

REFLECTIONS ON THE FARNESE *ATLAS*: EXPLORING THE SCIENTIFIC, LITERARY AND PICTORIAL ANTECEDENTS OF THE CONSTELLATIONS ON A GRAECO-ROMAN GLOBE*

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Abstract

In exploring the figures of the constellations on the celestial globe held by the so-called 'Farnese *Atlas*', this article reflects upon Ptolemy's comment that '...in many cases our descriptions [of the constellations] are different because they seem to be more natural and to give a better proportioned outline to the figures described'.¹ It suggests that, whereas most scholars writing on the history of constellation imagery tend to focus on two areas to support their findings—scientific data gleaned from early descriptions and depictions of the stars and iconographical details derived from Graeco-Roman mythology — more attention should be paid to the largely independent pictorial tradition that also helped to shape the heavens. By examining a wide range of visual sources, such as Greek vase painting, coins and sculptural reliefs, one can conclude that, in many cases, the role of the artist is neither as an inventor nor as a scientific draughtsman, but as a torch-bearer for the continuity of a specific set of widely accepted pictorial formulae. Working from this, I tentatively propose a new avenue of exploration for the mysterious grid-like figure on the Farnese Globe, often misidentified as the 'Throne of Caesar'.

Keywords

Farnese Globe, Ptolemy, constellational imagery, Graeco-Roman mythology, iconography.

* This essay is dedicated to the memory of my dear friend, Professor Henk van Bueren (1925–2012), astronomer, humanist and poète extraordinaire.

¹ Ptolemy *Syntaxis Mathematica / Almagest* VII, 4.

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The so-called 'Farnese *Atlas*', currently located in the Museo Archeologico Nazionale in Naples, is a Roman statue of a crouching male figure supporting a celestial globe, decorated with *bas-relief* figures of the constellations, on his back (Fig. 1). Despite the wealth of scholarly literature on this figure and its globe, the current state of research on the date of the statue and, more importantly, the date of the putative Greek model upon which it was based has not progressed significantly since the study published by Georg Thiele in 1898. In his study, Thiele proposed that the statue was a Roman copy of a Hellenistic original. He argued that both the iconography and the positioning of the constellations relative to the celestial circles showed that the globe was taken from a Hipparchan astronomical model that recorded an epoch of 128 BCE, whereas the style in which the figures were executed pointed to the kinds of artistic adjustments often made by Hellenophile Roman artisans.² More specifically, he believed that the *Atlas* was a Hadrianic copy of a Greek original and, therefore, could be dated to sometime between 117 and 138 CE.

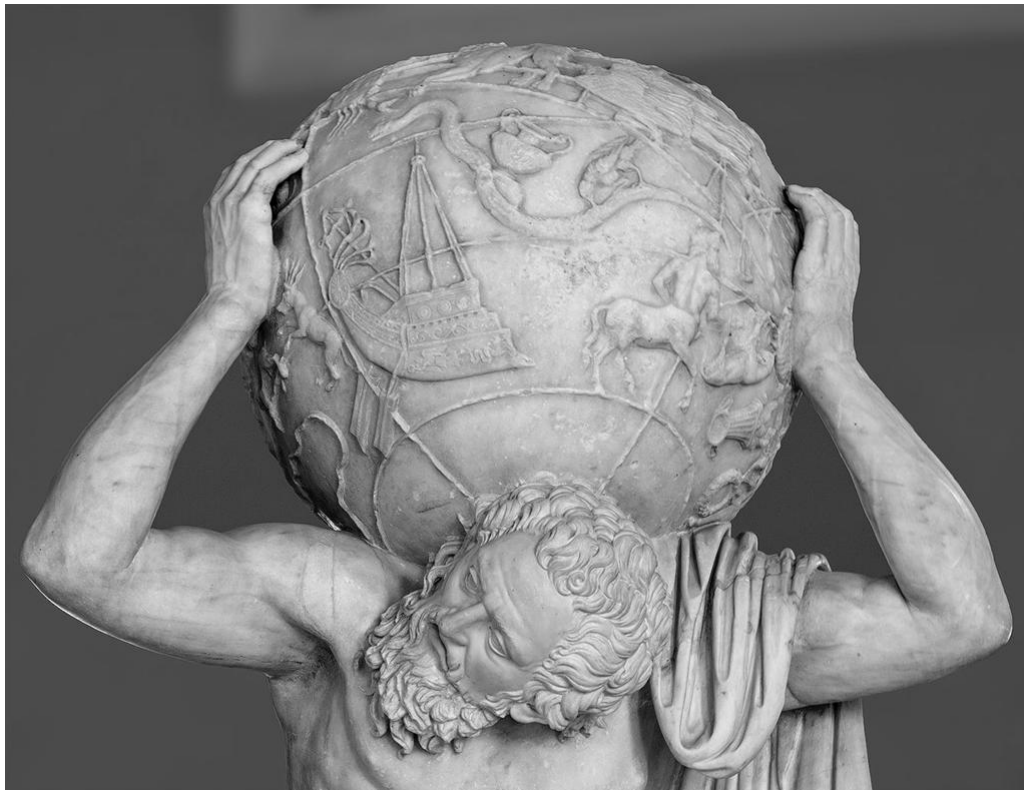


Figure 1. *Atlas* holding the celestial sphere (Farnese Globe) on his shoulders, marble, full height 191 cm, diameter of the sphere 66 cm. Inv. No. 6374, Museo Archeologico Nazionale, Naples. Photo: I.Sh, Creative Commons.

² Thiele 1898: 27-42.

In her study of the construction and iconography of the globe, Elly Dekker has shown that Thiele's instincts concerning the dating of the Farnese Globe and its putative model are largely correct, though she cautioned that it would be wrong to insist on a set of precise dates for either the model or its copy for a number of reasons.³ First, it is impossible to use the location of the equinoxes (the points of intersection between the vernal colure, the ecliptic and the equator) with respect to the stars to determine the epoch for which the globe was created, since the three celestial circles delineated on the globe do not meet at a single point, so there is no definitive zero-point from which to measure (Fig. 2). Faced with this reality, some scholars writing on the topic have assumed this lack of precision was intentional on the part of the globe-maker and that it provided a key to the date either of the model or its copy by recording precession data. Working through all the possible combinations proposed, however, Dekker clearly showed that none of the previous attempts to prove a hypothetical date or to tie the globe specifically to the Hipparchan or Ptolemaic epoch by astronomical means is scientifically robust. Moreover, the statistical attempts to analyse a larger body of 'data' collected from the globe in the hope of demonstrating that it was based on the legendary lost star-catalogue of Hipparchus were fundamentally flawed. In particular, the method and the conclusions employed by Bradley Schaefer⁴ have been well-refuted by Dennis Duke⁵ and Dekker herself.⁶



Figure 2. Detail of a copy of the Farnese Globe showing the intersections of the equinoctial colure, the celestial equator and the ecliptic. Roman, early twentieth century. Museo della Civiltà Romana, Rome.
Photo: Creative Commons.

³ Dekker 2013: 84-102 and 111-15.

⁴ Schaeffer 2005.

⁵ Duke 2006.

⁶ Dekker 2013: 94-98.

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Ancillary to the argument that the astronomy of the globe itself does not provide the information required to determine an exact date for its construction, is the warning, as Dekker has raised elsewhere,⁷ that a certain degree of caution should always be exercised when dating any scientific instrument to a particular epoch since it seems often to have been accepted practice for the makers of globes, armillary spheres, celestial maps, star tables and other scientific instruments, such as astrolabes, to rely on old, outdated astronomical data when constructing their otherwise new creations. The use of astronomical information without any supporting corollaries—signatures, materials, techniques of manufacture or stylistic analysis—can really only provide a reasonable *terminus post quem* as a dating tool.

From an art historical point of view, neither iconography nor the style in which the constellation figures have been carved offer any significant clues to a more definitive dating. It is worth pointing out that, whereas the forms of the constellations depicted on the Farnese Globe may have echoes of earlier Hipparchan elements, the details of several of the figures themselves are definitely Roman. For example, in the depiction of the Argo, the addition of a female figure on the prow of the ship could be an allusion to the figurehead identified as the ‘daughter of the speaking oak of Dodona’ through which Athena spoke to Jason several times during his journey, but its placement on the side of the hull is definitely a Roman invention.⁸ Dekker⁹ listed the major deviations in the details of thirteen figures on the globe from what one is able to establish as a ‘Hipparchan form’ from a close reading of Hipparchus’s *In Arati et Eudoxi Phaenomena Commentariorum*.¹⁰ She concluded that the differences neither deny nor confirm a Hipparchan original, proposing that the best one can argue at this stage is that the original model for the Farnese Globe postdates 138 BCE. For, as she observed,¹¹ once a globe leaves the strict confines of a mathematical instrument and enters into the world of an ‘artistic’ production, variation in the forms of the constellations becomes endemic, for:

Artists do not always follow faithfully the sources they are supposed to copy but create their own pictorial language and use traditions outside the astronomical context.

Indeed, as more critical research is carried out on the forms of the constellations in antiquity, it is becoming increasingly clear how large and varied the corpus of illustrations of the individual constellations available

⁷ Dekker 2005.

⁸ Lehmann and Lehmann 1973: 180-235; Casson 1971: 344-60 and figs. 125-27, 130, 132, 144, 146.

⁹ Dekker 2013: 97.

¹⁰ Hipparchus 1894.

¹¹ Dekker 2013: 97.

to artists working from the fourth century BCE onwards must have been.¹² As Dekker pointed out,¹³ Ptolemy himself testified to the fluidity of the tradition:

...the descriptions which we have applied to the individual stars as parts of the constellation are not in every case the same as those of our predecessors (just as their descriptions differ from their predecessors).¹⁴

Following on from the above, he went on to cite what we might call 'stylistic criteria' as the reason for many of these changes:

...in many cases our descriptions are different because they seem to be more natural and to give a better proportioned outline to the figures described.

Ptolemy's admission to having altered 'many' of the forms of the constellation figures in accordance with the stylistic conventions of 'naturalism' and 'better proportion' should be much more isconcerting to historians of science than it seems to have been to date. For, in essence, it somewhat subverts Pierre Duhem's theoretical construct of 'saving the phenomena' (σώζειν τὰ φαινόμενα/*sōzein ta phenomena*)¹⁵ in favour of E.H. Gombrich's observation¹⁶ that artists often tend to draw what they 'know', rather than what they 'see', with a nod to Michael Baxandall's socio-anthropological formulation of the 'period eye'.¹⁷ It also decisively moves the crux of the discussions about the early forms of the constellations away from the purely mathematical or scientific realm into the much less quantitatively prescriptive world of art history.

From the earliest known antique images of constellation figures onwards, three external influences regularly effect their depictions. The first is the mythological stories associated with each constellation, which can influence the way a constellation itself is depicted to such an extent that its form no longer bears any discernible relationship to the pattern of stars with which it was originally associated. As I have discussed elsewhere,¹⁸ whereas the constellation of Eridanus is clearly described by all the early astronomical sources as the 'segment of a river', it had already become pictorially transfigured into the figure of a river god or a depiction of the falling Phaethon by the first century CE.

One aspect of the on-going dialogue between texts and pictures often discussed by scholars of Hellenistic art is the extent to which contemporary theatrical productions may have influenced the

¹² Dekker 2013: 97-102; Lippincott 2009.

¹³ Dekker 2013: 101.

¹⁴ Ptolemy, VII, 4 [H 37], 1998 [1984]: 340.

¹⁵ Duhem 1908 / 1969.

¹⁶ Gombrich 1956: 3-25.

¹⁷ Baxandall 1972: 29-109.

¹⁸ Lippincott 2009.

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development of narrative painting and sculpture during the period.¹⁹ It has been argued, for example, that the sudden popularity of depictions of the story of Perseus and Andromeda on Sicilian and South Italian ('Italiote') vases painted during the middle years of the fourth century BCE is directly related to the appearance of at least two new plays dating to the period, both of which were entitled 'Andromeda': one by Sophocles (dating to c. 430 BCE) and the other by Euripides (first performed in 412 BCE). Both plays are now lost and exist only in fragmentary form.²⁰ The opening scenes of Euripides's 'Andromeda' are known from Aristophanes's parody of it in the *Thesmophoriazusae*, which was produced either a year after Euripides's play, or in 412 BCE. Furthermore, whereas some scholars have maintained a more sceptical view of the ability to tie these images directly to the plays and/or argued that it was actually a development in the taste for multi-scene renderings of literary tales that prompted this sudden proliferation of imagery,²¹ it is surely worth noting that the development of the multi-scene pictorial narrative coincided with the earliest-known Greek description of the heavens by Eudoxus. Given the fact that Sophocles's 'Andromeda' is mentioned in relation to the catasterism of Cassiopeia in the writings of ps-Eratosthenes,²² and references to both Sophocles and Euripides appear in Hyginus,²³ it does raise the question as to how an author of the period might have visualised the individual figures of the eternal celestial drama. The reader is repeatedly asked to 'imagine' the figure of Perseus, Andromeda, Hercules or Cassiopeia, but what exactly is it that we are being asked to imagine?

Ptolemy reminded us that the pictorial formulae used to represent a constellation figure evolved over time and he implied that the figures he described did not necessarily resemble those of previous generations owing to an increased interest and the presumed (by him) improved ability of artists to render figures more 'naturally' in his lifetime. If the pictorial formulae used to represent these figures do develop over time, how does this effect what one assumes to have been originally a close correspondence between the positions of the stars and the outline of a specific figure? With his use of the comparators of 'better' and 'more natural', Ptolemy's answer seems to have been that his formulations are to be preferred—not because he was the superior astronomer, but because *his*

¹⁹ Engelmann 1900; Peters 1904; Séchan 1926: 256-57; Woodward 1957; Schauenburg 1960; Phillips 1968; Green 1991: 42; Green and Hadley 1995: 39-40.

²⁰ Nauck 1899: 392; Collard, Cropp and Lee 2004; Klimek-Winter 1993, which also includes fragments from the Latin Andromeda-plays by Livius Andronicus, Q. Ennius and L. Accius.

²¹ Moret 1975; Small 2003.

²² Ps-Eratosthenes *Catasterismi* 16; Pearson 1917: 78-96.

²³ Hyginus *De Astronomia* II. 10; Viré 1992: 36-37.

placement of the stars within the figures that *he* imagines populating the heavens represented a pictorial improvement over those of the past.

One solace to this somewhat disconcerting admission is the third factor that should be taken into account when trying to uncover the imagined shapes of the early constellations. Throughout the Graeco-Roman period, there tended to be a certain consistency in the depiction of a wide range of figural types. Dolphins, bears, dogs, centaurs, hare, geese, crabs and eagles each developed characteristic forms very early on. These were widely reproduced and circulated through ‘portable’ media, such as ceramics (both finely painted vases and stamped terracotta vessels), coins, engraved jewels and mosaics, which were usually composed locally according to designs that circulated through model books (Figs. 3 and 4). There were also several sets of canonical postures for humans, such as the lunging male and the seated figure, and certain accepted conventions for representing a number of fantastic beings, such as sea monsters (Fig. 5), bearded snakes, the *protome* of a horse, a centaur and the winged horse, Pegasus. That is not to say that there was not ample scope for pictorial invention in antiquity, only that the majority of the images that would have been most widely available tended to rely on being recognisable—legible, if you like—by following certain pictorial formulae.



Figure 3. Wine-pouring vessel in the shape of a dolphin, from Eretria (Euboea), 33–310 BCE. Munich, Staatliche Antikensammlungen.

Photo: Christa Koppermann.

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Figure 4. Detail from a decorative border from Villa Selene, second century CE. Libya, nr. Leptis Magna.
Photo: Kristen Lippincott.



Figure 5. Detail of a Neireid riding Cetus on the cover of the Projecta Casket, from Rome, c. 380. London, British Museum.
Photo: © Trustees of the British Museum.

To take one test case in which all these pictorial elements have the potential to play a role, the fourth- and third-century BCE artistic renderings of the main protagonists of the story of Perseus and Andromeda (Perseus, Andromeda, Pegasus and Cetus) regularly bear a resemblance to depictions of these figures as constellations on the surviving globes from the first and third centuries CE, as well as in much later early-medieval manuscripts. The stylistic details may change, but the figures themselves

seem to have settled into a relatively consistent type. This is not the case, however, for the minor *dramatis personae* of the story: Cepheus and Cassiopeia. In the case of Cassiopeia, the main difference between the literary, 'artistic' Cassiopeia and the astronomical Cassiopeia is that the former is generally artistically rendered exhibiting one of three dramatic postures.

The first posture is holding the edge of her *himation*, as in the Apulian *oenichoe* from the second half of the fourth century in the Museo Nazionale in Naples,²⁴ in which Cassiopeia is depicted in the lower right, facing towards the central scene. She is seated in profile and holds her *himation* with her right hand as if to draw it closer, while her left hand rests on the invisible seat of her chair.²⁵

The second posture is the act of mourning, using the formulaic gesture of resting her cheek on her hand. Sometimes Cassiopeia is seated alone and other times she is accompanied by a female attendant. The Apulian *lutrophotos* in the Collezione Costantini in Fiesole is attributed to the Baltimore Painter and depicts Cepheus with a sceptre and Phrygian cap seated to the right and Cassiopeia to the left of a bound Andromeda set within a cave. Cassiopeia sits facing to the right and inclines her head so that it rests on her left hand, displaying the canonical 'mourning' posture. She is surrounded by the wedding/funeral gifts, including a *cistus* near her head, and attended to by a female figure holding an open jewellery box.²⁶

In the *lutrophoros* by the Darius Painter from Canosa (third quarter of the fourth century BCE),²⁷ Cassiopeia is placed to the left of the central scene of Andromeda, seated in profile, and attended by a female slave, who holds a sun parasol over the queen's head. Cassiopeia is depicted slumped forward with her head resting on her right hand, again demonstrating the 'mourning' posture.²⁸

Cassiopeia exhibits a similar posture in the fragments from an Apulian amphora from Ruvo in the University Museum of Halle, which is also by the Darius Painter and dates to the third quarter of the fourth century. They show Cassiopeia in a slight variant of the 'mourning' posture, holding her right hand to her cheek. She is seated on a wooden throne, with her legs crossed at the ankle.²⁹

²⁴ Naples, Museo Nazionale, inv. no. Stg. 318.

²⁵ Engelmann 1900: 73; Séchan 1926: 263, fig. 83; Phillips 1968: 9 and pl. 9, fig. 21.

²⁶ Schmidt, Trendall and Cambitoglu 1976: 56 n. 5; Saladino 1979: 104 and figs. 7-9; and *Corpus vasorum antiquorum* 1980: 19-20 and pls. 20.2 and 21.1-3.

²⁷ Naples, Museo Nazionale, inv. no. H. 3225.

²⁸ Séchan 1926: 259, pl. VI; Rocco 1953: esp. pp. 173ff., and pls. 81-82; Schauenburg 1960: 59 n. 396 and pl. 24, fig. 2; Phillips 1968: 10 and pl. 10, fig. 24.

²⁹ Engelmann 1900: 143-51 and pl. 9; 64; Séchan 1926: 260-61 and fig. 79; Phillips 1968: 12 and pl. 12, figs. 34-36.

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The upper part of her female attendant is lost, but she may have been holding a parasol or fan.

A third example of a sun-shaded Cassiopeia appears on the *pelike* now in the Museo Nazionale in Naples.³⁰ Originally from Arentum, it has been attributed to a follower of the Darius Painter and dates to the third quarter of the fourth century BCE. Here, the shaded Cassiopeia looks upwards towards her maid. Her hand has just dropped from her cheek, while her left forearm rests on the back of her wooden throne.³¹

Cassiopeia's third posture is pleading with Andromeda to forgive her. The red-figure *pelike* attributed to the Darius Painter in the Getty Museum in Malibu was painted c. 340–330 BCE.³² It depicts a mature woman on her knees with the outstretched arm of a suppliant. Her hair is covered as befits her matronly status. The seated figure, to whom she is appealing, wears a crown and appears, from her hair style, to be younger. She sits in right profile in a wooden chair and holds her left hand up to her chin—as if considering a proposition. The otherwise unusual postures of these two figures would make them difficult to identify, but luckily the painter has labelled them: the suppliant is labelled 'ΚΑΣΣΙΟΠΕΙΑ', and the seated, younger woman is 'ΑΝΔΡΟΜΕΔΑ'.³³

The astronomical Cassiopeia follows none of these models. Although Louis Séchan and J.R. Green have discussed the different emotional responses expressed by Cassiopeia,³⁴ it is difficult to determine from the surviving fragments in Hipparchus's commentary how Eudoxus envisioned Cassiopeia.³⁵ Nevertheless Aratus (408–355 BCE) was clear in his description of her. He stated that she was seated in a chair and noted that she sat with her feet pointing to the zenith and her head towards the horizon:

Also, sorrowful Cassiopeia [*sic*] herself hurries after the image of her daughter; but the part of her seen in the chair, feet and knees uppermost, is no longer comely: she goes down head first like a tumbler, having her own share of trouble, for she had no hope of being a rival to Doris and Panope without severe penalty.³⁶

³⁰ Naples, Museo Nazionale, inv. no. Sant'Angelo 708.

³¹ Séchan 1926: 259-60 and fig. 77; Schauenburg 1960: 59 n. 397 and pl. 23; Phillips 1968: 10 and pl. 10, fig. 25 and pl. 11, fig. 26.

³² Malibu, J. Paul Getty Museum, inv. no. 87. AE.

³³ Acquisitions 1987: 144, no. 8 [ill.]; Trendall and Cambitoglou 1991, no. 18/69a.

³⁴ Séchan 1926: 258-72; and Green 1994: 22-26.

³⁵ Hipparchus 1894: 16-17, 54-57, 112-13, 166-69, 170-71 [I, ii, 15; I, v, 2-3; I xi, 1; II, iii, 4 and II, iii, 10].

³⁶ Aratus 1997: 120-21, vv. 653-58.

Not only is Cassiopeia seated, but Aratus summoned a particularly potent simile when describing the structure of her posture:

only a few zig-zagging stars adorn her, giving her all over a distinct outline. Like
to a key with which men attacking a double door barred on the inside knock back
the bolts,...³⁷

This description of the pattern of Cassiopeia's stars marking a shape of a key has regularly misled scholars unaware of the intricacies of Greek clavology and, perhaps, overly reliant on the modern convention in which Cassiopeia's stars are seen as forming a distinctive 'W' or 'M' in the night sky (Fig. 6).³⁸ For example, Jean Martin translated the passage as:

*Semblables à la clé dont on heurte une porte à deux battants, verrouillée de
l'intérieur, pour tirer les barres, ainsi apparaissent, isolées, ses étoiles.*³⁹

He also suggested that there were six stars used by Aratus to define the constellation (α , β , γ , κ , δ and ϵ), while noting that the two dimmer stars of this group (κ and ϵ) would certainly not be visible when the Moon was full. Both Victor Buescu⁴⁰ and Jean Soubiran⁴¹ repeat the idea that Cassiopeia's stars are '*en forme de W*' in the night sky in their notes to Cicero's Latin translation of the *Phaenomena*.

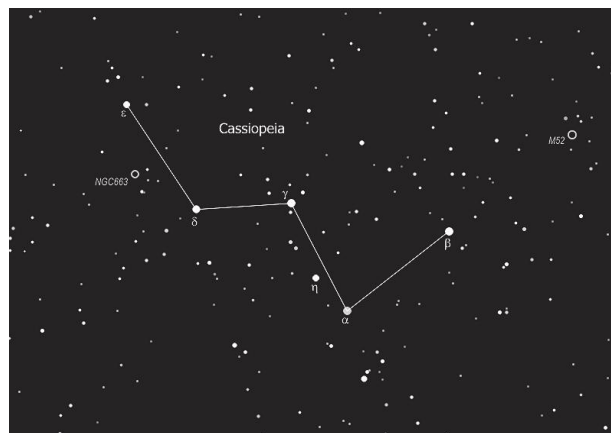


Figure 6. Modern sky mapping of the stars of Cassiopeia.
Image: Creative Commons.

³⁷ Aratus 1997: 86-87, vv. 190-93.

³⁸ Aratus 1997: 252-54.

³⁹ Aratus 1998: 12 and 240-42

⁴⁰ Cicero 1966: 188-89.

⁴¹ Cicero 1972: 202.

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This confusion regarding the shape of Cassiopeia may also stem from the fact the classical sources do not appear to be entirely consistent in their description of the stars forming the constellation. In his Commentary on the *Phaenomena*, Hipparchus cited six stars—five of which formed a zigzag not unlike the one described by Aratus resembling a Greek ‘temple key’.⁴² As Hipparchus’s nineteenth-century editor, Karl Manitius, noted, there is a slight problem in the consistency of Hipparchus’s description of the star in the ‘seat of the throne’, which he first describes as ‘small’, but later says is ‘bright’ and is the first star of *Cassiopeia* to rise. Manitius suggested the κ Cas could be the small one Hipparchus saw ‘in the seat’ of the throne, but the identification of the ‘bright’ star in the seat with β Cas was unlikely as it is not the first star in the constellation to rise. The use of ‘bright’ in this second instance probably reflects an early scribal error.

As was amply demonstrated by Hermann Diels in 1897, Aratus’s original reference to a ‘key’ (ἡ κλείς) would have most likely indicated a so-called ‘temple key’ (ἡ κληῖδ’ εὐκαμπέα), which has a very distinctive shape. Citing more than a dozen examples provided in early vase paintings and carved reliefs, Diels showed how the structure of an early Greek temple key formed a zig-zag pattern with two bends (Figs. 7 and 8).⁴³ To this list, one might also add the key that was dropped by Pythia in the late fourth-century Apulian volute-krater from Ruvo in the Museo Archeologico in Naples.⁴⁴ Furthermore, as was first pointed out by Albert Schott and Robert Böker,⁴⁵ and more recently by Kidd,⁴⁶ the zig-zag line that links the four stars of α, γ, δ and ε Cas exactly mimics this shape. Drawing attention to the antiquity of Aratus’s simile, Kidd⁴⁷ notes the clear echo of Homer and his description of Penelope using a ‘temple key’ to knock back the interior bolts holding closed the two wings of a door.⁴⁸

⁴² Hipparchus 1894: 114-15, 192-93, 202-203, 204-205, 208-209, 228-29, 230-31, 278-79 [I, xi, 1; II, v, 9; II, vi, 2; II, vi, 4; II vi, 9; III, i, 12; III, i, 13 and III, v, 17].

⁴³ Diels 1897: 123-35 and 1914/1920: 39-46.

⁴⁴ Carpenter 1991: fig. 356; Waldstein 1905: II, pl. 133, no. 2722; and Kunze and Schleif 1944: 166, pl. 72b.

⁴⁵ Böker 1958: 61.

⁴⁶ Aratus 1997: 252-54.

⁴⁷ Aratus 1997: 253-54.

⁴⁸ *Odyssey*, φ [XXII], vv. 47-50.

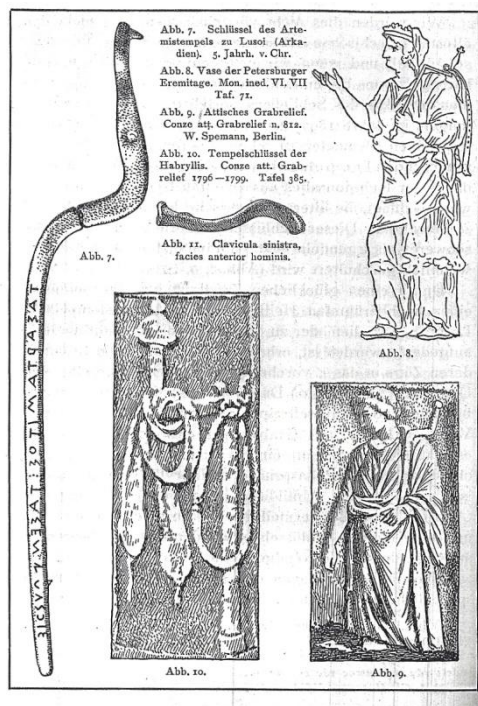


Figure 7. Hermann Diels's 1897 drawing showing how the structure of an early Greek temple key formed a zig-zag pattern with two bends.
Image: Diels 1914: 40, figs. 7-10.

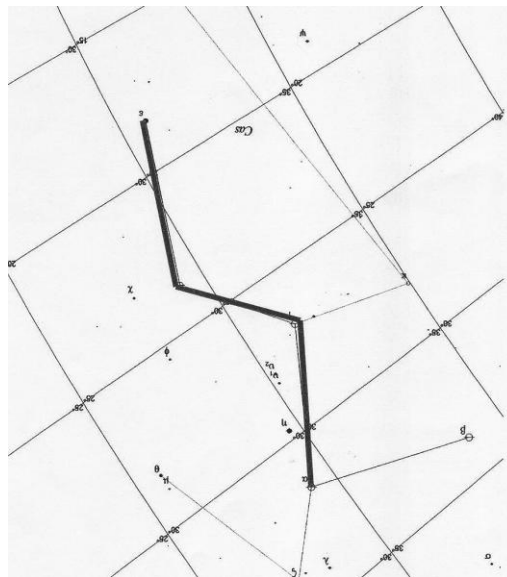


Figure 8. Sky map of the figure of Cassiopeia, with one possible position for her arms.
Image: Kristen Lippincott.

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In his translation of the *Aratea*, though, Germanicus (15 BCE–19 CE) imagined a very differently shaped key with iron teeth:

...qualis ferratos subicit clavicula dentes
succutit et foribus praeducti vincula claustris,
talis disposita est stellis.

('Their disposition resembles a key whose iron teeth are placed under the bar before a pair of doors to remove it'.)⁴⁹

The Greek temple key of Aratus and, apparently, Hipparchus does not have 'teeth', but the description provided by Germanicus does seem to reflect the fact that shapes of Roman keys were very different from Greek ones in that they often had extended 'teeth' that could be described as forming either a 'W' or 'M' shape (Figs. 9 and 10). Again, one is presented with a puzzle: the analogy suggests that Germanicus 'sees' a slightly different shape underpinning the form of the constellation of Cassiopeia. But do these small differences reflect developments in astronomy, literature, pictorial traditions or a simple change in the shape of a household object? Finally, Aratus mentions that:

She extends her outstretched arms just from her small shoulders: you would say she was grieving over her daughter.⁵⁰

From this, it is easy for the reader to begin to visualise the form of a seated female figure, with each of her arms outstretched to the side, with the possibility (though by no means certainty) that the stars θ and β Cas could be imagined as defining the position of her outstretched arms.

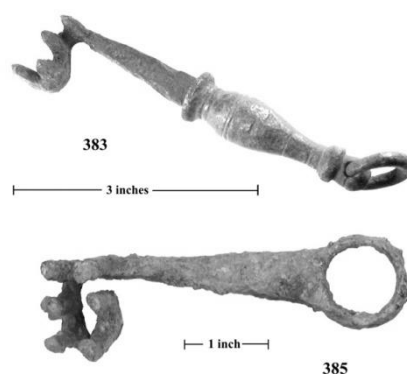


Figure 9. Roman keys with raised teeth. From <http://romanlocks.com/Keys>
[Long keys, Pin Tumbler images, nos. 383 and 385].
Photo: © Don Jackson, 2014.

⁴⁹ Germanicus 1976: 27 and 58, vv. 196-97.

⁵⁰ Aratus 1997: 86-87, vv. 195-96.



Figure 10. Roman keys with 'W'-shaped teeth. From <http://romanlocks.com/Keys> [Long keys, Pin Tumbler images, nos. 268, 197 and 264].
Photo: © Don Jackson, 2014.

One would hope that this outline would coincide with contemporary depictions of the 'sorrowful' mother; but, after a relatively thorough study of images of Cassiopeia created between the fourth century BCE and the second century CE, I have found only one image of a female figure featured in a rendering of the Perseus and Andromeda story that comes close to the figure described by astronomers and depicted on antique globes, such as that held by the Farnese *Atlas* or the Mainz or Kugel globes (Figs. 12 and 13). In the red-figure *hydria* from Campania datable to the second quarter of the fourth century BCE and now in Staatliche Museen, Berlin (Fig. 11),⁵¹ there is a central depiction of Andromeda framed by a seated male figure on the left and a seated female on the right. The female figure sits in profile, faces to the left and raises both hands to her face as if about to cover her eyes. Somewhat frustratingly, however, a number of scholars have argued that this figure does not represent Cassiopeia; and even if she did, it must be admitted that she does not, strictly speaking, hold her arms 'outstretched... just from her small shoulders...grieving over her daughter' as Aratus prescribed. Numerous scholars have discussed the identity of the figures on this vase at length.⁵² Most have identified the male figure as Cepheus and the corresponding female figure as Cassiopeia. Some, however, have suggested one of the other elderly male characters in the story, the sea-gods Poseidon or Nereus—though one would expect these to hold a trident as an attribute were that the case. If the male figure were a marine deity, then the female deity might be Doris, mother of the Nereids. As a possible comparator for this alternate identification, one could cite the

⁵¹ Berlin, Staatliche Museen, inv. no. 3238.

⁵² Brommer 1955: pl. 2; Séchan 1926: 260 and fig. 78: 'qui est vraisemblable Cassiopé, malgré son air de jeunesse'; Phillips 1968: 12 and pl. 13, fig. 37; and Trendall 1967: I, 227-28; II, 89, figs. 1-6.

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third-quarter of the fourth century BCE calyx-krater by the Darius Painter in the Matera Museum.⁵³



Figure 11. Detail of the figure of Cassiopeia (?) from the Perseus and Andromeda scene from a red-figure Campanian *hydria*, mid-fourth century BCE. Berlin, Staatliche Museen.

Photo: Kristen Lippincott.



Figure 12. Detail of Cassiopeia on the Farnese *Atlas*. Museo Nazionale Archeologico, Naples.

Photo: Kristen Lippincott.

⁵³ Phillips 1968: 10 n. 73 and pl. 10, fig. 27 and pl. 11, figs. 28-29.



Figure 13. Detail of Cassiopeia from the Kugel Globe.
Photo: Galerie J.Kugel, Paris.

The fact that the astronomical form of Cassiopeia seems not to reflect contemporary iconographic models edges one towards the hypothesis that her original form in the skies was based on a more generic, early pictorial formula of a woman seated in a chair with her arms extended, rather than with the specific actions allotted to the Ethiopian queen. In the same way that the dolphins, sea-monsters, bears, dogs, and so on, represent transmissions through a well-known and widely shared pictorial vocabulary, so one is able to find numerous examples of seated women with their arms extended in all the major and minor arts. And although none of these can be associated with the mythological figure of Cassiopeia, each depicts a variant of the predominant artistic convention for representing any seated figure in early Greek art: showing the figure with his or her hips presented in profile and, often, with the lower legs crossed at the ankle or one foot slightly in advance of the other. From the mid-torso upwards, the figure appears to twist so that the shoulders are presented parallel to the picture plane. Both shoulders are usually visible, as is the entire length of both arms. The head is then most often twisted back either to the right or left to a full or three-quarters profile view, usually facing the same direction as the legs. Anatomically difficult, the postures displayed by these figures demonstrate a form of artistic rendering in which each of the individual body parts is depicted in what Gombrich has described as 'its most characteristic angle'.⁵⁴ Heads and legs are seen in profile; the torso and shoulders are presented straight-on. The line defining the overall posture of

⁵⁴ Gombrich 1978 [1950]: 34-36, esp. 35.

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such a seated figure is a zig-zag: formed (starting with the head) by a vertical line, which bends nearly at right angles at the hips, and then bends again towards the vertical at the knee. This final line runs straight to the feet.



Figure 14. Detail of *The Apotheosis of Homer*, signed by Archelaos of Priene, c. 225–205 BCE. London, British Museum.
Photo: © Trustees of the British Museum.

To cite just three examples representing different media: in the marble relief of *The Apotheosis of Homer*, signed by Archelaos of Priene and dating to 225–205 BCE, now in the British Museum (Fig. 14),⁵⁵ the first and fourth Muses—possibly Clio and Erato⁵⁶—are seated with one of more of their arms raised in a manner that is notably close to the depictions of Cassiopeia on the Farnese and Kugel globes (Figs. 12 and 13). There is also the fragmentary, but still intriguing, figure of Cassiopeia, which echoes this posture in the sculptural grouping of Perseus and Andromeda in the Capitoline Museum in Rome. In vase paintings, the numerous figures representing gift-bearing female funeral attendants or ladies at their toilet provide suitable analogues—for example, the seated female figures along the bottom of the body of the late-classical Apulian terracotta, red-figure volute-krater

⁵⁵ London, British Museum, inv. no. 1819.0812.1.

⁵⁶ Robertson 1975: 562-65.

attributed to the 'Group of New York', c. 340–320 BCE⁵⁷ and the seated female figure between youths in the Apulian column-krater of 360–340 (Fig. 15).⁵⁸



Figure 15. A seated female figure between youths in the Apulian column-krater of 360–340. New York, Metropolitan Museum of Art. Photo: Kristen Lippincott.

In coins and gems, several depictions of female allegorical figures, such as Victory, Plenty or Concord, show a seated female with one hand extended and the other raised to hold the back of her throne. This last example foreshadows the numerous medieval manuscript illustrations of Cassiopeia stemming from the Arabic translations of Ptolemy's *Syntaxis mathematica/Almagest* and continued in the various Latin versions and adaptations of the so-called 'Sufi latinus' (Fig. 16). Again, all these examples show that the astronomical rendering of Cassiopeia is not derived from iconographic sources tied to literary descriptions of the queen, but from a simple pictorial formula of a 'seated female figure'. In this case, 'type', as it were, overrides her identification specifically as Cassiopeia.

⁵⁷ New York, Metropolitan Museum of Art, inv. no. 17.210.240.

⁵⁸ New York, Metropolitan Museum of Art, inv. no. 06.1021.215.

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Figure 16. Cassiopeia from Gotha, Forschungsbibliothek, Membr. II. 141, fol. 12r (*Sufi latinus*). Image: Creative Commons.



Figure 17. Detail of Hercules from Bentley-Foulkes map. Marcus Manilius, *Astronomica*, ed. R. Bentley, London, 1739. Photo: Kristen Lippincott.

A similar disjunction occurs when one compares the astronomical figure of Hercules with contemporary artistic representations of the demi-god. The identification of the constellation which Hipparchus, Aratus, Germanicus and Cicero call ‘the Kneeler’ (Ἐν γόνασιν, *Engonasin*, *Nixus/ Nisus*, *nixus genu species* and *innixus*)⁵⁹ is clearly depicted as kneeling on the Farnese Globe (Fig. 17). His identification as ‘Hercules’ first appears in the mythographic writings of ps-Eratosthenes⁶⁰ and, later, in those of Hyginus.⁶¹

When one surveys Greek, Roman and even early Christian representations of the many episodes of Hercules’s life and twelve heroic deeds, however, he is almost never depicted kneeling. He is often shown lunging, with his leading knee slightly bent or, sometimes, he rests one knee on the back of the Ceryneian Hind. One could cite, for example, the depiction of the twelve labours of Hercules on the third-century sarcophagus panel from the Ludovisi Collection in the Museo Nazionale di Roma,⁶² the version in the Museo delle Terme in Rome, or the depiction in the early third-century mosaic from Liria (Valencia) in the Museo Arqueológico in Madrid.⁶³ He also sometimes leans on the back of the back of the Cretan Bull, as in the depiction of Hercules and the Bull in the mosaics in Volubilis or on the coils of the Lernean Hydra, such as on the panels in the aforementioned depiction in the Museo Arqueológico in Madrid, while holding the other leg outstretched (Fig. 18). There are remarkably few examples, however, in which the hero actually sinks to his knees. One is where Hercules battles almost head-to-head with the Nemean Lion, such as one sees on the Attic black-figure lip cup attributed to the Workshop of the Phrynos Painter, c. 550 BCE in the Getty Museum,⁶⁴ the Attic terracotta water jar attributed to the Aegisthus painter, c. 470 BCE, in the Getty Museum (Fig. 19),⁶⁵ and the similar Attic red-figure *stamnos*, attributed to the Kleophrades painter, c. 140 BCE, in the University of Pennsylvania Museum, Philadelphia. Another is the figure of Hercules watching the Stymphalian Birds,⁶⁶ and a third example is the figure of Hercules, identifiable by his lion-skin cap, in the late Archaic, eastern pediment from the Temple of Aphaia II (510–470 BCE) from Aigina, now in the Glyptothek in Munich.⁶⁷

⁵⁹ LeBoeuffle 1977: 100-102.

⁶⁰ Ps-Eratosthenes, *Catasterismi* IV.

⁶¹ Hyginus, *De astronomia* II.6.

⁶² Palazzo Altemps, inv. 8642.

⁶³ Madrid, Museo Arqueológico, inv. 38.315.

⁶⁴ Malibu, J. Paul Getty Museum, inv. no. 96. AE. 91.

⁶⁵ Philadelphia, University of Pennsylvania Museum, inv.no. 86. AE. 230.

⁶⁶ Weitzmann 1947: fig. 11.

⁶⁷ Boardman 1993: 51-53, no. 38.

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Figure 18. Detail of Hercules on the coils of the Lernaean Hydra from the *Twelve Labours of Hercules*, Roman, third century CE. Madrid, Museo Arqueológico. Photo: Kristen Lippincott.

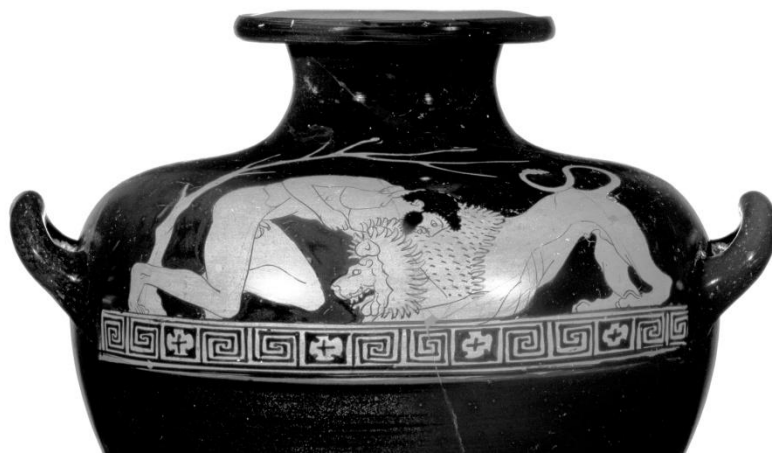


Figure 19. Hercules and the Nemean Lion, Attic terracotta water jar attributed to the Aegisthus painter, c. 470 BCE. Malibu, CA, The J. Paul Getty Museum (inv.no. 86. AE. 230). Digital image courtesy of the Getty's Open Content Program.

In the vast majority of the images of the hero, though, he is depicted as standing. Again, one is tempted to argue that the visual model for the figure we now call 'Hercules' was based on a generic formula for a kneeling man (such as one sees in the figure of a warrior on the Athenian *kylix* seen from the back, attributed to Cavius and found in the Agora at Athens, c. 510 BCE, now held in the Allard Pierson Museum in Amsterdam).⁶⁸ Despite the fact that the 'Kneeler' is specifically identified as Hercules by later mythographers, the pictorial tradition of a kneeling man is maintained over a

⁶⁸ Amsterdam, Allard Pierson Museum, inv. no. 591.

text-derived (or iconographic) one associated with the hero. This may be one of the reasons why the astronomically nonsensical addition of the serpent curled in the tree is added to the constellation in later manuscript images of it, since, even if 'a kneeling man' were to hold a lion's pelt and a club, there would be nothing in his posture to identify him specifically as Hercules. Aside from those narrative elements that are used to signal the identification of a male figure as Hercules, the only attribute that seems unique to him in the early classical depictions of the demi-god is his wearing of the Nemean Lion's head as a kind of hood, with the front paws wrapped around his neck and shoulders like a scarf. Intriguingly, though, the image of Hercules wearing the Lion's head seems never to appear in astronomical imagery prior to early Renaissance manuscript depictions of the hero.

If nothing else, this marked disparity between the 'iconographic' representation of characters from the Greek and Roman myths and the shapes and postures of the surviving classical descriptions and depictions of the constellation figures should serve as an alert, if not a warning. It suggests two things: first, that it is quite easy for academics in all disciplines to overlook the fact that most practising artists rely on existing pictorial models, conventions and styles as the basis for their own artistic creations. Those periods in the history of art—or, as Gombrich would say, in the 'history of artists'—in which a truly new way of looking at the world emerges are exceedingly rare. Pictorial formulae are so well engrained in the artist's training and experience that it can often take generations to accommodate or absorb new iconographic models or, even, the sorts of mathematical constructs demanded by the rigours of incorporating astronomical co-ordinates or single-point perspective. Second, when any author evokes a visual metaphor, it is prudent for the modern scholar to question the extent to which the imagery itself may have been conditioned by what the author 'knew', rather than what we might 'see'. As with the case of the Greek temple key, our assumption that we share an innate understanding of the details of daily life with our predecessors can be surprisingly misleading.

In pursuing this idea that the pictorial language of the past can be somewhat exclusive, one might reconsider one other detail of the Farnese Globe. In her study of the globe, Dekker,⁶⁹ citing the previous literature and arguments, succeeded in putting to rest the suggestion that one could date the Farnese Globe by identifying the grid shaped object, which appears to the north of Cancer, as the 'Throne of Caesar', and/or connect it to the well-known appearance of a comet at the funeral

⁶⁹ Dekker 2013: 88-91.

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games of Julius Caesar in 44 BCE (Figs. 20 and 21). As Dekker pointed out, it is astronomically impossible that a comet could have been observed in that part of the sky in either March (the date of Caesar's death) or in July 44 BCE (the date of the funeral games).



Figure 20. Detail of the grid-like object on the Farnese Globe.
Museo Nazionale Archeologico, Naples.
Photo: Kristen Lippincott.

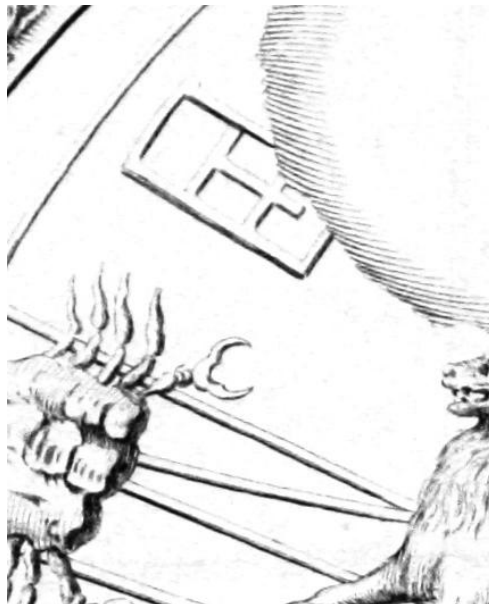


Figure 21. Detail of the grid-like object from the Bentley-Foulkes map.
Marcus Manilius, *Astronomica*, ed. R. Bentley, London, 1739.
Photo: Kristen Lippincott.

Pictorially, the grid does not resemble any known depiction of a comet or asterism. Thiele was the first to suggest, tentatively, that the grid might represent either a Greek or a Roman throne,⁷⁰ but the truth of the matter is that it does not look like a throne either. Nor do the arguments that it represents a curule seat (*sella curulis*) bear much weight⁷¹, as the two major identifying features of the seat—its characteristic X-shaped frame and curved legs— are lacking (Fig. 22).



Figure 22. *Sella curulis*. Museo nazionale di Villa Guinigi, Lucca.
Photo: Kristen Lippincott.

If one considers the object from a pictorial point of view, it most closely resembles the sculptural rendering of a window, door or gate, such as depictions on the reverse of Roman Imperial coins showing the closed door to the temple of Janus or the *Ara Providentiae* Augustae in Rome or, as in Figure 23, the door to the House of Augustus. It also recalls the false doors or so-called ‘gates to eternity’, common on Roman sarcophagi in Asia Minor; or, even, surviving examples of Roman folding doors, such as the false doors from a Roman sarcophagus in the Kütahya Museum of Archaeology in Turkey or the fossilised wooden folding doors from the first century CE taken from the Villa of Mysteries in Pompeii.

⁷⁰ Thiele 1898: 41.

⁷¹ Kunzl, Fecht, and Greff 2000: 535.

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Figure 23. Reverse of an aureus celebrating Augustus, showing the door of Augustus' house between laurel trees, with the *corona civica* above.
 Lucius Caninius Gallus, moneyer, mint of Rome, 12 BCE.
 London, British Museum. Photo: © Trustees of the British Museum.

One other close visual similarity is with the mysterious gate-like object known as the δόκανα (*dokana*), the precise significance of which remains the subject of debate, though its connection to doors, tomb entrances and gates seems fairly widely accepted (Fig. 24). Plutarch relates in his *De fraterno amore* that:

The ancient representations of the Dioscuri are called by the Spartans 'beam-figures' (δόκανα): they consist of two parallel wooden beams joined by two other transverse beams placed across them; and this common and indivisible character of the offering appears entirely suitable to the brotherly love of these gods.⁷²



Figure 24. Votive relief of Argemidas in Verona, second century BCE.
 Verona, Musei Maffeiano.
 Image: Waites 1919: 1, fig. 1, from Maffei 1749: fig. 7.

⁷² Plutarch *Moralia* VI,478A; 1939: 246-47.

Beyond this, however, the *dokana* seems to have some connection to the cult of the Dioscuri that was specifically associated with death, perhaps in connection with the Twins' role as *psychopompi*, or 'guardians between the two worlds, protectors of the living, companions also of the dead'.⁷³ There are also a number of portable lead amulets or talismans of the *dokana* that have survived (Fig. 25), and aspects of the cult appear to have spread fairly widely throughout the Mediterranean.⁷⁴

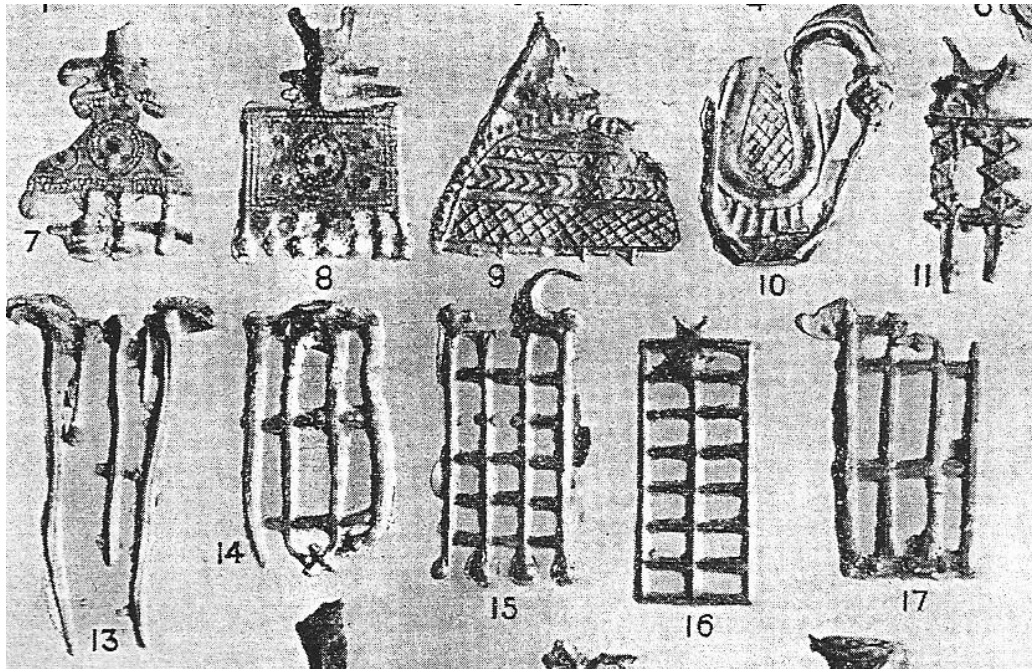


Figure 25. Various lead *dokana* amulets.
Image: Artemis Orthia 1929: pl.CLXXXV.

If the grid-like object of the Farnese Globe is a door, a gateway or is even somehow related to the cult image of the *dokana*, it does still not explain why any of these would appear on a celestial globe or why such a portal might appear near the zodiacal constellation of Cancer. Astronomically, this portion of the sky is relatively empty and, as Dekker has pointed out, it provides a convenient space where ancillary information, such as magnitude tables or dedication cartouches, can be and often are placed by the artists of later western celestial globes.⁷⁵ The most likely explanation is that the grid-like object is the remnant of some non-astronomical insertion. Having said that, if this grid is

⁷³ Waites 1919; Nilsson 1940: 68-69; Pipili 1987; and *LIMC*, 'Dioscuri: A (*dokana*)', 1986: III, 586-87.

⁷⁴ I thank David Hibler for his conversations with me on this subject.

⁷⁵ Personal correspondence, 18 August 2013.

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intended to represent a portal, then one might mention the well-known astrological formulation of Cancer and Capricorn as the gates of birth and death. Allegedly developed from the positions of these two zodiacal constellations defining the summer and winter solstices, the notion traces its textual authority to Pythagoras and to Plato's 'Cave of the Nymphs'. What this myth meant to the early Greeks is not clear, but to later commentators on Plato's text, such as the third-century CE neo-Platonist, Porphyry, in his *On the Cave of the Nymphs*, the astrological aspect of the trope comes to the fore:

Theologians therefore assert, that these two gates are Cancer and Capricorn; but Plato calls them entrances. And of these, theologians say, that Cancer is the gate through which souls descend; but Capricorn that through which they ascend. Cancer is indeed northern, and adapted to descent; but Capricorn is southern, and adapted to ascent. The northern parts, likewise, pertain to souls descending into generation. And the gates of the cavern which are turned to the north are rightly said to be pervious to the descent of men; but the southern gates are not the avenues of the Gods, but of souls ascending to the Gods. On this account, the poet does not say that they are the avenues of the Gods, but of immortals; this appellation being also common to our souls, which are *per se*, or essentially, immortal. It is said that Parmenides mentions these two gates in his treatise 'On the Nature of Things', as likewise that they are not unknown to the Romans and Egyptians.

...with the Egyptians, the beginning of the year is not Aquarius, as with the Romans, but Cancer. For the star Sothis, which the Greeks call the Dog, is near to Cancer. And the rising of Sothis is the new moon with them, this being the principle of generation to the world. On this account, the gates of the Homeric cavern are not dedicated to the east and west, nor to the equinoctial signs, Aries and Libra, but to the north and south, and to those celestial signs which towards the south are most southerly, and, towards the north are most northerly; because this cave was sacred to souls and aquatic nymphs.⁷⁶

In his notes to the passage, Thomas Taylor cited similar descriptions in the *Commentarii in Somnium Scipionis* of Macrobius:

Pythagoras thought that the empire of Pluto began downwards from the milky way, because souls falling from thence appear to have already receded from the Gods. Hence he asserts that the nutriment of milk is first offered to infants, because their first motion commences from the galaxy, when they begin to fall into terrene bodies. On this account, since those who are about to descend are yet in *Cancer*, and have not left the milky way, they rank in the order of the Gods. But when, by falling, they

⁷⁶ Porphyry 1917: 27-29.

arrive at the *Lion*, in this constellation they enter on the exordium of their future condition. And because, in the *Lion*, the rudiments of birth and certain primary exercises of human nature, commence; ...As soon, therefore, as the soul gravitates towards body in this first production of herself, she begins to experience a material tumult, that is, matter flowing into her essence. And this is what Plato remarks in the *Phædo*, that the soul is drawn into body staggering with recent intoxication; signifying by this the new drink of matter's impetuous flood, through which the soul, becoming defiled and heavy, is drawn into a terrene situation. But the starry *cup* placed between Cancer and the Lion is a symbol of this mystic truth, signifying that descending soul's first experience intoxication in that part of the heavens through the influx of matter.⁷⁷

The formulae can also be found in Macrobius's *Saturnalia*⁷⁸ and in Helpericus of Auxerre's *De computo*.⁷⁹ It is certainly unwise to insist that the neo-Platonic interpretation of an early Greek myth has any bearing on the iconography of a Graeco-Roman globe, but it may well be worth considering this option amongst the many potential non-astronomical sources yet to be explored. In conclusion, most scholars writing on the history of constellation imagery tend to focus on two areas to support their findings: scientific data gleaned from early descriptions and depictions of the stars and iconographical details derived from Graeco-Roman mythology. It is hoped that this study has shown the extent to which a largely independent pictorial tradition also helped to shape the heavens, and, in this process, how the role of the artist is not as an inventor, but as a torchbearer for continuity with the past.

⁷⁷ Macrobius *Commentarii in Somnium Scipionis*, I, xii, 3-8.

⁷⁸ Macrobius *Saturnalia*, I, xvii, 63.

⁷⁹ Migne, *PL*, CXXXVII, 25, ch. II

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