

time of his death; for the later years of his life in partnership with Mr. James Mansergh, M. Inst. C.E.

Having devoted his attention principally to sanitary engineering, Mr. Lawson was extensively employed in reporting upon and constructing works for the supply of water to towns, and for the removal and treatment of sewage. Among others may be enumerated Bedford, Cockermouth, Workington, Maryport, Grantham, Horncastle, Tunbridge Wells, Hexham, Keswick, Rotherham, Reading, Lincoln, Middlesbrough, Barnet, Burton-on-Trent, Clevedon, Sherborne, &c. In 1867 Mr. Lawson was sent out, by the Colonial Office, to report upon the sanitary condition of Valetta and the other towns adjoining in the island of Malta, and to prepare a scheme for the sewerage of those places. In later years he was consulted as to the disposal of the sewage of many towns, such as Birmingham, Darlington, Windsor, Twickenham, Southport, &c., and was Consulting Engineer for two of the earliest Bills—viz., Blackburn and Reading—that were brought into Parliament for the purpose of obtaining compulsory powers for the purchase of land for sewage purification purposes. For some time prior to his death Mr. Lawson's health gradually broke down, as a consequence, it is believed, of overwork and the anxieties specially incident to his occupation, and he died on the 7th of February, 1873, at the comparatively early age of forty-eight.

Mr. Lawson had a remarkable faculty for unravelling the mysteries of masses of figures, and so marshalling them in a tabular form as to make them self-explanatory. He was a self-possessed and trustworthy witness on public inquiries and before Parliamentary Committees, where his honest, serious style of giving evidence was effective and convincing. He was a man of modest and unobtrusive habits, and attained his position by dint of sterling merit. He was highly esteemed by all with whom he was brought into contact on business matters, for his quiet, earnest thoughtfulness, and his conscientious devotion to his clients' interests. Possessing a clear head and sound judgment, he was looked up to by his friends as a safe and reliable counsellor, and his unselfish kindness of heart never permitted him to spare himself labour or trouble which would benefit them.

Mr. Lawson was elected an Associate of the Institution on the 1st of March, 1859.

Mr. JAMES GARTH MARSHALL was born at Leeds on the 20th of February, 1802. He was the third son of the late Mr. John Marshall, of Headingley, Leeds, sometime M.P. for Yorkshire,

who acquired great wealth towards the close of the last and the beginning of the present century by the successful introduction of a variety of mechanical improvements in flax-spinning. On attaining manhood he left Edinburgh, where he had shared the singular educational advantages which at that time drew so many distinguished men to cultivate thought, science, and literature under the eminent professors of the Scotch University, and joined his father and brother as a member of the widely-known firm, of Marshall and Co., flax-spinners, of Leeds and Shrewsbury. On the death of his father he became more prominently identified with the interests of his native place. He was amongst the earliest advocates of popular, and ultimately of state, education, and showed the value which he put upon the instruction of the young by erecting, along with the other members of his firm, schools at Holbeck, intended for the multitudes of children connected with the firm's extensive mills. These schools soon assumed the character, which they have to this day maintained, of model schools for the neighbourhood. Among other striking proofs of his regard for the highest interests of those who came under his care was the building and endowment of the church of St. John the Evangelist, Holbeck, which was erected in 1849 from the designs of Sir Gilbert Scott, and is a fine specimen of the Early English style. At the general election of 1847 the Liberal party was rent asunder by differences of opinion on the subject of voluntary, as opposed to state education, and Mr. James Garth Marshall, being a strong advocate for the latter system, was induced to stand as its champion. In the result he was elected one of the members for Leeds, and he faithfully represented the borough until the dissolution of 1852. From the latter date he became less prominent as a public man, his health having materially suffered, but his interest in public questions remained unchanged, and he nominated his successor in the representation, the Rt. Hon. M. Talbot Baines. He supported the candidature of Lord Amberley in 1865.

Mr. Marshall's political opinions were those of a very decided Liberal. He was from the first an advocate of the Ballot, and when the Reform question was again agitated he published a pamphlet in favour of a scheme resembling the philosophic plan of popular representation with which Mr. Hare's name has been associated. Mr. Marshall's own suggestion for the just representation of minorities was what he named the "Cumulative Vote." But the kindly sympathies of Mr. Marshall prompted him to even more congenial work in the promotion and manage-

ment of various philanthropic institutions. The Leeds Social Improvement Society, founded for the relief of deserving cases of distress and the repression of mendicity, owes its existence chiefly to Mr. Marshall, whose successive appeals led to the realisation in Leeds of the results which have proved so great a blessing in Edinburgh and elsewhere. He took an active interest in the Leeds Philosophical Society, and for many years acted as one of its honorary curators. His scientific knowledge, which was considerable, found ample scope in literary contributions on geology, and other branches of science, and in connection with his prosperous business. Unfortunately there are no records of the improvements made by Mr. Marshall in flax-spinning, as during all the earlier part of his life he never took out any patents, and his inventions have long been in such general use that their interest has died out. The great success which eventually crowned the enterprise and perseverance of Mr. Marshall's father, the late Mr. John Marshall, are so well known as to need no comment. It may however be of interest to state that the following description, taken from Mr. Disraeli's "Sybil," is well understood to apply to Marshall's extensive flax mills at Holbeck:—"On the banks of his native stream he had built a factory, which was now one of the marvels of the district—one might almost say of the country—a single room spreading over nearly two acres, and holding more than 2,000 workpeople. The roof of groined arches, lighted by ventilating domes at the height of 18 feet, was supported by hollow cast-iron columns, through which the drainage of the roof was effected. The height of the ordinary rooms in which the workpeople in manufactories are engaged is not more than from nine to eleven feet, and these are built in stories, and the heat and effluvia of the lower rooms communicated to those above, and the difficulty of ventilation insurmountable. At Mr. Trafford's, however, by an ingenious process not unlike that which is practised in the House of Commons, the ventilation was also carried on from below, so that the whole building was kept at a steady temperature, and little susceptible to atmospheric influence. The physical advantages of thus carrying on the whole work in one chamber are great; in the improved health of the people, the security against dangerous accidents for women and youth, and the reduced fatigue resulting from not having to ascend and descend and carry materials to the higher rooms. But the moral advantages resulting from superior inspection and general observation are not less important; the child works under the eye of the parent, the parent under that of the superior workman; the inspector or employer at a glance can

behold all. When the workpeople of Mr. Trafford left his factory they were not forgotten. Deeply had he pondered on the influence of the employer on the health and content of his workpeople. He knew well that the domestic virtues are dependent on the existence of a home."

Being by nature extremely shy, a strong sense of duty alone seemed to force Mr. Marshall into publicity. Although not fluent as an orator, he was always listened to with marked respect when he spoke in public, his opinions being based upon solid information and independent thought. Like his father, he had no passion for honour or popularity, yet earned a gratifying measure of both by virtue of inflexible honesty of character, wise generosity of disposition, and sterling abilities. It may be said with all truth that, in Leeds especially, the loss of so estimable a citizen will be long felt. William Wordsworth, Dr. Arnold, Professor Sedgwick, were his earliest, fast friends.

Mr. Marshall was elected an Associate of the Institution of Civil Engineers on the 1st of May, 1838, and although his residence in the country prevented his attendance at the meetings, he took a great interest in its welfare.¹

MR. FREDERIC MOLESWORTH PFEIL was born in the year 1835, and began his professional life at an early age, serving a regular pupilage from 1849 to 1852 under Mr. W. Colman, after which he was engaged for six years in various departments of engineering, amongst others, in the offices of Messrs. Porks and Co., mechanical engineers; in Woolwich Arsenal, on Government works of importance under Colonel Beatson, R.E., and Mr. D. Murray, C.E.; and a similar appointment at Aldershot under Colonel Collinson, R.E. He was also for short periods employed under Colonel Dawson, R.E., Tithe Commissioner; Messrs. Locke and Errington, MM. Inst. C.E., and in the office of the Director of Works of the Admiralty, under the late Mr. William Scamp, M. Inst. C.E. He proceeded to the Cape of Good Hope about the year 1858, and was employed for nearly two years in the Colonial Engineer's Department, Cape Colony, and afterwards for a like period as Engineer to the Mossel Bay Harbour Board, in charge of the construction of a landing pier and lighthouse on Cape St. Blaize. He then established himself in general practice

¹ The facts contained in the foregoing memoir are mainly extracted from a memoir which appeared in the "Leeds Mercury" of Oct. 24, 1873.—Ed.