

and Agents for the Bombay Port Trust and the Aden Port Trust, and was also a partner in the firm of Messrs. Fox and Mayo, consulting engineers.

Mr. Du Cane was elected an Associate Member of The Institution on the 4th December, 1906, and was transferred to the class of Member on the 14th December, 1920. He served on the Council of The Institution from November, 1938, until his death. He was a Member of the Institution of Mechanical Engineers, a Member of the Engineering Institute of Canada, a Member of the Smeatonian Society of Engineers, and a Member of the Association of Consulting Engineers, being Chairman of the latter in 1939.

In 1902 he married Margaret Sarah, daughter of the late W. John George Child, of Stallington Hall, Staffordshire, and had one daughter.

PROFESSOR BERNARD PARKER HAIGH, M.B.E., D.Sc., was born in Edinburgh on the 8th July, 1884, and died at Greenwich on the 18th January, 1940. He was educated at Allen Glen's School, Glasgow, and at the University of Glasgow, where he graduated with distinctions in electrical and mechanical engineering and in experimental physics. He then served a 5-years' apprenticeship with Messrs. Bruce Peebles & Company, electrical engineers, of Edinburgh, during the last 2 years of which he was personal assistant to Mr. J. L. la Cour, the Company's chief engineer in the design, installation, and testing of equipment for sub-stations. In 1909 he became leading draughtsman with Messrs. Brown Brothers, Ltd., and was engaged on the design of steam and hydraulic steering gear, and on the development of electrical steering gear, in connexion with which he took out several patents. He later served as assistant to the late Professor Archibald Barr, M. Inst. C.E., at Glasgow University until 1913, when he was appointed lecturer and assistant professor at the Royal Naval College, Greenwich, under Sir James B. Henderson, upon whose retirement in 1921 Haigh was appointed Professor of applied mechanics. During the great war he worked both at the College and at Portsmouth for the Admiralty, and in collaboration with Commander Sir Charles Dennistoun Burney, C.M.G., the designer, made possible the application of the paravane. After the war he made extensive investigations into the fatigue of metals, and designed the Haigh electromagnetic fatigue-testing-machine, which found wide adoption in engineering laboratories. His activities also covered the design of structures by reference to the yield-point of materials, vibration, hydraulics, wire ropes, and the development of tensile and other testing-machines. He was a member of the Air Research Council, and also served on a number of Committees of the Admiralty and the Royal Air Force, and on various panels of the British Standards Institution. At the outbreak of war in 1939 he was appointed Scientific Adviser to the Engineering Research

Laboratory of the Admiralty ; and at his funeral service in the Chapel College, the Archdeacon of the Fleet mentioned that Haigh had suggested the method which was adopted for overcoming the magnetic mine. In conformity with Admiralty regulations, he also engaged in private practice as a consultant, and participated in the design of important hydraulic power developments abroad, particularly in regard to penstocks working under abnormal heads, and in the practical development of electric welding. He was the Author of numerous Papers on engineering subjects, on fatigue of metals, and on welding practice.

Professor Haigh was elected as Associate Member of The Institution on the 7th March, 1911, and was transferred to the class of Member on the 4th April, 1922.

In 1915 he married Mildred Cole, and had one son.

HENRY SELBY HELE-SHAW, F.R.S., was born at Billericay, Essex, on the 29th July, 1854, and died at Ross-on-Wye on the 30th January, 1941. He was educated privately, and commenced his professional training as an apprentice to Messrs. Roach and Leaker at the Mardyke Engineering Works, Bristol. After a short engagement with Messrs. G. K. Stothert & Company, he was awarded a senior Whitworth scholarship in 1876 and commenced studies at University College, Bristol. In 1877 he gained a Second Whitworth prize of £60, and in 1878 and 1879 First Whitworth prizes of £100 each ; as a result of these successes he was awarded a Final Whitworth prize of £200 as the student who had obtained the highest examination marks while holding a 3-years' scholarship. During that period also he was awarded a Miller scholarship by The Institution for a Student's Paper entitled "Small Motive Power."¹ In 1881 he was appointed the first Professor of Engineering at University College, Bristol, and in 1885 was chosen for the Harrison Chair of Engineering at Liverpool University, and the foundation of the Walker engineering laboratories owed much to his efforts. He also became Chairman of the management committee of the Liverpool School of Technology. It was at Liverpool that he made his famous experiments on the streamline flow of liquids, which gained for him the Fellowship of the Royal Society, and that he designed his well-known multiple-disk clutch. In 1903, he went to South Africa as the first Professor of Civil, Mechanical, and Electrical Engineering in the Transvaal Technical Institute, of which he became Principal in 1904 ; in 1905 he was appointed Organizer of Technical Education in the Transvaal.

On his return from South Africa in 1906 he set up a consulting practice in Westminster, whilst also developing various inventions, including his

¹ Minutes of Proceedings Inst. C.E., vol. lxii (Session 1879-80, Part IV), p. 290.