SΦHERE (UMR 7219)

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Report of the PhD thesis:

How to discover things with words? John Wilkins: from inventio to invention – by Maria Avxentevskaya

With this ambitious thesis, Maria Avxentevskaya has done scholarship an invaluable service. She presents an excellent study of the scientific and religious writings of the English virtuoso John Wilkins (1614-1672), focusing on the linguistic and scientific aspects and their interplay. Clearly the work of a specialist on Wilkins and on 17th-century science and literature, the thesis gives a novel approach to the fraught problem of *res* and *verba* in the early modern period and presents an original reading of Wilkins's curious texts.

The background of this study is the much studied paradox that apologists of the Royal Society rhetorically rejected all rhetoric, arguing for a plain style in scientific discourse (cf. chapter 3 of the thesis). Historians of science and literary scholars have not taken the rhetoric of the Royal Society at face value, however, and have studied in some detail the rhetorical techniques employed to establish facts or to convince scientific audiences. Within this context, Avxentevskaya takes the inventive approach to map early modern logical and rhetorical theory on contemporary scientific texts in order to identify the application of specific rhetorical techniques. Aptly, she has taken Wilkins, one of the founders and apologists of the Royal Society, as the focus of her attention.

The separation between science and rhetoric, or *res* and *verba*, is related to a whole set of dichotomies, such as fact versus fiction, truth versus beauty, discovery versus justification, or proof versus pleasure. Avxentevskaya elaborates a methodology centered around the concept

of "performative knowing" in order to deconstruct these dichotomies and reconnect language with action and experience. The doctoral candidate is well versed in theories of performativity in analytic philosophy, history, theory and literary studies, giving a strong methodological grounding to the dissertation, even if the methodological section comes across as somewhat ponderous, given the limited use of these different theories for the rest of the thesis. Avxentevskaya's own elaboration of "performative knowing" is relevant but suffers somewhat from the association with a diversity of theories, because the accumulation of meanings of performativity poses an obstacle to a clear and consistent use of the concept.

The thesis is structured around the idea that the creative work of scientists is co-determined by their use of language, or more specifically, that the dialectical and rhetorical techniques of *inventio* may lead to scientific inventions. In chapters 2, 4, 5 and 6, Wilkins's monographs are analyzed at length from this perspective (surprisingly, and for no clear reason, the *Mercury*, Wilkins's book on communication, is left out). Here, in examining and contextualizing works on astronomy, mechanics, religion and linguistics, Avxentevskaya is able to display her vast knowledge in many different domains, including early modern political history, the history of religion, the history of science as well as the history of linguistics and rhetoric. It is here also that she brings a novel perspective to Wilkins's texts, showing that he used classical dialectical and rhetorical techniques such as *antithesis*, *stasis* and *copia* in most of his texts. In some texts, Avxentevskaya seems to detect more *enargeia* (especially in the astronomical works), and in specific texts, some particular figures are used (e.g. *incrementum* and *gradatio* in the *Mathematical Magick*). This is a very strong, inspirational and enlightening aspect of the thesis, even though I would have liked to see a more detailed and "hands-on" study of Wilkins's rhetoric in concrete passages drawn from his texts.

Interestingly, the thesis chapters seem to follow the very rhetorical structure detected in Wilkins's works. They start with impressive and erudite contextualisations, replete with historical references and references to scholarship[1] (*copia*), they effectively shift and extend the scope of reference for a specific subject matter (*stasis*), skilfully building up an argument that leads to a hypothesis about Wilkins's performative use of *inventio* and "invention". One of the arguments Avxentevskaya makes in these chapters is that Wilkins's texts do not have a truth value but should be read as hypotheses with different levels of probability. Following the parallel to its conclusion, I indeed think that the results of Avxentevskaya's chapters can be considered speculative and heuristic, to be evaluated not so much in terms of truth or error, but rather in terms of their interest and fruitfulness. And I think this interest and potential is considerable. Avxentevskaya's notion of performativity aims at tackling a core problem in the history of science: how do you describe the process of discovery and invention without hindsight? Her approach allows us to see how the concrete methods of rhetorical and logical

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[1] Some passages in the thesis should be more fully referenced, however. There are also some omissions in the secondary literature, the most glaring probably being Aït-Touati, F. 2011. *Fictions of the Cosmos. Science and Literature in the Seventeenth Century*. Chicago: Chicago University Press, a work that treats of the same subject as this thesis. Less accessible, but also extremely relevant is Kaoukji, N., 2008. Flying to nowhere: mathematical magic and the machine in the library. PhD Dissertation. University of Cambridge.

inventio were used in the early modern period to structure experience and to generate heuristic solutions.

There are several aspects of the thesis that still merit discussion, and some of these may be addressed at the defense. Here are two points for further reflection:

- The methodology of "performative knowing" is supposed to delineate the specificity of early modern scientific discourse (p. 34). Sometimes, however, it seems to be more specific, pointing at the particular scientific discourse of the Royal Society, or even at the particularity of Wilkins's texts. At other times, it seems a concept that can be generalized far beyond early modern science. What is the specificity of the methodology employed in the thesis? And can it help us to understand the particularities of Wilkins's texts?

- *Inventio* is treated in detail from a theoretical and historical perspective, but "invention" is neither theorized nor historicized. It is also unclear how the concept is defined/used in the thesis, and this makes the move from *inventio* to invention less convincing. (What are, in the end, Wilkins's "inventions"?)

In short, this is an excellent thesis, with a lot of further potential. This thesis should certainly be published, but before doing so, I would recommend improving on conceptual clarity, adapting the methodology to the specificity of Wilkins's texts and adding more concrete analyses of textual passages. I learned much from reading this thesis, discovering many new questions, and I would like to thank Avxentevskaya for the opportunity to read her work. I think that the performative power of this thesis will be undisputed, and I am sure that the eventual publication will motivate many scholars to do innovative work along the lines set out by the doctoral candidate.

The thesis clearly fulfils the requirements for a doctorate, and I would suggest a "pass" grade.

Yours sincerely,

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