

Professor HENRY CHARLES FLEEMING JENKIN. By W. H. P.

Professor Henry Charles Fleeming Jenkin, only child of Captain Charles Jenkin, R.N., of Stowling Court, Kent, and his wife (Cora Jackson), a Scotchwoman and a novelist of some mark, was born in Kent on the 25th of March 1833. Fleeming Jenkin was at the age of seven taken to Scotland, when he went to Dr Burnett's school at Jedburgh. There he stayed for three years, and then for other three years attended the Edinburgh Academy. In 1847 he went to school in Paris, where he saw the Revolution of 1848, of which he was wont to give vivid and interesting descriptions; and after the June riots he left for Italy, where he attended the University of Genoa in the Arts Faculty, taking his degree as Master of Arts in 1850. It was at Genoa also, in a locomotive shop, that he began his distinguished career as an engineer, under Philip Taylor of Marseilles. In 1851 he returned to England, and was apprenticed to Fairbairn's in Manchester for three years. His first practical work was done under Mr Hemans, on a survey for the Lukmanier Railway, in Switzerland; then he went to Messrs Penn at Greenwich; and then to Messrs Liddell & Gordon, in railway work. Thence he went to Messrs Newall (Birkenhead), while they were engaged on making the first Atlantic cable in 1857. He was very soon entrusted with the chief management of the Messrs Newall's engineering and electrical business. His work included superintendence of machine construction in the factory, the designing of picking-up and paying-out machinery, the fitting up of steamships for submarine cables and the electrical testing. This work he continued to do during the making of part of the first Atlantic cable, of the Red Sea cable, of a cable from Singapore to Batavia, and of several Mediterranean cables. In 1859, the year of his marriage with Ann, daughter of the late Mr Alfred Austin, C.B., he was elected Associate I.C.E., and began to write on scientific subjects, encouraged thereto by Professor (now Sir William) Thomson, whom he had first known through Mr Gordon, of Liddell & Gordon. In 1860 he took out a patent jointly with Sir William Thomson for signalling apparatus through long submarine cables, and in 1861 he entered into a partnership, which lasted

seven years, with Mr H. C. Forde for general and telegraphic engineering. In the same year he acted as second in command under Sir William Thomson at the establishment of the British Association Committee on electrical standards. Of this committee he was appointed secretary, and he wrote their reports for several years. He also carried out most of the committee's important experiments in conjunction with Clerk Maxwell and others. He was juror for Physical Apparatus at the 1862 Exhibition, and was named Reporter for Electrical Apparatus. In 1865 the late C. F. Varley joined Sir William Thomson and Fleeming Jenkin in an agreement to work at the development of the signalling apparatus through long submarine cables already referred to. The apparatus devised by the three inventors was used by all the great companies, and Jenkin displayed a remarkable business faculty in the commercial management of the patent. In this same year Jenkin was elected a Fellow of the Royal Society, and in 1866 he was appointed Professor of Engineering at University College, London. In 1868 he dissolved partnership with Mr Forde, and resigned his post at University College, in order to accept the Chair of Engineering in Edinburgh University, which chair he filled until his death. After accepting this post he entered into a new partnership with Sir William Thomson, under the provisions of which Sir William and he acted as joint engineers to various submarine cable companies. Among the lines which were laid under their direction were those of the Western and Brazilian Telegraph Company, the Platino-Brazileien Telegraph Company, the West Indian and Panama Telegraph Company, and the Mackay-Bennett or Commercial Cable Company. In 1871 Fleeming Jenkin was President of the Mechanical Section of the British Association, which met that year at Edinburgh; and in 1873 he went to Brazil in the interests of the Western and Brazilian Telegraph Company. In 1877, in a lecture at Edinburgh given for the Edinburgh Philosophical Institution, he took occasion to propose the establishment of a Sanitary Protection Association. In consequence the Edinburgh Sanitary Protection Association was started, and succeeded so well that its example has since been followed in many parts both of Great Britain and of the United States. To most of these associations in Great Britain Fleeming Jenkin was consulting engineer. At the Paris Exhibi-

tion of 1878 he was juror in Engineering, and in 1884 was juror in Electricity in the Health Exhibition in London. From 1879 onwards to the time of his death he was Vice-President of the R.S.E., and from this Society he had the Keith Prize for the period 1877-79. This, the Society's highest distinction, was awarded for his paper on "The Application of Graphic Methods to the Determination of the Efficiency of Machinery," a continuation, full, however, of originality, of the subject treated in Reuleaux's *Kinematics of Mechanism*. In 1882 he took out his first patent for "Telpherage," a system of electrical carrying of burdens, or at need of passengers. The Telpher line is a conductor, which may be either flexible or rigid, of electricity supporting an electric motor and train of steps or of travelling chairs, which hang below it, and itself supported by strong posts. The line is in electrically distinct sections, and the train, itself a continuous conductor, and larger than any section, bridges over the interval between successive sections as it passes. The power is derived from a fixed engine and dynamos placed at convenient distance from the line. The "Telpherage Company," whose first working line was opened at Glynde, four months after Jenkin's death, which took place on the 12th of June 1885, was due to Jenkin's joining forces with Messrs Ayrton & Perry, who were, like him, turning their attention to the application of electricity to locomotion. His death was due to the unfortunate result of a surgical operation, slight in itself.

Apart from his own most special work, and from the sanitary engineering work which has been referred to, and which has had wide and good influence, Professor Jenkin took a deep and keen interest in Technical Education (he was for many years a Director of the Watt Institution) and in science generally. Witness among other instances his reviews of the Origin of Species (*North British Review*, June 1867) and of the Atomic Theory, an article supported by Munro's *Lucretius* (*North British Review*, 1868). Both Darwin and Munro, in subsequent editions of their works, acknowledged the value of Professor Jenkin's criticism. In the fine arts, and notably in dramatic art in its widest sense, his interest was equally keen and wide; but by the world at large, outside his own belongings and friends, he will be remembered best for his special and admirable work in electricity and engineering.