

on fine days; but he suffered a relapse, and the disease ended fatally on the 4th of May, 1891.

Mr. Blair was an original member of the New Zealand Institute, to the Otago branch of which he presented several Papers. He possessed an extensive knowledge of forestry, and in 1879 published a book entitled "Building Materials of Otago and New Zealand generally," which is still a standard work. He was also the author of a useful volume on the industries of the colony, of a description of "The Cold Lakes of New Zealand," and of an article which appeared in the *Zealandia* magazine, on "Artificial Earth Sculpture," showing the effects of travelling-shingle on the coasts. He gave many lectures on the poetry of Scotland, one on the evening before he was taken ill being his last public act. Mr. Blair was loved and respected by his officers, and in private life was the centre of a large circle of friends. Upright, generous, genial, and of a ready wit, he was a warm and true friend and companion, and was ever willing to perform any act of kindness in his power. By his death the colony lost an able, conscientious and hard-working officer. He married, in 1867, a daughter of Mr. Robert Kennedy, banker, of Oban, by whom he had four sons and two daughters.

Mr. Blair was elected a Member of the Institution on the 29th of May, 1877.

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GEORGE FISHER, whose name was prominently connected with the Taff Vale Railway Company for a period of nearly half a century, was born near Chesterfield, in 1809. Proceeding at an early age to America, he was engaged on the works of the Erie Canal, where he acquired much varied practical experience. On returning to England he superintended, in the capacity of Clerk of the Works, the erection of Lord Lisburne's mansion at Crosswood in Cardiganshire, and was subsequently employed for some time on the harbour works at Aberystwith. About the year 1841 he joined the staff of Mr. Bush, then Resident Engineer on the construction of the Taff Vale Railway. On the completion of the works he became General Superintendent and Engineer, and from that time his connection with the Company continued uninterruptedly until his death.

At the time of Mr. Fisher's appointment the Taff Vale system was a single line of about 30 miles in length, and, so far, success

had not attended the undertaking. Under his guidance the traffic increased so rapidly that in 1847 it became necessary to double the line, and since then considerable portions have been trebled and quadrupled. Extensions were also made to accommodate the goods and mineral traffic, which rose from 782,000 tons in 1850 to 12,000,000 tons in 1890. During the same time the passenger traffic increased from 258,581, representing an income of £14,866, to 4,711,188, producing upwards of £120,000. As engineer, Mr. Fisher's constant aim was to improve the character of the works, which, as regards the earlier portions of the line, resembled those of a colliery branch or tramway, the bridges being of wood and the stations mere sheds. The signalling was also of the most primitive description, being effected by means of hoisting on poles red or white flags by day and lamps by night. Under his management all bridges were reconstructed in iron or stone, and in later years all bridges over which passenger traffic ran were renewed in wrought-iron or steel; commodious stations, among which that at Cardiff may be specially mentioned, were erected, and the works generally throughout the system were improved, the viaducts over the river at Taffs Well, Pontypridd, and Quakers Yard being carried out under his direction. He always regarded the masonry of his works as a most important feature, and in this, as in other respects, they are able to stand the test of searching comparison. He preferred Pennant stone, and seldom used brick if it could be avoided. Great improvements in the course of the line were made, where possible, by increasing the radius of the curves, and by reducing the gradients.

Mr. Fisher claimed to have been the first engineer who used steel rails in this country. He was quick to perceive the advantage and real economy afforded by appliances for the public safety, and at an early stage adopted the system of the interlocking of points and signals, and the use of safety-rings on the cast-iron bosses of wagon-wheels. He was also instrumental, in conjunction with the late Sir John Brown, in introducing the steel conical-spring buffer for railway-wagons. He gave unremitting attention to the removal of impediments to traffic, opening up the Yniscoi and Quakers Yard tunnels, and introducing locomotives in place of stationary engines. Soon after the line was opened a large portion was washed away by floods, which, in the Taff and Rhondda Valley districts, rise to a phenomenal height; and for years serious damage constantly occurred. So well, however, did Mr. Fisher cope with this difficulty that in recent years no anxiety has been felt during the rainy seasons.

He occupied successively the positions of General Superintendent and Engineer, General Manager and Engineer, and Deputy-Chairman and Resident Director, and it is well known that he never ceased to exercise a powerful influence in the general administration of the affairs of the Company. Apart from his professional duties, he interested himself in public matters, acting for a considerable time as a member of the Cardiff Town Council, and as Chairman of the Radyr School Board. He was also a magistrate for the county of Glamorgan, and took a warm interest in the development of local industries.

Mr. Fisher died, at his residence at Radyr, on the 3rd of May, 1891, at the ripe age of eighty-two, after only two days' illness. He was elected a Member of the Institution on the 4th of May, 1869.

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LIONEL PHILIP PAYNE GALLWEY, who was the third son of the late Sir William Payne Gallwey, Bart., of Thirkleby Park, Thirsk, Yorkshire, was born on the 7th of July, 1851. It having been decided that he should follow the profession of engineering, he was articled to Mr. F. Waring Davis, then in charge of the surveys of the port, proposed railway, and town of Quintero, in Chili. During the years 1873, 1874, and the early part of 1875, he was employed as an assistant on the Transandino Railway Survey, which involved the selection of the best of many routes over 175 miles of rough mountain country. On the expiration of his pupilage he was appointed, in January 1876, Resident Engineer on a section of the Banbury and Cheltenham Railway, under Mr. John Wilson. That work having been completed, Mr. Gallwey went, in December of the same year, to the Cape, and in the following month obtained employment on the Government Railways, at first as an assistant, and afterwards as Acting District Engineer in charge of the construction of 12 miles of the heaviest portion of the East London and Queenstown Railway, under Mr. A. E. Schmid and Mr. James Fforde. He was then, until August 1879, second in charge of the Eastern Railway Surveys.

In January 1880, Mr. Gallwey was appointed a District Engineer in the Public Works Department of Jamaica. His duties included the maintenance and improvement of 150 miles of main roads, and of numerous public buildings. This work, which