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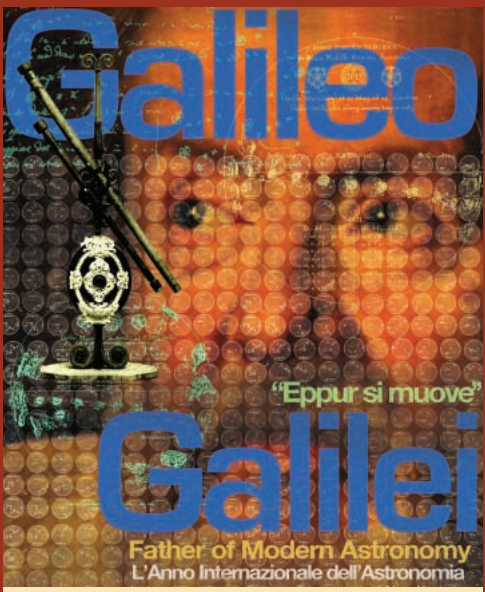


Galileo Galilei was born in Pisa on February 15, 1564, son of Vincenzo Galilei, a music scholar, and Giulia Ammannati. He studied at the University of Pisa, where he held the mathematics chair from 1589-1592. He was then appointed to the chair of mathematics in the University of Padua, where he remained until 1610.

**Science and Mathematics**

Galileo is credited with no less than establishing the modern method of experimentation. He was the first scientist and thinker to try to prove or disprove theory by conducting tests and observing the results. Prior to Galileo, scientific theory was purely based on hypothesis and conjecture. It was in the interest of conducting accurate tests and in making precise observations that Galileo developed a number of inventions, including the hydrostatic balance (a device designed to measure the density of objects), in about 1586, and the thermometer (one of the first measuring devices to be used in science), in 1593.

In the Padua years, he conducted studies and experiments in mechanics, built the thermoscope, and invented and built the geometric and military compass. In 1594, he developed a water-lifting machine.

The invention most widely credited to Galileo is the telescope; however, he did not originate the instrument, but rather improved it in 1609. He was also the first to use a telescope to study the skies, which led him to a series of discoveries, all in 1610: the Moon shines with reflected light, the surface of the Moon is mountainous, the Milky Way is made up of countless stars and Jupiter has four large satellites. He was even able to correctly estimate the period of rotation for each of these moons, which he named "Medicean Stars" for his benefactor, Cosimo de Medici. Galileo was also the first to observe the phases of Venus, which are similar to the Moon's, and to discover sunspots.

Before these astronomical discoveries, Galileo had already made significant contributions to science. In 1589, when he was 25 years old, he had published a treatise on the center of gravity in solids. From 1602 to 1609, he had studied the motion of pendulums and other objects along arcs and inclines. From these observations, he concluded that falling objects accelerate at a constant rate. This law of uniform acceleration later helped Isaac Newton (1642-1727) derive the law of gravity. Galileo also demonstrated that the path of a projectile is a parabola.

**The Inquisition**

Trouble began for Galileo in 1613 when he published Letters on the Solar Spots, in which he advocated the Copernican system of the universe, which proposed that the Earth, along with other galactic bodies, revolved around the Sun. This view ran contrary to the Roman Catholic Church, whose long-held astronomical beliefs were based on Ptolemy's theory that the Earth was the center of the universe. Thus, in 1616, the Pope issued a decree declaring the Copernican system to be "false and erroneous," and Galileo was ordered not to support that theory. When the new Pope, Urban VIII, was installed in 1624, Galileo traveled to Rome to make an appeal that the edict against the Copernican theory be revoked. The Pope declined to do so, but he did give Galileo permission to write about the Copernican system, under the condition that he not give it preference over the church-sanctioned Ptolemaic model. In 1632, Galileo published "The Dialogue Concerning the Two Chief World Systems." which contained unconvincing objections to the Copernican view. The church objected and summoned Galileo to Rome to stand before The Inquisition. Galileo was accused of violating the original edict of 1616, was put on trial for heresy, and was found guilty. Though he was ordered to recant, at some point, it is believed, that he uttered the famous statement, "And yet it moves." Eppur si muove (DeMotu) a reference to the Copernican theory that the earth rotates on its axis.

Galileo was supposed to be imprisoned, but the Pope commuted his sentence to house arrest at Galileo's home in Arcetri, near Florence, where he died blind at the age of 78.

In 2008 the Vatican announced that it would re-examine the Galileo affair and name Galileo the "patron" of the dialogue between faith and reason.

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