Obituary

SIR ERNEST MOIR, BT.

WE regret to record the death, which occurred on June 14, at the age of seventy-one years, of Sir Ernest William Moir. Born on June 9, 1862, Moir in the early part of his career came into close contact with Fowler, Baker, Arrol, Wolfe-Barry and other eminent civil engineers and during his long and distinguished career as a partner in the firm of Messrs. S. Pearson and Son, Limited, worthily upheld the high traditions of those who, as contractors, are responsible for carrying out works of the greatest magnitude. Both in his presidential address on "Engineering Difficulties" to the Junior Institution of Engineers in December, 1929, and his address entitled "The Interdependence of Science and Engineering, with some Examples", given as president of Section G (Engineering) at the Bristol meeting of the British Association in 1930, he made many interesting references to some of the important undertakings with which he had been associated; and as "the first contracting civil engineer who has been honoured by the British Association", at Bristol he appropriately dealt at considerable length with the economics of engineering construction. Another section of his address was devoted to the bacteriological and entomological sciences and their influence on civil engineering.

Educated first at University College School, and then at University College, London, where he studied under Kennedy and Vernon Harcourt, Moir began his practical training in the yards and shops of Messrs. R. Napier and Sons, Glasgow, of which Dr. A. C. Kirk was the manager. His first important task was the building and launching of the large caissons for the foundations of the Forth Bridge. Joining the staff of Messrs. Tancred, Arrol and Co., he was employed on the construction of the south cantilevers of the bridge and then through Sir Benjamin Baker was sent in 1889 to New York to assist in the completion of the Hudson River (North) Tunnel which had been started in 1874, only to be abandoned in 1888. It was in connexion with the work on this tunnel that he introduced the use of recompression chambers for men working in compressed air. The use of this medical air lock reduced the death-rate among the staff, which in 1890 had been 25 per cent per annum, to 1½ per cent.

By this time, Moir had become a member of the firm of Messrs. S. Pearson and Son, of which the late Lord Cowdray (1856–1927) was long the head, and as such he was responsible for the construction of the Blackwall Tunnel beneath the Thames, a difficult piece of work successfully completed in 1897. Afterwards, Moir was connected with the construction of the four railway tunnels under the East River from New York to Long Island and with harbour work at Seaham, Dover and elsewhere. His latest important undertaking was the construction of the great breakwater at Valparaiso, founded in 187 ft. of water. The base of this breakwater consists of a huge bank of deposited sand, while the upper part of the structure is composed of 60-ton concrete blocks interlocked with each other. An account of this work was given to the Institution of Civil Engineers in December, 1931, by Mr. W. F. Stanton.

Appointed a member of the Admiralty Engineering Committee in 1912, from 1916 until 1919 Moir held important positions under the Ministry of Munitions and in 1924–25 was chairman of the Government Committee on New Methods of House Building. He was made a baronet in 1916 and is now succeeded in the title by his younger son, Capt. Arrol Moir.

News and Views

Prof. Manne Siegbahn

AT a meeting of the Physical Society held on June 16 the tenth Duddell medal was presented to Prof. Wolfgang Gaede (see NATURE of Feb. 11, p. 195). The presentation was followed by the delivery of the eighteenth Guthrie lecture by Prof. Manne Siegbahn, professor of general physics in the University of Uppsala, on "Studies in the Extreme Ultra-Violet and the Very Soft X-Ray Region". It is largely due to Prof. Siegbahn's technical and experimental skill, backed by a wide knowledge of physical science, that our present acquaintance with atomic structure has made such remarkable progress. In 1912, von Laue first gave experimental proof that the X-rays resembled light in all respects except that the lengths of their ether waves were many thousands of times shorter. His method was based upon the supposition that the ordered array of the atoms in a crystal would act upon X-rays just as, in familiar ways, a grosser array of particles or lines or obstructions of any kind act upon the longer waves of light, so causing such phenomena as the halo round the moon, or the colours of mother of pearl, or the iridescence of wings and wing cases of certain insects. The successful experiment at once opened the way to two separate lines of research, both of which have been rich in results. The first has led to our rapidly growing knowledge of the crystalline state of matter, including the bodies which are crystals *par excellence*. The other was first followed by Moseley and Darwin, who employed the new methods in the investigation of the X-rays themselves.

IT was then that Siegbahn, following the same line of research, began his investigations. He effected improvements in the design and construction of apparatus for measuring the wave-lengths of X-rays