Fall 2012

Frédérique Aït-Touati, Fictions of the Cosmos: Science and Literature in the Seventeenth Century

Anthony J. DeSantis
The University of Texas Rio Grande Valley

Recommended Citation

DeSantis, A. J. (2012). Frédérique Aït-Touati, Fictions of the Cosmos: Science and Literature in the Seventeenth Century. HOPOS: The Journal of the International Society for the History of Philosophy of Science, 2(2), 387–390. https://doi.org/10.1086/666968

was ever an additional explanatory principle, even for classical mechanists like Descartes. It seemed rather to function as a means of motivating commitments to the Contact Criterion and the Reduction Principle. In any case, it seems doubtful that previous interpreters meant to attribute to Locke a commitment to the Machine Analogy as well as to the Contact Criterion and the Reduction Principle. Third, the interpretation of Lockean demonstration seems to contain a certain amount of tension in that Locke's account is first said to be anti-Aristotelian insofar as it is nonpropositional (138–40) but then is said to be Aristotelian insofar as it encompasses "the syllogistic" (144). It is difficult to see how much weight should be accorded to the extreme contrast sketched at the beginning of the discussion or to the connection between the two sketched toward the end.

I see these critical points less as threats to Anstey's conclusions and more as points of further discussion and clarification. Anstey's project is fascinating, and the conclusions he brings forth are exciting and quite compelling. I see his book as a game changer in the study of Locke's philosophy of science that will set the tone for future research. It is a must-read for Locke scholars and historians of the philosophy of science alike.

Benjamin Hill, *University of Western Ontario*

Frédérique Aït-Touati. *Fictions of the Cosmos: Science and Literature in the Seventeenth Century*. Trans. Susan Emanuel. Chicago: University of Chicago Press, 2011. Pp. x+261. $45.00 (cloth).

Oxford French Literature Professor Frédérique Aït-Touati's book *Fictions of the Cosmos: Science and Literature in the Seventeenth Century* is packed full of information—perhaps too packed with information—about all sorts of interesting subjects relating to the interplay of science and literature in the seventeenth century. The book explores literary aspects of science writing, the history of astronomy and optics, and the history of the relationship between fiction and knowledge, especially in the early modern period. Her overall aim in this exploration is to instruct us on the value of fiction in science and the value of science in fiction. To accomplish this, she focuses much of her book around the theme of cosmological voyages written by the likes of Johannes Kepler, Francis Godwin, John Wilkins, Cyrano de Bergerac, Robert Hooke, Margaret Cavendish, Christiaan Huygens, and Bernard le Bovier de

Fontenelle. She then utilizes her expertise in literary theory and her studies in the history and philosophy of science to explicate the various literary techniques used in their works.

The subject of fiction writing in science might not appear immediately relevant. Why should the seventeenth-century historian of science and philosophy care about the science fiction writing of the seventeenth century or about the relation of fiction to science in the seventeenth century? We should care because fiction writing on science and the use of fiction in science writing play an important role in the story of the history of science and natural philosophy in this period. Not to know the extent of the intrinsic relationship between the two is to miss the necessity of using fiction to go under the radar of the censors to educate and garner public support for controversial scientific hypotheses (such as Copernicanism). The use of fiction, moreover, is one of the important elements in the development and advance of some of the sciences (such as astronomy and microscopy). According to Aït-Touati, there is also the little-known fact that during the period between the Renaissance and the Enlightenment, the two fields of science and literature were not as distinct or unconnected as they are in current academia, not to mention the fact that if the literate public were to be brought up to speed on the new scientific ideas, a more understandable and enjoyable medium would need to be used. Moreover, it is intellectually refreshing to go on imaginative celestial voyages with some of the most interesting scientists and writers of the seventeenth century. In the midst of enjoying these guilty pleasures, we happily come upon new insights into how they went about doing their science, the acuteness of their thinking, the carefulness (and carelessness) of their observations, and even the social-historical-religious background of our protagonists.

Aït-Touati's *Fictions of the Cosmos* deals with more than only the relations of science and science fiction as genres of writing. As she unfolds these relations, she also delves into issues in the philosophy of science and literary theory. She treats weighty philosophical problems such as the boundaries between fiction and science, the problem of truth in science and in fiction writing, and the extent to which imagination (and not just pure reason, observation, or experiment) is needed for the advancement of science. Though not all may be happy with some of her comments that blur the lines between science and fiction, she nevertheless makes a good case that a sizable portion of scientific knowledge could not have arisen without the use of imagination and fiction.

The structure of the book and the breakdown of its chapters are relatively straightforward. Chapter 1 deals mostly with Johannes Kepler's *Dream* and the ways in which Kepler utilizes fiction for nonfictional purposes such as

supporting Copernicanism. Kepler's *Dream* is (among many other things) a sort of travelogue to the moon. But along with this travelogue, Kepler presents all sorts of important astronomical observations and reflections (not to mention personal, biographical, social, and historical ones, too). Aït-Touati provides a brief history of the theme and genre of writing about celestial voyages. We learn that Kepler's book has influences from Plato, Cicero, Plutarch, and Lucian. We then go on to learn that Kepler uses this literary medium to argue that the central hypothesis that Copernicus put forward should be understood not only as a heuristic tool (as Osiander's foisted preface claimed) but as an actual account of the solar system. In chapter 2, Aït-Touati continues the theme of voyages to the moon, only this time she investigates and provides commentary on how Francis Godwin, John Wilkins, and Cyrano de Bergerac wrote about it. Once again, as she relates some information about each of their accounts of the voyage to the moon, she also weaves in her reflections on the curious and at times paradoxical interplay of fiction with hypothesis and knowledge. Chapters 3 and 4 highlight Fontenelle's *Conversations on the Plurality of Worlds* and Huygens's *Cosmotheoros.* In these two chapters Aït-Touati furthers the discussion of fiction and hypothesis with analyses on conjecture, analogy, narrative, fables, credibility, dreams, images, models, machines, thought-experiments, defictionalization, and the construction versus discovery of scientific truth: "Over the course of the century, astronomical conjectures are drawn up along this continuum from fiction to nonfiction. … The fragile ontological status of the astronomical hypothesis gave rise to continual fluctuation in the meaning of the terms *fiction, fables, hypotheses*, and *conjectures*, leading to a need for clarification that became more pressing at the end of the century" (127). The lines between fiction and scientific hypothesis become clearer as the sciences advance. The stories of cosmological voyages become more and more defictionalized. One can see this clearly, for instance, by comparing Lucian's to Huygens's cosmological renderings. The chief protagonists of chapters 5 and 6 are Margaret Cavendish and her evil nemesis Robert Hooke and the experimental philosophy of the Royal Society. The central work discussed in chapter 5 is Hooke's *Micrographia*, which of course is a cosmological voyage delving into the microscopic cosmos. But Aït-Touati also highlights Hooke's astronomical work. Chapter 6 zooms in on Cavendish's *Observations upon Experimental Philosophy* and her fictional *Blazing New World*. One of the issues at stake between Cavendish and Hooke in these chapters has to do with the use of and reliance on optical instruments (mostly the microscope and telescope) that purport to tell us about what has been previously unknown because it was invisible. Hooke's manner of doing science bases itself more on technology, observation, and experimentation than

on hypothesis framing. He seeks to provide visual evidence and accurate description rather than profound philosophical and a priori reasoning. Here the poetics of proof and certainty come to the fore. The socially and politically astute Cavendish, on the other hand, cautions Europeans about accepting the purported results of these instruments along with the entire new mechanical philosophy. She fears that worldview change will threaten the status quo. From the belief that our senses are defective and deceptive, it follows that the use of optical instruments will only exasperate these. As Aït-Touati summarizes her view, "Far from bringing us closer to the essence of things, experimental observation only doubled the remoteness of truth" (176).

One should not assume that a book entitled *Fictions of the Cosmos* with a subtitle of *Science and Literature in the Seventeenth Century* will be simple and easy. This is not an introduction to these subjects; this is not a book merely about some scientists and literature writers in the seventeenth century that college students could read with enjoyment. On the contrary, some of the sections and chapters in this book require a good deal of knowledge, even before one reads them, in order to understand them. Without at least some previous familiarity with the primary texts or of the history of science in the early modern period, and of issues in literary theory and philosophy of science, the reader is likely to miss a great deal and get lost. This can be experienced merely by reading the introduction and first chapter. Aït-Touati discusses Kepler's *Six-Cornered Snowflake* and *Dream* in a way that, if you do not already have a deep knowledge of these works, you cannot possibly avoid feeling at a loss to appreciate some of her remarks. The same issue applies with regard to issues in the philosophy of science. One more concern: besides some differences of opinion that some may have regarding the extent to which her language sometimes blurs the lines between science and fiction, one can also question some of Aït-Touati's general claims. How accurate, for instance, is the claim that "Kepler was one of the first astronomers to affirm the legitimacy of astronomical descriptions of the real nature of the cosmos" (37)?

In sum, then, for those interested in this subject, I recommend the reading of this book after one has read a number of the primary texts it refers to. For those who have a good deal of knowledge on this subject already, however, Aït-Touati's book will no doubt open up a treasure trove of seminal ideas about the relationship between literature and science that will considerably enrich their knowledge and appreciation.

Anthony J. DeSantis, *University of South Florida*