

power electric motor. It travels round a track 110 feet in diameter and wears two tracks on the test road. Its maximum speed is 40 miles an hour. Special safety devices have to be incorporated both in the design of the machine and of the building in which it is housed. If it broke away from the centre post when travelling at full speed, it would release energy equivalent to that of a six inch shell. The building containing the machine is roofed so that test roads may be laid in any weather. There are two other machines carrying out similar tests on a smaller scale. In the case of one of these machines the road revolves and drives the wheels, the maximum speed being nine miles per hour. A week's use of one of these machines sometimes represents a year's wear on the ordinary highway. It has been found out that the road generally wears out before the tyre gives way. Physical and chemical tests of roads and road making materials are also carried out at the laboratory. An appliance can bore out a cylindrical core of concrete from a road so that the texture and constituents of the mixture may be examined and its mechanical strength found. Tests on skidding are also made: theoretically, by a small apparatus in the laboratory which finds out the slipperiness of a lubricant, and practically, by means of a special motor cycle and sidecar.

British Empire Cancer Campaign

At the recent quarterly meeting of the Grand Council of the British Empire Cancer Campaign, a communication was received intimating that His Majesty the King had been graciously pleased to become patron of the Campaign. The following grants amounting to £5,530, and making a total to date of £30,990 for the year 1936, were approved: £1,100 to the Radium Beam Therapy Research; £1,750 (in addition to the grant of £1,850 already made for the year 1936) to the Mount Vernon Hospital; £500 (in addition to the grant of £600 already made for the year 1936) to the Marie Curie Hospital; £100 and £80 to Dr. C. R. Amies, at the Lister Institute and Dr. P. R. Peacock, of Glasgow, respectively, for the purchase of special types of centrifuges; £1,000 to the Manchester Committee on Cancer to cover the cost for two years of investigations to ascertain whether there is any connexion between the use of heavy oils in motor-vehicles and the apparent increase in the incidence of cancer of the upper air passages and the lung; £1,000 to the North of England Branch of the Campaign to meet the cost for the second year of the short-wave investigations being carried out at Newcastle, on behalf of the Campaign, under the direction of Prof. W. E. Curtis and Dr. F. Dickens. In this connexion the Council expressed its appreciation of the technical assistance afforded the workers by the technical staff of the Marconi Company. The Royal Society and the Medical Research Council have nominated Prof. Matthew Stewart, of the University of Leeds, to succeed Prof. R. T. Leiper, who has retired, as one of their five nominees on the Scientific Advisory Committee of the Campaign.

A New Hydraulic Laboratory

HYDRAULIC laboratories are in use for a variety of purposes, including the training of engineers, tests of turbines and pumps, model experiments on ships and seaplane floats and for research on river, reclamation and harbour problems. In the *Engineer* of April 3, Dr. F. V. A. E. Engel reviews some of the aspects in the design of such laboratories and gives a detailed description of the new hydraulic laboratory at the Park Royal works of Messrs. Electroflo Meters Co. Ltd., erected for the routine work of testing and calibrating meters and for the development and improvement of fluid flow measuring devices. A factor of importance in the design of a meter test plant, he says, is the maintenance of a constant head in the test line. In the plant at the Park Royal works, water is drawn from a sump by two electrically driven centrifugal pumps and delivered to an overhead tank 65 feet above the ground floor. The water then flows through the test line, where Venturi tubes and orifice plates may be installed in a straight pipe 60 ft. long. From the test line the water passes into a settling tank and two measuring tanks, and so back to the sump. For timing the tests an interesting device has been adopted which automatically operates the stop watch. When the flow of water entering one measuring tank is switched over to the other, the water jet from the change-over valve interrupts a beam of light impinging on a photo-electric cell, and by means of a thermionic amplifier and relay the stop watch is controlled. In the new laboratory, investigations are in progress on a model of a large Venturi flume recently constructed at the West Middlesex sewerage works at Mogden.

Botanical Acquisitions at the Natural History Museum

CAPT. F. KINGDON-WARD has presented more than 1,100 specimens collected on his recent expedition to Tibet to the Department of Botany of the British Museum (Natural History). Mr. R. F. Jones has made a collection of plants during the Percy Sladen Expedition to Lake Hula. The lake and its adjacent swamp, an area of about seventeen square miles, was concentrated upon, as the flora will disappear with drainage, and the flora of the hills of Palestine is fairly well known. The collection is of more than four hundred numbers and includes all groups. The investigation was mainly ecological, but the collection contains several new records of flowering plants. Lieut.-Colonel F. M. Bailey, British Envoy Extraordinary and Minister Plenipotentiary at Katmandu, Nepal, has presented 488 flowering plants and 42 vascular cryptogams. These make a useful addition to the valuable Nepalese collections already in the Department.

Indian Helminths

G. D. BHALERAO has prepared a list of the helminth parasites hitherto recorded from domesticated animals in India (Imperial Council of Agricultural Research. Scientific Monograph No. 6. Pp. 365. Delhi, 1935. 13s. 3d.). A brief account of the technique of collecting, preserving and preparing the parasites for

examination precedes the systematic account, which is provided with the usual keys and with illustrations to facilitate identification and to show structural features. The illustrations are for the most part satisfactory, but the author's photograph of a much distorted transverse section of *Parascaris equorum* could have been omitted. The memoir will be helpful to those who are interested in the helminths of Indian domestic animals. It is marred by a considerable number of misprints which necessitated the addition of a slip correcting more than fifty errata. One of these is "for Linneas read Linnaeus" and on reference to the page cited we find "Linneas 1858" which should, of course, be "Linnaeus, 1758"; more care in reading the proof would have been well repaid in the result.

Fungi of South Australia

THE South Australian Branch of the British Science Guild is making a determined effort to interpret the flora and fauna of the southern parts of Australia to students of biology in that region. It has on one hand the sympathy and active financial support of the South Australian Government, and on the other hand the authors of a series of handbooks, who prepare their manuscripts gratuitously. The latest volume to be added to this list is the second part of "Toadstools and Mushrooms and other Larger Fungi of South Australia" (Adelaide: Govt. Printer. 5s. net. Pp. 177-362. June 1935). Prof. J. B. Cleland, who is also chairman of the Committee responsible for the handbooks, has written the volume, which deals with polyporous and coral fungi, with puff-balls, jelly-like fungi, and the larger Ascomycetes and Myxomycetes. The volume forms, with Part 1 (published in June 1934), a complete guide to the grosser fungi of the area mentioned in the title, and it is no fault of the author that the Hymenomycetes are in great preponderance. Ascomycetes receive somewhat scant treatment upon five pages, whilst Myxomycetes receive slightly less, but the treatment of the Basidiomycetes should make the volume into a mycological classic. The classification adopted is a combination of the systems propounded by Carleton Rea and P. Claussen. It is easy to follow, though a purely English reader might have preferred to see either the modern thoroughness and authoritative dignity of Rea, or the comprehensive well-trying simplicity of Claussen, adopted throughout.

Aims and Methods of Medical Science

THIS was the title of the inaugural lecture delivered on November 26 by Prof. John Ryle, the new regius professor of physic at Cambridge, and now available in attractive book-form (Cambridge University Press, 1935, 2s. net). Prof. Ryle reviews the scope and present shortcomings of medical science, and concludes that among the great body of practitioners and laboratory workers there is too large a proportion whose standards of accuracy are defective, and whose judgment is crippled. These shortcomings are ascribed to three primary errors: (1) faulty selection of men, or misdirection of their energies after quali-

fication; (2) complicated and unwieldy systems of education and examination; and (3) the spread of the cult of specialism. Prof. Ryle does not condemn specialism as such, "for good specialism is essential to all scientific progress"; but condemns only excessive, premature and misdirected specialisms for the subversive influences which they have had upon medical thought, action and education. In seeking a remedy, Prof. Ryle reviews some of the recent achievements in medicine, and finds that the clinician has himself experimented, or that there has been intimate collaboration between experimenter and clinician. Observation and experiment are both essential, but they must go hand in hand. Prof. Ryle envisages that in the future the younger men will turn more frequently to the study of problems at the bedside, and that a happier partition of problems and a closer collaboration between the wards and the laboratory, between students of normal and students of morbid physiology, than obtains at present, will play their part.

Report of the Rockefeller Foundation

ACCORDING to the annual report which has recently been published, the Rockefeller Foundation expended 12,679,775 dollars during the year 1934. In public health, field researches were undertaken on yellow fever, malaria, hookworm disease, tuberculosis and several other diseases, and the organisation and maintenance of essential State and national health services in various parts of the world were promoted. In the medical sciences, many university departments and others received aid for psychiatry, and the Lister Institute funds for the purchase of an ultracentrifuge. In the natural sciences, grants were made for promoting experimental biology and genetics, physiology and endocrinology. In the social sciences, the largest grant went to the Welfare Council of New York City, and several universities, including Oxford, and other bodies, received support. In the humanities, grants supplementing former assistance were made to the Bodleian Library and the Bibliothèque Nationale in Paris, and the Foundation appropriated funds for the "Dictionary of American Biography", the "Historical Dictionary of American English", and the "Virginia Historical Index"—works now in course of preparation.

Reports of the Smithsonian Institution, Washington

THE annual reports for 1933 and 1934 of the Smithsonian Institution of Washington, both of which have recently been received, give details of the operations and expenditures during the sessions in question (Superintendent of Documents, Washington, D.C. 1 dollar). In both volumes, reports are given summarising the year's activities, finances, grants, publications, library, etc. These are followed by detailed reports which include those of the Bureau of American Ethnology, National Zoological Park, Astrophysical Observatory, Division of Radiation and Organisms, International Catalogue of Scientific Literature and the International Exchange Service. The greater part of each volume is, however, used