

Maria M. Portuondo, *Secret Science: Spanish Cosmography and the New World*. Chicago: The University of Chicago Press, 2009, 360 pp. ISBN: 978-0226675343.

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Today, the history of early modern science is directed towards less reductionist paths than those that characterized the traditional narratives of the so-called *Big Picture*. Following such trend, the scientific activity of the Spanish and Portuguese empires related to navigation, cosmography, and natural history began to attract a wide scholarly interest and became an important topic in the historiographical context of Atlantic history. This new line of research erupted within a field open several decades ago by authors such as José María López Piñero in Spain, and Luis de Albuquerque in Portugal.

Recent publications offer a revised approach to an old problem, namely, the intricate relationship between scientific knowledge and imperial power, in an era without modern nation-states or professional organization of scientific disciplines. The authors of such studies agree on the difficulty of both shed light on the conditions in which scientific knowledge was produced within the complex network of long distance, and on how to impose some control over that knowledge. However, there is an overall consensus that the encounter between the old and new continent anticipated those practices that Baconian philosophy considered favourable to exert control and domination over nature, with elements as important as experiment, empirical observation, the institutionalization of scientific practice, mapping or the collection of botanical information.

Maria M. Portuondo's *Secret Science: Spanish Cosmography and the New World* – recently awarded the prestigious John E. Fagg Prize from the American Historical Association – stands out among this revised literature. After the contributions of Jorge Cañizares-Esguerra, Antonio Barrera-Osorio and Alison D. Sandman, Portuondo joins the field of the history of early modern Iberian science with a provocative title. Portuondo's book explores the cosmographical activity of Spain in the sixteenth century, a cultural context in which the role of the *Cosmógrafo Real*

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(Royal Cosmographer) and cosmography was simultaneously bureaucratic and intellectual. While cosmographers tried to offer an efficient explanation of the New World, cosmography emerged in the midst of the social and cultural interactions that took place in a courtier context, responding to the demands of its patrons. The author shows how cartographic production was part of the humanist circles and courtier culture, as well as of bureaucratic structures in Philip II's Spain. Portuondo argues that scientific activities were never independent of the administrative needs of the Spanish empire and the curiosity of their monarchs, contrary to what has been sustained by traditional historiography. In this context, scientific projects sponsored by the monarchs were considered 'state secret', which, according to Portuondo, has led to the invisibility of the early modern Spanish science.

Portuondo's book focuses on famous sixteenth-century Spanish cosmographers such as Alonso de Santa Cruz, Juan López de Velasco, Juan Bautista Gesio and Andrés García de Céspedes. These and other cosmographers, servants of the crown, were committed to compile and organize the knowledge that would enable the definition of the geographic boundaries of the empire, in order to operate the administrative machinery of the Hapsburgs. Cosmographic knowledge had two main objectives: on the one hand, cosmography had a priceless domestic value for the operation of the internal politics of the monarchy; on the other, cosmography was a useful science for the international strategy of the Spanish monarchs.

Portuondo studies in depth three centres of knowledge production: the *Casa de la Contratación*, the Indian Council and the court. These spaces favoured what the author characterizes as 'cosmographical styles', an official scientific practice with different modalities. The development of such cosmographical styles at different centres was always carried out in the context of utilitarianism. Personal aspirations which did not serve the needs of the monarchy or were subordinate to the interest of the State had to be abandoned.

According to Portuondo, the utilitarian demands of the empire suggest that Spanish cosmographers had little to do with speculative natural philosophy, but had much to say about descriptions of the real, visible and tangible world. Aristotelian natural philosophy had no place in a patronage system driven by the usefulness of the results. In fact, cosmographers were not concerned with the causal analysis of the observed phenomena or with the revelation of the secrets of nature. Theirs was the task of identifying and organizing useful knowledge to the benefit of the empire. In this context, the crown did not require a new Baconian natural philosophy in as much

it was engaged in the explanation of the new reality that their vessels found across the Atlantic.

In short, Portuondo's work provides a fertile field to the new generation of historians of science and her book has definitively contributed to demolish the argumentative pillars on which rested traditional historiography.