

# THE CONSTELLATION OF PERSEUS: FROM GREEK MYTHOLOGY TO ASTRONOMY

ELENI ROVITHIS-LIVANIOU<sup>1</sup>, FLORA ROVITHIS<sup>2</sup>

<sup>1</sup>*Dept. of Astrophysics, Astronomy & Mechanics, Faculty of Physics,  
Athens University, Panepistimiopolis, Zographos 15784, Athens, Greece*

*E-mail: elivan@phys.uoa.gr*

<sup>2</sup>*IEK HOMER, Athens, Greece*

*Email: flora.rovithis@gmail.com*

## *Abstract.*

The Greek myths for the hero Perseus, as referred by many ancient authors, are given very briefly here. His fascinating life, from the way of his birth till his two big achievements, *i.e.* Medusa's decapitating and Andromeda's freedom, are described. So, he became the homonymous constellation. On the other hand, the influence of his achievements was expressed in all kind of Fine Arts, of which here only a very small sample in the ancient Greek and Roman coinage is shown. Finally, a few things are referred about the representation of Perseus constellation in the various sky maps as well as about its second in luminosity star  $\beta$  Per, *Algol*, since it is related to Medusa, while a general discussion is made.

*Key words:* History of Astronomy – Astronomy in Culture – Greek Mythology – Ancient coins.

## 1. PROLOGUE

In a previous paper the Greek myths concerning the Gemini constellation was described, (Rovithis-Livaniou & Rovithis, 2014). Similarly, here the myths of the hero Perseus, Περσεύς, will be referred from whom the homonymous constellation was named.

Perseus, according to the Greek mythology, was son of god Zeus and the princess of Argos Danae. His life, from the incidental way of his birth till his two big achievements was very interesting and fascinating.

The first great deed of Perseus was the beheading of gorgon Medusa who transformed to stones those who look at her. The second was the killing of the Cetus sent to tear in pieces the princess of Ethiopia Andromeda.

Both these big achievements made him well known not only in the narrow space of his nationhood, but all over the known at his times world. Especially, when the gods put him in the sky making the homonymous constellation, and according to tradition, not only he but all others related to his myth became constellations.

Here, only the most important parts of Perseus' myth related to his two big

achievements will be referred together with a few of their various acceptations; while, some explanations and/or symbolisms of the myth will be given when necessary. Because a detail description has been given in a book, (Livaniou-Rovithis<sup>[1]</sup> & Rovithis, 2015), here after Book of 2015, while a more or less extended abstract elsewhere (Rovithis-Livaniou & Rovithis, 2020).

So, Session 2 deals with the myth itself and what the ancient authors referred about. It is divided into four sub-sessions, with the first to give the general information about Perseus; the second and third to describe his great achievements, and the fourth his return home.

In Session 3, the representation of Perseus constellation in the various sky Atlantes is discussed and after a brief reference to the most important astronomical objects found there, special attention is paid to Algol. Because, it is the first eclipsing and spectroscopic binary to be detected, while its name characterised a whole class of close binaries.

Finally, and as regards the ancient authors, their names and titles of their works in italics will be referred when firstly appear, while afterwards the titles of their works will be omitted. Besides, as it is impossible to pass through all details of the myth, a lot of references will be given for the more interesting readers.

## 2. MYTHOLOGY

### 2.1. GENERAL

According to the Greek mythology Perseus was son of the greatest god in the Olympic Pantheon, ie of Zeus, *Jupiter*, and the princess *Δανάη*, *Danae*, daughter of the king of Argos *Acrissios*. Argos was a great city-country in ancient Greece, (Strabo *Geographic* H 6.18), Acrissios was an important king, (Apollodoros *Library* 2.1.4–5), and Danae was his only dearest child.

Due to an oracle according to which Acrissios' grandson would kill him, the king closed Danae to an underneath copper room, (Apollodoros 2.4.1) that was still existed at Pausanias epoch and described by him, (*Tour of Greece* 2.23.7). While Danae was imprisoned, Zeus who was in love with her managed to penetrate into it, transformed into golden rain, and had a sexual intercourse with her; thus, she became pregnant, and finally gave birth to a son, Perseus. When Acrissios learned what had happened, he put Danae and her son into a wooden box and thrown them into the sea, (Apollodoros 2.4.1).

The waves brought the box with Danae and Perseus to the island of Serifos in Cyclades, where they were saved by the fisherman Dyktes, brother of the king of the island Polydectes, (Strabo 10.10). Besides, from Hesiod (*Women's Catalogue* Fr. 3(6)) and Apollodoros (1.9.6) one learns that Dyktes and Polydectes were sons of

Magnes, who was the head of the Magnetes' race in Thessaly.

Dyktes not only saved Danae and his son, but helped and protected them. On the contrary, Polydectes persecuted them, because he wanted to make Danae either his wife or his mistress, and she was repeatedly denied. The foregoing mentioned are according to the most acceptable scenario of the myth, although Hyginus refers things differentiate, (*Fab.* 63).

With the pass of time, Perseus became a strong young man able to protect his mother from Polydectes, who continuously tried to find a way to get ride of him. The opportunity came when Polydectes announced his marriage and in such a case all had to offer him gifts. Then, Perseus with his young enthusiasm, and thinking that Polydectes will not continue to annoy his mother, promised that he could offer him even gorgon's Medusa head. So, Polydectes demand from him Medusa's head hoping that he will not come back from such an adventure and,thus, he could finally obtain Danae.

## 2.2. PERSEUS AND MEDUSA

Concerning gorgons, they were daughters of Forcus from his sister Ceto, (Hesiod *Theogony* 270–336; Apollodoros 1.2.6). They were human like monsters who turn to stone these who look at them. They leaved either at the western end of the ocean, (Hesiod 274–275), or towards the Ethiopian ocean, or even at Hades. Gorgons' number is not accurately known and Apollodoros described them in detail, (2.4.2).

In the beginning, gorgons were beautiful, pride for their beauty, and especially for their nice and rich hair; and Medusa not only dared to compare it with this of goddess Athena, but to find hers better. Thus, Athena transformed all gorgons to monsters with snakes in the place of their hair, while deprived immortality from Medusa, (Apollodoros 2.4.2).

Moreover, for Medusa is said that she made love with Poseidon, with or without her will, at one of Athena's temple a fact that made the goddess mad with her. Thus, when Perseus promised to kill Medusa and bring her head to Polydectes Athena *run* to help him.

On the other hand, there are other acceptations for Medusa and/or generally for gorgons, (*e.g.* Pausanias 2.21.5-6; Diodoros of Sicily *Library of History* 3.52).

Perseus, after his promise to Polydectes, had to learn the exact place gorgons were lived, because various and different things were said about it as already mentioned. At this appropriate moment, god Hermes and goddess Athena appeared telling him that first of all he had to find Graies, who were gorgons' sisters and share a teeth and eye, and would tell him where Nymphs lived, (Apollodoros 2.4.2). Besides, they advised him to ask them to provide the necessary for his trip equip-

ment, which were: a) the magic hat of Hades that made invisible whom who wears it, called *κρυφέα* in Greek; b) a special bag to put Medusa's head after beheading, called *κίβισις* in Greek, and c) the flight sandals to be able to reach the living place of Medusa.

So, Perseus started his trip towards West to meet Graies. Finding them, he took their only teeth and eye and forced them to tell where the Nymphs lived and, thus, he finally managed to get the equipment he wanted.

On the other hand, as usually, there are various acceptations: So, others said that Hermes gave him his flying shoes; others that Hermes provided him with a diamond harpy to cut Medusa's head, while others that Hephaestus, *Vulcan*, gave it to him. Moreover, Athena offered him a shield, either copper or crystal, to use as mirror and thus avoided to look directly Medusa's face.

Perseus putting on the magic cap to become invisible, taking with him the special bag and wearing the flying sandals was now ready to fly to the place where Medusa and her sisters lived.

He was lucky as Medusa's sisters were sleeping when he arrived, and thus he managed to behead her. Then, Medusa's two children from Poseidon, ie the flying horse Pegasus, and Chrysaor came out of her cutting head; while Perseus put the head in his bag and riding Pegasus run away as soon as possible, (Hesiod *Theogony* 280; Apollodoros 2.4.2).

The myth affected all kind of arts from antiquity till our days, with an extremely restricted sample to be presented here, (Figs. 1, 2 & 3). They are from Livaniou-Rovithis & Rovithis (2012) and from the *Book of 2015*. In the three icons of Fig. 1 one can see a whole gorgon picture, her head only and just after her decapitation by Perseus, respectively, as they are represented on various ancient vases<sup>[2]</sup>.



Fig. 1 – Left: A whole gorgon picture; Middle: Head of gorgon; Right: After Medusa's decapitation Perseus wearing the necessary equipment, holding his harpy and with Medusa's cutting head in his bag, run away; Athena holding her spear is following; Medusa with her wings spread lies down while blood runs from her neck.

Moreover, in Figs. 2 & 3 the affection of Perseus myth in Greek and Roman coinage is shown. For instance on the reverse sides of the coins of Fig. 2 one can see

Perseus holding his harpy with one of his hand and Medusa's cutting head with the other; while on the obverse sides of two of them the heads of Zeus and Athena are shown denoting the connection of these two gods with Perseus.



Fig. 2 – Coins of 1st century BC from Iconium, Lycaonia (up) and Amissos, Pontus, (down); Obverse up left: Head of the city goddess, Obverses up right & down: Head of Zeus & Athena, respectively; Reverses: Perseus standing and holding his harpy with one hand and Medusa's cutting head with the other, legends give either city's or citizens' name.

Similar reverses, as on the coins of Fig. 2, are shown on three of the coins of Fig. 3, issued by various Roman Emperors, where on their obverses the head of the corresponding Emperor is as usually shown. Besides, in the upper left coin of Fig. 3 Perseus is shown in action, ie while he is cutting Medusa's head.

On the other hand, on the coins of Fig. 4 issued in various places and during different epochs, Pegasus is presented either on their obverse or reverse side.

After Medusa's decapitation Perseus went away while Medusa's sisters persecute him; but it was impossible to find him, as he wear Hades' special cap and was invisible, (Apollodoros 2.4.3). So, they came back crying and howling in distress, (details can be found in: Apollodoros 1.4.2; Diodorus of Sicily 5.73.8; Pindar *Phythionicoi* Hymn N. 12).

It is also said that Athena, who attended Perseus during Medusa's beheading, collected Medusa's blood, (Fig. 5, up left), and in particular separately this from the vein of her right and that from her left side. From it, she gave two bottles to Asclepios, (Apollodoros 3.10.3), or only one according to others, while it is also said that she irrigated with 2 drops, one from each bottle her boarder snake Erichonios, making thus it able to cure, but also to kill. It seems very possible that because of this, there is another acception of the myth according to which Athena herself beheaded Medusa, (Hyginus *Poetica Astronomica* II.12).

In any case, Perseus getting too much help from Athena offered her the cutting



Fig. 3 – Coins from: a Sebaste, Phrygia, Caracalla's epoch; b: Anemourion, Cilicia, Maximinus' I epoch; c: Ake-Ptolemais, Phoenicia, Alexander's Severus epoch; d: Iconium, Gallienus' epoch; Obverses: Head of the appropriate Emperor, legend with his name; Reverse a: Perseus is presented to cut Medusa's head, while Athena being behind him watches; Reverses b, c, d: Perseus standing and holding his harpy with one hand and Medusa's cutting head with the other, legends give either city's or citizens' name.



Fig. 4 – Coins from Corinth (a, b), Kerkyra, *Corfu*, (c) & Chabacta (d); a: (450–400) BC, Pegasus/Head of Medusa; b: (345–307) BC, Pegasus/Head of Athena, *gorgoneion* behind; c: (229–48) BC, Pegasus/Head of Aphrodite, *Venus*; d: Bronze coin of 1st century BC, Perseus' head/Pegasus.

head of Medusa that the goddess put it in the centre of her shield, (Apollodoros 2.4.3), to frighten enemies. Besides, Athena is always appeared wearing in her chest *aegis*, (Fig. 5, down), which is a piece of she-goat skin with a representation of Medusa's head, known as *gorgoneion*.



On the other hand, not only Medusa's head, but even a few of her hair were able to throw away the bad, (Apollodoros 2.7.3).



Fig. 5 – Up left: Athena holding with her right hand her shield decorated with Medusa's cutting head in the centre<sup>[2]</sup> and a bottle with Medusa's blood with the other; Up right: Fragment from a reproduction of goddess Athena shield; Down: Athena with aegis on her chest. Scene from an attic cylix<sup>[3]</sup>.

*Gorgoneion* and *aegis* were widely spread and used by many people as talisman for their protection from any bad. *Gorgoneion* was mainly used in soldier's shields, (up left and right pictures of Fig. 6). Later, the Romans followed this *custom*, and many of their Emperors appeared on statues as well as on coins with *gorgoneion* and/or *aegis* on their chests, as for example the down picture of Fig. 6 and coin **b** in Fig. 3.

### 2.3. PERSEUS AND ANDROMEDA

After Medusa decapitated, Perseus was able to come back home and riding Pegasus started his trip back to Serifos. Then, while being at the west end of his epoch known world he met Atlas, grandson of Uranus. Perseus asked hospitality from Atlas who denied, afraid that Perseus will see his golden apples, (*the golden apples of Hesperides*). Then, Perseus showed him Medusa's head and transformed him into rock, which according to some is the homonymous Mountain in West Africa.



Fig. 6 – Up left: Gorgoneion from a soldier’s shield; Up right: Gorgoneion on the shield of Gyreones<sup>[5]</sup>; Down: Coin of Emperor Probus, with *aegeis* on his chest/Nike in her carriage.

Perseus continued his trip back home, and while flying above Ethiopia, he showed a young woman tied with chains in a near to sea rock. She was Andromeda, daughter of Cepheus, king of Ethiopia and was left there to be eaten by a sea monster, Cetus. This happened, because Andromeda’s mother queen Cassiopeia comparing herself to Nereids found her prettier. So, they complained to their father who sent the sea monster and according to an oracle the country would be released only if the king offered his daughter to be cut in pieces by the Cetus, (Apollodoros 2.4.3).

That Andromeda was bund in chains is referred by various ancient authors, although they do not agree for the place this happened, (Hyginus II 9–10; Pausanias 4.35.9–10; Strabo 1.2.35). Independently of where exactly Andromeda was tied, Perseus’ timely intervention saved her from Cetus, (Fig. 7, left and all coins of Fig. 8), and after fighting with her fiance, (Ovidius *Metamorphoses*, ie *Transformations* 5.1), married her.

Andromeda’s freedom from Cetus by Perseus was used in Greek and Roman coinage, too, with the latter to be seen on coins of Fig. 8.

After their marriage Perseus and Andromeda stayed for sometime in Ethiopia and did not continue their trip to Serifos immediately. Because, is said that they left behind their first son Πέρση, *Perse*, from whom the kings of the Persians were come from, (Apollodoros 2.4.5) or from whom they got their name, (Herodotus *History* 7.61).





Fig. 7 – Left: Perseus free Andromeda from Cetus<sup>[6]</sup>, Right: Perseus shows Medusa’s cutting head to king Polydectes, in goddess Athena presentation<sup>[7]</sup>.



Fig. 8 – Coins of various Roman Emperors, from various places, related to the myth of Perseus; a: From Alexandria, Egypt, Antoninus Pius epoch; b: From Coropissos, Cilicia, Maximinus I times; c: From Philip I, the Arab, epoch; d: From Deultum, Thrace, Gordian III epoch; Obverses: Bust of the corresponding Emperor, Reverses: Perseus saves Andromeda from Cetus. He gives his right hand to Andromeda while holding Medusa’s cutting head with the other; Cetus is lying down, legends.

#### 2.4. PERSEUS RETURNS HOME

According to the previously referred, Perseus and Andromeda stayed at Ethiopia at least for one year; then they continue their trip, since Perseus had to offer Medusa’s cutting head to the king of Serifos Polydectes. When they arrived at Serifos, they found Danae and Dytes suppliants in Athena’s temple. Then, Perseus went to Polydectes’ palace where found him and his friends drinking and having fan. He showed him (Fig. 7, right) and to the rests Medusa’s head and all were transformed to stones.

Perseus after giving the throne back to Dytes and with Danae and Andromeda left for Argos to meet his grandfather. Unfortunately, Acrisios was not there, he had

left for Larissa of Thessaly to participate in the Funeral Games organized by the local king for his fathers' death, (Apollodoros 2.4.4).

Perseus, who desired too much to meet Acrissios, went to Larissa and took part in the Games. Then, during the disk game, the disk of Perseus hit Acrissios and killed him. When Perseus learned who the killed man was, he buried him with great honours and return to Argos, (Apollodoros 2.4.4). To the death of Acrissios Pausanias is referred too, (2.16.2).

Afterwards, and as Perseus did not like to succeed his grandfather' throne in the city of Argos, exchanged it with another city, ie Tyrins. To the city of Tyrins as well as to the near by Midea, which Perseus included later in his kingdom, is referred Stravo, (8.6.11).

Thus, Perseus extended his kingdom not only with Midea, but founding another city. The new city was originally named Cyclopean city, because is said that Cyclops had built it. Later, it was named Mycenae, and details of how and why it got this name are given by Pausanias, (2.16.3 & 2.16.4). Besides, Perseus fortified his area with great and tall walls again made by the Cyclops as is said.

Perseus became thus a great king dominated almost all over Argolis area. So, when god Dionysus came there, Perseus who did not like somebody else to rule his kingdom fought against him. Details for the fight between Dionysus and Perseus can be found in Pausanias (2.20.3-4 & 2.22.1). Here, it is only referred that Perseus finally won Dionysus and that in his side goddess Hera fought, too.

Perseus and Andromeda gave born to many children, sons and daughters who were spread all over Peloponnesus, while their descendants all over the known world of their epoch.

### 3. THE CONSTELLATION OF PERSEUS

Because of the two foregoing referred heroic actions of Perseus the gods put him in the sky, making the homonymous constellation. Besides, it is said that not only him but all others related to his myth became constellations, and are put one next to the other in the various sky atlantes. In Fig. 9 for example, one can see the appearance of most of these constellations in two different sky maps.

From the two pictures of Fig. 9, as well as from the four of Fig. 10, one can notice how differently the atlas makers imagined our hero and the rest involved in his myth. In all pictures Perseus is holding his weapon with one hand and Medusa's cutting head with the other.

Except the representation of hero Perseus in the homonymous constellation many are the significant astronomical objects one can observe in it, as happens in all others. Although it is out of the scope of the present to be referred to them, one could



Fig. 9 – Left: The constellations Cepheus, Cassiopeia, Andromeda and part of Perseus & Dragon<sup>[8]</sup>. (From Alexander Jamieson Atlas, 1822); Right: Similar to left from another sky atlas.



Fig. 10 – Various presentations of Perseus constellation.

be limited to  $\beta$  Per, *Algor*, because it is related to the myth, as will be shown in the discussion.

*Algor* is important and famous for many reasons: Firstly, because it is the first

eclipsing binary to be discovered, (Goodricke 1783). Goodricke explained the cause of its variability of 1.27mag in about 2.87days. This theoretical explanation of Algol's variability was later confirmed by Pickering and later by Vogel from spectroscopic observations. So, Algol became the first spectroscopic binary, too. Today, it is known that Algol has one more companion, so it is a triple system.

Another important object in Perseus constellation to which one could be referred is a cluster of galaxies, (Persei galaxy cluster) at a distance of about 300 million light years, with an intense X-ray source in its centre, (the Abell 426). The principal galaxy of Persei cluster is NGC 1275, while the cluster is part of a larger one, the Pisces-Perseus super cluster consisting of about 1.000 galaxies, (Tully 1982).

#### 4. DISCUSSION

All agree that myths contain a lot of exaggerations, as they are referred to extraordinary things, deformed animals, monsters etc. This is true for the myth of Perseus, too, because as it was referred it includes *gorgons*, a *flying horse* etc. Before going on it is worthwhile to know that the name his mother Danae gave him was *Έυρυμέδων*, meaning *Great King*, because it comes from the Greek words *ευρύς* or *μεγάλος*, meaning *great*; and *μέδω* or *βασιλεύω* meaning *reign*.

Danae's son indeed became a great king, as he founded Mycenae that later became the most important *city-country* where a significant culture was flourished, being the related ring between the Minoan and the later Greek one.

On the other hand, the name with which our hero was and remained known is that given to him by his people, *ie* Perseus. This, according to some, comes from the sacristan word *parasaha* that means timely help. Because of his great and quick help to people. According to others, the name Perseus comes from the words *per* and *se*, characterizing the Egyptian god Horus, as son of goddess Isis (*se*); while Graves, (1998) thinks that our hero name should be different.

The myth of Perseus presented here was very briefly without giving many of its various acceptations, its basic symbolisms *etc.*, since these appeared else where, as already referred in the Prologue. Here only his two great achievements were very briefly referred. Because of them, according to the Greek Mythology, the gods made him and those related to his myth constellations, and thus **immortal**.

As already referred the near by constellations *Andromeda*, *Cassiopeia*, *Cepheus*, *Pegasus* and *Cetus* are related to the myth of Perseus. Aratos is referred to these constellations, (*Phenomena and Diosemeia*, 179–224), while for *Cetus*, he refers that (353–355): *Although far from Andromeda, it seems to be in hurry to rush against her* (see also Avgoloupes & Mauropoulos 2007).

Even so, and because *Cetus* is some how at a bigger distance some think that the

closer constellation of *Dragon*, is related to the myth of Perseus and not this of *Cetus*. This, might very probably come from the fact that in one of the ancient sources, (Lucian *Maritime Dialogues*, Triton and Nereids) is referred that a sea dragon was sent by Poseidon, and not a *Cetus*. According to the Greek mythology, on the other hand, the constellation of *Dragon* is related to the myth of

*the apples of Hesperides*. (Although as usually there exist other acceptations too; that it denotes the dragon killed by Kadmos, the Lerna Hydra, etc).

Concerning the place where Andromeda was left to be tearing into pieces by the sea monster the ancient authors do not agree. For example, Hyginus (*Poetica Astronomica* II 9–10), simply refers that Andromeda was bund in chains at one coast of Ethiopia, while Strabo, (1.2.35), refers that this happened at the city Joppa, ie today Gaffe in Israel. With the latter agrees Pausanias, (4.35.9–10), adding that the water near Joppa is red, because Perseus washed his hands there after killing the *Cetus*.

On the other hand, the myth of Perseus is characterized as historical, and it seems that the Delphi Oracle recognized the Persians as Perseus' descendants, (Herodotus 7.220). Similarly, they appeared Perseus' myth as historical fact of specific heaviness, because their king Xerxes sent an envoy to Argos before his expedition against Greece, (Herodotus 7.150–152).

Historical or not the myth, it is worthwhile to mention that Perseus was worshiped in many places of Greece like Corinth, Athens, Serifos etc, as well as in Egypt, and especially in its city of Hemmis, (Herodotus 2.91).

Moreover, and because of his two important achievements Perseus and all related to his myths became constellations. It is referred for example that goddess Athena put Andromeda, or not only her but also her parents in the sky making the homonymous constellations, (Hyginus *Poetica Astronomica* II.11).

On the other hand, both of the two important achievements of Perseus described here affected all kind of arts, although here their influence was extremely brief and restricted mainly to the ancient pottery, (Figs. 1, 5 & 7), as well as to

Greek and Roman coinage, (Figs. 2, 3, 4 & 8).

Furthermore, Kakrides (1986), Graves (1979, 1998), and Livaniou-Rovithis & Rovithis (2015), considered Perseus as an early sun-god. Either an early sun-god, or a famous hero, Perseus was a great personality, and according to Aelianus (3.28), there is a fish named Perseus.

As constellation Perseus is well known and it is worthwhile to mention that Hipparchus and Plinius from some stars of Perseus ( $\alpha$ ,  $\pi$ ,  $\rho$  and  $\omega$ , known as the stars of Gorgo), had formed a separate constellation named the *Head of Medusa*. Although some are even today referred to the *Head of Medusa*, this is done considering it as part of Perseus constellation and not as another and different one.

On the other hand, besides the many other appearances of Perseus constellation



in the various sky maps, except these given in Fig. 10, it is worthwhile to mention that after the 8th century an effort of Christianizing the sky started. So, an attempt to rename constellations and give them Christian names was made by Schiller & Minderer, (1627).

Thus, according to some of those dealing with Christian matters, Perseus denotes David holding Goliath's head; while according to others Apostle Paul having a sword in one hand and a book in the other.

Moreover, and concerning the various important objects observed in the constellation of Perseus, special attention was given to its variable star *Algol*, which is the proto-type of a whole class of eclipsing binaries (semi-detached). This star name comes from the Arabian *Ras al Ghul* that means *Demon* or the Head of Demon (Allen, 1963). Besides, *Algol* in the catalogue of Ptolemy is referred as *the bright star of Gorgo*.

It is known that in the near by constellations related to the myth of Perseus, there are other well known variable stars like:  $\delta$  Cep,  $\alpha$  Cet,  $\gamma$  Cas, all in related to the myth of Perseus. According to Wilk (1996) *Algol's* variability, as well as that of the other mentioned variables, was known in the pro-classic Greece and that the myth wants to emphasize exactly this fact.

Similarly, Jetsu *et al.*(2013), Porceddu *et al.*(2018) maintain that *Algol's* variability was known to ancient Egyptians, who had recorded it in their Cairo Calendar prognosis texts, CC, in which the lucky and unlucky days of a year were reported. Their works are based on some previous findings of Porceddu *et al.*(2008), who had discovered a periodicity of 2.850 d in CC prognosis texts and especially that dated between 1271 & 1163 BC.

Moreover, Jetsu *et al.*(2013) claim that the mass transfer between the two members of *Algol* should cause a long-term increase of its orbital period, and although observations for more than 200 years have not confirmed it, they maintain that the period of *Algol* was 2.850d three millennia ago. On the other hand, Porceddu *et al.*(2018), using the Rayleigh test in the analysis of the CC texts between 1271 & 1163 BC, think that it corresponds to the today known variability of 2.867d of *Algol*, as it is too close to it. Besides, they say that the principles of ancient Egyptians to describe the various celestial phenomena as activity of gods reveal why *Algol* received the title of the god *Horus*.

Concerning *Algol's* variability that takes place in about 2.8d with its magnitude to vary about 1.3m, (from 2.20m to 3.47m and so on), it is easily observable. Thus, Wilk (1996) as well as Jetsu *et al.*(2013) and Porceddu *et al.*(2018) are correct thinking that this variability was known to the ancients, since there is no doubt that it could be detected easily. This explains also the name *Algol*=*Demon* the Arabs had given it.

Regarding the variability of  $\delta$  Cep,  $\alpha$  Cet and  $\gamma$  Cas it is not sure at all that it was

also known to the ancients. Because, although all these three stars are proto-types of new categories of variables, and their variability are remarkable, their periodicity is rather long and perhaps impossible to be detected. For example it is **5.36 days** for  $\delta$  Cep, and for  $\alpha$  Cet **332 days**.

Moreover, it is possible that the 2.850d periodicity detected in CC texts between 1271 & 1163 BC to correspond to Algol's periodicity, since it is really very close to its present value. But, as regards that the present value is due to a long-term variability of its orbital period is not sure at all. The latter, not only because it has not been found from the analysis of more than 200 years observational data, but because Algol is not just an eclipsing binary; it is at least a triple system, and things concerning its orbital period variations are more complicated.

On the other hand, Perseus was worshiped in Egypt where he had a temple, (Herodotus 2.91). The Egyptians called a cape of the river Nile, Perseus' cape or Perseu's watch, (Strabo 17.1.18), which is placed towards the western limits of the river according to Herodotus, (2.15). Moreover, according to some Perseus and the god Horus of the ancient Egyptians have many similarities yielding to their solar identity and deity, since Perseus was considered as an early solar god, (Kakrides, 1986, Graves 1978 & 1999).

The foregoing mentioned show clearly the great influence of the ancient Greeks and Egyptians. As regards their deities, it is known that the worship of the Egyptian goddess *Isis* passed to Greece, as happened with many other gods/goddesses from the Middle East, (Hooke 1985). These, arise many questions that need to be answered making us to think more, see things differently, and try to explain but also to understand them as much as possible.

#### APPENDIX

[1] Because of the Greek way of writing, where for a married woman the surname of her father's family is referred first and her husband's follows. So, Livaniou-Rovithis E. and Rovithis-Livaniou E. is the same person.

[2] The three vases are respectively from: An amphora in Munich Museum, Germany; a vase in the Museum of the Pennsylvania University, U.S.A; an attic red colored hydria of 500–450 BC, British Museum, United Kingdom.

[3] A red coloured amphora of the 5th century BC, British Museum, London, United Kingdom. Athena holds in one hand her shield decorated with Medusa's head in the centre, and with the other a hydria with Medusa's blood.

[4] Scene from the Claiming of Achilles' Weapons. Achilles' weapons were ordered by his mother Thetis to Hephaestus, *Vulcan*, (Homer *Ilias* ), and after his death Thetis wanted to offer them to the *best fighter*. So, Odysseus and Aeas the

Telamonius claimed them. The scene shows this; it is from an attic cylix of 12.8 cm dated about 490 BC. It was found at Kaerea, (today Tserveteri), in Italy. It is signed by the well known angiographer Douris, while as maker Python is referred. [5] Gyreones was son of the giant Chrysaor, and thus Medusa's grand son. The scene is from an attic amphora of 550–540 BC, at Louvre Museum.

[6] Scene from an ancient Corinth amphora, now at the Altes Museum, Berlin.

[7] Scene from a red coloured crater of about 450 BC, now at Civico Museum, Bologna, Italy.

[8] Explanation is given in the Discussion.

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