

hydraulic variable-speed gear, the Victaulic pipe-joint, the streamline filter, integrators, and pumps; his more recent important work was on variable-pitch airscrews. He was the Author of about one hundred Papers on mathematical, physical, and engineering subjects, contributed to the numerous scientific bodies of which he was a member: to The Institution he contributed Papers entitled "The Measurement of Velocity for Engineering Purposes ¹," and "Mechanical Integrators ²," for the latter of which he was awarded a Watt gold medal and a Telford premium. Awards from other bodies included the gold medal of the Institution of Naval Architects and the silver medal of the Royal Society of Arts.

He was elected an Associate Member of The Institution on the 7th December, 1880, and was transferred to the class of Member on the 5th April, 1887. He served as President of the Liverpool Engineering Society, of the Institutions of Automobile and Mechanical Engineers, of the Association of Engineers-in-Charge, and of the Society of Model and Experimental Engineers; whilst during the great war he was Chairman of the Aircraft Sub-Committee.

In 1890 he married Ella Marion, daughter of the late Mr. S. G. Rathbone, J.P., and had one son, who was killed on the Somme in 1916 while serving with the Royal Flying Corps, and one daughter.

¹ Minutes of Proceedings Inst. C.E., vol. lxix (Session 1881-82, Part III), p. 290.

² *Ibid.*, vol. lxxxii (Session 1884-85, Part IV), p. 75.

CHARLES PRATT SPARKS, C.B.E., was born at Kensington on the 13th May, 1866, and died at Worthing, Sussex, on the 7th December, 1940. He was educated at Repton School, and received his early technical training at the Hammond Electrical Engineering College (now Faraday House). In 1883 he became an engineering pupil of the Ferranti-Hammond Company, for 2 years, and in 1885 was appointed assistant to the late Dr. S. Z. de Ferranti, M. Inst. C.E. In 1887 he entered into partnership with Ferranti and Mr. Francis Ince, and the firm, known as S. Z. de Ferranti & Company, carried on business in London and Paris. Subsequently he was appointed a director of the firm of S. Z. de Ferranti, Ltd. From 1886 to 1891 he had charge, under Ferranti, of the Grosvenor Gallery lighting station and distribution mains, and also supervised the erection of additional plant in the station. The business was transferred to the London Electric Supply Corporation, and during the erection of the Deptford Power Station he was Ferranti's deputy and collaborator and was actively involved in all branches of this development, including the laying of the first 10,000-volt transmission main and the equipment of the main substation. In 1891 he became Works Manager for the Ferranti Company, and executed contracts for the manufacture and

erection of engines, alternators, and electrical equipment for many power-stations. In 1899 he severed his connexion with Ferranti and became Chief Engineer of the County of London Electric Supply Company. In the same year he set up a consulting practice, in which he was later joined by his brother, Colonel H. C. Sparks, and his son, Captain A. C. Sparks, and carried out much work in connexion with the electricity-supply industry and the erection of industrial power plants for collieries, notably the Powell Duffryn Company, metalliferous mines, and mills in various parts of the world. He was associated with the St. James' and Pall Mall Electric Lighting Co. for many years, and later joined the Boards of the London Associated Electricity Undertakings, and the London Power Company. During the War of 1914-18 he was engaged in important work for the Government. In 1920 he was appointed a Commander of the Order of the British Empire.

Mr. Sparks was elected an Associate Member of The Institution on the 6th March, 1894, and was transferred to the class of Member on the 30th January, 1900. He was President of the Institution of Electrical Engineers in 1915 and 1916, and also served as President of the British Electrical and Allied Industries Research Council and as Vice-President of the British Electrical and Allied Manufacturers Association, whilst in 1937 he was President of the Smeatonian Society.

In 1890 he married, at Rottingdean, Mabel Florence Thacker, and leaves four sons and one daughter.

EDWARD BROUGH TAYLOR was born in Pimlico on the 4th August, 1856, and died at East Molesey, Surrey, on the 7th February, 1941. He was educated at King's College, London, and received his early engineering training as a pupil with Messrs. James Simpson & Company, of Grosvenor Road, Pimlico, and in the office of his father, Mr. John Taylor, M. Inst. C.E., by whom he was placed in charge of extensive works for the Bristol Waterworks Company. In 1882 he was taken into partnership in the firm of Messrs. John Taylor and Sons, and on his father's death, in 1891, he became senior partner, a position which he retained for 50 years. In addition to his advisory activities for the Bristol Waterworks Company, he designed and carried out extensive works for the Colne Valley, Chatham, Aldershot, and Herne Bay Water Companies, all of which obtained their supplies from the chalk, of which formation he had made a close study, becoming a recognized authority upon it. He also advised numerous other water undertakings in England and Wales, and was frequently retained to give evidence before parliamentary committees. He was one of the principal witnesses in the prolonged arbitration proceedings in connexion with the formation of the Metropolitan Water Board. For many years he advised the Shanghai Waterworks Company,