

Ancient Georgian Cultural Heritage: Archaeoastronomy and Ethnocosmology

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Abstract

The processes of accumulating knowledge about celestial bodies and phenomena are considered. Certain elements of the ancient Georgian astronomical worldview are discussed. Archaeoastronomical and ethnocosmological aspects of the problem are described. Examples of the astronomical projection of the ancient Georgian heritage are presented.

Keywords: *astronomy, archaeoastronomy, ethnocosmology, cultural heritage, Georgia*

1. Introduction

Since prehistoric times, humans have been fascinated by celestial phenomena. Bright celestial bodies, their repetitive appearances and configurations, impressed ancient humans, inspiring their desire to understand and respect them. Gradually, ancient people realized that the bright celestial bodies—the Sun and the Moon—could serve as useful guiding lights in time and space, allowing humans to prepare for periods of heat or drought, cold or moisture. Bright, rising, and setting celestial bodies provided ancient humans with precise directions for spatial movement in mountainous and valley terrain. The phenomena observed in the sky and the positions of bright luminaries were imprinted in the ancients' memory as empirical knowledge that could be consulted as needed. The empirical knowledge accumulated in this way about the appearance, movement, and mutual configurations of bright luminaries was passed on and enriched from generation to generation, which, in turn, was transformed into an ancient cultural heritage in the form of oral narratives and simple drawings (signs, direct images of lights, etc.) inscribed and carved on stones, rocks, in caves, and other material surfaces near the places of habitation of ancient humans. Later, enriched with empirical knowledge, ancient people shifted from the casual contemplation of celestial phenomena to their conscious observation and anticipation of the appearance of bright bodies, with the goal of using these phenomena to regulate daily life. The transformation of ancient humans from passive contemplators of celestial phenomena to practical observers was also expressed in the fact that the ancients no longer limited themselves to recording the rising of stars over the horizon but began to build simple stone structures with the goal of "capturing" and precisely recording the first appearances of bright bodies in the elements of these structures: in windows, openings, and crevices where the first bright rays of the rising Sun and the silvery light of the Moon could penetrate. Fixing the rise of bright luminaries in the elements of stone constructions allowed the ancients to accurately determine the onset of warm and cold seasons. Later, landscape features were added to stone constructivism; for example, a rising full moon over a high mountain peak, whose light penetrates the stone opening only for a short time during a given period. This kind of landscape constructivism became a reliable tool for the ancients' orientation in time, which was very important for agriculture. The Sun and the Moon became the main deities of the ancients, so the places, sites, and locations of stone structures gradually acquired another meaning—that of special religious buildings. There, people worshiped bright luminaries, their guides through time and space. Myths and legends were formed by the ancients in the context of celestial phenomena, bright luminaries, and their worship. All of this today constitutes a valuable cultural heritage of ancient peoples and civilizations in the form of material artifacts, legends, and oral narratives. Interdisciplinary methods of archaeoastronomy and ethnocosmology allow us to uncover previously unknown layers of this ancient cultural heritage.

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Figure 1. Avranlo. Credit: K. Jelja.

2. Ancient Georgian cultural heritage. Archaeoastronomical aspects

All of the above also applies to the South Caucasus, particularly Georgia. Considering the landscape and climatic conditions of Georgia, as well as the ancient agricultural traditions of the Georgians, it can be fairly concluded that ancient Georgians were interested in, understood, and used celestial phenomena for practical purposes since prehistoric times (Georgobiani, 1971, Simonia, 2001, 2019, Simonia et al., 2009). In the eastern and western parts of Georgia (called in ancient times Caucasian Iberia and the kingdom of Colchis, respectively), numerous megalithic structures and their fragments, built by the ancients for various purposes, including religious and ceremonial ones, have been preserved. A certain part of these constructions could be used for observations of celestial bodies – rises and sets of the Sun, the Moon and bright stars. Megalithic complexes, structurally oriented to the north, could have been used to record short periods of time during observations of circumpolar, never-setting stars and constellations. Megaliths in the astronomical context apparently had a dual purpose: as purely observation platforms, structures and simultaneously as religious-ceremonial centers. Considering the fact that the main deities of the ancient Georgians were the Moon, the Sun, and Venus, one can conclude that observations of the risings of these luminaries were primarily used to record time periods, seasons of warmth and cold. This refers to both ordinary risings of luminaries, as well as cheliacal and acronic ones. Simonia (2001) was the first to examine the astronomical significance of the megalithic monument, Gokhnari, and the possible connection of the ancient legend of Amirani with this monument. The concepts of starry practicality and solar stations were proposed. This megalithic complex actually represents a multifunctional ritual and observation center of the Bronze Age, where the ancients worshipped their luminary gods and observed the first rays of the rising Sun to determine time. Simonia & Jijelava (2015) examined, among other things, the functioning of megalithic complexes the Abuli and Shaori solar stations, where the ancients performed their religious ceremonies and observed the sunrises in the days of the summer and winter solstices. Another very interesting megalithic complex, possibly of astronomical significance, is Avranlo, also located in southern Georgia, at an altitude of 1,640 meters above sea level. This large megalithic complex consists of three elements arranged in tiers according to a circle, square, and rectangular symmetry (Zukhbaia, 1975). This megalithic complex still awaits archaeoastronomical study (Fig. 1). However, it should be noted that not every megalithic complex characterized by regular geometric constructivism can have astronomical significance. The landscape of eastern and western Georgia, with its rugged terrain and mountainous and high-altitude relief, encouraged the ancients to utilize these natural features to observe and record the risings and setting of bright luminaries. Gradually, man-made constructivism was added to natural constructivism, when the ancients began to enrich and integrate unified structures into the terrain of a particular area, such as individual menhirs and their rows, various cromlechs, and other megalithic elements, with the goal of “uniting” mountain peaks and depressions with stone devices (if not tools) for (at that time, of course) recording astronomical phenomena, such as the appearance of the Moon as a “hill” over a specific mountain peak or the “landing” of a bright

star (such as Sirius) in a specific mountain depression.



Figure 2. Kvatsantsalia. From the public domain www.about.ge.

Given the diversity of Georgia's mountain landscape, it can be assumed that the ancients had a fairly wide range of capabilities for creating artificial-natural "instruments" for observing the appearance and movement of bright luminaries. Since travel by land and sea during the Bronze Age and early antiquity was a difficult and time-consuming task, it can be concluded that for people living at a distance, for example, 180 kilometers, communication and the transfer of knowledge were time-dependent processes. This means that tribes, communities, and settlements separated by tens of kilometers (mountains and valleys) needed to develop their own methods for acquiring knowledge about celestial phenomena. Different regions of the eastern and western parts of Georgia are characterized by their own unique relief. In other words, each tribe or community must have had its own observation platform, megalithic instrument, built-into the landscape, with which it would be possible to accurately fix the sunrise on the day of the solstice and other celestial phenomena. Is this why the mountainous and valley regions of Georgia are so rich in megalithic artifacts and their fragments? The answer to this question must be sought in an interdisciplinary manner, at the intersection of the results and methods of archaeology, ethnography, and astronomy. Thus, the ancients, not far from each other, separated by a mountain ridge, could have had slightly different ideas about celestial phenomena. For those who lived in the field, a specific bright star rose above the horizon even before sunrise, and for those living 12 kilometers to the west, behind the mountain, it would appear an hour later, already at an altitude of approximately 15° , with a slightly different azimuth in the rays of the rising sun. For farmers in fields with a horizon close to the mathematical horizon, the rising of the luminaries differed slightly from the rising of the highlanders. This is because the horizons of the latter were contoured by the outlines of mountain ridges and valleys, clearly situated above the mathematical horizon. For the ancient Georgians, one can mainly speak of the development of mountain-horizon astronomy. At the same time, the celestial phenomena observed by these ancient people were somewhat influenced by the lag factor, proportional to the angular height of the local mountains and depressions. Of course, for the ancients living in the lowlands of Georgia and by the Black Sea, the pattern of rising luminaries was standard—rising above a small circle of the celestial sphere (below the mathematical horizon). The peculiarities of the celestial phenomena observed by the ancients were reflected in their applied arts in drawings, ornaments on stone, metal, and ceramics. In the western part of Georgia (ancient Colchis), in the Mingrelia region, on Mount Kviria is located the irregularly shaped monolith Kvatsantsalia. The width of the conventional sides of the monolith is about 1.5 meters, and the height is approximately 3 meters. The remarkable thing about the Kvatsantsalia monolith is that it stands on one support, a small "leg" or slab, which ensures its vibrational stability. A light touch or a slight wind causes the monolith to oscillate, accompanied by a rhythmic sound. Legends indicate that the speaking monolith Kvatsantsalia was a source of inspiration and predictions for the Lunar priests (Kobalia, 2023). Kvatsantsalia, translated from Georgian, literally means a swaying or rocking stone. We hypothesize that the Kvatsantsalia monolith was used by the ancients as an astronomical

“instrument” and a ceremonial object. In particular, the ancients could observe the appearance of a weak shadow from Kvatsantsalia at the moment of the rising of the “harvest” Moon—the closest full Moon to the autumnal equinox. Thus, the appearance of a weak shadow of Kvatsantsalia of the appropriate shape and direction was a sign for the ancients indicating the need for harvesting. Here at the Kvatsantsalia, the ancients could celebrate this important date with appropriate ceremonies, as an integral part of the worship of their main deity, the Moon (Fig. 2). On the territory of Georgia, many small metal artifacts from the Bronze Age and antiquity were discovered, symbolizing directly or indirectly bright luminaries and celestial phenomena in general (Simonia & Simonia, 2005). Research of the cultural heritage of Georgia in the context of archaeoastronomical interdisciplinarity is important for understanding the culture and science of the ancients.

3. Ancient Georgian cultural heritage: ethnocosmological aspects

The ethnocosmological beliefs of ancient Georgians have reached us in the form of material artifacts, as well as in the ideas, direct and indirect knowledge of celestial bodies contained in oral narratives, legends, and myths. Moreover, knowledge of the stellar world, which has found its way into Georgian myths and legends, is often characterized by its systematic nature, comprehensively reflecting the ancients’ understanding of the universe as a whole. For example, narratives about the Earth and the Moon; the Sun, the Moon, and stars; the multiplicity of bright stars and their movements, etc. This means that the ancients observed and noted the peculiarities of the rising and setting of celestial bodies, their mutual configurations in the sky, and changes in appearance, for example, the phases of the Moon, etc. The ancients sought to organize what they saw in the sky, giving it universal significance—the Sun and the Moon, bright planets, and stars—as a kind of precise mechanism above the heads of ancient people. In our opinion, the cosmology of the ancient Georgians, which described their understanding of the universe as a whole, was based on the empirical knowledge of the ancients about the movement of the sun, the Moon, and the bright planets (primarily Venus) relative to the stars. Their cosmological concepts could have stimulated the regular measurement of time. For example, the “fast” Moon, which rotated in a month, and the “slow” Sun, which returned to the same point in the sky only after a year, is both the systematic nature of the universe and the precise counter of time: days, months, and years. The cosmological ideas of the ancient Georgians are well woven into folklore. As Javakhishvili (1908) showed, in the western Georgian region of Mingrelia (and some other regions), the following names for the bright luminaries were common: Tuta, Taxa, Juma, Tsa, Vobi, Sabateni, bzha, which translated means: the Moon, Mars, Mercury, Venus, Jupiter, Saturn, The sun, respectively. Why exactly this order of luminaries existed should be the subject of a separate study. Here we note that the first Moon and the last Sun seem to encompass this row of planets, opposing night and day, speed and slowness. Here we can see the system, universal concepts of the ancient Georgians. It’s worth noting that the Georgians’ systematic understanding of the world of planets and stars was complemented by the systematic nature of their way of life, ceremonies and rituals, and even the orientation of their homes, where structural elements in the form of small windows were aligned with the points on the horizon where the rising sun appeared on the days of the summer and winter solstice. This testifies to the ancients’ extensive observational experience, knowledge, and desire to see the world as a unified whole, where rational humans play a vital role. They worship their luminary gods, utilize light and heat, count days and nights, and anticipate the coming and going of springs and fall. Farmers in ancient Georgia often linked celestial phenomena (sunrises, moon phases, etc.) and climatic phenomena (wind and rain seasons) into a unified understanding of the world around them. Moreover, they tried to use celestial phenomena to predict the weather, crop quality, and other factors important to their lives. According to Tsotsanidze (1987), in ancient times, farmers in Tusheti (a region of Georgia) used to say: “The Moon will tell about many things, in particular about bad weather, heat and cold. The waning of the Moon - the beginning of its waning - often corresponds to bad weather. The weather that accompanies the appearance of the waxing crescent will last until the beginning of the Moon waning. If the crescent of the young Moon is turned upward, there will be good weather - a month of drought, but if the crescent is tilted down, there will be bad weather - a month of rain.

If in winter the Moon is surrounded by a “fence”, that is, if the full Moon is surrounded by a luminous halo, expect severe frosts”; “In the starry sky “deer flight” - a pale whitish strip seen on the northern side, a sign of clear weather”; “If in the morning the sky turns red, the weather will deteriorate”. This figuratively speaking astro-climatic material is quite rich and characteristic of many oral narratives from various regions of Georgia. It is curious that here, too, the cosmologism of the ancient Georgians prevails,

linking weather phenomena with the bright luminaries of the sky, which, in their opinion, govern the world order. Generally speaking, Georgian ethnographic materials are enriched with astronomical and ethno-cosmological elements. Unfortunately, ethnographic materials of Georgia published by various authors in the form of articles and monographs are of an irregular nature within the interests of ethnocosmology. Therefore, it seems appropriate: 1) to work through the already published layer of ethnographic material within the framework of the interests of ancient astronomy; 2) to prepare and carry out expeditions to populated areas, primarily high-mountain regions of Georgia, with the aim of accumulating ethnographic material; 3) to systematize, interpret, and publish the obtained results in the form of a separate monograph. A project of this kind could shed new light on the ethno-cosmological and observational experiences of Georgians that have come down to us from ancient times. It should not be forgotten that Georgian folk poetry and chants are also enriched with references to the Sun, the Moon, and other bright luminaries. In various regions of Georgia, both in the east and the west, people still remember the popular names of luminaries, asterisms, and astronomical phenomena. For example, “mzebudoba” – nesting sun, or “Mravalai” and “Khomli” – popular names for the Pleiades cluster. Many Georgian historical traditions and events were associated with these names (Simonia et al., 2008). Research of the cultural heritage of Georgia in the context of ethnocosmological interdisciplinarity is important for understanding the culture and science of the ancients.

4. Conclusion

In this work, we have examined some archaeoastronomical and ethno-cosmological elements of the ancient Georgian cultural heritage. Megalithic constructions, small artifacts of various shapes and purposes, oral narratives and legends, and Folk names of stars and planets, preserved from ancient times, clearly testify to the astronomical knowledge and cosmological beliefs of the Georgians of those eras. We examined only a small portion of the material, focusing on the instrumental capabilities and systematic nature of the ancient Georgian worldview. These materials, artifacts, and data are scattered and little studied, awaiting the application of new methods, systematic analysis, and subsequent generalization. It would be advisable to prepare and implement special research projects devoted to the development of astronomy in antiquity, both in the eastern and western parts of Georgia.

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