ARTISTS AND THE MOON

by John H. Lienhard

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Today, Galileo looks at the moon. The University of Houston's College of Engineering presents this series about the machines that make our civilization run, and the people whose ingenuity created them.

When Galileo was 25 years old, he applied for a job teaching mathematics at the Florentine Academy of Design. He didn't get the job but the very fact he went after a post in Florence's major art academy is important. Galileo was a serious artist and a master of perspective technique. Twenty years later, he found an important use for that ability.

It was his artist's eye that finally cut through our inability to see the moon's surface for what it was. For Aristotle the moon had been a perfect sphere, and that was how people still saw it in 1609. A perfect sphere, of course, is perfectly smooth. The pure moon was not of base earth. The 16th century Church had used it as a symbol for the Immaculate Conception. In 1609, an innocent was not called pure as the driven snow, but rather pure as the moon. People thought the markings they saw on its surface were merely mirror images of the imperfect earth.

Then an Englishman, Thomas Harriot, got his hands on one of the new Dutch telescopes and produced a crude sketch of the moon's surface. He drew the terminator, separating light and dark, as a jagged line. But he didn't suggest that the moon's surface itself was jagged. Instead, he was puzzled as to why a jagged line would appear on a smooth sphere.

Five months later, Galileo turned his own home-made telescope on the moon. He hadn't yet seen Harriot's sketch and he had two advantages. For one thing, it was he who'd already put in motion a revolution that would overturn 2000 years of Aristotelian thinking. He wasn't committed to a perfect moon.

Galileo's second advantage was that he was an artist. He made a set of sepia drawings of the moon in its changing phases. They were beautiful drawings with a wondrous luminescent glow. Yet they left no doubt about the pockmarked surface. When other people saw his drawings they promptly saw what they hadn't been able to see before. Their moon changed from smooth to rough in a blink -- like the shift in an optical illusion.

Galileo went on to calculate the height of lunar mountains, from the shadows they cast. In no time, contemporary poets -- Milton, Donne, and Dryden -- were writing about the craggy lunar surface. By 1612, when the Virgin appeared in a painting on the ceiling of a new Roman Basilica, she was now standing on a cratered moon.

Galileo passed this brush with the Church safely. His troubles with the Vatican lay ahead of him. His attacks on Aristotelian thinking would eventually lead him into serious trouble. But for now, he'd won a part of the battle without any real opposition.

I'm John Lienhard at the University of Houston, where we're interested in the way inventive minds work.

(Theme music)

Edgerton, S.Y., Jr., Galileo, Florentine 'Disegno,' and the 'Strange Spottednesse' of the Moon. *Art Journal,* Vol. 44, No. 1, 1984, pp. 225-232.

Ashworth, W. B. Jr., *The Face of the Moon: Galileo to Apollo: an Exhibition of Rare Books and Maps, October 13, 1989 -- Februrary 28, 1990,* Kansas City, MO: Linda hall Library, 1989.

The Galileo sketches of the moon may be seen at:
http://galileo.rice.edu/sci/observations/moon.html
This is part of an excellent Galileo website which I strongly recommend:
http://es.rice.edu/ES/humsoc/Galileo/