Sattler, Barbara M.
The concept of motion in ancient Greek thought. Foundations in logic, method, and mathematics. (English) Zbl 1475.01005
Cambridge: Cambridge University Press (ISBN 978-1-108-47790-1/hbk; 978-1-108-74521-5/pbk; 978-1-108-77519-9/ebook). x, 427 p. (2020).

This is a meticulous, definitive study of the issues that ancient Greek philosophers had to deal with in their attempt to understand motion. It starts with a chapter on the conceptual foundations of Greek thought: the concept of motion, of being, logical principles, the role of negation, the role of mathematics in science and measurement. It is followed by a chapter on Parmenides, his logical apparatus, his ontology, and the reasons why his philosophy "does not allow for a consistent account of relations" (p. 117), whereby it excludes "the very possibility of natural philosophy" (p. 119). The third chapter is devoted to Zeno's paradoxes, with a presentation of each paradox, their general aim, and the manner in which they relate to the problem of the continuum and that of motion.The fourth chapter is devoted to the atomistic (Leucippus and Democritus) foundation for an account of motion, seen as a reaction to the Eleatic challenges, as "an important step towards the development of a genuine natural philosophy" (p. 176). Chapters 5 and 6 are devoted to the possibility of natural philosophy according to Plato, largely based on the *Timaeus* and the *Sophist*. They focus on the new logical basis, such as the reinterpretation of negation and connection, as well as on the mathematical advances, the problem of time and measure, and the limitations inherent in that approach. Chapters 7, 8, and 9 are devoted to Aristotle's notions of continuity, of time and space as implicit measures of motion, and to his reasons for having stopped "short of what we would recognise as our modern understanding of speed", of his inability "to give an *explicit* account of motion in terms of time and space" (p. 384), together with a comparison of Aristotle's account of motion with those of Eudoxus and Autolycus.

Reviewer: Victor V. Pambuccian (Glendale)

MSC:

01-02	Research exposition (monographs, survey articles) pertaining to history and biography
01A20	History of Greek and Roman mathematics
00A30	Philosophy of mathematics

Keywords:

atomists; motion; velocity

Biographic references:

Parmenides; Zeno; Plato; Aristotle

Full Text: DOI