

People - Robert Hadfield



Robert Abbott Hadfield was born on 28th November 1858 in Attercliffe. His parents were Robert and Marianne (maiden name Abbott), Robert Hadfield (senior) was a second cousin of the famous steel manufacturer Sir John Brown. When Robert was born his father's occupation was described as a *vestry clerk*, however he later set up his own small-scale steel casting business in Attercliffe. The family purchased a large plot of land next to Ashdell Cottage from John Shepherd in 1867 and constructed a pair of semi-detached houses on it, one for their own family use. By the time of the 1871 census they were in residence there (Ashdell Mount).

Robert (junior) was educated at Sheffield Collegiate School and Firth College, where he was taught chemistry by the famous chemist William Baker. On leaving formal education he joined the firm of local steelmakers Jonas and Colver. His interest in chemistry continued under the guidance of Mr. A. H. Allen, a leading analyst. He persuaded his father to allow him to set up his own melting furnace in the cellar of their family home, which was still in place in the 1970's, though has since been removed to Kelham Island museum.

In 1878, Robert (junior) visited the Paris Exhibition where he was introduced to the researches of the Terre Noire Company. Robert translated the company's pamphlet on the benefits of adding small quantities of manganese to steel. He set up his own steelmaking experiments when he returned home, using both manganese and silicon as additives.

Robert was sent to America by his father in 1882, to tour the American steelworks in Pittsburg, Chicago and Philadelphia. He was impressed by the high production volumes that these factories routinely achieved. On returning to Sheffield he redirected his own research efforts to the study of special steel alloys. Building on his earlier work, in 1882 Robert developed manganese steel which was hardened by sudden cooling using water quenching. This hard steel was perfect for the manufacture of tram wheels. He patented his work in 1883-4 and continued to refine his products before publicising his findings widely in 1888.

Robert Hadfield (senior) died in 1888 and Robert Hadfield (junior) immediately made the firm a limited company, Hadfield's Steel Foundry Co. Ltd. He took over the position of chairman. Although a hard task master, Robert Hadfield was one of the first employers to introduce the eight hour day in 1891 and he co-wrote a book on *The Shorter Working day*. After his father's death the family moved from Ashdell Mount to a nearby grander house called 'Fairfield' on Fulwood Road (standing just before the junction with Shore Lane, but now demolished).

Due to the high production costs of manganese steel it was not until 1892 that other companies entered this market. By then the special qualities of the steel had been recognised and it was in high demand for railway crossings and machinery. The expansion of the railways helped the expansion of Hadfields, Between 1894 and 1914 the firm's capital grew from £135750 to £700000 and the workforce from 520 to 5980. In 1897 new premises were opened at Tinsley, the East Hecla Works. Robert Hadfield married his wife Frances in 1894. Frances was the daughter of a wealthy American family, whom he had met in Philadelphia. He and his wife had no children. They made their family home in Parkhead in Sheffield though work often took them away. From 1909 -11 they went on a world tour and on their return moved from Sheffield to London (Carlton House Terrace), wintering in the South of France. However they continued to keep the house in Sheffield and visited the city regularly.

The first World War dramatically accelerated the demand for manganese steel. New markets had also opened up for silicon steel, for example in the manufacturer of electrical transformers. By 1919 Hadfields were Sheffield's biggest employers and East Hecla Works was probably the largest special alloy steel manufacturer in the country.

Robert Hadfield retired from the firm in 1921 after a serious illness, however he continued to attend annual board meetings and kept in touch by telegrams and telephone. The 1920's brought problems for Hadfield's; there was a post-war slump in orders, strikes, and financial difficulties caused by problematic mergers and acquisitions. However during this time Robert Hadfield's personal reputation as a leading metallurgist grew. He published over 200 papers and embarked on lecture tours both at home and abroad. Robert Hadfield always took the opportunity to highlight both the unique place that Sheffield occupied in world steelmaking as well as his own personal contribution to the modern age of alloy steels.

Robert Hadfield's honours and achievements include:

1899 - Master Cutler.

1908 - Knighted.

1908 - Appointed President of the Faraday Society and the Iron and Steel Institute.

1909 - Elected Fellow of the Royal Society.

1917 - Made a baronet and given the freedom of the city of London.

1925 - Made an Officer of the Legion d'Honneur.

1938 - Benefactor of the Sir Robert Hadfield Metallurgical Laboratories, Sheffield University; Hadfield Building is on Broad Lane.

1939 - Received the Freedom of the City of Sheffield.

Robert Hadfield died in Surrey on 30th September 1940 and was buried in Surrey.