

News and Views

Nobel Prize for Physics

THE formulation of de Broglie's wave-particle theory in 1924 and its experimental verification in 1927 by Dr. C. J. Davisson at New York and Prof. G. P. Thomson at Aberdeen mark an outstanding epoch in the history of physics. With the award of the Nobel Prize for Physics for 1937 to Dr. Davisson and Prof. Thomson just announced, all three are now in the select ranks of Nobel prize winners. The scattering of an electron beam was first studied by Campbell Swinton so far back as 1899, and had it not been for the fact that he used a polycrystalline instead of a single crystal reflecting surface, he might well have discovered the wave-like interaction of electrons with matter. The results of the many further observations on the scattering of electrons were all found to be in accordance with classical or quantum mechanics until, in 1921, Davisson and Kunsman recorded directions of preferential scattering of an electron beam from a polycrystalline surface which, however, they explained in terms of pure particle mechanics. Although L. de Broglie had formulated his theory associating wave systems with moving particles in 1924, it appears to have been rather the stimulus of an accidental observation which led C. J. Davisson and L. H. Germer to study the scattering of slow electrons from the surface of a single nickel crystal, and in March 1927 they gave a preliminary summary of their results. This was followed in December of the same year by a more complete account, which established for the first time the wave properties of moving electrons, in agreement with de Broglie's theory.

MEANWHILE, in Aberdeen, G. P. Thomson and the late A. Reid, unaware of Davisson and Germer's experiments, had been studying the scattering of fast electrons by thin films, and in May 1927 they published an account of the diffraction of cathode rays by a thin film of celluloid, illustrated by a photographic record of the distribution of the scattered electrons. It is interesting to note that here again, although he was acquainted with de Broglie's theory, it was not so much this as certain anomalous results relating to the scattering of electrons in helium observed by Dymond, and Thomson's own experiments on the scattering of positive rays in gases, which afforded the main stimulus to the carrying out of his experiments. Shortly afterwards, Thomson published the results of further experiments on the diffraction of fast electrons by thin metal films which quantitatively confirmed de Broglie's relationship. Since 1928, Davisson and Thomson have, with their respective collaborators, greatly extended their epoch-making researches, and to Thomson is due the merit of having early recognized the outstanding possibilities in the study of surface problems of electron diffraction by fast electrons with photographic

recording of the scattering angles. To-day the electron diffraction camera ranks with the microscope, the spectrograph and X-rays as an indispensable unit in the well-equipped chemical or physical laboratory.

Nobel Prize for Chemistry

Prof. W. N. Haworth, of Birmingham, and Prof. Paul Karrer, of Zurich, have been awarded jointly the Nobel Prize for Chemistry for 1937. Prof. Haworth is Director of the Chemistry Laboratories of the University of Birmingham, now provided with the most modern chemistry department in Great Britain through a generous benefactor who has recognized the value and possibilities of Prof. Haworth's investigations. He is a Davy medallist of the Royal Society and Longstaff medallist of the Chemical Society. For many years his name has been associated with outstanding results obtained in his laboratories in the elucidation by chemical and physical methods of the constitution of substances of biochemical importance, particularly the sugars and polysaccharides and, more recently, as the notice of the award indicates, with the synthesis and determination of the constitution of the antiscorbutic vitamin C to which he assigned the name of ascorbic acid. With this later work, other names are also associated, particularly those of Prof. A. Szent-Györgyi, who has received the Nobel Prize for Medicine, and Prof. E. L. Hirst, of Bristol, who has long been associated with Prof. Haworth. Prof. Haworth's name will remain outstanding in classical organic chemistry. The success of his work is due in no small measure to his great ability in organizing and leading a team of loyal collaborators, which calls forth qualities as necessary in modern chemical investigations as those required for carrying out the investigations themselves. Of this loyal collaboration Prof. Haworth has never ceased to express his appreciation whenever he has had occasion to describe the results of investigations in laboratories of which he has had charge.

Prof. Paul Karrer has published many papers on vitamins A and B and related compounds; he also confirmed the constitution ascribed to ascorbic acid by Szent-Györgyi. Karrer is perhaps best known for his investigations on the carotinoids, of which β -carotene acts as the chief precursor of vitamin A in the animal body, although α - and γ -carotene and cryptoxanthine can also act as pro-vitamins to a certain extent. More recently he has turned his attention to vitamin B₂ and the chemistry of the flavins, one of which, lactoflavin, is a part of the complex originally described as vitamin B₂, and also a part of the yellow oxidizing enzyme, in which, as the phosphate, it appears to be combined with the colloidal carrier of the enzyme. Finally, in one of his most recent papers, he and Soloman describe the

isolation of some new sterols from the unsaponifiable matter of wheat-germ oil by fractionation by adsorption on a column of aluminium oxide; the fraction of unsaponifiable matter used was assumed to contain vitamin E.

Prof. Charles Fabry, For.Mem.R.S.

AFTER fifty years devoted to teaching and research, Prof. Charles Fabry is retiring from the chair he has held in the Sorbonne, Paris. In his scientific career, Prof. Ch. Fabry has been pre-eminent for his work in optics. His interferometric work, with his determination (with Pérot and Benoit) of the length of the standard metre in wave-lengths of the monochromatic radiation of cadmium, has long been classical. His studies on the spectrum of the iron arc, his pioneer work on the mercury arc lamp, and on the application of interferometry to spectroscopic research must also be recalled. To a somewhat later period belong his researches in photometry and astrophysics. The microphotometer he designed with Prof. H. Buisson, and his studies on photographic density also represent pioneer work in a field which has since seen a wide development along the lines he predicted. During recent years, Prof. Fabry's interest has turned towards meteorological optics. Under his direction, researches on the composition of the upper atmosphere and its ozone content are being carried on by a group of his pupils. Soon after the Great War, Prof. Fabry founded in Paris the Institut d'Optique, of which he is still director. The activity of this institution has been devoted to industrial optics as well as to scientific investigation, to teaching and to the designing of optical parts as well as to research. The *Revue d'Optique*, also founded by Prof. Fabry, is published by the Institut d'Optique.

PROF. FABRY is also a brilliant writer and a lecturer of no ordinary skill. His text-books on electricity, thermodynamics, photometry, written in an exceptionally lucid style, are classics in the French universities. As a lecturer he was, at the Sorbonne, unrivalled; generations of students have listened to his witty and genial lectures and marvelled at the clarity and directness of his exposition. He is also well known in English-speaking scientific circles and is a foreign member of the Royal Society. He has delivered the Guthrie Lecture and Thomas Young Oration before the Physical Society; he is an honorary member of many scientific bodies, and recently has been elected president of the International Council of Scientific Unions. The scientific jubilee of Prof. Fabry will be celebrated by a meeting to be held at the Sorbonne some time between November 23 and December 5, and the committee dealing with the arrangements has also approved the design of a Fabry Jubilee Medal, a replica of which can be obtained from the Secretary and Treasurer of the Committee, Prof. G. A. Boutry, Conservatoire des Arts et Métiers, 292 rue St.-Martin, Paris (3ème). It is also hoped to be able to publish in volume form some of Prof. Fabry's works, selected from his classical memoirs and from his unprinted researches.

Dr. Eric Ashby

DR. ERIC ASHBY, reader in botany in the University of Bristol since 1935, has been appointed to the chair of botany in the University of Sydney, Australia, in succession to Prof. T. G. B. Osborn. After leaving the City of London School, Dr. Ashby entered the Imperial College of Science in 1923, graduating in 1925. From this time dates the origin of his original investigations, which have been pursued steadily along two main lines: a quantitative study of the effects of the environmental factors and their interactions on the growth of *Lemna*, and the analysis of hybrid vigour. Papers on both these topics have appeared in the *Annals of Botany*. In 1929 he secured a Commonwealth fellowship and widened his scientific outlook by two years work in the United States. Shortly after his return he was awarded the D.Sc. of the University of London. Dr. Ashby has played a prominent part in the development of a quantitative ecology and has surveyed this subject in botanical reviews. His highly individual view on the nature of heterosis has aroused general interest if not general approbation. His point of view is succinctly expressed in a contribution to the Royal Society on the theory of heterosis. Dr. Ashby has served botanical science in various capacities on the councils of the Linnean and Ecological Societies, and as the joint secretary of the Society of Experimental Biologists. His great talents and enterprise have gained due recognition in securing at the early age of thirty-three years an appointment of such distinction.

Geological Society: Foreign Fellows and Correspondents

At its meeting on November 3, the Geological Society of London elected as Foreign Fellows, Dr. W. A. J. M. van Waterschoot van der Gracht, Dr. W. J. Jongmans, Dr. A. Renier, and Dr. F. E. Wright, and as Foreign Correspondents, Prof. N. L. Bowen, Prof. R. M. Field, Baron F. von Huene, and Prof. H. Stille. Dr. W. A. J. M. van Waterschoot van der Gracht, of Heerlen, has made important contributions to our knowledge of the underground geology of the Netherlands, and has also published papers on economic geology, including coal and petroleum. More recently he has devoted attention to tectonic geology with special reference to North America. His review of the theory of continental drift formed the introduction to a symposium on that subject which was published by the American Association of Petroleum Geologists. He was director of the Rijksopsporing van Delfstoffen until 1917, and has been a Fellow of the Geological Society of London since 1898. Dr. W. J. Jongmans, director of the Geological Bureau of the Netherlands at Heerlen, has added much to the knowledge of Carboniferous stratigraphy. His publications on Carboniferous plants are well known, particularly those dealing with the genus *Calamites*. He is editor of the botanical section of *Fossilium Catalogus*, and was responsible for the volumes in that series dealing with the Equisetales and Lycopodiales. Dr. A. Renier, director of the Geological Survey of Belgium, has