Celestial iconography in ancient Greek and Minoan art:
How the constellations form the foundation for ancient artwork, including that of the newly-discovered Pylos Combat Agate

Abstract:

The discovery of the Pylos Combat Agate in a Mycenaean shaft-grave tomb dating to 1500 BCE may be one of the most significant archaeological and artistic finds in decades, perhaps in centuries. The level of artistic sophistication and detail are stunning -- the more so because the piece itself is so small and the level of detail is so incredibly high, with some details only half a millimeter in size: "incomprehensibly small," according to one of the scholars responsible for the discovery. Experts are already debating the meaning of the scene, which shows a triumphant warrior plunging a sword into a heavily-shielded combatant wearing a crested helmet, while another warrior lies sprawled-out beneath their feet, apparently already dead. Unnoticed until now, however, is the fact that this scene contains details which reveal that its pattern is in the heavens: the two main figures contain details specific to the constellations Hercules and Ophiucus, with the nearby Corona Borealis included as well. The contorted figure beneath the feet of the two combatants appears to correspond to Scorpio, located in the night sky beneath the feet of Ophiucus and thus beneath both Hercules and Ophiucus (the Swordsman and the Spearman in the Pylos Agate). The reflection of specific constellations in artwork from ancient Greece has clear precedent in artwork on pottery that has been in museums for centuries, but the find from the Pylos tomb on the Combat Agate provides new evidence for the practice of reflecting specific constellations in fine artwork approximately 1,000 years earlier than those later examples.

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In the spring of 2015, a team of scholars working in the Pylos region of Greece discovered an undisturbed shaft-grave tomb of a Bronze Age warrior which

included an intact skeleton and more than 3,000 artifacts arrayed on and around the body. The tomb is believed to date to the period around 1500 BCE and to be from the Mycenaean civilization, but with many of the objects appearing to be of Minoan origin. The discovery, with its rich trove of artifacts, was described as the most significant in the region to be found in several decades -- but it would be another year before the most astonishing find was uncovered: a dirt-encrusted agate stone measuring only 3.6 centimeters which, when carefully cleaned, revealed artwork depicting a close combat scene with stunning detail and artistic sophistication. According to "Unearthing a masterpiece: University of Cincinnati team's stunning discovery of a rare Minoan stone in the treasure-laden tomb of a Bronze Age Greek warrior promises to rewrite the history of ancient Greek art," published on November 6, 2017 in the *University of Cincinnati Magazine*, those studying this piece have been surprised to find that "Many of the seal's details, such as the intricate weaponry ornamentation, become clear only when viewed via photomicroscopy."[2]

The scholars who led the team which discovered the tomb, Sharon R. (Shari) Stocker and Jack L. Davis, speculate that the scene may have reflected a scene from a myth or legend well-known to the Minoan and Mycenaean cultures.[3] They may well be correct, but in addition to any mythological connections, the posture of the figures and specific details of their armor and ornamentation point to a celestial foundation for this groundbreaking piece of ancient artwork.

Below is a simplified, hand-drawn reproduction of the scene containing the major outlines of the figures, based upon images published thus far. The three figures in the scene have been given coloration in order to help distinguish them (the original figures are not colored in this way, and of course the level of artistic quality and detail in the original is far superior to this diagram). The scene contains a triumphant, long-haired warrior in an extreme lunge, stabbing downwards into a foe with a sword held in his right hand, his right arm being raised over his own head. This figure, to whom this paper will refer as the Swordsman, has been tinted red in the diagram. The figure into whom the Swordsman is plunging his sword has a large shield, which appears to have perhaps been battered into a somewhat folded lozenge- or diamond-shape, possibly by the prior combat. This figure's right arm is extended straight back from his shoulder and holds a long spear, the point of which can be seen on the other side of the Swordsman whom he is facing. This paper will refer to this second figure as the Spearman, and he is tinted blue. He is evidently about to receive a mortal wound from the Swordsman. Additionally, the Spearman wears a helmet with a prominent curving crest: the left arm of the Swordsman is extended towards this curve and the left hand of the Swordsman is grasping this curved crest of the Spearman's helmet as the Swordsman delivers the downward sword-blow. Finally, there is a third figure stretched out below the two fighting figures of the Swordsman and the Spearman: this figure has apparently already

been killed and his body is twisted into a contorted position even while stretched-out. He is tinted green in the diagram below and this paper will refer to him as the Fallen Warrior. His head is to the left as we look at the seal, and his lower leg (his right) is fully extended to the right as we look at the scene. His left leg is sharply bent with the knee pointing upwards. His body is twisted so that his back is facing the viewer, and the detail of the musculature of the back is extremely skillfully rendered. His arms are splayed out at different angles, with one drooping down towards his legs and the other bent over his head with the back of the hand against the ground.

Figure 1: Sketch of Pylos Combat Agate, with Swordsman in red, Spearman in blue, and Fallen Warrior in green.

The details of this scene are strongly suggestive of the outlines of specific constellations in the night sky -- and what is more, of constellations which appear to have formed the basis for many other pieces of ancient artwork. Below is an image showing the region of the night sky containing the constellations Hercules, Ophiucus, Corona Borealis (the "Northern Crown"), and Scorpio. Sagittarius is also included for ease of reference with other pieces of ancient artwork from the region of Greece in which figures corresponding to Sagittarius also feature prominently (to be examined later as supporting evidence). Additionally, the brightest part of the Milky Way galaxy can be seen to rise up from the horizon between the constellations of Sagittarius and Scorpio. In this image, the color-scheme has been inverted such that dark is light and light is dark, so that the background night sky which would be black is light-colored, and the stars show up as black dots. The Milky Way appears as dark-colored clouds, which would be shining with light in the actual night sky.

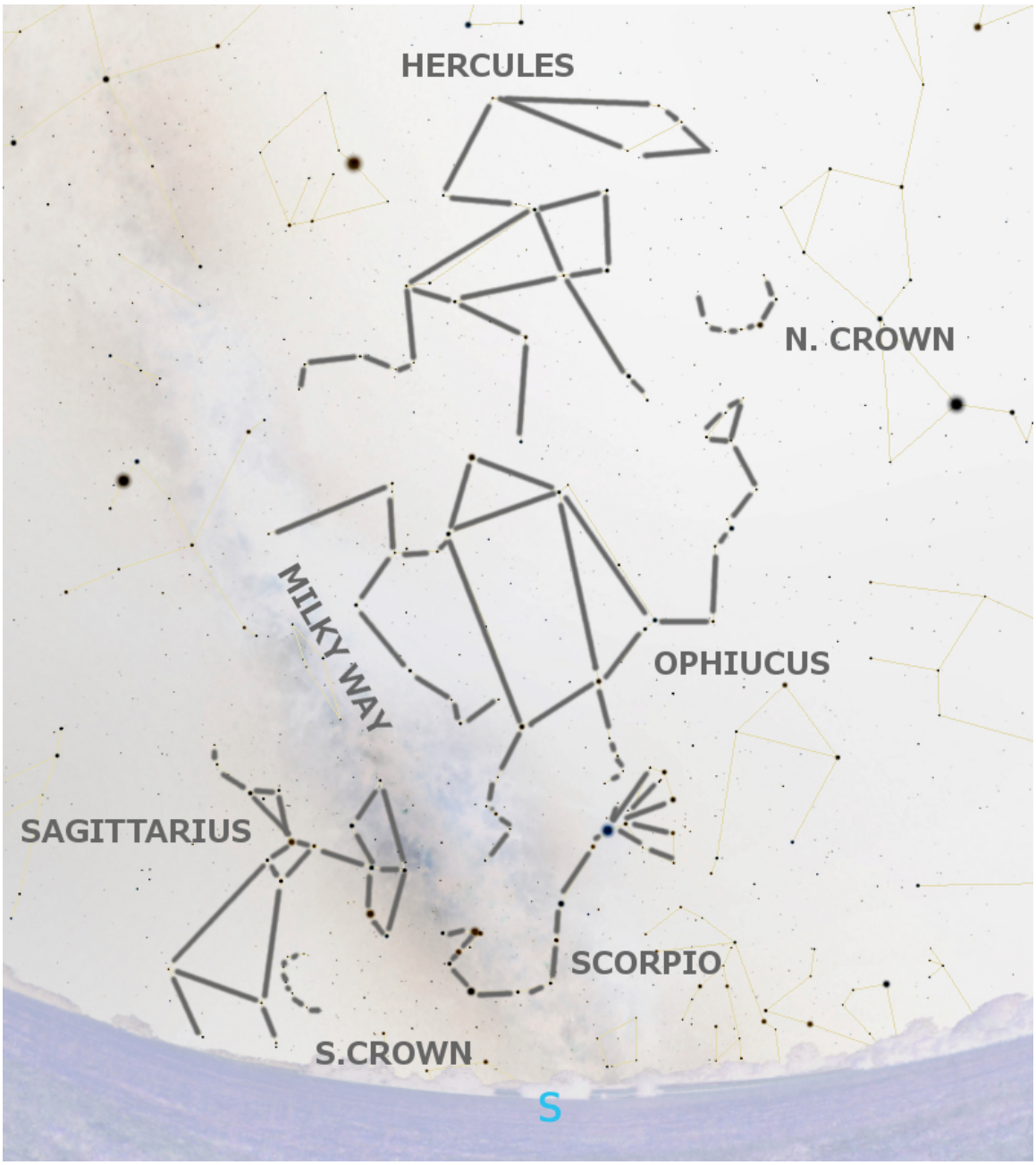


Figure 2: Region of Hercules, Ophiucus, Scorpio and Milky Way

Note the outline of the constellation Hercules: the figure in the sky appears to be executing a deep lunge, with one arm raised above its head, brandishing a sword. The other arm reaches downwards, but is basically extended straight-out from the body. The similarities to the figure of the Swordsman in the Pylos

Combat Agate should be self-evident: that figure also has an extended rear leg, and the arm holding the sword arches over the head of the figure on the agate in much the same manner as the outline of Hercules in the sky. By themselves, these similarities are not enough to make a conclusive argument, but as we will see from further investigation, the ancient artist has included other features which make the identification extremely compelling.

Immediately below Hercules in the sky we find the oblong, rectangular shape of the constellation Ophiucus, whose name derives from the Greek word for serpent and who is known as the Serpent-handler or Serpent-bearer. The figure of Ophiucus appears to be holding a serpent, which can be seen on either side of the tall, rectangular body of the celestial figure. Note that the constellation Ophiucus is located *below* the constellation Hercules as seen in the sky (for an observer in the northern hemisphere of our planet, such as an observer in the region of ancient Greece, Mycenae, or Minoan Crete). This suggests that the constellation Hercules, brandishing a mighty sword, could be envisioned as being in the act of striking (or preparing to strike) a mortal blow to the figure of Ophiucus -- and indeed there are other details in the artwork which suggest that the figure of the Spearman corresponds to the outline of Ophiucus. First, the two serpent-halves on either side of Ophiucus could be envisioned as spears rather than as serpents, and there are indications that other figures in ancient Greece who carry spears could be associated with the figure of Ophiucus -- including the

goddess Athena. Note that the Spearman in the Pylos Agate appears to be wearing a fringed garment of some sort, visible between his legs, below the rim of his broad shield. Athena is also frequently depicted wearing the Aegis, which is often depicted as a long, triangular cloak or shawl fringed with serpents, such as in the ancient statue shown below from the sixth century BCE, which features a very intricately detailed Aegis:

Figure 3: Athena with intricately-detailed Aegis, fringed with serpents.

Additional support for the argument that the Spearman on the Pylos Agate contains references to the heavenly outline of the constellation Ophiucus can be seen in the shape of his large, somewhat crumpled shield. Note that the shape outlined on the left side of Ophiucus as we look at the constellation in the night sky (the east side of the constellation, since this star-chart faces towards the south and depicts the view for an observer in the northern hemisphere of our planet) could easily be envisioned as a large if somewhat crumpled or battered shield:

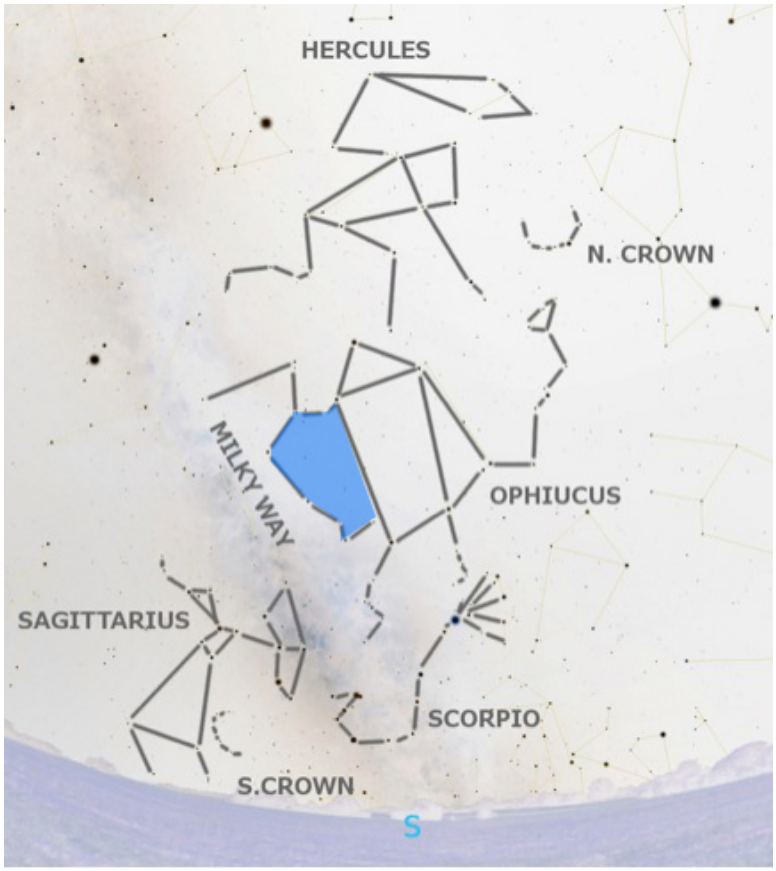


Figure 4: Ophiucus with "shield region" filled-in to show possible correspondence to the Spearman in the Pylos Agate.

In fact, if an additional line is envisioned in the sky just above the colored region shown above, the resemblance to the shield of the Spearman in the Pylos Agate becomes even more convincing:

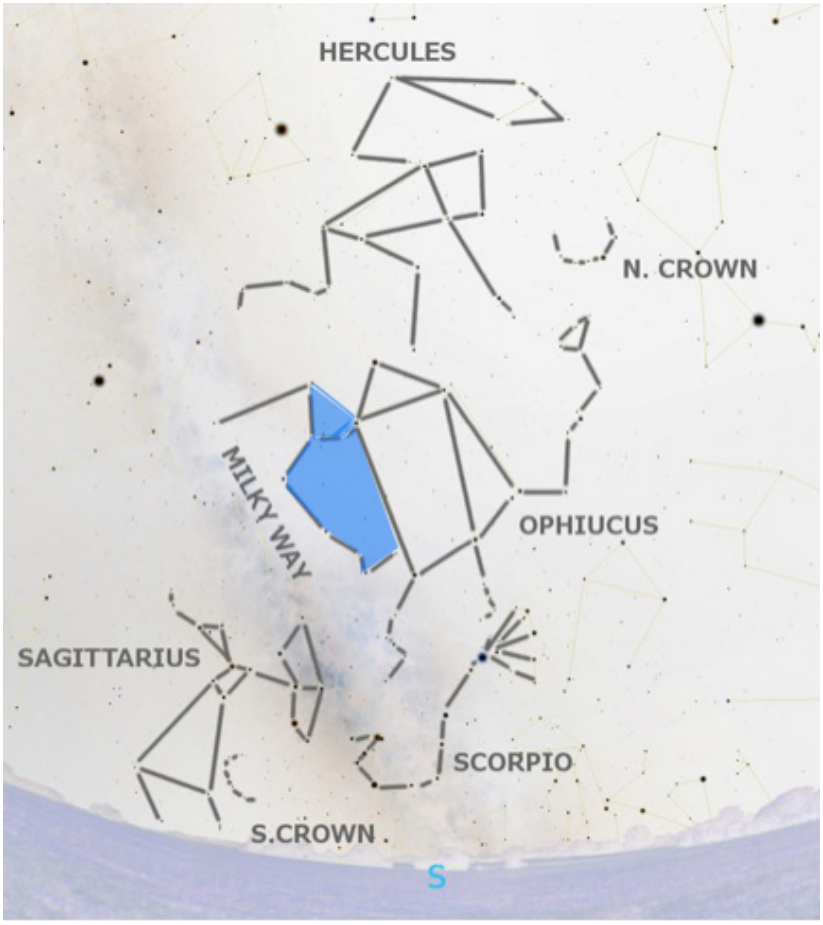


Figure 5: Larger area created by stars of Ophiucus which may represent the crumpled shield of the Spearman in the Pylos Combat Agate

Additionally, the triangular "head" of Ophiucus could be envisioned as a helmet -- and in the Pylos Combat Agate, it is the Spearman (in contrast to the Swordsman) who wears a helmet. The outline of Ophiucus shown here connects the stars at the top of Ophiucus into a triangle, but if a more curved line were to be envisioned, that triangle could become a "dome" or a semicircle instead of a

triangle -- perfect for a helmet (and note, once again, that the goddess Athena is notable for being described and depicted as wearing a helmet in many instances, which is further indication that she, too, may correspond to the same constellation Ophiucus). In any case, it should be fairly obvious when looking at Ophiucus that the constellation could be envisioned as a rather heavily-armored combat figure, with only the legs protruding from beneath the well-protected body -- and that is precisely what we see in the case of the Spearman on the Pylos Agate.

But the confirmatory detail which indicates that we are indeed looking at a celestial scene involving Hercules and Ophiucus in the Pylos Combat Agate is found in the extended arm of the Swordsman which can be seen to be grasping the distinctive, curving helmet-crest of the Spearman. The ancient artist of the Pylos Agate has depicted this crest as a sort of open "C-shape," with the opening pointing upwards. This detail in the Pylos Agate can be seen to correspond to the constellation of Corona Borealis -- the Northern Crown -- in the night sky.

The dominant figure of the Swordsman in the Pylos Agate reaches out his lower arm (the arm not holding the sword) to grasp the curved helmet-crest, just as the menacing figure of Hercules can be envisioned to be reaching out his lower arm (the arm not holding the sword) to grasp the Northern Crown. The constellation Hercules as drawn above does not actually connect with its lower arm to the

Crown, but it is only a small matter to envision a line between one of the lower stars of the downward-reaching arm of Hercules and the stars of the Northern Crown in order to see how Hercules could easily be envisioned as reaching out to grasp the arc in the sky:

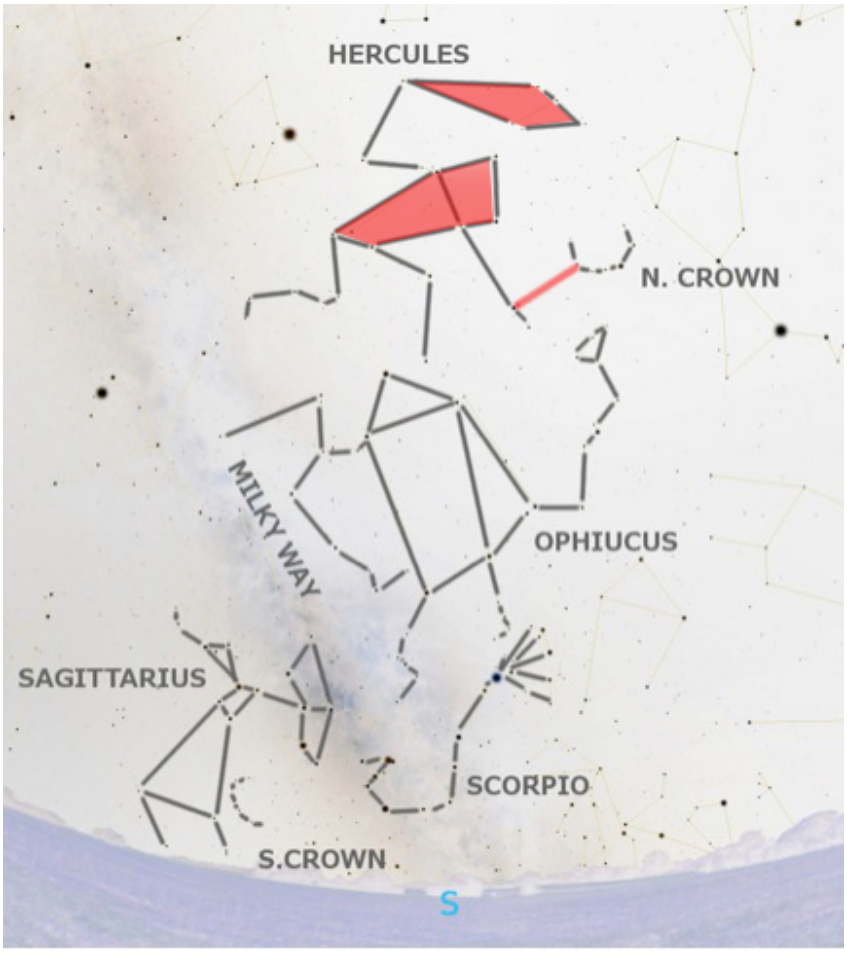


Figure 6: The fact that Hercules can be envisioned as grasping the Northern Crown confirms that the Swordsman in the Pylos Agate corresponds to Hercules in the night sky.

As for the contorted form of the Fallen Warrior in the Pylos Agate, he almost certainly corresponds to the figure of the zodiac constellation Scorpio, beneath the feet of Ophiucus (and thus below both Hercules and Ophiucus, or in this case

the Swordsman and the Spearman). Note how the arm of the Fallen Warrior which flops over his head creates a shape reminiscent of the barbed "tail" of the Scorpion in the night sky, while the three "lower limbs" of the same Fallen Warrior (his two legs plus his downward-splayed arm) create a kind of "delta-shape" corresponding to the triangular "head-end" of the constellation Scorpio (which can be envisioned as having any number of heads, from three in the case of Cerberus the guardian of the Underworld, to nine in the case of the Hydra whom Heracles or Hercules must slay in his famous twelve labors).

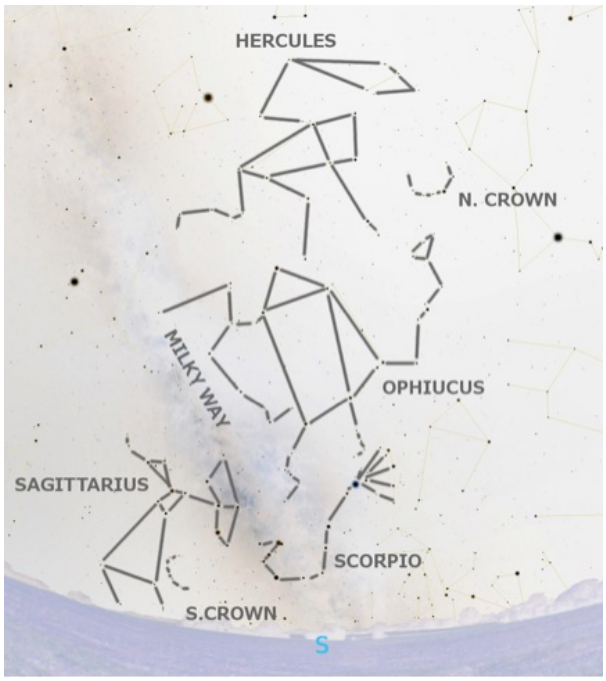
There is in fact strong historical precedent for envisioning Scorpio as the figure of a slain warrior or youth. Below is an image of the famous bell-krater which is the "name vase" of the ancient artist known as the Pan Painter (because of an image painted on the side opposite to the side with the artwork shown below). This red-figure krater, thought to date to the early fifth century BCE, depicts the goddess Artemis slaying Actaeon, towards whom she is pointing her bow as the unfortunate hunter is torn apart by his own pack of dogs:

Figure 7: Artemis slaying Actaeon, from a fifth-century bell-krater on display at the Boston Museum of Fine Art. Photograph by the author.

Below is the same ancient artwork, depicted as a drawing,[4] in order to enable the viewer to see "around the curve" of the ancient vase, thereby allowing us to appreciate the entire scene (*Figure 8*):

It should be readily apparent, from the angle of Actaeon's body as well as from the "delta-shape" created by the youth's upwards-stretched and downwards-stretched arms, that the ancient artist of the above scene has envisioned Actaeon as corresponding to constellation Scorpio in the heavens. We could even argue that the hind legs and upward-curving tail of the dog lowest to the left as we face the image might correspond to the "stinger" portion of the tail of the constellation.

But the most conclusive details which confirm that the above ancient artwork is based upon the constellations in the night sky can be found in the outline of the goddess herself. From the angle of her body, to the height at which she is holding her bow, to the length of her dress, it is evident that Artemis corresponds to the constellation Sagittarius in the night sky -- and Sagittarius does indeed point a bow in the direction of Scorpio, as seen in the outlines of the constellations shown in the now-familiar star-chart below (*Figure 9*):



Below we see the same stars, this time focused upon Sagittarius and Scorpio exclusively, and juxtaposed with the artwork of the fifth-century vase depicting Artemis slaying Actaeon (*Figure 10*):

The above example should provide strong confirmatory evidence that Scorpio was indeed used as a celestial model for artwork featuring a fallen warrior (or hunter, in the case of Actaeon) in ancient Greek art -- but of course this bell-krater is nearly a thousand years later than the suspected date of the Pylos Combat Agate.

The close correspondence of the figures in the scene of Artemis slaying Actaeon with the outlines of the constellations as they are envisioned and outlined here, however, should confirm that the ancients envisioned the constellations in the same way. This example should dispel the possible objection that the ancients did not necessarily outline the constellations in this fashion, and that any perceived correspondence between the constellations as outlined above and the outlines of the figures in the Pylos Combat Agate are questionable or even fanciful.

In fact, we can find many more examples of ancient artwork in which the figures of the ancient art appear to confirm the very outlining method used in the star-charts above. The outlines shown are those suggested by H. A. Rey in a book first published in 1952 entitled *The Stars: A New Way to See Them*. In it, he proposed a new system for envisioning the constellations in the night sky, because he was frustrated with the elaborate outlines common in previous centuries (which are in fact fairly useless for actual star-gazing) as well as with the more modernistic geometric shapes being used in the twentieth century (which are equally

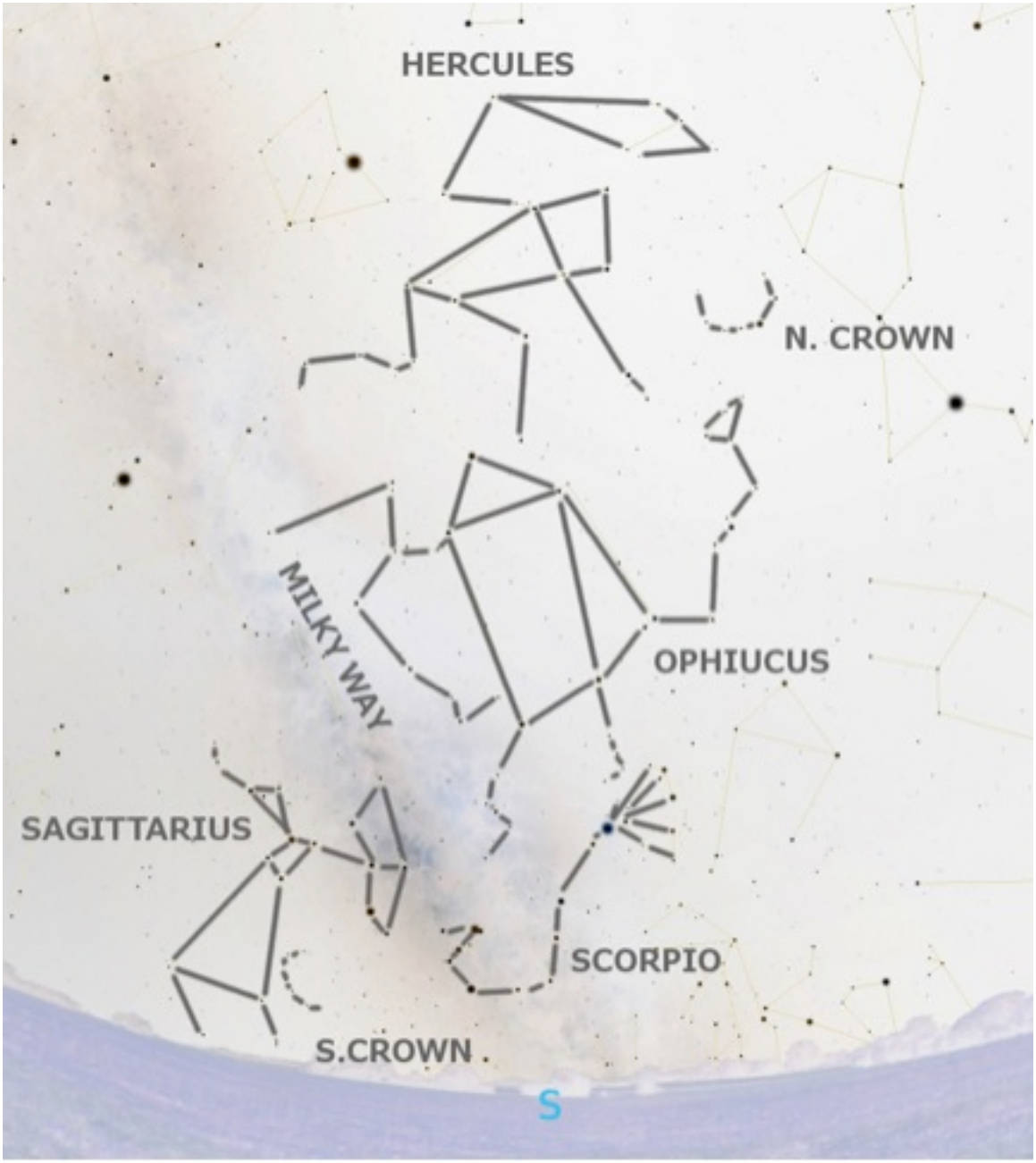
unhelpful for actually finding the constellations -- and yet variations on these more abstract modernistic outlines will still be seen on modern star-charts and planetarium apps).[5] As it turns out, the "new" outlines proposed by H. A. Rey in 1952 appear to be very ancient indeed -- lining up quite precisely with figures depicted on many ancient Greek pieces of pottery, and now with the figures on the much earlier Pylos Agate as well.

Indeed, numerous depictions in ancient Greek pottery of the hero Heracles himself conclusively demonstrate that the "new" outlines published by H. A. Rey in 1952 correspond quite precisely to the outlines used by ancient Greeks in their own understanding of the constellation Hercules. The outline suggested by H. A. Rey for the constellation Hercules features an extended rear leg with a deep knee-bend, as well as an "overhead" arm brandishing a sword (which could also be envisioned as a club) and another downward-reaching lower arm. Most ancient depictions of the hero Heracles depict him in the same posture, in which the deep knee-bend is consistently present. For example, below is a depiction of the struggle between Heracles and Apollo, in which Heracles tries to carry off the tripod at the Temple of Apollo at Delphi (a scene which appears to have been a favorite of ancient artists):

Figure 11: Heracles tries to abscond with the tripod from Delphi, with Apollo in pursuit.

In the artwork, we can see the very long and extended rear leg of the hero, as well as his club (brandished overhead, in a manner most reminiscent of the constellation in the sky). The god Apollo gives chase -- and note that he holds his bow out at about the same level at which we earlier saw the bow being held in the depiction of the goddess Artemis. In fact, Apollo and Artemis (who are brother and sister, and who in fact are twins) can both be seen to correspond to the constellation Sagittarius. The episode in which Apollo and Heracles struggle over the tripod can be seen to be based upon the stars themselves: the

constellation Ophiucus is located in the sky between the constellations Hercules and Sagittarius, and Ophiucus can in fact be seen to resemble the tripod of Delphi with which Heracles is always trying to run away:



This artwork should confirm that ancient artists in Greece based scenes upon the constellations in the night sky -- and that they envisioned those constellations in

a manner very close to that suggested more than two thousand years later by author H. A. Rey (who never seems to have indicated that he was aware of this correspondence between his outlines and the artwork of ancient Greek pottery, and who probably came up with his outlining system independently of those ancient sources). If any further confirmation is needed, many other examples could be offered. For instance, the hydria shown below is also on display at the Boston Museum of Fine Art (in the same room in which the bell-krater showing Artemis and Actaeon is displayed). In this hydria, Heracles is wrestling with Triton (also a scene depicted in numerous surviving pieces of ancient Greek pottery). Once again, the extended leg and deep knee-bend is clearly evident in the posture of Heracles, even though much of his outline is obscured by the form of Triton, with whom he is wrestling:

Figure 12: Heracles wrestling with Triton. Hydria dated to the sixth century BCE, on display at the Boston Museum of Fine Art. Photograph by the author.

In the above artwork, it is very likely that the "humped" form of Triton, with whom Heracles is wrestling, corresponds to the shape of Ophiucus once again. Note that Triton himself can be seen to be wearing a crown or wreath upon his head -- no doubt indicative of Corona Borealis once again. The "flukes" in the tail of Triton probably correspond to the wings of the constellation Aquila, the Eagle, located not far from the "serpent tail" on the east side of Ophiucus in the night sky (the left side of Ophiucus, as we look at the constellation while facing towards the south).

Based on these examples, it is quite evident that artists in ancient Greece depicted mythological scenes based upon heavenly models corresponding to constellations which we still know and use today -- and now that we have access to the newly-discovered, exquisitely-wrought seal of the Pylos Combat Agate, we know that this practice was well developed at least a thousand years prior to the other pieces of artwork shown above (on pottery that has been known and studied for a much longer period of time in the modern period). The distinctive features and body positions found in the scene on the Pylos Agate strongly suggest that the ancient artist was basing the figures in the scene, and indeed the entire scene itself, on the region of the sky containing the constellations Hercules, Ophiucus and Scorpio, corresponding to the figures of the Swordsman, the Spearman, and the Fallen Warrior in the gemstone.

Thus, in addition to executing a work of superlative artistic quality, with details of human anatomy and musculature depicted to an astonishing degree, upon a challenging medium and at an extremely small scale, the ancient artist (or artists) responsible for the Pylos Combat Agate also managed to conceive the scene in such a way as to reflect the heavens above, and to include numerous features which confirm the correspondence of the characters depicted in the artwork to actors in the celestial sphere, among the infinite realm of the stars.

End Notes:

1. Richardson, Rachel. "Unearthing a masterpiece: A University of Cincinnati team's stunning discovery of a rare Minoan sealstone in the trasure-laden tomb of a Bronze Age Greek warrior promises to rewrite the history of ancient Greek art." *UC Magazine*. November 6, 2017.
http://magazine.uc.edu/editors_picks/recent_features/unearthingamasterpiece.html

2. *Ibid*.

3. *Ibid*.

4. Beazley, John D. *Attic Red-figure Vases in American Museums*. Cambridge: Harvard UP, 1918. This drawing is found on page 113 of that text.

5. H. A. Rey. *The Stars: A New Way to See Them*. Boston: Houghton Mifflin, 1952. Enlarged World-wide edition, 1988. Rey expresses his frustration with the ornate outlines of previous centuries, as well as the abstract geometric outlines of the twentieth century, on pages 11 - 16.

Works Cited:

Beazley, John D. *Attic Red-figure Vases in American Museums*. Cambridge: Harvard UP, 1918.

Rey, H. A. *The Stars: A New Way to See Them*. Boston: Houghton-Mifflin, 1952. Enlarged World-Wide Edition, 1988.

Richardson, Rachel. "Unearthing a masterpiece: A University of Cincinnati team's stunning discovery of a rare Minoan sealstone in the trasure-laden tomb of a Bronze Age Greek warrior promises to rewrite the history of ancient Greek art." *UC Magazine*. November 6, 2017.
http://magazine.uc.edu/editors_picks/recent_features/unearthingamasterpiece.html

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Figure 3: Athena with Aegis. Wikimedia commons.
https://commons.wikimedia.org/wiki/File:Athena-athena-polias.jpg

Figure 9: Artemis slaying Actaeon (also used in Figure 10). From Beazley, 1918. Page 113.

Figure 11: Heracles and Apollo, with tripod from Delphi. Wikimedia commons.
https://commons.wikimedia.org/wiki/File:Herakles_tripod_Louvre_F341.jpg