

At the International Exhibition of 1862 Mr. Henderson was awarded a bronze medal for mining plans. In 1868 he received the bronze medal of the Royal Cornwall Polytechnic Society for a plan of the Botallack Mine, and a silver medal in 1869 for an improved dial, while in later years he was the inventor of the surveying instrument known as "Henderson's rapid traverser," which is much used in the dense forests of West Africa. As a Captain of Volunteers, he devoted himself with great energy to military duties, and was well known as a marksman. He organised the Truro Volunteer Fire Brigade, and commanded it for twelve years.

Mr. Henderson was elected an Associate of the Institution on the 6th February, 1855, and was transferred to the class of Members on the 27th November, 1877. In 1858 he was awarded a Telford Medal for a Paper on "The methods generally adopted in Cornwall in Dressing Tin and Copper Ores."¹

WILLIAM BOURNE LEWIS, second son of Mr. Alderman Lewis, J.P., of Worcester, was born in that city on the 13th January, 1831, and was educated at home and at private schools. He was articled in 1848 to his father's friend, the late Mr. Richard Varden, who, under Brunel, was engineer for the Oxford, Worcester and Wolverhampton Railway. He was afforded rare advantages in his pupilage, as the plans for some 93 miles of railway, through a somewhat difficult country, were prepared in Mr. Varden's office from designs supplied by Brunel. He was stationed for nearly twelve months at the Mickleton Tunnel and acquired early a practical knowledge of materials and methods of construction. Under Mr. Varden's advice, he accepted a post in Brunel's office under Mr. Fisher, who had charge of the preparation of the specifications of works for which Brunel was responsible, from which he obtained most useful information.

Amongst the various subjects for which, under Brunel's instructions, Mr. Lewis had to draw up specifications, may be mentioned the Crystal Palace water-towers, the locomotive power on the South Devon Railway, the Saltash bridge, a timber slipway for launching the "Great Eastern," the South Wales Railway, the

¹ Minutes of Proceedings Inst. C.E., vol. xvii. p. 195.

Vale of Neath Railway, the Wilts, Somerset and Weymouth Railway, the Cornwall Railway and West Cornwall extensions, and one that ultimately had an important influence on Mr. Lewis' career, the Eastern Bengal Railway, which was eventually let to Messrs. Brassey, Paxton and Wythes. This work brought him into intimate connection with Mr. Wellington Purdon (afterwards his partner) and Mr. Brassey.

Meanwhile Brunel's extraordinary energy and devotion to work told upon his health, and Mr. Lewis was employed to convey to the several Resident Engineers and others the instructions of the Chief. This greatly enlarged his knowledge and experience, while it filled his hands with work at a time when he enjoyed good health and unflagging energy.

In addition to the Eastern Bengal Railway, other foreign and colonial work passed through the office. The Adelaide City and Port Railway involved the purchase and shipment of considerable plant, with which Mr. Lewis had much to do. And when Brunel was appointed Engineer to the Railway Department of the Government of Victoria, he placed Mr. Lewis in charge of the arrangements for the inspection of the materials. This grew into a very large business, which was carried on by Mr. Lewis for many years, first in connection with Brunel's successor, the late Mr. R. P. Brereton, and finally on his own account as Consulting Engineer to the Victorian Government.

After Brunel's death in 1859, Mr. Lewis determined to start in the profession on his own account, and he and his friend, the late Mr. William Jacomb, took offices together (but not as partners) in Westminster.

On Brunel's death his successor, Mr. Brereton, and Mr. Lewis continued the Victorian work until the troubles of 1893-94 arose, when the Colony ceased to employ an engineer in England. In the earlier days much interesting work was involved. Over £3,000,000 was spent in the purchase of plant and machinery. Complete designs were furnished by Mr. Brereton and Mr. Lewis for the caissons and the pumping and other machinery of the Alfred Graving Dock at Melbourne, also drawings for the large workshops for the railway system of Victoria.

Mr. Lewis' connection with Mr. Brassey began with the Eastern Bengal Railway and was continued in the construction of the Calcutta Waterworks carried out by Messrs. Brassey, Wythes and Aird. Mr. Lewis, who had done much to induce these three gentlemen to take up the scheme as partners, acted for them in London throughout the whole of the work, and a few years later he was engaged

in a similar capacity for the Simla Waterworks carried out by Messrs. John Aird and Sons.

Mr. Wellington Purdon, on his return from India after the completion of the Eastern Bengal Railway, became interested in several Irish railway schemes, and Mr. Lewis joined him as partner in these works, an arrangement which lasted over fifteen years, until Mr. Purdon's retirement from business in 1880. Among the works carried out by Messrs. Purdon and Lewis may be mentioned the Fermoy and Lismore Railway for the Duke of Devonshire, the Waterford, Dungarvan and Lismore Railway, and Rosslare Harbour Works (not completed).

While the Irish work was in progress Mr. Lewis became Engineer for the construction of the Worcester, Bromyard and Leominster Railway, a line chiefly promoted by some old friends of his father. The line was opened between Worcester and Bromyard in 1878, and taken over by the Great Western Railway Company as part of their system.

In 1881 Mr. Lewis assisted the late Mr. W. H. Barlow, Past-President of the Institution, in preparing for Parliament a scheme known as the Regent's Canal City and Dock Railway. Mr. Lewis threw himself into this work with great energy, the Bill passed both Houses of Parliament, but financial troubles ensued, and the powers lapsed.

In 1882 Mr. Lewis was called in by the trustees of the late Lord De La Warr to advise as to the best means of protecting the Earl's property at Bexhill from the inroads of the sea. This began an intimate connection between Mr. Lewis and Bexhill which lasted until his death. The successful protection of the estate by means of groynes and a sea-wall was followed by the development of the place as a health resort. A gas and water company was formed, Mr. Lewis carrying out the waterworks, while Mr. Corbet Woodall was responsible for the gasworks.

On the 12th February, 1885, Mr. Lewis was summoned to advise the Government as to the selection of contractors for constructing the Suakin and Berber Railway. During the short time that the line was in progress, and in the settlement following the Government's decision to abandon the project, Mr. Lewis acted as intermediary between Messrs. Lucas and Aird, the contractors, and the War Office.

In his early manhood the strain of incessant work through many years with little or no holiday told heavily on Mr. Lewis' naturally delicate constitution, and between the ages of 38 and 48 his health was much shattered. He suffered greatly from sciatica

and rheumatism, and had to relinquish a great deal of business. Happily, he largely recovered his health, although always remaining delicate, and was able to lead an active and busy life until his retirement from business in 1895, after which, however, he still continued his Bexhill work. To the end he manifested a keen interest in all that was going on in the engineering world. He had a large circle of friends in the profession, and few men were more respected. His sterling uprightness, coupled with his genial manner and ready sympathy, formed a striking personality which was framed in a correspondingly handsome physique. He died at Blackheath, where he had resided for over fifty years, on the 24th December, 1902, within three weeks of his 72nd birthday.

He was elected a Member of the Institution on the 6th February, 1866, and until latterly, was a regular attendant at its meetings. He took special interest in the Benevolent Fund, and served several times on the Committee of Management.

THOMAS MONRO, born in Ireland on the 27th November, 1831, began his engineering career in 1851 in Canada, where he was employed under Mr. T. C. Keefer on surveys for the Montreal and Kingston Railway, the St. Lawrence (now the Victoria) Bridge at Montreal, and the Montreal Waterworks. From 1853 to 1856 he had charge of a portion of the Grand Trunk Railway construction at Prescott, and from 1857 to 1859 he was employed on the Hamilton Waterworks, and as Assistant Engineer on the preliminary work of the Hamilton and Port Dover Railway.

In 1860 Mr. Monro entered the service of the Canadian Government, in which he remained until his death. During that period of forty-two years he occupied various important positions. In 1863 he was appointed one of the Government Inspectors of Railways, and in the following year he was specially sent to report on the best means of supplying water to the Parliament Buildings at Ottawa. In 1868-69 he examined the east shore of Lake Huron and the north shore of Lake Erie, with a view to the establishment of harbours of refuge on those lakes, and in the autumn of the latter year he made a part examination of the east end of the "Dawson" route as a proposed means of water communication with the north-west. In 1870-71 he located the