

has testified sufficiently to the useful character of the invention. It is in large use for the propellers of steamers and in other cases where strength and durability are required in combination. As evidence of the fertility of Mr. Parsons' inventive power, it may be mentioned that between 1851 and 1889 he took out no less than 52 patents, of which 19 had to do with artillery and warlike appliances, 11 with railway apparatus, 11 with metallurgy, and the remainder with miscellaneous subjects.

Mr. Parsons died very suddenly, from an attack of apoplexy, on the 5th of November, 1892. He had married in 1851 a daughter of Mr. Rexford, of Greenwich, who survives him with eleven children.

He was elected a Member of the Institution on the 2nd of December, 1873.

RICHARD JAMES HARRIS SAUNDERS, eldest son of Mr. Richard Taylor Saunders, of Plympton, Devon, was born on the 7th of January, 1835, in the village of Boltberry, near Kingsbridge. In 1856 he was articled for three years to the late Mr. A. F. Livesey, Engineer and Architect, of Portsmouth, with whom he subsequently remained for a time as a partner. In 1860 Mr. Saunders commenced to practise on his own account, taking offices at Ventnor and subsequently in London. In 1862 and 1863 he was engaged on Parliamentary work for Mr. Abernethy, Past President Inst. C.E., in connection with Ventnor Harbour, the construction of which he partially carried out in conjunction with the late Mr. J. H. Tolmé, and was subsequently occupied in the promotion of several Bills for tramway, railway and harbour works in the island.

In 1865 and 1866 Mr. Saunders acted as Resident Engineer on the Waterloo and Whitehall Railway under Sir Charles Fox and Mr. T. W. Rammell. It was proposed to carry the line from a terminus at Scotland Yard in brickwork under the Thames Embankment to the river, through and across which it was to be continued in watertight iron-tubing, encased in cement and laid and fixed in a channel to be dredged out of the bed of the river; on reaching the southern shore, the line was to be carried in brickwork under College Street and Vine Street to a terminus on the north side of Waterloo Station. The works were commenced in the autumn of 1865, but were eventually abandoned. In 1866 and again in the two following years Mr. Saunders promoted,

with Sir Charles Fox, the Newport Junction Line of the Isle of Wight Railway; the Act was obtained in 1868 and the works were carried out under their joint superintendence, the line being completed and opened throughout in 1879. Meanwhile in 1873 and 1874 he promoted and obtained Acts for Fareham Railway and Brading Harbour Improvement and Railway. In connection with the latter undertaking he carried out between 1877 and 1880 the reclamation of 700 acres of mud and the construction of quays at St. Helen's and of the railway from Brading to Bembridge. In 1875 he had taken into partnership his brother, Mr. Theodore R. Saunders, to whom in 1882 he sold the business outright, thus severing his connection of twenty-two years' standing with the Isle of Wight.

For the next four or five years Mr. Saunders' engagements were more or less of a desultory nature. In 1881 and 1882 he prepared schemes for the drainage of Broadstairs and St. Peters and for the extension and improvement of the drainage of Herne Bay, part of which he subsequently carried out. Such work, however, was far from profitable, and Mr. Saunders was only too glad to accept the appointment of Resident Engineer on the harbour works at Ceará in Brazil, offered to him at the close of 1886 by the Ceará Harbour Corporation of London.

The Port of Ceará was one, amongst others, on the coast of Brazil reported upon in 1875 by the late Sir John Hawkshaw for the Brazilian Government.¹ A concession having been subsequently obtained for the construction of a harbour, the prosecution of the work came into the hands of the above Corporation. Mr. Saunders went to Brazil in January, 1887, and during his connection with the undertaking which lasted until September, 1890, he carried out a portion of the works, including an open viaduct on cast-iron piles, a masonry pier and concrete break-water to enable vessels to be berthed for the purpose of discharging cargo, and the erection of a new Custom House. During that time he constructed some waterworks for the Government of Brazil and subsequently became one of the Engineers on the staff of the Baturité Railway, a State line from Ceará to the interior. While thus engaged he was invited by the Chief Engineering Inspector of the northern harbours of Brazil to proceed to the Province of Maranhão, where there was a prospect of his obtaining an appointment on some large harbour works about to be constructed. On the night of the 27th of June, 1892, the

¹ *Ante*, p. 374.

small coasting-steamer "Alcantara," in which he was a passenger, struck on a reef about 14 miles to the north-west of Fortaleza. Mr. Saunders, who was a good swimmer, threw himself into the sea in the hope of reaching the shore which was not far distant, but was carried out by a strong current and drowned.

Of fine presence and physique and open-handed to a degree which undoubtedly injured his own interests, Mr. Saunders was universally popular. Of a temperament at once sanguine and determined, he seemed to inspire those who worked under him with the same qualities. He was a hard and quick worker, both in the office and in the field, and it is to be regretted that to an uphill fight through life was added an untimely death. Mr. Saunders was elected an Associate of the Institution on the 25th of May, 1880, and was transferred to the class of Member on the 4th of March, 1884.

WILLIAM POWELL SHINN¹ was born on the 4th of May, 1834, in Burlington, New Jersey. After receiving such elementary education as the schools of the town afforded, he went to Pittsburgh early in 1850 and found employment as rodman in an engineer corps, under the charge of Mr. Solomon W. Roberts, then engaged in the location of the Ohio and Pennsylvania Railroad. From August, 1851, to February, 1852, he was Assistant Engineer in charge of a sub-division at Columbia, Ohio, and from April 1852 he had charge of the fuel and water supply of the line. In April, 1853, he was appointed principal Assistant Engineer of the Fort Wayne and Chicago Railroad, in charge of location and construction, in which capacity he continued until October, 1854. In February, 1855, he took charge, as auditor, of the freight accounts of the Ohio and Pennsylvania Railroad, retaining this position until the following November. From March to September, 1856, he was engaged as engineer in the preparation of the land maps and title records of the Ohio and Indiana Railroad, now forming a portion of the Western Division of the Pittsburgh, Fort Wayne and Chicago Railroad. In October of the same year he took charge of the freight accounts of the Pittsburgh, Fort Wayne and Chicago Railroad, and, in addition to these duties, assumed control of the passenger accounts of that Company from February to September, 1857, when he was made general book-keeper, which

¹ This Notice has been abridged from a Memoir which appeared in the Transactions of the American Society of Civil Engineers, 1892.