was on the failure of this effort that Lady Franklin herself undertook the responsibility, and the result has now, it appears, justified her faith and enterprise. It will be for the country to consider whether the widow of the brave and unfortunate explorer shall be permitted to pay out of her private funds for information so interesting to the public, and for which so large a sum as $\pounds 10,000$ had been offered in the name of the country—an offer which has never, we presume, been formally withdrawn.

III. Piographical and Personal Sketches.

No. 31. ROBERT STEPHENSON, Esq., M.P., F.R.S.*

The death of Stephenson comes with startling rapidity upon that of Brunel. Both men of rare genius, and both occupying a sort of double throne at the head of their profession, they have gone to their rest together, and their rivalry has ceased. Mr. Stephenson's health had been delicate for about two years, and he complained of failing strength just before his last journey to Norway. In Norway he became very unwell, his liver was so much affected that he hurried home, and when he arrived at Lowestoft he was so weak that he had to be carried from his yacht to the railway, and thence to his residence at Glocester-square, where his malady grew so rapidly as to leave from the first but faint hopes of his recovery. He had not strength enough to resist the discase, and he gradually sank until at length he expired on the morning of the 12th of October.

He was born under very humble circumstances. George Stephenson, his father, deemed himself a right happy man when, on earnings of £1 a week, he could offer his hand to the pretty farm servant, Fanny Henderson. He took her to his home at Wellington-quay, on the North bank of the Tyne, about six miles below Newcastle, towards the end of 1802, and his biographer tells us that his signature, as it appears in the parish books on the occasion of his marriage, was that of a person who had just learned to write. On the 16th of December in the following year, George Stephenson's only son Robert, was born. George Stephenson felt deeply his own want of education, and in order that his son might not suffer from the same cause, sent him first to a school at Long Benton, and afterwards to the school of a Mr. Bruce, in Newcastle, one of the best seminaries of the district, although the latter was rather expensive for Stephenson. There young Robert remained for three years. On leaving school at the age of 15, he was apprenticed to Mr. Nicholas Wood, at Killingworth, to learn the business of colliery. His father was engaged at the same colliery, and the evenings of both were usually devoted to their mutual improvement. He sent him in the year 1820 to the Edinburgh University, where Hope was lecturing on chemistry, Sir John Leslie on natural philosophy, and Jameson on natural history.

In 1822 Robert Stephenson was apprenticed to his father, who had by this time started his locomotive manufactory at Newcastle; but his health giving way after two years' exertion, he accepted a commission to examine the gold and silver mines of South America. The change of air and scene contributed to the restoration of his health, and, after having founded the Silver Mining Company of Columbia, he returned to England in December, 1827, by way of the United States and Canada, in time to assist his father in the arrangements of the Liverpool and Manchester railway, by placing himself at the head of the factory at Newcastle. He obtained the prize of L500 offered by the directors of the Liverpool and Manchester railway for the best locomotive. He himself gave the entire credit of the invention to his father and Mr. Booth, although we believe that the "Rocket," which was the designation of the prize-winning engine, was entered in the name of Robert Stephenson.

The young engineer saw where the machine was defective, and designed the "Planet," which, with its multitubular boiler, with cylinders in the smoke-box, with its cranked axletree, and with its external framework, forms, in spite of some modifications, the type of the locomotive engines up to the present day. About the same time he designed for the United States an engine especially adapted to the curves of the American railways, and named it the "Bogie," after a kind of low wagon used on the quay at Newcastle. To Robert Stephenson we are accordingly indebted for the type of the locomotive engines used in both hemispheres.

The next work upon which Mr. Stephenson was engaged was the survey and construction of the London and Birmingham railway, which he undertook in 1833. On being appointed engineer to the road he settled in London, and had the satisfaction of seeing the first sod cut on the 1st of June, 1834, at Chalk Farm. The line was complete in four years, and on the 15th of September, 1838, was

opened. The difficulties of this vast undertaking are now all forgotten, but at the time they were so formidable that one poor fellow who had contracted for the Kilsby tunnel—died of fright at the responsibility he had assumed. It was ascertained that about 200 yards from the south end of the tunnel there existed—overlaid by a bed of clay 40 feet thick—a hidden quicksand. The danger was so imminent that it was seriously proposed to abandon the tunnel altogether, but Robert Stephenson accepted the responsibility of proceeding, and in the end conquered every difficulty. He worked with amazing energy—walked the whole distance between London and Birmingham more than twenty times in the course of his superintendence.

He devoted much time to improvements in the locomotive engine, and after 1838 was engaged on many lines of railway. But he was most remarkable for the vastness of some of his projects, such as the high level bridge over the Tyne at Newcastle, the viaduct over the Tweed Valley at Berwick, and the Britannia Tubular Bridge over the Menai Strait, a conception the novelty of which was even more striking than its magnitude. This was opened in 1850. He was also consulted as to the Belgian lines of railway, as to a line in Norway between Christiania and Lake Miosen, for which he received the Grand Cross of the Order of St. Olaf, and as to the railway betweeu Florence and Leghorn. He visited Switzerland for the same purpose. He designed and was constructing the Victoria bridge over the St. Lawrence, near Montreal. The reader will find a full account of most of these works in an article on iron bridges contributed by Mr. Stephenson himself to the Encyclopædia Britannica.

They are all splendid works, and have made his name famous over e world. The idea of the tubular bridge was an utter novelty, the world. and, as carried out on the Menai Straits, was a grand achievement. Considering the enormous span of a bridge placed across these straits, the immense weight which it has to sustain, and the height to which it must be raised in order that great ships may pass beneath, the undertaking seemed chimerical, and he must have been a man of great daring, as well as of no common experience, who could think of conquering the difficulty. Robert Stephenson, however, fairly faced the difficulty, and threw bridges of 460 feet span from pier to pier across this formidable gulf. It was the first thing of the kind ever attempted, and the success was so triumphant that under Mr. Stephenson's auspices it has been repeated more than once. It is not long since he completed the 140 miles of railway between Cairo and Alexandria, with two tubular bridges. He was lately constructing an immense bridge across the Nile to replace the steam ferry. In the tubular bridges of the Egyptian railway over the Damietta branch of the Nile, and the large canal near Besket-al-Saba; there is this peculiarity, that the trains run, not as at the Menai Straits, within the tube, but on the outside upon the top. It is with this method of tubular bridging that Stephenson's name is peculiarly identified, and by which he will probably be best known to posterity as distinguished from his father, who has almost the entire credit of the railway system.

Mr. Stephenson was an honorary but an active member of the London Sanitary and Sewerage Commissions, a Fellow of the Royal Society, a member of the Institution of Civil Engineers since 1830, of which institution he was a member of Council during the years 1845 to 1847, and President during the years 1856 and 1857. He received a gold medal of honor from the French Exposition d'Industrie of 1855 and is said to have declined an offer of knighthood in Great Britain. He was also the author of a work "On the Locomotive Steam Engine," and another "On the Atmospheric Railway System," published in quarto by Weale. It will not be supposed that Mr. Robert Stephenson's labors were

It will not be supposed that Mr. Robert Stephenson's labors were confined to the construction and survey of railways. We have reports of his on the London and Liverpool systems of Water-works. In 1847 he was returned as member of Parliament for Whitby, in the Conservative interest. He took a great interest in all scientific investigations and was a member of more than one Scientific Society.

As a specimen of his liberality in the cause of science, it may be mentioned that he placed his yacht the Titania—and it is said that he had the best manned yacht in the squadron—at the disposal of Professor Piazzi Smyth, who was sent out with very limited means to Teneriffe to make sundry scientific observations, and thus materially assisted the researches of that gentleman. In the same spirit he came forward in 1855, and paid off a debt amounting to £3,100, which the Newcastle Literary and Philosophical Society had incurred, he motive being, to use his own phrase, gratitude for the benefits which he himself had received from it in early life, and a hope that other young men might find it equally useful. It was like the man to do so, for, as we have already suggested, his heart was worthy of his head, and in one form or another he was always doing good. The remains of Mr. Stephenson are to be interred in Westminster Abbey.—Abridged from the London Times.

^{*} A bust of Mr. Stephenson is exhibited in the Upper Canada Educational Museum, Torento.