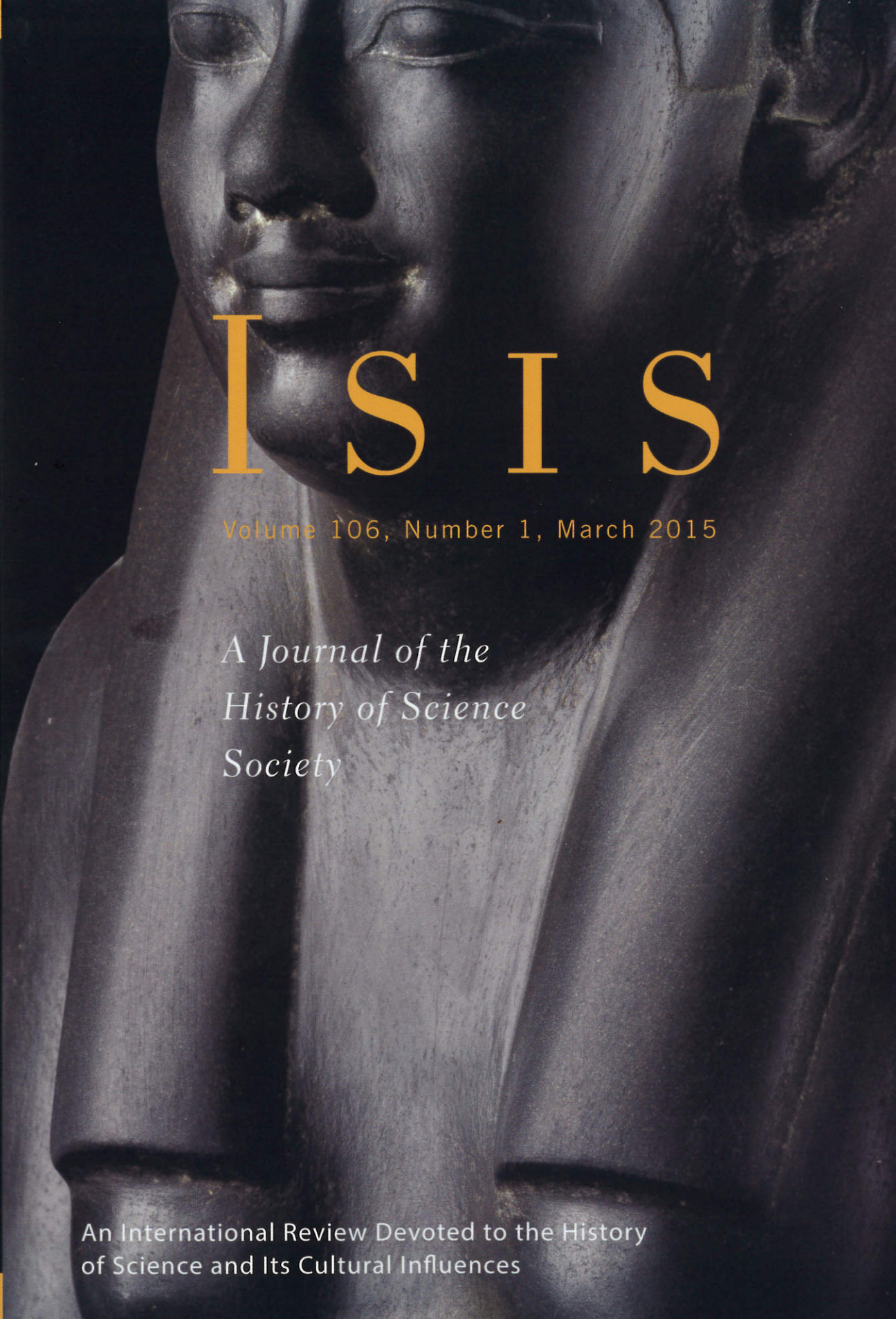

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treatise on physiognomy, inspired by the pseudo-Aristotelian text on the subject that was already being introduced in university curricula, flirted with the same issues of freedom and astrological determinism that provoked overcautious officials to censure his other works and that, in a different guise, would plague Giambattista Della Porta's *De humana physiognomonia* some three hundred years later. Others of Pietro's works enjoyed favor among particular groups of practitioners, such as the treatise on poisons, considered here by Franck Collard. The focus is on the treatise's French translations in the early fifteenth century, by Philippe Ogre, and nearly two centuries later, with the benefit of print, by Lazare Boet. Why did it achieve such scarce renown? Rather than giving the last word on this issue, or on Pietro d'Abano in general, *Médecine, astrologie et magie entre Moyen Âge et Renaissance* demonstrates the wealth of open questions and the numerous research itineraries still promising fruitful results.

BRENDAN DOOLEY

Fabrizio Bònoli; Giuseppe Bezza; Salvo De Meis; Cinzia Colavita (Editors). *I pronostici di Domenico Maria da Novara.* vii + 317 pp., illus., tables, bibl., index. Florence: Leo S. Olschki, 2012. €34 (paper).

By providing lodging to a Krakow student named Copernicus in 1496–1500, Domenico Maria da Novara (1454–1504) ensured that his fame in his own day would long outlive him. Shortly before graduating from Ferrara in Arts and Medicine (1484), Novara had been appointed to the chair of astrology and astronomy at Bologna, where he would teach until his death. Bologna was the first university to dedicate a chair to the science of the stars (1404). The appointee had not only to teach a prescribed cycle of courses in these subjects, but also to issue for the city yearly prognostications about society and politics (the *iudicium*) and health (the *tacuinum*).

Much has been made of the elusive association between Novara and Copernicus, whom Rheticus described (1540) as "not so much the student as the assistant and witness of [Novara's] observations" (p. 1). To its credit, this volume emphasizes instead Novara's own work, namely his mandatory prognostications. Of these, the editors found thirty-two printed copies in Italian or Latin covering twelve of his twenty-one Bologna years (1484, 1487, 1489–1490, 1492, 1496–1497, 1500–1504). Missing, unfortunately, is that of 1499 (cited in the literature as once preserved, with several others, in the Biblioteca Communale dell' Archiginnasio). Despite this lacuna, the present census will perhaps stimulate a search for missing prognostications that may be hiding in smaller libraries, private collections, or repositories of recycled ephemera (fly leaves, bindings, bound multiwork volumes, etc.).

Novara's prognostications illustrate not only the outcome of academic astrological practice but also the perceived social utility of the university in civic and political affairs. Whereas they give some attention—in restrained language—to health, weather, and harvests, they chiefly concern politics and war. Besides Bologna itself, the prognostications consistently discuss under separate rubrics the most powerful Northern Italian powers (Venice, Florence, Milan), adding other cities, the French, and the Turks as needed.

The volume nicely meets its core mission of offering convenient access to Novara's prognostications with transcriptions, to which the introductory essays and the bibliography add a bonus. Fabrizio Bònoli summarizes the state of Novara scholarship circa 2011 in the introductory chapter on biography and context, including a critical discussion of Novara's instruments; he and Cinzia Colavita have transcribed the prognostications, resolving abbreviations but retaining original spellings and some punctuation (pp. 127–300). In Chapter 2, Giuseppe Bezza surveys the astrology of Novara's time and place, with many contemporaneous local examples. He emphasizes the hybrid character of fifteenth-century prognostication, which relied mostly on the Arabic tradition but drew on Ptolemy's *Tetrabiblos* to interpret lunar and solar configurations, including eclipses. Finally, in Chapter 3, Salvo De Meis goes to much trouble to examine all of Novara's astronomical predictions and observations (including comets). He both compares them with such contemporary standards as Regiomontanus's *Ephemerides* and the Alfonsine Tables (which Novara criticizes, sometimes erroneously) and checks them against the results of modern theory, using recent data and software (summarized in many tables and graphs). For new and full moons, for example, he concludes that Novara's predictions are typically not as good as Regiomontanus's—sometimes strikingly so. The bases for the computations and the divergences remain to be studied. Meanwhile, De Meis wonders whether a brash critic might not blame Novara's famous assistant, who evidently had no love of computation (p. 108).

Since this volume was in press when Robert

Westman's *The Copernican Question* (California, 2011) appeared, the editors could not discuss its use of Novara's work. Even so, *I pronostici* makes a notable null contribution to the debate. According to Westman, Giovanni Pico della Mirandola's attack on astrology in his *Disputationes* (Bologna, 1496) triggered among the Bolognese prognosticators a crisis that underlay Copernicus's search for a new order for the planets. Were this so, one would expect these concerns to surface in the post-1496 prognostications. Before and after this date, Novara's prefatory material did occasionally express and address doubts about astrological causality, the certainty of astrological predictions, and the basis for them. But these sources suggest that Novara was not worried about prognostication needing exceptional defenses (or about the uncertainty of the planetary order). On the contrary: as the editors show, the Bolognese prognosticators year after year continued to meet their statutory obligations, to the end of the eighteenth century. Their steadfastness remained unfazed not only by Pico's *Disputationes*, but also by the antiastrological papal bulls of Sixtus V (1586) and Urban VIII (1631).

"Not from the stars do I my judgment pluck," wrote Shakespeare. Nor do I. Rather, it is the reasons given above that point to the prognostication that the scholarly community will find a revised edition of *I pronostici* even more useful than the first.

MICHAEL H. SHANK

Bernd Roling. *Physica sacra: Wunder, Naturwissenschaft und historischer Schriftsinn zwischen Mittelalter und Früher Neuzeit.* (Mittellateinische Studien und Texte, 45.) x + 485 pp., bibl., index. Leiden: Brill Academic Publishers, 2013. $216 (cloth).

"The Holy Spirit is to teach us how one goes to heaven and not how heaven goes"—with these words, Galileo famously rejected the claim that astronomical theory should conform to the literal meaning of Scripture. Not all of Galileo's contemporaries agreed, as he himself found out in a distressing manner. In fact, judging from Bernd Roling's latest book, *Physica sacra: Wunder, Naturwissenschaft und historischer Schriftsinn zwischen Mittelalter und Früher Neuzeit*, not before the eighteenth century would the compatibility of biblical narrative with natural reality become less compelling. What also becomes clear, though, is that theology felt the pressure of natural philosophy, as much as the other way around. Biblical commentators attempted frantically to adjust their literal reading of biblical history to state-of-the-art science. Roling conducts a "microanalysis" of a series of biblical miracles, reviewing attempts made across Europe, from the Patristic age up till the French Revolution, to accommodate biblical narrative to ideas about the working of nature.

The Sun that stood still over Gibeon, the biblical episode that occasioned Galileo's remark, takes up one of the five sizable sections of Roling's book. It was the most spectacular of divine miracles, discussed not only by specialist exegetes or astronomers but by anyone dealing critically with hermeneutics. Generations of theologians tried to square the miracle with their cosmology, be it Ptolemaean, Tychonian, or Copernican. Inheriting a medieval concern with the astronomical implications of celestial bodies interrupting their trajectories, successive interpreters gradually downplayed the actual event: first they limited the actual interruption to the Earth's rotation around its own axis, then they substituted a meteorological miracle for the astronomical wonder, and finally they concluded that the narrative was the poetic exaltation of a Jewish victory.

The conquest of Jericho similarly invited reflection: the Jewish army razed the city after circling it and blowing their horns, making the impenetrable walls disintegrate. What happened to the walls? Did the Earth swallow them up, or did a supernatural force destroy them? Some seventeenth-century interpreters drew on acoustic and ballistic theory to argue that the sound of the horns had made the walls collapse. This hypothesis was soon discarded in favor of a very local earthquake. By the end of the eighteenth century the narrative was considered to be literary hyperbole, celebrating the all-too-human destruction of an enemy city.

Physiological theory, angelology, demonology, and lycanthropy bore upon the interpretation of two other miracles: Balaam's ass, which started speaking to its master; and the condition of the Assyrian king Nebuchadnezzar, who temporarily lost his human dignity, being reduced to the life of an animal. In both cases theologians constantly weighed the biology, the psychology, and the spiritual significance of the actors, until in the eighteenth century the events were reinterpreted as epic inventions. The story of Jonah, finally, invited speculation about what kind of fish swallowed up the prophet. Medieval exegetes identified the monster with a whale, early modern zoology favored the shark for anatomical reasons, then the whale made a comeback, until, again in the eighteenth century, the zoological determination of the animal lost its rel-