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SALLES (R.) (ed.) **Cosmology and Biology in Ancient Philosophy: from Thales to Avicenna**. Cambridge: Cambridge University Press, 2021. Pp. xii + 312. £75. 9781108836579.
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Cosmology and Biology in Ancient Philosophy is the product of three conferences organized by Ricardo Salles from 2016 to 2017. As a work of ancient philosophy, it is an outstanding contribution to a body of research lending more serious attention to natural philosophy in the long Platonist tradition. The volume holds further interest as a sensitive and important study on the reception of Plato's *Timaeus*, one which clarifies the text's peculiar powers of dissolving and remaking classificatory boundaries.

'"Biology" and "Cosmology" are not Aristotle's words' (109), James Lennox reminds the reader in Chapter 7 of this edited volume, nor do they correspond to the names of any two premodern 'sciences'. The story this volume tells has less to do with 'biology' *and* 'cosmology' as independent categories than with a distinctive tradition of ancient 'cosmobiology' rooted in Plato's *Timaeus* and its receptions. The emphasis here is on the philosophical implications of 'cosmobiology,' but Timaean 'cosmobiology' holds historical significance as well. Recent scholarship has stressed the significance of the reception of the *Timaeus* to 'boundary work' (a phrase I take from Aileen Das, *Galen and the Arabic Reception of Plato's Timaeus* (Cambridge 2021)); the effort to classify the protean *Timaeus* played a critical role in the formation of scientific disciplines of knowledge in the Graeco-Roman and Islamicate worlds.

In navigating the early chapters of this history, the book's contributions mount a convincing case that ancient cosmology and ancient biology cannot be understood without understanding their conjunction. Questions that might seem to a modern reader obviously posterior to the independent study of 'cosmology' and 'biology' could in the ancient tradition be prior: What is a cosmic animal? How does it or does it not resemble earthly animals? What does this mean for the definition of animal, and for the study of any animal? These 'cosmobiological' problems emerge from the volume as absolutely fundamental to the ancient study of heavens and earth, and to ancient science and ancient philosophy in general.

Barbara Sattler's chapter, the first to discuss the *Timaeus*, offers an excellent introduction to its 'cosmobiology'. Sattler observes that 'Plato's cosmology … seems to be essentially framed in what we could call biological terms' (29): an investigation into the cosmos as a living being. But the *Timaeus*' biology of the World Soul envisions a life very different from that of plants and animals, a 'life tied to reason' (44) and unencumbered by organs or the bodily functions associated with reproduction and survival. The *Timaeus*' 'biology' is in this sense more accurately a 'rational theology' and 'psychology'. Yet Plato's framing of his 'rational theology' as a 'biology' (study of *animal* life) is key. In studying the cosmos as an animal, Sattler suggests, the *Timaeus* also proposes to understand animal life as a life of rational activity, rather than a life of mere survival and reproduction. The *Timaeus*, then, does not classify the World Soul according to an existing definition; rather, it defines the category of 'animal' by this act of classification. The problem that this definition of animal life invites, of the similarities and differences between celestial and terrestrial animals, is a red thread throughout the volume.

André Laks (Chapter 1) argues that the attribution of a theory of cosmic soul to Preplatonic philosophers most likely reflects the influence of later Platonizing

interpolation. Following Sattler's discussion of the World Soul, Dimitri El Murr (Chapter 3) offers a lucid reading of Platonic 'desmology': the bonds that hold together different elements of the cosmos (World Body, lesser gods, rational soul). John Dillon (Chapter 4) argues for the importance of the World Soul in late Plato and in the Old Academy. George Boys-Stones' reconstruction (Chapter 5) of Middle Platonist readings of the World Soul convincingly exhorts modern interpreters to take more seriously the *Timaeus*' language of God as 'father' of the cosmos.

Chapters 6 and 7 bring in Aristotle, though without leaving Plato entirely behind. The late John Cooper offers a stimulating discussion of the motion of terrestrial animals and celestial beings, concluding with a defence of Aristotle's model of multiple celestial souls against Plato's model of the singular World Soul. Lennox offers three examples of the interconnections between animal life and the heavens, contextualizing these in Aristotle's own natural philosophy. James Wilberding (Chapter 8) draws connections between ancient biology and modern 'recapitulation' theory (the belief that ontogeny replicates phylogeny). In doing so, he addresses fundamental questions about the Platonic Forms, including whether they encode morphological content and the correspondences between Forms and natural species.

Chapters 9 through 12 address Stoic cosmobiology, exploring the nature of divine thought (Boys-Stones), the originality of Stoic arguments for the intelligence of the cosmos (Salles), hematocentric variants on Stoic cardiocentrism (Emmanuele Vimercati) and the (contemporary) philosophical appeal of the Stoic account of causality (Katja Maria Vogt). R.J. Hankinson (Chapter 13) identifies the programmatic entanglement of biology and cosmology in Galen's teleological writings (though the category that interests Galen, as Hankinson notes, is theology rather than cosmology). Lloyd Gerson (Chapter 14) compares Plotinus' account of Nature's activity of contemplation to contemporary philosophical panpsychism. Finally, Tommaso Alpina (Chapter 15) explores Avicenna's claim that the heavens are an animal against the backdrop of this tradition. Thanks to the close connections between its contributions, the volume is a pleasure to read cover-to-cover. The chapters form a connected, albeit episodic, historical narrative, devoting close attention to the transformation of key concepts (cardiocentrism, Nature, Form, zoology) across different periods of ancient thought.

Cosmology and Biology in Ancient Philosophy, as the title suggests, is pitched primarily to an audience in ancient philosophy, an orientation reflected in its framing, bibliography and choice of contributors. A potential risk of this tailoring could be to circumscribe its likely readership. In fact, the book presents an immensely valuable conversation partner to work on cosmology, biology and theology by philosophers, as well as by classicists, historians of science and intellectual historians of the premodern world. This learned and clear collection deserves readership across these disciplines; classicists' own disciplinary boundaries, after all, are no more absolute than ancient ones.

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