

Josiah Wedgwood's medallions, Boulton's silverware and the Palladian architecture of Soho House. More surprisingly, Russell assesses the impact of the old on steam engines. As increasing attention was paid to their aesthetic appearance, these icons of modernity might incorporate Greek columns with ornate capitals, be styled to follow the Gothic revival, or be decorated with Egyptian motifs.

As Russell describes in his final chapter, 'Life after death', Watt helped to ensure that he would be remembered as a lone heroic inventor, the engineering equivalent of Britain's scientific genius, Isaac Newton. But even iconic figureheads are not always perfect: the neophyte Newton mistakenly trained his telescope on Venus instead of a comet, and Watt produced a dud dividing plate with only 359 marks (instead of 360) on its circumference. According to nineteenth-century mythology, the steam engine was born when a kettle boiled, but the real-life Watt sometimes despaired of ever making it work satisfactorily. 'Of all things in life, there is nothing more foolish than inventing', he wrote to his impatient partner John Roebuck, who accused him of 'letting the most active part of your life insensibly glide away' (p. 89).

Celebrated for his industrial inventions, Watt himself now belongs to Britain's heritage industry. Russell has provided a refreshingly original insight into the life and activities not only of this national hero, but also of his many less famous colleagues who together transformed traditional craftsmanship into industrial innovation.

PATRICIA FARA  
*University of Cambridge*

BRIAN GEE (ed. ANITA McCONNELL and A.D. MORRISON-LOW), **Francis Watkins and the Dollond Telescope Patent Controversy**. Farnham: Ashgate, 2014. Pp. xxvi + 392. ISBN 978-1-4094-6643-7. £85.00 (hardback).  
doi:10.1017/S000708741500076X

While patenting was on the rise in Georgian Britain, it was still not the norm. Nonetheless, some patents were vigorously and successfully defended. One of the most significant of these cases concerned John Dollond's 1758 patent for an achromatic lens, an innovation that revolutionized the production of telescopes and made the Dollond firm, particularly as Peter Dollond enforced his father's patent. While this particular patent and the prosecutions arising from it have frequently been cited and discussed in the history of science and technology, this new account adds considerably to previous work by exploring the facts in detail and correcting some misconceptions.

Brian Gee's book derives from an aspiration to develop models of the relationship between makers and users of scientific instruments in order to understand the importance of instrument-makers in the history of science. To that end, Gee spent many years working towards a comprehensive account of Francis Watkins (1723–1791) and the firm he founded. While the wider project was incomplete at the time of Gee's untimely death in 2009, the chapters in this volume were already drafted and have been brought together and edited for the Scientific Instrument Society.

As the early chapters show, Francis Watkins followed a familiar trajectory for an instrument-maker. Coming from a Welsh family, he moved to London in the 1730s and was apprenticed to various opticians before setting up his own business. Once established, the firm sold optical, electrical and other instruments, as well as model steam engines, in which Watkins was a notably early player. The book's concluding chapters document the firm's transformation into Watkins and Hill, which survived into the mid-nineteenth century and had an important role in the expansion of school and university education, before its decline and takeover over by Elliot & Sons.

The meat of the book, however, is in its central chapters on the patent controversy. Commercial disputes of all sorts were common in the London trade. By the early 1750s, indeed, Watkins was already involved in battles around new types of telescope, and a decade later his association with the Dollonds would find him embroiled in the industry's most far-reaching dispute. As background, Gee offers a good account of earlier attempts to develop lenses free of chromatic aberration, which was

the cause of distracting coloured fringes when viewing through telescopes. By the mid-eighteenth century, the Swedish mathematician Samuel Klingenstierna and others had begun seriously to question Isaac Newton's contention that chromatic aberration could never be corrected, and practical solutions had been produced, notably by an English lawyer, Chester Moor Hall. It was this work that John Dollond picked up on and for which he filed a patent in April 1758, for a two-part lens made of crown and flint glass that was, to all intents and purposes, achromatic.

Francis Watkins entered the story by helping Dollond to obtain the patent, guiding the application through the laborious process, and paying the necessary fees, with a partnership agreement between Dollond and Watkins drawn up after the patent was granted. Only later, as Peter Dollond began to enforce his father's patent, did Watkins come to regret his involvement. The partnership was dissolved in 1763 (John Dollond having died in 1761) and Watkins became one of many optical instrument-makers in dispute with Peter Dollond over the production and sale of achromatic telescopes.

The ensuing story of challenge, counterchallenge and prosecution is traced in two important chapters. These take the reader through the complexities of the English legal system and the different arenas (King's Bench, Privy Council, livery company etc.) in which the ensuing debates were pursued. At one of these cases, in the Court of Common Pleas in February 1766, Lord Camden made the oft-quoted statement that 'it was not the person who locked up his invention in his scrutoire that ought to profit by a patent for such invention, but he who brought it forth for the benefit of the public' (p. 187). It had been revealed by this time that the achromatic lens had indeed been devised decades earlier by Chester Moor Hall, yet Camden asserted that patent rights, and thus invention, were primarily a matter of commercial exploitation, of bringing an innovation into use for the public benefit. As is clear in these chapters, understanding the full process is crucial, and this is a good attempt to set things out clearly and in detail. These sections touch on crucial issues in the relationship between invention and commerce, and how these were developing and changing in the eighteenth century.

This is very much a book of two parts, therefore, with the Dollond controversy largely overshadowing discussions of the rest of Watkins's work. Some of the chapters, notably those on the firm's later history, can feel a bit lost as a result. There is no question, however, that this will be a work of reference for future historians. In that it is aided by a good number of illustrations, mostly quite well produced, and six valuable appendices, including transcriptions of Dollond's experiments on refrangibility, the 1758 patent and articles of co-partnership between Watkins and Dollond, and Samuel Klingenstierna's admonishment of John Dollond (who downplayed the significance of Klingenstierna's work for his own). The book's editors, Anita McConnell and Alison Morrison-Low, should be commended for their hard work in making this a comprehensible and valuable addition to the scholarly analysis of a crucial period in the history of invention, as should the Scientific Instrument Society for facilitating the publication.

RICHARD DUNN  
*Royal Museums Greenwich*

SILKE ACKERMANN, RICHARD L. KREMER and MARA MINIATI (eds.), *Scientific Instruments on Display*. Leiden: Brill, 2014. Pp. xxxiv + 231. ISBN 978-90-04-26439-7. £88.00 (hardback). doi:10.1017/S0007087415000771

This volume's twelve chapters are drawn from papers given at the 2010 Scientific Instrument Symposium, which met in the newly renovated Museo Galileo to discuss 'Instruments on Display'. Some of the contributions are fairly slight in length and analysis, but together they encourage 'thinking about the cultural, technical or scientific significance of how scientific instruments have been displayed in venues other than those for which they were originally made', even if they do not quite lead to 'general frameworks' for such thoughts (p. xvii). The usefulness