

there is a dual carriage way and it is emphasized how necessary it is to treat dual carriage ways as if they were two separate roads. When the dual road bends away in the country from the 'roundabout', the lighting points become closer on the outside of the bend. Cross-road lighting treatment is also shown in several places. Lights here are arranged just beyond the crossing on the left-hand side as the traffic proceeds; then traffic moving at right angles and pedestrians preparing to cross the road become clearly visible. In addition, photographs are shown to illustrate the more important features demonstrated by the model and suggested in the recommendations. A fuller description of this model is given in the *Osram G.E.C. Bulletin* of May 1938.

### Short-Circuit Testing Stations

ABOUT ten years ago it was found necessary to build short-circuit testing stations in order to find out the true rating for a large switch or current-breaker. In order to find out how a switch will break a large electric current at a low voltage or a current at a very high voltage, different methods have to be used and special large and expensive devices are necessary. It is very unsatisfactory to assign nominal ratings based on theoretical design considerations and experience gained by similar apparatus. The International Electrotechnical Commission has now published a specification for the short-circuit testing of circuit-breakers, and manufacturers have to issue a certificate with the apparatus stating that it has passed the required proving tests. Eight years ago Messrs. Reyrolle and Co. built the first short-circuit testing station at Hebburn-on-Tyne and since then, two more have been erected in Great Britain and others are being constructed or are under contemplation. According to the *Electrical Power Engineer* of December last, the certification of switches is not exclusively confined to those manufacturers who own testing stations in whole or in part. The facilities of all the British proving stations are open to other manufacturers for making tests. This entails a definite assurance from the testing stations of privacy in testing and secrecy of results of experiments making so much noise and requiring so large a space. All work is carried out on apparatus under a reference number, the manufacturer's name being omitted and also the designation of the apparatus. During testing all entrances to the station are locked. A separate office is provided for the use of customers wishing to discuss reports. Sometimes cinematograph films of the tests are shown at these offices.

### Paris Academy of Sciences

THE "Annuaire" of the Paris Academy of Sciences has for some years past included a biographical index of past and present members and *correspondants* of the Academy. In this year's volume (Paris: Gauthier Villars, 1938), this index is considerably enlarged; notes have been added indicating the subject or subjects in which each individual was particularly interested, and the list of names has been augmented by including the members of the older body, the

Royal Academy of Sciences (1666-1795). A paper read by Prof. Alfred Lacroix, one of the permanent secretaries of the Academy, at the meeting held on January 4 last (*C.R.*, 206, 23), explains the changes that have been made and describes briefly the various previous attempts to provide a complete statement of past and present members of the Academy. The archives of the Academy now have a separate file for each individual who has been connected with it, and every effort is being made, by searching national, parish and other records, to ensure that biographical details are correct. Further, by dint of most painstaking research, the documents relating to the proceedings of every meeting of the Academy, apart from biographical material, have been classified and they are now also arranged in files, one to each meeting from that of "6 nivôse an IV" (December 27, 1795). As regards meetings of the Royal Academy of Sciences, there are in the archives 109 large folio volumes of *Proces verbaux* prepared by the five successive permanent secretaries, J.-B. du Hamel, Fontenelle, Dortous de Mairan, Grandjean de Fouchy and Condorcet, which go back to the first meeting on December 22, 1666. The total number of men of science who have belonged to the Academy since 1666 is 2,071 (members, 992; *correspondants*, 1,079); it possesses nearly sixteen hundred autographs and about the same number of portraits.

### Curtis's Botanical Magazine

A COMPLETE volume of this beautifully illustrated botanical periodical has recently been published in one cover (*Curtis's Botanical Magazine*, 147. London: Bernard Quaritch, Ltd. 63s. net). This is to fill a gap in the series created by the non-appearance of a volume in 1921. At the end of 1920, publication of the *Magazine* ceased, and it seemed possible that the copyright would pass to an owner in the United States; but in 1921, the Royal Horticultural Society was presented with the copyright through the generosity of subscribers. The gap thus created in the series has now been filled through the generosity of Mr. Reginald Cory, and the volume is dedicated in accordance with his wish to Sir Isaac Bayley Balfour, Sir David Prain and Sir Frederick Moore in recognition of their services to botany and horticulture. Fifty-seven plants are described and beautifully illustrated, including eleven species of *Rhododendron*, fifteen of *Primula* and four of *Gentiana*. Plants from all parts of the world are described in the *Magazine*; but in this volume Chinese plants take pride of place—thirty-eight species; five South African species are described and the rest come from countries so far apart as Peru, Siberia, Japan and Tibet. The method familiar to all readers of this periodical is adopted. The history of each species, so far as it is known, is briefly given, and this is followed by a detailed description of morphology (especially floral) and distribution. The beautifully coloured illustrations of each plant described are, of course, the main feature of the volume. The authoritative nature of the text cannot be questioned. Here one notices such familiar contributors as O. Stapf (seventeen species alone and ten in collaboration either with

C. V. B. Marquand or with F. Ballard), J. M. Cowan (thirteen species), A. B. Rendle (five species), and others including J. Anthony, G. Taylor, W. B. Turrill and T. A. Sprague. The volume is edited by Dr. J. Ramsbottom and does credit to editor and contributors. The price may appear to be high, but the illustrations alone make it good value and a real acquisition to any botanical library.

#### Biological Effects of Ultra-Sound Waves

A SECTION of Messrs. Hermann's "Actualités Scientifiques et Industrielles" series of publications is being devoted to investigations of the effects of radiation on living organisms; it is under the charge of Prof. N. Marinesco, director of research in the Institute of Physico-chemical Biology, Paris. Two parts dealing with ultra-sound waves and their properties have already appeared: (1) "Propriétés piézo-chimiques, physiques et biophysiques des Ultra-sons. Technique des ondes élastique de haute fréquence", and (2) "Propriétés des Ultra-sons. Destruction des micro-organismes. Préparation des colloïdes à basses températures. Réactions explosives. Reactions photochimiques". Both are written by Prof. Marinesco. The first 56 pages and 5 plates (15 francs) describes the electro-elastic properties of quartz, the production of stationary waves in liquids, the intensity of the radiation, the pressure it exerts and the absorption it undergoes. The second, of 68 pages and 7 plates (18 francs), describes the effects of ultra-sound waves in sterilizing water and milk, in producing emulsions, in detonating explosives and in accelerating chemical reactions with special reference to those in photography. Many of the plates are reproductions of photographs taken by the author. Bibliographies are provided.

#### International Union against Cancer

THE Third International Cancer Congress under the auspices of the International Union against Cancer will be held in Atlantic City, New Jersey, on September 11-16, 1939. The president of the Congress is Prof. Francis Carter Wood, director of the Institute of Cancer Research of Columbia University; Dr. Donald S. Childs of Syracuse, New York, is the secretary-treasurer; and Dr. A. L. Loomis Bell of Long Island College Hospital, Brooklyn, New York, is in charge of transportation and exhibits. The proposed sections are as follows: general research; biophysics; genetics; general pathology of cancer; surgery of cancer; radiological diagnosis of cancer; radiotherapy of cancer; statistics; and education. Details concerning section chairmen, committees and other data will be announced later. Further information can be obtained from the Institute of Cancer Research, 1145 Amsterdam Avenue, New York, N.Y.

#### A Regional Survey Field Service Pocket-book

THE Le Play Society's well-known "Discovery" chart has been revised and enlarged and its subject-matter has been put into pocket-book form with blank leaves for maps and notes. In this form it is published under the title "Exploration" at 4d.,

postage *id.* It directs attention to some hundreds of possible fields of local exploration grouped under the major headings: geology, rivers and water-supply, weather and climate, vegetation and open spaces, agriculture, zoology, archæology, history, communications, occupations, folk-lore, place-names, modern and changing conditions, camping and rambling. It is calculated to stimulate youthful zest for exploration and arouse and develop scientific curiosity. An ethical aim is provided by the following passage, appearing on the front page, reminiscent of the teaching of Patrick Geddes and Victor Branford: "If you learn to know your own place well, and in so doing learn to love it more, it will help you to understand and appreciate other places, and to sympathise with their problems". It should prove serviceable to scout-masters and girl-guides as well as to others engaged in the teaching of local history, local geography and civics and in training for citizenship.

#### Colonial Service Appointments

THE following appointments and promotions have recently been made in the Colonial Service: R. O. Roberts, field geologist, Uganda; W. L. Stapleton, inspector of mines, Malaya; F. G. Bridges, inspector of plants and produce, Nigeria; M. J. Douglass, agricultural officer, Sierra Leone; J. Ford, entomologist, Tsetse Research Department, Tanganyika Territory; K. S. Hocking, secretary, Tsetse Research Department, Tanganyika Territory; A. R. Jones, meteorological assistant, Sierra Leone; A. G. Robertson, field officer, Tsetse Research Department, Tanganyika Territory; F. L. Vanderplank, field officer, Tsetse Research Department, Tanganyika Territory; E. F. Whiteside, field assistant, Tsetse Research Department, Tanganyika Territory; T. W. Brown (agricultural officer), botanist, Research Branch, Department of Agriculture, Malaya; B. G. A. Low (botanist, Research Branch, Department of Agriculture), agricultural officer, Field Branch, Malaya; F. B. Higgins (senior inspector of mines, Nigeria), senior inspector of mines, Gold Coast; H. H. Cobon (assistant superintendent of surveys), superintendent of surveys, Malaya; F. W. Abbott (laboratory assistant, Medical Department), laboratory assistant, Grade I, Medical Department, Gold Coast; P. A. Clearkin (formerly deputy director of Laboratory Service, Tanganyika Territory), bacteriologist and pathologist, British Guiana (temporary appointment); C. K. Robinson (agricultural assistant), agricultural superintendent, Saint Vincent; G. C. Stevenson (assistant botanist, British West Indies Central Sugar Cane Breeding Station, Barbados), botanist, Sugar Cane Research Station, Mauritius.

#### Shower of Bright Meteors

A REMARKABLE shower of fireballs is reported to have been seen in southern Sweden on May 27 between 18<sup>h</sup> 20<sup>m</sup> and 20<sup>h</sup> 12<sup>m</sup> U.T. About 18<sup>h</sup> 40<sup>m</sup>, two specially bright fireballs, visible in full sunshine, appeared over Bornholm Island. The general direction was from west to east. Further details of these and other fireballs are requested by A. Corlin,