

Introduction

The papers gathered in this issue of *Historical Metallurgy* were originally presented at the colloquium *Steel in Britain in the Age of Enlightenment*, organized by Chris Evans with the generous support of the British Academy and hosted by the University of Glamorgan in December 2007. Scholars from France, Germany, Sweden and the UK attended, representing a range of disciplinary backgrounds. A report on the two-day event appeared in *HMS News* 68.

The colloquium took place nearly a quarter of a century after the publication of KC Barraclough's *Steelmaking before Bessemer* (1984) opened up the study of pre-industrial steel in Britain. Barraclough's landmark work remains a sure guide to technique but no reference was made in his two volumes to the economic or cultural context within which steel was made, and the end uses of steel were rarely considered. A re-consideration of the territory Barraclough first mapped seemed opportune. Not only has there been a transformation in our thinking about the material culture of the 18th century in the intervening years, but views on the intellectual environment of technological change have also changed radically. The pre-workshop agenda document suggested that re-examining pre-industrial steel as a component of the Enlightenment world might offer an interpretative way forward.

Yet defining steel during the Age of Enlightenment was a problem in itself, for there was no secure chemical understanding of the substance before the 1780s. Nor was there a settled nomenclature; indeed, types of steel were designated in ways that are but hazily understood today. Establishing a historically sensitive vocabulary in which to couch a discussion is an essential preliminary task for workers in the field. Likewise, specifying steel's meaning within Enlightenment culture is a constant challenge, for steel was not the prosaic material that it became in the post-Bessemer world; Damascus steel or wootz steel from India had mysterious qualities and exotic connotations that fascinated European chemists and natural scientists. Moreover, British-made steel was often used for purposes that were decorative rather than functional, in ways more often associated with precious metals. Pre-Bessemer steel sits uneasily in the hierarchy of value that seems most appropriate to modern eyes, one leading smoothly upwards from base metal to bullion.

Participants were asked to consider basic questions of chronology, scale, and spatiality to which only very imperfect answers currently exist. In the middle of the 17th century the British Isles were on the margins of European steel making and heavily dependent on imports from the German lands; by the middle of the 18th century Britain was the most dynamic centre of European steel production. How is the trajectory of this epochal change to be traced and explained? What were the sources of capital? How did the market function? How was the workforce recruited? A pooling of knowledge is needed if these questions are to be fruitfully addressed.

Accounting for technological change is still fundamental, despite the pioneering work of Barraclough. Key turning points stand out: the 1620s, when the cementation method was introduced to Britain; the 1690s, which appears to be a point of 'take-off'; the 1740s, when Huntsman perfected the casting of steel; the 1820s, when cast steel finally acquired a 'mass' character in Sheffield. But these should not be pressed into too linear a narrative. It remains to be explained why the cementation method became the exclusive technique of the Anglophone Atlantic, or why Huntsman's cast steel remained relatively unimportant until the 19th century.

Much depends on the uses to which steel was put, and these were very varied. A great deal was devoted to the making of humdrum tools and devices, but steel was also increasingly used for purposes that were recognisably 'enlightened'. That is, steel became a material ingredient in

many of the acts of social interaction and scientific endeavour that typified the public sphere of Georgian Britain. Steel was used in ways that were ornamental (in jewellery, buckles, or buttons), horological (in watch springs) or musical (in wire or plectrums). These purposes required specific characteristics – the ability to take an unblemished polish, for example, or to exhibit a precise degree of springiness. Steel also served medical purposes (in surgical instruments or as a remedial agent in its own right when powdered). Indeed, many of the new uses of steel drew upon an Enlightenment concern with bodily practice: steel was employed to counter the malfunctioning of the body (trusses), to correct its deformities (deportment collars), or to curb its unruliness (razors).

The participants at Steel in Britain in the Age of Enlightenment responded enthusiastically to this agenda. There was no stock response; instead, a pleasing diversity of approach and insight. Some disputed the chronology and framework suggested in the agenda, invoking renaissance humanism or the scientific revolution of the 17th century as more meaningful. Others pondered the boundary between the vernacular and the enlightened; others still wondered whether the geographical focus of study, fixed for so long on Sheffield, might not be shifted elsewhere. There were participants who offered new diagnostic techniques for investigating artefacts; others who presented archival findings that put familiar stories and faces in a startling new light. Not all the presentations given at the colloquium are reproduced here—they were reports from a rapidly advancing research frontier—but abstracts of all the papers can be found online at <http://history.research.glam.ac.uk//steel/abstracts/>. Those who were present were left with a sense that there is far more to come.

Chris Evans