

works were, in 1872, sold to a company, Mr. Chapman became Engineer and Secretary, which position he held for 44 years.

Mr. Chapman was connected with many other gas works and associations; he was elected an Associate of The Institution, 7th March, 1876, and transferred to the class of Members, 7th April, 1914.

ELMER LAWRENCE CORTHELL, M.A., was born in South Abington, Mass., U.S.A., on the 30th September, 1840, and died on the 16th May, 1916, in Albany, N.Y. He studied in the Brown University, Providence, R.I., from 1857 to 1861, when he left to take part in the Civil War, returning to the University in 1865, and remaining until 1867. He was then engaged for a year in engineering work under Mr. S. B. Cushing, and in 1868 he became assistant to Mr. S. Dwight Eaton on the construction of the Hannibal and Naples Railroad in Illinois. He was Chief Assistant Engineer on the construction of the Hannibal Bridge, over the Mississippi, in 1870.

In 1871 he became Chief Engineer of the Suy Island Levee on the Upper Mississippi, reclaiming 100,000 acres of land, and while this work was in progress he also acted as Chief Engineer of a draw-bridge of 444 feet, over the Mississippi at Louisiana, for the Chicago and Alton Railway. From 1874 to 1879 he was in charge, under the late Mr. James B. Eads, M. Inst. C.E., of the construction of the jetties at the South Pass of the Mississippi River, first as Chief Assistant, then as Resident Engineer. He was also associated with Mr. Eads in the Tehuantepec ship-railway project. In 1881 he was appointed Chief Engineer of the New York, West Shore and Buffalo Railway, and in 1887 he entered into partnership with Mr. George S. Morison in New York. From this time on he was constantly engaged on works of considerable magnitude, one of which, the improvement of the harbour of Tampico in Mexico, he described in a Paper read at the Institution in 1896.¹ He also advised on many schemes for improving the communications of Argentina.

A prolific writer and a keen participant in congresses, in Europe as well as in America, Mr. CortHELL was indefatigable in the collection and dissemination of engineering knowledge; and he also gave much consideration to questions of policy and organization in relation to the status and advancement of the engineering profession. He was elected President of the American Society of Civil Engineers early in 1916. In 1894 the Brown University (R.I.) conferred upon him the honorary degree of Doctor of Science. He was elected a Member of The Institution on the 2nd December, 1884.

THEODORE NEWEL ELY, who died 28th October, 1916, at Bryn Mawr, Pennsylvania, was born at Watertown, New York, 23rd

¹ Minutes of Proceedings Inst. C.E., vol. cxxv, p. 243.

June, 1846 and graduated as Civil Engineer at the Rensselaer Polytechnic Institute of Troy, New York, in 1866.

His life work was with the Pennsylvania Railroad. Beginning in 1868 as Assistant Engineer on the Philadelphia and Erie Division, he advanced through various grades until, in 1875, he went to Altoona as Superintendent of Motive Power of the Pennsylvania Railroad. He was made General Superintendent of Motive Power of all the lines east of Pittsburgh in 1882, and Chief of Motive Power of the lines east and west of Pittsburgh in 1893, his office in the latter position being at Philadelphia. He retired from active service in 1911 because of ill-health.

During Mr. Ely's administration at Altoona, locomotive and car designs were developed and improved, and many practices were introduced for increasing the efficiency and economy of railroad operations, among them being the establishment of a department of chemical and physical tests, and the encouragement of the entrance of young men of technical education into the mechanical department.

Later, as Chief of Motive Power, he took an active part in the consideration of the questions of policy involved in the increases in the capacities of locomotives and cars, especially in freight service, and the substitution of steel for wood in the construction of both freight and passenger cars.

Mr. Ely's professional activities extended to many related organizations outside the Pennsylvania Railroad, and he was also deeply interested in science and art, taking an active part in many organizations for their advancement, among them being the American Academy in Rome, of which he was one of the founders and Vice-President.

He was a Member of the American Societies of Civil, Mechanical, and Mining Engineers, and an Honorary Member of the American Institute of Architects. Among other academic distinctions conferred upon him was the honorary degree of M.A. of Yale University.

Mr. Ely was elected a Member of The Institution 4th December, 1888.

BENNETT FITCH, born at Steeple Bumpstead, Essex, on 25th June, 1845, died at Ealing on the 27th November, 1916. After training under Messrs. Gotto and Beesley, he was employed upon the drainage of Rio de Janeiro, and later was an assistant to Mr. Baldwin Latham until 1870. In 1871 he entered the service of the Nizam of Hyderabad, and was employed, at first as an assistant and after 3 years as Executive Engineer, on canals, irrigation works, roads and Government buildings. From this service he retired in 1886. Mr. Fitch was elected an Associate Member 2nd December, 1879, and was transferred to the class of Members 25th November, 1884.

DAVID JOHN HIGHET, born at Ayr on the 15th November, 1862, died at Hove on the 17th September, 1916. After acting for