

2nd of March, 1880, had been in ill health for some time, and died at Ganthorpe House, near York, on the 13th October, 1889, in the forty-second year of his age.

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JOSEPH GORDON was born on the 16th of April, 1837, at Haltwhistle, Northumberland, and received there the whole of his schooling, this being strictly confined within the narrow limits then prevailing in English country districts. In 1852 he was articled to the late Mr. James Hogg, then City Surveyor of Carlisle, who enjoyed a considerable range of private practice in the neighbourhood.

Mr. Gordon remained in Carlisle until the death of Mr. Hogg in 1856, when, notwithstanding his youth, he applied, and ran second, for the appointment thus rendered vacant, having by his genial nature and striking abilities won golden opinions from all with whom he had been brought in contact. He was at once selected as an assistant by Mr. Thomas Fenwick, then Borough Surveyor of Tynemouth, but in a few months accepted an offer made to him by Mr. (now Sir) Robert Rawlinson to take part in the preliminary survey for the sewerage works of West Ham, Essex. Ultimately, in 1858, he was entrusted, as Resident Engineer, with the carrying out of Mr. Rawlinson's scheme, an undertaking which that gentleman, writing in 1864, described as including "some of the most complicated and difficult main sewerage works" he had executed up to that time.

In 1860, the City Surveyorship of Carlisle again became vacant, and as the West Ham works were far advanced towards completion, Mr. Gordon applied for the appointment, this time with success. He held the post for six years, and, having by his past experience acquired sound and independent views on sanitary questions, was enabled to find scope for them. Perhaps it was in Carlisle that Mr. Gordon first displayed to the full extent that intense and overmastering love of accuracy and completeness which was, in later years, to form the chief feature of his reputation. His zeal in personally setting out work, and in obtaining none but the highest class of materials and workmanship, became proverbial, and his successful efforts in this direction, even in such matters as roads and footpaths, doubtless encouraged him in his life-long adherence to the methods then pursued.

In 1864, rather than allow him to accept the Borough Surveyorship of Wolverhampton, the Corporation of Carlisle granted Mr.

Gordon the privilege of private practice beyond the limits of the city, a field in which he won his spurs in Parliamentary Committee rooms, in railway and other matters, besides reporting on various projects in the domain of sewerage and water-supply.

In 1866 Mr. Gordon resigned his position at Carlisle, and went to Germany. The city of Frankfort on Main had for some time been considering the drainage question. A committee of engineers and hygienists—amongst them Mr. W. Lindley, the Engineer of the Hamburg drainage works, the earliest and largest works of the kind then executed on the Continent—had, in 1863, been called in to report upon the subject. Mr. Lindley was appointed Engineer of the scheme, and a thoroughly competent man being required to work in conjunction with him in designing and carrying it out, Mr. Gordon was elected by the Municipal Authorities to that position, and acted thereafter as Resident Engineer of the works from early in 1866 to the autumn of 1873.

In this position he worked out in detail and supervised the execution of a large part of the comprehensive system of drainage that has been carried out by the city of Frankfort, in which the thorough flushing and ventilation on the Hamburg system and a careful design and execution of the private drainage form marked features. Stringent conditions and regulations for house drainage were laid down, demanding the presentation of plans, and in every other respect going far beyond what had until then been carried out in this branch of municipal sanitation.

The removal to the Continent was an important step in Mr. Gordon's career, he having to confront an entirely different system to that he had hitherto worked on, while at the same time a foreign language and the continental way of doing things, had to be mastered. By the minute accuracy, care, perseverance, unremitting attention and energy which were peculiar to Mr. Gordon, and which he devoted to the works entrusted to him, he quickly overcame these difficulties, and contributed his share to the high standard of excellence universally accorded to the Frankfort drainage works, and by which they have come to be considered amongst the best samples of works of their kind. Of the Frankfort network of public sewers, which has now a length of upwards of 130 miles, about 40 miles were carried out under Mr. Gordon's supervision, while the lines and details of the whole were established during his period of office.

In 1873 he left the service of the city and became Engineer-in-Chief of the Sewerage and Waterworks Department of Messrs. Holzmann and Co., a well-known contracting firm, which had, up

to that time, taken the contracts for a large part of the Frankfort works. In this position Mr. Gordon designed, or was consulted in the design of, the drainage works for various large towns in Germany, amongst others Stuttgart, 110,000 inhabitants; Heilbronn, 24,000; Munich, 220,000; Dortmund, 55,000; Ludwigs-hafen, 15,000; Nuremberg and Landshut, of which the first five, with an aggregate population of 450,000 inhabitants, were adopted, and have in part been carried out.

Early in 1881 Mr. Gordon returned to England, his election to the Borough Surveyorship of Leicester affording him a welcome opportunity of fulfilling a growing desire to remove his family from residence abroad. He found Leicester in a condition requiring all the skill and energy which even he could bring to bear upon it, the sewerage works having been outgrown by the phenomenally rapid development of the town, besides which the execution of a flood-prevention scheme had become an urgent necessity. Taking in hand the question of floods, and using the gradually-accumulated data and reports as a basis, Mr. Gordon prepared a scheme giving a lower flood-water gradient than had previously been regarded as attainable, and successive contracts were let in accordance with his plans, the total expenditure, up to the time of his resignation, being nearly £300,000, while further contracts were in progress. As regards the sewerage of the borough, one of his first steps was to report on the existence of a ramification of practically unventilated sewers of deposit throughout the town, and to initiate a system of gradually replacing them by a well-devised and comprehensive system of new sewers, together with separate sewers for unpolluted rainfall, so far as these might be practicable and desirable. Coming to sewage-disposal, he prepared a scheme of outfall sewers and irrigation works, at a further estimated cost of £250,000, the execution of which was well forward when he left the Corporation's service, the works including an aggregate of 800 HP. for lifting the sewage to the selected disposal ground, 1,375 acres in extent, this being the largest area in England, and exceeded only by the sewage-farms of Paris and Berlin.

These undertakings were but the leading items of Mr. Gordon's Leicester work, which included, in addition, the ordinary duties of borough surveyor, the preparation of new building by-laws, the inception and detailed conduct of a Borough-Boundaries Extension scheme, and other special efforts necessary to meet the peculiar conditions under which he found the town to be situated. There can be little doubt that the severe and constant strain thus produced proved too much for his naturally slight frame and far from

strong constitution, and although the end was deferred until he had entered the service of the newly-created London County Council as their Chief Engineer the undermining of his strength had already gone too far to allow of any different result. He entered upon his new and onerous duties on the 2nd of September, 1889, and on the 9th of November, less than ten weeks later, was seized with an attack of syncope while in an omnibus on his way from his residence at Hampstead to his office in Spring Gardens, his death being instantaneous and mercifully painless. During his brief tenure of office he had devoted special attention to the pressing question of the main drainage of the Metropolis, and had already presented a valuable report dealing with the working of the new outfall tanks and the disposal of the resultant sludge, on which action has since been taken.

Mr. Gordon's wide and diversified experience and restless activity, combined with his methodical habits, enabled him to compress within the comparatively brief span of his existence a large amount of work of the highest character. His acquaintance with, and devotion to, mathematical research, particularly as displayed in its practical application to hydraulic problems, were of a high order, and these attainments were acquired despite his few and unfavourable early opportunities. He found time, amidst the exacting duties of his Continental life, to actively identify himself with the various technical societies with which he had there become connected, and, soon after his return to England, he joined the Association of Municipal and Sanitary Engineers and Surveyors, a body of which he soon became an enthusiastic and influential member. He filled the office of President in 1887-88, and was elected an honorary member on his appointment to the London County Council Engineership.

For the rest, Mr. Gordon may be described as a favourable example of this country's self-made men, not spoiled by success or good fortune, and regarded with deep respect and firm affection by those whose lot it was to work with or under him. His genial and modest manner never failed to inspire a sense of confidence which was at all times justified by his subsequent performances in the many and varied positions which it was his lot in life to fill.

Mr. Gordon was elected an Associate of the Institution on the 4th of March, 1862, and was transferred to the class of Member on the 17th of February, 1874.