On account of ill-health he retired from engineering practice for some years before his death, but continued to take much interest in scientific instruments and mechanical devices. He was an excellent draughtsman and painted both in oil and water-colours with considerable taste and skill. Mr. Pendlebury was kind-hearted and generous, and his genial disposition won him many friends, who were painfully shocked by his sudden and unexpected death at 17 Claverton Street, S.W., on the 4th October, 1902.

He was elected a Member of the Institution on the 7th March, 1871.

GEORGE WIGHTWICK RENDEL, son of the late Mr. James Meadows Rendel, Past-President, was born in 1832, and was educated at Harrow and in his father's office, where he subsequently took an important part in connection with the superstructures of the great bridges on the East Indian Railway across the Ganges and the Jumna at Allahabad. In 1858 he became a partner in the firm of Sir William Armstrong and Company, and for twenty-four years directed, in conjunction with Sir Andrew Noble, the Elswick Ordnance Works. During that period he took a prominent part in the development of guns and ships of war. He devised the system of hydraulic machinery for mounting and working heavy guns subsequently adopted in all the later ironclads of the British Navy and in certain vessels of the Italian fleet. In 1881 he designed and directed the building of the first "Esmeralda" for the Chilian Government, the swiftest and most powerful unarmoured protected cruiser of her time, which became a type of unarmoured cruisers, and also the gunboat "Staunch" for the British Government, and the numerous gunboats, of which she was the original, known as the "alphabetical gunboats" and built on the Tyne for the Chinese Government.

Mr. Rendel was a member of the Committee on Designs of Ships of War, appointed by the British Government in 1871, to settle the types of British ironclads to be constructed, and of the Committee appointed in 1877 to decide on the questions with reference to the design of the "Inflexible" raised by Sir Edward Reed. In March, 1882, Mr. Rendel severed his connection with the Elswick firm to become professional Civil Lord of the Admiralty, which office, however, he resigned three years later. In 1887 he again joined the Elswick Company, and he and

Admiral Count Albini acted as the directors in Italy of the Armstrong Pozzuoli Company.

Mr. Rendel was elected a Member of the Institution on the 14th April, 1863. In 1874 he contributed to the Proceedings an account of the work which had been done at Elswick in the form of a Paper entitled, "Gun-Carriages and Mechanical Appliances for working Heavy Ordnance." [1]

WILLIAM AUGUSTUS RICHARDSON, Water Engineer to the County Borough of Birkenhead, died on the 3rd April, 1902, at his residence, The Valley Lodge, Birkenhead, after a long and painful illness.

Mr. Richardson was born at Moate, County Westmeath, Ireland, on the 25th May, 1823, and was educated at various schools and under a private tutor. After being for five years on the Ordnance Survey of England, he entered the service of the Liverpool Corporation in 1851 as a Surveyor. In 1853 he became an Assistant to the late Mr. James Newlands, Borough Engineer, and three years later he was appointed Surveyor to the Waterloo-with-Seaforth Local Board, for which he carried out a new sewerage scheme. In 1860 he was appointed Surveyor to the late Tranmere Local Board, for which he designed and carried out schemes of sewerage and road-making. He also acted as Resident Engineer, under the late Sir (then Mr.) Robert Rawlinson, Past-President, on the Tranmere Waterworks, and he was afterwards appointed Water Engineer to the Board, in which capacity he designed and carried out various works, including wells, headings, boreholes and an engine-house.

In December, 1880, after the incorporation of the late Tranmere Local Board, Mr. Richardson was appointed Water Engineer to the Borough of Birkenhead, and since that time carried out various extensive works, including two new pumping-stations, pumping-engines, wells, boreholes, headings and a reservoir. He also carried out a complete scheme for the prevention of waste of water by means of the Deacon differentiating-meter—one of the first large installations of that system—and reduced the consumption per head per day by about one-third.

He was elected a Member of the Institution on the 7th December, 1897.

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[1] Minutes of Proceedings Inst. C.E., vol. xxxviii. p. 85.