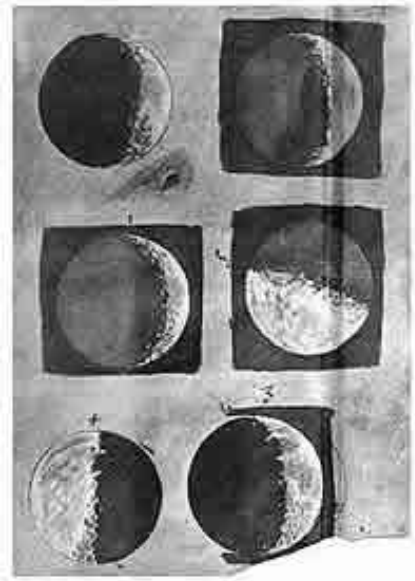
Lunar CRater Observation and Sensing Satellite

The History of the Telescope

Because astronomical bodies are so far away, scientists learn about their properties and characteristics through the study of their light. It is no wonder then, that the use of the telescope for astronomical purposes revolutionized our understanding of our Universe.

Credit for the invention of the telescope generally goes to Hans Lipperhey (1570-1619), a Dutch spectacle maker in 1608. Ironically, the documentation of a rejected patent application on the invention is what seals his notoriety for this discovery. Glass lenses used in the earliest telescopes were first made around 1350. Although there is no documentation to support it, a spectacle maker in Middelburg in Southwestern Holland, and a colleague of Lipperhey's, Sacharias Janseen (1585-1632) was rumored to have known how to build a telescope before the year 1600.



Galileo's ink renderings of the Moon; the first published telescope observations of the Moon. Photo courtesy NASA

There were telescopes for sale in opticians' shops in Paris by April of 1609. In May of the same year, Italian astronomer Galileo Galilei (1564-1642) first heard about the invention and then received a letter of confirmation about its existence from a friend. That summer, Galileo built his first telescope which had a magnification power of three.

By the end of August that summer, Galileo built a telescope with magnification of eight, and in November, built another with magnification of 20. Galileo's instruments were far superior to others being built at the time, including a telescope already being used for astronomical purposes by July of 1609 by the Englishman Thomas Harriot (1560-1621). Why then is Galileo credited for the first use of a telescope for astronomical purposes?

Thomas Harriot and possibly Welshman Sir William Lower (1570-1615) were the first people in the world to observe the Moon through a telescope and to record, but not publish their observations. Harriot observed and sketched the Moon through a telescope months before Galileo is credited with doing so. His friend Sir William Lower described his own observations of the Moon through a telescope in correspondence with Harriot. One interpretation of this history is that neither were publicity seekers, however, while instead, Galileo, a brilliant professor, was an exceptional self-publicist.

Four hundred years after Galileo first looked through his telescope, GAVRT students will use an equivalent instrument for observations to help monitor a spacecraft destined to impact the Moon. Will LCROSS find evidence of water in the plume arising from the impact?

Galileo's discoveries in turning the instrument he built toward the heavens changed our understanding of Earth's place in our Universe. On January 7, 1610, Galileo discovered three of Jupiter's largest moons. The fourth was discovered on January 10. Church doctrine at the time dictated that the Earth was at the center of all revolving celestial bodies and not the sun centered model some (such as Copernicus, who lived from 1473 to 1543) suggested. As you can imagine, this was not well received by the church. This most famous of Galileo's discoveries showed that the moons of Jupiter orbited another center. In a letter dated December 11, 1610, Galileo announced his discovery of the phases of Venus which meant that Venus orbits the Sun. The perfection of celestial bodies, also held by church doctrine, was refuted by Galileo's observations of the Milky Way, made up of countless stars; the not perfectly spherical Moon, with its rough and less than pristine surface; the three-body appearance of Saturn, much later discovered to be Saturn's rings; and an imperfect Sun covered with sunspots. Once Galileo looked through his telescope, nothing in science was ever the same.

GAVRT – Goldstone Apple Valley Radio Telescope Program
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