

News and Views.

THE German Dye Trust, the actual title of which is the Interessengemeinschaft Farbenindustrie Aktiengesellschaft, has long been in the limelight as the largest and most powerful combination of its kind. Only last year its constituent companies entered into a form of union that is indistinguishable from an amalgamation, and their combined capital was increased to 646 million marks (say, 32,300,000*l.*); now it is announced that the capital is to be raised to the enormous figure of 1100 million marks (55,000,000*l.*). It is well known in chemical circles that dyestuff-manufacture now represents only a very small part of the activities of the I.G. Before 1914, Germany supplied 75-80 per cent. of the world's requirements in dyes; to-day its export trade is relatively very small, and except for a marked revival in exports of zinc oxide and 'lithopone,' it is continually diminishing, whilst importations are steadily increasing. In the opinion of many German industrialists, the practical monopoly enjoyed before the War is unlikely ever to be regained. Manufacture of dyestuffs and pharmaceutical products has now become of inferior importance to that of fertilisers, such as synthetic ammonium compounds and urea, and these materials are responsible for most of the profits made. Nothing is more astonishing than the development of the nitrogen-fixation industry, and the long-threatened competition between it and the Chilean nitrate industry has materialised, to the great discomfiture of the latter. The most fundamental factor in the nitrogen-fixation industry is the cost of hydrogen, and every effort is being made to reduce this cost by extending its uses. This accounts for the interest which the I.G. is taking in the hydrogenation of coal and peat, and in the artificial production of light motor-fuels.

THE ramifications of the German Dye Trust are too intricate and deep-seated to be divined by those outside the inner ring; and they are probably very numerous, if one may take a line from the activities of some of our own large chemical undertakings, the interests of which are known to extend far beyond the sphere of industrial chemistry. A letter from the Frankfurt correspondent of the *Times*, printed in its issue for August 27, throws a little light upon the ever-extending interests of the I.G. and upon the uses to which the new capital may conceivably be put. It may be taken as fairly certain that a good proportion of it is earmarked for developing and extending the nitrogen plants and for financing the rapidly increasing trade in nitrogenous products. The fact that compound fertilisers are in chief demand to-day in Germany, necessitates abundant supplies of phosphates and potash, and it is confidently asserted that the I.G. is contemplating some arrangement with the powerful Potash Syndicate. By absorbing the important Köln-Rottweil explosives company, the Dye Trust has obtained a dominant position in the German artificial-silk industry. That industry has already come to terms with certain foreign producers—including, it is stated, Messrs. Courtaulds—and rumour now says that an understanding with French and

Italian manufacturers is in prospect. The Dye Trust, through one of its subsidiaries, is the largest producer of raw films in Europe; co-operation or fusion with its two chief competitors, the Eastman Kodak Co. and Pathé Frères, is said to be maturing. Rumour is also busy with the industrial exploitation of the Bergius process, although its commercial success is by no means assured. The board of the I.G. has officially announced its intention to erect a large plant "for the liquefaction of coal," but it has not stated which process is to be adopted. In many quarters it is believed that the statement refers to the manufacture of light motor-fuel by a process other than the Bergius, and that it is this other process which is the subject of negotiations with British, Dutch, and American petroleum companies.

ALL who are interested in bibliography and in scientific organisations, particularly from the international point of view, will welcome the appearance of the first issue of the *Bulletin for Scientific Relations*, dated July 1926, which has just been published by the International Institute of Intellectual Co-operation of the League of Nations (price per annum, 24 francs, France; 2 dollars for other countries). Written mainly in French, partly in English, the journal deals with many phases of scientific activity, including the results of inquiries initiated by the Institute itself. In the first section, which is devoted to bibliography, general and special, and to libraries and research centres, nothing strikes one more than the interest which Russia is showing in these matters. Soviet Russia is stated to possess 28 libraries containing 50,000 volumes or more, and in these are located more than 16 million volumes, the public library in Leningrad alone containing 4,134,000—the largest library in the world. Moscow has 140 scientific libraries, about 100 of which have been established since 1917, and in May 1925 a bibliographical library containing more than 10,000 volumes was opened to the public. The library of the University of Amsterdam has been enriched by a gift of 10,000 French scientific books. Berlin possesses an information bureau for books and monographs that informs scientific workers where any desired book may be found, as well as a Government central office for scientific information, which co-ordinates bibliographies relating to natural science and procures either original or photostatic copies of the publications mentioned therein. Athens can now boast of a new library, housed in a fine building presented by the Carnegie Institute, and named "Bibliothèque gennadienne," after Gennadios, a former Greek minister in London, whose gift of books to the Greek Government is located in the library.

UNDER the heading "International Scientific Organization," the *Bulletin for Scientific Relations* records that in answer to a *questionnaire* sent out by the International Union of Academies concerning an international language, nine academies replied that they would prefer a living language to an artificial one; Italy asked for Latin, and Japan for Esperanto. This section contains a long report from the International Bureau of Meteorology, also references to the

establishment of microbiological institutes at Moscow and Buenos Ayres, and to the projected opening of a branch of the Pasteur Institute at Montreal. Under "National Scientific Organizations" mention is made of the proposal to remove the anthropological, prehistoric, and ethnographic collections from the Museum of History at Vienna, and to use them for the nucleus of a new "Kulturhistorisches Museum." A Kaiser-Wilhelm Institute for silicate chemistry has recently been founded in Berlin, with Prof. W. Eitel as director. In France a Petroleum Institute has been opened at Strasbourg. In Greece the Academy of Athens has been founded and inaugurated in a building which was intended for this purpose forty years ago. The Academy has three classes of members: pure and applied sciences, literature and fine arts, and moral and political sciences, the number of members in them being restricted to 25, 20, and 15 respectively. In Germany an institute for Chinese students studying in the University of Frankfurt was opened at the end of last year.

MR. ERNEST MACKAY'S summary of the results of the Oxford University and Field Museum Expedition to Kish during the past season, in the *Times* of August 25, affords striking evidence of the importance of this site for the early history of civilisation in Mesopotamia. No less than three considerable buildings have been brought to light this year. Of these, one, a temple of Nebuchadnezzar, with walls standing 18 feet high, which is one of the best preserved in Mesopotamia, has another large building of the period of Hammurabi (2100 B.C.) beneath it, and possibly earlier buildings at a still lower level. A ziggurat of Sargonic date (2752 B.C.) is of unusually large proportions, while another building adjoining the Nebuchadnezzar temple is constructed of mud bricks of a size which points to the age of Dungi (2250 B.C.). The discovery of the greatest significance, if the interpretation offered be correct, comes from Jemdet Nasr, a mound on which were discovered fragments of painted pottery, both monochrome and polychrome, and the inscribed signs emerging from the pictographic state, to which attention was directed at the time of their discovery in their relation to the evolution of writing from pictographic signs to the later cuneiform writing. The excavation of this mound showed that it belonged entirely to one period (circ. 4000-3500 B.C.), but a building discovered there proved to be built, not of the characteristic plano-convex bricks hitherto thought to be the earliest in date in Babylonia, but of a well-made rectangular brick, differing in size and shape from the later rectangular brick which ousted the plano-convex brick. It is thought, therefore, that the latter—an obviously inferior type—must have been introduced by a race of invaders and have entirely superseded the earlier form in Northern and Southern Sumeria, as there is no evidence that the two types were ever in use at the same time.

THE August number of the *Review* issued by the British Brown-Boveri Co. gives an excellent illustration of the trend of electrical development. We learn

that Messrs. Brown-Boveri, the famous Swiss firm, is constructing for the New York Edison Co. a turbo-alternator set of 160,000 kilowatt capacity suitable for continuous running. As only a few stations in Great Britain have an output so large as this, it will be seen that it is a bold undertaking. The high steam pressure part, 265 lb. per sq. in., is to drive an alternator of 75,000 kilowatts at 1800 revolutions per minute, whilst the low pressure part drives an alternator of 85,000 kilowatts at 1200 revolutions per minute. This will be the world's largest turbine.

ANOTHER direction in which the Brown-Boveri Co. is specialising is in the manufacture of automatically controlled sub-stations. The importance of these stations in railway work has been long recognised. They are more expensive to build than hand-controlled stations, but the great saving in wages almost invariably makes their adoption advisable. There is no need to consider problems relating to the housing of the staff, and so the most economical site can be chosen. In a recently constructed sub-station for a Swiss railway they have installed a 300-kilowatt rectifier set which converts 8000 volts alternating pressure into 800 volts direct pressure. There is in addition a 300-kilowatt rotary converter for performing the same function. A time switch in the morning sets the rectifier into operation. If a long period of overload occurs a thermal relay operates and the rotary converter operates in parallel with the rectifier. If for any reason the converter failed to act and the rectifier was excessively overloaded, safety devices would act and an alarm would be sounded. In the event of a sudden serious disturbance, the relay tests whether the cause is permanent or not. It operates three times at intervals of ten seconds, and if the disturbance persists it shuts down the whole set. Even when the load is only one-third of the full load, the efficiency of the conversion at the sub-station is 92.5 per cent.

WE have received from Mr. Arthur MacDonal of Washington, D.C., a statement of proposals which he has put before the United States Senate advocating the extension of anthropological studies in certain directions. Among other matters he stresses the importance of the study of man after death, especially in the case of those who have been prominent in the political and scientific world. It is interesting to note that since the beginning of the last century the brains of quite a large number of prominent Americans, including Abraham Lincoln, Lewis Aggasiz, and Walt Whitman, have been studied after death. Mr. Macdonal has also opened up a new line of inquiry in studying the political activities of American senators. In the sixty-second Congress, which lasted over three sessions, he found that the attendance was better in the first and third sessions than in the second, while Progressive Republicans showed a higher percentage of voting than Conservative Republicans. Business men attended quorum calls more and "yea and nay" calls less than professional men, but professional men averaged higher than business men in their frequency of remarks on the

Senate floor. Curiously enough, success in both public and private legislation varied inversely with education; that is, the better educated the senator, the less his success in legislative activity. Mr. MacDonald maintains that continuous study on these lines and a comparison with similar studies of legislatures in other countries should prove valuable, and probably lead to modifications of legislative procedure. It must be confessed that the utility of these studies is not immediately apparent. Abstract studies on statistical lines of political activities, such as frequency of voting in division, introduction of legislation, public and private, and the like, can have little scientific value when considered *in vacuo* and apart from attendant conditions which, from the nature of the case, it is almost impossible to ascertain.

PROF. A. F. C. POLLARD has prepared a Subject Index to volumes 1-25 of the *Transactions of the Optical Society* on the lines set out in his manual on the Decimal Bibliographical Classification of the Brussels Institut International de Bibliographie recently published by the Optical Society. It is printed on one side of the paper only, so as to be suitable for gumming to the ordinary 5 in. x 3 in. catalogue cards. A paper appears under each subject with which it deals, and to each subject is assigned a number, as in the original Dewey decimal system of 1876. This number appears at the right-hand top corner. At the left on the line below is the name of the author. Next below is the date in the order 1923.05.24 and the descriptive title. On the next line the reference in the order-title of publication, volume, year, pages. The manual explains the system of notation, which from 535 = Light gives 535.5 = Polarisation, 535.54 = Chromatic Polarisation, and 535.543 = Colours of thin Plates, and with (02) for Treatises gives 535(02) = Treatises on Light. The system was adopted at Brussels in 1899, but was not used in the International Catalogue of Scientific Literature, where Light had the range 2990-4470 assigned to it. As a system it appears both concise and comprehensive, but it has not yet been accepted as international, although it has been in existence more than a quarter of a century.

PROF. POLLARD'S Subject Index introduces an innovation into the method of indexing individual scientific journals, and it will be interesting to see with what favour the scheme is received and how far the movement will extend to other learned societies and journals and lead to some uniform and standard method of indexing. For, although the Dewey system has been adopted extensively in the libraries of Great Britain for their book classification, the Brussels scheme for indexing periodicals has not so far found much practical application. A few, notably French journals, habitually arrange their monthly abstracts of current literature in this order, and some, including certainly one English, even label the original articles in each issue with the appropriate Brussels notation, but none as yet, we believe, has extended the system to annual or consolidated indexes.

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IN the June issue of *Medical Life* (vol. 33, p. 261), Prof. Tenney L. Davis has a short note on Boerhaave's attitude toward alchemy. A remarkable feature of the "Elementa chemiae," a book which did much to establish its author's reputation, is that it does not discuss the phlogiston doctrine of Stahl, and Prof. Davis interprets this silence to mean that Boerhaave thought the doctrine unimportant. Boerhaave, in short, was interested in facts, and was always ready to weigh and consider. This trait made him extremely tolerant and sympathetic in his treatment of the alchemists, whose habits of wide experimentation and careful observation did not, however, prevent him from doubting "whether these skilful persons, after they had discovered so many extraordinary things by naked observations, might not by a too great quickness of apprehension anticipate, and relate things for facts, which they conclude might be done; or even must of necessity have been done, if they had persisted in the pursuit. . . . Credulity is hurtful, so is incredulity: the business, therefore, of a wise man is to try all things, hold fast what is approv'd, never limit the power of God, nor assign bounds to nature."

SOME American museums are accustomed to publish reports of the explorations and travels on which members of the staff have been engaged, while reserving the scientific results for more weighty publications. This has the advantage of encouraging the traveller to observe and note facts subsidiary to his main object, and of preserving a record of details interesting in themselves but not important enough to warrant a formal paper. Thus the Yearbook of the Academy of Natural Sciences of Philadelphia for 1925 contains well-written and well-illustrated accounts of such journeys. Francis W. Pennell describes "Botanical Travel in Peru and Chile," his main objective being the Scrophularaceæ of the central and southern Andes. Witmer Stone writes on "Past and Present Bird Life of the Southern New Jersey Coast," and publishes some good photographs of terns and skimmers. Samuel G. Gordon reports on a mineralogical expedition to Bolivia and Chile, but manages to introduce photographs of glaciers and mountain lakes.

ANOTHER such volume is "Explorations and Field-work of the Smithsonian Institution in 1925." This contains an account of Dr. Hrdlička's seven months' journey to some of the chief palæo-anthropological sites in the world. The photographs of the locality from which the Pithecanthropus remains were obtained, of the finder of the Rhodesian skull, and of the quarry that yielded Australopithecus, are of particular interest. Dr. C. D. Walcott's geological explorations in the Canadian Rockies, Dr. Bassler's field-work in Tennessee geology, and Mr. C. W. Gilmore's collecting fossil foot-prints in Arizona are among the numerous articles that show the value to the museum of detailing members of the staff for field-work. There are twenty-six such reports in this volume, ranging from field-work in astrophysics

by Dr. C. G. Abbot, to experimental breeding of the mollusc *Cerion* at the Tortugas, by Dr. Paul Bartsch.

THE thirty-eighth Congress and Health Exhibition of the Royal Sanitary Institute will, at the invitation of the Town Council, be held at Hastings on July 11-16, 1927. The Right Hon. Sir William Joynson-Hicks, Bart., Home Secretary, has consented to act as president of the Congress.

THE eighth International Congress of Psychology will be held at Groningen, Holland, on September 6-11. Sections will be formed for the discussion of eidetic imagery, psychogalvanic reflex, higher psychic processes, animal psychology, psychopathology, and applied psychology. Papers will be read by the following British psychologists: Mr. F. C. Bartlett (Cambridge), Dr. Wynn Jones (Leeds), Dr. Thouless (Manchester), Dr. Aveling, Dr. Ernest Jones, Dr. C. S. Myers, and Prof. Spearman (London). Altogether nearly a hundred papers will be read.

THE issue of *The Fight against Disease*, the journal of the Research Defence Society, for July, contains an obituary notice with an excellent plate of the late Mr. Stephen Paget, who died in May. He was the founder of the Society and of its journal. Dr. J. A. Murray's address at the annual meeting of the Society on "The Experimental Attack on Cancer" is also printed; it gives a good summary of the subject, and tells just how far we have advanced in the knowledge of cancer by experimental methods.

THE Department of Glass Technology of the University of Sheffield has recently published vol. 8, 1925, of its experimental researches and reports, consisting of papers collected from the *Journal of the Society of Glass Technology*, the *Journal of the Royal Society of Arts*, and the handbook to the annual meeting of the Society of Chemical Industry, Leeds, May 1925. Most of the papers describe the work which has been carried out by Prof. W. E. S. Turner, Dr. S. English, and Mr. A. Cousen on the physical properties and the chemical constitution of various glasses. In addition, the publication contains articles on the glass industry and the modern production of sheet glass.

MESSRS. Isenthal and Co., Ltd., inform us that their address now is Ducon Works, Victoria Road, North Acton, W.3, where all communications and inquiries should be sent. The change of address has been necessitated by the expansion of the business, chiefly in connexion with the manufacture of overhead high-tension switchgear, protection apparatus, automatic voltage regulators, etc., all of which now demand more spacious premises than it has hitherto been found possible to devote to them. The manufacture of resistances and the development of some important new lines will also benefit by the greater facilities now at Messrs. Isenthal's disposal.

UNDER the direction of Prof. Doello-Jurado, the Museo Nacional de Historia Natural of Buenos Aires

has resumed its custom of distributing a fairly comprehensive "Memoria Anual." That for 1924 (dated 1925) has just been received. It records the celebration of the centenary of the Museum on December 31, 1923, gives an account of the activities of the staff and of the chief accessions, illustrated by 44 half-tone plates, and discusses the proposed new building. Among numerous expeditions, the most noteworthy was that to South Georgia to obtain examples of cetaceans, pinnipedes, and birds. Chief stress, however, is laid on the renewal of collections in vertebrate palæontology. Rich though the museum is in this department, the older material is not always furnished with those precise details of horizon and locality now esteemed indispensable. Among the fossils collected are crania of *Scelidodon*, bones of *Promacrauchenia* and *Protohydrochoærus* from Monte Hermoso, skull and bones of *Lestodon* and other mammals from the later deposits of Playa de Barco. Apparently the enforcement of the law forbidding the export of palæontological, archæological, and anthropological material before it has been passed by a commission, has proved a difficult and laborious task. It resulted, however, in the retention for the Museum of a fine mandibular ramus of *Pyrotherium* and a few other desiderata from the collection made by Dr. Elmer S. Riggs for the Field Museum, Chicago.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A European science master at the Agricultural School at Moor Plantation, Ibadan, Nigeria—qualified to teach mathematics, chemistry, physics, and botany to about Junior Local standard—The Secretary, C.A. (N.), Board of Education, Whitehall, S.W.1. Scottish candidates should apply to the Secretary, Scottish Education Department, S.E.D. (N.), Whitehall, S.W.1 (September 27). A professor of economics in the University of New Zealand—The High Commissioner for New Zealand, 415 Strand, W.C.2 (September 30). A head of the Department of Chemistry of the Witwatersrand Technical Institute—The Secretary, Office of the High Commissioner for the Union of South Africa, Trafalgar Square, W.C.2 (September 30). A museum assistant at the Royal Botanic Gardens, Kew—The Secretary, Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1 (October 4). A whole-time research worker at the Calcutta School of Tropical Medicine for the investigation of hookworm disease from the point of view of its effect on the health on labour forces—The Director, School of Tropical Medicine and Hygiene, Calcutta (November 30). A laboratory assistant for the Veterinary Research Division of the Agricultural Department of the Government of Kenya—The Crown Agents for the Colonies, 4 Millbank, Westminster, S.W.1 (quoting M/14661). A visiting lecturer on engineering quantities and estimates at the Borough Polytechnic Institute—The Principal of the Institute, Borough Road, S.E.1. A director of the National Institute of Poultry Husbandry—The Principal, Harper Adams Agricultural College, Newport, Shropshire.