

Astronomical Significance of Ancient Monuments

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Abstract. Astronomical significance of Gokhnari megalithic monument (eastern Georgia) is considered. Possible connection of Amirani ancient legend with Gokhnari monument is discussed. Concepts of stary practicality and solar stations are proposed.

The bright yellow-orange Sun, as inexhaustible source of light and warmth, played a special role in everyday life of the ancient people. This fiery ball, going up over the horizon, lighted the mountains and valleys with golden light, gave boundless warmth of its wealth to men, animals and plants. Day after day, year after year, century after century, watching the sunrises and the sunsets behind the Sun's smooth movement in the blue of the heavenly ocean, the ancient people noticed inexorable regularity and recurrence in the movement of the Sun. The Sun always rose there over those mountains, but set, surely, behind the remote mark of the water surface, in the opposite direction. It was also noticed that days were different, but now brightly long, then pale short. And the Sun, kept heaving now over this mountain, then over that one. And these transformations and conversions kept repeating and repeating. Experience of the ancient people gradually expanded and deepened, embracing climatic phenomena as well. In particular, they found out, remembered and apprehended that the sunrise in a certain point of the horizon is a herald of long warm days, light and rain. And the sunrise over another point witnessed the beginning of dusk and cold. Ascribing what they saw to divine powers, believing in power of light—the God of the Sun, the ancient people, nevertheless, started thinking how to practically use inexorable regularity and accuracy of movement of the celestial bodies and, certainly, to use this for the benefit of the men. Moreover, already by that time there was behind their back some construction experience of erecting the rough stone constructions and all kinds of their complexes, what we call today megaliths.

Once one ancient morning, I will not be mistaken if I mention—one ancient evening, a man decided to entrap a sunbeam into the trap of his intellect. Talk maybe like this, we shall build here something, it will rise and will be caught into our stone nets, and it will unintentionally tell us what is there in front. It is hard today to evaluate and even more, to prove the details of the initial “interactions” of an ancient man and celestial bodies. In addition to this, multiplicity of megalithic constructions, oriented at significant astronomical points of the horizon, were scattered around the world and this fact is inexorable. Many of these constructions have already been studied within the interests of archaeoastronomy, while many others are not. Now let us discuss just these ones. Not quite far and not quite near, in South Caucasus, the territory of Georgia is rich in archaeological artifacts—stone monuments of different forms and constructions.

Many of them are well studied archaeologically, but are not studied at all by the methods of archaeoastronomy (Simonia 2001). This witnesses that expected astronomical importance of megaliths, complex constructions of the Bronze Age and antique temples of Georgia, has not been studied. This omission should be filled up as soon as possible. An ancient layer of possible astronomical heritage can be organically added to the single circle of the ancient cultures. For example, according to Zukhbaia (1975, p. 32):

From ruins of fortresses and cities, first of all, Gokhnari megalithic monument should be mentioned in the river Algeti ravine, in 10 km distance from Manglisi, the so-called Yellow mountain slope. The monument occupies 0.25 square kilometre area. To the east of the dwelling there is bank of stones with clefts and tunnels, to the west—ruins of a city and to the west from these ruins—ruins of a fortress. In the centre of the square of buildings there is erected big pillar-like monolith. To the east of the ruins of fortress there is natural rock used as a fence: here we come across four shelters, five dolmens and many clefts and tunnels. The thickness of walls is average 3 metres.

Here should be pointed that the settlement Manglisi is located southwards from Tbilisi in approximately 30 kilometre distance.

According to L. Melikset-beg (1938):

This dwelling, being one of the biggest city and fortress ruins preserved in Georgia up to now, is located opposite Manglisi, on the other bank of the river Algeti, in the distance of 18 km by the road and 10 km by short way (through Mariamjvari or Sakrisi) from Manglisi, and in 1 km distance from Gokhnari, between the so-called Yellow mountain slope and small water, on the hill, which can be reached only from the north-west. This dwelling of the megalith culture consists of mostly quite big monument, which occupies 1/4 square kilometres and in the centre of which there is seen from all sides an enormous pillar-like monolith. The dwelling consists of 3 main parts, one of which represents a heap of stones with clefts and tunnels eastwards from the centre; second, westwards from this centre—the ruins of a city proper; and third, westwards from the ruins of a city—the ruins of a fortress built on the plan of the irregular quadrangle. The fence eastwards is especially grandiose, by the way, because natural rocks are used for its construction, one of which is similar to two faceted (three-angled in its foundation) counterforts, being just in the centre. Southern fence of the ruined fortress is also interesting with its cylindrical towers, which come down like amphitheatre southwards to the water. In all the three parts of the dwelling there are scattered shelters (about four), dolmens (about five), clefts and tunnels (plenty), pillar-like monoliths in vertical condition.

Small water passes by the ruins of city and fortress to the south-western direction. It is inaccessible from every part, except north-western side, from which the road seems to have been laid towards water and Mariamjvari, on the so-called Yellow Mountain. That is why it is quite understandable that in the legend of Amirani, where the talk is about the tower of Algeti mountain, which, in our opinion, should be just that ruin of city and fortress. By the way, why it is said:

In an unknown mountain a tower they saw
Built of crystal stone,

Brothers walked around
Failing to find the door of its.

With a variant:

There was one tower there
Built of steep rock,
Walked we around it three days and nights,
Failing to find the door of its

Or:

On an unknown mountain saw they a tower
Built of crystal stone,
Passed it around indifferently
Failing to see the door of its.

As it was mentioned above, the entire megalith dwelling occupies about 1/4 square km area, and ruins of a fortress hold the following area: length of the northern wall inside is 17 metres, of the southern wall, also inside, 32 metres, by length–average (also inside) 45 metres. The wall width is average 3 metres. Despite poor quality of printing technique of the 1930s, we reproduce here photograph published in the cited work. This is essential as this graphical material reflects the condition of the present monument in the first half of last century.

This megalithic monument is located in the mountains, in difficult to access locality. The monument is structured and consists of the site of an ancient town, fortress, monoliths, dolmens (Figure 1), shelters, cylindrical towers and other elements. In our opinion, this witnesses multifunction character of this megalithic complex. In the Bronze Age there was, probably, located a separate settlement, autonomic and self-sufficient. Here may have lived people of common principles, cultural traditions, cosmological notions, and religions, united by concrete social form. They were born and died, brought up their children, built and destroyed, sowed and reaped, fought for their future. All this kept repeating year after year, century after century. Within this endless order of events, sometimes very much similar to one another as rings of the same chain, cultural notions of these ancient people were being polished and enriched, their knowledge on the sky were being deepened. The construction itself of this megalithic monument, more exactly, its ruins, talk about complex functional peculiarities, importance of each element of the construction. Today, it is too difficult to precisely evaluate, apprehend or feel deeply practical significance of this megalithic constructivism, but probably it may have been this way as well: they lived in different constructions, they buried their dead in dolmens and burial mounds, they buried their riches and ritual articles behind the high and thick fortress walls, and sometimes saved their lives from enemy raids. But pillar-like monoliths, shelters and labyrinths, and other spatial elements of the construction might have served to rather important objectives, namely, to cult and astronomical ones.

The very complexity of this megalith construction, inter-location of monoliths, fences, shelters and other elements witnesses that the ancient inhabitants do not only contemplate the celestial bodies, but masterfully and accurately “caught” the light of far-off celestial bodies. In particular, monoliths and eastern fence are located so that in



Figure 1. Dolmen in Gokhnari (Melikset-beg 1938).

the day of solstices the Sun could rise just behind one of the monoliths (or other elements), and the sunrays of the rising Sun could for definite time penetrate into the fence through the openings into the counterforts. Thus, the ancient people conducted accurate fixation of time. A year or, to be exactly, full time could be divided by them into seasons, warmth and cold, such important stages of their everyday life. A marker of the beginning of this or that season was appearance of the Sun or any other celestial body over or behind definite constructive elements of the complex. In the orientated openings or small windows the ancient people could see, as minimum once a year, light of the remote star or the bright Sun. To make the rays of the celestial bodies penetrate into, designated for this, constructive details of openings, hollows, cuts, accuracy of placing the elements of the constructions of fences, columns, labyrinths should have been quite high. This could have been reached only on the basis of knowing all the precise details of annual motion of the heavenly bodies and, surely by means of preliminary planning, of spatial location of all the elements of the construction. Practical implementation of all these tasks were not impeded either by mountainous relief or weight of cyclopic stones, just on the contrary, the principle—the more the more precise—has worked unmistakably

Thus, this was not simple contemplation. Their knowledge was accurate and regular enough, based on long-term experience of observation, probably, being transferred from generation to generation. These ancient people were not investigators, but they were observers and time keepers of the Bronze. The life itself—fight for existence—forced them to “relations” with the heavenly bodies. Their main and natural device was an eye, and additional instrument was enormous and heavy stone masterfully placed just on the required top of that remote mountain. Here is a starry practicality laying

the way for the ancient people through fiery centuries of merciless history. It could have been naïve simplification to discuss cosmological notions of the ancient people, their astronomical experience out of touch with their religious views. Bright and dim celestial bodies were for them not only guests of the dome of heaven pointing to the way in time, but they, first of all, were different gods, objects of unrestrained worship and respect. It is not difficult to suppose that the most powerful, the strongest and the most important could have been god of the Sun—the brightest from the brightest celestial bodies, gifting light, warmth and hope to the ancient people. Seeing the rising Sun, pricking rays of which penetrated once a year through the cherished opening, the ancient people conducted cult ceremonies and started counting off the time, season of warmth or cold. This infinite sky was the object of their worship and knowledge, the source of their spiritual calmness and human happiness. Their belief and knowledge were bound into the single context of indefinable and much incomprehensible, but exceptionally exact heavenly order. The very essence of the natural landscape created additional preferences forming “fruitful ground” for developing their religious views and astronomical knowledge.

Quite important is the southern side of the monument characterised by existence of cylindrical towers located on the slope and directed to water. Unfortunately, photographs published in the above mentioned work do not give exact information on the form and spatial location of these southern towers. It is too difficult now to judge the functional designation of these elements of the construction. They could have everyday cult or astronomical meaning.

The ancient people left for us stone evidences of their everyday life, belief, knowledge. Was it done unintentionally? Did they or did not they want to leave for us their stone wills?

And though megalithic constructivism clearly witnesses its own self, it, meanwhile, cannot talk. However, folklore have brought to us ancient Georgian legend on Amirani, loudly speaking in the words of thousands of people living in far-off Bronze Age and Antiquity, in the Middle Ages and living now. Amirani, as the ancient people apprehended him, is the son of the Sun. It is considered that the epic was formed in the middle of the second millennium BC (Georgian Encyclopedia 1975, p. 396). What is kept in silence by stone is said loudly by the folk legend. Melikset-beg (1938) turned his attention to this in the 30s of last century. But now, however paradoxical it is, we have also paid our attention to this independently of him. There exists a chance that, thousands of years later, something concealed will still be formed in the evident.

Legend on Amirani has many different variants. Different narrators, reciters, interpreters cite various variations of this ancient epic. On the pages of the above mentioned work there are published small fragments of two variants. Two circumstances attract attention; firstly, the lines of the legend mention the word *broli*, literally meaning “crystal” in modern Georgian. Explanatory dictionary of the Georgian language, compiled by philosopher S. S. Orbeliani (1991, p. 115), defines the word *broli* as “natural white stone”. Secondly, in different variants of the epic it was talked that walking around the tower no entrance was found to it. Proceeding from the said above, we suppose that through millennia in the lines of the folk epic there has come to us the information on how an enormous monument laid in white stone was towering above in the mountains in the south of Georgia. Now we see material in the form of archaeological artifact and virtual in the form of poly-syllabic folk epic and one is added to the other. We will try

to expand, enrich our ideas on this monument. We use one more variant of this legend for this (Tsiklauri 2006, p. 27) it is said in particular that:

In the unknown place they have seen a tower, built of crystal stone,

Walking around it, failed they to find door of its,
 Wherever the Sun shed its light—Amirani with his knee of wolf,
 There a tower opened its door, there was the door of its,
 In the tower a lion was lying, wounded by giants,
 There was a horse at the head, digging ground with its feet,
 To the left a spear stood, its tip cutting the sky,
 To the right a sword stood, its blade being of diamond,
 In one corner—gold and silver, gathered,
 Beside there stood a wife—shedding tears into the sea,
 Having a book of paper, between fingers and fingers.

On the same page it is also said that the brothers came up to the mountains of Algeti and discovered this tower. Analysis of this fragment of the epic, in our opinion, witnesses that this folk substance of the ancient knowledge, being rhythmically united into the single whole, experienced temporal transformation passing through the Antiquity and the Middle Ages, Enrichment of the legend with the knowledge of corresponding epochs witnesses the materials enlisted in these ancient lines, including paper. However, root information, the basis of description itself, is most interesting. Where the sunray fell, there Amirani passed through the open door. This, as minimum, means that in circular construction there was one opening for the sunray. And farther, in the tower, a wounded lion lay, to the left there was a spear, which pierced the sky, and to the right—a sword with a diamond blade. The lion and his armour are symbolic form, indirect instrument of delivering the real knowledge and religious views. This megalithic monument near the settlement of Manglisi was in those far-off times a place where the ancient people lived, a sanctuary, and a site of astronomical observations. Proceeding from the said above, it may be supposed that the ancient people living in this crystal tower worshipped the Sun, measuring the time by the motion of the heavenly bodies and, first of all, by the Sun. Taking into account isolation of this megalithic stand, its mountainous location and taking into consideration chronological notions of its inhabitants, we suggest naming such a monument (and others like it) a solar station. High in the mountains, surrounded by the sky and the horizon, thousands of years ago, there lived people, who worshipped the Sun and counted their time by the Sun. Certainly, there will be found arguments in favour and against, but one thing is obvious, that the solar stations, as the vital territory, as the cult place and the site for astronomical observations could have existed not only in Georgia, but in any other mountainous region of the world, where people believed and lived, watched, opened the pages of a mysterious book of the universe one page after another. To prove or disprove the hypotheses, expressed by us, to clarify astronomical importance of the crystal tower of the Algeti mountains of Georgia, it is necessary to conduct regular archaeoastronomical research of the discussed site.

References

Georgian Encyclopaedia 1975, Vol. 1 (Tbilisi: Encyclopaedia)

- Melikset-Beg, L. 1938, *Megalithic Culture in Georgia* (Tbilisi: Federatsia)
Orbeliani, S. S. 1991, *Dictionary of Georgian Language*, Vol. 1 (Tbilisi: Merani)
Simonia, I. 2001, *Journal of Astronomical History and Heritage*, 4, 1, 59
Tsiklauri, M. 2006, *Amirani-Ancient Georgian Legend* (Tbilisi: Bakmi)
Zukhbaia, V. 1975, *The Stone Pages of Kartli's Life* (Tbilisi: Metsniereba)