

to 1909. He was also a member of the Committee responsible for the formation of the British Engineering Standards Association in 1901, and was connected with that body until his death. During the war he served on various committees appointed by the Government and the Ministry of Munitions. He was a member of the following Committees of the Institution of Mechanical Engineers:—Marine-Engine Trials, Gas-Engine, Steam-Jacket, and Friction of Gears; and was Chairman of the Committee on Steam-Engines. He served on the Council of the Royal Society of Arts from 1911 to 1914, and at the time of his death held the post of Honorary Treasurer of that Society. He presided over the Mechanical Section of the International Engineering Congress at Glasgow in 1901.

In 1909 the University of Glasgow conferred upon him the honorary degree of LL.D.

Dr. Maw died at his London residence in Addison Road, Kensington, on the 19th March, 1924, and was buried at Kensington Cemetery, Hanwell, on the 22nd March.

He married, in 1867, Emily, daughter of Thomas Chappell, and left a widow, three sons, and five daughters.

HENRY DEANE, M.A., son of Henry Deane, F.L.S., was born at Clapham on the 26th March, 1847. At the age of 15 he entered Queen's College, Galway, where he graduated in Arts with honours in mathematics and natural science, having obtained a mathematical scholarship tenable for three years, after which he took a two years' course in engineering and completed his studies at King's College, London. The degree of M.A. was subsequently conferred upon him.

In 1867 he entered the office of Sir (then Mr.) John Fowler as a pupil of Mr. T. Marr Johnson, and was engaged on the construction of portions of the Metropolitan Railway.

In 1869 he obtained an appointment with Messrs. Waring Brothers, Concessionaires and Contractors for the East Hungarian Railway, on railway construction. During his first year in this capacity he was engaged on the construction of the Grosewardein-Klausenburg line until its practical completion, and then proceeded to the Mediash-Hermannstadt section, where he remained until a breach occurred between his employers and the Railway Company.

He then obtained an appointment, which he held for $3\frac{1}{2}$ years, with the Danube Steam Navigation Company at their Works at Altöfen, near Buda-Pesth, as Principal Assistant to the Engineer-in-Chief and General Manager.

He returned to England in 1875, and was engaged on a variety of work, including Parliamentary and other surveys, bridge designs, etc., mainly under Sir (then Mr.) Benjamin Baker.

In 1877 he proceeded to Manila in connection with the erection of sugar works and plant, on the design of which he had previously been engaged.

Subsequently he returned to England, but owing to general

depression in engineering work, decided to go out to Australia, where railway enterprise had reached considerable prominence. He landed in Sydney, New South Wales, in January, 1880, and after presenting his introduction to the late Mr. John Whitton, Engineer-in-Chief for Railways, was engaged in the Government service as a Railway Surveyor, and was put on to the section of the Great Northern line from Mullet Creek to Ourimbah.

At the beginning of 1881 he was appointed District Engineer on the extension of the railway from Gunnedah to Narrabri, and on its completion, at the end of 1882, he was placed in charge of the construction of the Homebush to Hawkesbury Railway, which was completed by the end of 1884.

He was then transferred to Sydney, where he was engaged on the preparation of plans, etc., for the proposed City Railway Extension, and later acted as Assistant Engineer Railway Surveys and Inspecting Engineer, to which latter post he was officially appointed in July, 1886, on the death of Mr. W. B. Wade. He occupied it until June, 1889, when he was appointed Acting Engineer-in-Chief for railways in Mr. Whitton's absence. Mr. Whitton's state of health on the completion of his leave did not permit him to take up the duties again, and as a consequence Mr. Deane was appointed to the post.

In 1894 he was commissioned by the Government to visit America and Europe for the purpose of investigating progress in connection with light railway and tramway construction, and in 1899 he took over all tramway construction work in Sydney. Again in 1904 he visited America and Europe on behalf of the Government, to investigate and report on a number of engineering subjects covering a very wide range.

In May, 1906, he retired from the Railway Service of the New South Wales Government, and was gazetted for the appointment of Government Inspecting Engineer in London, but as the terms offered were not acceptable, Mr. Deane did not take up the appointment, but went into private practice as a Consulting Engineer in Sydney.

One of the important undertakings he was responsible for in this capacity was the survey and construction of 32 miles of most difficult railway, through steep and rugged country, for the Commonwealth Oil Corporation. The line runs from Clarence on the Great Western Railway of New South Wales to Newnes, in the Wolgan Valley, the total difference in level between these two points being about 1,850 feet.

He was a Member of the Royal Commission of 1909 on the Crossing of Sydney Harbour, and in 1911 reported to the Commonwealth Government on the unification of railway gauges in the Dominions—a subject of which he had made a special study for many years. Following this, he became President of the Uniform Railway Gauge Conference, composed of Railway Engineers from each of the States, which sat during the latter end of 1912 and beginning of 1913.

In 1911 he was appointed Consulting Engineer to the Common-

wealth Government in the matter of the survey for the Trans-continental Railway from Kalgoorlie to Port Augusta, and in 1912 he took up the duties of Engineer-in-Chief for Commonwealth Railways, having been closely associated with the proposal since 1903, when, representing the State of New South Wales, he was Chairman of a conference of Engineers-in-Chief on the matter. Mr. Deane remained in this capacity till he retired into private life in 1914.

That his engineering ability was of a high order can be judged by the various commissions and inquiries not connected directly with railway work on which he sat, among which may be mentioned the Royal Commission on Sydney Water-Supply.

He was elected an Associate Member of the Institution of Civil Engineers in 1874, and transferred to the Class of Members in 1886. He also held the distinction from 1896 to 1899 of being the first elected Member of Council of the Institution for Australia. In 1899 he contributed to its Proceedings a Paper¹ on "Economical Railway Construction in New South Wales."

Mr. Deane's interests, outside his profession, were wide. He was a keen botanist, and did a considerable amount of valuable work in connection with the botany of New South Wales, more particularly in the study of Australian timbers, and especially the eucalyptus, on which he was a noted authority. He was a great advocate for the application of scientific methods of conserving and utilizing the forest resources of the States.

Under the subject of palæontology he made a study of the characteristics of the Tertiary Flora of Australia, and boldly challenged the correctness of certain theories put forward by Professor Ettingshausen, the eminent Austrian palæo-botanist.

Mr. Deane was twice elected President of the Royal Society of New South Wales, and for two years was President of the Linnean Society of New South Wales; he was also one of the early Presidents of the Institution of Surveyors, New South Wales, a society which includes fully qualified land and geodetic surveyors only. He was also a Fellow of the Royal Meteorological Society and of the Linnean Society of London, as well as of the Royal Horticultural Society.

Mr. Deane died suddenly on the 12th March, 1924, at his home in Malvern, Victoria, having all but completed his 77th year. He was twice married, and left a widow, three sons, and three daughters.

KENNETH PHIPSON HAWKSLEY, son of Charles Hawksley, Past-President Inst. C.E., and grandson of Thomas Hawksley, F.R.S., was born in London on the 15th September, 1869, and died on the 2nd May, 1924, in London. He was educated at Wellington College (1884-88), Trinity College, Cambridge, and University College, London.

His engineering training was obtained under his father, whom he assisted in Parliamentary surveys at Newcastle, Pontypool, Newark,

¹ Minutes of Proceedings Inst. C.E., vol. cxlii, p. 78.