

In his retirement he addressed several letters to "The Times" on the drainage and improvement of land, and the storage of water and regulation of rivers. A letter on the management of the rivers and marshes of Italy having attracted the notice of Signor Sella, then premier, procured for him the Order of St. Maurice and Lazare.

It only remains to add that Sir John's acquirements extended much beyond his profession. Understanding several languages, he was extensively versed in general literature. He was long a Member of the Royal Society, and other scientific bodies; and was one of the first persons to whom Sir Humphry Davy applied when forming the Zoological Society.

Of his personal character one trait may be sufficient. Throughout his lengthened career, and in spite of the numerous disputes in which he was involved, he never bore a moment's envy or malice against any human being. His posthumous memoirs are full of the kindest notices of all with whom he came in contact; and whenever he had occasion to notice the Stephensons and their works, it is with a eulogy which their most devoted adherents might rival but could not surpass.

Sir John Rennie was elected a Member of the Institution on the 25th of June, 1844; he became President on the 21st of January, 1845, retaining the office for three years. He died at Bengoe, near Hertford, on the 3rd of September, 1874, just after completing his eightieth year.

MR. JAMES RAINE RUSHTON was the second son of the late Edward Rushton, stipendiary magistrate of Liverpool. Having shown a strong natural aptitude for mechanics, he was, under the advice of the late Mr. James Walker, Past-President Inst. C.E., removed at an early age from the London University School, and placed as an apprentice with Messrs. Fawcett, Preston, and Co., mechanical engineers of Liverpool, with whom he remained for five years. He then entered the locomotive shops of the Liverpool and Manchester Railway Company, and obtained a thorough knowledge of locomotive work. Next he was for three years in the office of Mr. Edward Woods, M. Inst. C.E., who was then in charge of the old Liverpool and Manchester railway. On the amalgamation of the above line with the Grand Junction and London and Birmingham lines, Mr. Woods was appointed Engineer for the construction of new works on the northern division of the amalgamated lines; and Mr. Rushton

became his assistant on the extensions in Liverpool and the neighbourhood, which included the alterations of some of the existing tunnels, and the terminal passenger and goods stations. After this he was engaged as Resident Engineer of the Victoria Tunnel, under the town of Liverpool and the Leeds and Liverpool Canal, which connects Edge Hill Station with what was then the northern portion of the Liverpool Docks. That tunnel presents a fine example of masonry, the result of the constant and untiring supervision which Mr. Rushton exercised during its construction. About this time he was appointed one of the Admiralty Surveyors of Marine Steam Machinery. On the formation of the staff for the construction of the Egyptian railway, by the late Mr. Robert Stephenson, M.P., Past-President Inst. C.E., Mr. Rushton was selected as one of the Engineers. He proceeded to Egypt in the autumn of 1851; and after the completion of the line entered the service of the Egyptian Government. In the year 1859 he was appointed a first-class Engineer on the Great Indian Peninsula Railway, and, on his arrival in India, became Resident Engineer of No. 16 Contract. While engaged in this capacity he made the acquaintance of Mr. Beddy, the Assistant Commissioner in charge of the town of Hurdah, a dirty and neglected place, under whose auspices Mr. Rushton planned and carried out a water supply and excellent municipal arrangements and striking improvements, and "Hurdah is now as perfect a little model town as can be found in India. . . . The water scheme, 'Rushton Square,' and the 'Rushton Clock-tower' at Hurdah, will long remain to show the interest that Mr. Rushton took in all matters connected with the welfare of the people among whom he lived." For these services he received the thanks of the Chief Commissioner of the Central Provinces, in a letter dated the 23rd of June, 1866.

On the resignation of Mr. Graham, Mr. Rushton was selected, in July 1865, to fill his place as Chief Resident Engineer; and he entered upon the duties of his office on the 14th of September following. Soon after he succeeded to this responsible post, several of the masonry works showed signs of weakness or failed. To the onerous task of restoring these works Mr. Rushton successfully applied his experience and great engineering ability. In conjunction with the Company's Consulting Engineer he prepared the designs (as well as those of less important works) for the reconstruction of the Mhow-ke-Mullee and Towah viaducts. The latter, now known by the name of the "Alfred Bridge," was opened by the Duke of Edinburgh on the 9th of March, 1870, and has been designated, by those most capable of forming a correct opinion, "a magnificent

and unique work." It was pronounced by Mr. Turnbull, Engineer of the East Indian railway, to be by far the most striking work of railway masonry in India; and the Chief Commissioner of the Central Provinces declared his admiration of the excellence and beauty of the work, which would, he thought, in all probability, last for ages.

Mr. Rushton's connection with the Great Indian Peninsula Railway Company terminated in 1868; and in the same year, and about the same time, the agent of the company, General Rivers, also retired. Previously to their departure from India, a farewell dinner was given to them by the staff of the railway company and other gentlemen. On this occasion Mr. Rushton was presented with an address; and a sum of nearly £1,000, subscribed by the employes of the Company, was soon after forwarded to the Messrs. Elkington, in England, for a service of plate, the selection of which was left to Mr. Rushton.

With Mr. Rushton's arrival in England, in November 1868, his professional career closed. Eighteen years passed in Egypt and the East, with but two short intervals of repose, had told upon a constitution originally strong. He had long suffered from a painful affection of the throat, which ultimately terminated in bronchitis. He died on the 10th of June, 1873, in Liverpool, at the comparatively early age of fifty years. In his profession he was an honest worker; in his habits retiring and abstemious; and in the general relations of life he bore himself as a generous, temperate, and high-principled man. Of his skill as an Engineer his works give evidence; for his character as a man, the testimony of his friends.

Mr. Rushton was elected a Member of the Institution of Civil Engineers on the 4th of December, 1866.

MR. JAMES SAMUEL was born at Glasgow on the 21st of March, 1824. He was educated at the High School of that city, and afterwards attended the classes for engineering by Professor Lewis Gordon at the Glasgow University. In April 1839 he was articled to Mr. Daniel Mackain, M. Inst. C.E., engineer of the Glasgow Waterworks, and subsequently held for three years the position of resident engineer at the Printing, Dyeing and Bleaching Works of his father near Glasgow, for which he designed and superintended the construction of the buildings, machinery, reservoirs, watercourses, &c. He came up to London, and was