

Some of the most interesting discussions were connected with more technical matters, on which positive results may be attained. Thus Brillouin reviewed the present state of our knowledge of the elementary particles; this is nowadays quite a long list as it includes along with the older ones the photon, the neutrino and the heavy electron or 'yukon', as it has been called after Yukawa who first, and before the experimental discovery, studied some of its possibilities. The discussion was largely concerned with the relation of spin to the statistics which each particle should obey. It appeared that though this is governed by certain rules, so that half spins go with Fermi statistics and whole with Einstein, yet there is a complete lack of proof for the necessity of this connexion. Then Eddington gave an account of his theory of electrons and protons, and had to defend his position against criticism from many sides. Milne was not there, and his report was read but not discussed.

The work of the conference was not so heavy but that we had opportunities for seeing the sights of Warsaw, and several brilliant entertainments were given by our Polish hosts, including a luncheon party, where we were entertained by the President of the Republic in the Castle of Warsaw. It is noteworthy that in Poland, more than in most countries, a scientific career may lead to high political office, for until the cares of State engrossed his whole attention, the President was himself a physicist, and the Minister of Education, who entertained us at dinner, was, and in his spare time still is, a physical chemist. At the end of the conference many of the visitors paid a visit to the beautiful city of Cracow with its historic university. Altogether, from both the social and the intellectual side, the meeting was agreed by everyone to have been a great success, and the guests carried away most pleasant recollections of their visit.

C. G. DARWIN.

Obituary Notices

Mr. W. M. Mordey

MR. W. M. MORDEY, the eminent consulting engineer, died suddenly at his home in Warlingham, Surrey, on July 1, at the age of eighty-two years. He was one of the best known electricians, and besides his professional work did valuable research work. He was president of the Institution of Electrical Engineers in 1908 and was made an honorary M.I.E.E. in 1932.

Mordey was born at Donnywell, in the County of Durham, in March 1856 and was the second son of J. G. Mordey, whose father was an eminent surgeon and had been several times Mayor of Sunderland. At the early age of fourteen years he entered the P.O. Telegraph Service when it had just taken over the telegraphs from the companies. A few years later when stationed at Bradford he held classes under the South Kensington regime. In 1881 he left the P.O. service and went to the Brush Company's works at Lambeth. He was soon advanced to the responsible position of chief of the test room and became electrical designer in general. He did valuable work in developing compound winding for dynamos. He gave convincing proofs of the practicability of running alternators in parallel which then became a practical instead of merely a theoretical operation. At that time the Mordey alternator was the best parallel running alternator on the market. The 'Victoria brush' dynamo designed by Mordey was almost in general use for many years especially for ship lighting. He established against high authority that a good dynamo is also a good motor. When working on transformers he studied the magnetic ageing of the iron, and with the assistance of Messrs. Sankey succeeded in getting made the material

'stalloy' which was relatively free from many of the ordinary defects. Mordey accepted no theory until it had been practically tested and testing meant to him measuring.

One of his inventions when he was with the Brush Company was the invention of a dust-filled fuse which 'blew' safely on 2,000 volts, alternating current, and was one of the earliest of arc-extinguishing fuses.

Mordey left the Brush Company in 1895 and set up as a consulting engineer. When R. A. Dawbarn joined him the firm was called Mordey and Dawbarn. They carried out some important works in South Africa and South America. In his presidential address in 1908 he vindicated the English electrical engineering industry from the criticism that it lagged behind some other countries.

Mordey took a leading part in the committee which the Council of the Institution of Electrical Engineers appointed in 1908 to find a suitable building in which to hold its meetings. At that time the meetings were held in the lecture hall of the Institution of Civil Engineers which was kindly lent to them. The committee decided almost at once to purchase the Medical Examination Hall of the Royal Colleges of Physicians and Surgeons which was then on the market. The purchase was effected for £50,000 on a seventy-six years lease. Since then the membership of the Institution has increased nearly three times, a fact to which Mordey referred with pride a few years ago.

Mordey discovered a curious effect produced when certain finely divided minerals were placed in an alternating magnetic field. The particles repelled one another and by suitable apparatus he was able to apply the phenomenon to the separation of ores.

His earliest published account of these experiments was read at a meeting of the South African Institute of Electrical Engineers at Johannesburg on December 16, 1921. His full statement and his explanation of the effects were given in his Friday evening discourse at the Royal Institution on May 18, 1923.

For many years, Mordey was a member of the Council of the Institution of Electrical Engineers and being very sociable he used to stay to many of the Council dinners. His criticisms of the papers read were frank, but his remarks were often very helpful. He was a member of the Athenæum and of the Alpine Club. He loved to talk about mountaineering in Switzerland and climbing the snow-clad hills of Scotland in winter time to the astonishment of resident farmers. The profession and the industry have greatly benefited by his work.

Mordey was fond of good music and was a member of the Bach choir for many years. The early death of his first wife leaving him an only daughter was a great blow. His daughter married Major E. O. Henrici, but after having a family she died comparatively young. Another blow to him was the death of his partner Dawbarn. He has left many friends who will sadly miss him.

A. R.

THE death has recently occurred of Dr. Ragnar Rydberg, lecturer in physics in the University of Stockholm, at the early age of thirty-six years. Dr. Rydberg's scientific career was mainly devoted to the field of band spectroscopy, from which his beautiful methods of graphical constructions based on extensive spectroscopic data were developed. His dissertation: "Über Neubildung und Zerfall zweiatomiger Moleküle" (Stockholm, 1934), also included valuable discussions on problems regarding pre-dissociation phenomena in discharges under different conditions.

WE regret to announce the following deaths:

Dr. B. T. Galloway, pathologist in the Bureau of Plant Industry of the U.S. Department of Agriculture, on June 13, aged seventy-four years.

Dr. A. E. H. Tutton, F.R.S., formerly H.M. Inspector of Schools (Technological Branch), Board of Education, and a leading authority on chemical and physical crystallography, on July 14, aged seventy-three years.

News and Views

Prof. M. N. Saha, F.R.S.

AFTER nearly fifteen years of service in the University of Allahabad, Prof. M. N. Saha is returning to his Alma Mater, the University of Calcutta, as Palit professor of physics. The first occupant of this chair, the gift of a rich Calcutta lawyer to the University, was Sir C. V. Raman (1918-32), and he was succeeded in 1932 by Prof. D. M. Bose (1932-37), who is now director of the Bose Research Institute founded by his uncle, the late Sir J. C. Bose. Prof. Saha graduated from the University of Calcutta in 1915 in applied mathematics, and in 1917 became lecturer in physics in the newly founded University College of Science. Between 1917 and 1921, he published a number of papers in the *Philosophical Magazine* and other journals on the application of the special theory of relativity to electrodynamics, on selective radiation pressure and its application to astrophysics, and the theory of thermal ionization of elements. The grant of a foreign scholarship by the University of Calcutta enabled him to visit England in 1920-21, and to work in the laboratory of Prof. A. Fowler at the Imperial College of Science and Technology. He was thus enabled to give the finishing touches to his paper "On the Physical Theory of Stellar Spectra" which was published by the Royal Society in 1921, and is now regarded as a work of highest importance in astrophysics. When, two years later, the University of Allahabad was just then passing from an examining to a teaching university, Saha accepted the chair of physics there and was called upon to frame the courses of teaching, organize the laboratory, and initiate research

work. He succeeded in creating a fine school of teaching and research under great handicaps and in infecting his colleagues with enthusiasm, resulting in important contributions to knowledge. Students trained by him have already achieved great distinction, among them being Prof. D. S. Kothari (Delhi) and Dr. R. C. Mozumdar in astrophysics; Dr. N. K. Sur in meteorology, Dr. G. R. Toshniwal in ionospheric research, and Dr. P. K. Kiehlu (Lahore) in spectroscopy.

BESIDES research and teaching, Prof. Saha has taken a leading part in the organization of scientific life in India. In 1931, he was instrumental in founding an Academy of Sciences for the Provinces of Agra and Oudh. In his presidential address to the Indian Science Congress in 1934, he advocated the establishment of a National Academy of Sciences for India on the lines of the Royal Society of London. This led to the foundation of the National Institute of Sciences (composed of 150 senior scientific workers in India) at Calcutta, of which Sir Lewis Fermor was the first president. In 1937, Saha succeeded Sir H. Couchmann, the surveyor general, as president of the Institute and was able to obtain a grant for it from the Central Government. In 1935 he founded the journal *Science and Culture* with the view of educating his countrymen about the relations of science to national life in India. Through its editorials and articles, he has been advocating that large-scale industrialization is the only solution of India's problems of poverty, unemployment and defence, and has directed the attention of the public to the