Sattler, Barbara M.

Divisibility or indivisibility. (English) Zbl 1460.01004

Shapiro, Stewart (ed.) et al., The history of continua. Philosophical and mathematical perspectives. Oxford: Oxford University Press. 6-26 (2021).

In ancient times, during the fifth to fourth centuries B.C., the debate about the nature of the continuum did not happen primarily within the mathematical community, but rather in the arena of philosophy, more specifically that of metaphysics and natural philosophy. The main protagonists were Parmenides, Zeno, and Aristotle. While they all agree that "magnitudes which are continuous are homogeneous and without any gaps", they disagree on the consequences of that aspect of the continuum regarding the possibility of divisibility. Does it imply divisibility or, on the contrary, indivisibility? Aristotle – who, against Parmenides, finds that "the divisibility of a thing can be thought of without contradictions" and "develops a sophisticated apparatus to show how infinite divisibility can consistently be thought of – a challenge put forth by Zeno's paradoxes" – finds a creative solution with his part-whole theory.

The current chapter takes a close look at the positions of the three protagonists and explains the nature of the problem, as well as the nature of the solution brought forth.

For the entire collection see [Zbl 1454.01002].

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