

HORACE JOHN MANNERING, born on the 25th June, 1844, died at Purley on the 9th July, 1914. He was articled in 1860 to the late Mr. F. D. Baniſter, then Chief Engineer of the London, Brighton and South Coast Railway, and was subsequently appointed an engineer in the Company's service, in which he passed the whole of his professional career, attaining the position of Chief Assistant Engineer, and retiring in 1910. During this period he was associated with all the improvements and extensions carried out on the Brighton system, supervised contracts, and prepared the Parliamentary plans and estimates.

Mr. Mannering was elected an Associate of The Institution on the 23rd May, 1876, was subsequently placed among the Associate Members, and was transferred to the class of Members on the 23rd February, 1897.

CHRISTER PETER SANDBERG, the well-known Swedish engineer and rail expert, died at Sydenham on the 4th December, 1913, aged 81. Born at Venersborg, in Sweden, on the 8th October, 1832, he completed his education in the Swedish technical schools, and obtained his early practical experience in the iron-works and blast-furnaces of that country, acting later as Manager of several establishments. He also studied the manufacture of iron in Germany and Belgium.

In 1860 he was appointed Consulting and Inspecting Engineer in England for the Swedish State Railways, thus commencing his life-long residence and practice in this country, which he regarded as his second home. In addition to his official appointment, which he held until his death, he established a general consulting practice, especially in connection with permanent-way material, and by virtue of his metallurgical knowledge and special study of this subject he acquired world-wide recognition as an authority on rail-steel and permanent-way engineering. His advent in this country practically coincided with the introduction of the Bessemer process, the possibilities of which, in its applications to the manufacture of steel rails, he was quick to realize. His investigations led him to introduce many improvements in the design and manufacture of rails. The Sandberg sections, first brought out by him in 1878, and re-designed in 1894, have been universally adopted; and the Sandberg silicon steel rails, recently introduced, have also been widely used both for railways and tramways. Mr. Sandberg was consulted by many British, colonial, and foreign railway

authorities, and he acted as Consulting and Inspecting Engineer to both the Chinese and the Siamese Government railways. In recognition of his public services he received decorations from his native country, and from France, Belgium, Russia, and China.

Indefatigable in research, he was no less industrious in giving the results of his labours to the world. He was a frequent contributor to the proceedings of scientific societies, both in Europe and America, as well as to the columns of the technical press. For his Paper on "The Manufacture and Wear of Rails,"¹ read before The Institution in 1868, he was awarded a Telford medal and premium. He also contributed a Paper on "The Use of Heavier Rails for Safety and Economy in Railway Traffic,"² and an Engineering Conference note on the chemical composition of steel rails.

In later years Mr. Sandberg was assisted in his general practice by his three sons, whom he had taken into partnership. Personally he was of a kindly and genial disposition, which attracted to him a large number of friends in engineering and social circles not only in England but in many other countries to which his travels led him. By his own desire he was buried at his birthplace in Sweden.

Mr. Sandberg was elected an Associate of The Institution on the 4th December, 1866, was subsequently placed among the Associate Members, and was transferred to the class of Members on the 7th November, 1894.

WILLIAM GEORGE SCOTT, born in Manchester in 1839, died at Liverpool on the 15th May, 1914. After serving his pupilage on the Manchester, Sheffield and Lincolnshire, and South Yorkshire Railways, he was appointed, in 1862, Resident Engineer on the former system (now the Great Central Railway), and subsequently acted in a similar capacity on other lines in the Midlands and Cheshire. In 1874 he was appointed Engineer to the Cheshire Lines Committee, a position which he held for nearly 30 years, when he retired through ill-health. During this period he carried out a number of important works, including diversions, extensions, widenings, bridges and buildings.

Mr. Scott was elected an Associate of The Institution on the 6th December, 1870, and was transferred to the class of Members on the 30th October, 1877.

¹ Minutes of Proceedings Inst. C.E., vol. xxvii, p. 320.

² *Ibid.*, vol. xcv, p. 354.