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978-0-521-57243-9 - The Cambridge History of Science, Volume 4: Eighteenth-Century Science

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THE CAMBRIDGE HISTORY OF SCIENCE

VOLUME 4

Eighteenth-Century Science

This volume offers to general and specialist readers alike the fullest and most complete survey of the development of science in the eighteenth century, exploring the implications of the “Scientific Revolution” of the previous century and the major new growth points, particularly in the experimental sciences. It is designed to be read as both a narrative and an interpretation, and also used as a work of reference. Although prime attention is paid to Western science, space is also given to science in traditional cultures and to colonial science. The coverage strikes a balance between analysis of the cognitive dimension of science itself and interpretation of its wider social, economic, and cultural significance. The contributors, world leaders in their respective specialties, engage with current historiographical and methodological controversies and strike out positions of their own.

Roy Porter (1946–2002), Professor Emeritus of the Social History of Medicine at the Wellcome Trust Centre for the History of Medicine at University College London, was educated at Cambridge University. He was the author of more than 200 books and articles, including *Doctor of Society: Thomas Beddoes and the Sick Trade in Late Enlightenment England* (1991), *London: A Social History* (1994), *“The Greatest Benefit to Mankind”: A Medical History of Humanity* (1997), and *Bodies Politic: Disease, Death and Doctors in Britain, 1650–1900* (2001). He was a coauthor of *The History of Bethlem* (1997).

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Roy Porter, Professor Emeritus of the Social History of Medicine at the Wellcome Trust Centre for the History of Medicine at University College London, died unexpectedly on March 3, 2002, and was, sadly, unable to see the publication of this volume. His contributions to the fields of the history of medicine, science, and the Enlightenment were numerous, important, and far-reaching. His loss is mourned by historians of science and others who had the chance to encounter his sharp intellect and robust character.

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(2000), and *Bodies Politic: Disease, Death and Doctors in Britain, 1650–1900* (2001). He was a coauthor of *The History of Bethlem* (1997). His interests included eighteenth-century medicine, the history of psychiatry, and the history of quackery.

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Tools & Magic, 2 vols. (The Nasser D. Khalili Collection of Islamic Art, XII) (1997).

LONDA SCHIEBINGER is Edwin E. Sparks Professor of the History of Science at Pennsylvania State University. She is author of *The Mind Has No Sex? Women in the Origins of Modern Science* (1989), the prize-winning *Nature's Body: Gender in the Making of Modern Science* (1993), and *Has Feminism Changed Science?* (1999), and she is editor of *Feminism and the Body* (2000). Her current research explores gender in the European voyages of scientific discovery.

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CURTIS WILSON held a tutorship at St. John's College, Annapolis, Maryland, during the years 1948–66 and 1973–88; he was Dean of the College in 1958–62 and 1973–7. During the years 1966–73 he was a Visiting Associate Professor and then Professor in the Department of History at the University of California, San Diego. Among his works on the history of astronomy are *Astronomy from Kepler to Newton: Historical Studies* (1989) and chapters in *Planetary Astronomy from the Renaissance to the Rise of Astrophysics*, eds. René Taton and Curtis Wilson (Part A, 1989; Part B, 1995).

PAUL WOOD is a member of the Department of History and Director of the Humanities Center, University of Victoria, Canada. His research has focused primarily on the intellectual milieu of the Scottish Enlightenment. His most recent book, *Thomas Reid on the Animate Creation: Papers Relating to the Life Sciences* (1995), is an edition of the hitherto unpublished manuscripts on natural history, physiology, and materialism of the Scottish common sense philosopher Thomas Reid. He is currently editing Reid's collected correspondence for the Edinburgh Edition of Thomas Reid.

RICHARD YEO is Reader in the History and Philosophy of Science at Griffith University, Brisbane, Australia. He studied history and psychology at Sydney University, where he earned a Ph.D. on natural theology and the philosophy

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of knowledge in nineteenth-century Britain. His recent publications include *Defining Science: William Whewell, Natural Knowledge and Public Debate in Early Victorian Britain* (1993) and *Encyclopaedic Visions: Scientific Dictionaries and Enlightenment Culture* (2001).

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GENERAL EDITORS' PREFACE

In 1993, Alex Holzman, former editor for the history of science at Cambridge University Press, invited us to submit a proposal for a history of science that would join the distinguished series of Cambridge histories launched nearly a century ago with the publication of Lord Acton's fourteen-volume *Cambridge Modern History* (1902–12). Convinced of the need for a comprehensive history of science and believing that the time was auspicious, we accepted the invitation.

Although reflections on the development of what we call “science” date back to antiquity, the history of science did not emerge as a distinctive field of scholarship until well into the twentieth century. In 1912 the Belgian scientist-historian George Sarton (1884–1956), who contributed more than any other single person to the institutionalization of the history of science, began publishing *Isis*, an international review devoted to the history of science and its cultural influences. Twelve years later he helped to create the History of Science Society, which by the end of the century had attracted some 4,000 individual and institutional members. In 1941 the University of Wisconsin established a department of the history of science, the first of dozens of such programs to appear worldwide.

Since the days of Sarton historians of science have produced a small library of monographs and essays, but they have generally shied away from writing and editing broad surveys. Sarton himself, inspired in part by the Cambridge histories, planned to produce an eight-volume *History of Science*, but he completed only the first two installments (1952, 1959), which ended with the birth of Christianity. His mammoth three-volume *Introduction to the History of Science* (1927–48), a reference work more than a narrative history, never got beyond the Middle Ages. The closest predecessor to *The Cambridge History of Science* is the three-volume (four-book) *Histoire Générale des Sciences* (1957–64), edited by René Taton, which appeared in an English translation under the title *General History of the Sciences* (1963–4). Edited just before the late-twentieth-century boom in the history of science, the Taton set quickly became dated.

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General Editors' Preface

During the 1990s Roy Porter began editing the very useful Fontana History of Science (published in the United States as the Norton History of Science), with volumes devoted to a single discipline and written by a single author.

The Cambridge History of Science comprises eight volumes, the first four arranged chronologically from antiquity through the eighteenth century, the latter four organized thematically and covering the nineteenth and twentieth centuries. Eminent scholars from Europe and North America, who together form the editorial board for the series, edit the respective volumes:

Volume 1: *Ancient Science*, edited by Alexander Jones, University of Toronto

Volume 2: *Medieval Science*, edited by David C. Lindberg and Michael H. Shank, University of Wisconsin–Madison

Volume 3: *Early Modern Science*, edited by Lorraine J. Daston, Max Planck Institute for the History of Science, Berlin, and Katharine Park, Harvard University

Volume 4: *Eighteenth-Century Science*, edited by Roy Porter, Wellcome Trust Centre for the History of Medicine at University College London

Volume 5: *The Modern Physical and Mathematical Sciences*, edited by Mary Jo Nye, Oregon State University

Volume 6: *The Modern Biological and Earth Sciences*, edited by Peter Bowler, Queen's University of Belfast, and John Pickstone, University of Manchester

Volume 7: *The Modern Social Sciences*, edited by Theodore M. Porter, University of California, Los Angeles, and Dorothy Ross, Johns Hopkins University

Volume 8: *Modern Science in National and International Context*, edited by David N. Livingstone, Queen's University of Belfast, and Ronald L. Numbers, University of Wisconsin–Madison

Our collective goal is to provide an authoritative, up-to-date account of science – from the earliest literate societies in Mesopotamia and Egypt to the beginning of the twenty-first century – that even nonspecialist readers will find engaging. Written by leading experts from every inhabited continent, the essays in *The Cambridge History of Science* explore the systematic investigation of nature, whatever it was called. (The term “science” did not acquire its present meaning until early in the nineteenth century.) Reflecting the ever-expanding range of approaches and topics in the history of science, the contributing authors explore non-Western as well as Western science, applied as well as pure science, popular as well as elite science, scientific practice as well as scientific theory, cultural context as well as intellectual content, and the dissemination and reception as well as the production of scientific knowledge. George Sarton would scarcely recognize this collaborative effort as the history of science, but we hope we have realized his vision.

David C. Lindberg
Ronald L. Numbers