and his handsome face, invariably lit up by a pleasant smile, was familiar to most frequenters of the Institution, the meetings of which he attended with great regularity. He further manifested his interest in the Society by bequeathing to it in trust a sum of £500, free of legacy duty, for the purpose of founding a "Crampton Prize," to be awarded annually to the Author of the best Paper on "The Construction, Ventilation and Working of Tunnels of Great Length," or, failing the reception of such a Paper, then to the Author of the best Paper on any subject the Council may select.

Mr. Crampton's death is regretted by a very wide circle of professional friends, to whom his frank and genial nature made him ever welcome, and by whom his practical genius, energy, and indomitable perseverance will ever be remembered with admiration.

BARNARD WILLIAM FAREY was born on the 12th of August, 1827. His scientific abilities were partly inherited, his uncle, the late Mr. John Farey, M. Inst. C.E., being the author of a well-known work on the Steam-Engine; while another uncle, Mr. Colomb Gengembre, was an eminent engineer at Nantes, in France. To the latter young Farey, when only nine years old, was sent on the death of his father, and there he remained seven years. It was under the tuition of this uncle that the young man commenced his engineering education, serving a regular pupilage and being employed for some months at the Marine Engine- and Ship-building Works of the French Government at Indret, which were under the superintendence of Mr. Gengembre. At the age of sixteen, however, Farey resigned his post, and returned to England to complete his technical education. He was first employed by Mr. William Bridges Adams, at the Fairfield Works at Bow. After remaining there for two years and a-half, he obtained the post of assistant at the engineering establishment of Messrs. Swayne and Bovill, where he worked under Mr. (now Sir Frederick) Bramwell.

In 1847 he went to Messrs. Bryan Donkin and Co.'s Engineering Works, at Bermondsey, and a few years later became a partner in the firm. He had now an opportunity to display his scientific gifts and attainments. The first gas-valve with internal rack and pinion was made by Messrs. Donkin and Co. in 1847, for the Gas-Light and Coke Company, and was designed by Mr. Farey. So great has been the demand for these valves, that from that date to 1887 more than fifty thousand have been constructed by the firm. Two years later, in 1849, he invented a double-cylinder rag-boiler for paper-makers.

Mr. Farey was an indefatigable scientific worker. A few years after he became a partner in the above firm, he began a series of experiments at Bermondsey with Mr. Bryan Donkin, jun., extending over a period of ten years. These experiments were made on steam-engines with compound- and single-cylinders, and with and without steam-jackets, and were designed to ascertain their respective economical values. Various improvements were introduced, and accounts of the experiments were sent to 'Engineering,'[1] and were published from time to time in that journal. Later, in 1875-76, he, in conjunction with the other members of the firm, made upwards of one hundred trials with a small experimental compound steam-engine, now in Professor Kennedy's Engineering Laboratory at University College, London.

Such constant activity bore fruit in various patents. In 1852 Messrs. Bryan Donkin and Farey patented an improvement in paper-machines for measuring and marking off continuous webs of paper. As a cross-cutting machine for paper, this has since been found of great service. In 1866 Mr. Farey took out a patent for a still more important invention, viz., a tandem horizontal compound-engine, with steam-jackets, the main advantage of which consists in the prevention of wear in the cylinders. This was effected by allowing the weight of the pistons to be taken on outside guides, by means of rods at each side. Many engines of this type are now at work. In 1869 he patented an apparatus for superheating the steam in a compound-engine during its passage from one cylinder to the other; and in 1873 he took out a patent for improving the slide-valve gear of steam-engines, by abolishing the stuffing-boxes between the high and low pressure valve-chests.

The following extract from a letter written by Mr. Bryan Donkin, late senior partner of the firm, after the death of Mr. Farey, shows the high opinion entertained of his ability and character by his colleagues:—

"My long connection and personal intimacy with Mr. Farey led to frequent interesting conversations on a great variety of subjects, and consequently enabled me thoroughly to appreciate not only his eminent talents and great mechanical resources, but also the high sense of truth and uprightness which so much distinguished him. My esteem for him was very great in every way."

Mr. Farey married in August, 1869, Elizabeth Westley, of Cheltenham, but had no children. Failing health led him to resign his partnership in 1881, after having been connected for

[1] 'Engineering,' vols. vii. pp. 320, 334, 341; ix. 3; xii. 279; xviii. 304, &c.

thirty-four years with the firm of Bryan Donkin and Co. Since his retirement he lived quietly at Upper Norwood, where his death took place on the 9th of May, 1888. Mr. Farey was elected a Member of the Institution of Civil Engineers on the 7th of March, 1865.

PETER GRECK, Colonel of Engineers in the Imperial Russian Service, was born at St. Petersburg on the 23rd of November, 1827. He was educated at the Imperial Engineering Academy in that city, where he became first pupil and passed most brilliant examinations. On leaving the Academy in 1848, he was appointed a Lieutenant in the Imperial Corps des Ponts et Chaussées, and was attached to the Locomotive Service of the Petersburg-Moscow Railway. Three years later he became Resident Engineer on 25 miles of the Petersburg-Warsaw Railway, which he laid down and partially constructed. This post he held until 1856, when he was appointed Engineer in charge of 65 miles of the same line for the Great Russian Railway Company. From 1860 to 1863 he served as Aide-de-Camp to the Russian Minister of Public Works, and in the latter year became Resident Engineer at Moscow for the Petersburg-Moscow Railway, on which line his professional career had commenced. He was now actively engaged in designing and superintending the construction of the Central Station at Moscow. As a recognition of this, and of his services in connection with other public works, he received the Imperial Orders of St. Anne, 3rd degree, and of Stanislaus, 2nd degree. In 1865 he designed and constructed the Metropolitan Junction Railway of Moscow, which line was completed in three years. During this time Colonel Greck studied and planned the whole of the Moscow-Jaroslav line, 150 miles in length, part of which—the line from Moscow to the Monastery Station—he constructed himself. In 1868 and 1869 he held the appointment of Chief Engineer for the Kursk-Azoff Railway, which he had constructed, as well as the line from Moscow to Kursk, and in the following year undertook the construction of the Novgorod-Oustrotroland line, upon which he was occupied for eight years. His career as a Military Engineer ended on the 2nd of April, 1877, when he received a pension of 215 roubles, or £21 10*s.* sterling, after thirty years' service.

Colonel Greck was resident in London from 1869 to 1881, in the capacity of Chief Engineer to the Russian Government, charged with the execution of commissions for locomotives, rails, coal, and other matters in connection with the Imperial Railway Depart-