

**Roy Porter** (ed.), *The Cambridge history of science. Vol. 4: Eighteenth-century science*, Cambridge University Press, 2003, pp. xxx, 912, £65.00, \$95.00 (hardback 0-521-57243-6).

Although best known for his prolific writing on the history of medicine, the late Roy Porter's reputation among general historians and a generation of Cambridge graduates was first and foremost as the author of the outstanding Penguin paperback, *English society in the eighteenth century* (1982). He was therefore the obvious authority to edit the fourth of eight volumes synthesizing our knowledge of the history of science. The *Cambridge history of science* has been planned since 1993 as a complement to Cambridge University Press's fourteen volume *Cambridge modern history*. It is intended to be an up-to-date account of science "from the earliest literate societies in Mesopotamia and Egypt to the beginning of the 21<sup>st</sup> century that even nonspecialist readers will find engaging" (p. xxx). In *Eighteenth-century science*, Porter masterminds thirty-five contributors in a sweeping survey of the *longue durée* (curiously a temporal category not used by any of the contributors) between Newton's *Principia* (1687) and the defeat of Napoleon in 1815. Although Porter did not live to see the volume through the press, he contributed a vintage twenty-page introduction that seamlessly links the authors' papers together. He observes that while Enlightenment sciences lacked the drama of the scientific revolution in the seventeenth century or the Darwinian revolution of the nineteenth, the century was anything but dull. During it natural philosophy became part of Western culture and "public knowledge", and natural philosophy itself underwent what Porter terms "balkanization" as the unified nature of tradition broke up into specialist disciplines.

It is unfortunate that Porter chose not to contribute a chapter. As it is, Thomas H Broman's essay on the medical sciences (pp. 463–84) is confined to a treatment of medical theory as articulated by university-trained physicians. It is a fine chapter, but its account of a world without surgeons, apothecaries, patients and the medical market

place is hardly representative of the scholarship of the last twenty years. (Indeed, readers interested in eighteenth-century medicine would be better directed to Porter's rumbustious chapter in his *Greatest benefit to mankind*, 1997.)

The bulky but sturdily-bound volume is organized into five sections. Eight preliminary essays on science and society cover the Enlightenment, universities, institutions, science and government, popular science (an entertaining and perceptive essay by Mary Fissell and Roger Cooter), the image of the man of science, women, and how historians have deployed prosopography. Part 2 has a dozen essays on scientific disciplines; besides the obvious sciences collateral to medicine, these include treatments of the classification of natural knowledge and of the marginalization of sciences such as animal magnetism, physiognomy, astrology, alchemy and Hutchinsonianism under the twin pressures of Enlightenment reason and social attitudes. A shorter section of five essays follows on special themes such as instrument making, printing and the book, scientific illustration, and the significant subject of scientific voyages during the century. The book then looks at non-Western traditions in Islam, India, China (over brief, and strangely achieved without a single reference to the work of Joseph Needham) and Spanish America. Each of these, but particularly the last by Jorge Cañizares Esguerra, pays particular attention to medicine. Science in the Ottoman empire, Africa and Australasia are not covered except by default in scattered references by several authors to exploration during the century. A final section of five excellent essays surveys some of the ramifications and imports of the century's events and concerns in religion, literature, the philosophy of mind, commerce and Empire, and technological change. The latter two chapters, by Larry Stewart and Ian Inkster, are the only ones that deal explicitly with industrialization.

Porter admits to having had difficulties in commissioning non-British or American contributors, but given the global reach of the volume Anglo-American bias is minimized and the treatment of French and German sources is excellent. The comprehensive indexing required

in such an encyclopaedic survey seems reliable and helpful, though it is puzzling why some, but not all, footnotes are indexed. While the volume does not offer a comprehensive survey and analysis of the medical sciences in the eighteenth century (the lack of a chapter on pharmaceutical developments is a serious omission), historians of medicine will undoubtedly find this a useful reference book for help in contextualizing their teaching and research. It achieves Porter's intention of providing a stable platform upon which scholarship on the nineteenth-century can be built. At the same time it shows how the eighteenth century was much more than the consolidation of the revolutionary changes that had taken place in the century before.

**William H Brock,**  
University of Kent at Canterbury

**Andrea A Rusnock,** *Vital accounts: quantifying health and population in eighteenth-century England and France*, Cambridge Studies in the History of Medicine, Cambridge University Press, 2002, pp. xvi, 249, illus., £45.00, US\$65.00 (hardback 0-521-80374-8).

The history of early modern population arithmetic is the central chapter in the gradual process by which European cultures came to understand themselves as numerically constituted and as structured by recurring mathematical relationships. Rusnock's *Vital accounts* provides an admirably clear and unruffled narrative of the evolution of numerical aspects of this development during the eighteenth century, with particular attention to medical topics. Understanding the quantitative reasoning of this period is of particular interest as it precedes the rise of statistics in the early nineteenth century and its ubiquitous spread ever since. Whilst in retrospect we can say that early modern population thinking anticipated statistics in some ways, it was neither conceived nor developed as statistics. Describing the quantitative reasoning of this period without succumbing to the anachronism of statistical terminologies we now take for granted thus poses

some difficult problems of interpretation. Rusnock's approach, which pays careful attention to early modern procedures and terms of reference, is indicated by her title, and solves this problem neatly. Population arithmetic was *vital* in three senses subsequently taken over into vital statistics. First, and obviously, its main chosen objects were vital events (births, deaths, diseases) differentiated by observed life characteristics (age, sex, natural environment, and various physiological, epidemic and other causes). Second, following upon political and mercantile writings of the time, the health and numbers of people were understood as main constituents of the wealth and power of states, the basis of collective vitality. By extension, then, information about populations was knowledge vital to policy. *Accounts* is likewise a term of contemporary parlance with multiple significance, but here differences to later statistical developments begin to emerge clearly. The earliest population arithmetic in the seventeenth century adopted the term "accounts" from merchant book-keeping, employing it to refer to its method and as a term of general social reference. Eighteenth-century professionals who came to have a close interest in the health of populations, notably physicians, actuaries, and ministers of church and state, saw the compilation and interpretation of "accounts" in moral terms; to give an account meant providing a measure or assessment of relative salubrity that went beyond strictly medical matters. Inevitably, the third and closely related implication of numerical accounts was that any such compilation raises difficult issues of what standards of comparison are legitimate. As Rusnock observes, "numbers allow for comparison, even if the grounds of comparison are not always level" (p. 13). It was these issues that nineteenth-century statisticians believed would be solved by national census and vital registration systems.

Attempts to provide a level playing field began when John Graunt annexed his merchant book-keeping to a numerical reworking of Francis Bacon's tabular method for presenting recorded observations. As Rusnock notes, this approach was promoted, often uncritically, by William