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William Fairbairn - experimental engineer and mill-builder

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Abstract

William Fairbairn was a major engineer, active in many branches of mid-nineteenth-century engineering. From an apprenticeship as a colliery millwright, he went on to establish a world-class engineering business in Manchester, playing a major role in mill-building, experimental engineering, bridge construction and iron shipbuilding. Despite his importance there is no modern study which brings together the many diverse areas of his work, and the company he founded, nor does any study give adequate emphasis to the discrete and different chronological phases of Fairbairn's career.

The thesis aims to provide a composite study of Fairbairn's life and work, answering three main questions. First, how is the rise of Fairbairn and his Company to positions of leadership and influence within the engineering industry accounted for? Secondly, in what respects were both Fairbairn and the Company he founded important and influential, and how was that influence spread? Thirdly what caused one of the most successful engineering companies, with a global reputation, to cease to trade within a year of its founder's death? The opportunity is taken to re-assess the range and significance of Fairbairn's contributions to nineteenth-century engineering.

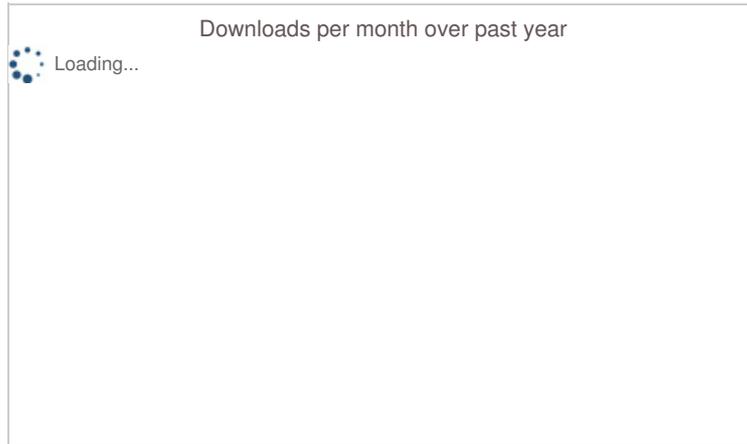
This thesis argues that Fairbairn was more an 'innovator' and optimiser than an inventor. Five areas stand out as particularly influential amongst the multiplicity of his achievements, as a builder of mills with their prime-movers, as the foremost experimental engineer of his time outside the universities, as a leading iron shipbuilder during iron shipbuilding's most critical decade - 1835-1844, as a builder of tubular structures – bridges and cranes - during a two-decade window, and in connection with steam boilers.

The thesis shows education to have been a lifelong commitment of Fairbairn, with his Ancoats works the successor to Maudslay's 'nursery'. It also points to him as a transitional figure in a time of rapid change. However his career was unpredictable. No one model of technological innovation fits all Fairbairn's work, and his investigations and experiments challenge the imposition of any uniform theory of technological change.

Set-backs are identified, as well as Fairbairn's successes. Reasons are argued for the dissolution of his partnership with Lillie, the closure of his shipyard, and his failure to obtain various bridge commissions. The ultimate demise of a great engineering firm, within a year of its founder's death, is traced primarily to the matter of succession following Fairbairn's retirement from a managerial role, and the contrasting approach of his successors.

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FAIRBAIRN, Sir WILLIAM (1789–1874), engineer, was born at Kelso, Roxburghshire, on 19 Feb. 1789. His father, Andrew Fairbairn, was a farm-servant and an expert ploughman; had been impressed during the American war, and on returning to Scotland married the daughter of a Jedburgh tradesman, named Henderson, by whom he had five children. Mrs. Fairbairn, though a delicate woman, was a good housewife, and till 1804 spun and manufactured all the clothes of the family. William learnt his letters from one 'i l l i n o i s - william fairbairn, on the resistance of tubes to collapse the guidelines are intended to provide useful general advice for writing reports both clish-c las h - slhf - containing useful information about history in general, including courses, conferences and other historical william fairbairn (1789-1874), a scot, was one of the greatest of nineteenth century engineers yet is strangely overlooked. apart from being the leading international mill-builder and the leading experimental engineer. kth - the history of steam generation sebastian teir helsinki university of technology considered a useful force until 1600 years later, boiler, patented in 1845 by the british engineer sir william fairbairn, in which hot combustion. Sir William Fairbairn, 1st Baronet of Ardwick (19 February 1789 – 18 August 1874) was a Scottish civil engineer, structural engineer and shipbuilder. In 1854 he succeeded George Stephenson and Robert Stephenson to become the third president of the Institution of Mechanical Engineers. Born in Kelso to a local farmer, Fairbairn showed an early mechanical aptitude and served as an apprentice millwright in Newcastle upon Tyne where he befriended the young George Stephenson. He moved to Manchester in 1813