

street-works comprised the widening of Lower Thames Street, the improvement at the west end of Cheapside, the formation of Lloyd's Avenue, with subway and sewer, and the widening of Fleet Street, Fenchurch Street, and Gracechurch Street. He also erected the City shelter in Golden Lane, the Crematorium at Ilford Cemetery, and several underground conveniences in the City. Mr. Ross retired in June, 1905, in consequence of ill-health, and in October, after a long illness, he underwent a serious operation; this in itself was successful, but his strength being exhausted, he failed to recover, and died on the 29th October, 1905, aged 60.

He was a Member of the Surveyors' Institution and of the Incorporated Association of Municipal and County Engineers.

Mr. Ross was elected an Associate Member of this Institution on the 5th December, 1882, and was transferred to the class of Members on the 15th January, 1895.

CARL HEINRICH VON SIEMENS¹ died at Mentone on the 21st March, 1906, aged 77. Born in 1829 at Menzendorf in Mecklenburg, he was the sixth of eleven sons in a family which has given illustrious names to engineering science. The greater part of his career is indissolubly bound up with those of his three brothers, William (afterwards Sir William),² Werner³ and Friedrich, whilst with the two first-named he helped to carry on the various electrical undertakings with which the name of Siemens is identified. As an inventor his name is not so well known as those of his brothers, but as a capable business man and organizer, distinguished for untiring energy and perseverance, his career has left its mark on all the undertakings with which he was associated.

His father, Christian Ferdinand Siemens, died in 1839, and after residing for a time in Lübeck, the family removed to Berlin, where the subject of this notice completed his education. Later on he became the assistant, in the firm of Siemens and Halske, of his eldest brother, the late Dr. Werner von Siemens, whom he helped to lay the first underground telegraph-wires. In 1848, William, Carl and Friedrich followed their elder brother to the war, the last two entering the Schleswig-Holstein army as volunteers,

¹ This notice is based on that which appeared in *Engineering*, 30th March, 1906.

² Minutes of Proceedings Inst. C.E., vol. lxxvii, p. 352.

³ *Ibid*, vol. cxii, p. 339.

where they remained till the conclusion of the armistice. Carl then entered a chemical factory in Berlin, which he soon quitted to assist Werner in the reconstruction of the telegraph-lines. In 1851 he and Friedrich represented the Berlin firm at the London Universal Exhibition, and afterwards Carl was appointed manager of the Paris branch of the firm, but in 1852 he came over to London to take charge of the London office for his brother William, who was then engaged at Birmingham on his work in connection with the regenerative steam-engine. In the same year the Berlin firm was entrusted with important telegraph work by the Russian Government, and this resulted in the appointment of Carl to take complete charge of their interests in Russia, where mainly as a result of his energy and ability the operations of the firms rapidly attained considerable proportions. In 1855, the year in which he took charge of a large branch factory at St. Petersburg, Mr. Carl Siemens married the daughter of Mr. Kapherr, the firm's previous representative in that city. In 1864 Mr. Halske severed his connection with the London firm, which was reconstituted under the style of Siemens Brothers and was carried on by Dr. Werner Siemens, of Berlin, Mr. (afterwards Sir William) Siemens, of London, and Mr. Carl Siemens, of St. Petersburg, as partners. Five years later Mr. William Siemens, finding that his private work took up a great part of his time, asked his brother at St. Petersburg to undertake the management of the London business. During this period Carl had erected all the more important telegraph-lines in Russia under great difficulties, but the expiration of the Russian maintenance-contracts having somewhat curtailed his activity in that country, he was able to consent to his brother's wishes. About this time, moreover, he had the misfortune to lose his wife, who died in St. Petersburg. Coming to England in 1869, he managed the London business in conjunction with his brother William for 11 years, the Woolwich works being gradually enlarged and a gutta-percha factory established. Amongst other work he took an active part in the laying of submarine cables, taking charge in 1874 of the expedition of the firm's new cable-ship "Faraday" on her maiden voyage, for the purpose of laying the Direct Atlantic Cable, which was the first transatlantic cable made by the firm of Siemens Brothers. He was also the first to succeed in recovering from the depths of the Atlantic a broken submarine cable. In 1880 the firm of Siemens Brothers was converted into a limited liability company under its present title, Mr. Carl Siemens becoming one of the directors; but the dampness of the English climate affecting his health, he was obliged to return to Russia with his children. He settled down in St. Petersburg, where

his health improved, and again undertook the management of the Russian branch of the business, which under his able control soon recovered its former prominence. His two daughters married in Russia and his son assisted him in the business. This branch of the firm played a leading part in the development of the electric-lighting and power industry in Russia, and has increased rapidly in size, now giving employment to nearly a thousand hands. When Dr. Werner von Siemens died in 1892, Carl Siemens was called to Berlin to take the leadership of the firm of Siemens and Halske. In 1899 he was elected chairman of Siemens Brothers and Company, Limited, which position he retained until his death. In 1895 the Russian hereditary rank of nobility was conferred upon him. He was a Member of the Institution of Electrical Engineers from its foundation.

The relations of the four brothers throughout their lives were of the most intimate and affectionate kind. It is therefore fitting to close this memoir by quoting from Dr. Werner von Siemens's "Personal Recollections" the tribute which he paid to his brother's character: "I should call the next brother Charles the most normally constituted of us all. He was always to be depended upon, faithful and conscientious, a good pupil, an affectionate, attached brother. His clear eye and generally cultivated understanding made him an excellent man of business, and, with his large technical knowledge and an excellent tact, an admirable conductor of business undertakings. Charles was the true connecting link between us four brothers, who differed indeed radically from one another, but were bound together for lifelong common work by all-subduing fraternal love."

Carl Heinrich von Siemens was elected a Member of this Institution on the 24th May, 1870.

JAMES EDWARD TUIT, born on the 2nd January, 1860, was educated at King's College, London, and received his practical training under the late Mr. Edmund Olander, in the engineering department of the Great Western Railway, where he developed marked ability in constructional design. In 1882 he joined the staff of the late Sir John Fowler and Sir Benjamin Baker, Past-Presidents, who were then engaged on the designs of the Forth Bridge. For 2 years Mr. Tuit was occupied on the details of these designs and in 1884, when the work of construction commenced, he was appointed by the contractors an assistant engineer at Queensferry, and was responsible for carrying out the temporary works required in the erection of the bridge. He remained at the works until their completion in 1889,