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### **John Schuster, Descartes-agonistes: Physico-mathematics, method and corpuscular-mechanism, 1618–1633**

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John Schuster, *Descartes-Agonistes: Physico-mathematics, Method and Corpuscular-Mechanism, 1618-1633* (Dordrecht: Springer, 2013), xix + 631 pp. £153.00. ISBN 978-94-007-4745-6.

In the partly autobiographical preface to this magisterial account of Descartes's physics, John Schuster tells us that he is "here presenting my second attempt at a Descartes for historians of science" (p. ix). The first attempt was in his Princeton PhD dissertation, completed in 1977, which, as Schuster reports second-hand, has been seen as an "underground classic" (p.v) in the history of science. Schuster's dissertation was surely the first serious attempt to show that, contrary to what philosophers and historians of philosophy were assuming (who saw him as chiefly concerned with problems of epistemology, personal identity, the mind-body problem, and other canonical issues in philosophy), Descartes was an innovatory *natural* philosopher, developing a new method for understanding and explaining the workings of the physical world. If Schuster himself did not immediately capitalize on his own important insights, his message did make an impact on historians of philosophy, such as Stephen Gaukroger, Gary Hatfield, and Daniel Garber, who began to pay closer attention to the real historical Descartes, rather than the Descartes of the "philosophical canon". If Schuster's role in the re-assessment of Descartes and his work has been overshadowed by these more prolific writers, this "second attempt" ought to establish him, at last, as one of the foremost commentators on Descartes.

What we have in this meticulously detailed and densely argued book is a reconstruction of the development of Descartes's thought from his introduction to the new physico-mathematical way of Isaac Beeckman in 1618 up to the *Principia philosophiae* of 1644 (presumably the title, and the opening claim, on p.1, to take the reader to 1633 are remnants of an earlier version). But Schuster does not just tell us *what* Descartes thought at different points in his career, he also explains *why* he thought that way, and as the story unfolds, he carefully explains what led Descartes to change his mind, and how and why he went on to new ways of thinking. The story, as Schuster says, is "marked by determined planning, unintended shifts and some spectacular insights, some decisively fruitful, some disastrously misleading, all in turn conditioned by the varied environments in which Descartes moved" (p.23). At some points Schuster necessarily indulges in speculation, but these are always confined to comparatively small details, and he never makes the mistake of basing his subsequent account on his speculations. Even so, they are enlightening to read because they show a master craftsman at work—an intellectual historian at the top of his game, speculating on the basis of an extraordinary familiarity with his subject. Schuster is also adept at what he calls "charitable interpretations", in which he overlooks what seem to us to be obvious flaws (and which stall our efforts to understand what Descartes was trying to achieve) and puts a favourable gloss on Descartes's pronouncements, thereby bringing out their internal consistency and even their impressive coherence. At one point, Schuster even indulges in counter-factual history (pp.416-18), as a way of confirming his analysis of the real events, and making sense of why Descartes moved forward as he did. In all cases, Schuster writes with impressive assurance and a seemingly unassailable authority.

Important aspects of the authoritativeness of Schuster's account are his acute awareness of the importance of methodology (whether Descartes's, or his own as a historian), and previous historiography. Schuster insists that his reconstruction of Descartes's career would not have been possible if not for his "career-long concern with historiographical problems and historical category formation in the history of

science” (p. vii), and his consideration of previous historical accounts, and how and why they turned out to be correct or otherwise, certainly adds an extra dimension to Schuster’s account. It serves as an important reminder that previous historiography becomes part of the history, whether we want it to or not. In this connection, historians of philosophy may be interested to read Schuster’s separation of himself and his book from “the empire of history of philosophy” (p. viii). Schuster’s aim is not to confirm Descartes’s standing as an ahistorical philosopher, and insists that his concerns are “unremittingly historical”. A word of warning is perhaps appropriate at this point, however. Schuster’s close-up analytical account of Descartes’s thought reads like what would once have been called “internalist history of science”. Schuster’s concern is not with problems of social order in early seventeenth-century France, much less with how developments in book production affected social networks in the republic of letters, say, nor with how the concerns of patrons affected claims about the natural world. No, his concern is with Descartes’s successive theories and why he subscribed to them, and as such he considers the competing theories of others, whether Ancients or moderns, and their ability to command consensus, or not.

This is not to say that Schuster dismissively disregards relevant “external factors”, as an old-fashioned internalist might once have done, but he is satisfied by simply acknowledging the point and is then ready to move on. Consider, for example, his analysis of Descartes’s theory of motion as presented in the *Principia* (p.583):

As is well known, Descartes was at great pains earlier in the *Principles* to establish a ‘philosophical’ (as opposed to vulgar) definition of motion. In such philosophically conceived motion, a body must translate from the vicinity of the layer of matter immediately contiguous to it at its initial position. According to Descartes... the Earth does not accomplish such motion. But what is the status of this doctrine? Some excellent scholars take Descartes perfectly seriously on these points and accept that this was Descartes’ default and fundamental position on motion, and hence motion of the Earth... I... tend to agree with other, equally adept scholars, who would argue that what we have here is an elaborate smoke screen set down before the fact of possible theological objections (or worse) to the *Principia*, from either Catholic or Dutch Reformed forces.

Pointing out that Descartes was writing only a decade after the trial of Galileo, Schuster points out that “Descartes could have sworn up and down the anti-realist Copernican tenor in the text...” It is evident that Schuster’s concern is to explain this seeming lack of commitment to Copernican cosmology in a book that Schuster brilliantly reveals to be an exercise in radical realist Copernicanism; he does not take the opportunity to discuss the social and institutional dominance of contemporary Catholicism, or Calvinism. Similarly, he does not provide an excursus on the sociological background to contemporary pneumatology and demonology when accounting for the invocation of spirits and active agencies in nature by mechanical philosophers:

It is fashionable, and correct, to maintain that later seventeenth-century mechanists, at least in England, made considerable capital out of what often was a necessity—political, religious, or technical—of acknowledging some forms and types of ‘spirit’ and active agency in nature. Nevertheless, it is not correct then to infer that the ‘mechanical’ philosophy is a misplaced or non-existent historical category... (p. 598).

Schuster always indicates where he stands on these historiographical matters, but his own contribution is confined to detailed analysis of Descartes's reasoning and its relations to the thought of others, whether scholastics, or rival new philosophers, such as Beeckman, Galileo, Gassendi, and others. The prospective reader should be aware, therefore, that they are embarking on a detailed technical account of Cartesian physics, not on a history of early modern Europe.

The result is undeniably a *tour de force* and a work that should surely supersede many of the analyses of Descartes's philosophy that have gone before it. Showing the importance of optical ideas for Descartes's system, and how this led on to a sophisticated use of hydrodynamics, Schuster's account makes more sense of Cartesian physics than anyone has managed hitherto. He also provides a superb account of Descartes's tripartite matter theory and the reasons for the crucial differences between the versions presented in *Le Monde* and the later *Principia*. One of the most outstanding features in a work of many highlights is the culminating discussion of "the *Principia* as a Triumph of Novel and Daring System-Binding" (p.543). Here Schuster shows that the *Principia*, by incorporating notions inspired by the "cosmic magnetism" of William Gilbert, and the recently accepted cosmological phenomena of new stars and sunspots, came to be seen by Descartes as the thoroughly comprehensive system of nature which he was never able to provide when writing *Le Monde*. Seeing all this fall into place, under Schuster's expert guidance, gives the reader a palpable sense of Descartes's excitement (and indeed of Schuster's as he reconstructs it, arguably for the first time since Descartes published it) as he genuinely began to think, and as he stated explicitly at the end of the *Principia*, "That no phenomena of nature have been omitted from this treatise."

Descartes's system was ultimately a failed attempt to provide a systematic account of the natural world, and it is all too easy to regard its great influence on the subsequent generation as little more than a historical accident at a time when thinkers desperately required a replacement for the collapsing Aristotelian system. Schuster's new account of Descartes and his struggles to develop a coherent and cogent system shows just how ingenious and seemingly powerful Descartes's system was, and how easy it was, therefore, for contemporaries to overlook its obvious flaws. Schuster shows us that although Descartes's system was a failure, it was a truly magnificent failure—and in showing us this so forcefully and authoritatively, Schuster ensures that his own book is a great success.

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