Crucible steel as an enlightened material

Chris Evans

ABSTRACT: Crucible steel is usually seen as a product of Sheffield. It is defined as a key element of Britain’s Industrial Revolution; in turn, it defines the Industrial Revolution as something essentially provincial and vernacular. This paper proposes a shift in perspective. It examines the alternative genealogy of crucible steel to be found in Henry Horne’s Essays concerning iron and Steel (1773). Horne presented crucible steel as something metropolitan and enlightened: it was a product of London and its scientific community. It is a suggestion that runs counter to the accepted history of crucible steel as a process and a product, but there is something to be gained by taking Horne’s view seriously.

Steel with Sheffield

The Essays concerning iron and steel, published in 1773 by a London cutler named Henry Horne, have not been much noticed by historians, perhaps because the story told therein is so at odds with our common understanding of one of the key episodes in Britain’s Industrial Revolution: the invention of crucible steel. Crucible steel, in the conventional narrative, is Huntsman steel. It is a product of Yorkshire. It speaks of dogged provincial endeavour; its social origins are modest, clothed in Quaker plainness. Benjamin Huntsman, the only true begetter of crucible steel, occupies an honoured place in the pantheon of sturdy, unpretentious innovators — Arkwright, Darby et al — who feature so prominently in the traditional telling of British industrialisation.

Henry Horne tells a different story, offering a narrative that departs sharply from the one familiar to modern readers. Crucible steel originated not in the sooty vernacular of Sheffield, but amongst learned and distinguished figures in London. The method, Horne revealed, had been discovered by ‘a gentleman (as I have been informed) residing in the Temple, an acquaintance of the late Lord Macclesfield’ (Horne 1773, 165). Here, clearly, was a figure with social cachet and formidable intellectual credentials: he was a denizen of one of the capital’s great seats of legal learning and a client of George Parker (c 1697–1764), second Earl of Macclesfield, an eminent astronomer and president of the Royal Society from 1752 to his death. Horne could not positively identify this gentleman-who-could-not-be-named; ‘nor could I ever gain the least information of the means by which he became possessed of so valuable a secret’. But Horne was willing to relate how crucible steel became a sought-after commodity in London.

The gentleman-who-could-not-be-named had shown no desire to profit from his breakthrough. He waited for a worldlier individual, one who could exploit the technique effectively, to show himself. That individual turned out to be ‘one who had been employed in flatting of gold and silver wire for the use of the lace-men’ (Horne 1773, 166). There was nothing implausible in this; the employment of cast-steel rollers in preparing metal leaf was one of the earliest attested uses of Benjamin Huntsman’s steel. Nor was there anything suspect in Horne’s next suggestion: that the metal-leaf roller who had been entrusted with the secret of making crucible