

### Anti-Pernicious Anæmia Factor

TWENTY-TWO years ago, Minot and Murphy postulated the presence in liver of a factor effective against pernicious anæmia, and many attempts at its isolation have been made. The long quest now seems to be nearing its end with the independent appearance within a week of two papers, from the United States and Britain, announcing the isolation of red substances having extremely high potency. The American workers (E. L. Rickes, N. G. Brink, F. R. Koniuszy, T. R. Wood and K. Folkers, *Science*, **107**, 396; 1948) describe crystalline material effective in a single dose of some 15  $\mu\text{gm.}$ , that is, with roughly two thousand times the hematopoietic potency of folic acid. Dr. Lester Smith (*Nature*, **161**, 638; April 24, 1948) does not appear to have taken the purification so far but has separated two different red pigments, both clinically active. These may turn out to be peptide conjugates of this crystalline substance. He gives more information about the properties of his materials than do the Americans, including a value of approximately 3,000 for the molecular weight. The Americans were assisted in their fractionation by a microbiological assay method using *L. lactis* Dorner. The British work depended on clinical assays, of which more than eighty were carried out, and on the red colour. It also established the important fact that the highly purified red material, unlike folic acid, is effective against subacute combined degeneration of the spinal cord. The crystalline substance, for which the Americans suggest the rather unsatisfactory name 'vitamin B<sub>12</sub>', is remarkably potent, being effective at a daily dose of about 1  $\mu\text{gm.}$  only. A rough calculation indicates that it would require at least twenty tons of liver to yield 1 gm. of crystals. This is in itself sufficient explanation of the fact that these advances have come not from academic institutions but from two industrial laboratories, namely, those of Merck and Co., Inc., Rahway, New Jersey, and Glaxo Laboratories, Ltd., Greenford, Middlesex.

### Plant Pathology at the Rothamsted Experimental Station

A USEFUL report by F. C. Bawden from the Department of Plant Pathology and Section of Biochemistry (Rothamsted Experimental Station, Harpenden, 1947. 1s. net) covering the years 1939-45 provides an informative summary of certain aspects of research in mycology, plant virus diseases and related biochemical problems. Before 1939, virus research in this Department dealt with insect vectors, the cytology of infected plants, purification of the virus, and the chemical, physical and serological properties of viruses. This work has been continued; but, in addition, much field work on factors affecting the rate of spread of virus diseases in potato and sugar beet has been undertaken. Mycological work has been concentrated largely on the study of soil-borne fungi, the control of which constitutes a major challenge to plant pathology. *Ophiobolus graminis*, *Fusarium* spp., *Plasmodiophora brassicæ*, *Cercospora herpotrichoides* and *Helicobasidium purpureum* are the disease-producing fungi which have received most attention. The Section of Biochemistry was established in 1940, under the direction of N. W. Pirie. It was originally an offshoot of the Plant Pathology Department, but has now become separate as the work has extended. Work on purification of virus extracts raised some problems with plant enzymes

and other systems, which now form an important theme of work in the Section. Most of the published work of the Department and Section has been reviewed in these columns from time to time; the collected accounts in this report will be of value to teachers, advisory officers and others who require a summary of published literature, with an overall digest of its significance.

### Pregnancy Test using the Male Toad

MAININI has described (*Semana Medica*, **64**, 337, March 1947) a pregnancy test in which, following injection of pregnancy urine into the male toad (*Bufo arenarum* Hensel), liberation of spermatozoa into the urinary bladder occurs within three hours; the same animal can be used again after five days. Drs. Octavio Rodrigues Lima and Oswaldo Gelli Pereira, of the Obstetrical Clinic, Medical School of Rio de Janeiro, University of Brazil, state in a communication submitted to the Editors that they have confirmed this work, using as test animal the male toad (*Bufo marinus*), as the species used by Mainini was not available to them. Using standard chorionic gonadotrophin (supplied by Organon), they have found that 20 I.U. produced a positive reaction in all of eight animals within an hour. Doses above this level invariably produced a positive reaction within an hour, even if the animals were kept at a low temperature in a state of torpidity (9° C.). Doses below 20 I.U. did not produce positive results within three hours (twenty animals). Oestrone, progesterone, water and saline gave no positive results. Sixty tests were carried out with the urine of amenorrhœic women. Positive results were found between half an hour and two hours, and were confirmed clinically in all cases. The test appears to be simple, economical and reliable.

### High-Vacuum Equipment

A BOOKLET issued recently by Messrs. W. Edwards and Co. (London), Ltd., Kangley Bridge Road, London, S.E.26, specialists in the manufacture and provision of high-vacuum equipment since their formation twenty-five years ago, describes briefly the range of products now available. High-vacuum processes are no longer of interest solely to the specialist, for in recent years there has been an astonishing growth in laboratory and industrial applications of high-vacuum technique; hence, in addition to a wide range of the essential components of any vacuum system (rotary backing pumps, diffusion pumps, vacuum measuring instruments, and accessories), complete vacuum plants, combined mobile units, and vacuum pipe-line units, suitable for schools, laboratories or works, are now available. Special vacuum plants listed include: vacuum coating equipment, for depositing thin films of precious and other metals, alloys and non-metallic materials on metallic and non-metallic bases by the evaporation or cathodic sputtering techniques; electron diffraction equipment, suitable for the investigation of surface structure; vacuum sublimation and centrifugal freeze-drying equipment, designed specially for the production of ampoule quantities of dried pharmaceutical and biological materials. Developed in conjunction with Dr. R. I. N. Greaves, this freeze-drying plant utilizes his special technique, consisting of centrifuging *in vacuo* the material to be dried, whereby rapid freezing and sublimation results without frothing, a process which Dr. Greaves successfully employed

for his work on blood plasma drying during the War and which has already been described in these columns (*Nature*, 153, 485; 1945).

### World Magnetic Data

WITH reference to the article "The Earth's Surface Magnetic Field and its Secular Change" by Prof. S. Chapman in *Nature* of January 31, Commander Elliott B. Roberts, chief of the Division of Geomagnetism and Seismology, U.S. Coast and Geodetic Survey, Department of Commerce, Washington 25, writes: "The Department of Terrestrial Magnetism of the Carnegie Institution of Washington adopted a change of policy after the accomplishment of the monumental magnetic study culminating in the isomagnetic chart series for 1945.0 and publication 578. Routine work in magnetic surveying and compilation of isomagnetic charts will no longer be performed by the Department, which will henceforth restrict itself to experimental and theoretical scientific researches. The Coast and Geodetic Survey has assumed the function, in addition to its normal work of magnetic field surveys in the United States, of collecting all available magnetic field and observatory data from world-wide sources. It is intended to maintain a national reference library of such data for future American use in connexion with the compilation of world isomagnetic charts. The Bureau will continue to compile United States charts on its own account, and, by arrangement with the Hydrographic Office, United States Navy, will henceforth compile world isomagnetic charts, in editions successive to the 1945.0 series. The Bureau solicits magnetic data and copies of isomagnetic charts from all world-wide sources and will undertake in exchange to furnish any required data of American origin."

### The Museum in Education

THE Bulletin of the Cleveland Museum of Natural History (*The Explorer*, No. 93, Winter, 1948) contains interesting information about the way in which the Museum's exhibits are put to effective use as part of a general educational campaign. A caravan has been converted into a travelling museum and fitted out with exhibitions to suit the season of the year and the various types of audiences. The "Traveling Trailside Museum" is towed out to schools, hospitals and other organisations, where the contents are exhibited and usually explained in a supporting talk by one of the Museum staff. This travelling museum is greatly in demand and is performing an educational function which brings great credit to its sponsors. Another feature of the educational work of this Museum are the weekly walks led by one of the staff and which are well attended by members of the public. The walks are supported by exhibitions at the Museum depicting local natural history at the time of the walks.

### International Council of Scientific Unions

THE report of the Executive Committee of the International Council of Scientific Unions, July 1947 (London: Cambridge Univ. Press. Pp. viii+79), affords the usual handy reference to the activities and personnel of the Unions, the present report including, moreover, the statutes of the newly formed International Unions of Crystallography, of Geodesy and Geophysics, of Biological Sciences, of Theoretical and Applied Mechanics, and of History of the Sciences, as well as the revised statutes of the International Union of Geodesy and Geophysics. The most im-

portant feature of the year was the conclusion of a definitive agreement with the United Nations Educational, Scientific and Cultural Organisation. The text of this agreement is appended to the report, which also includes details of grants made by the Organisation for the year 1947. The Organisation has undertaken to give attention to the reorganisation of a scientific inquiry into the causes of international tension and the methods of overcoming them, and to take positive action to forward international scientific organisation for research and the development of free exchange of scientific information.

### Conference on Modern Applications of Liquid Fuels

THE Institute of Petroleum and the Institute of Fuel are to hold a joint conference on "Modern Applications of Liquid Fuels" in the University of Birmingham during September 21-23, together with an exhibition of items related to the subjects on the programme. The general scope of the Conference will be indicated in an opening address on "The Place of Liquid Fuel in the British Economy". Separate sessions, each of 2½ hours, will then be devoted to the following subjects: Diesel engines for power generation and railway traction; oil for gas making; gas turbines for land and marine power purposes; agricultural drying processes; and fuel oil in the steel, metal, glass and ceramic industries; there will also be an evening lecture on domestic heating. The fifteen authoritative papers, to be presented at the Conference in summary form, will be printed in full and issued, bound in one volume, one month before the Conference. Inquiries in connexion with the Conference should be sent to the Secretary, Institute of Fuel, 18 Devonshire Street, London, W.1.

### Biography of the late Sir James Jeans

PROF. E. A. MILNE, F.R.S., 19 Northmoor Road, Oxford, states that he is engaged upon a biography of the late Sir James Jeans, to be published by the Cambridge University Press. If any readers of *Nature* have in their possession letters or papers of particular interest written by Sir James Jeans, Prof. Milne would be grateful for their loan.

### The Night Sky in May

NEW moon occurs on May 9d. 02h. 30m., U.T., and full moon on May 23d. 00h. 37m. The following conjunctions with the moon take place: May 10d. 03h., Mercury 0.06° S.; May 12d. 10h., Venus 0.1° S.; May 15d. 08h., Saturn 4° S.; May 16d. 05h., Mars 4° S.; May 24d. 23h., Jupiter 4° N. In the early part of the month, Mercury is too close to the sun to be seen, but it sets at 21h. 25m. on May 15 and at 22h. on May 31, nearly two hours after sunset, and can be seen in the western sky. The planet is in greatest easterly elongation on May 29. Venus is conspicuous in the western sky, setting at 23h. 42m., 23h. 31m., and 22h. 40m., on May 1, 15 and 31, respectively, and attains its greatest brilliancy on May 18 when 0.305 of the illuminated disk is visible, its stellar magnitude then being - 4.2. Mars and Saturn are conspicuous in the constellations of Leo and Cancer, respectively, and can be observed during the earlier hours of the night, neither planet setting until after midnight. Jupiter, in the constellation of Sagittarius, rises at 23h. 30m., 22h. 27m. and 21h. 22m. at the beginning, middle and end of the month, respectively. No occultations of stars brighter than magnitude 6 take place during May. An annular eclipse of the sun occurs on May 8-9, invisible at Greenwich.