

WELLCOME HISTORICAL MUSEUM AND LIBRARY

DR. F. N. L. POYNTER, formerly chief librarian of the Wellcome Historical Medical Library has been appointed a director to take charge of both the Wellcome Historical Medical Museum and the Historical Medical Library. His appointment is part of a general reorganization following the retirement of Dr. E. Ashworth Underwood as director of the Wellcome Historical Medical Museum.

Dr. F. N. L. Poynter joined the staff of the library as assistant librarian in 1930 when Sir Henry Wellcome was himself director of the Museum and Library. He became sub-librarian in 1938, deputy librarian in 1946 and chief librarian in 1954. He received his training as a medical historian from the late Prof. Max Neuburger. In addition to his other duties he is secretary-general of the International Academy of the History of Medicine and honorary secretary of the Faculty of the History of Medicine of the Society of Apothecaries. He is the author of a number of books and more than a hundred papers on the history of medicine.

The Wellcome Historical Medical Museum and the Historical Medical Library are housed in the Wellcome Building in Euston Road, London. Both are based on collections initiated by the late Sir Henry Wellcome, who died in 1936. The Library contains approximately 250,000 printed books, pamphlets and journals, 10,000 manuscripts (of which half are in oriental languages) and 100,000 autograph letters of medical and scientific interest. The Museum contains what is probably the most comprehensive collection yet made of scientific instruments and antiquities of interest for the History of Medicine.

As part of the reorganization also, Dr. Edwin Clarke has been appointed medical historian to the Museum and Library and Mr. J. W. Barber-Lomax is to be administrative officer and veterinary historian. Dr. Clarke was formerly associate professor of the history of medicine in Yale University. Mr. Barber-Lomax, who is one of the leading veterinary historians in Great Britain, was formerly manager of the Professional Services Department, Veterinary Division of the Wellcome Foundation, Ltd.

Mr. E. Gaskell, formerly sub-librarian, has been elected librarian of the Historical Medical Library and Mr. E. Freeman sub-librarian.

Dr. Ashworth Underwood retired from the Wellcome Historical Medical Museum this year after nearly eighteen years as its director. Despite the frustrations of space restriction, resulting primarily from the War, Dr. Ashworth Underwood was able to keep a representative exhibition open for the public and was always striving for the proper deployment of the collection so that full use could be made of it. Important exhibitions of topical subjects were regularly arranged by him during his term of office and his great knowledge of the subject enabled him to give much help to many students of the history of medicine.

Before his appointment as director of the Historical Medical Museum Dr. Ashworth Underwood had been medical officer of health for West Ham and an honorary lecturer in the Department of the History of Science and Philosophy in University College, London. He has published many papers and books, among them the second edition of Singer's *Short History of Medicine*.

BALTHAZAR VAN DER POL GOLD MEDAL FOR SCIENTIFIC RADIO

DURING the general assembly of the International Scientific Radio Union (URSI) in Tokyo, September 1963, an evening was devoted to honouring the memory of the late Dr. Balth. van der Pol (1889-1959), who had devoted an important part of his numerous activities to the growth of URSI, in which he was so keenly interested. The occasion was the first presentation of the Gold Medal founded by the generosity of Mrs. van der Pol in memory of her late husband. In consultation with the Board of Officers of URSI, it was decided that the Medal was to be awarded to an outstanding radio scientist who, during the three-year period preceding the year of each general assembly, has made a valuable contribution in one of the fields of activity of the Union either by his research work, discoveries or achievements, or by any other activity.

In a volume recently published (June 1964) under the title *Van der Pol Memorial Lecture 1963*, by the Secretary-General of URSI (7 Place Emile Dancu, Bruxelles, Belgium), the proceedings of this special meeting are recorded in full. After a short opening address by the president, Dr. R. L. Smith-Rose, a review of the life and scientific work of Balthazar van der Pol was given by Prof. Ch. Manneback, treasurer of URSI.

He recalled that, after graduating at the University of Utrecht in 1916, van der Pol went to England, where he worked with Prof. (Sir Ambrose) Fleming in the University of London, and with Prof. (Sir J. J.) Thomson in the Cavendish Laboratory, Cambridge. He returned to the Netherlands in 1919, and, after obtaining his doctor's degree at Utrecht, he joined the research laboratories of the Philips Company at Eindhoven in 1922. He remained there until 1949, when he was appointed the first director

of the International Radio Consultative Committee (CCIR) in Geneva. After his retirement in 1956, he was visiting professor in the University of California, Berkeley, and, in 1958, in Cornell University, Ithaca.

Following this exposition at the ceremony in Tokyo, the first van der Pol Gold Medal was then presented to Prof. Martin Ryle by Mrs. van der Pol in recognition of his leadership of the radio astronomy group at the Mullard Observatory of the Cavendish Laboratory, Cambridge. Remarking on the appropriateness of the award, Mrs. van der Pol recalled the period in 1917 during which her late husband had worked at the Cavendish Laboratory, where he formed a life-long friendship with Dr. (Sir Edward) Appleton and other British scientists. The new group under Prof. Ryle has made outstanding contributions to astronomy, problems of cosmology, and to scientific radio. In particular, the Cambridge scientists have developed new aerial systems, especially suited to radio astronomical research. Following his acceptance of the Medal, Prof. Ryle gave a lecture on "Giant Radio Telescopes", which is reproduced with diagrams and photographs in the volume just published. In the course of his lecture, Prof. Ryle outlined the two main problems of radio astronomy: the limited resolving power obtainable compared with optical astronomy; and the extreme weakness of the signals to be received. A brief description was given of the design and performance of the three telescopes operating on the principle of 'aperture synthesis', which was developed at Cambridge. Some details were also given of a fourth and considerably more powerful instrument under construction.

After the president had thanked Prof. Ryle for his lecture, Mrs. van der Pol presented a second Gold Medal

to Colonel Ernest Herbays, secretary-general of URSI, in recognition of his continuous and devoted service to the Union since 1928. In the volume now published recording these proceedings, Colonel Herbays very appropriately provided a concluding section outlining the history of the Union since the first meeting in 1912 of a few scientists

interested in the investigation of the phenomena associated with 'electric waves'.

The production of this little volume is excellent in every way; and it forms a worthy memorial to the achievements of URSI and the part played in them by the late Dr. B. van der Pol. R. L. SMITH-ROSE

CANADIAN SOCIETY OF PLANT PHYSIOLOGISTS

THE 1964 annual meeting of the Canadian Society of Plant Physiologists—la Société Canadienne de Physiologie Végétale—was recently held in Kingston, Ontario. The host institute was Queen's University.

The proceedings opened, on June 4, with a symposium on respiration under the chairmanship of Prof. Dorothy F. Forward (University of Toronto). Dr. D. F. Parsons (Department of Medical Biophysics, University of Toronto) discussed his recent investigations of the structure and junction of mitochondrial membranes, using a negative staining technique for electron microscopy. Two types of projecting sub-units were found, one on the outer membrane, consisting of 60 Å hollow cylinders, and the other on the cristæ, consisting of 90 Å mushroom-shaped structures. The latter structures have been found in a wide variety of plant and animal tissues. These sub-units are protein, but do not contain cytochromes. There is evidence for the presence of a flavoprotein and an ATPase. The sub-units may be associated with oxidative phosphorylation.

Dr. W. D. Bonner, jun. (Johnson Research Foundation, University of Pennsylvania), presented a paper on electron transport in plant mitochondria. He discussed the large number of cytochromes which have been described, and the difficulties in their characterization. Two *c*-type, three *b*-type and three *a*-type cytochromes are present in the mitochondria of all plant species, regardless of the respiratory characteristics. At normal concentrations of oxygen, when ADP is limiting (state-4 conditions), oxidation by plant mitochondria is not inhibited by hydrocyanic acid (HCN) or carbon monoxide (CO). However, when ADP is in excess (state-3 conditions), HCN + CO reduces the rate to that of state-4. State-4 rate corresponds to the 'ground respiration' of plant physiological literature. This is completely inhibited at low concentrations of oxygen by HCN and CO; the same is true in mitochondria which show HCN and CO insensitive respiration (skunk cabbage). Kinetic analysis suggests that oxygen reacts with two separate oxidases. This is supported by optical demonstration of two CO (O₂) binding pigments. The presence of a second CO-binding pigment provides an explanation for both 'ground respiration' and 'cyanide insensitive respiration'.

The symposium was completed by a paper by Prof. G. Krotkov (Biology Department, Queen's University) on the effect of light on respiration, thus continuing the development of the symposium subject from the sub-cellular structural level to that of the physiology of the whole organism. The question of whether respiration is affected by light has in the past been answered by indirect means. The techniques used in Dr. Krotkov's laboratory made it possible to show that light and dark respiration are two different processes. 'Photorespiration', or evolution of carbon dioxide in light, involves different pathways of metabolism, perhaps utilizing glycolic acid metabolism. Corn, a plant of exceptionally high productive ability, has no photorespiration, and appears to lack co-factors for glycolic acid oxidation. Corn does not 'waste' products of photosynthesis in respiration while it is illuminated, and is thus more efficient than other plants.

Six half-day sessions (two sessions always running concurrently) were devoted to contributed papers. A closely knit group of papers on translocation originated from the laboratories of the Division of Biosciences,

National Research Council, Ottawa, under the direction of Dr. P. R. Gorham and Dr. D. C. Mortimer, and from the laboratory of Dr. G. Krotkov and Dr. C. D. Nelson at Queen's University, the host institute. Dr. Mortimer's results showed that downward translocation of photosynthate occurred at greatly varying rates and intensities in different vascular bundles of a leaf, which thus had to be analysed separately. The Queen's University group showed that translocation of photosynthate is under hormonal control, and that there is selective and preferential translocation of certain sugars.

The session on nitrogen included two papers from the laboratory of Dr. W. G. Boll (McGill University, Montreal) on the ability of ethanolamine to replace vitamin B₉ in the nutrition of excised tomato roots, and on the biochemical mechanisms associated with this ability. An interesting paper from the laboratory of Dr. C. L. Mer (Imperial College of Science and Technology, London (now visiting at Harvard University)) provided a nutritive hypothesis for growth responses in oat seedlings which precludes the necessity to postulate changes in auxin metabolism to account for various growth responses to changed environment.

A session on regulators was of general interest, and included papers on light quality and periodicity, on the regulation of enzyme synthesis, photosynthesis and nuclear activity by hormones and on the mode of action of herbicides.

Two sessions were held on metabolism, covering a wide range of research interests. A growing interest in the phenolic substances in plants was evidenced by a group of papers from the Halifax, Nova Scotia, laboratories of the National Research Council under the direction of Dr. A. C. Neish and Dr. G. H. N. Towers. These included very interesting work on the pathways of lignin biosynthesis and the interrelations of soluble and insoluble derivatives of the many C₆-C₁ and C₆-C₂ phenolic acids found in plants. Other papers included biosynthetic investigations on indoles, carbohydrates, phosphatides, alkaloids and chlorophylls. A number of papers were presented on various problems in plant metabolism, including organic acid metabolism, respiration, frost hardiness, and the influence of seasonal or environmental factors on plant metabolism.

A session was held on cell biology, which included cytological and cyto-physiological investigations on tissue cultures of Jerusalem artichoke and oat coleoptiles, originating from the Carleton University, Ottawa, laboratories of Dr. G. Setterfield and Dr. F. Wightman. It was shown that a number of synthetic auxins which promote cell expansion also promote cell division. Papers were presented on control mechanisms of amino-acid synthesis, on chloroplast bleaching in *Euglena*, and on histochemical tests. Dr. Nelson's group from Queen's University presented work on the effect of auxin in controlling cellular permeability, and on the electro-osmotic transport of sugars labelled with carbon-14 in *Nitella* cells.

The non-scientific event of outstanding significance at the meetings was the holding of a banquet in honour of Prof. D. L. Bailey (Botany Department, University of Toronto). Dr. Bailey is retiring from the editorship of the *Canadian Journal of Botany*, the official journal of the Society, after a number of years of outstanding service in which he has maintained the *Journal* at the highest possible standard. Special guests at the banquet included