Three short reviews of recent developments complete the book. One, on new vacuum pumps, gives a useful overview, but little critical guidance of the practical advantages. The second review provides thumbnail sketches of instruments for surface analysis and gives reference to extended reviews of each. The final article, on sputtering, is interesting but probably misplaced in a manual that otherwise ignores thin-film technology. The handbook on this latter subject edited by Leon Maissel and Reinhard Glang provides a more informative text.

The early sections and tables in this manual use SI units, a valuable point since the conversion from Torr to Pascal in inevitable; unfortunately, the text reverts to older units at an early page. The book contains innumerable typographic errors and, despite some good sections, remains a disappointment.

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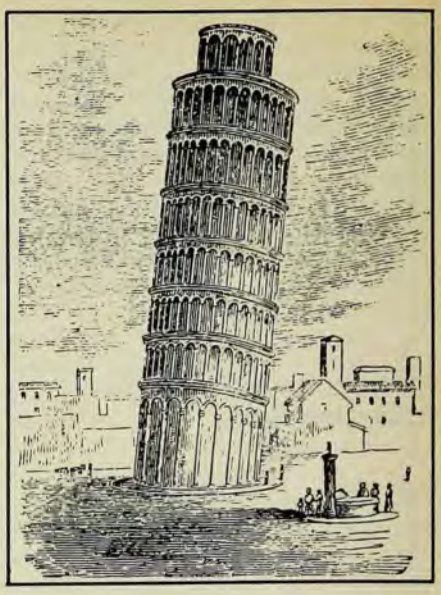
Galileo: A Philosophical Study

D. Shapere
161 pp. U. of Chicago Press, Chicago, 1974. $9.75 hardcover, $2.95 paperback

Galileo continues to be a source of endless fascination for many historians and philosophers of science. One of the latter, Dudley Shapere of the University of Illinois, has thus chosen some aspects of Galileo's studies in motion for the first of a series of examinations of "important episodes in the development of science . . . which are of relevance to the philosophical questions concerning the rationale of the scientific enterprise."

One of the major issues of contention in interpretations of Galileo has been the significance for him of the ideas of Plato and Aristotle. Shapere provides a valuable background for this issue by analysing the views of nature held by these two Greeks. In addition he examines various theories of impetus held by several medieval thinkers, especially John Buridan and Nicole Oresme. Shapere continues with a brief study of Galileo's early thoughts on motion, which, he says, consisted of applying principles of Archimedean analysis to the Aristotelian view of natural motions, combined with one version of impetus theory.

Shapere then examines Galileo's mature studies of motion, especially with regard to the extent to which Galileo did or did not possess a clear idea of inertial motion. Shapere's interpretation revolves about his conviction that circular motion was central to Galileo's view



of the universe. He cites numerous passages to argue that Galileo could not break the spell of circularity, and treats Galileo's straight lines as approximations to arcs of large circles. But Galileo's occasional use of tangential motions never qualify as inertial for Shapere, because they are "the result of an acquired impetus."

Shapere examines and rejects the earlier interpretations of Galileo, such as the empiricist version of Ernst Mach, and the Platonist version of Alexandre Koyré. He finds that Mach paid too little attention to the debt that Galileo owed his predecessors, and that Koyré's apriorist views are not suitable either for Galileo or for physics. Shapere suggests that Galileo may have used hypothetico-deductive analysis, and that experiments "could have been important in his achievements."

By concentrating on the unity of Galileo's world-view (held together by circles), Shapere continues the view of Galileo as philosopher that has become so popular in recent decades. Shapere seems to have cleared a lot of weeds from the field of Galileo studies, but the tender shoots he has left appear pretty sparse.

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Nonequilibrium Statistical Thermodynamics

D. N. Zubarev
489 pp. Consultants Bureau, New York, 1974. $25.00

D. N. Zubarev is well known for his many important contributions to statistical physics. His book is very well prepared, referenced and edited, and also