

## THE ATTRIBUTION OF CLASSICAL DEITIES IN THE ICONOGRAPHY OF GIUSEPPE PIAZZI

Clifford J. Cunningham, Brian G. Marsden, Wayne Orchiston

Centre for Astronomy, James Cook University, Townsville, Queensland 4811, Australia.

E-mails: Clifford.Cunningham@my.jcu.edu.au; Wayne.Orchiston@jcu.edu.au

**Abstract:** Giuseppe Piazzi's fame as an astronomer rests on two different but related accomplishments—the discovery of the asteroid Ceres and his star catalogue. The classical deities depicted in paintings and engravings to mark these accomplishments are sometimes misattributed in the scientific literature.

**Key words:** asteroids, planet, star catalogues, Piazzi, art

### 1 INTRODUCTION

Giuseppe Piazzi's discovery of the first dwarf planet, Ceres, in 1801 assured his fame in both popular and scientific circles (Cunningham, 2001). The discovery came as he was working on his star catalogue, a more mundane task that attracted no public acclaim. Contemporary paintings and engravings relating to both his discovery and the catalogue feature the goddess Ceres and the Muse of Astronomy, Urania. The scientific literature sometimes confuses one deity for the other.

### 2 CANONICAL REPRESENTATIONS OF URANIA AND CERES

To understand the ways in which Ceres and Urania were employed in the iconography surrounding Piazzi, it is necessary to consider how they were usually depicted in art.

The *Muses* originated in ancient Greek mythology as deities who were the source of knowledge. Over the centuries their numbers grew from three to nine, and by the Renaissance their depiction in art had become codified (Ripa, 1593). This was achieved through the consistent use of certain props or symbols associated with each *Muse*. The one associated with astronomy was given the name *Urania*, and her name is still used in modern times to denote this science (e.g. see Kinder, 1994; Rumstay, 2009; Trimble, 2000). *Urania* is from the Greek *Ourania*, the feminine version of *ouranios*, literally “heavenly”.

In the case of *Urania*, she is depicted with a globe and/or compass. Just as importantly, her head is adorned either by a single large sparkling star, or a circlet of smaller stars to symbolize astronomy. She is also often shown gesturing with one hand towards the heavens.

In many illustrations she appears with a mortal, clearly implying that she is a source of inspiration to yearn for higher things. This is exemplified by Henry Fuseli's drawing shown in Figure 1. The poet Aratus is seated beside a globe, while *Urania* (with a star on her head) stands beside him pointing to the sky.

The goddess Ceres, in the Roman pantheon, has always been associated with agriculture (Spaeth, 1995). Hence the sickle or scythe is an implement she often holds. Alternatively she is shown holding a cornucopia, symbolizing the bounties of agriculture. Sheafs of wheat are usually depicted with Ceres, and her hair is often adorned with stalks of corn.

But there was another very different depiction of Ceres, developed from one of the most famous events of Greek mythology, where Ceres was known as *Demeter*. Her daughter *Persephone* was much desired by *Pluto*, who abducted the youngster and took her to be his Queen in the Underworld. Ceres was distraught by the disappearance of her beloved daughter, and decided to search for her. Thus Ceres is often depicted in a chariot riding through the sky to see where *Persephone* was. Ceres was associated in Rome with the symbols of the Eleusinian Mysteries, notably snakes which are depicted pulling her chariot. As time went on the snakes were often replaced by dragons or lions (see Figure 2).

### 3 THE DEPICTION OF CERES IN PIAZZI'S 1802 MONOGRAPH

On 1 January 1801 Giuseppe Piazzi discovered an object in Taurus while observing from Palermo Observatory in Sicily. Being uncertain as to the nature of his discovery, it took him several months to accept the fact he had discovered a planet or planetary-like body and not merely a comet. By early May 1801 he had decided to give it the name 'Ceres Ferdinandea'. Piazzi chose 'Ceres' as the patron goddess of Sicily in the ancient Roman pantheon, and 'Ferdinandea' in honour of his patron King Ferdinand III of Sicily (Cunningham et al., 2009).

The title page of Piazzi's monograph about Ceres (Piazzi, 1802) shows a cherub looking at the goddess Ceres through a telescope (see Figure 3). On the tube of the telescope is written “Ceres added to the sky.” The goddess herself is shown in a chariot. In her right hand she appears to hold a sickle, while her left appears to be holding a sheaf of wheat.

Her chariot is drawn by dragons, beasts that were said to have helped the goddess as she looked for her abducted daughter *Persephone* (Nalezty, 2009).

To the left of Ceres in the sky is the planet Jupiter with four satellites (two on either side). To the right of Ceres is the planet Mars, and directly above her head is another circle representing the celestial object that Piazzi discovered. The meaning of this is clear, as Ceres was found to orbit the Sun between Mars and Jupiter.

The view is across the harbour to Palermo, behind which rises Monte Pellegrino. Described by Goethe (1816) as “... the most beautiful of all the promontories in the world – a large rocky mass, broader than it is high ...”, Pellegrino rises to a height of 609 metres from the plain lying close to the sea north of Palermo.





Figure 1: Henry Fuseli's painting of the poet Aratus seated beside *Urania* (from the frontispiece of *Bonnycastle* (1816); engraved by John Keyse Sherwin).





Figure 2: A clock, made in Paris in 1799 by Pierre-Philippe Thomire. *Ceres* wears a castle-shaped crown and long flowing dress, and is seated in her cushioned chariot pulled by a pair of lions. *Ceres* is flanked behind by a seated *putto* holding corn sheaves and in front by a seated *putto* with a cornucopia (courtesy: Redding Antiques, Zurich).



Figure 3: Engraving by Baron Lo Guasto on the title page of Piazzi's 1802 monograph about Ceres.





Figure 4: Painting by Francesco Farina showing Piazzi and *Urania* (courtesy: Palermo Observatory).

#### 4 THE DEPICTION OF URANIA AND CERES IN A PAINTING OF PIAZZI

To commemorate Piazzi's discovery of Ceres, a beautiful painting was commissioned by friends of Piazzi. It was done by the portrait painter Francesco Farina (1778–1837), a pupil of the famous Joseph Velasco (1750–1827). The 1808 painting shows the Muse *Urania* looking directly into the eyes of Piazzi (Figure 4). He points to some sheets including a topographic map of the valley of Palermo, while *Urania* points upwards to *Ceres* who sits triumphant in a carriage or chariot. Between Piazzi and *Urania* rests a celestial globe in front of two large books representing his star catalogue. Even though the catalogue was published as a single volume, it appears artistic licence was taken to magnify its size. Alternatively, these may represent the original logbooks from which the final printed catalogue was published as a single book.

#### 5 THE DEPICTION OF URANIA IN PIAZZI'S STAR CATALOGUE

Piazzi was the first Director of the Palermo Observatory, which was built in 1790 (Serio, 1993). His catalogue of 7,646 stars was a milestone in nineteenth century astronomy, deriving from a long series of observations made at the Observatory. The catalogue was first published in 1803, then it appeared in its definitive version in 1814 (Piazzi, 1814). The positional data in the catalogue were still being analysed into the twentieth century (e.g. see Proverbio, 1988).

Even though Ceres made him famous, the creation of the star catalogue was his *raison d'être*. William Henry Smyth (1844: 433), a personal friend of Piazzi, referring to this catalogue, says of Piazzi "I cannot forget his emphatic expression on putting a final correction to the last proof sheet in 1814. 'Now,' said he, 'my astronomical day is closed.'"

To illustrate the star catalogue, Piazzi engaged the services of Francesco Ognibene (1785–1837), a painter from the school of Vincenzo Riolo in Palermo. Ognibene painted both mythological frescoes and religious subjects, which can still be seen in Sicilian churches.

In Piazzi's catalogue the engraving shows a woman with a star on her head. She is floating in the air, pointing to Ramsden's circle (Figure 5). It was this great 5-foot instrument that Piazzi used to measure the stellar positions for his catalogue (Pearson, 1829).

Two *putti*<sup>1</sup> are playing with the circle, while a marine deity is sitting in the left corner, pouring water from a vase. This deity is an allegory of the River Oreto which flows through Palermo. In the background of the engraving, just to the right of center, is Mt. Etna. The largest volcano in Europe, it lies on the east coast of Sicily.

The inclusion of *putti* may seem curious to modern eyes, but their allegorical significance is important. They first began to appear in depictions concerning natural philosophy in the early seventeenth century (Heilbron, 2000). "I dare say that if an observation is to be perfect and free from all error and falsehood, it must be made by an angel." Athanasius Kircher (1641: 483) made this remark while warning about the care that must be taken to achieve reliable measurements. Thus the tedious repetition for a mere mortal in making stellar measurements with the Ramsden circle.

Based on the long-standing practice of depicting *Urania* with a star or stars on her head, there can be no doubt that the figure in the engraving is *Urania*. However, the figure in this particular engraving was misidentified as *Ceres* in a recent scholarly publication. In Chinnici (2009: 323), the caption associated with this engraving states that "The female figure, crowned with spikes and a star, is *Ceres*, the goddess whose name Piazzi gave to the minor planet he discovered in 1801."

To show that *Urania*, and not *Ceres*, was associated with the Ramsden circle, there is a colour painting at the Palermo Observatory showing a reclining figure gazing at the circle (Figure 6). Again, two *putti* are playing with the circle, which is pictured under an archway. The winged female deity clearly has a circlet of stars on her head, the symbol of *Urania*.

#### 6 CONCLUSION

In accord with the long-standing practice in Europe to commemorate important events, the achievements of Giuseppe Piazzi were celebrated in art that was rich with mythological allusions. Since his discoveries were in the realm of astronomy, it was natural to employ the *Muse of Astronomy*, *Urania*, in these artworks. The goddess *Ceres* was the other logical choice, since he chose to honour that deity by using her name for his great discovery of the first asteroid and dwarf planet. The fact that these deities are sometimes confused in modern literature may be due to the decline in the deeply-rooted classical education that was an integral part of the life of the *intelligensia* in earlier times.

Finally, it is interesting to note that William Herschel was not similarly depicted in art with the Muse *Urania*. At first this seems surprising, since his great discovery of 1781 was the planet Uranus, a name derived from the same Greek word as *Urania*. However, Herschel did not choose this name, instead deciding to honour his king (George III of Great Britain) by calling it the 'Georgian star'. It was the German astronomer Johann Bode who proposed the name Uranus. Thus, in the history of astronomy and art, it is Giuseppe Piazzi who is most closely associated with *Urania*.

#### 7 NOTES

1. *Putti* were little boys depicted with wings and bare feet and were meant to represent angels.

#### 8 ACKNOWLEDGEMENTS

We are grateful to Redding Antiques (Zurich), the Palermo Observatory for permission to publish Figures 2, 4 and 6 and to the Institute of Astronomy at Cambridge University for kindly providing access to Bonnycastle's *An Introduction to Astronomy* (see Figure 1).

#### 9 REFERENCES

- Bonnycastle, John, 1816. *An Introduction to Astronomy*. Seventh edition. London, Robinson.  
 Chinnici, I., 2009. The relationship between the Ramsden Circles at Palermo and Dunsink. *Journal for the History of Astronomy*, 40, 321-333.  
 Cunningham, C.J., 2001. *The First Asteroid: Ceres 1801-2001*. Surfside (Florida), Star Lab Press (Historical Studies in Asteroid Research, Volume 1)



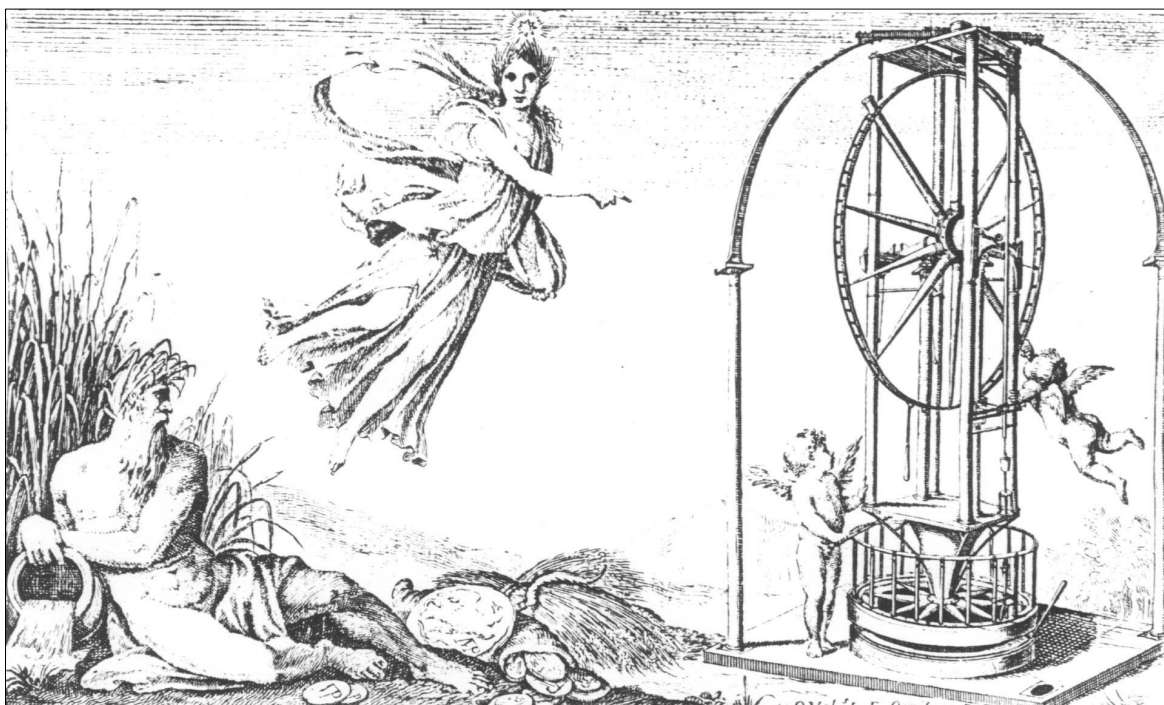


Figure 5: Engraving by Francesco Ognibene showing *Urania* and the Ramsden Circle (after Piazzi, 1814).



Figure 6: Painting of *Urania* and the Ramsden Circle (courtesy: Palermo Observatory).

Cunningham, C.J., Marsden, B.G. and Orchiston, W., 2009. How the first dwarf planet became the asteroid Ceres. *Journal of Astronomical History and Heritage*, 12, 240-248.

Goethe, J.W., 1816. *Die Italiänische Reise, Volume 1*. Stuttgart, G. Cotta (diary entry for 3 April 1787).

Heilbron, J.L., 2000. Domesticating science in the eighteenth century. In Shea, W. (ed.). *Science and the Visual Image in the Enlightenment*. Cambridge, Science History Publications. Pp. 1-24.

Kinder, A.J., 1994. *Urania* in pursuit of *Clio*: sources for astronomical historians. *Journal of the British Astronomical Association*, 104, 81-85.

Kircher, A., 1641. *Magnes sive de Art Magnetica*. Rome, Grignani.

Nalezty, S., 2009. Giovanni Bellini's *Feast of the Gods* and banquets of the ancient ritual calendar. *Sixteenth Century Journal*, 40, 745-768.

Pearson, W., 1829. *An Introduction to Practical Astronomy, Volume 2*. London, Longman, Rees, Orme, Brown and Green.

Piazzi, G., 1802. *Della scoperta del nuovo pianeta Cerere Ferdinandea, ottavo tra i primarj del nostro sistema solare (Of the Discovery of the New Planet Cerere Ferdinandea, eighth among the primaries of our solar system.)* Palermo, Stamperia Reale. (The full text in English appears in Cunningham, 2001).

Piazzi, G., 1814. *Præcipuarum stellarum inerrantium positiones mediæ ineunte seculo XIX ex observationibus habitis in specula Panormitana ab anno 1792 ad annum 1813*. Palermo, Ex Regia Typographia Militare.

Proverbio, E., 1988. The third reduction of Giuseppe Piazzi's star catalogue. In Débarbat, S. (ed.). *Mapping the Sky: Past Heritage and Future Directions*. Dordrecht, Kluwer. Pp. 75-86.

Ripa, C., 1593. *Iconologia overo Descrittione Dell'imagini Universali cavate dall'Antichità et da altri luoghi*. Rome, Per gli Heredi di Gio. Gigliotti.

Rumstay, K.S., 2010. *Urania* in the marketplace: astronomical imagery in early twentieth-century advertising. *Bulletin of the American Astronomical Society*, 42, 216.

Serio, G.F., 1993. On the history of the Palermo Astronomic-

- al Observatory. In Linsky, J., and Serio, S. (eds.). *Physics of Solar and Stellar Coronae: G.S. Vaiana Memorial Symposium*. Dordrecht, Kluwer. Pp.21-34.
- Smyth, W.H., 1844. *Cycle of Celestial Objects. Volume 1*. London, John W. Parker.
- Spaeth, B., 1995. *The Roman Goddess Ceres*. Austin, University of Texas Press.
- Trimble, V., 2000. A hecatomb to *Urania*. *Bulletin of the Astronomical Society of India*, 28, 1-13.

Clifford Cunningham is a Ph.D. student in the Centre for Astronomy at James Cook University, Townsville, Australia. His prime interest in history of astronomy is the detection and study of the first four asteroids. His first book, *Introduction to Asteroids*, was published in 1988. In addition to authoring a four-volume work on asteroid history, he is editor of the *Collected Correspondence of Baron Franz Xaver von Zach*, of which seven volumes had been published by June 2011. Clifford has published papers on asteroidal history in this journal and in the *Journal for the History of Astronomy*, and has been a history of astronomy columnist for *Mercury* magazine since 2001.

Prior to his recent death, the late Brian Marsden was an Adjunct Professor in the Centre for Astronomy at James Cook University, and one of Clifford Cunningham's thesis supervisors. Before his retirement and accepting the James Cook Univer-

sity post Brian was a Senior Astronomer at the Smithsonian Astrophysical Observatory (SAO) in Cambridge (Mass.) where he specialized in celestial mechanics and astrometry, with particular application to comets and minor planets. He was the discoverer of the Marsden Group of sun-grazing comets. From 1987 to 2002 he was Associate Director for Planetary Sciences at the SAO, and was Director of the IAU Central Bureau for Astronomical Telegrams from 1968 to 2000 and Director of the Minor Planet Center from 1978 to 2006. During his long career in astronomy Brian had also served as President of IAU Commission 20 (Positions and Motions of Minor Planets, Comets and Satellites) and of Commission 6 (Astronomical Telegrams).

Dr Wayne Orchiston is an Associate Professor in the Centre for Astronomy at James Cook University in Townsville, Australia. He is a former Secretary of IAU Commission 41 (History of Astronomy) and has wide-ranging research interests that include Cook Voyage, Australian, French, Indian, Japanese, New Zealand and U.S. astronomical history. Of special interest are: the history of radio astronomy, comets, meteors, meteorites, minor planets, historically-significant telescopes and observatories, nineteenth century coronal science and eighteenth and nineteenth century transits of Venus.