

## MR. DANIEL ADAMSON.

AS a mechanical engineer and a metallurgist, Mr. Daniel Adamson must always maintain a foremost place, for he was in the van in the industrial progress of the century. He was born at Shildon, in the county of Durham, in 1818, and apprenticed to Mr. T. Hackworth, locomotive superintendent of the Stockton and Darlington Railway, with whom he remained from 1835 to 1841. He then held various stations in the same railway until 1850, and in 1851 he began business on his own account as an iron-founder, engineer, and boiler-maker.

From this time forward until quite recently Mr. Adamson has brought out many highly successful inventions in connection with the manufacture of boilers and the application of steam. The first of these was a flange seam for high-pressure boilers, patented by him in 1852, and well known as Adamson's flange seam. In 1856, Mr., now Sir Henry, Bessemer, read a paper before the British Association at Cheltenham describing his steel process, and one of the first to apply it was Mr. Adamson. Having satisfied himself by experimental trials of the quality of steel, he determined to use it for the manufacture of boilers; and Sir Henry Bessemer, when on May 9, 1888, he presented the Bessemer Medal to Mr. Adamson on behalf of the Council of the Iron and Steel Institute, referred with satisfaction to this circumstance, as being the turning-point in his own career, and as having given a start to the use of steel for general engineering purposes. Later on, when open-hearth steel was introduced by the late Sir William Siemens, Mr. Adamson made trial of it for boiler use, and was for years an upholder of the merits of steel. He wrote a comprehensive paper "On the Mechanical and other Properties of Iron and Mild Steel," which was brought before the Paris meeting of the Iron and Steel Institute in 1878, when it gave rise to a most interesting discussion. This paper is looked upon as a standard one on the subject of steel.

Mr. Adamson's inventions appear to have been all intimately connected with his business. In 1858 he applied hydraulic power for the riveting of steel structures, and in 1862 he brought out an invention for building steam boilers, the rivet holes being drilled through the plates when these were in position. He was entirely opposed to the punching of steel plates; he described it as a barbarous mode of treatment, as it tore the fibre of the material; and he would never allow it to be used in his own works. The important feature in all Mr. Adamson's work was its thoroughness; all the material used was subjected to chemical and mechanical tests, so that he obtained a reputation throughout the world for the soundness of everything he turned out.

Mr. Adamson was one of the first to show the superiority of compound engines. This class of engine had already been introduced by Mr. John Elder, of Glasgow, but to Mr. Adamson is greatly due the credit of the employment of triple and quadruple expansion engines. In 1874 he read a paper at Manchester, in which he maintained that pressures of 150 pounds on the square inch could be as safely applied as pressures of 50 pounds by a careful extension of the compound system. As far back as 1861 he patented and brought out a triple-expansion engine, and in 1873 a quadruple engine. In the paper to which we have just referred Mr. Adamson gave expression to the opinion that the consumption of coal per horse-power per hour should not exceed from 1 to  $1\frac{1}{2}$  pounds of coal, whilst at that time  $2\frac{1}{2}$  pounds per horse-power per hour was considered a very good result.

Besides these inventions, Mr. Adamson took out patents in connection with the manufacture of steel by the Bessemer process, with machinery for compressing steel, and for testing machines, as also improvements in guns and armour.

No account of his work would be complete without a reference to his connection with the Manchester Ship Canal. He was of an enthusiastic temperament, and this was made specially evident in connection with this great undertaking. A Manchester man, and thoroughly convinced of the benefit which would accrue to the surrounding manufacturing towns, Mr. Adamson set to work to effect what others had proposed. It is more than 65 years ago since it was proposed that Manchester should be connected with the sea by a ship canal, but it was Mr. Adamson's invitation to various persons to meet at his house on June 27, 1882, that really started the project. The proceedings then initiated resulted in the incorporation of the Manchester Ship Canal Company in 1885. Mr. Adamson's work in connection with international progress, and his labours to make Manchester an ocean steam port, will not readily be forgotten.

In September and October last he was engaged on an examination of the iron mines of the island of Elba, and he embodied the results in a report to the Italian Government. About two months ago he caught a cold on his Flintshire estate of Wepre Hall. He returned to his home at Didsbury, and died there on Monday, the 13th inst.

Quite recently Mr. Adamson was elected President of the Iron and Steel Institute. He was a member of the Institution of Civil Engineers, of the Institution of Mechanical Engineers, and of the Iron and Steel Institute, and to the proceedings of these Societies he presented many papers containing the results of his inquiries as to the properties and treatment of metals, especially iron and steel.

## NOTES.

AT a meeting of a Committee appointed by the Council of the Royal Society to set on foot a memorial to the late James Prescott Joule, held on November 30 last, at Burlington House, it was unanimously resolved that a fund should be raised for a memorial of an international character commemorative of the life-work of Joule. This memorial will have for its object the encouragement of research in physical science. It is proposed also that a tablet or bust shall be erected to his memory in London, a Manchester Memorial Committee having already taken steps to ensure a suitable monument in his native city. Joule's discoveries were of such commanding importance that there can be no doubt as to the success of this movement. The Committee feel confident not only that men of science will gladly contribute towards a fund to do honour to Joule's memory, and to assist others to follow in his footsteps, but that those who devote themselves to the practical application of scientific principles will also be anxious to aid in the promotion of a fitting memorial of one whose work has exerted so great an influence on industry.

WE regret to announce the death of Gustave-Adolphe Hirn, the eminent physicist. He died at Colmar on January 14, in his seventy-fifth year.

MR. ROONEY, who accompanied the late Father Perry on the solar eclipse expedition to the Salut Isles, has arrived in England, bringing with him the plates successfully exposed during the totality of the eclipse by Father Perry and himself. Mr. Rooney has put himself in communication with the Astronomer Royal, and the plates will be handed over to the Royal Astronomical Society to be developed.

THE Forth Bridge was tested by the engineers on Tuesday as a preliminary to the passage of the first train over it on Friday. The following is the official report:—"Sir John Fowler and Mr.