

Ruth Hagengruber, ed.

Emilie du Châtelet between Newton and Leibniz.

Dordrecht: Springer 2012.

269 pages

\$139.00 (cloth ISBN 978–94–007–2074–9)

Emilie du Châtelet (1706–1749) was the last member of the great quartet of women philosophers of the early modern era, her predecessors in the previous generations being Elizabeth of Bohemia (1618–1680), Anne Conway (1631–1679), and Margaret Cavendish (1667–1717). All had a keen interest in natural philosophy and metaphysics, Elizabeth's interests being shaped by Descartes, Conway's by Leibniz and More, and Cavendish's by Hobbes. But by the eighteenth century, natural philosophy had been transformed, and the skills needed to understand it properly had become considerably more technical. Something very different from the kinds of philosophical interests that Elizabeth, Conway, and Cavendish had was at stake. Metaphysics was no longer the route to an understanding of the basic features of the world; rather, it was now more a way of rationalizing an account of the world that had been supplied in Newton's *Principia*, particularly after the 1730s, when Newtonianism became fully established in France. Châtelet rose to the challenge, and her understanding of both mechanics and metaphysics was substantial. Although it is her association, both intimate and intellectual, with Voltaire that is best known, she corresponded with Wolff, Euler, Maupertuis, Clairaut, Jurin, Jaquier, and Musschenbroek amongst others, and Diderot and La Mettrie valued her advice and friendship.

Hagengruber's collection of essays provides the most comprehensive coverage of Châtelet's work currently available. There is some very unidiomatic, and occasionally ungrammatical, English in some of the contributions, and a woefully inadequate index: Châtelet translated and wrote an introduction to Mandeville's *Fable of the Bees*, for example, and this is discussed in the opening essay, yet there is no index entry on Mandeville. On the other hand, the bibliographies of primary and secondary works are exhaustive, and the introductory essay by Ruth Hagengruber is a good introduction to Châtelet. Despite its length—some 60 pages—the essay is quite condensed, and she takes us through Châtelet's intellectual development from her early work on Mandeville, through her rejection of Locke's attitude to metaphysics, showing what motivated her attempt to provide a metaphysical foundation for mechanics and how this project relates to that of her contemporaries such as Maupertuis and Euler.

The other essays are all helpful. Hartmut Hecht compares two works from 1742—Maupertuis' *Lettre sur la comète* and the second edition of Châtelet's *Institutions de Physique*—arguing that they represent two competing trajectories, with the latter urging a full-blown metaphysical grounding of natural philosophy along Leibnizian lines. Sarah Hutton questions the extent to which Châtelet was antipathetic to Samuel Clarke, Clarke having been a key figure in the polarization of Newtonian and Leibnizian camps, whereas Châtelet attempted to reconcile them in the *Institutions*. Fritz Nagel discusses Châtelet's recently discovered *Essai sur l'optique*, using it to show her close relationship to the Bernoullis. Euler's *Mechanica* and Châtelet's *Institutions* were both treatises on the foundations of mechanics and, in his essay, Dieter Suisky examines the complementary nature of the two treatises, noting the historical emphasis of Châtelet's work.

One of Châtelet's major concerns in her account of the fundamentals of mechanics was with the *vis viva* dispute. As Andrea Reichenberger points out in her treatment of this question, conservation laws (the *vis viva* dispute subsequently resolved into conservation of momentum and conservation of energy) were marginal in Newton, but came to the fore in the eighteenth-century development of Newtonianism in continental Europe, and this provides the context for understanding Châtelet's attempt to introduce the Leibnizian understanding of *vis viva* into Newtonian mechanics, via an examination of the metaphysical foundations of science. Finally, Ursula Winter argues for the importance of Châtelet in reintroducing Leibnizian thought into French mid-century scientific culture.

Despite some infelicities of English, this is a very worthwhile collection, and for those coming to Châtelet for the first time, the introductory essay and the bibliographies will prove invaluable.

Stephen Gaukroger

University of Sydney/University of Aberdeen