Biographical Encyclopedia of Astronomers

Kauffman, Nicolaus

Born possibly (Schleswig-Holstein, Germany), 1619

Died Paris, France, 14 January 1687

Usually remembered for his work on navigation, Nicolaus Mercator, primarily a mathematician and astronomer, is not the Mercator for whom the map projection is named (Gerardus Mercator). He was born Nicolaus Kauffman to Martin Kauffman, a schoolmaster at Oldenburg in Holstein. No information is available about Mercator's mother or why he changed his name Although his father worked in Holstein, there is no evidence confirming Mercator's birth there; some evidence points to Denmark as his birthplace. Raised Lutheran, which suggests his youth in Germany, Mercator spent much of his career in England and later died in France. It is most likely that Mercator began work at his father's school. In 1632 he graduated from the University of Rostock and received an M.Phil. from the same institution in 1641. He also spent time studying at the University of Leiden. Mercator joined the philosophy faculty at Rostock in 1642. From 1648 to 1654 he worked at the University of Copenhagen, but was forced to leave when the university closed due to the plague. In 1660 he began working as a mathematics tutor in London. It is possible (though not known for certain) that Oliver Cromwell invited Mercator to London, as Cromwell was aware of Mercator's 1653 treatise on calendars. The period of 1682–1687 found Mercator working in France where he had been commissioned to plan the waterworks at Versailles.

Mercator was keenly interested in astrology, as were many astronomers of his time. While at Copenhagen, he published several textbooks in what was arguably his most prolific period. The year 1651 saw no fewer than three books published: *Trigonometria sphaericorum logarithmica* (dealt with spherical trigonometry), *Cosmographia* (dealt with geography and marked the beginning of his work in navigation), and *Astronomica* (his first contribution to astronomy). Two years later, he published a book on mathematics, *Rationes mathematicae*. Two works dealing with astronomy, *Hypothesis astronomia nova* (1664) and *Institutiones astronomicae* (1676), appeared while he was living in England The former combined Johannes Kepler's ellipses with Mercator's own work. The latter was a general exposition of contemporary astronomical theory. He corresponded with Isaac Newton regarding lunar theory and developed a new method to determine the line of apsides of a planetary orbit, challenging Jean Cassini's work in this area.

It was also during his time in England that one of Mercator's most important works appeared. *Logarithmotechnia* (1668) contained constructions of logarithms from first principles. Combining this with a particular inequality, he was able to establish a series expansion that now bears his name. He was the first to calculate, by means of an infinite series, the area connected with a hyperbola

(something Newton also did, but published later). This, of course, was not just a watershed in the foundations of calculus, but also had a tremendous subsequent impact on celestial mechanics

In addition to his theoretical work, Mercator made several practical contributions to science. His marine chronometer won him fellowship in the Royal Society in 1666. In 1669, he improved upon his previous clock designs and developed an efficient method for sailing into the wind.

Ian T. Durham

Alternate name:

Mercator, Nicolaus

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