

with William's *Democratic Sonnets* and Lucy's biography of Mary Shelley, whereas the Man of Letters chapter covers William's development as a critic and writer from his earliest days with *The Germ* to the late autobiographical *Some Reminiscences*, and sets out in some detail his huge output all the time he was working at the Inland Revenue.

In addition to her exemplary and wide-ranging recovery of forgotten and unpublished material, Thirlwell relies heavily on William's diaries and correspondence, whereas she doesn't have the same direct entry into Lucy's private self. William therefore emerges as a much more engaging personality with his gentleness, his love of listmaking and cataloguing, his volumes of *Miscellanies*, his completely unsentimental awareness that "I have not an originating mind" (144), even though the reader recognises immediately that his collecting mania is evidence of a different sort of creativity from that of his "genius" siblings. William's life also enables Thirlwell to discuss some important Victorian preoccupations. There is, for instance, a pellucid discussion of the general problems of translation in her discussion of William's translation of Dante.

This is an important book in its retrieval of two overlooked Victorian lives, and above all it is a sumptuous book. It is beautifully produced by Yale University Press on glossy art paper so that the plentiful illustrations in both colour and black and white are able to be incorporated into the text rather than sitting alone in a separate interleaving.

Barbara Garlick

Discovering Water: James Watt, Henry Cavendish and the Nineteenth-Century "Water Controversy", by David Philip Miller. Aldershot, Hants: Ashgate, May 2004. 330, 8 illustrations. ISBN 0-7546-3177-X. £55.00 (hardback).

The fact that water was a compound and not an element was first discovered in the late-eighteenth century after approximately two millennia of inquiry. The Chemical Revolution of the eighteenth century gave rise to the kind of endeavour that was responsible for creating the supposedly simultaneous scientific discovery of water. David Philip Miller's ambitious and meticulous book, rather than simply seeking to correctly attribute the discovery to either James Watt or Henry Cavendish instead interrogates the curious dispute that the water controversy generated in early nineteenth-century scientific debate in order to ask more fundamental questions about the very nature of scientific discovery.

James Watt (1764-1819), whose surname is best known today as the international unit of power, was a Scottish engineer, inventor and most significantly in the context of Miller's investigations, an autodidact who became famous for his

radical improvements to the steam engine and became posthumously involved in the water controversy. After Watt's death in Birmingham, on August 25th 1819, his son took the filial responsibility of enhancing his father's reputation. Watt junior's claim was that his father had been first in the discovery. He was not so much concerned with what his father had actually discovered, but when. Such a notion is the crux of Miller's book: that the nature of scientific discovery is plural, that discoveries can be either "found objects" (11) or "sociological process" (12). Miller argues that to treat discoveries as "found objects" suggests a problematically realist view of science that literally discovers what is there in the landscape waiting to be discovered. The model of "sociological process" is much more representative of the water controversy in so far as there was not one single breakthrough that is easily attributable as the defining moment of the discovery. Instead, the discovery of water was a temporally and geographically deferred process that took place over many months in England, Scotland and France.

Watt's competitor in the water controversy was Henry Cavendish (1731-1810) who was an eccentric, shy, aristocratic physicist and chemist; he was the man who (quite accurately) calculated the weight of the earth as being approximately five times the mass of water. It is, historically, Cavendish who has been attributed with the discovery of water but what is most enlightening in the water controversy is the fact that neither of the two men showed a great deal of interest in their own attribution of the discovery in comparison to the debates that would rage after their deaths.

Priority disputes have traditionally been deployed by historians and philosophers of science as informative because they tend not to be orchestrated by those who made the discovery and therefore reveal the innate structures of scientific endeavour; Miller, however, rightly contends that scientific controversy are revealing precisely because they do not present a "universal normative of scientific action [. . .] the controversy is a window onto the cultural politics of early Victorian science" (4). Miller's suggestion is that the controversy can be framed as being a response to other larger discourses of, for example, the "democratization of scientific institutions" (280) in France or the utilitarian notion of useful and commodifiable knowledge in early Victorian Britain.

The posthumous wrangle over who would be credited with the discovery began with the publication of Dominique Francois Arago's *Eloge of James Watt* in 1834 and continued after many of the men involved were long dead in 1850. Miller points out that the attribution of the discovery depended largely upon the particular methodology of attribution employed. Watt's supporters tended to prioritise the fact that he was first to make a discovery; Cavendish's supporters tended to be more interested in the chemical debate over what had actually been discovered. Few seemed interested in the fact that both men were responding to the work of John Wartire, or that the French chemist Antoine Lavoisier also had a significant claim to the discovery. Miller's study is very good on tracing the sometimes nationalistic and

sometimes empirical desires behind various attributions and especially at negotiating the influence of Watt junior on Arago's *Eloge of James Watt* – the text responsible for kick-starting the debate.

Thematically, the book has an interesting relationship with the Chemical Revolution, in so far as it is a narrative meditation and philosophical inquiry into early-nineteenth century responses to it, and although there is a section on its historiography it does not go so far as to answer some fundamental questions. Miller suggests that “the task of the historian, in my view, is to try to understand and explain the variety of attributions made, the strategies employed in making them, and why and how some won out over others” (26). Equally, the task of the historian is also to interrogate the vitality of the cultural moments that validated, gave rise to, and made necessary such debate. What was it about the 1780s and 1830s that made the scientific attribution of water such a key issue? What did water convey, hermeneutically, in this period and why were its constituent elements considered as so essential as to justify such a debate? What did water mean to scientists, the populace, to history in the early nineteenth century? Some further inclusion of the influence of the Lunar Society upon the discovery and the resulting debates surrounding the water controversy would have been interesting, pertinent and philosophically productive, too. Nonetheless, *Discovering Water* does make excellent work of recounting and explaining the utter fascination and peculiarity of a debate that seemed to have so much at stake for what some lesser historians might mistake to be so little.

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