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The Armillary Sphere in Molla Ali's Risâle-i Meyyâl: A 17th-Century Latin-to-Ottoman Turkish Translation and Its Structural-Functional Analysis

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Abstract

The study of astronomical instruments has been central to the development of Ottoman astronomy, a tradition shaped by both theoretical writings and practical applications. Among the various works in this literature, studies on the Zâtü'l-Halak (the Spherical Armillary) stand out as significant contributions. Our literature review reveals that authors predominantly drew on Turkish and Arabic sources from the sixteenth century onward when writing about this instrument. In contrast, the work *Risâle-i Meyyâl* (The Treatise on the Inclined [Instrument]), translated by the 17th-century Ottoman astronomer Molla Ali (fl. 1687) in 1093/1682 from Latin into Ottoman Turkish, stands as an exception to this trend. This short treatise, one of the early scientific translations in the Ottoman Empire, provides detailed information on the structure and function of the Zâtü'l-Halak (the Spherical Armillary), and four distinct copies of it have survived to the present day.

This study will examine the physical properties, components, and methods of use of the Zâtü'l-Halak as discussed in *Risâle-i Meyyâl*. Additionally, the study will assess whether there are any differences between the four known copies of *Risâle-i Meyyâl* (which were transcribed between 1682-1782) and will explore the circulation of the text in this context. Finally, the paper will analyze the position of the work within Ottoman astronomical literature and examine how it connects with other Ottoman texts related to Zâtü'l-Halak.

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Short Biography

Solmaz Ceren Özdemir is a postgraduate researcher specializing in the history of Ottoman astronomy. She holds an MA in History of Science from Istanbul University (2021), with a thesis on Eclipse Calculation and Observations in Ottoman Astronomy (1800-1922). She also completed her BSc in History of Science at Istanbul University in 2017.

Her research focuses on the circulation and adaptation of European and Islamic astronomical instruments in the Ottoman world. She leads the project "Delineating the Journey of European Astronomical Instruments in Ottoman Education and Beyond (1773–1923)," funded by the Scientific Instrument Society. She is also a researcher in the TUBA-GEBIP project titled "Portable Astronomical Instruments in the Ottoman Geography (1500–1700)".

Ceren has contributed to important research initiatives, including the TUBITAK 1003 Priority Areas Project (2020–2022) on "A Comparative Study on the Theoretical and Practical Aspects of Scientific Activity in the Ottoman Empire: Annual and Perpetual Calendars (1550-1710)", focusing on the theoretical and practical aspects of scientific activity in the Ottoman Empire.

She is actively involved in academic events, serving on the organizing committee of the Workshop on Ottoman Calendars (1550–1710) and the Channels of Transmission of Astronomical Knowledge in the Ottoman World (14th–18th centuries) Congress. She is also part of the Secretariat of the Local Committee for Scientiae 2025. The languages Ceren knows are Turkish (native), English (speaking, reading, and writing), Ottoman Turkish (reading), and German (beginner in reading and writing).

Keywords

Ottoman astronomy, Zâtü'l-Halak, Risâle-i Meyyâl, Molla Ali, astronomical instruments

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