

the provincial universities is a fuller communal life for the students, such as can be secured by halls of residence.

Electric Discharge Lamps for Photography

MR. H. K. BOURNE presented a paper on this subject, illustrated by a comprehensive display of typical lamps, at a meeting of the Association for Scientific Photography on January 27. Photographically, electric discharge lamps have high actinic efficiency combined with low heating power; and they have a long life. Since the early days of the Cooper-Hewitt lamp, a glass tube several feet in length with a mercury pool at the end, development has proceeded along two divergent lines, low pressure and high pressure. In the modern low-pressure lamp, the pressure of mercury vapour is only a fraction of a millimetre; it emits considerable long- and short-wave ultra-violet radiation, which by means of fluorescent powders on the inside of the tube is converted to visible light of longer wave-lengths. It provides a well-diffused light-source closely resembling daylight and capable of giving accurate colour rendering. The high-pressure mercury vapour lamp consists of an inner glass tube containing the arc, sealed into an outer glass jacket. The arc tube pressure is about 1 atmosphere, and the arc is constricted into a narrow cord along the axis of the tube. The outer envelope is filled with an inert atmosphere. There is a wide range of types, the most powerful being in powers of the order of 10 kW. or higher, with a brightness ranging up to 100,000 candles per sq. cm. The spectrum is linear in character, and fluorescent powders cannot be used with the high brightness lamps; but with increasing pressure there is an improvement in the colour, the main lines broadening while the amount of continuous background increases. An amalgam of cadmium is sometimes used to improve colour. Brightness increases with increases of loading per unit length in the arc column, which has been made possible, first by the use of quartz tubes with molybdenum foil vacuum-tight seals, and later by the introduction of water-cooling, which dissipates approximately 70 per cent of the radiated heat. The author described a number of lamps including a compact source lamp with a maximum brightness of 18,000 c./sq. cm., a self-contained metal box-lamp which can be used without a lamphouse for the illumination of laboratory instruments, a 100-hour-life water-cooled high-pressure lamp with a luminous efficiency of 65 lumens per watt, a peak brightness of 30,000 c./sq. cm. and an internal pressure of about 75 atmospheres, and the B.T.H. syroscopic tube which can give recurring flashes at a predetermined frequency or be employed as a synchronized flash-lamp for ordinary photography.

Resources of Ireland

IN celebration of the centenary of the publication of Sir Robert Kane's "Industrial Resources of Ireland", the Royal Dublin Society has published (price 2s. 6d.) a number of lectures delivered before the Society last August, under the general title of "The Natural Resources of Ireland". Prof. M. A. Hogan, in reviewing the fuel resources of the country, does not see much hope of increased coal production, but believes that resources of the limited coalfields are sufficient to last at least 250 years. He foresees, on the other hand, a great increase in the use of turf, provided that mechanized means of cutting it can be devised. This would entail the preliminary easy drainage of

large areas of bog, in order to bear the weight of heavy cutting machines. Mr. J. A. O'Riordan discusses the possibilities of water power. The Shannon and Liffey schemes have made a notable beginning, and their theoretical capacity is estimated at 84,000 horse-power. Gauging stations on other rivers and possibilities, still unmeasured, of smaller streams, promise great accretion to these resources. Mr. O'Riordan thinks that the potential production of hydro-electric power could eventually be doubled. It is to her water-power resources that Ireland must clearly look for energy in the future. A review of the mineral resources other than fuel, by Mr. D. W. Bishop, shows little of importance except phosphates. The metallic mineral resources are very small. Some ores, in small supply, seem to have been exhausted.

Studies on Pollen Analysis

THE study of pollen has come much to the fore during recent years. The pollen analysis of peat has become one of the most important techniques used in the study of post-glacial vegetation. Partly in view of the necessity of studying such geological data in terms of processes now in operation and partly in order to obtain information relating to plant allergens, research is now being directed toward fundamental problems relating to the liberation, dispersal and deposition of air-borne pollen. The results will have obvious implications in the field of floral biology and should also be of value to the meteorologist. The pollen of insect flowers is receiving attention as a means of determining the source of samples of honey. All the above studies have, up to the present, been referred to under the general heading of pollen analysis. The need for a better name has been expressed in *Pollen Analysis Circular*, a cyclostyled research bulletin edited by Prof. Paul B. Sears, of Oberlin College, Ohio. Messrs. H. A. Hyde and D. A. Williams, of the National Museum of Wales and Llandough Hospital, Cardiff, respectively, in the October issue of that *Circular* suggest the term *palynology* (Gk. $\pi\alpha\lambda\acute{\upsilon}\nu\omicron$ (*paluno*), to strew or sprinkle; cf. $\pi\acute{\alpha}\lambda\lambda\eta$ (*palē*), fine meal; cognate with Latin *pollen*, flour, dust) for the study of pollen and other spores and their dispersal, and applications thereof. It is hoped that the sequence of consonants p-l-n (suggesting pollen, but with a difference) and the general euphony of the new word will commend it.

Motor Control-Gear

A PAPER read recently in London by D. Rudd before the Institution of Electrical Engineers reviews, in general terms, present-day practice in the design of industrial motor control-gear. The scope of the paper is limited to standard industrial equipment and the subject is approached from the user point of view. The first part reviews the principles on which modern design has been established, and the later sections discuss some of the factors that are likely to affect future development. The author states the case for the utmost simplicity in design and for greater latitude in the value of allowable starting-current peaks. Possible development in contact materials is discussed, and reference is made to the possibility of achieving some measure of standardization.

Veterinary Medical Institute

ACCORDING to the December issue of the *Anglo-Swedish Review* a new veterinary-medical institute has recently been inaugurated in the northern out-

skirts of Stockholm. One of the largest and most important departments is that for the production of horse serum. The stables with boxes for about eighty horses have been built with slanting lantern-roofs which let in the light above the boxes, and every box is provided with running water. Each of the horses produces about seven litres of blood, or raw serum, a week. Hot and cold air is supplied according to the season. In another and equally well-kept section are quarters for a large number of calves. The Institute comprises three sections: a pathological, a bacteriological and a serological section, which are supplemented by a mechanical and a parasitic laboratory. Altogether about 150 persons are employed. The new Institute provides increased facilities for effective combating of diseases of domestic animals, which still cause heavy losses.

American Birth-rate

ACCORDING to statistics of the Metropolitan Life Insurance Company (*J. Roy. Inst. Pub. Health and Hyg.*, Jan. 1945), young mothers between the ages of twenty and thirty having their first child have been the principal contributors to the rapid war-time rise in the American birth-rate. The chief factor in the rise at these younger ages has been the increase in the marriage-rate, but a good part of the rise has been accounted for by women who had delayed having children until economic conditions were more favourable. Although the general birth-rate increased rapidly during the war period, the trend towards small American families as well is still in evidence, and families with five or more children continue to decrease.

Bright Light Sources

A PAPER read by J. N. Aldington on November 14 last before the Illuminating Engineering Society gave a general survey of tungsten filament projector lamps, showing the trend of recent developments in this field. The paper embraces consideration of the characteristics of tungsten filaments *in vacuo* and in gas-lamps employing both single-wound and double-wound helices, multi-filament lamps, and symmetrical light sources. Various types of lamps are illustrated photographically, and lamp performance data are given in tabular form.

Dried Starfish as Chicken Meal

IT is reported (*J. Amer. Vet. Med. Assoc.*, 55, 151; 1944) that starfish, collected in the process of cleaning oyster beds, are now being dried and ground up to make chicken meal. An analysis of the meal showed that it contained 30.7 per cent protein, 17.6 per cent calcium and 0.35 per cent phosphorus. Tested against sardine fish meal of equal protein value, it proved its value as food; but its use had to be limited to 3.5-5 per cent of the total ration, because of the high proportion of calcium.

University of London

THE title of 'professor emeritus' in the University of London has been conferred on the following: Prof. R. H. A. Plimmer, who held the chair of chemistry at St. Thomas's Hospital Medical School during 1922-42; Sir Owen Richardson, who held the Wheatstone chair of physics at King's College during 1914-24 and the Yarrow Research professorship of the Royal Society attached to King's College during 1924-44; Dame Helen Gwynne-Vaughan, who held the chair of botany at Birkbeck College from 1921

until her retirement in 1944 and was a member of the Senate as a representative of the Faculty of Science during 1929-34; Prof. Eva G. R. Taylor, who held the chair of geography at Birkbeck College from 1930 until her retirement in 1944.

Dr. C. W. Shoppee has been appointed to the University readership in chemistry tenable at the Royal Cancer Hospital (Free). Since 1939 he has been working at the Pharmaceutical Institute in the University of Basle.

The title of professor of mathematics in the University has been conferred on Dr. Paul Dienes, in respect of the post held by him at Birkbeck College.

Announcements

THE Medical Research Council has appointed Prof. A. A. Miles, professor of bacteriology at University College Hospital Medical School, London, to the staff at the National Institute for Medical Research as from October 1, 1945, with the view of his becoming director of the Department of Biological Standards on the retirement of Sir Percival Hartley next year.

PROF. F. Y. HENDERSON, reader in timber technology in the University of London and assistant professor in timber technology in the Imperial College of Science and Technology, has been appointed director of Forest Products Research in the Department of Scientific and Industrial Research on the forthcoming retirement of Mr. W. A. Robertson, who has been director since 1933.

MR. V. M. WADSWORTH has been appointed assistant lecturer in agricultural economics in the University of Leeds.

M. TURGUT EREM, the first educational attaché to be appointed to the Turkish Embassy in Great Britain, has arrived in London; he will act as inspector of Turkish students in Britain, of whom there are now about a hundred, including eighteen holders of scholarships awarded by the British Council, with which M. Erem will be in close touch.

THE Institution of Civil Engineers, with the Institution of Municipal and County Engineers, have appointed a joint committee to draw up notes for the use of engineers on the best location of underground services. The Committee will consist of Mr. W. H. Morgan, county engineer of Middlesex, as chairman, and ten other members; representatives of electricity and gas supplies and post office services have been nominated by or in consultation with the Institution of Electrical Engineers, the Institution of Gas Engineers and the chief engineer, G.P.O. respectively. Communications should be addressed to the Secretary, Joint Committee, c/o Secretary, Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1.

THE following appointments have been made in the Colonial Service: C. F. Charter, to be soil chemist, Gold Coast; R. W. Crowther and D. A. W. Walker, to be veterinary officers, Nigeria; Miss M. E. Broughton, to be marketing officer, Nigeria; F. E. Luscombe, to be agricultural officer, Tanganyika; C. Harvey, senior agricultural officer, Fiji, to be director of agriculture, Fiji; E. W. Leach, senior agricultural officer, Nigeria, to be deputy director of agriculture, Trinidad; F. S. Collier, conservator of forests, Nigeria, to be deputy chief conservator of forests, Nigeria.