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To Explain Copernicus: The Islamic Scientific and Religious Contexts

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No one seriously disputes the novelty of Copernicus's monumental decision to put the Earth in motion or its importance for the development of modern science. But that decision can appear quite different when viewed from the perspective of a modern scientist versus that of a contextualist historian. In his recent book *To Explain the World*, Prof. Weinberg places great store on what he calls aesthetic criteria for understanding Copernicus's choice. The historical record, however, is rather ambiguous on the matter, and if anything supports the view that Copernicus came to his aesthetic justifications (such as the beautiful ordering of the planets) after first reaching his heliocentric theory. So if not aesthetics, what did lead him to go against a two-millennium tradition that placed the Earth firmly in the center of the Cosmos? There are no doubt many factors; one of the most intriguing suggestions, well-argued by Noel Swerdlow, is that Copernicus was led to heliocentrism by his rather conservative desire to restore uniform, circular motion to the heavens and remove the irregularities of Ptolemaic astronomy. Swerdlow has also asserted that this has much to do with Islamic predecessors who were attempting to do the same thing, only within a geocentric framework. In this presentation, I will briefly summarize this Islamic scientific context and then explore the religious beliefs that led not only to the questioning of Ptolemaic scientific authority, including his alleged lack of observational diligence, but also ancient philosophical authority, the latter opening up possibilities for alternative cosmologies, at least one of which included the Earth's motion. Finally, evidence will be presented that connects these Islamic contexts with Copernicus's theories and justifications.