Biographical Encyclopedia of Astronomers

Hermann the Lame

Born Altshausen, (Baden-Württemberg, Germany), 18 July 1013

Died Reichenau Monastery, Reichenau, (Baden-Württemberg, Germany), 24 September 1054

Hermann was one of the most important scholars of the 11th century. He was the son of the Swabian count Wolferat. At the age of seven, he entered the monastery and was ordained as a monk in 1043. Lame from youth (hence his name), he was unable to walk or move by himself, and it was only with difficulty that he was able to speak. Hermann is one of the great examples of how a healthy mind can exist in an ill body

Hermann's fame reached well beyond the monastery's walls; his students often came from far away to learn from his wisdom, and despite his disabilities, he was well respected. Hermann also spent his time writing about music, computistics, mathematics, history, and astronomy.

With his writings about the astrolabe, Hermann is "one of the key figures in the transmission of Arabic astronomical techniques and instruments to the Latin West before the period of translation" (Kren, p. 301). His student Berthold von Reichenau also reported that Hermann was fluent in Arabic; this fact is much disputed, however. Hermann is sure to have received scripts that had already been translated from Arabic to Latin in the 10th century in the monastery of Santa Maria di Ripoll in the north of the Iberian Peninsula. His work proves that in his time, knowledge of the Islamic sciences had penetrated to the region of southern Germany

In Hermann's two writings, *De Mensura Astrolabii* and *De Utilitatibus Astrolabii*—of the latter only the second part is attributed to Hermann—he introduced three instruments for celestial observations into Western science: the astrolabe, the cylinder sundial, and the quadrant.

It is further known that Hermann commissioned an astrolabe for the monastery of Reichenau (latitude of 48°), and he calculated a catalog of the 26 astrolabe stars. In *De Mensura*, he taught the depiction of the circles and the construction of the rete and the shadow square. His text contains many Latin translations of Arabic terms. Hermann provided a description of the cylinder sundial based on an Islamic model that was adapted to a well-liked type of travel sundial (horologium viatorum), which indicated the irregular lengths of the temporal hours. For the quadrant, Hermann again had knowledge of the Islamic models. His instrument was capable of measuring the Sun's altitude by aiming at the Sun and then reading- measuring the altitude on a scale from 0° to 90° with a plumb line. Time could also be read by moving a marker on the plumb line according to the respective month, and then reading the marker's shadow on a scale that had the hour lines etched into the surface.

Hermann's depiction and mathematical development of the Earth's diameter measurement by Eratosthenes (with $\pi = 22/7$) in the second part of the book *De Utilitatibus* is of utmost

importance, as is the letter by Meinzo of Constance sent to Hermann before 7 June 1048, which indicates that the Earth was known as a sphere in medieval times.

Hermann's *Chronicle of the World*, beginning with the birth of Christ, demonstrates not only great diligence but also his accuracy and careful evaluation of original sources. With regard to historical events in his lifetime, this book is a primary reference for later works.

Jürgen Hamel

Translated by: *Balthasar Indermühle*

Alternate names

Reichenau, Hermann von

Hermann Contractus

Selected References

Hamel, Jürgen (1996). *The Concept of the Spherical Shape of the Earth in the European Middle Ages up to the End of the 13th Century—Presented According to the Sources*. Münster.

Hermann Contractus (1882). "De mensura astrolabii" and "De utilitatibus astrolabii." In *Patrologia Latina*, edited by J. P. Migne. Vol. 143, pp. 379–412. Paris.

—— (1932). "De mensura astrolabii." In *The Astrolabes of the World*, by Robert T. Gunther. Vol. 2, pp. 404–408. Oxford: University Press

Kren, Claudia (1972). "Hermann (Hermannus) the Lame." In *Dictionary of Scientific Biography*, edited by Charles Coulson Gillispie. Vol. 6, pp. 301–303. New York: Charles Scribner's Sons.

Sylvester II, Pope (1899). *Opera mathematica*, edited by N. Bubnov. Berlin, pp. 109–147.

Wattenbach, W. (1874). *Deutschlands Geschichtsquellen im Mittelalter*. 2 Vols. Berlin.

Zinner, Ernst (1956). *Deutsche und niederländische astronomische Instrumente des 11–18. Jahrhunderts*. Munich, pp. 50–51, 135–137, 155–156, 373–374.