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BOOK REVIEWS

A history of ancient mathematical astronomy, by O. Neugebauer, Studies in the History of Mathematics and Physical Sciences, Vol. 1, Springer-Verlag, New York, Heidelberg, Berlin, 1975, xxi + 555 pp. (Part One), pp. 556–1058 (Part Two), and pp. 1058–1457 (Part Three), $124.70.

It is pretentious that one with my credentials should sign–albeit jointly, with a historian of science–a review of a compendium of knowledge which has rarely, if at all, been surpassed during this century. But the editor of these reviews feels that there should be some statement of how "a sophisticated astronomer" of the present reacts to the astronomy of antiquity. Perhaps he had in mind a statement like the following which one reads in Hardy's well-known *A mathematician's apology*.

> Finally, as history proves abundantly, mathematical achievement, whatever its intrinsic worth, is the most enduring of all.
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> We can see this even in semi-historic civilizations. The Babylonian and Assyrian civilizations have perished; Hammurabi, Sargon, Nebuchadnezzar are empty names; yet Babylonian mathematics is still interesting, and the Babylonian scale of sixty is still used in astronomy. But of course the crucial case is that of the Greeks.
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> The Greeks were the first mathematicians who are still "real" to us today. Oriental mathematics may be an interesting curiosity, but Greek mathematics is the real thing. The Greeks first spoke a language which modern mathematicians can understand; as Littlewood said to me once, they are not clever schoolboys or 'scholarship candidates' but 'Fellows of another college.' So Greek mathematics is 'permanent', more permanent even than Greek literature. Archimedes will be remembered when Aeschylus is forgotten, because languages die and mathematical ideas do not.

In a similar vein–exaggerated but not unfairly–what could a "real" astronomer of today say of ancient astronomy? Here there is a difficulty. Mathematical truths are indeed permanent; but ancient astronomy in which circular motions play a role comparable to a law of inertia can hardly claim the allegiance of a modern astronomer in the manner that Archimedes' method of determining the value of pi can claim the allegiance of a mathematician. But to say that is not to say that the demonstration of Apollonius, that an eccentric movement can always be replaced by an epicyclic motion where the center of the epicycle moves on a circle with the observer at its center and with the radius of the epicycle equal to the eccentricity, will not delight anyone with some feeling for mathematical elegance.

In another context Professor Neugebauer quotes Hilbert as having once