

Abu Ishaq Ibrahim Ibn Yahya Al-Zarqali Encyclopedia Article

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1028-1087

Spanish Arab Astronomer

Abu Ishaq Ibrahim ibn Yahya al-Zarqali (latinized as Arzachel) was a Spanish Arab, born in 1028, who became known as the most prominent astronomer of his time. His *Toledan Tables* were responsible for invigorating the science of astronomy because it made possible the computation of planetary positions at any time based on observations. He edited these tables from his own observations in Toledo, Spain, as well as the tables of other Muslim and Jewish astronomers.

He also detailed the use of astronomical instruments. He developed a flat astrolabe, called a Safihah, which is used to find the altitude and position of stars; his description of this device was translated into Hebrew and Latin. He was the first to show clearly that the motion of the solar apogee, or aphelion, which is when the sun is furthest from earth, amounts to 12.0 seconds per year. The actual value is now known to be 11.8 seconds per year.

Al-Zarqali corrected the work of the second century Greek astronomer Ptolemy who had calculated the length of the Mediterranean Sea at 62°; al-Zarqali calculated 42° which is nearly correct.

Al-Zarqali's work was quoted a number of times in Nicolaus Copernicus's *De Revolutionibus Orbium Celestium* (On the revolution of the celestial orbs) in which he forwarded his thesis that the sun, and not the earth, was the center of our solar system. Al-Zarqali died in 1087.