Four of the conference papers are printed in this volume (two others are on the way to becoming books themselves), and the remaining chapters were solicited specifically for the volume. Thus, this immensely useful collection may be said to represent the state of the art in regard to Philoponus, and its editor announces a forthcoming series of translations that will make Philoponus’s scientific thought available to a wider circle of readers. Both occasions call for as heady a celebration as academics can manage.

To the editor’s and the contributors’ great credit, the religious motives and circumstances of Philoponus’s anti-Aristotelianism are fully laid out, both in individual essays (especially Henry Chadwick on Philoponus’s theology, but also in Sorabji’s two papers and in the essay by Lindsay Judson on generability and perishability) and in the general tone of the treatment of specific topics (dynamics, place and void, space, and self-awareness). Philippe Hoffman provides a learned and important analysis of Simplicius’s polemic against Philoponus, so that (with Chadwick’s essay) we can see precisely how Philoponus appeared to both pagans and Christians. There are essays on Philoponus in the Arabic tradition (Fritz Zimmermann) and in the sixteenth century (Charles Schmitt). There is an extensive bibliography and an index locorum to the writings of Philoponus, as well as a general index. The book is remarkably free of errors.

Moreover, this volume is also the occasion for a very intelligent rehearsal of some of the conventional ideas in the history of science. Michael Wolff’s essay “Philoponus and the Rise of Preclassical Dynamics” contains an important review of the nature and history of impetus theory. David Sedley and David Furley provide, respectively, a text-illustrated account of Philoponus’s conception of space and a vivid summary of Philoponus’s corollaries on place and void. Wolfgang Bernard argues cogently for Philoponus’s place in the history of psychology. Richard Sorabji’s two essays are characteristically learned and lucid, ranging widely over Philoponus’s life and thought and his doctrines of infinity and creation. Christian Wildberg offers a pathbreaking analysis of Philoponus’s Contra Aristotelem. This is exactly the sort of many-handed volume one needs to approach a thinker as complex and important as Philoponus. Obviously crucial to the history of science, it will serve a far wider circle of readers, and it will serve them well.

Edward Peters

Far East


Tsien Tszuen-Hsuing, professor emeritus of the University of Chicago, is responsible for this long-awaited volume in Joseph Needham’s Science and Civilisation in China, as is immediately evident from the now-famous format. And it is distinguished, as have been all of the preceding volumes, by its bulk, accounted for by an ample treatment of the subject coupled with a more than adequate discussion of the history of the topic in other cultures.

Unlike some of the earlier volumes, this one does have worthy predecessors in English, notably the writings of Dard Hunter on paper (comprising small volumes on oriental papers, published in the 1930s, and his large Papermaking of 1943) and T. F. Carter’s The Invention of Printing in China (1925). But as usual these contributions are overwhelmed by the encyclopedic treatment in the Needham series.

And of course the treatment here is more up to date. The date of the invention of paper is now carried back “several centuries before the start of our era” (p. 2; Hunter had placed it the first century A.D.), and that of printing earlier (but not by much) than the long-familiar eighth-century Buddhist charm from Japan.

These claims are supported by recent archaeological discoveries, but the chronologies remain somewhat vague and are less interesting, except to fanatical priority seekers, than detailed information typical of the Needham history. What was paper used for before the invention of printing? For writing, of course—but first, apparently, for wrapping, for the mold and sizing, without which paper was worse than imperfect for writing, are here dated between A.D. 200 and 300. Thereafter, paper fans and umbrellas, clothing, kites, lan-
used to call it, will wish Joseph Needham
the immortality to which the Chinese liter-
ati aspired, not only for having begun and
carried on this great work, but, since the
realization of the wish cannot be assumed,
for having made it, through his colleagues,
as certain as can be that the work will be
completed.

ROBERT P. MULTHAUF

Seventeenth Century

Allen G. Debus. Chemistry, Alchemy and
the New Philosophy, 1550–1700. (Col-
lected Studies Series, CS249.) xii + 332
pp., figs., index. London: Variorum Re-
prints, 1987. £32.

Fourteen of Allen Debus’s papers on al-
chemical philosophy in the sixteenth and
seventeenth centuries, originally published
over the last two and a half decades, are
reprinted in this collection. A few (though
by no means all) misprints have been cor-
rected, but no attempt has been made to
revise the articles or to update them biblio-
graphically. The author has added a three-
page preface to the collection, and the
publishers have contributed a quite com-
prehensive index. Since the original pagi-
ation of the papers has been retained, those
who are reluctant to pay the steep price de-
manded for the volume will be tempted to
photocopy the index and the table of con-
tents, and to refer to the originals. With
three exceptions, these are readily avail-
able in widely distributed journals.

The appearance of a volume such as this
provokes reflection on the lasting value of
the author’s work. The conclusion is not
likely to be entirely flattering to his reputa-
tion. Debus’s method is to explicate a
series of texts, usually with substantial
quotations; and this works best when the
focus is sharply defined. Of Debus’s
papers, those that seem to me of continuing
importance are on the development of
methods of chemical analysis and on cer-
tain aspects of the work of his favorite au-
 thor, Robert Fludd. His more synthetic
pieces, which describe a Paracelsian or
“Hermetic” alchemical “tradition,” surviv-
ing even to the end of the eighteenth cen-
tury, founder because of insufficient atten-
tion to the historical context of the writings
he surveys. Debus suggests the sustained
importance of alchemical philosophy in the