

ago since his special knowledge of the use of electricity of mines was recognized by his appointment to the chairmanship of the committee set up by the Secretary of Mines to consider what amendments are required to the general regulations governing the use of electricity in mines under the Coal Mines Act, 1911.

Cramp took an active part in the activities of the British Broadcasting Corporation. He was largely responsible for founding the Engineering Club in Manchester in 1913 and the 'Children's Concert Society' in Manchester in 1914. His interests were very wide and he had been looking forward to many plans for the future when the end came. He was a widower and leaves two daughters, to whom the sympathy of his many friends will be extended.

#### Prof. F. J. Cheshire, C.B.E.

THE death of Prof. Frederic John Cheshire, on March 24, at seventy-eight years of age, removes one who had a very considerable influence on the development of the optical instrument industry in Great Britain, more especially during the War of 1914-18 and in the following years. His main interests lay in the fields of experimental science, and his true vocation was to the life of a teacher.

Cheshire was born on June 8, 1860, being the son of the late Mr. George Cheshire of Leeds. He was educated at Birkbeck College, and at the Royal School of Mines. After some early training in engineering at the works of Messrs. Greenwood and Batley, Leeds, he entered the Customs and Excise Service in 1880, and thence went to the Government Laboratory as a chemist. In 1885 he secured an appointment by open competition on the examining staff of the newly instituted Patent Office, where he served until 1915, when he was transferred to the Ministry of Munitions and became deputy director-general of the Optical Department. On the formation of the Optical Engineering Department at the Imperial College in 1917, he accepted the post of director, and held this position until his retirement in 1925. He was awarded the C.B.E. in 1918. Even this busy career had not exhausted his abundant energies, and he afterwards acted as consultant to various commercial firms.

In the course of his early teaching work, Cheshire became well known for the interesting experiments with which his lectures were illustrated. He had a great desire to give practical assistance to students from industrial firms, and on one occasion had been invited to give a course of lectures on sound under the auspices of the London County Council for the benefit of workers in piano factories. At the beginning of the course he was asked, "What do you know about making pianos, Mr. Cheshire?" "Nothing at all," he replied, "but I do know some things which every maker of pianos should know."

With this outlook, it is natural that Cheshire's main publications were concerned with the improvement of apparatus for teaching and lecture demonstration. Early papers described optical projection apparatus of an improved description including a

polariscope. He also took much interest in the design of microscopes, especially petrological types, and apertometers. His papers appeared generally in the *Transactions of the Optical Society* and the *Journal of the Royal Microscopical Society* between 1907 and 1923. In 1917, it was difficult to purchase teaching apparatus, and he designed various ingenious optical benches and similar apparatus which could be constructed in the College workshop, in addition to sundry pieces of apparatus of an original character, including 'focometers' and 'squaring-on eyepieces' for the equipment of the laboratories.

Cheshire insisted that technical optics was essentially a branch of engineering, and changed the name of the section to the "Optical Engineering Department". He considered that the mechanical design of instruments needed attention, and the provision of instructional courses, equally with purely optical design. His experience at the Patent Office and contacts with the staff of Messrs. Carl Zeiss had, however, shown him the importance of thorough-going computational work in optical design, and the appointments made to his teaching staff reflected these ideas.

Cheshire was a man of charm, and had a natural capacity for leadership. From 1916 until 1920 he was president of the Optical Society, and in 1922-24 president of the Royal Microscopical Society. He was a founder fellow of the Institute of Physics. He was a sportsman of parts, and designed a well-known golf-club. In 1886 he married Mary, daughter of the late Mr. George Richardson of Huddersfield, and had a son and a daughter.

PROF. FRANTIŠEK NACHTIKAL, a distinguished Czech physicist, died in Prague on April 12 at the age of sixty-five years. He was the author of several monographs on electrotechnics and applied physics. He served on the Czechoslovak patents council and was an authority on wireless transmission and technology.

WE regret to announce the following deaths:

H. Coote-Lake, treasurer of the Royal Anthropological Institute, on April 22, aged sixty years.

Dr. Marguerite Kettle, assistant editor of the *Lancet*, widow of Prof. E. H. Kettle, F.R.S., on May 4, aged fifty-one years.

Mr. Henry Marsh, C.I.E., known for his engineering work, especially in connexion with irrigation in India and South America, on April 25, aged eighty-eight years.

Engineer Vice-Admiral Sir Henry Oram, K.C.B., F.R.S., formerly engineer-in-chief of the Fleet, past president of the Junior Institution of Engineers and of the Institute of Metals, on May 5, aged eighty years.

Prof. C. S. Plumb, emeritus professor of animal husbandry in the Ohio State University, on March 4, aged eighty-eight years.

Mr. Daya Ram Sahnî, C.I.E., formerly director-general of the Archæological Survey of India, aged sixty years.