

INTRODUCTION TO THE SPECIAL ISSUE: TIME

Matias Slavov

If you were to list the perennial issues in philosophy, the nature of time would no doubt be on that list. The essays in the present volume all touch upon the problem of time. The volume includes four contributions from different perspectives within the history of philosophy of time.

Jani Hakkarainen and Todd Ryan delve into David Hume's account of time. Hume thinks there can be no time without succession. Consequently, unchanging, steadfast objects do not have a duration. They are stationary, not subject to any change. Although they lack a duration, they coexist with a temporal succession. This introduces a problem: What is the relation between unchanging objects and time? Hakkarainen and Ryan draw on what they call Hume's Principle of Quantitative Comparison. Each indivisible temporal extent is equal to any other temporal extent; differences in duration are due to the different number of temporal parts. Steadfast objects may be thought to undergo a certain number of calculable changes when they are compared to ordinary successions we experience. This experience is provided, for example, by the ticking of a clock. We have the capacity to think that steadfast objects have precise durations. We humans nevertheless cannot give any deep explanation as how we come to this conclusion.

Emily Thomas focuses on the graphic representation of time. Whereas the visual representation of time has typically been done with matrices or grids, Joseph Priestley represented time in a line in 1765. Priestley's line divides time "by an equal scale" into centuries. Many have interpreted this as being evidence of a Newtonian influence, as if there is an absolute time flowing equably. Thomas situates Priestley's position in the modern debates on the nature of our ideas. She argues that the absolutist reading does not have merit. Thomas thinks rather that Priestley sides with David Hartley, who explained how we acquire the ideas of duration and time from sensation. Thomas's essay advances our understanding of the history of space-time parallelism. With timelines, the analogy between time and space becomes a possibility.

In my essay I assess Ernst Mach's criticism of Isaac Newton's substantialist account of time. Newton's argument for absolute time relates to his mathematical-empirical physics and theology. In his *Science of Mechanics*, Mach largely neglects the laws of motion, calculus and the omnipresence theology that is at the background of Newton's concept of time. Mach did however criticize Newton's absolutist argument on the basis that the self-existing flow cannot be observed, measured, or experimented with, and he provided an alternative relational account of time. I point out that this was not only extreme positivism or phenomenalism, but an epistemology and ontology suited for the subsequent physical theories of relativity. Finally, I argue that Mach's denial of the independent atomic structure of matter should not be entirely assimilated to his denial of substantialism about time. The two phenomena are different, so we should evaluate Mach's reasoning concerning them accordingly.

Matyáš Moravec and Peter West go through Susan Stebbing's criticism of Arthur Eddington's popular account of the passage of time. Stebbing's target, Moravec and West argue, is Eddington's largely Bergsonian view on time. She objects to the view that our minds have "a private door" to the physical reality which no measurements can disclose. Stebbing believes that our experience of the passage of time belongs to our ordinary, every-day experience, and she thinks Eddington mystifies the whole idea by leaning on a peculiar form of introspection. Moravec and West build a case for Bergson's influence on Eddington, arguing that Bergson probably did contribute to Eddington's idea of "the intuition of becoming." Both seem to think that we may access the dynamic temporal reality in ways not captured by scientific investigation, by means of an introspective internal experience of duration.

As a final remark, I think I should note, with regret, that out of the six authors in this volume only one is a woman. Let the reader know that as an editor I tried to strike a better balance. I still trust that the quality of the articles is high, and most importantly, worthwhile for readers interested in the history of philosophy of time.

Matias Slavov

*Pinni B, Kanslerinrinne 1
33014 Tampere University
Finland
matias.slavov@tuni.fi*