

James Robert Erskine-Murray, D.Sc., M.I.E.E.

JAMES ROBERT ERSKINE-MURRAY, the eldest son of Sheriff Erskine-Murray of Glasgow, studied under Lord Kelvin and worked on research in his laboratory after taking the B.Sc. degree, the further degree of D.Sc. being awarded in 1897. He came to Edinburgh in 1896 as lecturer in physics at the Heriot-Watt College, and in the following year was elected a Fellow of this Society. In 1898 he joined the Marconi Company, and was engaged in experimental work with Signor Marconi at Chelmsford on the earlier forms of practical wireless telegraphy. He returned to Glasgow for a time to practise as a consulting engineer, but soon went to London to become a partner in the submarine cable firm of consulting engineers, Messrs Clark, Ford, & Taylor. Dr Erskine-Murray undertook the advisory work on wireless telegraphy, and remained with the firm until after the outbreak of war. During the War he was engaged on the applications of wireless telegraphy to trench warfare and other problems of signalling, including the detection of secret signalling between spies and the enemy trenches. He also gave assistance to the Admiralty, and on the conclusion of the War he worked with the Air Force. In 1922 he returned to the Admiralty as head of the standard section for wireless telegraphy and telephony in the Signal Schools at Portsmouth until his death.

In 1899 he married Alleine, the daughter of Major-general Gildea, who survives him. His son holds a commission in the army.

Dr Erskine-Murray was an ingenious and bold inventor of apparatus and a skilful experimentalist, with a clear and sound conception of physical principles, the influence of which was shown in the direct and effective mode of his experimental work and the simplicity of idea in his inventions. He was among the first to propound and use as a working hypothesis the Heaviside layer theory of long-distance transmission of Hertzian waves. His lectures were noteworthy not only as models of clear exposition, but also by reason of the novel experiments which he devised, employing very simple means to demonstrate complex problems. Among these wave motion and the structure of materials under stress were favourite subjects. He delivered a course of lectures on Wave Motion under the Keith Bequest before the Royal Scottish Society of Arts in Edinburgh, and was in request for lectures on Wireless Telegraphy.

His work with Signor Marconi and during the War was confidential, but from 1919 he was a frequent contributor both of original papers and of scarcely less important discussions on other papers on wireless problems at the Institution of Electrical Engineers, for he was able to draw from a store of experience extending over many years, and assimilated with a clear and unifying grasp of the whole group of phenomena and underlying principles.

Beginning with Marconi in the early days of the coherer and spark telegraphy, he was one of the band who helped to make wireless a workable and reliable method of transmission.

A large circle of friends feel the loss of one who possessed a singularly sunny and lovable disposition and a cheerfulness which even periods of anxiety could not destroy.

Among his publications are :—

Kelvin and Erskine-Murray, "On the Temperature Variation of the Thermal Conductivity of Rocks," *Proc. Roy. Soc.*, 1895.

"Forces between Currents," *Electrician*, 1891.

"Some Experiments on the Viscosity of Air," *Proc. Phil. Soc. Glasgow*, 1891.

"Some Experiments on the Electro-chemical Equivalent of Zinc," *Electrician*, 1893.

"On the Effect of the Röntgen X-rays on the Contact Electricity of Metals," *Proc. Roy. Soc.*, 1896.

"On a New Form of Constant Volume Air Thermometer," *Proc. Roy. Soc. Edin.*, 1897.

"On Volta Electricity of Metals," *Phil. Mag.*, 1898.

"On Contact Electricity of Metals," *Proc. Roy. Soc.*, 1898.

"A Differentiating Machine," *Proc. Roy. Soc. Edin.*, 1904.

"Wireless Communications over Sea," *Inst. Eng. and Shipb. in Scot.*, 1912.

Cantor Lectures on "Vibrations, Waves, and Resonance," *Roy. Soc. Arts*, 1916.

"Wireless in the Royal Air Force," *Journ. Inst. Elect. Eng.*, 1921.

"The Determination of the Decrement of a Distant Station by a Coil Aerial," *Journ. Inst. Elect. Eng.*, 1922.

"The Directional Transmission of Electromagnetic Waves for Navigational Purposes," *Journ. Inst. Elect. Eng.*, 1922.

"On the Calculation of the Inductances and Capacities for a Multi-range or other Series of Tuned Transmitting or Receiving Circuits," *Inst. Radio. Eng. New York*, 1924.

A Handbook of Wireless Telegraphy, 1911.

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