

which was taken up by his firm. In 1868 he engaged in practice on his own account. He was appointed Consulting Engineer to Messrs. Mason and Barry, Limited, proprietors of extensive copper mines in Portugal, and superintended for them the sinking of new shafts, the erection of winding and pumping machinery, and locomotives, and the construction of reservoirs, embankments, etc., in Portugal, as well as designing extensive works at Rainham, Essex, for the manufacture of sulphuric acid on a large scale. He also acted as Consulting Engineer to Messrs. Gilbert Lawes and Company, chemical manure manufacturers, Messrs. Brunner, Mond and Company, The Bischof White Lead Syndicate, the Brimsdown Lead Company, and other large firms. In 1877 he perfected a new type of twin-cylinder marine engine, which he subsequently patented. He was consulted in connection with several important arbitrations, where his expert knowledge of the chemical branch of engineering was especially valuable.

Mr. Bernays was a member of the Society of Engineers, and of the Society of Chemical Industry, and served the office of President of the former society in 1880.

He was elected an Associate of The Institution on the 10th April, 1877, was subsequently placed in the class of Associate Members, and was transferred to the class of Members on the 1st April, 1884.

JOSEPH KINCAID was born in Dublin on the 12th November, 1834. His father, though not an engineer, was one of the early pioneers of railways, being a promoter of the Dublin and Kingstown Railway, the first line to be constructed in Ireland, and of the Midland Great Western Railway of Ireland. On account of delicate health, Joseph Kincaid's early tuition was entirely private, but he entered Trinity College, Dublin, in 1852, graduating in Arts in 1857, and subsequently proceeding to the Master's degree. On leaving college he obtained practical experience as assistant engineer on the Kingstown harbour works; in the construction of Mullaghmore harbour, co. Sligo, as Engineer-in-charge; and on other works. From 1860 to 1863, he served under Sir John Fowler and Mr. C. B. Vignoles, Past-Presidents, and was engaged at home and in Spain on the construction of the Tudela and Bilbao Railway and other undertakings. He also carried out independently the lighting of Bilbao and of Lograno with oil-gas. In 1864 he engaged in consulting practice, and was associated with many important undertakings at home and abroad. His name is more particularly

identified, however, with the introduction and development of tramways in Great Britain and other countries; he was indeed one of the pioneers of this particular branch of engineering, having even prior to the Tramways Act of 1870 constructed a horse-tramway from Dublin to Black Rock. The earlier tramways were constructed with a shallow rail spiked to longitudinal wood sleepers, but Mr. Kincaid early recognized the defects of this mode of construction and introduced an entirely metallic system, which became known by his name, consisting of "tee" or "channel" shaped rails fixed on cast-iron chairs embedded in the concrete. This system continued in use for a number of years until ultimately displaced by the "girder" type of tramway rail now generally adopted. Mr. Kincaid was amongst the first to introduce mechanical propulsion on tramways; first the steam-locomotive, then cable-traction, and ultimately electric traction. He was responsible for a considerable mileage of tramways at home and abroad, including the first cable-tramway constructed in England, the Highgate Hill line. As an authority upon tramway matters he was frequently called upon to give evidence in parliamentary committee rooms and in arbitration cases. He was retained in most of the important cases which arose under the section of the Tramways Act authorizing local authorities to purchase at the expiration of 21 years the tramways constructed by companies. He was also consulted professionally in connection with railways and gasworks in England, on the Continent and in America.

In 1892 he associated with himself as partners, Mr. J. E. Waller and Mr. Edward Manville, and subsequently Mr. Philip Dawson joined the firm, which practised under the style of Kincaid, Waller, Manville and Dawson. Mr. Kincaid died after a few days' illness at his London residence, on the 20th August, 1907, in his seventy-third year.

He was elected an Associate of The Institution on the 5th April, 1870, and was transferred to the class of Members on the 25th March, 1879.

JOSEPH LINDLEY, born in Hamburg on the 18th May, 1859, was the third and youngest son of the late Mr. William Lindley,¹ at that time Consulting Engineer to the Municipality. The subject of this notice was educated in England and served a pupillage under his

¹ Minutes of Proceedings Inst. C.E., vol. cxlii, p. 363.