Carolina, Georgia, Florida, and the Bahama Islands (1754) illustrates the work of plant collectors who introduced new specimens into England. The Nicotiana from Jane Webb Loudon’s Ladies’ Companion to the Flower Garden (1840) was a genus grown for utility as tobacco but also widely cultivated as a Victorian garden flower during decades when botanical and horticultural knowledge and practices flourished for many different audiences.

Readers of Planting Paradise will be impressed by the historical role of institutions such as the Bodleian and the Oxford Botanic Garden in developing and fostering knowledge of plants. Primary materials that have emerged there and elsewhere can further elucidate the story of plants in culture and society. Robert Morison, named Professor of Botany at Oxford in 1669, worked for years on a catalogue of plants in the Oxford Botanic Garden; it is replete with engravings that showed, for example, the diversity of cabbages at that time. The original copper plates for Morison’s Historia Plantarum Universalis Oxoniensis (1680–1699) are conserved and available for study, having been “discovered being used as lift counterweights in the Bodleian Library” (Figure 28).

Peter Harrison; Ronald L. Numbers; Michael H. Shank (Editors). Wrestling with Nature: From Omens to Science. x + 440 pp., illus., bibliogr., index. Chicago/London: University of Chicago Press, 2011. $95 (cloth).

The first seven chapters of this book and the last seven look as if they belong to separate projects—as though the editors originally planned two books but ended up putting what they had commissioned into just one. The first half of the book offers seven survey articles on “natural knowledge” in different historical periods. It begins with a survey of “Natural Knowledge in Ancient Mesopotamia” (by Francesca Rochberg), moves on to “Natural Knowledge in the Classical World” (Daryn Lehoux), and then offers two essays on natural knowledge in the Middle Ages—the first on the Arabic Middle Ages (Jon McGinnis) and the second on the Latin Middle Ages (Michael H. Shank). Natural knowledge in the Renaissance and early modern periods has to be covered over three chapters, each one dealing with a separate major aspect: “Natural History” (Peter Harrison), “Mixed Mathematics” (Peter Dear), and “Natural Philosophy” (John L. Heilbron). The reader might have expected to go on from here to survey articles covering natural knowledge in the Enlightenment, the nineteenth century, and the twentieth century. But the editors perhaps realized that they would have to divide these later periods over an increasingly unwieldy number of chapters: chemistry and geology, for example, as well as natural history, to say nothing of mechanics, electricity, and so forth.

Instead, the editors changed tack. Chapters 8–14 offer surveys of a different kind. Each of these is concerned with ways in which “science,” if I may be allowed to hyptostatize for a moment, drew boundaries around its territory or separated itself from other ways of understanding or manipulating the natural world. So, our headings are now “Science and Medicine” (Ronald L. Numbers), “Science and Technology” (Ronald R. Kline), “Science and Religion” (Jon H. Roberts), “Science, Pseudoscience, and Science Falsely So-Called” (Numbers again, with Daniel P. Thurs), along with one piece that might have been called “Science and Philosophy” but is in fact entitled “Scientific Methods” (Thurs again). These are supplemented by two slightly different but no less useful surveys: Bernard Lightman on “Science and the Public” and David N. Livingstone on “Science and Place.” It seems fair to say that the main chronological focus of these surveys in the second half of the book is the nineteenth century. Natural philosophy (admittedly not exactly science) and medicine had been seen as “sisters” since the time of Galen (second century A.D.), and so Numbers might have spent longer than four of his seventeen pages covering the period before the nineteenth century. Similarly, there is much to be said about premodern concerns with the relations between natural philosophy and how artificial machines exploit natural effects, but Kline begins his survey of “boundary work” between pure and applied science in the late nineteenth century.

In spite of this odd arrangement, however, Wrestling with Nature remains an excellent and highly useful book. Each of the articles would prove highly useful on student reading lists—and even more advanced historians, seeking to familiarize themselves with an unfamiliar period or topic, will benefit greatly from them. For me, Rochberg’s introduction to natural knowledge in ancient Mesopotamia seemed to take too much for granted (but this might simply have been because my ignorance of this period is truly abysmal). She makes it clear that Babylonian astronomers observed the positions of the planets in relation to the zodiac, but there is no discussion of whether they therefore had a picture of the structure of the cosmos. Presumably they knew that an eclipse of the
manner was due to the physical arrangement of the
sun, the moon, and the earth (or did they?), so did
they conceive of the other planets as having an
arrangement in space of the same kind? Rochberg
does not tell us. Moreover, it is only Rochberg’s
article that represents the “omens” mentioned in
the book’s subtitle. “Science, Pseudoscience, and
Science Falsely So-Called” might have included a
discussion of science and the occult from ancient
Greece to the Renaissance, but because it is in the
second half of the book it begins with the late
nineteenth century. But again, I find myself sound-
ing too negative. The surveys of natural knowl-
edge from ancient Greece to the early modern
period are of a uniformly high standard and, as
noted, deserve to become familiar items on student
reading lists. This is true not just of those, such as
McGinnis’s article on natural knowledge in medi-
evial Islam or Harrison’s on natural history, that
have few alternatives to compete with them, but
also of those like Shank’s on the Latin Middle
Ages or Dear’s on mixed mathematics, which su-
persede what has been said in earlier survey arti-
cles. Similarly, the essays in the second half of the
volume should have a valued place in pedagogy:
by showing how historical thinkers differentiated
themselves from other thinkers, and why, we can
learn a great deal about the historical development
of modern science. The editors are to be congrat-
ulated for bringing together such a high-quality set
(or two high-quality sets) of survey articles.

JOHN HENRY

Christoph Hoffmann (Editor). Daten sichern:
Schreiben und Zeichnen als Verfahren der
Aufzeichnung. (Wissen im Entwurf, 1.) 201 pp.,
illus., index. Zurich: Diaphanes, 2008. €24.90
(paper).

Barbara Wittmann (Editor). Spuren erzeugen:
Zeichnen und Schreiben als Verfahren der Selbst-
aufzeichnung. (Wissen im Entwurf, 2.) 198 pp.,
illus., bibl., index. Zurich: Diaphanes, 2009.
€24.90 (paper).

Karin Krauthausen; Omar W. Nasim (Edi-
tors). Notieren, Skizzieren: Schreiben und
Zeichnen als Verfahren des Entwurfs. (Wissen
im Entwurf, 3.) 208 pp., illus., bibl., index.
Zurich: Diaphanes, 2010. €24.90 (paper).

Over the last couple of decades, history of sci-
ence has advanced a great deal by investigating
the minute interplay between knowledge and the
tools employed in its generation. In particular,
the laboratory has been studied intensively as
the space of a carefully orchestrated articulation
of all kinds of human and nonhuman actors,
instruments, technologies, and practices. With
this move toward microhistories of scientific
practices, the scope of analysis has also wid-
ened, by questioning the emergence and trans-
formation of disciplinary boundaries, by inves-
tigating the relations between science and other
knowledge-related practices such as art or liter-
ature, or by focusing on the circulation of
knowledge inside and outside of scientific are-
nas. The volumes from the series under review,
the product of a collaborative research project at
the Max Planck Institute for History of Science
in Berlin and the Max Planck Society’s Institute
for Art History in Florence, take this double
move one step further by suggesting the inves-
tigation of notational practices such as writing,
sketching, and drafting as the most mundane but
still knowledge-centered practices—the trans-
disciplinary infrastructure of knowledge in the
making. Christoph Hoffmann, one of the two
directors of the research project and now a pro-
fessor of science studies in Lucerne, opens the
series with a superb outline of the research agen-
da: Writing and drawing do not operate as spe-
cific methods or technologies but as more for-
mal procedures, guiding the coming into being
of epistemic things as habituated routines, tem-
poral structures, or organizational arrangements.
Such rules are certainly at the disposal of the
actors, and a good deal of training goes into their
successful application; the results they yield,
however, escape any intentionality—which ex-
actly describes their epistemic dimension.

Daten sichern: Schreiben und Zeichnen als
Verfahren der Aufzeichnung. Volume 1 of this
four-volume set (Vol. 4, Welten schaffen: Zeich-
en und Schreiben als Verfahren der Konstruk-
tion, is not yet available), pursues the project’s
agenda in impressive breadth, with examples
ranging from astronomical and biological draw-
ings to philosophical manuscripts, art historical
notes, and outlines for literary works; but its
results remain somewhat ambivalent. Omar
Nasim, for example, gives a wonderfully de-
tailed account of the sophisticated arrangements
in Lord Rosse’s team for the drawing of stellar
nebulae with the help of the “monster of Par-
sontown,” a gigantic telescope. The essay,
however, does not fully succeed in convincing
the reader of the historiographical significance
of its analysis. Perhaps Nasim felt similarly; in
any case, he has contributed a more powerful
essay to the third volume, where he describes
how such drawing practices turned a well-
known, though opaque, astronomical entity in