

Manana Pkhakadze, Raul Chagunava (Tbilisi)

THE MYTH OF ARGONAUTS AND COLCHIAN METHOD OF GOLD PRODUCTION

From ancient times, Greek authors paid much attention to one of the cycles of Greek mythology – the legend of Argonauts and the story about the Golden Fleece. Information and comments about the myth regularly emerged in the written sources of the Hellenic, Hellenistic, and Byzantine eras. It is noteworthy that they are numerous and, at the same time, the main object in the myth – the Golden Fleece – is presented in the sources in various manners.

In the text of the early period, the Golden Fleece is identified with golden wool. Back on the verge of the 8th and 7th centuries BC, Hesiod, who systematized Hellenic mythology, mentioned a ram that "had golden skin".¹ It helped Phrixus to travel to Colchis, where he "sacrificed the ram and offered the Golden Fleece to Zeus".² Authors of the later Hellenic period provide similar information. For Pindar the Golden Fleece is "a skin with shining golden wool";³ for Euripides it is "a skin of pure gold",⁴ and so forth.

The aforementioned views proved to be so reliable and viable that they were shared even by authors of the Byzantine era. For example, John Tzetzes effectively repeated Hesiod's story and wrote: "The skin with

¹ Κρίως ... εἶχε δε χρυσοῦν δοράν, Fr. 68. Pseudo-Eratosth. Catast. 19, Fragmenta Hesioda, ed. R. Merkelbach et M. L. West, Oxford 1967.

² "Phrixum autem perlatum Colchos arietem immolasse pellemque eius auream Iovi sacrasse", op. cit., Schol. Sangerm. Ad Germ. Arat. 224 et Schol., P. 79 sq.

³ "Κῶας αἰγλαῖεν χρυσοῦσιν/θυσάνω", *Pindari Carmina aim Fragmentis*, ed. Bruno Snell, H. Maehler, Pars Prior, *Epinicia* IV, Leipzig 1964, IV, 203-250.

⁴ "ἰάνχρυσον δέρας", *Medeia*, 1-11, Euripidis fabulae, vol. I, ed. J. Diggle, Oxford 1981.

golden wool belonged to a ram that Phrixus took to Colchis. It is said that Phrixus sacrificed it to Zeus there".⁵

It is noteworthy that as time passed, a different opinion was elaborated in Greek literature by Euhemerist authors. Old Greek philosopher of the 4th century BC Euhemerus and his followers searched for rational elements in every myth, story or legend, providing rational explanations. Old Greek author of the 4th century BC Palaephatus was the first among Euhemerists who regarded as unrealistic the events linked to the ram described in the myth of the Golden Fleece. In his opinion, it was impossible for this ram to carry someone on its back to Colchis across the sea and Phrixus could not have been so ungrateful as to kill the ram that saved him and sacrifice his skin to Zeus. He thought that in reality, the Golden Fleece was presumably a golden statue, which Phrixus, who travelled to Colchis by boat (not on the back of the ram!), presented to the King of Colchis Aeëtes. The last sentence by Palaephatus is quite categorical in this regard: "As a dowry, he gave the king a golden statue of Cos, not skin. This is the truth".⁶

Euhemerist authors of the 2nd and 3rd centuries put forward theories different from that of Palaephatus. They believed the sheepskin was for writing - a parchment - and drew appropriate conclusions. In particular, the anonymous author of a collection of myths written in the 2nd century wrote that in reality, the Golden Fleece was a book written on a skin, which gave a description of chemical rules for producing gold. That is why, as the author wrote, "due to the action to be made according to it", it was called Golden Fleece.⁷ At that time, chemistry was first and foremost regarded as the art of producing metals, particularly gold.⁸ Therefore, it is quite natural that the author linked the name that encompassed the notions of skin and gold - Golden Fleece - to a book and chemistry: a book

⁵ "τοῖς θεοῖς χρυσόμαλλον τοῦτο δέρας ἦν τοῦ κριοῦ, ὃς τὸν Φριξὸν εἰς Κολχίδα διεπόρθμευσεν", *Lycophronis Alexandria*, ed. L. Mascialino, Leipzig BT 1964, Ad.v. 175.

⁶ "...δοὺς ἔβρον τὴν χρυσοῦν εἰκόνα τῆς Κω. ὕστερον δὲ Ἰαθάμαντος... τελευτήσαντος Ἰάσων πλεῖ τῆ Ἄργοι ἐπὶ τοῦτον τὸν χρυσοῦν τῆς Κω, ἀλλ' οὐκ ἰ: δέρμα κριοῦ. Οὕτως ἔχει ἠθληθῆτα. Palaephati *Περὶ ἀπίστων*, ed. N. Festa, *Mythographi Graeci*, XXXI, Leipzig BT, 1902.

⁷ ... βιβλίον ἐν δέρματι γεγραμμένον, περιέχον ὅπως δεῖ γίνεσθαι δια χειμέρας χρυσοῦν, εικότως οὖν οἴποτε χρυσοῦν ὠνόμαζον αὐτοῖς δια τὴν ἐξ αὐτοῦ ἐνέργειαν, *Mythographi Graeci*, III, 2: *Experta Vaticana* (vulgo Anonymus *De incredibilibus*).

⁸ It is noteworthy that chronologically, the anonymous collection of myths is the earliest work that mentions the word "chemistry". Chagunava R., *Gold Mining in Ancient Georgia*, Science and Technologies, 10, 1974, 18.

as a source of information written on a parchment and chemistry as the art of producing gold.

Charax of Pergamon also identified the Golden Fleece with a book, noting that it contained rules for chrysography. Taking into account the fact that Pergamon was regarded as the birthplace of parchment ('pergamon' in Greek) and an important centre of art, it is no surprise that the local man considered the issue in connection with writing. Since skin is connected with writing as a material, on which people wrote (parchment), and gold as a means for writing (golden ink), Charax provided such an explanation: "The Golden Fleece is a method for chrysography written on parchment and it is trustworthy that it was the reason for organizing the Argo campaign".⁹

In the following centuries, John of Antioch repeated the information of the anonymous author¹⁰ and later, Soudidas quoted the explanation by Charax of Pergamon in his dictionary.¹¹

The Euhemeristic explanations of the Golden Fleece were based on rational logic, so the mythic elements were replaced by real objects (a statue and books about chemistry and rules for writing). In spite of that, none of the explanations reflected the truth. However, at the same time, all of them said that gold was extracted and processed in Colchis, which undoubtedly had certain grounds.

One of the written sources that have come down to us and that provide direct indications to the practice of gold-mining in the country of Medea is *Geography* by Strabo. Unlike other authors, Strabo knew Colchis well and it is quite possible that he received certain information about Argonauts and the Golden Fleece directly from Colchians.¹² Some fragments from his *Geography* make this quite clear. We will concentrate on

⁹ καίτοι ο χάραξ τὸ χρυσοῦν δέρμα μέθοδον εἶναι λέγει χρυσογραφίας μεμβράνης ἐμπεριελημμένην, δι' ἣν ὡς λόγου ἀξίαν τὸν τῆς Ἄργου καταρτισθῆναι στόλον φησί. Eust. Dion. Per. 689, FGr. Hist.-Die Fragmente der griechischen Historiker von Felix Jacoby, II, 482-493.

¹⁰ ...βιβλίον ἐν δέρμασι γεγραμμένον, περιέχον ὅπως δεῖ γινεσθαι δια χημείας χρυσοῦν, FHist. Gr. IV, 548.

¹¹ ...ἀλλὰ βιβλίον ἐν δέρμασι γεγραμμένον, περιέχον ὅπως δεῖ γινεσθαι δια χημείας χρυσοῦν. εἰκότως οὖν οἱ τότε χρυσοῦν ὠνόμαζον αὐτοῦ δέρας, δια τὴν ἐνέργειαν τὴν ἐξ αὐτοῦ, Δέρας, *Suidae Lexicon*, ed. G. Bernhardt, I, 1-2.

¹² The following fact points to the author's close links to the Colchian world: when Mithridates the Eupator conquered the country, he dispatched Moaphernes, his mother's uncle, as the "ruler and governor" of Colchis. Strabonis *Geographica*, I-III vol., ed. F. Meineke, XI, 2, 18, Leipzig 1877.

two of the fragments. The first contains some interesting information: "The city of Aea is still shown on the Phasis, and Aeëtes is believed to have ruled over Colchis, and the name Aeëtes is still locally current among the people of that region. Again, Medea the sorceress is a historical person; and the wealth of the regions about Colchis, which is derived from the mines of gold, silver, iron, and copper, suggests a reasonable motive for the expedition".¹³

Aea could be 'shown' on the Phasis only on the spot – on the territory of Colchis and the person, who showed it was obviously Colchian. The fact that Strabo regards the name Aeëtes as local is an unequivocal indication to the fact that in Colchis of his time, the name was widespread. Later, historian Agathias Scholasticus confirmed this by referring in his work to a Laz nobleman with this name.¹⁴

The quoted fragment makes it clear that Colchians remembered Medea too (unfortunately, their stories comprising local theories of the daughter of the Colchian king have not come down to us). However, it is interesting that on the basis of the Colchian narrators' or Greek eyewitnesses' stories, Strabo managed to explain the real reason for the Argonauts' arrival in Colchis ("the mines of gold, silver, iron, and copper, suggests a reasonable motive for the expedition").

Along with the reason for the campaign of the Argonauts, Strabo also explained the centuries-old secret of the Golden Fleece. This becomes clear from the second fragment of his work, which also seems to be written on the basis of Colchian narrators' or Greek eyewitnesses' stories. According to this description, gold was extracted from mountain rivers in Svaneti, a historic province of Colchis, with the help of fleeces. Strabo describes this process in such a natural manner that the description seems to be made on the basis of information supplied by an eyewitness.¹⁵ Here is the fragment: "In their country the winter torrents are said to bring down even gold, which the Barbarians collect in troughs pierced with holes, and lined with shaggy fleeces; and hence the fable of the golden fleece".¹⁶

This fragment is noteworthy in many respects. It unequivocally confirms the existence and extraction of gold in one of the mountain

¹³ Strabonis *Geographica*, I, 2, 39.

¹⁴ *Georg.*, T. III, Tbilisi 1936, 63-65.

¹⁵ Cf. Note 12.

¹⁶ Παρα τοῦτοις δὲ λέγεται καὶ χρῦσον καταφέρειν τοὺς χειμάρρους, ὁποδέχουσαι δ' αὐτοὺν τοὺς βαρβάρους φάνταις κατατετρημέναις καὶ μαλλωταῖς δοραῖς ἀπ' οὗ διημευθεῖσθαι καὶ το χρυσόμαλλον δέρος, Strabonis *Geographica*, I-III, ed. F. Meineke, Leipzig 1877, XI, 2, 19.

regions of Colchis. It follows that torrents brought down gold in Svaneti and it was not extracted from mines. This means that the precious metal was dispersed in the water of rivers and torrents in the shape of small particles. And the troughs lined with fleeces were used to obtain precisely these particles. Having familiarized himself with this method, it would be quite natural for Strabo to identify the Golden Fleece with ordinary fleece used to obtain gold particles.

Many centuries later, prominent German metallurgist Georgius Agricola followed Strabo and identified the Golden Fleece with sheep's skin used to obtain gold. In his fundamental work in 12 books entitled *On the Nature of Metals*, he specially dwelt on the Colchian method of obtaining gold. He wrote that this method was known much earlier in Colchis than in Europe, where cloths or other skins (bull's or horse's) were used instead of fleece.¹⁷

According to Agricola, after crushing and washing gold ore, Colchians spread sheepskins in the bed of flowing water to collect gold particles. Since flowing water was always enclosed by masonry, water flowed through the only exit – over the surface of the fleece, leaving gold particles on it.¹⁸

Together with verbal explanations, Agricola also provided graphics. Argonauts in Colchis: A – exit from a mine; B – part of the fleece visible; C – Argonaut.¹⁹

It is known, however, that Colchians did not collect gold from water washing gold ore. Agricola has certainly ascribed this method to them being under the influence of European practices. Although the details described by the German specialist are not true, it is noteworthy that he identified mythical Golden Fleece with real sheepskin.

Unlike written Greek sources, there is no information about gold mining in ancient times in Georgian sources. However, the lack of information from sources is fully compensated by ethnographic materials, which makes it clear that nowadays, people in Svaneti collect gold particles in rivers on the basis of the rule described by Strabo back in the 1st century AD. Ethnographer L. Bochorishvili obtained the materials in the 1940s, recording the narrations of gold seekers in Svaneti, who described their method. Here is a fragment from the text, which comprises a full description of the method: "Sheepskin stretched or spread in some

¹⁷ Агрикола Г., *О горном деле и металлургии*, 12 книг, Москва 1962, 318.

¹⁸ Ibid., 318.

¹⁹ Ibid., 318 or 319.

other way on a board would be put into water (according to Samsiani, close to the bank and according to Khvistani in the middle of the river) and fixed with the wool up to prevent it from being swept away. 'The wool would keep gold and let water flow'. 'Gold pebbles would stick to the wet fleece'. Since gold is heavier than sand, 'sand would remain on the top of gold'. After a certain time, the skin would be removed from the river and spread to dry. The dry skin would be winnowed to collect gold pebbles".²⁰

It is clear that Svans searching for gold put sheepskins in riverbeds, which means that they collected small particles of gold that found itself in rivers after the main ore at the beginning of a river was washed by water. It is also clear that the Colchians searching for gold acted in precisely the same manner. The fact that they used 'shaggy fleeces' also points to this. It is clear that they should have stretched sheepskins on boards to increase the surface and productivity. It is also clear that other technical details were also identical. Colchians should have placed sheepskins with wool upwards and fix boards with sheepskins firmly to prevent rivers from sweeping them away. They would also have to dry the sheepskin and winnow it to easily remove gold particles.

Svans (and obviously their ancestors) collected gold in upper and middle reaches of rivers, where torrents are very fast. Therefore, skins of all animals were not useful for collecting gold particles. Both written and ethnographic materials suggest that ancient Colchians and modern Svans used only sheepskins to collect gold in rivers. The choice was probably not accidental, as sheepskins are best suited for collecting gold particles due to its wool, which is the main part of the external cover of sheep, while other animals have just short bristle. Unlike smooth skins with bristle, the surfaces of skins with wool are covered with scale like tiles,²¹ which is invisible, but makes the surface coarse. This increases the ability of sheepskins to collect golden particles. In addition, wool has a high potential of sticking things to itself due to the special nature of sheepskins. Compared with other animal skins, sheepskins have more sweat glands and are correspondingly, more porous. Sweat glands secrete lanolin, and are correspondingly, more porous. Sweat glands secrete lanolin, completely drenching wool with this glutinous substance.²² Since gold has

²⁰ Bochorishvili L., Goldsmithery in Svaneti, Bulletin of the Georgian Academy of Sciences, VII, 5, 1946, 285 (*in Georgian*).

²¹ Вагнер Р., Химическая технология, СПб 1892, 431.

²² Химия и технология кожи и меха. Ред. Н. Стрихов, Москва 1979, 3.

a selective capability of sticking to glutinous substances,²³ wool drenched with lanolin has a significantly increased ability of sticking gold to itself.

The effectiveness of fleece as a means for collecting gold in rivers created for Colchis the image of a 'country rich in gold', which is confirmed not only by ancient written sources and modern ethnographic data. Materials of archaeological research are even more impressive.

Otar Lortkipanidze, who has made quite a number of important archaeological discoveries, showed that ancient Colchis fully deserves the image. Numerous golden things have been found in various areas of the country both as accidental discoveries and in regular archaeological excavations. It was in one of such excavations that more than 1,700 golden things were found in a grave of a Colchian woman (5th century BC).²⁴

Modern gold production methods also add to archaeological materials and information found in ancient sources. The modified Colchian method of obtaining gold has found its place also in modern technologies. Most of the gold obtained from sandy grounds is currently being collected by means of thick-pile fabric, particularly felt and broadcloth made of wool that have proved to be most productive.

²³ Потемкин С. В., *Благородный 79-й: Очерк о золоте*, Москва 1978, 49.

²⁴ Cf. for details: Лордкипанидзе О., *Наследие древней Грузии*, Тбилиси 1989.