News and Views

A New Type of Nuclear Reaction

ON p. 251 of this issue of NATURE, an account is given of recent investigations by Prof. O. Hahn, Prof. L. Meitner and F. Strassmann on the bombardment of uranium by neutrons. Prof. Meitner and Dr. O. R. Frisch have discussed the development and implications of these results in a letter which also appears in this issue (p. 239). Experimental confirmation of these conclusions, it is claimed, is announced in the following cable, dated February 3, received from R. D. Fowler and R. W. Dodson, of the Chemical Laboratory, Johns Hopkins University. "We have bombarded uranium nitrate in a three millimetre ionization chamber with deuterium neutrons and found that particles causing a very intense ionization, at least five times that from natural uranium alpha particles, are produced. Fast neutrons from one milliampere two hundred and fifty kilovolt deuterons produced thirty-five particles per minute. Placing paraffin around ionization chamber increases this to seventy counts per minute. We believe this to be confirmation of work of Hahn and Strassmann (*Naturwissenschaften*, Jan. 6; Frisch and Meitner NATURE [Feb. 11, p. 239—Editor]) in which activity ascribed to barium was found after neutron bombardment, and that these particles are barium ions of about one hundred million volts energy.

"We have also bombarded thorium oxide in similar ionization chamber, with deuterium neutrons. Fast neutrons in same intensity as above produce thirty intensely ionizing particles per minute. Paraffin does not increase the effect. We believe thorium is also disintegrated by fast neutrons into fragments of about one half thorium mass, having energies of about one hundred million volts."

Dr. W. D. Coolidge

THE Faraday Medal of the Institution of Electrical Engineers given annually "either for notable scientific or industrial achievement in Electrical Engineering or for conspicuous service rendered to the advancement of electrical science", has been awarded to Dr. W. D. Coolidge, director of the research laboratories of the General Electric Co., Schenectady. Dr. Coolidge was born in 1873, and educated at the Massachusetts Institute of Technology and at the University of Leipzig, studying especially physical chemistry. After holding certain academic posts, he joined the staff of the General Electric Co. in 1905, was promoted to be associate director in 1928 and in 1932 was appointed director of research. The name of Coolidge is associated with advances in many fields, but perhaps all his later work may be traced back to his important researches into the production of ductile tungsten, which revolutionized the design of electric lamps and had immediate applications in thermionic devices of several types. In the Coolidge X-ray tube, which was developed just before the Great War, the tube was evacuated as thoroughly as possible and the electrons necessary to produce X-rays were emitted by tungsten filaments heated to a suitable temperature. In this tube, for the first time, the X-ray worker was able by simple means to control separately the voltage and current applied to his tube, while the steadiness of running and constancy of X-ray output were much greater than had been possible with the earlier ionic type of tube. Later, Coolidge developed tubes capable of operating at tensions up to a million volts in which the electrons were accelerated in stages. Somewhat similar tubes were made of such a design that the electron beam, instead of being intercepted by a target and producing X-rays, passed through a thin window and gave rise to remarkable fluorescent, chemical and biological effects, the possibilities of which have not yet been completely explored.

Josiah Willard Gibbs (1839-1903)

ON February 11 the centenary occurs of the birth of the distinguished American physicist, Josiah Willard Gibbs. Born at New Haven, he was the son of Josiah Gibbs (1790–1861), professor of sacred literature in Yale Divinity School. He entered Yale College in 1854 and graduated four years later; he continued his studies there until appointed a tutor in 1863. The years 1866–68 he spent in Paris, Berlin and Heidelberg. In 1871, he was appointed to the chair of mathematical physics in Yale College, and this appointment he held until his death, which occurred at New Haven on April 28, 1903. Gibbs' first contributions to mathematical physics were two papers on thermodynamical problems published in 1873. These papers were followed by his memoirs "On the Equilibrium of Heterogeneous Substances" published in two parts in 1876 and 1878. This was translated into German by Ostwald and into French by H. le Chatelier. He also investigated certain problems in connexion with the electromagnetic theory of light and other subjects. He was a foreign member of the Royal Society, and in 1901 received the Copley Medal. He was also a corresponding member of the Paris Academy of Sciences. At the anniversary meeting of the Royal Society when the award was announced, Sir William Huggins, the president, said that Gibbs "was the first to apply the sacred law of thermodynamics to the discussion of the relation between chemical, electrical and thermal energy and the capacity for external work. To chemistry his most important result is the so-called phase rule, the law which governs the general case of complete heterogeneous equilibrium and which is applicable to chemical change generally".

Refugee Settlement in British Guiana

THE United States has offered to send an expert Commission to investigate the possibilities of refugee settlement in British Guiana, and the offer has been