Hopkinson, John | Encyclopedia.com

(*b*. Manchester, England, 27 July 1849; *d*. Evalona, Switzerland, 27 August 1898)

electricity, Physics.

The talent of Hopkinson, a bright student, were drawn to the engineering problems of English industry during the surge of expansion in the last quarter of the nineteenth century. The oldest of thirteen children, he began his senior studies at Owens College, Manchester, in 1865 and was awarded a D.Sc. by London University in 1870. In 1867 he was granted a scholarship in mathematics by Trinity College, Cambridge, from which he graduated in 1871 with honors. In the following year Hopkinson relinquished a fellowship there to engage in practical engineering work in optics at Birmingham. After six years he went to London to teach electrical engineering at King's College of London University and to direct the Siemens laboratory.

Hopkinson's investigations in the application of electricity and magnetism to motors and dynamos resulted in more than sixty published books and papers. As alternating current phenomena became better understood in the last decade of the century, his mathematical skills were applied to transformer and alternating current systems design, to power transmission, to hysteresis and the magnetism of steel alloys, and to compact magnetic circuits such as those in the Edison-Hopkinson dynamo which doubled the output for equal weight. These studies resulted in some forty patents in multiple-wire circuitry and rotating machines of higher efficiency.

Hopkinson's application of Maxwell's electromagnetic theories to the analysis of residual charge and displacement in electrostatic capacity led to his election as a fellow of the Royal Society in 1877. He favored coupling traction motors in series parallel, thereby providing electric railways with superior motive power. He continued as consultant to the Chance technical glassworks in Birmingham and developed improved beam designs for lightship illumination and lighthouse lenses; he also served on several commissions establishing electric light standards.

In addition to having been elected fellow of the Royal Society at twenty-nine, he was twice president of the Institution of Electrical Engineers. At the age of forty-nine Hopkinson, with three of his children, was killed in a mountain climbing accident in the Alps.

BIBLIOGRAPHY

I. Original Works. Hopkinson published one book, *Original Papers on Dynamo Machinery and Allied Subjects* (New York-London, 1893). The remainder of his work consisted of papers and pamphlets published in *Proceedings of the Royal Society* and in engineering journals; these were compiled and edited in two volumes by his son, Bertram Hopkinson, who appended a fifty-eight-page biography and two portraits (Cambridge, 1901).

II. Secondary Literature. In addition to the work by his son (see above), see Evelyn Oldenbourgh Hopkinson, *The Story of a Mid-Victorian Girl* (Cambridge, 1928). James Greig of King's College also published a critical biography in *Engineering* (13 Jan. 1950) on the occasion of the centenary of Hopkinson's birth.

Bern Dibner