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medical concern. Long passages on Europe's theatres, public parks, social gatherings and much much more are missing. This editorial intervention exaggerates the text's medical character, reduces its cultural resonance and perforce, frustrates those of us with a sufficiency of *Biedermeier* in us to be driven towards a more complete identification with the interiority of this delightful author.

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Patricia Fara, *Sympathetic attractions: magnetic practices, beliefs, and symbolism in eighteenth-century England*, Princeton University Press, 1996, pp. xiii, 327, illus., £35.00, \$45.00 (0-691-01099-4).

For historians of science, natural philosophical interest in magnetism has not been strongly associated with the eighteenth century, so that the agenda for this book may not seem a promising one. The seventeenth century opened with the publication of the influential work by William Gilbert, and magnetism continued to be prominent in important works of natural philosophy and cosmology: Kepler and Halley were among those for whom it was a central interest. The nineteenth century saw the development of a systematic study of the magnetic properties of the earth and the establishment of specialized observatories for the purpose, as well as the bringing together of electricity and magnetism in a new theoretical conjunction. Between these epochs, we are unsure what to make of the eighteenth century and it is left in awkward silence and neglect. Even the instruments seemed to languish in a state that, so far as navigational compasses were concerned, was judged deplorable at the time. Here again it was the nineteenth century that witnessed substantial change with the development of recording magnetometers and the great improvement of the marine compass by William Thomson.

Patricia Fara is determined to give eighteenth-century magnetic interest its own

voice. To do so, she has to tackle a broad terrain, find examples in a variety of places and treat them from a range of appropriate perspectives. Thus successive chapters present different points of view, as the book moves through commerce, language, literature, iconography, popular culture, religion, professional navigation, and so on. It becomes clear that there was plenty of magnetical experiment, speculation, and professional application, but that it cannot be drawn into a single narrative. If there is a unifying thread, it concerns contests for authority in the different areas where magnetic activity is found. Medicine makes its appearance within the overall picture, in particular in the context of therapies involving "sympathetic" relationships, the practices of Franz Mesmer and of John de Mainauduc and the general area of animal magnetism.

Fara makes a virtue out of choosing an historical theme that cannot be treated in terms of coherence or developing consensus. One result is that the book is more self-regarding than is customary in historical monographs and the historiographical commentary offered to guide the reader can become wearing. The author's reply to the challenge that this is a study of a subject that does not represent a coherent discipline at the time would be, I think, that as an historiographical experiment, it is intended to do something else—to recognize and embrace diversity, incoherence and conflicts of interest, and to use these to enrich our understanding of the realities of eighteenth-century scientific culture.

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Lynette Hunter and Sarah Hutton (eds), *Women, science and medicine, 1500–1700*, Stroud, Sutton Publishing, 1997, pp. xx, 292, illus., £40.00 (hardback 0-7509-1334-7), £14.99 (paperback 0-7509-1343-6).

The history of science and medicine has been greatly enriched in recent years by

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women's history, feminist history and gender history, but the historiography of early modern natural philosophy remains dominated by men writing about great men. Even social studies have focused on universities and formal groups to which no women belonged. Although the empirical recovery of women's experience now seems a somewhat dated approach, it will be a necessary prelude to consideration of the construction of a male-dominated realm of natural enquiry, just as the exploration of the lives of midwives has shed new light on man-midwifery.

This collection brings together eleven essays on England, covering both themes and individuals, by some of the leading authorities currently working on each topic: Margaret Pelling on irregular medical practice; Adrian Wilson on midwifery; Francis Harris on the Evelyn family. There is a stress on the domestic location of many activities, such as health care, distillation, and observational astronomy. A theme in this collection, familiar from the work of Londa Schiebinger, is that several nascent disciplines excluded women by moving away from their craft-based origins. One should remember that artisans were excluded in the same way.

The freedom of women to engage in intellectual activity was clearly circumscribed by education and social rank, as well as gender ideologies. At the highest level, we see women who were able to act as independent patrons and participants: Mary, Countess of Pembroke; Katherine, Lady Ranelagh; Margaret, Duchess of Newcastle; Anne, Viscountess Conway. Although they did not have access to university education or learned societies, such women were able to profit from the aristocratic vogue for experiment and the new philosophy. As John Evelyn remarked in 1652, "every great person pretends to his elaboratory and library". Among the gentry, we are shown Mary Evelyn and Lucy Hutchinson, the translator of Lucretius, who were more self-effacing. At the skilled craft level, the midwife Eleanor Willughby and the astronomers, Margaret Flamsteed and Caroline Herschel, were overshadowed by their menfolk. Finally, we

have the women prosecuted for illicit medical practice by the London College of Physicians, a fate that did not befall gentry women practitioners.

Most of the material presented here is new and interesting, although some authors rely too heavily on dated and unreliable secondary sources. One consequence is an occasional lack of attention to the complexity of the political and religious divisions that riddled English intellectual life. Margaret Hannay places the neo-Platonist natural philosophy of the Countess of Pembroke alongside her Calvinist theology without any suggestion of possible tensions. Reid Barbour draws a strong contrast between the religious beliefs of Lucy Hutchinson and those of Walter Charleton, although both of them moved from the patronage of the Cavendish family to that of the Earl of Anglesey, a staunch Presbyterian. Lynette Hunter suggests that the High Anglican anatomist Thomas Willis, who shunned the Royal Society, was a close associate of John Wilkins and Robert Boyle, the brother of Lady Ranelagh. Such imprecision impedes exploration of the networks of social and ideological interests that shaped women's intellectual activities. It will be as necessary to explore why some able women refrained from intellectual activity as to examine the beliefs of a handful of women experimenters, as Francis Harris recognizes in her study of Mary Evelyn. Her daughter's satire against fashion, *Mundus muliebris*, might have been worth mentioning in this context.

Another problem arises with anachronistic terminology. Several authors try to link herbalism and cookery with "science" rather than with natural history and Hippocratic dietetics, or remark that science and technology were not taught in grammar schools, or discuss the extent to which women were scientists. Intentional actions are always actions under a description, so no one could act as a "scientist" or teach "technology" in this period. Only Sarah Hutton, in the course of her rhetorical analysis of Bacon's feminine imagery, draws attention to the very different semantic field of the word "science" in the

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seventeenth century. Precisely because experimental natural philosophy was thought incapable of becoming “scientific”, as John Locke remarked, it was more accessible to women than were some other disciplines.

As a venture into relatively unexplored territory, this book is extremely useful. Although there is still much work required in order to reconfigure the field, the need to include a wider range of activities and participants is clear. The next tasks will be to compare early modern English women with their European contemporaries, and to integrate gender history, social history, and current work in the historiography of science, as is already happening for other periods.

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Frances Willmoth (ed.), *Flamsteed's stars: new perspectives on the life and work of the first Astronomer Royal (1646–1719)*, Woodbridge, Boydell Press in association with the National Maritime Museum, 1997, pp. xiv, 271, illus., £45.00, \$78.00 (0-85115-706-8).

Deriving from a conference on ‘Flamsteed at Greenwich’ in October 1995, this is a collection of papers of a uniformly high standard which constitutes a fitting tribute to its subject as well as an invaluable starting point for further research on Flamsteed. The rather odd title turns out to be very well chosen; instead of presenting the reader with a motley collection of articles trying to cover all aspects of the subject’s life and work, this anthology focuses fairly sharply on Flamsteed’s proprietary concern with his observations of the stars and the relevance of this to his own self-image and the image which he wished to project to the world at large. With the exceptions of Mordechai Feingold’s study of Flamsteed’s relations with the Royal Society before Newton’s presidency and Rob Iliffe’s study of Samuel Pepys’s efforts to choose a suitable teacher of navigation for the Royal Mathematical School (in which Flamsteed plays an incidental role), all the articles seem

concerned to endorse Adrian Johns’ nifty suggestion that “a dispute over what Flamsteed could *see* was at one and the same time a dispute over who Flamsteed should *be*” (p. 96).

The collection begins with a superb scene-setting account of Flamsteed’s brand of astronomy by Jim Bennett, in which we discover Flamsteed’s concern to emphasize the importance of practical observational astronomy over more theoretical cosmological concerns. The editor herself shows how Flamsteed’s personal choice of heroic astronomical predecessors, culminating in Tycho Brahe, owed much to these efforts to emphasize practical observational astronomy. Although Adrian Johns’ piece introduces Flamsteed’s concern with the theory of dioptrics, it is abundantly clear that Flamsteed’s main concern is to show that his observations are reliable. Hester Higton shows the considerable practical difficulties Flamsteed and his contemporaries had to face in setting up astronomical instruments for accurate observations, while Ian Stewart considers the various strategies which Flamsteed used to establish and assert his public identity. Alan Cook draws upon his knowledge of Edmund Halley to provide a history of the relations between Flamsteed and his eventual successor from friendly beginnings to embittered rivalry. Owen Gingerich’s short study of Flamsteed’s markings of “faults” in a copy of Halley’s first edition of Flamsteed’s star catalogue adds a fascinating footnote to Cook’s story. The collection closes, apart from an interesting account of the fortunes of Flamsteed’s Papers by Adam Perkins, Archivist to the Royal Greenwich Observatory, and a summary catalogue of the papers by Frances Willmoth, with William J Ashworth’s study of Francis Baily’s attempted rehabilitation of Flamsteed in his *Account of the Rev. John Flamsteed* of 1835. Fittingly, Ashworth shows that Baily, a leading light of the newly founded Astronomical Society of London, used Flamsteed and his emphasis on meticulous observation to assert the importance of the methodical observational agenda of the Society, at the expense of the “holy alliance”