

Current Topics and Events.

THE German Chemical Society has recently published a "warning" directing attention to the very large numbers of young chemists now coming from the universities, many of whom are unable to find suitable employment. Figures are given showing the extraordinary increase in graduates from the chemical faculty, as compared with those from other departments of the universities. It is anticipated that the number of chemical graduates this year will be about 1100, whereas it is computed that German industry is only able to absorb about one-third of that number, that is to say, about 350 per annum. Opportunities abroad for German chemists are now considerably less than they were before the War, partly for political or sentimental reasons, and partly because of the growing tendency in most countries having industrial aspirations to develop their chemical industry by employing their own chemists to the almost total exclusion of the foreigner.

THE "warning" referred to above has aroused considerable discussion in the German technical press. One of the main points brought out in this discussion is that German industry, as a whole, does not avail itself of the help of chemical science nearly so much as it should do; and there are many important branches of industry which might profit from a greater appreciation of applied chemistry, but the chemist is almost wholly ignored or is given a quite subordinate status. This may sound a little strange, for the view has hitherto been prevalent in Great Britain that at least in Germany the chemist was fully appreciated. Be this as it may, another point emerging from the discussion in the press is that it is not altogether the fault of industry if the chemist is somewhat neglected in some branches of manufacture. It is urged that his training is often at fault: it is too academic. Others consider that the main difficulty is that too many leave the universities without troubling to take their degrees. However, the warning does not so much apply to these as to the men who take high places in chemistry, and are yet unable to find employment. It may be that many of them, in view of their supposed qualifications, want too high salaries to begin with, and German industry in its present rather poverty-stricken condition cannot afford high outlay on scientific research. As in Great Britain, the mistaken policy is often adopted of starting any retrenchment in the research department.

TWENTY-FIVE years ago, in Lahore, the Society for Promoting Scientific Knowledge was started by medical college students, supported later by professors and local medical practitioners, to do something towards educating the public in matters scientific, and in particular in matters of public health, sanitation and household hygiene. It was no light task when all but the promoters appeared apathetic; by steady persistence, however, recognition and popularity followed; by local subscriptions and a grant from the Punjab Government, the S.P.S.K. became firmly established, with its own large public

lecture hall. Branch societies were opened at various places in the Punjab and even in Kashmir. By the publication of a magazine and many leaflets in the vernacular, numerous public lectures and conversazioni, the Society does good work; the Society's functions are well attended by all classes with undoubted beneficial results. The future of the Society is full of promise, for it has enlisted the support of the most prominent government officers and citizens, with His Excellency the Governor of the Punjab as patron. The Society's silver jubilee was celebrated by a conversazione in the Chemical Laboratory of the University of Lahore and the Biological Laboratories of the Government College and a public meeting in the Society's Hall.

AT the recent conversazione of the Royal Society, exhibits of several types of steel containing nickel and chromium and offering a high resistance to corrosion were exhibited. The specimens shown by Sir Robert Hadfield included two new alloy steels which are notable for their permanence on exposure to the atmosphere and to fresh or salt waters, differing from the ordinary non-rusting chromium steels in being independent of heat treatment. The heating and cooling curves indicate a complete absence of critical points, and no change of phase is detected by microscopical examination, so that the structure remains homogeneous whatever be the heat treatment to which the steel is subjected. Riveting and brazing consequently have no effect on the capacity of the alloy for withstanding corrosion. The exhibit included turbine blades and test specimens showing the mechanical properties of the steel at atmospheric temperatures and at temperatures up to 650° C. under prolonged loading, showing the absence of creep. Specimens were also arranged to illustrate the history of the attempts to improve the resistance of iron and steel to corrosion, rusting and scaling.

PROF. RAYMOND PEARL has endeavoured to estimate statistically the relation, if any, between the number of doctors per unit of population and the death rates observed for the same population (*Journ. Amer. Med. Assoc.*, 1925, vol. 84, p. 1024). It appears that for the thirty-four States of the United States investigated, there is no significant difference in the mortality rate of a community in 1920, whether that community had few or many doctors per unit of population. Two morals suggest themselves from this result. The first is that perhaps the chief social and human value of the physician is in alleviating suffering, rather than in preventing death, at which last task he must in every case ultimately fail. The second is that while there is a great difference between good doctors and poor doctors in respect of the result of their activities, there is no significant difference between a good doctor and no doctor at all!

WE learn from *Science* that the new building and laboratories of the Marine Biological Laboratory, Woods Hole, Massachusetts, were opened on July 3.

Mr. C. R. Crane, president of the board of trustees, made himself responsible for the cost of the new building beyond the original estimate of 100,000*l.* In all, a sum of 280,000*l.*, including gifts from the Rockefeller Foundation, the Carnegie Corporation, Mr. John D. Rockefeller, Jr., and the Friendship Fund, was collected, and 180,000*l.* of this has been invested for endowment. Previous to this extension, the assets of the Laboratory were valued at 100,000*l.*, so that the trustees now have a property worth nearly 400,000*l.* to administer. The new building provides for an extension of the library, a lecture hall, offices, research rooms supplied with fresh and salt water for aquaria, photographic rooms, and so on.

THE report of the Valletta Museum for 1923-24 is largely taken up with accounts of excavations on prehistoric, Phœnician, and Roman sites. Two finds are particularly noteworthy. Neolithic debris at Hagiar Kim yielded a statuette in baked clay, consisting of the head and neck of a figure with horns coiled twice round the ears. The figure may be that of a ram, but is believed to be more probably human; it is 43 mm. high. At Mgar, where are, or were, extensive megalithic ruins, was found a model of a megalithic building, made of globigerina limestone. The model, which is 47 mm. long and 33 mm. high, represents an oval building of slabs on end with pillars between them, and roofed by eight horizontal slabs. The entrance is through a trilithon with a high sill.

OF the making of journals there is no end. The increase in the number of biological journals since the War has been surprising, yet they nearly all appear to fill a useful place in the development of science. The latest addition is called the *Archiv für experimentelle Zellforschung besonders Gewebezuchtung (Explantation)*, and aims at covering the field of tissue-culture, microdissection and similar experimental work with the cell. The general editor is Prof. Rhoda Erdmann, of Berlin, and she is assisted by fourteen investigators in various countries, whose names are connected with these fields of research. Papers are accepted in English, German, French, and Italian. The first number, which we have recently received, begins with an extended Italian paper by G. Levi on the conservation and loss of independence of tissue cells in culture. Other papers deal with cultures of heart tissues and sarcoma cells. M. Thielman describes culture experiments with stomatal plant cells, and Albert Fischer describes an apparatus for extracting the juice from parenchyma tissues. The number concludes with a list of the papers which have appeared in this field in the years 1920-1924, compiled by the editor, and covering thirteen pages. It is intended later to compile all the literature from the beginning of tissue culture. Any authors whose papers are not included in this list are asked to send the titles to the editor at Nassauische Strasse 17ⁿ, Berlin-Wilmersdorf. This number of the journal contains 144 pages and one coloured plate. It is published by Gustav Fischer, Jena, and the price is 8 gold marks.

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THE autumn meeting of the Iron and Steel Institute will be held at the University, Birmingham, on September 9-11, under the presidency of Sir Frederick Mills, Bart. The programme includes papers on blast-furnace practice in India, high-frequency induction furnaces, properties of single iron crystals, moulding sands, and on various iron and steel equilibrium systems. Cheap travelling facilities are being granted by the railway companies.

THE Royal English Arboricultural Society has arranged for a number of visits to forests in different parts of England and Wales during the month of August. The visits are open to all who are interested in forests and woodlands. The summer meeting of the Society is being held at Norwich during the first week of September. Particulars can be obtained from the secretary, Mr. E. Davidson, Estate Office, Haydon Bridge, Northumberland.

THE Minister of Health has appointed the following committee "to draw up a practicable scheme of post-graduate medical education centred in London":—The Minister of Health (chairman), Sir Arthur Robinson, Lord Dawson of Penn, Sir Humphry Rolleston, Bt., Sir John Bland-Sutton, Bt., Sir Thomas Horder, Bt., Sir George Newman, Sir George Blacker, Dr. R. A. Bolam, Dr. H. G. Dain, Mr. H. J. Paterson, Dr. J. Parkinson, Dr. H. L. Eason, Prof. Hugh Maclean, Mr. A. E. Webb-Johnson.

At a meeting of the Vienna Academy of Sciences on June 12, Dr. Oswald Redlich was re-elected president, and Dr. Richard Wettstein vice-president. Dr. William Exner of Vienna and Dr. Waldemar Chr. Brøgger of Oslo were made honorary members. Dr. Niels Bohr of Copenhagen, Dr. Max von Laue of Berlin, and Dr. Eugen Korschelt of Marburg have been elected foreign corresponding members. The following awards were made: the Lieben prize to Dr. L. Meitner for publications in the *Zeitschrift für Physik* on β and γ rays of radioactive substances; the Haitinger prize to Dr. R. Kremann for work on the electrolysis of metal alloys, and also to Dr. L. Moser for work on quantitative analysis and the purification of gases. The prize of 1000 golden kronen for a work on the physiology and pathology of the effect of high altitudes offered by the Semmering Alpine Sanatorium, Austria, has not been awarded, but is offered again. The prize is intended for Austrians, but foreigners will be considered if their work is done in Austria. Papers should be sent to the Kanzlei of the Akademie der Wissenschaften, Wien I., Universitätsplatz 2, before December 31 of this year.

THE Smithsonian Institution at Washington has just issued its annual Exploration Pamphlet (Smithsonian Miscellaneous Collections, vol. 77, No. 2), of which rather more than half is devoted to archaeological and ethnographical investigations in the field during the past year. An expedition to China sent out under the joint auspices of the Freer Gallery of Art of the Smithsonian, and the Museum of Fine Arts, Boston, carried out successful investigations at I Chow, in the province of Chihli, and at several

localities in the province of Shensi. In these regions the sites of two ancient cities were traced and many mounds inspected. The first actual excavating was done at Yu-ho Chen, in the province of Honan, where two tombs of the Han Dynasty (206 B.C. to A.D. 221) were opened. Cultural objects from prehistoric times to the Han period were brought to light, including chariot-fittings, mirrors and arrow-points of bronze; one or two gold rings; much pottery, and many other interesting objects. In Florida Dr. J. Walter Fewkes excavated the large Weeden Mound, and brought to light a large collection of Indian skeletons, pottery, artifacts, and other material of prehistoric origin. This mound was found to consist of two distinct layers; a lower layer containing crude, undecorated pottery, and an upper layer which produced decorated pottery, each piece of which was "killed," or punctured to allow the escape of the spirit of the bowl. In Alabama he uncovered several interesting mounds, including one which would shortly have been submerged by the back water from the Wilson Dam at Muscle Shoals.

ONE of the principal features of the celebration at Amsterdam on October 25, 1924, of the jubilee of the foundation of stereochemistry by Le Bel and van't Hoff, was the delivery of a masterly review by Prof. Walden of Rostock (formerly of Riga) of the progress of stereochemistry during the intervening

fifty years. This review was printed in the Amsterdam *Chemisch Weekblad* of January 24, 1925, but has been appearing in a revised form in *Die Naturwissenschaften* (April 10-May 1). This revision has made it possible to include references to the literature published up to the end of 1924. The review is therefore as noteworthy for its completeness as for the masterly way in which the vast range of material has been marshalled into a well-ordered scheme.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned: Two or three assistant superintendents in the Geological Survey of India—The Secretary to the High Commissioner for India, 42 Grosvenor Gardens, London, S.W. 1 (August 15). A research officer in crop and animal husbandry under the Ministry of Agriculture for Northern Ireland—The Secretary to the Ministry, Wellington Place, Belfast (August 17). An assistant in the Pathological Laboratory, Harpenden, of the Ministry of Agriculture and Fisheries—The Secretary to the Ministry, 10 Whitehall Place, London, S.W. 1 (August 29). An assistant at the National Physical Laboratory to act as librarian and editor of publications—The Director, National Physical Laboratory, Teddington (August 31). An assistant in the department of natural history and zoology of the University of Edinburgh—The Secretary of the University (September 25).

Our Astronomical Column.

THE COMPANION OF SIRIUS.—Prof. Eddington announced, at a recent lecture to the Cambridge Philosophical Society and the members of the International Astronomical Union, an interesting result arrived at by Dr. C. E. St. John at Mount Wilson Observatory. It has been found possible to photograph with the 100-inch reflector the spectrum of the companion of Sirius separately from that of the bright star. It is of type F and therefore its surface brightness is greater than that of the sun; from its very feeble luminosity its diameter is concluded to be about that of the planet Uranus, while its mass is three-quarters of that of the sun. Hence its density is enormously great, and it is a favourable object for Einstein's third astronomical test—that of the spectral shift. Single stars do not avail for determining this, since we cannot separate radial velocity from Einstein shift. But in this case, differential measures from Sirius are possible, the correction for orbital motion being well known.

The result is very striking; after allowing for orbital motion, an Einstein shift equivalent to a radial motion of 21 km./sec. was found. This was tested on a large number of lines, so that it appears to be well established. The result is very important in two ways. First, it gives a confirmation of the Einstein spectral shift stronger than we can obtain from the sun, where its value is only 0.6 km./sec., an amount that it is difficult to separate from pressure effects or systematic surface drifts. Secondly, it affords strong evidence of the truth of Prof. Eddington's conclusion, arrived at last year, that atoms when stripped of their outer electrons are capable of being packed to extraordinary density without departure from the gaseous state; the density deduced in this case is hundreds of times that of the metals. Details of the investigation will be awaited with interest, but

the well-known skill of Dr. St. John justifies us in receiving it with considerable confidence.

AN INDIAN ASTROLABE.—In the *Heidelberger Akten der von-Portheim-Stiftung* (No. 13) (Heidelberg: Carl Winters Universitäts Buchhandlung, 1925, 4 gold marks) Dr. Josef Frank and Dr. Max Meyerhof have published a paper, "Ein Astrolab aus dem Indischen Mogulreiche," which gives a lengthy description of an astrolabe in the Kestner Museum at Hanover. In a bibliographical introduction, the authors give a list of four manuscripts and many printed memoirs on astrolabes consulted by them, not including those quoted in the course of the paper. Next follows a description of the instrument, which is of medium size, having a diameter of 84 mm., and a short account is given of the various problems of spherical astronomy and astrology to which the instrument can supply approximate solutions. For this purpose every planispherical astrolabe is furnished with a number of circular plates which fit in the rim of the "mother" or shallow circular trough on the front of the instrument. On these plates are engraved for various latitudes stereographic projections of the principal circles of the celestial sphere. The instrument in question has plates for the latitudes 18°, 21° 40' (Mecca), 24°, 27°, 32°, 35°, 39° 37', the last one being probably for use at Bokhara. An inscription on the triangular bracket carrying the ring, whereby the instrument is suspended, shows that it was made in A.H. 1018 (A.D. 1609) at Lahore by two brothers, sons of Isa b. Allahdad, and belonging to a family of astrolabe makers. Other inscriptions, mostly in Persian, give 37 names of towns (with longitudes and latitudes), chiefly in the Mogul Empire; but it is not unlikely that these inscriptions are due, not to the maker, but to a somewhat later owner.