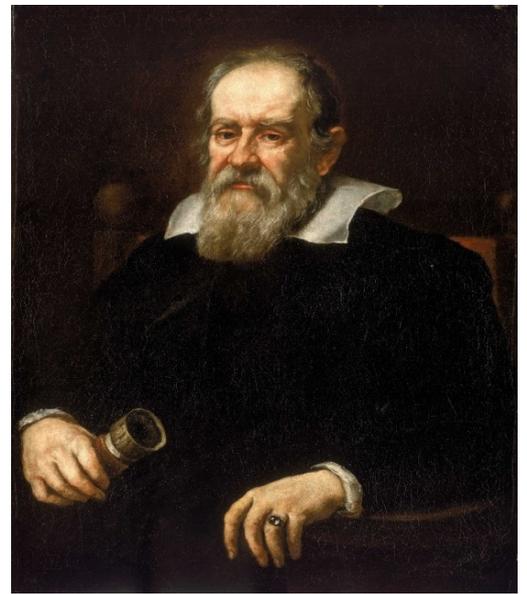


HAPPY BIRTHDAY GALILEO

February 15, 1564. Italian astronomer, mathematician, and physicist **Galileo Galilei** was born 454 years ago today. He is one of the first people on Earth to have aimed a telescope at the heavens, where he found – among many other things – phases for the planet Venus and four starry points of light orbiting the planet Jupiter. With the aid of an early telescope, he helped remove Earth from the centre of the universe. In Galileo's time, educated people subscribed to the Aristotelian view that Earth lay fixed in the centre of a more or less unchanging universe. Thus the discovery of moons orbiting Jupiter (now called the Galilean satellites) and revelation that Venus must orbit the Sun, not the Earth, were considered heresy by the Roman Inquisition. In 1633, the Inquisition forced Galileo to recant. He spent the rest of his life under house arrest.

Afterwards, famously, he's said to have said: **E pur si muove (and yet it moves)**. The phrase is still used today as a retort, implying it doesn't matter what you believe; these are the facts.



The Italian astronomer, mathematician, and physicist Galileo Galilei, was born 15/2/1564 and died 8/1/1642

Galileo grew up in a musical family. In 1574, the family moved to Florence where 18 year-old Galileo began his education in a monastery. He was very successful in his studies, and began studying medicine at the University of Pisa. Due to financial problems, he was unable to finish his degree, but his years at the university were priceless. They introduced him to mathematics and physics, but most importantly, they introduced him to Aristotle's philosophy.

He was able to get a few minor teaching positions for a living. After two years of hard work, he published **La Bilancetta (The Little Balance)**, The book commented upon the story of how the king of Syracuse asked **Archimedes** to verify whether his crown was made of pure gold or a mix. Galileo presented an invention of his, the "little balance," today called "hydrostatic balance," that is used to make more accurate measurements of differences in density.

Galileo's reputation was somewhat bruised after the publication of his **Du Motu (On Motion)**, a study of falling objects, which showed his disagreement with the Aristotelian view about the subject. In 1609, he heard word that in the Netherlands, an instrument that showed distant objects as if they were close by was invented. Like many others, Galileo quickly figured out the mechanics of the spyglass, and soon improved greatly upon the original design. He presented the Venetian State with an eight-powered telescope – a telescope that magnifies normal vision by eight times. His telescope earned him a doubling of his salary and a life tenure at Padua University. He eventually improved his telescope to magnify up to 20 times.

He made many astronomical discoveries. He showed that the surface of the Moon is bumpy and rocky, contrary to the popular belief of the time that the moon was smooth. In January 1610, he discovered the four most massive moons of Jupiter: Io, Europa, Ganymede, and Callisto. They are still referred to as the Galilean moons. He laid out all of his findings in his book **Siderus Nuncius (The Sidereal Messenger)**. Galileo observed that Venus went through phases, just as the moon does.

Galileo was a very respected man by 1610, but his increasingly public acceptance of the heliocentric system began to cause him trouble with the Roman Catholic Church. His work kept defying the accepted Aristotelian view, and earned him the anger of the Roman Catholic Church. In 1633, the Inquisition summoned Galileo to Rome. He was declared a suspect of heresy, was punished by life imprisonment, and was made to abjure formally. Nevertheless, he lived comfortably and was allowed to continue his work.

The list of all of Galileo's discoveries is a very lengthy one. But, although Galileo is greatly praised for his various scientific discoveries, he did much more than just push science forward: he also pushed society forward. His life was more than just a conflict with religion and Aristotelianism. It was a fight against the suppression of the thinking of an emerging scientific minority. Galileo was one of the first to free science from philosophy. He inspired countless others to pursue the freedom of scientific enquiry.

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