Alan C. Bowen and Francesca Rochberg (eds), *A Brill Companion to Hellenistic Astronomy: The Science in Its Contexts*. Leiden and Boston: Brill, 2020. ISBN 978-90-04-24336-1 (hardback). €197.00; $236.00. xxxii+751.

Some readers of *IJPT* may well wonder what this very big book has to do with them. But anyone who wonders at its relevance should take a moment to reflect on the number of works by Platonist authors that pertain to astronomy and to astrology. The lineage, of course, begins with Plato himself, who recommends some sort of study of the motions of the heavens for the embodied soul’s salvation (*Tim*. 90d). Our edition of Plato’s works stems from the work of Thrasyllus, the Emperor Nero’s astrologer. Though the authorship is disputed, we have an introduction to Ptolemy’s work on astrology, the *Tetrabiblos*, attributed to Porphyry. The work on Ptolemy’s astronomical work, the *Syntaxis* or *Almagest*, by Proclus is almost certainly genuine, even if the work on the *Tetrabiblos* that travels under his name is not. Even among the more circumspect Alexandrian school, we find a record of lectures by Olympiodorus on the *Introduction to Astrology* of Paul of Alexandria. Finally, there are those portions in Simplicius’ monumental commentary on Aristotle’s *De Caelo* in which he engages in complex moves to attempt to reconcile the authority of Aristotle with subsequent developments in Hellenistic astronomy. These examples are drawn from the Platonic tradition down to late antiquity – the period that I am vaguely competent to speak about – but readers who know Ficino’s fusion of medicine and astrology in *Three Books on Life* will know that the Platonic tradition continues its engagement with astronomy in its Renaissance re-incarnation.

So what can readers interested in the Platonic tradition learn from Bowen and Rochberg’s very big book and how should we best approach it? This is a serious question since – in spite of the word ‘Hellenistic’ in the title – this book considers the astronomies of overlapping but distinct geographic, linguistic and religious traditions. Geographically, it includes both Mediterranean and near eastern traditions in astronomy. Linguistically, it discusses works in Akkadian, Aramaic, Demotic, Coptic, Greek, and Latin. Religiously and philosophically, it includes chapters on astronomy in early Judaic writings, early Christianity, Mandaean texts, as well as the Hermetic writings, Stoicism and Neoplatonism. This diversity is a deliberate choice on the part of the editors, as they explain in the opening chapter. The diversity also has deliberate limits. Geographically, it excludes Indian astronomy of the same period. Chronologically, it limits itself to what the editors call an ‘ultra-long Hellenistic period’ of 300 BCE to 750 CE. Thus a Brill companion to Arabic astronomy awaits another book.

To get the measure of this massive undertaking, a good place to start is with the preface and with the initial Prolegomenon to the Study of Hellenistic Astronomy chapter. In the latter, Bowen and Rochberg lay their methodological cards on the table. Every science and its practice is embedded within the historical and cultural framework of its practitioners and cannot be fruitfully separated from it. Such a separation is attempted in an earlier big book on Hellenistic astronomy: Neugebauer’s 1,400 page *History of Ancient Mathematical Astronomy* (Springer, 1975). While such high-minded separation of what we, in retrospect, regard as the scientific and objective elements in an ancient science from its cultural, religious and philosophical baggage is informative in some ways, it cannot yield a satisfying narrative of how the various astronomies of the ancient near east and Mediterranean changed and evolved in relation to one another and in relation to the different human concerns that motivated those involved in its discovery and employment. Our editors frame the historiographical and philosophical Scylla and Charybdis between which they hope to sail beautifully: ‘while ignoring the contexts of the science by abstracting its ideas is to miss the *history* of the science, to focus on these contexts and to ignore the ideas and their role in bodies of knowledge is to miss the history of the *science*’ (p. 5).

While Bown and Rochberg have thus curated a work on astronomy as culturally embedded, the book nonetheless begins with Part A – a survey of ‘Technical Requirements’ for the practices of astronomy – followed by a section on Observational Foundations, Astronomical Instruments, and Thematic Questions in Part B. Part C on Contexts begins on page 297 takes up a much larger share of the book. After an introductory chapter on the professional ἀστρολόγος, Part C offers multiple chapters under each of the following headings: Astronomy in Public Service; Astronomy in Literature; in the Training of and Work of Priests; Astral Divination and Natal Astrology; Theological Contexts; and finally Hellenistic Astronomy in the Philosophical Schools. Under this final heading, we find chapters by Giuseppe Cambiano on astronomy and divination in Stoic philosophy and a chapter by James Wilberding on Plotinus on the motion of the stars.

The section on Technical Requirements is a treasure trove of information that is useful to the non-specialist. One might well wonder about fundamentals like the various divisions of the ‘sphere of the fixed stars’ (a common assumption in all forms of Hellenistic astronomy) or how the heavenly bodies used to reckon periods of time. Chapters by Clemency Montelle and Robert Hannah explain these matters in very accessible terms. Two further chapters on techniques of measurement and computation (Mathieu Ossendrijver) and planar and spherical trigonometry (Glen Van Brummelen) are somewhat more demanding.

Moving inward from the celestial sphere, Nathan Sidoli provides an accessible chapter on fundamentals of observable planetary motions, providing a lucid explanation of synodic period and the phenomena of station and retrogradation. This is followed by two chapters by Alan Bowen, the first of which takes the reader directly to questions about the epistemology of astronomy. Bowen is well known for defending the view that Classical Greek astronomical thinking did not explicitly reckon with station and retrogradation until it sought to integrate Babylonian planetary theory in the second century BCE.[[1]](#footnote-1) Plato and Aristotle knew that the planets ‘wandered’ but Bowen has argued that they did not consider station and retrogradation *per se*. In chapter 4.2 Bowen combines this premise with considerations about the epistemic dependence of astronomical ὑποθέσεις on ‘natural philosophy’ or φυσική, where the latter is understood in Aristotelian terms as the study of natural bodies (*Phys*. 193b22–35). His account of Aristotle’s view about the relation between astronomy and natural philosophy was that astronomical ὑποθέσεις – understood as ‘starting points’ – were known to be true only if they could be the conclusions of arguments in φυσική. So long as observed planetary motions were the result of combinations of regular, homocentric natural motions of ether, astronomy was assumed to have the natural philosophical underpinnings needed to count as proper science. But the explicit recognition of station and retrogradation, along with the assumptions of epicycles rotating on deferent circles, upset the previous settlement. This, Bowen argues, created an epistemological crisis for philosophers like Geminus or Posidonius who both took Aristotle’s views as worthy of consideration, but not authoritative, but also knew enough about competing astronomical theories that ‘save the phenomena’. This crisis is one we glimpse – albeit darkly and perhaps with some distortion – through a much-read passage in Simplicius’ *De Caelo* commentary (292,23–31). Bowen aligns Geminus / Posidonius with a realistic, non-instrumentalist view that astronomical ὑποθέσεις must be conclusions of arguments in natural philosophy. They took seriously the possibility that astronomy might not be a science. Ptolemy’s response, Bowen argues, turns the tables and argues that astronomy – since it deals with visible, eternal motions that are always the same by means of mathematics – is in fact epistemically more secure than natural science. This chapter is the most philosophical in the first section. Chapter 4.3, also by Bowen, takes up the question of competing astronomical hypothesis but without the emphasis on epistemology which he takes to be a concern for philosophers and a handful of philosophically-inclined astronomers, but not one that is addressed in our texts spelling out how the planets move and how their movements may be predicted. This is followed by chapters on the Ptolemaic planetary hypotheses by James Evans, on theories of eclipses by Clemency Montelle. The remaining three chapters survey Hellenistic Babylonian and Egyptian planetary theory, while Francesca Rochberg analyses the Babylonian contribution to Greco-Roman astronomy that Bowen argues precipitated the epistemological concerns addressed in his Chapter 4.2.

The sections of the volume on Observations and Instruments are not perhaps so urgent for IJPT readers *kath auto*. Nonetheless, since we know that some of our late antique Platonic philosophers made astronomical observations[[2]](#footnote-2) and described astronomical instruments,[[3]](#footnote-3) some readers may be interested to explore the essays contained in this part. Perhaps the most philosophically significant is that by Richard Kremer which examines the admixture of observation, experience, records, geometry and theory in Hellenistic astronomy. He concludes that while it was in some sense an empirical enterprise, it is not one in which hypotheses were devised to save “phenomena” that were wholly innocent of theoretical baggage.

Roughly 300 pages are given over to the section on Contexts and it is this section that IJPT readers may value the most. Wolfgang Hübner summarises the evidence for the profession of the astrologer, noting that negative depictions tended to lump them in with other kinds of soothsayers whose practice did not necessarily involve the significance of the stars and planets. While some astrologers principally had private clients, others were court astrologers. This political connection leads naturally to the next section on Hellenistic astronomy in public service. Robert Hannah elucidates the use of astronomical knowledge in the construction of time-keeping devices such as shadow tables and sundials. This is followed by a chapter by James Evans on the Antikythera mechanism. The mechanism, Evans explains, had no purpose in navigation, though it could conceivably have had some utility for an astrologer. But the best guess at its age suggests that it was constructed around 200 BCE, prior to the widespread use of horoscopic astrology in the Greco-Roman world. It was, Evans concludes, potentially useful at least as a means of predicting lunar eclipses and illustrating lunar movement. In addition it *probably* illustrated planetary movement as well, though Evans is suitably circumspect about this.[[4]](#footnote-4) But it would also have been wondrous object suitable as a temple offering or as the property of a wealthy patron.

Apart from astronomy, the other science of the Hellenistic period to cast a long shadow in the history European culture was medicine. Dorian Gieseler Greenbaum, in the first of her two contributions to this volume, looks at the various intersections between Hellenistic astronomy and medicine. Greenbaum introduces the reader to the Babylonian medical tradition and notes that both it and the Hippocratic tradition connect medicine to the heavens. Examples include the emphasis on timing and the opportune moment involved in the parallels between «adannu (UD.DA.KAM)» and ὁ καιρός, as well as melothesia, which correlates parts of the body with things in the heavens. In the Hippocratic and Galenic tradition, the ideal of the healthy body exhibiting a harmonious balance of humors is a microcosm of a harmonious macrocosm, including the heavens. Greenbaum, like other specialists in the area, sees no sharp boundary between astronomical medicine and medical astrology or ἰατρομαθηματική. Among the techniques of the latter, ‘decumbiture’ (κατάκλησις / *decubitus*) involved the casting and interpretation of a chart for the patient dated from the time that he or she takes to bed. Given the intersections between Platonism and medicine, this is a chapter that will be of particular interest to IJPT readers.

The next context in which Hellenistic astronomy is considered is literary. Stamatina Mastorakou considers the case of Aratus’ poetic presentation of astronomy, the *Phaenomena*, and argues that it deserves more attention by historians of science than it has received. The work was enormously popular and influential, spawning a host of commentaries. Alfred Schmid’s elegant contribution to this section does not confine itself to any specific literary reception of astronomy but rather considers it more generally in terms of its political symbolism in Roman thought.

Following two essays on astronomy in the Egyptian priesthood and in Babylonian scribal families, the collection turns to the practices of astral divination and natal astrology. This section is of particular interest to those engaged with Platonist philosophy. Greenbaum provides a lucid overview of the Hellenistic horoscope: its increasingly complex nature and the elements that are typically included in it. For those of us who are non-specialists, this chapter and the 22 page glossary of important terms in Hellenistic astronomy at the end of the book are among the most valuable resources in it. Greenbaum’s chapter is complemented by that of Stephan Heilen, who looks at the remaining examples of Hellenistic horoscopes in Greek and Latin. Some of these are preserved – often on papyrus, but sometimes on signet rings or ostraca. Others are ‘literary’ – that is to say, they are presented as examples in books on astrology or, sometimes, in biographies, as is the case with Marinus’ *Life of Proclus*. With respect to the preserved horoscopes, they tend to be brief records of a greater or lesser number of potentially relevant astronomical positions at the time of birth. It is reasonable to infer that many of these were cast for persons of limited means, though we do find more detailed examples that might be ‘luxury horoscopes’. It is also likely that these records were taken to an astrologer and that predictions were communicated in person. A very few preserved horoscopes seem to have belonged to Christians – an interesting fact to consider in relation to Nicola Denzey Lewis’ chapter on astrology and Christianity. Their inclusion in magical papyri is even more infrequent, confirming the separation of the two roles of astrologer and magician. The vast majority of literary examples come from handbooks of astrology and that of Vettius Valens (120– c. 175). It is likely, Heilen argues, that Valens’ examples were drawn from his practice. His didactic presentation and discussion of these examples presents for the reader his mastery of his craft and the manner in which he was able to tell his clients what they needed to know. In his conclusion, Heilen discusses the singular example of the horoscopes devised by Tarutius for the conception and birth of Romulus. Here the process ran in reverse: features of Romulus’ life together with proposed founding date of Rome and Romulus’ rough age at that time were used to find suitable dates for the conception and birth of such a hero. Though Heilen does not discuss Proclus specifically, Christian Wildberg makes a plausible case that his horoscope too was tailored for a particular self-presentation.[[5]](#footnote-5) Though Proclus was born in Constantinople in 412, the horoscope that Marinus gives for him doesn’t fit with that location. It does, however, fit with Xanthus in Lycia and Wildberg argues for the hypothesis that his parents – who seem to have been deeply attached to their native land – had the horoscope of Proclus *the Lycian* cast for the stars he *should* have been born under had they been at home rather than in the capital. Other chapters in this section discuss Babylonian astral divination horoscopy (Francesca Rochberg) and demotic horoscopes (Micah Ross).

The penultimate section concerns Hellenistic astronomy in theological contexts. James VanderKam looks at astronomy in early Judaic writings, where the principal focus is calendrical, while Helen Jacobus looks at astral divination in the Dead Sea scrolls. She notes that, according to Josephus, the Essenes were skilled at preserving the names of angels and foretelling the future. Nicola Denzey Lewis’ chapter on astronomy in early Christianities seeks to correct what she regards as an oversimplified picture in which early Christians were uniformly opposed to astrology. The Christian apologists did often condemn astrology, but often qua Greek learning and culture as much as *per se*. It was also useful as a stick to beat heretics with. But Lewis notes that such apologists gave astrology sufficient credence that they portrayed baptism as a new start that wiped clean the fate contained in one’s natal stars. After a brief account of astronomical ideas in Mandaean cosmology by Siam Bhayro, Christian Wildberg goes systematically through the various essays in the *Corpus Hermeticum* to assess whether there is as much philosophical or theological basis for the centrality of astrology as one might expect given the alchemical and astrological content of the ‘technical Hermetica’. Wildberg concludes that astrology does not play a central role in the *Corpus Hermeticum*, and while this does not differ substantially from the overall assessment of Copenhaver,[[6]](#footnote-6) Wildberg’s chapter argues for that in some cases we may reasonably suspect distinct layers of composition in our text. Where we do not have such firm philological grounds for suspecting different authors, we nonetheless find two themes about the heavens that are in tension with one another. The dominant theme is contemplation of the heavens facilitates the realisation of the goodness and divinity of the universe and of human consciousness or *nous*. Running alongside this, we find less frequent suggestions that the heavens contain symbols of power and influence, endowing those who understand with power over Fate.

Two final chapters on astronomy and philosophical contexts complete the collection. In the penultimate chapter, Giuseppe Cambiano looks at astronomy and divination in Stoic philosophy. Perhaps I am the wrong audience for this chapter, but I thought it told me a bit too much about things that most historians of philosophy know (e.g. that the early Stoics differed on the shape of the stars) and too little about the things I hoped to hear more about. So, this chapter contains the only reference to Cleomedes in the entire book and Cambiano’s discussion of his *Caelestia* amounts to less than a page. The other key issue for those reasonably well acquainted with Stoicism is the status of divination and astrology for middle Stoics such as Diogenes of Babylon and Posidonius.[[7]](#footnote-7) Granted that the sources who attribute to the latter an interest in astrology are late – Boethius and Augustine – is there reason to think this attribution is unfair? The remarks on Seneca by Cambiano are similarly tantalising in their brevity.

In the final chapter, James Wilberding takes us to the Platonist side of the street – but only so far as Plotinus. He notes that Plotinus’ treatment of topics related to the heavens extends chronologically through the *Enneads* and addresses three questions: the eternality of the stars, the limits of astrology, and the cause of celestial motion. Wilberding’s chapter deals carefully, but almost exclusively, with the last of these. His argument brings out great depth in the simple Plotinian answer that the heavens move in a circle in imitation of intellect (II.2.1). Such an answer, Wildberding shows, is *not quite* present in Plato, but rather represents a subtle refinement of a Platonic suggestion that answers Aristotelian criticisms of Plato.

The volume concludes with the helpful glossary of astronomical and astrological terms noted above, along with a massive 62 page bibliography, an index locorum, an index of names, and a subject index. Like other volumes in this series it has a cloth binding and contains a host of useful figures, plates and tables.

It might seem ridiculous to complain that a book that is already 750 pages long could have been longer. Nonetheless, I was somewhat disappointed that the most astronomically-inclined post-Plotinian Platonists – Porphyry, Proclus and Simplicius – did not merit a *per se* discussion that would attempt to assemble a general and inclusive portrait of astronomy and astrology in the context of their similar, but distinct, Platonisms. Such a chapter might build from the philosophical to the astronomical side, as Feke’s book on Ptolemy’s philosophy – reviewed by Tarrant in *IJPT* 14.1 (2020) – connects the astronomical with the philosophical.[[8]](#footnote-8) Certainly the index locorum lets the reader find the very many points at which these authors are discussed. Certainly some of the contributors to this volume have made detailed studies of individual authors, but Bowen and Greenbaum already have multiple chapters in the collection.[[9]](#footnote-9) So perhaps this is simply an illustration of the dictum *ars longa, vita brevis*. It remains, however, that there is no single chapter in this volume that will paint a synoptic picture for researchers in late antique Platonism who are not also specialists in astronomy. There is much that readers of *IJPT* can learn from the papers contained in it, but they will need to put some of the pieces together for themselves. It is for this reason that I have described its contents at greater than usual length for a book review. While the Brill Companions in Classical Studies are good books, they are not cheap and in this age of austerity for university libraries, many of us will work at institutions that will balk at this price for a work that seems unlikely to be consulted by students. If your library can request copies of individual chapters from institutions that do hold this valuable book, I hope that this review may help you to select the portions relevant to your particular interests and needs.

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1. (Bowen 2013), 230–48. [↑](#footnote-ref-1)
2. For instance, Simplicius (*in Cael*. 462,20–1) relates how Ammonius used an astrolabe to measure the position of Arcturus. [↑](#footnote-ref-2)
3. For instance, Proclus and Philoponus. [↑](#footnote-ref-3)
4. Recently, see Tony Freeth, ‘Wonder of the Ancient World’, *Scientific American* 326, 1, 24-33 (January 2022), doi:10.1038/scientificamerican0122-24. [↑](#footnote-ref-4)
5. (Wildberg 2017), 6–8. [↑](#footnote-ref-5)
6. ‘[T]hese seventeen Greek *logoi* are not much concerned with astrology, very little with magic and not at all with alchemy.’ (Copenhaver 1992), xxxii. [↑](#footnote-ref-6)
7. To be fair, Bowen’s chapter 4.2 discusses Posidonius in some detail. [↑](#footnote-ref-7)
8. (Feke 2018) – a work that is omitted from the bibliography of the book under review. [↑](#footnote-ref-8)
9. For Porphyry, see (Greenbaum 2018) and for Simplicius, see (Bowen 2013). [↑](#footnote-ref-9)