

FORESTRY IN THE COMMON-WEALTH

THAT forestry, as a serious piece of administration, has been taken up by the British, the annual forestry reports for the Dominions, Colonies and former Colonies or Protectorates give full evidence. As instances, the report of forest administration for 1954-55 for the Western Region of Nigeria (pp. ii + 28. Lagos: Government Printer; London: Crown Agents of Oversea Governments and Administrations, 1956. 9d.), and those of the Federation of Malaya, British Guiana and the Sudan may be quoted. From the forestry point of view, the division of Nigeria into three separate regions is unfortunate, since forestry management will become more costly, and for the country as a whole may become more difficult. In a foreword to the report, the Minister of Agriculture deplores the scarcity of suitably educated young Nigerians to fill posts in the Department, and he expresses the hope that the educational facilities at present available will produce candidates capable of taking a forestry degree at a university. A new and important departure is being undertaken in the development of small plantations carrying both timber trees and an under-crop of cocoa or rubber, a notable piece of work which will require a fully trained staff for its supervision. It has recently been decided (Federation of Nigeria. Annual Report on Forest Research and the Forest School, 1954-55. Pp. 16. Lagos: Federal Government Printer, 1957. 9d. net) that all aspects of forestry research in Nigeria should be the concern of the Federal Department of Forestry and the application of such knowledge should be the concern of regional departments, the latter being accorded permission to engage in whatever research they desired in accordance with funds available.

The report on the Federal Forest Administration of the Federation of Malaya for 1955 (by D. S. P. Noakes. Pp. ii + 93 + 6 plates. Kuala Lumpur: Government Printer, 1956. 2 Malayan dollars; 4s. 8d.) is of considerable interest. In spite of the internal troubles of the past years, the Forest Department has been able to proceed with its work, as the first part of the report well shows. It deals with the operations of the Federal Section of the Forest Department, which embrace research, education, engineering (forest), departmental trading in forest produce, local timber supplies and the export trade. The second part treats of the departmental work throughout the Federation.

The report of the Forest Department, British Guiana, for 1955 (pp. 32. Georgetown: Government Printer, 1957) shows the Department still in a difficult stage of progress due to the shortage of senior staff. A development programme is shortly to be introduced, but only one scheme of the Central Timber Manufacturing Plant has proceeded according to plan. It would appear that the most important part of the planning would be for the training of staff for silvicultural work in the forests. The report for the Sudan (Ministry of Agriculture: Forests Department. Report for the period July 1954 to June 1955. Pp. iv + 75. Khartoum: Department of Forests, 1956) owes much to the work of the former British forest officer. As regards forest policy, the introduction of control of fellings formerly made at will by the population of the country, the prohibition of felling in forest reserves without a licence, and

control of fellings for village needs are to the good. These are departures which are essential in the interests of so arid a country as the Sudan and perhaps a native administration has found it easier to introduce them.

The activities of the Forest Research Institute of New Zealand (New Zealand Forest Service. Annual Report of the Forest Research Institute for the year ending 31 March, 1956. Pp. 88. Wellington: Government Printer, 1956) have made continued progress, and two major objectives have been achieved in the completion of field-work for the National Forest Survey of production forests and the formation of the Forest Biology Survey. Silviculture members of the staff appear to be deficient, a curious anomaly, since silviculture is the basis of the whole of forestry practice. Requests from conservancies for advice and assistance prove the value of the Institute.

During the past few years, research in forestry subjects has made an impressive advance. If we look to New Zealand, Canada, Australia and South Africa, India, Nigeria, the Sudan, and many other of the smaller forest services, most publish regularly the results of their researches, a service which is of great importance to the progress of forestry and its beneficial influences on mankind as a whole.

THE PHYSICAL SOCIETY

REPORT FOR 1956

THE report of the council of the Physical Society for the year ending December 31, 1956, together with the report of the honorary treasurer and the accounts and balance sheet, were presented to the annual meeting of the Society held at the Science Museum, London, on June 4, and adopted, and the composition of the new council for 1957-58 announced. At the extraordinary general meeting which followed, approval was given for amendments to the articles and rules of the Society to enable the council to elect Fellows without submission of their names to science meetings of the Society.

Immediately afterwards, Prof. N. F. Mott delivered his presidential address entitled "The Physics and Chemistry of Metals", in which he described how physical techniques are contributing to an understanding of the nature of the metallic bond. Measurements of diamagnetism and of conductivity at high frequencies and low temperatures enable an experimental determination to be made of the form of the Fermi surface, which indicates how much the form of the electronic wave functions varies with direction. The behaviour of the magnetic electrons in nickel and iron was contrasted. In nickel the *s* and *d* bands overlap and both contribute to the Fermi surface; in iron the magnetic electrons do not contribute to the Fermi surface or to the conductivity. Finally, the effect of chemical or binding forces on mechanical properties was discussed.

The report comments on the way in which the form of the Society's science meetings has altered in the past few years, from meetings devoted to the reading of papers submitted for publication in the Society's journals to short conferences on specific subjects at which papers are presented bearing on aspects of the subject but not necessarily describing work sufficiently advanced for publication. Four such conferences were held during the year: "Cloud

Physics", jointly with the Royal Meteorological Society, during January 4-5; "Semiconductors", in conjunction with British Thomson-Houston Research Laboratories, during April 10-12; "The Physics of Gas Flow at Very High Speeds", at the University of Manchester, during July 16-17; and " β - and γ -Ray Spectroscopy and Related Topics", at the University of Edinburgh, during December 17-19. It is planned to hold six or seven conferences annually. The arrangement to hold joint colloquia on electron physics open to members of the Institute of Physics and of the Society was continued, and two meetings were held. The annual Fellows' luncheon, which was attended by about one hundred Fellows, was again held on the opening day of the annual exhibition of scientific instruments and apparatus. The fortieth Guthrie Lecture was delivered by (the late) Sir Francis Simon, who gave a historical survey of the third law of thermodynamics, and the eighth Rutherford Lecture by Prof. P. I. Dee, who spoke on the alpha particle.

Prof. J.-P. Mathieu was the recipient of the eleventh Holweck Medal of the Société Française de Physique and the Holweck Prize of the Physical Society; after the presentation, which took place in London, Prof. Mathieu delivered the Holweck discourse on the subject of crystalline structures. Prof. J. G. Daunt (Ohio State University) received the thirty-third Duddell Medal and for his address discussed the magnetic refrigerator for temperatures below 1° K. (now published in *Proc. Phys. Soc.*, B, 70, 641; 1957). The twelfth Charles Vernon Boys Prize was presented to Prof. G. D. Rochester and Dr. C. C. Butler in recognition of their work on the discovery of the charged and uncharged *V*-particles.

During 1956, the Council states, there was a slight increase in the total membership, from 1,978 to 1,999. There was an overall surplus for the year of just over £1,000, indicating the healthy condition of the Society's finances, and this is emphasized by the balance sheet, which shows that the Society's investments, apart from special funds, total more than £20,000. Expenditure on behalf of the members exceeded income by about £700, and on general activities, consisting mainly of publications and science meetings, the Society incurred a loss of nearly £1,200 in spite of a generous grant of £1,500 from the Royal Society. However, as in former years, the annual exhibition of scientific instruments and apparatus, through the success in sales of the handbook to the exhibition, brought in a revenue which more than counterbalanced the losses. Both halls of the Royal Horticultural Society were used for housing the exhibition. The number of exhibitors was substantially the same as in previous years and the attendance was again large—more than 16,000.

Greatly increased interest in the Society's publications during the year is reported. The sale of the current numbers of both the *Proceedings of the Physical Society* and the "Reports on Progress in Physics" has risen, and there has been a large increase in the sale of earlier volumes of the "Reports" and of some of the Society's special reports, particularly the 1954 Bristol conference report on "Defects in Crystalline Solids" and the 1954 Cambridge conference report on the "Physics of the Ionosphere". A serious delay because of printing troubles in the publication of the *Proceedings* during the earlier part of the year has since been made up. Two hundred papers and 111 research notes and letters were accepted for publication; 45 were rejected or withdrawn by the authors. Vol. 19 of

the "Reports", containing nine specialist articles, was issued during the summer and separate copies of the individual articles were again available for purchase.

Details of the activities of the four Groups of the Society, the Colour, Optical, Low Temperature and Acoustics Groups, together with a list of the numerous bodies on which the Society is represented, are given in the annual report. In addition to science meetings, the Optical Group held its summer meeting at the University of Exeter; the Low Temperature Group held an all-day discussion meeting on the subject of liquid helium, and a two-day joint conference with the X-ray Analysis Group of the Institute of Physics at the Clarendon Laboratory, Oxford, on the subject of X-rays and low-temperature crystallography, and visited the Low Temperature Laboratories of the Royal Radar Research Establishment, Great Malvern; and the Acoustics Group included in its programme a symposium on loudspeakers and a distinguished visitor's address by Dr. W. E. Kock.

The officers and council for 1957-58 are as follows: *President*, Prof. N. F. Mott; *Vice-Presidents* (in addition to those who have filled the office of president), Prof. S. Devons, Prof. F. Llewellyn Jones, Prof. H. Jones and Dr. K. Mendelsohn; *Honorary Secretaries*, Dr. C. G. Wynne and Dr. H. H. Hopkins; *Honorary Foreign Secretary*, Prof. E. N. da C. Andrade; *Honorary Treasurer*, Mr. A. J. Philpot; *Honorary Librarian*, Dr. R. W. B. Pearse; *New Ordinary Members of Council*, Dr. B. H. Flowers, Prof. M. H. L. Pryce and Mr. E. W. H. Selwyn.

WATER POLLUTION RESEARCH

THIS review of the report of the Water Pollution Research Board for 1956* could start with a frequently quoted verse from Gray's "Elegy" about gems and flowers, though some might find odd the juxtaposition of any thought from that poem and sewage. The point is that this publication is of a kind liable to be ignored by most not directly concerned with pollution on the grounds that it is of interest only to those who are, which is not true. The reviewer deems it his function to show where and why this is not true even if, in dwelling on those pieces of research that will command interest outside the applied field, he gives an unbalanced picture of the work of the Laboratory.

The concentration of oxygen is one of the important factors affecting freshwater organisms, but one of which the significance is very hard to assess because it often fluctuates considerably and often reaches critical values at the most inconvenient times of day. Any method of recording it continuously will be welcomed by many concerned with both theoretical and applied problems; the Water Pollution Research Laboratory has devised two. The first required mains electricity which limited its range rather seriously. The second, referred to in the report under review, can be operated from batteries.

The results of what must clearly have been an extensive series of trials are summarized in a table which shows at three temperatures the highest concentration of oxygen at which all fish died in a week and the lowest at which all survived for a week. Most oxygen was required at the highest temperatures,

* Department of Scientific and Industrial Research. Water Pollution Research 1956: the Report of the Water Pollution Research Board with the Report of the Director of the Water Pollution Research Laboratory. Pp. iv+75+4 plates. (London: H.M. Stationery Office 1957.) 4s. net.