

Biographical Encyclopedia of Astronomers

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Riccioli, Giovanni Battista

Born Ferrara, (Italy), 17 April 1598

Died Bologna, (Italy), 25 June 1671

Giovanni Riccioli was a pioneer in lunar astronomy who first named craters and mountains on the Moon for scientists. He also perfected the use of the pendulum for time measurement.

Riccioli entered the Jesuit order in 1614 and studied rhetoric, philosophy, and theology in Parma and Bologna. During this period, he began his studies in astronomy

Riccioli published one of the earliest books on astronomy: *Almagestum Novum* (Bologna, 1651). His chapter concerning the Moon contains two large maps (28 cm in diameter), one of which shows for the first time the effects of librations and introduces new lunar nomenclature. Almost all of his names for lunar objects are still in use today. It is the first map to name craters and mountains for scientists and prominent people instead of abstract concepts. A copy of Riccioli's lunar map stands at the entrance to the lunar exhibit at the Smithsonian Institute and was described in detail in the *Philosophical Transactions of the Royal Society*. It was meticulously drawn by another Jesuit, Francesco Grimaldi

Jesuit astronomers in Rome, such as Riccioli, had a great advantage over others because they were able to gather information from their former pupils spread across the globe, in places as disparate as South America, Africa, China, Japan, and India. There were many Jesuit astronomical observatories throughout the world that efficiently gathered data concerning lunar and solar eclipses as well as transits of Venus. By the time of the (temporary) suppression of the Jesuit Society in 1773, no fewer than 30 of the world's 130 astronomical observatories were run by Jesuits. This information enabled Riccioli to compose a table of 2,700 selenographical objects, incomparably more accurate than anything previously known

Riccioli also made many important measurements to refine his existing astronomical data, such as the radius of the Earth and the ratio of water to land on its surface. He compiled star catalogs and described sunspots, the movement of a double star, and the colored bands of Jupiter.

In physics, Riccioli went beyond the preliminary work of Galileo Galilei and succeeded in perfecting the pendulum as an instrument to measure time, thereby laying the groundwork for a number of important later applications. Riccioli once persuaded nine of his fellow teachers to count 87,000 oscillations over the course of a day, enabling him to identify an error of three parts in a thousand. In his book *God and Nature*, David Lindberg notes that it was Riccioli, not Galilei, who first accurately determined the rate of acceleration of a falling body. Noting the collaborative efforts of Jesuits, he argues that Jesuit scientists, rather than the Academia del Cimento or the Royal Society, formed the first true scientific society Athanasius Kircher, for example, in his ability to collect observations from a worldwide network of informants was more than a match for Marin Mersenne in Paris or Henry Oldenburg in London, and he

published this information in massive encyclopedias, which were indispensable in disseminating scientific data and theories.

Riccioli also contributed to geography, publishing tables of latitude and longitude for many different locations. This facilitated later developments in cartography.

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