering of naturalists since

1867. International meetings are a natural growth from congresses in which specialists of one country or speech are alone represented. Two remarkable examples of these cosmopolitan societies are the *Congrès International d'Archéologie et d'Anthropologie Préhistoriques*, founded at Spezia in 1865, and the *Congrès International des Orientalistes* (1873). Another step towards more complete organization was taken when the *Smithsonian Institution* (Washington, U.S.) developed the admirable system of international exchanges of its publications, as well as of other works and specimens, among societies and individuals. The *Institution* has agents in every part of the globe, and entertains relations with all the leading societies in the world. The *International Scientific Bureau*, a private enterprise, was established at Haarlem by Dr Van Baumhauer to facilitate the sending of parcels among societies and scientific men in Holland. Since 1875 the French ministry of public instruction has organized a distribution of foreign publications among societies in France. In England local scientific societies are now officially represented at the meetings of the *British Association*. In 1883 rules were framed for the admission of corresponding societies and for the institution of a conference of delegates to hold sittings contemporaneously with the annual meeting of the Association, for the purpose of discussing "propositions bearing on the promotion of more systematic observation and plans of operation, and of greater uniformity in the mode of publishing results," as well as for the consideration of "matters in which the co-operation of corresponding societies is desired." A committee was appointed in 1882 at the Montreal meeting of the *American Association for the Advancement of Science* "to confer with committees of foreign associations for the advancement of science with reference to an international convention of scientific associations," and a fund for the purpose has been started.

It has been thought desirable to classify the societies treated of in the present article under the following headings, the first of which includes those of the widest scope, dealing with the whole range of natural history, or with archæology and literature as well as science:—I. science generally; II. mathematics; III. astronomy; IV. physics; V. chemistry; VI. geology, mineralogy, and palæontology; VII. meteorology; VIII. microscopy; IX. botany and horticulture; X. zoology; XI. anthropology; XII. sociology (embracing economic science, statistics, law, and education); XIII. medicine, surgery, &c.; XIV. engineering and architecture; XV. naval and military science; XVI. agriculture and trades; XVII. literature, archæology, and history; XVIII. geography.

I. SCIENCE GENERALLY.

UNITED KINGDOM.—First in antiquity and dignity among English societies comes the ROYAL SOCIETY (*q. v.*) of London, which dates from 1660. In 1683 William Molyneux, the author of *The Case of Ireland Stated*, exerted himself to form a society in Dublin after the pattern of that of London. In consequence of his efforts and labours the *Dublin Philosophical Society* was established in January 1684, with Sir William Petty as first president. The members subsequently acquired a botanic garden, a laboratory, and a museum, and placed themselves in communication with the Royal Society of London. Their meetings after 1686 were few and irregular, and came to an end at the commencement of hostilities between James II. and William III. The society was reorganized in 1693 at Trinity College, Dublin, where meetings took place during several years. On 25th June 1781, chiefly owing to the exertions of Dr S. M. Madden, the *Dublin Society for Improving Husbandry, Manufactures, and other Useful Arts* came into existence. In January 1781 they commenced to publish the *Dublin Society's Weekly Observations*, and in 1746 the society was placed on the civil establishment, with an allowance of £500 a year from the Government. A charter of incorporation was granted in 1750, and seven years later the *Royal Dublin Society* for the first time owned a house of its own, and in the following year began the drawing school, which subsequently did so much for Irish art. Between 1761 and 1767 Government grants to the amount of £42,000 for promoting national

agriculture and manufactures were distributed by the society, which claims to be the oldest scientific body in the United Kingdom after the Royal Society of London. It has published *Transactions* (1799-1810); and its *Proceedings* (1764-75; 1848, &c.) and *Journal* (1858, &c.) are still issued. For the *Royal Irish Academy*, see ACADEMY.

The *Royal Physical Society of Edinburgh* was instituted in 1771, and incorporated in 1788; it is exclusively devoted to natural history and the physical sciences. With it have been merged many other societies, such as the *Chirurgico-Medical* in 1796, the *American Physical* in 1796, the *Hibernian Medical* in 1799, the *Chemical* in 1803, the *Natural History* in 1812 (which brought in Brougham and Mackintosh), and the *Didactic* in 1813. It issues *Proceedings* (1858, &c.). From the *Philosophical Society of Edinburgh* (1739) was developed the *Royal Society of Edinburgh*, whose charter is dated 29th March 1783. It was to comprise a physical and a literary class among the members of the latter were Robertson, Hume, Burke, and Reid, and among those of the former Hutton, Black, Playfair, Dugald Stewart, and Watt. The literary division has been much less productive than the other. A second charter was obtained in 1811. The society has published *Transactions* (4to, 1788, &c.) and *Proceedings* (8vo, 1845, &c.).

The *Linnean Society* for the promotion of zoology and botany was founded in 1783 by Dr (afterwards Sir) J. E. Smith, in order to supplement the work of the Royal Society, and obtained a royal charter in 1802. The herbarium and collections of Linneus, with the founder's additions, were purchased after his death. It is removed from Sir Joseph Banks's old house in Soho Square to Burlington House (London) in 1857, and assumed the apartments it now occupies in 1878. It has published *Proceedings* (1849, &c.), *The Journal* (8vo, 1857, &c.) and the *Transactions* (4to, 1791, &c.) are divided into zoological and botanical sections. The *Society for the Encouragement of Arts, Commerce, and Manufactures* took its origin in 1753 from an academy established in the Strand by the landscape painter William Shipley. Attention was paid to the application of science to practical purposes, a subject passed over by the Royal Society. Exhibitions of pictures by native artists were held, and the first exhibition of the Royal Academy took place in its rooms. A fresh start in a new career was made by the *Society of Arts* in 1847, when it obtained a charter and the presidency of the Prince Consort. The International Exhibition of 1851 sprang from the smaller exhibitions previously held in its rooms. The East Indian section dates from 1869, the foreign and colonial and the chemical sections from 1874. Its organs have been *Transactions* (1783-1849) and the *Journal* (1853, &c.). Sir Joseph Banks, Count Rumford, and other fellows of the Royal Society started the *Royal Institution* in 1799, when a site was purchased in Albemarle Street for "an establishment in London for diffusing the knowledge of useful mechanical improvements," "to teach the application of science to the useful purposes of life." The institution was incorporated in the following year. One of the most important epochs in the history of chemistry must be dated from the establishment of the laboratory where Davy and Faraday pursued their investigations. Belonging to the institution are foundations for professorships in natural philosophy, chemistry, and physiology. Courses of lectures on special subjects are given as well as discourses (once a week) of a more general and literary character. Its *Journal* has been issued since 1802. The *London Institution* was established on a similar basis in 1805 and incorporated in 1807. The building in Finsbury Circus was erected in 1819. The *British Association for the Advancement of Science* was instituted at York on 27th September 1831 in imitation of the itinerant scientific parliament held in Germany since 1822 (already referred to), and arose from a proposal by Sir D. Brewster. A meeting is held annually in one of the chief provincial towns of the United Kingdom. The object of the association is to promote science, to direct general attention to scientific matters, and to facilitate intercourse between scientific workers. Abstracts of the proceedings and reports of committees are published in the annual *Report* (1833, &c.). The *Historical Society of Science* (1841) printed a couple of volumes; and the *Ray Society* (1844), instituted for the printing of original and scarce old works (88 vols. have appeared) in zoology and botany, still flourishes. The *Royal Colonial Institute* was founded in 1868 and incorporated in 1882. It provides a place of meeting for gentlemen connected with the colonies and British India, undertakes investigations into subjects relating to the British empire, has established a museum and library, and gives lectures in its new building in Northumberland Avenue (London). It has published *Proceedings* since 1870. The *Victoria Institute*, or *Philosophical Society of Great Britain*, was founded in 1865 to form a connecting bond between men of science and others engaged in investigating important questions of philosophy and science, more especially those bearing upon the truths revealed in Holy Scripture. Its organ is the *Journal* (1867, &c.). The *Balloon Society of Great Britain* (1880) is not restricted to aeronautics, but deals with recent discoveries and inventions, and science generally. The foundation in 1821 of the *Society for the Encouragement of the Useful Arts in Scotland*, now usually known as the *Royal Scottish Society of Arts*, for the promotion of the useful

arts and such branches of science as bear upon them was due to Sir D. Brewster, Sir J. Mackintosh, and others; it was incorporated in 1841, and has published *Transactions* since that year.

The leading provincial societies of Great Britain of a general character are as follows: Aberdeen, *Nat. Hist. Soc.* (1869), *Trans.*; Phil. Soc. (1840). Alloa, *Soc. of Nat. Hist. and Arch.* (1863), *Proc.* (1866, &c.). Banffshire Field Club and Soc. (1880), *Proc.*, *Bath, Nat. Hist. and Antiq. Field Club* (1866), *Proc.* (1870, &c.). Bedfordshire Nat. Hist. Soc. (1875), *Trans.*, *Belfast, Nat. Hist. and Phil. Soc.* (1821), *Proc.* (1852, &c.); *Naturalists' Field Club* (1849), *Proc.* (1875, &c.). Devonshire Naturalists' Club (1831), *Proc.* (1884, &c.). Dorset Nat. Hist. Soc. (1867), *Proc.* (1869, &c.). Birmingham, *Nat. Hist. and Antiq. Soc.* (1858), *Proc.* (1869, &c.); Birmingham and Midland Institute Soc. Soc. (1870), *Trans.* of archaeological section (1871, &c.); Phil. Soc. (1876), has a fund for promotion of original research, *Proc.*; Midland Union of Nat. Hist. Societies (1877), *Midland Naturalist*, Bolton, *Phil. Soc.* (1871), *Braintree, Phil. Soc.* (1885), with various local societies affiliated to it. Brighton, Brighton and Sussex Nat. Hist. Soc. (1854), *Ann. Reports* (1855, &c.). Bristol, Museum and Library (formed by the amalgamation of the Institution for the Advancement of Sc., Lit., and the Fine Arts with the Lit. Soc., founded 1793); *Naturalists' Soc.* (1892), *Proc.* (1896, &c.). Burnley, *Lit. and Sc. Club* (1878), *Trans.*; Burton-on-Trent, *Nat. Hist. Soc. Vale, Lit. and Sc. Club* (1876), *Phil. Soc.* (1813); incorporated 1832, for the promotion of philosophy and natural science, owns museum and library, *Proc.* (1865, &c.), *Trans.* (1831, &c.). Cardiff, *Naturalists' Soc.* (1867), *Trans.*, *Chester, Soc. of Nat. Sc.* (1871), *Proc.*, *Cotham, Royal Inst.* (1867), *library*, *Cutwicken and Arch. Soc.* (1836), *Cornwall Royal Inst.*, at Truro, devoted to natural philosophy, natural history, and antiquities, *Journal* (1864, &c.); *Royal Polytechnic Soc.*, Falmouth (1833; founded by the daughters of R. W. Fox and others), for the encouragement of science and the fine and industrial arts, *Trans.* (1835, &c.). Cumberland Assoc. for the Advancement of Lit. and Sc. (1876), provides a means of union for the local scientific societies of Cumberland and Westmorland, *Trans.*, *Derry Nat. Hist. and Phil. Soc.* (1870), *Downshire Assoc. for the Advancement of Sc.* (1862), *Dorset Nat. Hist. and Antiq. Club* (1876), *Dumfriesshire and Galloway Soc., Nat. Hist. and Antiq. Soc.* (1876), *Trans.*, *Dundee, Naturalists' Soc.* (1875), *Eastbourne, Nat. Hist. Soc.* (1867), *Proc.* (1869, &c.), *East of Scotland Union of Naturalists' Societies*, *Edinburgh, Vale, Lit. and Sc. Inst.* (1890), owns laboratory, *Elgin, Elgin and Morayshire Lit. and Sc. Soc.* (1886), *Essex Field Club* (1880), at DUCKHURST HILL, *Trans.*, *Exeter, Naturalists' Club and Arch. Assoc.* (1868), *Glasgow, Phil. Soc.* (1802), *Proc.* (1844, &c.); *Nat. Hist. Soc.* (1851), *Proc.* (1868, &c.); *Soc. Field Naturalists* (1872), *Trans.* (1872, &c.), *Gloucester, Lit. and Sc. Assoc.* (1838), *Greenock, Phil. Soc.* (1870), *Hertford, Phil. and Lit. Soc.* (1880), museum and library, *Hersford, Woolhope Naturalists' Field Club, Hertsford Pomona and Trans.* (1866, &c.), *Hertfordshire Nat. Hist. Soc. and Field Club, formed in 1870 from the Watford Nat. Hist. Soc.* (1876), *Trans.*, *High Wycombe, Hist. Soc.* (1884), *Magazines* (1866, &c.), *Hull, Lit. and Phil. Soc.* (1832), *Trans.* (1834, &c.), *Inverness, Sc. Soc. and Field Club* (1870), *Isle of Wight Phil. and Sc. Soc.* (1860), *Kent (East) Nat. Hist. Soc.*, at Canterbury (1838), *Trans.*, *Leeds, Phil. and Lit. Soc.* (1820); *Naturalists' Club* (1870), *Trans.*, *Leicester, Lit. and Phil. Soc.* (1867), *Trans.*, *Lewes, Lewes and East Sussex Nat. Hist. Soc.* (1868), *Liverpool, Phil. Soc.* (1812); united with *Nat. Hist. Soc.* in 1844, *Proc.* (1845, &c.); *Philomathetic Soc.* (1846, &c.), *Manchester, Lit. and Phil. Soc.* (1838), *Journal* (1838, &c.); *Naturalists' Field Club* (1860), *Manchester, Lit. and Phil. Soc.* (1871), two sections, one physical and mathematical, the other for microscopy and natural history,—the original statements respecting the atomic theory were given by Dalton in the *Memoirs of the Manchester and Liverpool Soc. of Nat. Hist.* (1860), *Trans.*; *Scientific Students Assoc.* (1868), *Montrose, Nat. Hist. and Antiq. Soc.* (1838), museum, *Newbury, District Field Club* (1870), *Trans.* (1871, &c.), *Newcastle-on-Tyne, Lit. and Phil. Soc.* (1793), *library*; *Northumberland, Durham, and Newcastle Nat. Hist. Soc.* (1829), a museum (opened in 1884), *Trans.*, *Norfolk, Norfolk and Norwich Nat. Hist. Soc.* (1869), *Trans.* (1870, &c.), *Nottingham, Lit. and Phil. Soc.* (1894), *Orkney Antiq. and Nat. Hist. Soc.* (1837), museum, *Oxford, Ashmolean Soc.* (1828), promotes all branches of practical knowledge, *Paisley, Phil. Institution* (1808), free library and museum; *Sir Coats presented his observatory in 1822*, *Ferriars, Nat. Hist. and Antiq. Soc.* (1839), museum, *Proc.* (1846, &c.), *Perth, Nat. Hist. Soc.* (1784), *Pershore Soc. of Nat. Sc.* (1807), *Proc.* (1869, &c.), *The Scottish Naturalist* (1870, &c.), Plymouth, *Plymouth Inst. and Devon and Cornwall Nat. Hist. Soc.* (1812), museum, art gallery, and library, *Richmond, Richmond and North Riding Naturalists' Field Club* (1869), *Trans.*, *Rison, Naturalists' Club and Sc. Assoc.* (1822), *Scarborough, Phil. and Arch. Soc.* (1831), museum and library, *Severn Valley Naturalists' Field Club*, at Bridgenorth (1868), *Sheffield, Lit. and Phil. Soc.* (1822), *Shelburne, Lit. and Sc. Soc.*, at Lerkwick (1861), *Shropshire and North Wales Nat. Hist. and Antiq. Soc.* (1833), at Shrewsbury, *Somersetshire Arch. and Nat. Hist. Soc.*, at Taunton (1849), *Proc.* (1861, &c.), *Southampton, Hartley Institution* (founded under bequest of H. R. Hartley in 1859, incorporated 1862), for the promotion of scientific, antiquarian, and Oriental studies and the fine arts, owns a museum and library, *Staffordshire (North) Naturalists' Field Club and Arch. Soc.* (founded as a natural history society in 1865; enlarged 1877), holds movable meetings, *Stirling, Nat. Hist. and Arch. Soc.* (1878), *Trans.*, *Stockport, Soc. of Naturalists* (1884), *Trans.*, *Suffolk Inst. of Arch. and Nat. Hist.*, at Bury St Edmunds (1849), *Proc.* (1848, &c.), *The East Anglian* (1859, &c.), Swansea, *Royal Institution* (founded 1835; incorporated 1883), with a museum and library, promotes natural history and applied science, literature and fine arts, local history and antiquities, *Tamworth, Nat. Hist., Geol., and Antiq. Soc.* (1871), *Telga Naturalists' Field Club* (1868), *Torquay, Nat. Hist. Soc.* (1844), museum and library, *Teesside and Keso Physical and Antiq. Soc.* (1834), *Warrington, Lit. and Phil. Soc.* (founded in 1870 upon the *Merc. Soc.*), *Warwickshire Nat. Hist. and Arch. Soc.* (1836), has a library and geological museum; *Werncliffe Field Club* (1834), *Whiteley, Lit. and Phil. Soc.* (1829), owns a museum, *Wiltshire Arch. and Nat. Hist. Soc.*, at Devizes (1853), *Wiltshire Magazine* (1869, &c.), *Wintour, Windsor and Eton Sc. Soc.*, *Trans.*, *Wintour, Nat. Hist. and Antiq. Soc.* (1855), *Yorkshire Phil. Soc.* (1822), the museum in the grounds of St Mary's Abbey, York, contains a remarkable collection of Roman remains; *Geol. and Polytechnic Soc.* (1832), quarterly meetings in various Yorkshire towns; *Naturalists' Union of the natural history and scientific societies of the county* (founded in 1861 as the *West Riding Consolidated Naturalists' Soc.*; reorganized in 1876), the *Naturalists' Soc.* (1876, &c.).

AFRICA: Cape Town, *South Afr. Phil. Soc.*, *Trans.* (1878, &c.); *Marritius, Roy. Soc. of Arts and Sc.*, *Proc.* (1846, &c.) and *Trans.* (1848, &c.), *CANADAT*, Halifax, *New Scotland Inst.*, *Proc.* (1868, &c.); 1867, &c.), *Montreal, Nat. Hist. Soc., Canadian Naturalist* (1857, &c.), *Ottawa, Lit. and Sc. Soc. Toronto, Canadian Inst., Canadian Journal* (1852-76), *Proc.* (1879, &c.), *Winnipeg, Hist. and Sc. Soc.*, *WEST INDIES*: Kingston, *Roy. Soc. of Arts of Jamaica, Trans.* (1824, &c.), *PORT OF SPAIN*: Soc. Assoc. of Trinidad, *Proc.* (1866, &c.). AUSTRALIA AND NEW ZEALAND: Adelaide, *Phil. Soc.*, *Trans.* (1865, &c.); *South Australian Inst.* (1883), *library*; *Roy. Soc. of S. Australia*, *Auckland, Auckland Inst.*, *Brisbane, Queensland Phil. Soc.*, *Christchurch, Phil. Inst.*, *Edinburgh Town, Roy. Soc. of Van Diemen's Land, Papers* (1851, &c.); *Roy. Soc. of Tasmania, Monthly Notices* (1863, &c.), *Melbourne, Roy. Phil. Soc. of Victoria, Trans.* (1855, &c.); *Nat. Hist. Soc.*; *Zoolog. and Acclimat. Soc.*, *Proc.* (1872), *Sydney, Linnean Soc. of N. S. W.*, *Proc.* (1876, &c.), *Phil. Soc.*, *Trans.* (1862, &c.; 1866, &c.); *Roy. Soc. of N. S. W.*, *Trans.* (1867, &c.), *Wellington, New Zealand Inst., Trans.* (1869, &c.).

UNITED STATES.—The first scientific society in the United States originated from a proposal for promoting useful knowledge among the British Plantations, issued by Dr Franklin in 1743. In the following year the *American Philosophical Society* was founded at Philadelphia, with Thomas Hopkinson as president and Franklin as secretary. With it was united on 2d January 1769 another Philadelphia society, the *Junto* (1758), the records of which have been preserved. The *American Philosophical Society* is still in vigorous life, and is an exclusively scientific body and the oldest organized society in the United States for the pursuit of philosophical investigation in its broadest sense. It publishes *Transactions* (4to, 1771, &c.) and *Proceedings* (8vo, 1840, &c.). Although not a society in the exact sense of the word, the *Smithsonian Institution*, the most important scientific body in America, must not be overlooked. It was founded at Washington by James Lewis Macie, afterwards called Smithsonian, a natural son of Hugh Smithson, duke of Northumberland. He died in 1829, leaving by will a sum of money which in 1838 amounted to over half a million dollars, "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." The institution was established by Act of Congress in 1838. The endowment has now been increased to half as much again as the original bequest. The National Museum, founded in 1842, the nucleus of which was the natural history collections brought home by the Wilkes and other exploring expeditions, was given into the custody of the Smithsonian Institution in 1858. It has since been largely increased and is now particularly rich in the ethnology, zoology, and mineralogy of the United States. The chief function of the institution is to assist scientific research and to act as an organized centre for the exchange of books and specimens with scientific bodies and individuals throughout the whole world. The *Annual Reports* date from 1846 (8vo, 1847, &c.), the *Smithsonian Contributions to Knowledge* (4to) from 1848, and the *Miscellaneous Collections from 1856* (8vo, 1862, &c.). The *Proceedings and Bulletin* (1875, &c.) of the National Museum are issued under the authority of the Smithsonian Institution, as well as the publications of the Bureau of Ethnology and the *Bulletin of the American Association for the Advancement of Science*. Second in point of date comes the *Philosophical Society of Washington*, incorporated in 1780 with the real object of furthering the study of the antiquities and natural history of the country. Its *Memoirs* (4to, 1786, &c.) and *Proceedings* (8vo, 1848, &c.) are still published. The *Connecticut Academy of Arts and Sciences* was incorporated at Hartford in 1799. At first only devoted to matters connected with the State it has since widened its scope to include the whole field of the sciences and useful arts. It has issued *Memoirs* (1810-16), and now publishes *Transactions* (1866, &c.). One of the leading societies in the United States, the *Academy of Natural Sciences of Philadelphia*, founded in 1812 and incorporated in 1817, possesses the best natural history library (85,000 vols.) in the country and one of the largest natural history museums in the world, being especially rich in conchology. It issues a *Journal* (817, &c.) and *Proceedings* (1843, &c.). The *American Entomological Society* is merged with it. The *Franklin Institute* of the same city, incorporated in 1824, possesses a library, gives lectures, and issues a *Journal* (1826, &c.). The *Society of Natural History* was founded upon the *Linnean Society* (1814) in 1830 and incorporated in 1831. It possesses a library and a cabinet of specimens. It published the *Boston Journal of Natural History* (8vo, 1837-63), followed by *Memoirs* (4to, 1866, &c.); *Proceedings* (1844, &c.) are also issued. The *Lycæum of Natural History*, New York, was incorporated in 1817 and has published *Annals* from 1828 (824, &c.) and *Proceedings* (1870, &c.). In 1876 the name was changed to *New York Academy of Sciences*. A number of American naturalists and geologists, having held meetings in various cities between 1840 and 1847, resolved themselves at their Boston congress in the latter year into the *American Association for the Advancement of Science*, which was incorporated in 1847. Its object is "by periodical and migratory meetings to promote intercourse between American scientists." It has published *Proceedings* (1849, &c.). The *National Academy of Science* was incorporated at Washington in 1863 with a view to making the knowledge of specialists available for the service of the Government. There are two classes of members, those in mathematics and physics and those in natural history. It has issued *Annals of the Academy of Sciences at San Francisco* (1853), *St Louis* (1856, incorporated 1857), *Chicago* (1867, incorporated 1868), and *Davenport* (1867) deserve special mention.

Among American societies of a general scientific character are—*Albany Inst.* (1828), *Trans.* (1830, &c.), *Proc.* (1870, &c.), *Ann Arbor, Sc. Assoc.* (1875), *Baltimore, Maryland Acad. of Sc. and Lit.*, *Trans.* (1837), *Buffalo, Soc. of Nat. Sc.* (1861), *Bulletin* (1873, &c.), *Charleston, Elliot Soc. of Nat. Hist.* (1858), *Proc.* (1845, &c.), *Journal* (4to, 1859, &c.), *Cincinnati, Soc. of Nat. Hist.* (1870), *Proc.* (1873, &c.), *Journal* (4to, 1832), *Annals and Proc.* (1872, &c.), *Connecticut Acad. of Sc.* (1832), *Dubuque, Iowa Inst. of Sc. and Arts, Trans.*, *Indianapolis, Acad. of Sc.*, *Trans.* (1872, &c.), *Madison, Wisconsin Acad. of Sciences, Arts, and Letters* (1870), *Bulletin* (1870, &c.), *Trans.* (1872, &c.), *Minneapolis, Minnesota Acad. of Nat. Sc.* (1873), *Bulletin*, *New Orleans, Acad. of Sc.* (1835), *Proc.*, *Portland (Maine), Soc. of Nat. Hist.* (1850), *Proc.* (1862, &c.), *Poughkeepsie, Soc. of Nat. Hist.* (1872), *Proc.* (1874, &c.; 1876, &c.), *Rochester, Acad. of Nat. Sc.* (1881), *Salem (Mass.), Essex County Nat. Hist. Soc.* (1833; now merged in the *Essex Institute*), published the *American Naturalist* (1867-68), afterwards issued by the *Pandory Acad. of Science*, as well as *Proc.* (1863, &c.) and *Bulletin* (1866, &c.), *Topeka, Kansas Acad. of Sc.* (1867), holds meetings in various cities, *Trans.* (1872, &c.).

FRANCE.—The *Institut de France* (see INSTITUTE OF FRANCE), which includes five separate academies, stands at the head of all French societies. The *Société Philotechnique*, founded in 1795 and recognized as of public usefulness by a decree of 11th May 1801, has for its object the encouragement and study of literature, science, and the fine arts. Two public meetings are held annually. The *Annuaire* (1840, &c.) is its literary organ. The *Société d'Encouragement pour l'Industrie Nationale* was founded in 1801 for the amelioration of all branches of French industry, and was recognized by the state in 1824. Prizes and medals are offered. It publishes a *Bulletin*. The *Académie Nationale d'Agriculture, Manufactures, Commerciales* was founded by the duc de Montmorency in 1850, and also offers prizes and medals, and brings out a *Bulletin* (1830, &c.). The *Association Française pour l'Avancement des Sciences* (1871), founded on the model of the British Association, holds migratory meetings and publishes *Comptes Rendus*. The scientific congresses whose origin was due to the initiation of M. A. de Cuvier have been noticed at the beginning of the article.

The departmental societies are very numerous and active. The chief are the following:—*Alberville, Soc. d'Emulation* (1797), *Mém.* (1797, &c.), *Agen, Soc. d'Agr. et d'Arts* (1788), *Ann. des Sc.*, &c. (1828), based on *Soc. des Amis de la Sc.* (1808), *Mém.* (1819, &c.), *Alais, Soc. Sc. et Lit.* (1868), *Bull.* (1868, &c.), *Amiens, Acad.*, based on *Soc. Litt.* (1746), *Mém.* (1835, &c.); *Soc. Linéenne* (1835), *Mém.* (1866, &c.), *Angers, Soc. Acad. de Marine et de Loire* (1857), *Mém.* (1857, &c.); *Soc. d'Agr. et d'Arts*, &c. (1828), *Mém.* (1831, &c.); *Soc. Linn. de M. et L.* (1822), *Annales* (1858, &c.), *Angoulême, Soc. d'Agr. et d'Arts*, &c. de la Charante (1809), *Annales* (1819, &c.), *Anney, Soc. Florimontaine* (1851), *Annales* (1851, &c.) and *Rev. Savoisienne* (1860, &c.), *Apt, Soc. Litt.*, &c. et *Arts* (1863), *Annales* (1866, &c.), *Arzas, Acad.* (1798), *Mém.* (1818, &c.) and other publications, *Autun, Soc. d'Emulation* (1830), *Mém.* (1887, &c.) and other publications, *Auxerre, Soc. Sc.* (1847), *Bull.* (1847, &c.), *Bar-le-Duc, Soc. des Lettres*, &c. (1870), *Mém.* (1871, &c.), *Beauvais, Soc. Acad.* (1847), *Mém.* (1847, &c.), *Besançon, Acad. des Sc.*, &c. (1762; suppressed in 1793; re-established 1806), *Séances publ.* (1806, &c.), *Soc. d'Emulation* (1840), *Mém.* (1841, &c.), *Béziers, Soc. Arch. Sc. et C.* (1844)