

Robert S. Westman. *The Copernican Question: Prognostication, Skepticism, and Celestial Order*.

Berkeley: University of California Press, 2011. xviii + 682 pp. \$95. ISBN: 978-0-520-25481-7.

This is a weighty book, and that is not just a reference to its heft (3.5 lb/1.6 kg). Using not only the history of science but also religious history, book history, psychohistory, patronage, philosophy, and much more, Westman has written a rich, multifaceted work about what he calls “the long sixteenth century” — from the last decade of the fifteenth century to the second decade of the seventeenth century — that mirrors the richness and complexity of its period.

Westman's "long sixteenth century" starts in the 1490s, when Giovanni Pico della Mirandola's *Disputations against Judicial Astrology* was published and when Nicolaus Copernicus began his studies in Italy. Scholars have long debated whether or not Copernicus accepted astrology. Too many Copernican sources are missing for an easy determination, and earlier generations of scholars, like Thomas Kuhn, often found the denial of Copernicus's belief in astrology a convenient way to promote their view of a linear march toward modern astronomy. Westman maintains that Copernicus accepted astrology. To me, Westman's most persuasive evidence was Copernicus's self-referential use of the word *mathematicus* in his preface to *On the Revolutions*. As Westman rightly argues, this word referred to a practitioner of what he terms "the science of the stars," that is, astronomy and astrology. This shows the importance of reading the original even when an excellent translation is available.

Westman further suggests that Copernicus was impelled toward the heliocentric system by the need to counteract Pico's claim in book 10 that the astrologers could not establish the correct order of the inner planets; in Copernicus's system there was no doubt about the order. It makes sense. Edward Rosen established a long time ago that Copernicus was familiar with Pico's work; Westman points out that Copernicus's acolyte George Joachim Rheticus not only included astrological predictions in his work announcing Copernicus's ideas, something that Rheticus was unlikely to do against Copernicus's wishes, but also that Rheticus wrote "if [my teacher's] account of the celestial phenomena had existed a little before our time, Pico would have had no opportunity, in his eighth and ninth books, of impugning not merely astrology but also astronomy" (103). If Pico's critique of the order of the planets was so crucial to Copernicus, why did Rheticus not mention the tenth book?

Westman follows various trends in the pursuit of astronomy and astrology. He presents a Wittenberg interpretation that encouraged the study of Copernicus's text for its mathematics and the consequent Prutenic tables brought out by Erasmus Reinhold in the hope for greater accuracy in prognostication. On the other side, Christopher Clavius rejected both astrology and Copernicus, but he made astronomy part of the Jesuit curriculum. In general, Westman shows that those open to astrology were more open to Copernicus. Westman also brings in various reactions to the supernova of 1572; typically he presents views from the little known, like Thaddaeus Hagecius, to the great, like Tycho Brahe.

The focus of the book ends with the work of Johannes Kepler and the early Galileo Galilei and reactions to their discoveries. Both were practicing astrologers, but Westman shows them open to both sides of the debate. I wrote an article for *Renaissance Quarterly* more than a decade ago suggesting that Kepler was affected by Pico's limiting the effect of the heavenly bodies to light, heat, and motion; Westman goes further and maintains that Kepler got the idea of the sun moving the planets from Pico (323–24). But if this was the case, why was Kepler still writing negative comments about Pico after he published it? Westman's discussion of reactions to Galileo's discoveries with the telescope also shows interesting complexity: whereas the anti-astrological Clavius accepted the moons of Jupiter, astrologers often rejected them because they could not fit the discovery into their astrological framework.

Westman concludes with a quick excursus through the rest of the seventeenth century. I hunger for a work that would do for that period what Westman has done for the “long sixteenth century.”

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