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Letters

Galileo redux

I was greatly interested in the recent article (SN: 11/26/83, p. 347) describing Richard Westfall's hypothesis that Galileo "pirated" the idea of the phases of Venus from a former student. Contrary to Stillman Drake's reservation regarding this idea, I find it quite believable; after all, not even a Galileo has a corner on new discoveries!

I must object, however, to Wray Herbert's interpretation of the role this discovery played in the astronomical scheme of things in the seventeenth century, no matter who ultimately deserves credit for it. Herbert suggests that this discovery "was the first hard evidence that the earth revolved around the sun." I suggest that this interpretation is incorrect. Although I do

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agree with Herbert's later statement that the discovery "if verified, would show that Venus orbited the sun rather than the earth — thus flatly contradicting the well-established Ptolemaic view of the heavens," this is not the same as saying that the earth must therefore revolve around the sun. There is an alternate theory, proposed by the most influential astronomer of the latter part of the sixteenth century, Tycho Brahe, which has Venus orbiting the sun and the sun in turn orbiting the earth; this theory, well-known to Galileo and other astronomers in his day, makes precisely the same predictions regarding the appearance of Venus as seen from the earth that a heliocentric (Copernican) theory does. Thus any actual observation of the phases of Venus would merely constitute evidence contrary to the Ptolemaic theory but not necessarily demanding the Copernican (heliocentric) view. I would further

suggest that this fact was one of the factors responsible for Galileo's eventual conflict with the church and with various academic authorities, for they were well aware of the inability of the appearance of the phases of Venus to prove the heliocentric view, and they knew that Galileo knew of this limitation also.

There seems to be considerable misunderstanding of the way observational evidence either supports or discredits hypotheses. No single observation ever proved a theory, and the suggestion that Galileo (or his student Benedetto Castelli, for that matter) proved that the earth revolves around the sun by observing the phases of Venus is an unfortunate perpetuation of that confusion.

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