

CHARLES EDWARD GROVE was born on the 10th March, 1863, in Limehouse. His father died in 1869, and from an early age the subject of this notice endeavoured in various ways to supplement the small income of his mother, to whom he was always most devoted. In order to prepare himself for the examination for an appointment in the Post Office, he attended classes at the City of London College in 1879 and at the Birkbeck Institute in the following year. He was successful in passing the examination in question, and then applied himself to evening study for some years with the object of securing transfer to the technical staff of the Post Office. Meanwhile his small salary was insufficient to afford means for scientific study, and he was forced to supplement it by other work in the very little spare time at his disposal. As the result of this evening study he gained in 1882 the Thompson prize and £21 12s. in money, besides numerous book prizes; in 1883, the Lubbock Scholarship, the City of London College Associateship, and several prizes at the Birkbeck Institute; and in 1884, the Saddlers' Guild Applied Mechanics Prize. From 1885 to 1892 he studied at Finsbury Technical College, in the Electrical Engineering Department, obtaining the first place in the examination. In December, 1887, he was transferred to the technical staff of the Post Office, under Mr. (now Sir William) Preece. He was employed in the Engineer-in-Chief's Office for four years and a half, during which time he made a special study of pneumatic telegraphs, wrote the official "Technical Instructions" on the system used by the staff, and prepared all the drawings in connection therewith, and designed and superintended the erection of the pneumatic machinery installed at Grimsby and Bradford Post Offices. He was also employed in examining estimates for extension and renewals prepared by the district superintending engineers and in keeping records of all the electric lighting companies from their commencement.

In May, 1892, Mr. Grove was appointed Electrical Engineer to the Thames Ironworks and Shipbuilding Company, at Blackwall, and was also placed in charge of the Company's science classes.

His first duty was to lay out the Company's electric lighting and telephone systems. All the designing and early construction work for about 30 acres of land, including the preparation of the central station building, was carried out by him without a foreman and with only one draughtsman. He also had charge of the temporary lighting of H.M.S.S. "Grafton" and "Theseus," and latterly the complete installation of the "Albion," and of the

Japanese battleships "Fuji" and "Shikishima." He designed and carried out a large electro-plating plant, a motor and accessories for an electric travelling crane, and a special form of motor and conductors for a new electric traction system, and only so late as last November he was engaged on the tender for the Metropolitan and District Railways electric system.

Mr. Grove was a Member of the Institution of Electrical Engineers, by which he was awarded last year the first Premium of £25 for a Paper on "The Electrical Equipment of Ships of War."<sup>1</sup> He died at his residence, Rosedale, Selsdon Road, Wanstead, on the 11th January, 1901.

Mr. Grove was elected an Associate Member of the Institution on the 5th April, 1898.

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CHARLES HALL, born on the 15th November, 1842, was educated at Southampton Diocesan College. In July, 1857, he entered the service of the Peninsular and Oriental Steam Navigation Company at Southampton, under Mr. Andrew Lamb, who was at that time the Company's Superintendent Engineer. In January, 1875, he was transferred to the London staff at the Company's offices in Leadenhall Street, under Mr. Manuel, the present Superintendent Engineer, and in 1886 he became Head of the Repairs Department, which post he held until his death on the 30th December, 1900.

Amongst important work with which Mr. Hall was intimately concerned may be mentioned the use of the electric search light for the passage of ships at night through the Suez Canal and the electric lighting of the Peninsular and Oriental Company's and the Union Company's fleets. He served as a member of the jury at the Crystal Palace Electrical Exhibition of 1884. A keen golfer, he was instrumental in forming, and was for some time secretary to, the Redhill and Reigate Golf Club. In amateur orchestral circles he was well known as a capable double-bass player.

Mr. Hall was elected an Associate of the Institution on the 24th May, 1870, and was subsequently placed in the class of Associate Members.

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<sup>1</sup> Journal of the Institution of Electrical Engineers, vol. xxix. p. 530.