

Associate on the 3rd of February, 1874, was subsequently placed among the Associate Members, and was transferred to the class of Members on the 29th of May, 1883.

THOMAS WILLIAM MILES, eldest son of the late Mr. William Miles of Callinafercy, co. Kerry, Ireland, was born on the 26th of September, 1840. In 1860 he was apprenticed to Mr. William Barrington of Limerick for three years. After about twelve months in the office, he obtained practical experience on the extension of the Waterford and Limerick Railway from Castle Connel to Killaloe, and on the Rathkeale and Newcastle Junction line, under Mr. F. B. Walker, whom he succeeded as Resident Engineer on the latter. He was also in charge, under Mr. Barrington, of the Clodiagh River drainage district in co. Waterford, of the Mulkear River drainage district in co. Tipperary, and of the surveys for the Birdhill and Nenagh and the Limerick and Kerry lines.

In 1868 Mr. Miles entered the service of the Public Works Department of the Government of India as an Assistant Engineer under covenant for five years, at the end of which time he was placed on the permanent establishment. He was first posted to Rajputana, and although his name was borne on the railway staff of the Government, he continued to serve in the General Department of the Rajputana State during the whole of his Indian career, rising in due course to the rank of Superintending Engineer. The energy and devotion he brought to bear on all work entrusted to him soon gained favourable notice from the local Government; and his services were lent by the Government of India to the Jeypore State from April 1873 to July 1878, and to the States of Kotah and Jhallawar from the latter date. While employed in the Jeypore State he carried out successfully some good tank-irrigation projects and new roads, and when he left to take up the engineering charge of the Kotah and Jhallawar States, he was presented by the Jeypore Durbar with a gold watch and chain. He did much good work in the Kotah and Jhallawar States, opening out those hitherto neglected districts by good metalled roads, supplied with numerous masonry bridges or causeways, wherever necessary, over rivers of all kinds. Irrigation, too, was not neglected. He had to depend entirely upon native assistants, and the amount of work he carried out is the best tribute to his energy and professional ability; but what contributed perhaps

in great measure to his success were his active habits, genial disposition and kindness of heart. His sympathy with his fellow-men, whether Europeans or natives, endeared him to all with whom he came in contact. This smoothed over ordinary difficulties and enabled him to succeed where others would often have despaired or failed. He had no enemies and has left many friends.

Exposure, hard work and anxiety, coupled with the climate of Kotah and Jhallawar, obliged Mr. Miles to leave India in December, 1894, and laid the seeds of disease from which he never recovered. He died on the 11th of June, 1895, at the residence of his father-in-law, General J. C. Brooke, in London. Mr. Miles was elected a Member on the 3rd of February, 1880.

JAMES MURDOCH NAPIER, born on the 26th of July, 1823, was a son of the late Mr. David Napier, of Lambeth, well known as an inventor and constructor of printing-machines. In 1837, when but fourteen years of age, young Napier entered his father's works in Lambeth, where he became a skilled workman and draughtsman and soon displayed considerable capacity for original design. He assisted in the construction, in 1841, of the first steam-power gun-finishing machinery used at Woolwich,¹ and, in 1844, of an hydraulic traversing-frame designed by Mr. I. K. Brunel for the Bristol terminus of the Great Western Railway.² He then erected for Mr. Brunel an hydraulic travelling-crane in the locomotive works at Swindon and assisted in erecting an hydraulic lift for trucks at Bristol.

In the year 1847, being then twenty-four years of age and having already gained considerable experience, Mr. Napier was taken into partnership by his father, the firm from that time being known under the style of Messrs. David Napier and Son. After spending some months in Spain, directing the erection of gun-finishing machinery, he assisted in 1848 in the design and construction of registering weighing-machines and tipping-trucks for use at Portland breakwater. In 1855 he supplied an elaborate machine for weighing stone at the Tyne works, which not only indicated the weight of the load on the weighbridge, but also registered the gross weight passed over in a given time.

In 1851 the authorities of the Royal Mint began to regard the process of weighing the coin in detail by hand as laborious,

¹ Minutes of Proceedings Inst. C.E., vol. lxxxvi. p. 347.

² *Ibid*, vol. iii. p. 128.