

siderable value, termed "ammonic fimus," is produced from pail-sewage.

General Scott was a Civil Companion of the Order of the Bath, a Fellow of the Royal, the Chemical, the Linnæan, and many foreign learned societies. He has written much on the sewage question, and received a Telford premium from the Institution for a Paper on "The Manufacture and Testing of Portland Cement," prepared by him, in conjunction with Mr. G. R. Redgrave, which was read on the 11th of May, 1880; he having been elected an Associate of the Institution on the 3rd of February, 1874.

WILLIAM WATSON was born in Dublin on the 25th of February, 1804, and was the only surviving son of Mr. William Watson, who was descended from a Worcestershire family. He was educated at a school in Dublin and at Trinity College, which he entered in 1821, and where he graduated B.A. in 1825. His own wish was to have taken Holy Orders, but circumstances rendered this undesirable; through the introduction of a mutual friend he became acquainted with Mr. Charles Wye Williams, and obtained from him an appointment in the City of Dublin Steam Packet Company. Mr. Watson soon displayed a capacity for organisation, and in a comparatively short time the principal management of the company's inland department was intrusted to him. The navigation of the River Shannon and the Grand Canal formed then an important part of the company's business, and it was considerably developed by Mr. Watson. He commenced the system of working by night as well as by day, and, amongst other improvements, devised a canal passenger-berge, to enable a fast service to be carried on. The means for attaining that object was a vessel of very light draught, which could be towed in advance of its wave of displacement, and so overcome the difficulty previously experienced in attaining speed with the passenger boats. Mr. Watson's berge was constructed of double the ordinary length, which until then had been limited by the dimensions of the locks. The berge had a double bulkhead amidships, and was arranged to part there, so that each half could pass independently through the lock-chambers, and be joined together again. The berge proved entirely successful, and was subsequently bought by the Egyptian Government, and sent out to the Mamodyeh Canal. In 1839 Mr. Watson invented and patented the composite method of ship-building; but although this mode of construction has since been extensively used, he derived no pecuniary advantage from it. In

1843 he was elected one of the directors of the company, and was made joint managing director with Mr. Williams; the latter remained the head of the company, but the control and management principally devolved on Mr. Watson. When railway communication was opened between Liverpool and London, the company obtained a contract from the Admiralty for a night mail service between Liverpool and Kingstown, which they ran successfully until the completion of the Chester and Holyhead line. In 1849 the Government advertised for tenders to convey the mails between Holyhead and Kingstown, and Mr. Watson, fearing that the interests of his company would be imperilled if this contract were allowed to fall into other hands, tendered for and secured the contract. When the Merchant Shipping Bill, which subsequently became the Merchant Shipping Act of 1854, was introduced, containing provisions calculated to depress, instead of fostering, the improvement of the Mercantile Marine, Mr. Watson devoted himself to the amending of the Bill; most of its objectionable features were removed, and the measure, to a large extent, placed the law of merchant shipping on a satisfactory basis. To express their sense of his services, the Irish Steamship Association presented him with an address and a valuable service of plate.

The Holyhead mail contract, already referred to, in which economy rather than improvement had been looked for, did not satisfy the requirements of the increased postal and passenger traffic between England and Ireland, and efforts were made in Parliament to secure the establishment of an improved service. Nothing could then have been done unless the City of Dublin Company had consented to surrender their contract; but so far from raising any obstacle, Mr. Watson advised the company to agree to facilitate the proposed improvement to the fullest extent, and became foremost in bringing about the new service. The negotiations, from various causes, extended over several years. According to the original plan, the sea-carriage was to have been jointly performed by the City of Dublin company and the railway company, but many difficulties arose; matters were, however, eventually brought to a conclusion by an offer of Mr. Watson's, on behalf of his company, to undertake the entire sea service. This proposal was accepted by the railway company, the new contract was executed on the 3rd of January, 1859, and the improved service commenced on the 1st of October, 1860.

In a Paper by Mr. Watson presented to the Institution,¹ full

¹ Minutes of Proceedings Inst. C.E., vol. xxii., p. 574.

particulars are given as to the establishment of this mail service. It was carried on with unexampled success for twenty-three years. No casualty of importance ever took place, and not a single life was lost. The establishment of this improved mail service may be looked on as the principal achievement of Mr. Watson's life. When the management of the Port of Dublin failed to give satisfaction to the shipping interest, Mr. Watson took a leading part in bringing about a reform, and made arrangements for introducing a Bill in Parliament for the purpose. Ultimately, however "The Ballast Board," as the port authority was then called, settled to introduce a Bill, which became law in 1867. From that time until his death Mr. Watson was a leading member of the Port and Docks Board, as the new Corporation was called, and took an unflagging interest in the improvements of the Port of Dublin. One work in particular was mainly brought about by his influence. Old Carlisle Bridge had become wholly inadequate to the requirements of the traffic, and formed besides a mean continuation of a street admittedly one of the finest in Europe. Various plans had been proposed for its improvement, and many persons were in favour of a second bridge, to the east of Carlisle Bridge, and opposed any alteration of the latter, lest the former might not be constructed, but Mr. Watson succeeded in uniting all parties; an Act was passed in the year 1876, Carlisle Bridge was enlarged and reconstructed, and not only fulfils all that was expected in a utilitarian point of view, but architecturally makes Sackville Street and its surroundings a site of which any city might be justly proud.

In his later years Mr. Watson had first one, and subsequently a second son associated with him in the management of the City of Dublin Company, notwithstanding which he continued to give the same unremitting attention to its interests as he had always done. His mind continued vigorous as age advanced, and the soundness of his judgment did not diminish; an instance of this occurred not long before his death; the Post Office had given notice to terminate the mail contract, and had advertised for tenders, in answer to which the City of Dublin Company and the London and North-Western Railway Company had separately tendered on the 1st of June, 1882; months passed without any response from the Post Office, and the general opinion was that the railway company would be the successful competitor. Mr. Watson presided, as usual, at the half-yearly meeting of the City of Dublin Company on the 15th of November, 1882, and then stated that he expected the company would obtain the contract. The correctness

of his view was shown by the result, although on the 11th of January, 1883, it was announced that the London and North-Western Railway's tender had been accepted by the Post Office; for an opposition was commenced, which, supported as it was by the unanimous voice of the Irish parliamentary representatives, by the Corporation of Dublin, by the Chamber of Commerce, and by many other influential bodies and persons, resulted in the proposed contract being set aside, and in the end the City of Dublin Company obtained the contract, which was confirmed by the House of Commons on the 23rd of August, 1883. Mr. Watson did not, however, live to see his prediction verified. At Easter he was taken ill, and he died on the morning of the 10th of April, a few days before the Government announced to Parliament their decision not to press the contract with the London and North-Western Railway for confirmation.

While Mr. Watson's reputation for intelligence and wisdom was high, his character for uprightness and integrity was equally so; his aim in life seemed to be the advantage of others rather than his own, and as a natural consequence he enjoyed, to a most remarkable degree, the esteem and confidence of all who came in contact with him. His disposition was reserved, but his genuine goodness of heart obtained for him a love and affection which was widespread. His tastes were literary; books, indeed, were almost the only form of recreation he allowed himself. In all engineering and scientific subjects he took the keenest interest; biblical study, however, especially in his later years, claimed the largest share of his attention. He was a good classical scholar, and when the revision of the New Testament appeared, wrote a short treatise upon it, which was privately circulated. He was an example of a man who, beginning life without any special interest or influential friends, formed, by an unwavering course of industry and integrity, a prominent position of extreme usefulness and singular repute; he was a sincere Christian in the truest sense, and died honoured and mourned alike by friends and relations and all who knew him.

Mr. Watson was elected an Associate of the Institution on the 7th of December, 1852. He was also an Associate of the Institution of Naval Architects, and a J.P. of the county of the City of Dublin.