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.

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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).
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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

of the collection is in its variety. 'Display' and 'instruments' are interpreted broadly, generating a plurality of meanings that reflect changing views of science, instruments, the public, museums and markets. Instruments rather rarely appear as tools but are, instead, commodities, relics, adornments, scenery and means of educating or conveying national, cultural, institutional, scientific or technical histories. Likewise, while 'display' often relates to museums, it also points to schoolrooms, laboratories, observatories, showrooms, theatres, cinemas, books and portraits.

The book opens with its longest chapter: Marco Beretta on the Museo di Storia della Scienza (now Museo Galileo) in Florence and its founder and champion Andrea Corsini. Drawing on the museum's archives, including photographs of early displays, we see the manoeuvring required to develop this 'shrine to science', for scholarly study and public edification (p. 4). Beretta reveals Corsini's labours, competing schemes that threatened them and the development of the displays. We learn that Corsini had an international scholarly correspondence, and it would have been interesting to pursue cross-national comparisons. Why was the early twentieth century a key moment, across Europe and the US, for historic scientific instrument collections, but, also, what was specific to Italy and Florence? Beretta is anxious to absolve Corsini of association with Fascism, but rather passes over the significance of Mussolini's opening of the museum and of its 'most steadfast patron', Prince Piero Ginori Conti, being a 'convinced supporter' (p. 22).

The theme of individual passion as the motivating force behind instrument displays is evident elsewhere. The Paris Observatory's display of its 'patrimonial collections', discussed by Laurence Bobis and Suzanne Débarbat, was about institutional identity but required individual directors to value defunct instruments and public displays. The university displays discussed by Steven Turner and Richard Paselk were absolutely reliant on individuals. Turner describes Chicago's Science Teaching Museum, a 'demonstration laboratory' set up by physics professor Harvey B. Lemon that gained admiration and imitators but closed when he resigned. Paselk is the 'guardian angel' of Humboldt State University's scientific instruments museum, as collector, curator and fund-raiser (p. 148). His chapter, describing its genesis and development, reinforced by an early online presence, gives insight into the collector's role, although it might helpfully have raised questions of motivation and meaning.

The chapters by Alison Boyle, Richard Dunn and Silke Ackermann form a useful group, focusing on three major London institutions – the Science Museum (SM), Victoria and Albert Museum (V&A) and British Museum (BM) – and charting changes to the identities of each. Similar instruments could be displayed in each for significantly different purposes, illustrating scientific principles, the techniques of applied art or aspects of cultural history. However, internal changes and conflicts also played out in displays and floor plans that reflect the views of directors, curators, scientists, educators or industrial partners. As Boyle shows, the SM's purpose of educating the public about modern science has often sat awkwardly with its role as a custodian of historical collections. In Florence, instruments were collected as relics and historical artefacts, but at the SM they often became so only accidentally. The result has been 'akin to two different institutions – a science museum and a science centre – sharing space within one building' (p. 54).

As Dunn writes, the SM and the V&A are 'two very different institutions with a common origin' (p. 61). Scientific instruments have formed a small but persistent part of the latter's collections, not to illustrate scientific principles but as examples of the applied arts. Their function was largely irrelevant, with focus instead on materials, techniques and decoration. However, the V&A's increasingly historical approach has encouraged attention to instruments' uses, relating to domesticity or fashion as much as science and knowledge. This brings the V&A's recent displays close to those of the BM, as described by Ackermann. While the BM's eighteenth-century founders might have aspired to an encyclopedic collection, the presence of scientific artefacts later raised questions and required justification. Today, however, they are seen as being one aspect of wider cultures: they 'naturally take their place' alongside other objects associated with a particular time and location (p. 92).

A common complaint regarding modern museums is that they present relatively few objects. Curators could, however, take inspiration from other kinds of display described here, which are as historically specific as, say, re-created laboratories. There are, for example, the dense displays created by instrument manufacturers for world expositions, as described by Richard Kremer, in his chapter on the United States Centennial Exhibition, and by Peggy Kidwell and Amy Ackerberg-Hastings, as part of their chapter on the various contexts of slide rule display. Even the most humble instruments could be made aesthetically pleasing when arranged, en masse, in geometric patterns. Inga Elmqvist Söderlund likewise shows how instruments could be displayed as enticing commodities and objects of desire in seventeenth-century frontispieces.

In different contexts instruments can be objects of ridicule, as Ingrid Jendrzejewski's chapter on seventeenth-century theatrical productions reminds us. The telescope quickly moved from novelty requiring exposition to recognized resource for metaphor and humour, symbolizing deception, lack of perspective or failure in particular social roles. '[M]ost characters who carried telescopes on the seventeenth-century stage were not meant to be taken seriously' (p. 179). Jendrzejewski's examples range from mentions of instruments to stage directions requiring their manipulation. It would be fascinating to know more: were real or imitation instruments used and were they readily recognized? A very different set of 'props' are discussed in the short contribution from Ileana Chinnici, Donatella Randazzo and Fausto Casi on the 1963 film of *The Leopard*, which featured antique instruments once owned by Prince Giulio Fabrizio Tomasi.

Given the visual and material focus, it is good that each chapter is well illustrated. Collectively the images are suggestive of changes over time and the broad ways in which the theme can be interpreted. They form a provocative source that, along with the case studies, can be put to use by scholars interested in the history of science, scientific instruments, material culture, museums and the history of science in public. It joins a growing literature that reveals a desire to bring such studies together for their mutual benefit.

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Charles Mollan (ed.), **William Parsons, 3rd Earl of Rosse: Astronomy and the Castle in Nineteenth-Century Ireland**. Manchester: Manchester University Press, 2014. Pp. xxii + 368. ISBN 978-0-7190-9144-5. £70.00 (hardback).
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In 1845 William Parsons, the third Earl of Rosse, constructed his seventy-two-inch reflector, known as the Leviathan, at Birr Castle, Co. Offaly, in the centre of Ireland. The primary purpose of the telescope was to study the nature of nebulae and discover if these could be resolved as clusters of stars. The telescope was to remain the largest telescope in the world until 1917. This book, the first comprehensive biography of the third earl, seeks to place his life and telescope in their political, social, intellectual and cultural contexts. The edited volume can be divided roughly into two sections; the first looks at the history of the Parsons family and then focuses on the life of the third earl in an Irish context, while the second section concentrates on the earl's contribution to science and the wider scientific world he inhabited.

The opening section of the book seeks to trace the history of the Parsons family and provide a background to the earl beyond his famous telescope. The first chapter (Alison and William Parsons), dealing with the Parsons family's ancestry, is largely genealogical. The second chapter (Trevor Weekes) is a speculative account of the origins of the earl's interest in astronomy. A welcome addition is the third chapter – divided into three sections – which focuses on the third earl's wife, Mary. David Davison's contribution provides an interesting and informative account of the countess's interest in photography. These opening chapters are rather lengthy but will be of local interest.