

classes, and the kind instructor and guide of the young, his name will be cherished, his actions live, and his example be followed when marble monuments have crumbled into dust."

He had been a Member of the Institution of Civil Engineers for twenty-two years, having joined it in 1834, and he always took a lively interest in the proceedings, but his constant residence in the country prevented his frequent attendance at the meetings.

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MR. CHARLES RAMMELL was born on the 4th of February, 1822, at Street, in the Isle of Thanet, and was educated at an academy, near Margate, where he was articled, in 1837, to Mr. William Edmunds, an Architect and Surveyor of considerable local eminence. In 1842, he entered the office of Messrs. Grissell and Peto, in London. In 1844 and 1845, he was chiefly engaged, under Mr. Bidder, (V.P. Inst. C.E.) in laying out various lines of railway, and particularly, the North Staffordshire line. From 1846 to 1849, he was employed, as Resident Engineer, in superintending the execution of a considerable and difficult portion of that railway, from the junction with the London and North-Western line, at Macclesfield, to the tunnel at Harecastle. In 1851, he was appointed by Mr. Robert Stephenson, M.P., President, and Mr. Bidder, V.P., to survey a line of railway of about 60 miles in length in Norway, connecting Christiania with Lake Miösen, and of this line he had the entire local charge of the execution, up to its completion, at the latter end of 1854. On the 20th February, 1855, he started for India, where he had charge, for a few months, of some engineering works up the country, in connection with the great line of railway communication between Calcutta and Bombay. He subsequently accepted an engagement to survey the proposed Euphrates Valley Railway, and left Bombay early in June, 1846, for the Euphrates, intending to examine minutely the route through Asia Minor and to Constantinople, and thence to proceed homewards to report the result of his labours. Unfortunately he entered upon this arduous task, at a season of the year which, as he well knew, greatly increased its dangers, and when he reached Bussorah, he was suddenly carried off, by an attack of illness, brought on by the excessive heat then prevailing, the thermometer constantly standing above 100° Fahrenheit, without a breath of air, even at night. Although complaining of general uneasiness, he did not think the state of his health such as to cause him to seek advice, but had recourse to the contents of his medicine chest, chiefly for tonics and stimulants, with a view of averting, if possible, an attack of Bussorah fever, about which he had received some directions in Bombay. On the morning of the 12th of June he had employed himself in writing letters to his friends, and, very soon afterwards,

he was seized with giddiness, followed by bleeding at the nose, and other serious symptoms, and within two hours he expired, at the house of the British vice-consul, at Maghill, near Bussorah, where he had only arrived five days previously. The immediate cause of death was ascribed to a suffusion of blood on the brain, during an apoplectic fit. On the following day his remains were buried in the garden behind the Residency. His premature decease at the age of thirty-four, was deeply regretted by his friends, as well as by all those Engineers with whom he had been associated, his cheerfulness and ready co-operation rendering him a general favourite. He joined the Institution, as a Member, in the year 1855, but his provincial and foreign engagements prevented his taking any active part in the proceedings at the Meetings.

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MR. JOHN URPEETH RASTRICK was born at Morpeth, in the county of Northumberland, on the 26th day of January, 1780. He was the eldest son of Mr. John Rastrick, who was an engineer and machinist of great ingenuity, principally employed in the construction of weirs, mills, and bridges, on the mountain streams of the neighbourhood. He claimed the invention of the treadmill for prisons, and it is possible, that he may have designed a similar machine, before it was introduced by Mr. (now Sir William) Cubitt, to whom the invention is with strict justice ascribed. At the age of fifteen, young Rastrick was articled to his Father. At this period he was remarked among his associates, for the possession of great energy of purpose, untiring perseverance, clearness of intellect, and sound mechanical and mathematical knowledge. At about the age of twenty-one he went southward, to gain experience as a machinist and millwright, particularly in the introduction of cast iron for machinery, then almost in its infancy. He remained for some time at the Ketley Iron Works, in Shropshire, and soon after entered into partnership with Mr. Hazeldine, of Bridgnorth, as a mechanical engineer, taking special charge of the iron foundry.

During this partnership, Mr. Rastrick continued to practise, on his own account, as a Civil Engineer, and in the years 1815 and 1816, he built the cast-iron bridge over the river Wye, at Chepstow, which was opened on the 24th July, 1816. The centre arch of this bridge had a span of 112 feet, and a versed sine of 13 feet; the arches on each side of the centre arch were 70 feet span and 10 feet 9 inches rise; and the two side arches had each a span of 34 feet, with a versed sine of 7 feet 3 inches. Economical considerations necessitated the use of part of the foundations of a former bridge, which somewhat interfered with the general symmetry of the appearance of the new bridge; and the immense rise of tide, (48 feet,) and its great rapidity, rendered it a work of no ordinary