

ignited, and there were several outbreaks of fire. About a million people were homeless, and though the loss of life was probably not more than five hundred, the material damage amounted to hundreds of millions of pounds.

The meteorologists at least have not been found wanting, and it is fitting to conclude this brief

account with a reference to the work of the United States Weather Bureau. The forecasts of the times and heights of flood stages were of incalculable assistance throughout to the patrols and rescue organizations. Without these warnings, the loss of property, and still more of life, would have been enormously greater.

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## News and Views

### Prof. J. Stanley Gardiner, F.R.S.

THE retirement of Prof. Stanley Gardiner from the chair of zoology and comparative anatomy in the University of Cambridge next October will bring to an end a remarkably interesting and important period in the history of the Department of Zoology at Cambridge. At the time of his appointment, Prof. Gardiner was a leading authority on marine zoology, with a specialist's knowledge of the systematics of corals. He had gained a wide knowledge of the methods used in the exploration of the sea during the times when he took part in expeditions to the Pacific and Indian Oceans. As a result, he has been able to give most important and valuable advice and assistance to all the British expeditions for scientific oceanography from the time of his appointment to the present day. But Prof. Gardiner is a naturalist, and his extensive interests in animals and plants have given him a wide sympathy for all branches of scientific research in zoology, and therefore when the dream of an adequate zoological institute in the University became true, he saw to it that every aspect of the subject was fully provided for. The very large number of his former pupils will remember with gratitude the personal interest he took in their work, and the kindly advice and help he gave them at the outset of their careers.

### Dr. J. Gray, F.R.S.

Prof. Stanley Gardiner will be succeeded by Dr. James Gray, who was one of his pupils when he became professor in 1909. Dr. Gray has had a varied career. He was demonstrator of zoology before the Great War, carrying out research on fertilization of echinoderm eggs. Then he saw war service from August 1914 until the peace, serving in France and Palestine, attaining the rank of captain and being awarded the *M.C.* Returning to Cambridge, he became Balfour student, commencing a long line of research on ciliary movement, in which he and his pupils are still interested. Lecturer and reader in turn, by a natural evolution he passed onwards to a comprehensive study of the physiology of animal locomotion, being especially interested in fish. In 1928, he was visiting professor at Columbia University. His share in the rebuilding of the whole Zoological

Department at Cambridge was great, and in particular he was charged with the design of the experimental section, which contains, besides a teaching laboratory, twenty-five separate research rooms and at present overflows into the whole building. Elected to the Royal Society in 1929, he is now a member of the Council. He is also a member of the Advisory Committee on Fisheries of the Development Commission, but perhaps his greatest public service to science is in the editing of the *Journal of Experimental Biology*, which is associated with the Society of the same name.

### Inauguration of an Ultra-centrifuge at Oxford

A SVEDBERG ultra-centrifuge, generously lent to the University of Oxford by the Royal Society and erected in the Department of Biochemistry (Prof. R. A. Peters), was formally set going on February 27 in the presence of a large company by the Vice-Chancellor of the University, the president of the Royal Society and Prof. The Svedberg of Uppsala himself. The cost of the complete instrument, defrayed by the Royal Society, was £2,000. The cost of its erection has been met by the University. It is one of five similar instruments, the third outside Sweden—two are at Uppsala, one in London at the Lister Institute of Preventive Medicine, and another in the United States. It is designed for the determination of the rate of sedimentation of particles of very high molecular weights. The rotor, of a nickel-chromium steel found after many trials to stand the great strain put upon it, is supported by bearings of Babbitt's metal and driven by two small oil turbines, one at each end of the shaft, which give a smooth and easily regulated run. The rotor moves in an atmosphere of hydrogen of about 25 mm. pressure. Rotation speeds, determined electrically, up to 65,000 revolutions per minute (equal to about 300,000 times gravity) can be safely attained. The solution to be centrifuged is contained as a thin column in a cell with quartz windows carried, and suitably balanced, on the rotor. The height of the column, which is about 7 cm. from the centre of rotation, does not generally exceed 27 mm. The position of the moving boundary of the particles sedimented during a run of the ultra-centrifuge is determined from photographs obtained at suitable

intervals with a camera with a lens of very great focal length, the source of light being a mercury lamp. The ultra-centrifuge, which will be available for any research worker in the University, is, under the direction of Prof. R. A. Peters, in the charge of J. St. L. Philpot, Balliol College. He will employ it in a general investigation of enzymes as proteins, and particularly to see how the alteration by chemical reaction of certain groupings on the enzyme affects the stability of the particle itself.

#### Scientific Research in New Zealand

THE tenth annual report of the New Zealand Department of Scientific and Industrial Research covers the year 1935-36, and in addition to the Minister's statement and the Secretary's report, includes reports of the various research committees as well as of the Dominion Laboratory, the Geological Survey Branch, Meteorological Branch, and the Dominion, Apia, and Magnetic Observatories (Wellington: Government Printer, 1936. 2s. 3d.). Of the expenditure of £91,344 during the year, £46,306 was on research investigations, £11,225 of which was for industries and £21,360 in the Consolidated Fund. Plant research plays a large part in the activities of the Department, and has now been organized so that each Division is situated in the part of the Dominion most affected by its activities. General co-ordination of the work on animal health and nutrition has also been effected, and it is hoped that a comprehensive scheme of attack on these problems will be evolved during the year. A systematic soil survey of New Zealand is in progress and a survey of the tung oil industry will shortly be undertaken. Soil surveys form an important part of the investigations which are being made in the development of the citrus industry.

THE first organization to be established under the Department was the Dairy Research Institute, and this has already attacked with success certain major problems in the manufacture of butter and cheese. Strains of starter bacteria which afford the best type of Cheddar cheese have been isolated, and much information on the action of bacteria in the ripening of cheese has been accumulated. Valuable research by the Wheat Research Institute has resulted in the breeding of a new hybrid which avoids the necessity of importing strong wheats for blending purposes. An outstanding feature of the fruit research in the year has been the proving of a successful method of controlling corky-pit disease of apples by the application of boron compounds. Steps are being taken to establish research associations for various industries on the lines of those in Great Britain and also to establish a general bureau of technical information for industry. Recently the Government has taken over the responsibility for the development of industrial standards. The work of the Meteorological Office has been considerably affected by the inauguration of regular air services in New Zealand, and the system of weather observation and reporting is being considerably increased.

#### League of Nations and Nutrition

AT a meeting of the Expert Committee on Nutrition set up by the Committee of the League of Nations, held on December 8-10, 1936, under the chairmanship of Prof. H. Laugier, methods and results obtained as an outcome of the report on the physiological bases of the subject and a programme of research outlined, were compared and a plan of action established. Agreement was reached as to the technical methods to be applied, and a plan of future studies for co-ordination by the Health Organization was drawn up. Three methods are recommended for assessing the state of nutrition of children of pre-school age and school age and of adolescents. The first method is essentially suitable for practical work, such as the determination of the state of nutrition of large numbers of children, and for this purpose the preparation of record cards giving particulars of age, sex, physical appearance, weight and height is recommended, as well as a clinical examination of each child bearing on the colour of the skin, the state of the teeth, the condition of the subcutaneous fat layer, the state of the muscles and any signs of abnormal fatigue.

THE second type of inquiry is intended for more thorough and more scientific investigation covering smaller groups, and will include an inquiry into the child's food intake and the economic and social status of its family. A thorough medical examination and, so far as possible, special measurements and special tests, for example, on protein content of blood, pre-deficiency tests, etc. The third type of inquiry is intended to study scientifically the disturbances to which all the functions of the body are subjected when the diet is quantitatively or qualitatively deficient. A further meeting of the Expert Committee on Nutrition held on December 11-12, 1936, under the chairmanship of Prof. E. Gorter was concerned with nutritive food requirements during the first years of life. These requirements were defined as regards calories, proteins, vitamins and iron, indicating to what extent milk, cereals, vegetables, eggs, meat and broth should be used to provide a suitable diet for infants, and remarks on the quality and preparation of food were also made.

#### Science and Social Problems

A RECENT broadsheet issued by Political and Economic Planning (PEP) directs attention to the welcome evidence afforded by the malnutrition controversy of the recognition that science can make important and indispensable contributions to the solution of social problems. The present broadsheet merits attention not merely as presenting a concise summary of experiments and studies bearing on the known facts of nutrition, but also for a helpful discussion of the main points of controversy or misunderstanding. This is particularly true of its efforts to disperse some of the confusion caused by the use of the word 'malnutrition' in several different senses. Available evidence shows that even in the lowest income groups, shortage of calories cannot affect