

# Copernicus, Nicholas Encyclopedia Article

## Copernicus, Nicholas

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# Copernicus, Nicholas

Nicholas Copernicus was the first to argue the theory that the Sun, not Earth, is the center of the solar system.

## ***Polish Astronomer 1473-1543***

Nicholas Copernicus was a Polish astronomer who changed humankind's view of the universe. Greek astronomers, particularly Ptolemy, had argued that Earth was the center of the universe with the Sun, Moon, planets, and stars orbiting around it. This geocentric (Earth-centered) model, however, could not easily explain retrograde motion, the apparent backwards movement that planets exhibit at some points in their paths across the sky. Ptolemy and others had proposed a complicated system of superimposed circles to explain retrograde motion under the geocentric model. Copernicus realized that if all the planets, including Earth, orbited the Sun, then retrograde motion resulted from the changing of perspective as Earth and the other planets moved in their orbits.

Copernicus published his heliocentric (Sun-centered) theory in the book *De revolutionibus orbium coelestium* (On the revolutions of the celestial orbs). The Catholic Church, however, had accepted the geocentric model as an accurate description of the universe, and anyone arguing against this model faced severe repercussions. At the time, Copernicus was gravely ill, so he asked Andreas Osiander to oversee the book's publication. Osiander, concerned about the Church's reaction, wrote an unsigned preface to the book stating that the model was simply a mathematical tool, not a true depiction of the universe. Copernicus received the first copy of his book on his deathbed and never read the preface. The telescopic discoveries of Italian mathematician and astronomer Galileo Galilei (1564-1642) and the mathematical description of planetary orbits by German astronomer Johannes Kepler (1571-1630) led to the acceptance of Copernicus's heliocentric model.

## See Also

Astronomy, History of (Volume 2); Galilei, Galileo (Volume 2); Kepler, Johannes (Volume 2).

## Bibliography

Andronik, Catherine M. *Copernicus: Founder of Modern Astronomy*. Berkeley Heights, NJ: Enslow Publishers, 2002.

Gingerich, Owen. *The Eye of Heaven: Ptolemy, Copernicus, Kepler*. New York: American Institute of Physics, 1993.