

well-informed man, and possessed abilities which, under favourable circumstances, would have carried him probably to fame and fortune. He was deeply regretted by his relatives and friends.

He joined the Institution as an Associate in June, 1844, and was transferred to Membership in May, 1854.

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MR. JAMES WALKER, LL.D., F.R.S., L. & E., &c., was born at Falkirk, N.B., in the year 1781. His education commenced at the school of that place, and was finished at the University of Glasgow. He had talent and was industrious ; so that his studies were completed with distinction in a comparatively short time ; and in the year 1800, when he was nineteen years of age, he was articled to his uncle, Mr. Ralph Walker, at that time an Engineer in considerable practice in London. Under him he was employed at the East and the West India Docks, and became conversant with the best class of constructions, eventually succeeding his uncle in the greater portion of his works.

Mr. Walker was intrusted, in 1803, with the formation of the Commercial Road, an important work, which was excellently carried out, and where he eventually tried the system of providing stone tramways for facilitating the traction of the heavy loads passing along that important route, from the docks to the metropolis.

He was appointed Engineer to the Commercial Docks in 1806, and the extensions and improvements effected up to the time of his death were designed by, and executed under, the superintendence of Mr. Walker and his partner, Mr. Burges.

At the decease of Mr. Telford, in 1834, many of his important works fell into the hands of Mr. Walker, and he was at that period, and for many years after, constantly consulted by almost all the branches of the Government, and by many public boards and corporations ; especially that of the City of London, for which latter body he made numerous Reports upon the City sewers, and the navigation of the River Thames, projecting the plan of embankment, now known as 'Walker's lines ;' upon which the present constructions are in a great degree based. He also had under his charge the bridges at Blackfriars and Westminster, executing extensive works for their maintenance, until their demolition was decided upon.

Any attempt to mention all the works upon which Mr. Walker had been engaged at some period of his long professional career, would involve the enumeration of nearly all the principal undertakings of the kingdom ; but among them must be mentioned the construction of Vauxhall Bridge over the Thames, and of the Victoria Bridge over the Clyde, at Glasgow ; the improvements of the River Clyde,

which, from the death of Mr. Telford up to a recent date, were under his direction ; the great repairs of the Caledonian and Crinan Canals ; the Coffe Dam and River Wall of the New Houses of Parliament ; the extensive works of the Birmingham Canal, including the Tame Valley Canal, the Betley Canal, and the Netherton Tunnel ; the extensions of the Bute Docks at Cardiff ; the Pier and Harbour of Granton ; the improvements of the Harbour of Belfast, and the Harbour Works at Dover ; the designs and execution of the Harbours of Refuge at Alderney, St. Catherine's, Jersey, Dover, and Harwich, on the former of which he was penning a Report in his own hand on the day before his decease ; the Tyne Piers ; the completion of Plymouth Breakwater, and the foundation for the Fort about to be constructed there for the War Department. But, perhaps, the most lasting monuments of his skill may be found in the various Lighthouse Works of the Corporation of the Trinity House. As a difficult and successful engineering work, the Bishop Rock Lighthouse, off the Scilly Islands, may be placed in the foremost rank with those of Smeaton, at the Edystone ; of the elder Stevenson, at Bell Rock ; and of that built on the Skerryvore, by Alan Stevenson, his son.

For many years the extensive drainage operations in the Fens, particularly in the Middle Level, occupied his attention ; and the great cut, nearly 30 miles in length, by which, with its numerous branches, upwards of ninety thousand acres of valuable land are rendered susceptible of cultivation, is a work deserving the attention not only of the Engineer, but of the landowners in similar districts.

At an early period in the history of railways, Mr. Walker was appointed, in conjunction with the late Mr. Rastrick, to report on the system of traction to be employed on the Liverpool and Manchester Railway. Their recommendation was that a continuation of locomotive with stationary power should be used ; but their Report was replied to so effectively by Robert Stephenson and Joseph Locke, that the celebrated Rainhill trials were instituted, and the locomotive system was fully established.

Mr. Walker never entered largely into railway engineering, preferring the other branches of the profession ; but he did construct the Leeds and Selby, and the Hull and Selby Railways, both now forming valuable portions of the North Eastern system of lines.

The printed Reports proceeding from Mr. Walker's pen are very numerous, and they are valuable as giving the history of many important works. He was a strict disciplinarian, was very regular in his business habits, and indefatigable in his attention to the works under his charge. He was fortunate in attracting to him a number of men who have since risen to eminence in the

profession; and he was very ably seconded by his partner, Mr. Burges, and subsequently by the late Mr. James Cooper.

Mr. Walker was connected with many of the principal scientific bodies of the kingdom. He was a fellow of the Royal Societies of London and of Edinburgh, LL.D. of Glasgow University, (an honour conferred only upon distinguished students of that body), a member of the Senate of the University of London, and an honorary member of several foreign societies.

He joined the Institution of Civil Engineers, as a Member, in the year 1823, was elected a Member of the Council and Vice-President in 1826, succeeding the first President, Mr. Telford, in 1834, and occupying the chair for nearly eleven years, during which time, by his attention to the interests of the Society, he contributed largely towards placing it in its present position. In the year 1845 it was considered desirable to introduce certain modifications in the constitution of the Society, one of the chief points being the limitation of the period of holding the post of President, in order to afford opportunity for the leading members of the profession to attain consecutively that honourable position. This and other proposals necessitated the revision of the Code of Bye-laws of the Institution, and, after several special meetings, the proposed modifications were carried, and Mr. Walker resigned the Presidential Chair, in which he was succeeded by Sir John Rennie, who occupied it for three years. Subsequent to that period no President has held the position longer than for two consecutive sessions.

Under the presidency of Mr. Walker the Institution made important strides; the number of the Members increased; the Society was enabled to remove to the present premises at No. 25, Great George Street, Westminster; the Annual Conversazioni were instituted, setting an example to all the other Societies of the metropolis; and the special feature of the Institution—the free expression of opinion, at the discussions upon the Papers—was largely encouraged. Mr. Walker had a peculiar talent for guiding the Meetings, and for eliciting the information possessed by the Members and the Visitors; and he was solicitous to have invitations issued to all those who were capable of contributing to the interest of the discussions, which he generally summed up very cleverly. His extensive acquaintance among scientific men and noblemen who felt an interest in the progress of Engineering science enabled him to induce many distinguished visitors to attend the Meetings, and, in some instances, to join the Society.

During the period of his filling the Presidential Chair, he liberally assisted the then comparatively young Society, as by his great wealth he could afford to do. The necessary alterations, however, in the constitution of the Society not meeting his views, he ceased to feel as great an interest as formerly; still, in his capacity

of a Past-President, he was a not unfrequent attendant at the Meetings.

In spite of somewhat declining health, Mr. Walker continued to exercise his profession up to the period of his decease, and to the very last he retained his vigorous and shrewd intellect. He was eminently a man of business, and he had, at least, as much skill "in the engineering of men as of matter."

It has been correctly stated, that "his works were remarkable for their solidity and permanency, and not less for their utility, as having a material share in aiding the commercial progress of this country in the present century, during sixty years of which he had been in the active exercise of his noble profession."

He died on the 8th of October, 1862, and was interred, by his own desire, in his family vault, at St. John's episcopal burial-ground, at Edinburgh.

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MR. WILLIAM WEALLENS was the descendant of a German family, who emigrated many years ago and settled in the North of England, in connection with some proposed steel works. Subsequently his immediate parents devoted themselves to agricultural pursuits, and his father, John Weallens, held a farm, called the East Houses, at North Dissington. His mother was the daughter of the Rev. John Furness, of Ponteland, where William Weallens was born, on the 8th of March, 1823. He received his education under Dr. Cowan, of the Grange, Bishopwearmouth, and having exhibited a talent for mechanical pursuits, he was apprenticed to Messrs. Robert Stephenson and Co., on the 3rd of September, 1838, and became the pupil of his stepfather, who took much pains with his professional education. His mother, who was early left a widow, with two sons and a daughter, married Mr. Hutchinson, who subsequently, as a reward for his faithful and efficient services, was admitted to a partnership in the celebrated firm of Messrs. Robert Stephenson and Co., of whose works he was the acting manager.

On the decease of Mr. Hutchinson, in 1853, the direction of the mechanical department of the works was intrusted to Mr. Weallens, and eventually, in January 1855, he was presented with a partnership in the firm, to whose concerns he devoted himself for some years with great energy. He was a very good mechanic, had clear judgment, and was fertile in resources. His temper was peculiarly amiable, and he endeared himself to the workmen and those with whom he came in contact by the gentleness of his disposition. These qualities were especially appreciated by the late Mr. Robert Stephenson, with whom he was a great favourite, and they were also recognized by his fellow-townsmen, who elected him a member of the Town Council. He took an active part in the Volunteer movement, commanded