it in iron vessels, and caused to be recalled an order for a silver vessel to cost £1500, by showing how that alkali could be prepared in iron.

He had the degree of LL.D. conferred on him, and became a Fellow of the Royal Society. He was elected a Fellow of this Society on April 1st, 1861. He was Deputy-Lieutenant for Kincardineshire. Though his successful enterprises had brought him wealth, he was unostentatious in his habits, and of a kindly and hospitable disposition. He died in May 1883.

JOHN MILLER, M.Inst.C.E.

Mr John Miller was born at Ayr on the 26th of July 1805. He was educated at the Academy of his native town, and on leaving it entered a solicitor's office; but feeling no liking for the legal profession, he determined to abandon it for that of a Civil Engineer. After making himself well acquainted with the theory and practice of engineering, he became a partner of Mr Thomas Grainger, M.Inst.C.E., whose office was in Edinburgh. Whilst in partnership with that gentleman, he was engaged in constructing roads in various counties in Scotland, and in the south of Ireland, and was acting engineer for the Dundee and Arbroath Railway; the Glasgow, Ayr, and Kilmarnock Railway; the Edinburgh and Glasgow North British Railway. He also designed and constructed the North British Railway, Edinburgh to Berwick, and the Edinburgh and Hawick Railway; the Dundee and Perth Railway; the Stirling and Dunfermline Railway. Mr Miller was also engineer for many other lines, both in Scotland and England. In November 1845 he deposited in Parliament plans for upwards of 1500 miles of railway.

On the above railways there are probably some of the finest viaducts in Great Britain, notably the Almond Valley Viaduct, consisting of 46 arches of 50-feet span; the Dunglass Viaduct, the centre arch of which has a span of 135 feet; whilst the centre arch of the Ballochmyle Viaduct has a span of 180 feet. Mr Miller, however, always considered the Lugar Viaduct, with nine arches of

50-feet span, and four of 30-feet span, as his greatest work. The rails of that viaduct are 150 feet above the River Lugar.

Mr Miller retired from the profession of Civil Engineer in 1850. In 1868 he was returned to Parliament as one of the members for the city of Edinburgh, but lost his seat at the General Election in 1874. He purchased the estates of Leithenhopes in Peeblesshire, and Drumlithie in Kincardineshire, and devoted a great part of his time to improving them. He died on the 8th May 1883.

Mr Miller at the time of his death was Senior Member of the Institution of Civil Engineers, and was elected a Fellow of this Society in 1841.

Charles Adolph Wurtz.

Charles Adolph Wurtz was born on November 26, 1817, at Wolfheim, in Alsace. He studied at the University of Strasburg, where he completed the medical curriculum by taking the Doctor's degree in 1843. From Strasburg he went to Paris, where he occupied several positions successively, until he became in 1883 Professor at the École de Médicine; and in 1866 he was made Dean of the Faculty. In 1867 he was elected member de l'Institut, in preference to Berthelot, who was his only serious opponent. He died on the 12th May 1884, having only three weeks previously pronounced a brilliant and affectionate *éloge* at the tomb of his great master Dumas, whose successor as perpetual Secretary of the Academy he was, on all sides, designated to be.

Few chemists have done more or more remarkable work than Wurtz. His first publication is on the nature of hypophosphorous acid, which he explained; and in the course of his studies on the compounds of phosphorus he discovered the oxychloride. In hydride of copper he discovered the first definite combination of hydrogen with a metallic body. In 1848 he made perhaps his most important discovery, namely, that of the compound ammonias, which did so much to assist in establishing the type-theory of his countryman and contemporary Gerhardt. It was extended by his discovery of glycol and the consequent introduction of the idea of polyatomic alcohols. The controversy on the constitution of lactic acid, in