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**Helen S. Lang:** *The Order of Nature in Aristotle's Physics: Place and the Elements*

The Order of Nature in Aristotle's Physics: Place and the Elements by Helen S. Lang

Review by: rev. by Monte Johnson

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arship whose breadth and depth lends his position considerable weight.

Aveni's text carefully leads his readers toward his own conclusions. After outlining several fundamental natural periodicities, he shows how these cycles have been incorporated into various Western timekeeping strategies and into the resulting familiar notions of time. Readers then encounter diverse and very different temporal concepts found in other cultures around the world and throughout history. By the end of the book, it proves impossible to deny either the fundamental role of natural cycles or the importance of cultural influences on concepts of time.

Aveni's interdisciplinary approach plays a valuable and visible role throughout, enabling his nuanced account to avoid any need to solve the riddle of whether time is internally driven or externally influenced. Even though he asserts that "above all, it is culture that gives structure to time" (p. xi), he cautions against any stronger inference by countering that "no matter how people choose to reckon time . . . the method always reflects the basic periodicities induced upon us by the natural world" (p. 69). And despite the resulting differences we find across cultures, he writes, the profound similarities about time "move me to wonder whether we are all mentally wired the same way, simply because we are human" (p. 10).

In less authoritative hands, this might seem to be waffling, but not in this author's. Aveni the historian reveals the contingencies of calendars and their attendant notions of time, demonstrating how, in each of his case studies, natural and social phenomena play important roles. As such, Aveni's resistance to resolving the internalist/externalist tension is a merit, not a failure, of his account. Indeed, the breadth of *Empires of Time* shows that any account making fundamental claims about the nature of time must, in addition to addressing natural phenomena and providing philosophical analyses, come to terms with its cultural embeddedness.

Since its first printing in 1989, *Empires of Time* has prompted discussion in numerous classes and other forums. This new paperback features a few changes from its hardbound predecessor: one new corrective footnote, an overhauled index, and a new five-page preface. The photographs are not quite as clear as in the earlier edition, but this is a small price to pay for reducing the cost of the book by \$2.00 in the intervening decade. My only regret is that I would have liked to see the new preface include even more references to recent work on related topics.

These are very minor quibbles about a superb

book. Historians and philosophers of science, as well as their students, will benefit from reading *Empires of Time* as much as they will enjoy it.

MARVIN BOLT

**Helen S. Lang.** *The Order of Nature in Aristotle's Physics: Place and the Elements.* xii + 324 pp., bibl., index. Cambridge: Cambridge University Press, 1998. \$80 (cloth).

This book, a study of some fundamental concepts in Aristotle's philosophy of nature and cosmology (motion, place, void, and elements), is recommended for historians of physics or astronomy and specialists in Aristotle or ancient science. It is perhaps the most important monograph in English that focuses on issues central to *De Caelo*, Aristotle's treatise on cosmology that has recently been relatively neglected.

Helen Lang's guiding interpretive criteria are coherence and avoidance of anachronism. She persuasively argues that Aristotle's thoughts on nature, place, and the elements cohere in *Physics* and *De Caelo*, but only when they are read with due attention to his method of topical investigation, which is not explicitly systematic. Historians of science will be interested to learn that Aristotle does not use the concepts of speed, medium, or resistance, is not concerned with the problem of projectile motion as such, and is not committed to the existence of a plenum. Some of these are later, even post-Copernican, developments.

Lang's book is divided into three parts: "Place," "Elements," and "Nature as a Cause of Order." The third can probably be read independently. It contains a précis of the entire book, remarks on the historical importance of Aristotle's cosmology, reflections on why it continues to fascinate us, and a discussion of how his larger philosophical project should be evaluated. The first two parts of the book are commentaries on the relevant texts, essentially serving to justify in detail the interpretation summarized in the third part.

It has often been questioned whether Aristotle's account of the motion of the elements is teleological. A radical conclusion of Lang's book is that the account of elemental motion is the essence of his teleology: "In short, the order of nature is nothing other than the orientation of each element toward that place that is its form and actuality—natural places within the cosmos that are defined by place as the limit of the first containing body—and this relation is Aristotle's teleology of nature" (pp. 274–275, emphasis in the original). This conclusion is overstated. Cer-

tainly Aristotle's teleology is also about the explanation of living things, their parts and behavior. But this aspect of Aristotle's teleology does not *prima facie* cohere with the teleological account of the elements. Consider that a living thing (an animal, say) is composed of elements. Why does the animal not disintegrate into the elements out of which it is constituted, as they discharge toward their proper places? (Lang puts this question aside in footnote 5 on page 167.) The proper functioning of living natural kinds seems to require that the elements be constrained against their inclinations (even transformed into homogenous organs) and so prevented from reaching their proper places and thus actualizing their intrinsic capacities as elements. The existence of living things would seem, in this sense, to be contrary to nature. But of course living things are, according to Aristotle, in accordance with nature to the highest degree. They have their own internal principles of motion and intrinsic ends. In fact, how their ends are intrinsic is much clearer than with the elements, since ends of living things (nutrition, pleasure, reason, etc.) do not require reference to something external to them, while the elements have their "intrinsic orientations . . . towards their proper place, the periphery or the middle" (p. 223 and *passim*; cf. the oxymoronic phrase "intrinsic relations," p. 171). It has been argued that the teleology of living things is fundamental to Aristotle and that the elements are secondary ("posterior") by nature. Certainly Aristotle considers them axiologically inferior—he says that it is better to be a vegetable than a lifeless stone. And to the extent that nature always exists "for an end," and living things are ends as beneficiaries of their parts (i.e., organs, which can be analytically decomposed into the elements), we might say that elements are teleologically subordinate to living things and exist for their sake. Lang's compelling case for the coherence of Aristotle's teleological account of elemental motion is not necessarily threatened by this criticism, but the overall coherence of Aristotle's teleology might be.

MONTE JOHNSON

**José Luis Calvo Martínez** (Editor). *Revista Internacional de Investigación sobre Magia y Astrología Antiguas*. (MHNH, 1.) 350 pp. Málaga, Spain: Charta Antiqua, 2001. €30 (paper).

The study of magic in late antiquity has recently been undertaken by a number of scholars in very different fields, an indication that academic prejudices against this kind of endeavor have waned.

The first volume of this new annual presents work on these esoteric aspects of antiquity.

The journal is divided in three sections: "Studia," "Documenta et Notabilia," and "Recensiones." The first section presents articles that deal with different aspects of astrology and magic in antiquity. Three of them are quite general, being bibliographical overviews that deal with magic (J. L. Calvo Martínez, "Cien años de investigación sobre la magia antigua") and astrology (A. Pérez Jiménez, "Cien años de investigación sobre astrología antigua") and offer a review of the best web-based resources on magic, astrology, and hermeticism in the Greco-Roman world (J. F. Martos Montiel and C. Macías Villalobos, "El esoterismo grecorromano en la Red"). These three works are quite complete and will be useful for those who are not familiar with the field. The other essays in this section are more specialized: M. García Teijeiro's "El cuento de miedo en la Antigüedad clásica" notes the absence of narratives that fit the modern concept of the horror story, except for the tales woven into Petronius's *Satyricon* and Apuleius's *Golden Ass*; F. Graf's "Mythos und Magie" studies the development of the opposite evaluation of both terms in contemporary discourse, either negative or positive depending on the context, whereas in antiquity both had a rather negative connotation, an assessment that changed only with the positive Romantic understanding of myths; F. Marco Simón's "Sobre la emergencia de la magia como sistema de alteridad en la Roma augústea y julio-claudia" focuses on the rise of magic as an alien anti-system or expression of social otherness ("alterity"), as opposed to the *mos maiorum* during the late Roman Republic and the early principate; similarly, S. Montero Herrero studies the contacts between astrology and the "Etruscan discipline" (*haruspicine*). Finally, W. Hübner and E. Calderón Dorda offer linguistic studies of several Greek words in different astrological works.

The "Documenta" section presents the critical edition and a fully annotated translation into Italian of an astrological work by G. Bezza ("Una natività scopo didattico"), preceded by a learned introduction. Perhaps this section best makes evident the problems that such a specialized journal poses: the "Documenta" section will be of interest only to those already very familiar with astrology or magic; readers who need a place to start will not find it useful. The journal responds to the renewed interest in aspects of the religious world of antiquity that have been neglected until recently, but if it wants to be of use and interest to nonspecialists it must maintain a