
GLEN VAN BRUMMELEN, Quest University

A Different Sort of Sacred Geometry: The Medieval Analemma for Finding the Direction of Mecca

The direction toward which Muslim faithful must face for prayer, the qibla, garnered a great deal of attention from medieval astronomers. But, of course, the mathematical astronomy they inherited from India and Greece did not instantly provide a solution. One approach, attributed to one of the earliest and greatest Muslim scientists Habash al-Hasib, solved the problem geometrically, borrowing from the Greek tradition of the analemma. This technique, a clever reduction of the problem from three dimensions to two using several rotations within the celestial sphere, would be transformed into a popular trigonometric tool that may be thought of as a sequence of coordinate transformations on the celestial sphere. We will survey the relevant history, and emphasize the beautiful mathematics of this and related methods.