

he spoke had a Swan lamp all to himself, but he admitted that he preferred a tallow candle. The main street of the town was illuminated by three arc lamps and the smaller streets by Swan lamps. The electric cables were simply laid in the gutter. He remembered kneeling on the pavement and putting a charm compass close to the cable and being very puzzled because he got no deflection. It was his first experiment with alternating current. In about a year afterwards Joseph Chamberlain's Electric Lighting Act was passed, and the newly born industry of electric supply was practically snuffed out for six years.

In 1886, taking with him samples of measuring instruments of a moving iron type which he had made with his own hands, Evershed applied for and obtained the position of manager of a little factory established by the firm of Goolden and Trotter in Westminster for the manufacture of Cardew hot-wire voltmeters, for which there was then a considerable demand in the Navy. Captain Philip Cardew had invented this instrument two years previously. It was the first of its kind and in many ways was most suitable for its purpose.

After several changes of name the firm became Evershed and Vignoles, Ltd., with Mr. Evershed and Mr. Vignoles as managing directors. In 1889 Mr. Evershed introduced his portable ohmmeter and hand generator. From this date the measurement of the insulation of house wiring ceased to be a laboratory operation. In 1903 he completed his invention of the moving-coil ohmmeter. He combined the high-voltage generator and ohmmeter in one box in such a way that there was no magnetic interference and the instrument called the 'megger' was in demand in practically every country in the world.

The firm built a large factory called 'Evershed and Vignoles' near Chiswick Park Station. In 1924 Evershed gave up his position as managing director but remained as chairman until he retired in 1938.

In 1931 Evershed was asked by the Council of the Institution of Electrical Engineers on the anniversary of the birthday of David Hughes to give a discourse on his life and work. He gave a most enlightening discourse, dwelling mainly on the two outstanding achievements of his life, namely, (1) the invention in his early years of the synchronomotype-printing telegraph and (2) in later life the discovery of the microphone. In reading this discourse you get a deep insight into the life and work of this great inventor. At the receiving end the message was printed on a paper ribbon by the action of an electromagnet in the circuit. Each time the contact arm at the sending end passed over a live stud, a current traversed the line and the electromagnet. The armature of the magnet forces the paper ribbon into momentary contact with the type-wheel and a letter is printed. Only one impulse was required for each letter.

Mr. Evershed's special knowledge of the magnetic properties of alloys of iron and of their use in instrument making greatly impressed scientific visitors when they came to meetings of the Institution and at Council dinners. He often spoke in discussions at

the Institution of Electrical Engineers, where his humorous touches always pleased his audiences. The first time the writer heard him speak was in 1891 when J. Swinburne (now Sir James) read a paper on transformer distribution and W. Crookes was in the chair.

In 1899, G. Marconi read his classical paper on wireless telegraphy to the Institution of Electrical Engineers, Prof. Perry being in the chair. In this paper he mentions how he demonstrated the feasibility of signalling between Ballycastle and Rathlin Island in northern Ireland, the distance between the two positions being $7\frac{1}{2}$ miles. Mr. Evershed, who spoke in the discussion, said that he had been working on telegraphy to lightships for many years. One of his suggestions which was submitted to a Royal Commission was tried and found to be a total failure. He therefore desired to be the first to congratulate Mr. Marconi very heartily on having succeeded. Evershed was always delighted and pleased with other people's discoveries.

In 1900 the writer remembers him reading a paper on a 'frictionless motor meter'. He forestalled criticism by pointing out that the adjective 'frictionless' was used in the comparative sense, just as we say 'smokeless' powder or a 'water-tight' compartment. The floating armature was magnetically suspended when working and its vertical axis was pivoted at the lower end.

In his early years Evershed investigated the phenomena exhibited by insulating materials when under electrical stress. His results are given in a paper read before the Institution of Electrical Engineers in 1913, and papers presented to the same Institution in 1930 and 1935 gave the results of his work on permanent magnets which yielded data that enabled scientific design to be substituted for rule-of-thumb methods.

Evershed was for several years a member of the Council and a vice-president of the Institution of Electrical Engineers. The writer knows also that he was invited on more than one occasion to be president. His portrait, painted by Mr. George Harcourt, R.A., was presented to him by his firm to commemorate his fifty years connexion with it. It is now in the keeping of the Institution of Electrical Engineers.

A. R.

WE regret to announce the following deaths:

Prof. G. F. Arps, professor of psychology in the Ohio State University, on September 16, aged sixty-five years.

Prof. Henry C. Cowles, emeritus professor of botany in the University of Chicago, on September 12, aged seventy years.

Sir Spencer Lister, director of the South African Institute for Medical Research, known for his pioneer work on pneumococcal vaccines, on September 6, aged sixty-three years.

Prof. R. S. Troup, C.M.G., C.I.E., F.R.S., professor of forestry in the University of Oxford, director of the Imperial Forestry Institute during 1924-35, on October 1, aged sixty-four years.