

MR. CHARLES LARKIN FRANCIS was born in South Lambeth on the 10th of December, 1801, and was the eldest son of Mr. Charles Francis, of Belgrave House, Vauxhall, a Justice of the Peace for the county of Surrey.

To within a short period of his death he was the head of the firm of Charles Francis and Sons, cement manufacturers, of London and the Isle of Wight, whose business transactions extended to all parts of the world, by far the largest part of the trade coming from foreign countries. The extensive fortifications and harbours of Odessa, Trieste, Cherbourg, and the Brazils owe a large portion of their strength and solidity to the cement exported by this firm. In the Great Exhibition of 1851 he exhibited an expeditious and cheap mode of erecting dwellings for the poor—at once dry, healthy, and more durable than brick—made of concrete, viz., cement and shingle, and received a medal and other acknowledgments.

In early life he travelled a good deal abroad, and resided in different parts of Italy and Germany. At one time he was a marble merchant, and visited Carrara to inspect the marble quarries, for which purpose he had letters of introduction from Chantrey to Canova. He was exceedingly fond of literary and scientific studies, particularly engineering and geology, and for four or five years he gratuitously wrote the leading article in the "Wilts and Gloucester Standard."

He was the originator of the City Steamboat Company, of which he was chairman for many years, and repeatedly received handsome testimonials from the Company for his great labours in its behalf. Ever ready to help those who required advice and assistance, he was beloved by all who had the happiness of his acquaintance.

Mr. Francis was elected an Associate of the Institution on the 6th of February, 1838. He died at his residence in Gloucester Street, S.W., on the 3rd of February, 1873, aged seventy-one years, and was buried in Norwood Cemetery.

MR. THOMAS GREENWOOD¹ was born at Gildersome, near Leeds. After serving some years in his father's machine shop, he, about the year 1833, established himself, in conjunction with his brother, as a machine and tool maker. On the death

¹ A detailed memoir of Mr. Greenwood, from which this notice has been mainly compiled, was inserted in the "Leeds Times," February 17, 1873.

of his brother, he, after a short engagement with Messrs. Whitham, of the Perseverance Ironworks, entered the drawing office of Sir Peter Fairbairn, of the Wellington Foundry, Leeds, and continued with him as manager, and shortly afterwards as partner along with Mr. Batley, under the firm of Fairbairn, Greenwood, and Batley, until 1856. Sir Peter Fairbairn principally devoted himself to the manufacture of flax machinery; but the outbreak of the Russian war so interfered with the ordinary business of the firm that nearly every order on hand was countermanded, and it became a question how to utilise the existing machinery and keep the men fully employed. At this crisis Mr. Greenwood's energetic mind conceived the idea of constructing machinery for the manufacture of the Enfield rifle and other war stores. Having persuaded Sir Peter Fairbairn to take up this new branch of art, he successfully competed with the most celebrated and experienced American tool-makers (who at that time had entire charge of the Enfield factories) in making machinery for the manufacture of interchangeable small arms for the British Government, and was thus instrumental in securing for this country a new branch of machine making. On the close of the Russian war in 1856, Mr. Greenwood left the Wellington Foundry, and, associating himself with Mr. Batley, who had been formerly cashier in the same works, established the Albion Foundry, under the style of Greenwood and Batley. Subsequently this firm built a large and extensive range of premises in Armley Road; and by way of preserving the old association, they called their new premises the Albion Works, at the same time keeping up their humbler establishment at East Street. Here the firm rapidly gained a high position, and it is not too much to say that the Albion Works, Leeds, are known all over the civilised world. Following the example of Sir Peter Fairbairn, Mr. Greenwood's attention was principally devoted to the production of flax and silk spinning, and small-arm machinery, thus curiously lending himself to the development of arts diametrically opposed to each other. Mr. Greenwood, in 1871, went to Russia to establish a small-arm manufactory in that empire, and there obtained one of the largest orders his firm ever received. He also went to America, and while there in the summer of 1872, suffered severely from the effects of the intense heat which then prevailed, and to which suffering his death, a few months after, may be traced.

Mr. Greenwood's life was a story of self-help and enterprise, and the success he ultimately achieved was as much owing to his industry and perseverance as to his undoubtedly high me-

chanical talents. On the subjects with which he was more particularly acquainted, Mr. Greenwood contributed Papers which have been published in the Proceedings of the Institution of Mechanical Engineers, of which society he was a Member.¹ As a citizen of Leeds he was held in deserved respect. He at one time was a member of the Town Council, and also acted as Chairman of the Leeds Board of overseers. The news of his death, which occurred on the 9th of February, 1873, at Gipsy Hill, near the Crystal Palace, caused general regret; and his funeral, at the Woodhouse Cemetery, whither his remains had been conveyed from London, partook of the nature of a public ceremony, sixteen hundred of the workpeople employed by the firm following him to the grave. Mr. Greenwood was elected an Associate of the Institution of Civil Engineers on the 4th of February, 1860.

MR. THOMAS CRUMP HAMBLING was born at East Dereham, Norfolk, on the 25th of September, 1835. After serving an apprenticeship to Messrs. Ransome and Sims, at Ipswich, he was for three years in the establishment of Messrs. Maudslay, Sons, and Field, which he left to become assistant manager at Messrs. Porter and Co.'s works, Tividale. He was then engaged by the Spanish Government to carry out public works, principally the erection of lighthouses on the coast. These he superintended under difficult and sometimes dangerous circumstances, and on their completion—after a short engagement under Mr. Robert C. May, M. Inst. C.E.,—he set up on his own account in London as a Consulting Engineer. He had laid the foundation of a successful practice, when his career was cut short by accidentally taking an overdose of laudanum, from the effects of which he died on the 14th of March, 1873, in his thirty-eighth year.

Mr. Hambling was elected as Associate of the Institution on the 6th of April, 1869, and frequently attended the meetings.

MR. HAMILTON EDWARD HARWOOD, son of Mr. William Harwood, of London, was articled, about 1840, to Mr. Francis Thompson, the well-known architect. He assisted Mr. Thompson, who placed great confidence in his business qualifications, on the stations of the North Midland, South Eastern, and Chester and Holyhead railways, also on the masonry of the Britannia Bridge,

¹ *Vide* Minutes of Proceedings Inst. M.E., 1862, p. 328; 1865, p. 103; and 1868, p. 105.