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also known as **Petrus Apianus, Peter Bienewitz**

(or **Bennewitz**)

(*b*. Leisnig, Germany, 16 April 1495: *d*. Ingolstadt, Germany, 21 April 1552)

astronomy, geography.

Apian was a pioneer in astronomical and geographical instrumentation, and one of the most successful popularizers of these subjects during the sixteenth century. He studied mathematics and astronomy at Leipzig and Vienna, and quickly established a reputation as an outstanding mathematician. His first work was *Typus orbis universalis*, a world map, based on the work of Martin Waldseemüller, which illustrated the 1520 Vienna edition of Solinus' *Polyhistor seu de mirabilibus mundi*. The following year he published the *Isagoge*, a commentary on the *Typus* and on geography.

Apian's first major work, *Cosmographia seu descriptio totius orbis* (1524), was based on Ptolemy. Starting with the distinction between cosmography, geography, and chorography, and using an ingenious and simple diagram, the book defines terrestrial grids; describes the use of maps and simple surveying; defines weather and climate; and provides thumbnail sketches of the continents. In its later form, as modified by Gemma Frisius, the *Cosmographia* was one of the most popular texts of the time and was translated into all major European languages. The success of this and his previous works led to Apian's appointment as professor of mathematics at the University of Ingolstadt, where he remained until his death. He was knighted by Charles V.

In his *Cosmographia*, Apian suggests the use of lunar distances to measure longitude; in his second major work, *Astronomicon Caesareum* (1540), he supports the use of solar eclipses for that purpose. The *Astronomicon* is notable for Apian's pioneer observations of comets (he describes the appearances and characteristics of five comets, including Halley's) and his statement that comets point their tails away from the sun. Also important is his imaginative use of simple mechanical devices, particularly valvelles, to provide information on the position and movement of celestial bodies. Of greater scientific significance, however, is Apian's *Instrumentum sinuum sive primi mobilis* (1534), where he calculates sines for every minute, with the radius divided decimally. These are the first such tables ever printed.

Apian's contribution to cartography was as a compiler and publisher, rather than as a mapmaker. His cordiform world map and maps of Hungary and France survive; his large-scale map of Europe (1534), the first of its kind, is lost. He also designed a quadrant and an armillary sphere that were popular in his day.

BIBLIOGRAPHY

The best list of Apian's writings is F. Van Ortroy, "Bibliographie de l'oeuvre de Pierre Apian," in *Bibliographie moderne* (Mar.-Oct. 1901).

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George Kish