

THE BIOGRAPHY OF GALILEO GALILEI*

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Abstract

A quick biography of Galileo Galilei.

1 Galileo's Early Life

Galileo was born in Pisa, Italy¹ on February 15, 1564. His father, Vincenzo Galilei², was a musician. Galileo's mother was Giulia degli Ammannati. Galileo was the first of six (though some people believe seven) children. His family belonged to the nobility but was not rich. In the early 1570's, he and his family moved to Florence³.

2 The Pendulum

In 1581, Galileo began studying at the University of Pisa, where his father hoped he would study medicine. While at the University of Pisa, Galileo began his study of the pendulum⁴ while, according to legend, he watched a suspended lamp swing back and forth in the cathedral of Pisa. However, it was not until 1602 that Galileo made his most notable discovery about the pendulum - the period (the time in which a pendulum swings back and forth) does not depend on the arc of the swing (the isochronism). Eventually, this discovery would lead to Galileo's further study of time intervals and the development of his idea for a pendulum clock.

3 On Motion

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¹"Italy" <<http://cnx.org/content/m11960/latest/>>

²"Vincenzo Galilei" <<http://cnx.org/content/m11934/latest/>>

³"Florence and Tuscany" <<http://cnx.org/content/m11936/latest/>>

⁴"Galileo and the Pendulum" <<http://cnx.org/content/m11929/latest/>>

4 Mechanical Devices

In 1592, Galileo was appointed professor of mathematics at the University of Padua. While teaching there, he frequently visited a place called the Arsenal, where Venetian ships were docked and loaded. Galileo had always been interested in mechanical devices. Naturally, during his visits to the Arsenal, he became fascinated by nautical technologies, such as the sector⁵ and shipbuilding. In 1593, he was presented with the problem involving the placement of oars in galleys. He treated the oar as a lever and correctly made the water the fulcrum. A year later, he patented a model for a pump⁶. His pump was a device that raised water by using only one horse.

5 Family Life

Galileo was never married. However, he did have a brief relationship with Marina Gamba⁷, a woman he met on one of his many trips to Venice. Marina lived in Galileo's house in Padua where she bore him three children. His two daughters, Virginia and Livia, were both put in convents where they became, respectively, Sister Maria Celeste⁸ and Sister Arcangela. In 1610, Galileo moved from Padua to Florence where he took a position at the Court of the Medici family⁹. He left his son, Vincenzo, with Marina Gamba in Padua. In 1613, Marina married Giovanni Bartoluzzi, and Vincenzo joined his father in Florence.

6 Telescope

Galileo invented many mechanical devices other than the pump, such as the hydrostatic balance¹⁰. But perhaps his most famous invention was the telescope¹¹. Galileo made his first telescope in 1609, modeled after telescopes produced in other parts of Europe that could magnify objects three times. He created a telescope later that same year that could magnify objects twenty times. With this telescope, he was able to look at the moon¹², discover the four satellites of Jupiter¹³, observe a supernova, verify the phases of Venus, and discover sunspots¹⁴. His discoveries proved the Copernican system¹⁵ which states that the earth and other planets revolve around the sun. Prior to the Copernican system, it was held that the universe was geocentric, meaning the sun revolved around the earth.

7 The Inquisition

Galileo's belief in the Copernican System¹⁶ eventually got him into trouble with the Catholic Church. The Inquisition¹⁷ was a permanent institution in the Catholic Church charged with the eradication of heresies. A committee of consultants declared to the Inquisition that the Copernican proposition that the Sun is the center of the universe was a heresy. Because Galileo supported the Copernican system, he was warned by Cardinal Bellarmine¹⁸, under order of Pope Paul V, that he should not discuss or defend Copernican theories. In 1624, Galileo was assured by Pope Urban VIII¹⁹ that he could write about Copernican theory as long as he treated it as a mathematical proposition. However, with the printing of Galileo's book, *Dialogue*

⁵"The Sector" <<http://cnx.org/content/m11977/latest/>>

⁶"The Pump" <<http://cnx.org/content/m11976/latest/>>

⁷"Marina Gamba" <<http://cnx.org/content/m11942/latest/>>

⁸"Maria Celeste" <<http://cnx.org/content/m11941/latest/>>

⁹"The Medici Family" <<http://cnx.org/content/m11975/latest/>>

¹⁰"Hydrostatic Balance" <<http://cnx.org/content/m12127/latest/>>

¹¹"Galileo's Telescope" <<http://cnx.org/content/m11932/latest/>>

¹²"The Moon" <<http://cnx.org/content/m11945/latest/>>

¹³"Satellites of Jupiter" <<http://cnx.org/content/m11971/latest/>>

¹⁴"Sunspots" <<http://cnx.org/content/m11970/latest/>>

¹⁵"Copernican System" <<http://cnx.org/content/m11938/latest/>>

¹⁶"Copernican System" <<http://cnx.org/content/m11938/latest/>>

¹⁷"The Inquisition" <<http://cnx.org/content/m11944/latest/>>

¹⁸"Robert Cardinal" <<http://cnx.org/content/m11968/latest/>>

¹⁹"Urban VIII" <<http://cnx.org/content/m11983/latest/>>

Concerning the Two Chief World Systems, Galileo was called to Rome in 1633 to face the Inquisition again. Galileo was found guilty of heresy for his Dialogue, and was sent to his home near Florence where he was to be under house arrest for the remainder of his life. In 1638, the Inquisition allowed Galileo to move to his home in Florence, so that he could be closer to his doctors. By that time he was totally blind. In 1642, Galileo died at his home outside Florence.