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Véronique Le Ru, *Émilie du Châtelet philosophe*. Paris: Classiques Garnier, 2019. 206 pp. Bibliography and index. €29.00. (pb). ISBN 978-2-406-08792-2.

Review by Ruth Edith Hagenruber, Center for the History of Women Philosophers and Scientists, Paderborn University.

Since 2006, her third centenary, the eminent female figure of French Enlightenment Emilie Du Châtelet has increasingly gained attention from international scholars. Given the fact that Elisabeth Badinter's ground-breaking monograph was published in the 1980s,[1] a comprehensive description of Du Châtelet's life and work, delivered by an expert of the French speaking community, has been long awaited. This is especially the case, since Voltaire experts Kölving and Brown have prepared the ground for French research on Du Châtelet, delivering material on her and Voltaire resulting in a voluptuous collection of "new documents and clarifications" [2] and a recently updated collection of letters from Du Châtelet.[3] In 2011, Du Châtelet's extensive examination of the Bible was published,[4] and her translation of and comments on Newton's *Principia* were re-edited in 2015.[5] An abundance of new material is waiting for interpretation, which is so monumental that any presentation is a challenge. Le Ru presents a succinct yet focused and well written analysis which delivers a considerable amount of information, suitable for reading by a broader audience. Likewise, this volume is exceedingly valuable for Du Châtelet scholars. It takes a very particular and systemizing stance on Du Châtelet's entire opus and offers new perspectives. To introduce the intellectual dominion of Du Châtelet in all its facets, the book deals with philosophy, science, physics, mathematics, and morals. By doing so, Le Ru evokes the realm of Du Châtelet's inspiration. The book is divided into two parts. The first delivers a short but profound analysis on the state of Du Châtelet scholarship. The second part adds new insights on Du Châtelet's legacy. This highly informative book covers Du Châtelet's work as a whole and offers its own outstandingly fruitful stance on research about Du Châtelet.

The book starts with a short introduction including the most important facts about Du Châtelet's life. It confronts the reader with the history of cultural reception, negation, and deprivation to which she was subjected. Given Du Châtelet's wide range of philosophical and scientific work, Le Ru's selection reflects the author's expertise in the history of science. She introduces the reader to the famous dispute about living forces and explains why this discussion has become of such an importance to understanding Du Châtelet. Descartes spoke of movement, not of force, when he introduced his measurement of forces as mv . Leibniz insisted that force was to be measured in mv^2 , maintaining that Descartes was not able to understand the beginning and end of a movement. The intellectual challenge that arose when Du Châtelet started to integrate Leibniz's

measure of force into her system of physics becomes clearer, when Le Ru explains how this topic changed the philosopher's ideas about physics. Physics and morals were strongly intertwined in Du Châtelet's work, as the metaphysical and foundational horizon of force, its cause, and its telos lead her to a concept of energy that is relevant for the conservation of force and also influenced and secured her ideas on liberty.

Le Ru also discusses the question of living forces within the context of the debate of that time, referring to d'Alembert's notice that it is "only a dispute of words" (p. 24). In her presentation of the *Institutions*, Le Ru follows two main topics. Firstly, she presents Du Châtelet as a strong enlightened philosopher who does not accept the words of authorities or subject science to national pride. Secondly, Le Ru focuses on the chapter of hypotheses and hereby presents Du Châtelet's philosophy of hypothetical reasoning as the main thread throughout Du Châtelet's philosophical and scientific work, giving it a unifying interpretation.

Du Châtelet did not accept Newton's law of attraction as a law but called it a hypothesis instead. Du Châtelet herewith reproached those who adhered to the Newtonian statement "hypotheses non fingo." Newton was not able to explain the cause of attraction, and as long as the causes of the phenomena could not be extensively described, hypotheses comprised the instruments for philosophical and scientific insights. Newton, according to Du Châtelet, was a scientific innovator, but it is also true that he was in line with Tycho Brahe, Johannes Kepler, and Robert Hooke. According to Le Ru, the *Abbreviated Exposition of the System of the World*, Du Châtelet's commentary on Newton's *Principia*, should therefore also be read as a true *discours de la méthode*. Le Ru supports Du Châtelet's idea of a history of science as a history of "rectified errors" that has its impact into the twentieth century. Throughout the book, Le Ru uses Du Châtelet's methodical reasoning to disclose her main ideas from this unifying perspective. While the author is well aware that it is not possible or necessary to go into depth in all aspects of Du Châtelet's opus, she enriches the often short presentations through references, such as contributions by Ulla Kölving and Olivier Courcelle, noted above, and Judith Zinsser and Candler Hayes.[6] Though there is more recent research available, this monograph succeeds in setting its own convincing accent with a focus on the methodological aspect.

Additionally, to the methodological interpretation, Le Ru's monograph offers a second even more surprising take, presenting Du Châtelet as a feminist *avant la lettre*, a farsighted fighter for women's equality, who demanded the need for change in society and its order. Du Châtelet's *Examination of the Bible* is analyzed as a document of radical Enlightenment, criticizing the Bible's untenable statements in the light of science, its absurdities and contradictions to principled knowledge, and its testimony of the patriarchal suppression of women.

The second part of the book is dedicated to the legacy, or as Le Ru calls it correctly, the subterranean posteriority of Du Châtelet's ideas. It stretches from Du Châtelet's intellectual heritage in Olympe de Gouges's fight for women's equality to her important place among the major figures in the philosophy of science. This legacy starts with the French *Encyclopédistes*. Le Ru speaks of Diderot and d'Alembert as having been intellectually formed by Du Châtelet. In the second half of the book, she presents substantial material allowing sensational insights. D'Alembert's introduction to the *Encyclopédie* made extensive use of Du Châtelet's texts. Her ideas were passed on by d'Alembert's *Discours préliminaire de l'Encyclopédie* and by several articles the materials for which were taken from Du Châtelet's *Institutions*. [7] Du Châtelet's philosophy became an important source in the history of science and its idea of a succession of rectified errors

that reaches from d'Alembert up to Poincaré, Claude Bernard, and Gaston Bachelard. As Le Ru convincingly shows, Poincaré repeats Du Châtelet's methodological metaphors and absorbs key issues of her theory of hypotheses, as does Bachelard. The former employs arguments and lines in history from Tycho Brahe and Kepler to Newton. Bachelard devalues and ridicules Du Châtelet's standing as a philosopher and a mathematician, thereby proving he had read and copied her work.

Véronique Le Ru's aims to offer a new interpretation of Du Châtelet's opus. The author is well aware that this can hardly be done in a 170-page book, especially considering Du Châtelet's outstanding achievements, the new material discovered in 2010, and the St. Petersburg manuscripts. This book brings highly interesting insights to Du Châtelet scholars, and it offers a convincing perspective on Du Châtelet's work. The chapter on hypotheses has always played a significant role in research on Du Châtelet. Le Ru offers an innovative presentation, as it includes the Newton commentaries and the heritage of Du Châtelet's legacy to this topic. Moreover, Le Ru adds a significant discussion on Du Châtelet's role as enlightened proto-feminist. With Véronique Le Ru's monograph we get an important perspective on the French reception and legacy of Emilie Du Châtelet, which has been long needed.

NOTES

[1] Élisabeth Badinter, *Émilie, Émilie, L'ambition féminine au XVIIIème siècle* (Paris: Flammarion, 1983).

[2] Ulla Kölving and Olivier Courcelle, eds. *Émilie Du Châtelet. Éclairages et documents nouveaux* (Ferney-Voltaire: Centre international d'étude du XVIII siècle, 2008).

[3] Émilie Du Châtelet, *La Correspondance*, ed. Ulla Kölving and Andrew Brown (Ferney-Voltaire: Centre international d'étude du XVIIIe siècle, 2018).

[4] Émilie Du Châtelet, *Examens de la Bible*, ed. Bertram Schwarzbach (Paris: Champion, 2011).

[5] Émilie Du Châtelet and Isaac Newton, *Principes mathématiques de la philosophie naturelle. La traduction française des Philosophiae naturalis principia mathematica*, ed. Michel Toulmonde, 2 vols. (Ferney-Voltaire: Centre international d'étude du XVIIIe siècle, 2015).

[6] Judith P. Zinsser and Julie Candler Hayes, eds., *Emilie Du Châtelet: Rewriting Enlightenment Philosophy and Science* (Oxford: Voltaire Foundation, 2006).

[7] Jean d'Alembert, *Discours préliminaire de l'Encyclopédie* (Paris: Vrin, 1984), vol. 1. For more on Du Châtelet's influence on the *Encyclopédie*, see Koffi Maglo, "Madame Du Châtelet, l'Encyclopédie et la philosophie des sciences," in *Émilie Du Châtelet. Éclairages et documents nouveaux*, ed. Ulla Kölving and Olivier Courcelle (Ferney-Voltaire: Centre international d'étude du XVIII siècle, 2008), pp. 255-267.

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