

BOOK REVIEW

José Maria Moreno Madrid; Henrique
Leitão. *A Longitude do Mundo – Viagens
Oceânicas, Cosmografia Matemática e
a Construção de uma Terra Global* [The
World's Longitude – Oceanic Voyages,
Mathematical Cosmography and the
Construction of a Global Earth]. Lisboa:
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The authors and the reviewer are colleagues within the Centro Interuniversitário de História das Ciências (CIUHCT), a shared context that may inform the perspective from which this review is written. The structure of this work is reminiscent of a musical piece, complete with overture, interludes and coda, where mutual correspondences, delight the reader: the three main parts, form a sequence with interludes: part one “The longitude of the West,” is followed by “Interlude i—Nuremberg;” part two, “The longitude of the East,” is succeeded by “Interlude ii – Europe;” and part three, “The longitude of the Orb,” is followed by a “Coda,” to round off the work with a synthesis. The bibliography testifies

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to the extensive use of primary sources (eight pages) and abundant secondary literature (around sixty pages). The book also includes an appendix with six sixteenth-century texts on the determination of longitude.

This work highlights the fact that longitude is as much a scientific as a historiographical problem: traditionally the topic has been approached from a predominantly Anglo-Saxon perspective. Even today, when the term “longitude” is mentioned, the eponymous popularization work by Dava Sobel (*Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*. New York: Walker, 1995) immediately comes to mind. This remains so, despite the fact that several works have already challenged this hegemonic and somewhat narrow perspective, such as Jorge Cañizares-Esguerra’s *Nature, Empire and Nation* (Stanford: Stanford University Press, 2006), Henrique Leitão’s *Os Descobrimentos Portugueses e a Ciência Europeia* (Lisboa: Fundação Champalimaud: Alêtheia, 2009), or Antonio Sanchez’s *La Espada, la Cruz y el Padron* (Madrid: CSIC, 2013), which highlight the role of Iberian science. More recently, Malyn Newitt has also given greater prominence to Portuguese navigations in this context (*Navigations: The Portuguese Discoveries and the Renaissance* (London: Reaktion Books, 2023; translated to Portuguese in 2024) as a clear sign that the historiographical narrative is changing.

It is in the same vein that the authors of *A Longitude do Mundo* set out to demonstrate two unexpected claims: first, in the fifteenth and sixteenth centuries, determining this geographic coordinate did not emerge as a navigational problem, but rather as a demand of imperial administration that arose with Iberian expansion and long-distance navigation, and second, that it could be dubbed the first scientific problem of a global nature. The authors trace the history of geographic coordinates back to the Greeks. For them already, observing lunar eclipses provided the difference in local times between the places of observation which is proportional to their difference in longitude. In the Middle Ages, the longitudes of important cities were known and circulated as lists and did not pose any specific problem. When oceanic navigation began, however, the distances increased and uncharted places were reached, and longitude arose as a problem.

As the book explains, knowledge of longitude was not necessary for nautical purposes. Christopher Columbus created a situation, however, where it suddenly mattered. The longitudinal division of the world along a meridian line by the papal bull “*Inter caetera...*” (1493) demonstrates a leap in abstraction, as meridians are not associated with observable physical phenomena. Indeed, “the arrival of Christopher Columbus in America linked, for the first time in history, the determination of a territory’s longitude with the dynamics of expansion and long-distance imperial domination” [reviewer’s own translation] (p. 105). Pilots became aware of the importance of longitude, not for navigation, but for the politics of their masters. The University of Salamanca welcomed Columbus’ new discoveries.

Longitude determination became a topic treated by astronomers, mathematicians and (newly) captured the interest of pilots. With the exploration of Brazil, it became important to the Portuguese Empire too.

The authors identify three coexisting geographical and epistemological traditions: the humanists, attached to Ptolemy; the pilots, with practical experience; and the astronomers who sought to correct ancient geography. The Iberian navigations led to a new scientific enterprise: to produce knowledge of the world directly applicable to the delimitation of Empires. In the East, Malacca and the Tordesillas antimeridian, the exploration and appropriation of trade connections throughout the world, made it imperative to revise Ptolemy. Ferdinand Magellan, Rui Faleiro, and Andrés de San Martín organized and carried out the “longitude voyage.” The data gathered on this circumnavigation confirmed that the Moluccas were located on the Portuguese hemisphere. The voyage allowed them to produce a description of the Earth on a global scale. Beyond the Moluccas question, determining these geographic coordinates was deemed generally important for locating the lands of the New World, and the Castilian authorities conducted a systematic survey of the longitudes of their strongholds and possessions in the Americas. Navigation and colonization exposed the limitations of classical geographic knowledge and helped to enlarge and correct it. The differing views of the nautical chart (its geometric complexity) sparked the confrontation between mathematicians and pilots. But in the end, it was its political importance, as the book convincingly argues, that brought the problem of longitude to the fore. There was a coincidence between the imperial and scientific agendas. This is where the authors locate the origin of several narratives that would endure later: The dangers of the sea offer a scientific problem requiring a hero to solve it. Throughout the sixteenth and seventeenth centuries many came forward offering solutions to powerful patrons. Only a few of these stand out in the dominant historiography of longitude, to which *A Longitude do Mundo* aims at substituting a fuller picture.

In short, this work seeks to dispel myths and gives historical depth to the problem of longitude. It stresses the importance of Iberian cooperation in the history of science (and for the historiography of science) by including sociopolitical factors in this narrative. As it is an important reading for historians, geographers and all those interested in the history of science, an English translation is in order to give it a global reach.