

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 B₁₂', 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