

## CASSINI'S SEMINAL LUNAR MAP

**CASSINI, Jean-Dominique** *Carte de la Lune.*

*Paris, Jean-Dominique Cassini, 1787.*

Engraved map.

557 by 567mm. (22 by 22.25 inches).

The first state of Cassini IV's reissue of his great-grandfather's rare and "elegant" lunar map.

Jean-Dominique Cassini, known as Cassini IV, (1748-1845) was born at the observatory in Paris which his great-grandfather, also called Jean-Dominique Cassini, (1625-1712) had founded. The elder Cassini was born in Liguria, and studied at the Panzano Observatory under Giovanni Battista Riccioli and Francesco Maria Grimaldi. In 1669, he moved to France on the invitation of Colbert to help set up and become the first director of the new Paris Observatory. Cassini ordered a 34-foot telescope from the great instrument maker Giuseppe Campani for the new observatory, which would prove to be crucial in the creation of his lunar map.

Cassini made approximately sixty drawings of the moon between 1671 and 1679, with the assistance of the artists Sebastien Leclerc and Jean Patigny. The observations took place when possible during lunar eclipses, which provided unusual light patterns and a clearer view of the surface. Fifty-seven of these drawings remain in the library of the Paris Observatory. The copperplate for the map, engraved by Claude Mellan, was created with the help of the drawings. Both the technology and the observations made were so exciting that a manuscript map of lunar features appears in a 1680 painting at Versailles by Henri Testelin, showing Colbert introducing members of the Academy of Sciences to Louis XIV.

The three-dimensional quality given to the lunar features by Patigny and Mellan remained unsurpassed until the advent of photography. It was the first accurate map of the moon, completely "overshadowing" the contributions of Cassini's predecessors, which were highly stylised and lacked interior detail.

Contemporary observers commented on their simplicity: Robert Hooke compared the portrayal of the lunar formation Hipparchus by Johannes Johannes Hevelius and Cassini's teacher Riccioli to show the relative paucity of information they provided.

Cassini's map, however, shows a level of detail visible only through a telescope of twenty feet in length or longer. The dimensions and positions of the major features are reasonably accurate, but the map's real strength lies in the wealth of verifiable information given on the lunar limb. The moon is oriented to the south, but with the lunar axis rotated about 30-45 degrees clockwise.

As well as representing a scientific advance, Cassini's map also staked a claim in a religious dispute. The moon had long been associated with the Virgin Mary, and an analogy drawn between the supposed purity of its surface and her chastity. Observations of the moon from Galileo onwards, however, had shown that the moon's surface was in fact far from perfect. It was covered with mountain ranges and pitted with craters. Cassini's map was another firm rebuttal of the theory of the immaculate moon: despite this, Catholic astronomers only gave up the concept at the end of the seventeenth century. The map has two charming features which are widely supposed to have been included as a reference to the wives of the men involved. In the lower half, on the mountain range Promontorium Heraclides along the Gulf of Rainbows, is a woman's head in profile, with long flowing hair. It is based on a real lunar structure, but is supposed to have been modelled after Cassini's wife, Geneviève de Laistre. Cassini commissioned a pen-and-ink portrait of his wife from Patigny's son the year before the map was published, so the identification may be correct. The other is the marking shaped like the Greek letter phi ( $\phi$ ) which appears in the Sea of Serenity. As well as being shaped roughly like a heart, it also begins the Greek word *philos*, meaning love or affection.

Cassini IV was also an astronomer, and succeeded his father as director of the Paris Observatory in 1784. In 1787, he found the original copperplate of his great-grandfather's lunar map in the Observatory's archive, and reissued it. This second edition is identical to the first aside from the addition of 'Carte de la Lune... de Jean Dominique Cassini' to the lower edge. Cassini IV also published his own reduced version the following year. After the French Revolution in 1789, friction between Cassini IV and the National Assembly caused him to resign his post as Director. The following year he was briefly imprisoned, before retiring to Thury where he lived and worked for the rest of his life.

There is an interesting manuscript addition of a small cross in one of the craters in the upper half of the moon, keyed to an inscription that reads "Ville natale au l'abbe Vurtz". This appears to be a reference to Abbé Jean Mendel Wurtz (1760-1826), a relatively unknown cleric who attracted public attention in France after he published several mystical texts, one of which condemned the French church and another of which identified Napoleon as the Antichrist.

Contemporary histories describe his ideas as "productions d'une imagination malade", and he was regarded as an ultimately harmless eccentric. Situating his birthplace on the moon may be a reference to one of his books, or might be playing on the cultural link between the moon and insanity to insinuate that he was mentally ill.

Albert van Helden, 'The Telescope in the Seventeenth Century', *ISIS* 65 (1974); Helge Kragh, *The Moon that Wasn't* (New York:Springer, 2008);

Françoise Launay, 'The moon maiden of Cassini's map', *Astronomy and Geophysics* 44 (2003); Launay, 'La tête de femme de la carte de la lune de Cassini. Une déclaration d'amour', *L'Astronomie* 117 (2003); Scott L. Montgomery, *The Moon and the Western Imagination* (Tucson: University of Arizona Press, 1999); Ewen A. Whitaker, *Mapping and Naming the Moon* (Cambridge, 2003); Whitaker, 'Selenography in the Seventeenth Century' in R. Taton and C. Wilson (eds.), *Planetary Astronomy from the Renaissance to the Rise of Astrophysics* (Cambridge: Cambridge University Press, 2003).

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