

Archaeoastronomy in the Muisca Territory

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Abstract. This paper expose a general vision of the archaeoastronomical work carried out in the Cundiboyacense plateau of Colombia, within the framework of the investigation “Arqueoastronomía en el territorio Muisca”. It deals with some aspects of the cultural geography of the Muisca, and the relation of this with their cosmology. It tries to demonstrate that the Muisca used Astronomy to construct their cultural space and that they have left evidence of that by means of the geographical organization of their territory and the astronomical and cosmological features of their culture. The main subject of investigation were the archaeological sites that Muisca might have used as sites of astronomical observation, the calendar and the astronomical and cosmological features of the myths, as well as the astronomical instruments they used.

1. Introduction

This investigation aim was to analyze from the archaeoastronomical point of view different aspects of the Muisca culture from the Colombian Highlands. Its results are based primarily on the survey of the archaeological remains and places that can be related to some form of astronomical activity during the Muisca period. These places were: The megalithic remains of Saquenzipá, in Boyaca, the monolithic complex of the “Cojines del Zaque” in Tunja, Boyaca. Wich includes the disperse monoliths found on the campus of the UPTC and the dismantled “Templo de Goranchacha”. Other aspects of astronomical importance investigated were: The Muisca Calendar as exposed in the manuscripts by the former bishop of Bogotá, Jose Domingo Duquesne de la Madrid in the XVIII century, the general organization of the territory by means of the relation between astronomy and geography and the myth and its possible astronomical significance. Also the figure of the “Xeque” the Priest-Astronomer, who was in charge of many different aspects of the Muisca culture: the astronomical observation, the calendar and the organization of all ritual and religious activities. The Xeque was also involved in shamanic activities and were invested with the attributions of a medicine-man. The possible astronomical and/or calendrical counts present on some archaeological artifacts as ceramic vessels and others.

2. The Muisca Culture

The Muisca culture developed between the 8 and 16th century A.D. in the north-east highland plateau of the Colombian Andes. The economy of this culture was based on the agricultural production, river fishing, pottery and textile production, salt extraction and gold metallurgy. Politically it was a complex society



Figure 1. In the photo we see the two alignments at the exact moment of the equinox during the sun rising.

based on several chiefdoms that were organized in two confederations. They were gifted gold crafters, and very powerful merchants that used commercial routes ranging from the limits with Panama to Ecuador. They were governed by two sacred rulers: the Zipá for the SW confederation, and the Zaque for the NE confederation. The Muisca religious life was in hands of a very powerful priestly elite whose sacred centers of ritual and religious activities were the temple of the Sun in Sugamuxi and the temple of the Moon in Chía. The temple of the Zipa in Bacatá was also of high importance.

3. The megalithic remains of Saquenzipá

The megalithic remains of Saquenzipá consists of two massive alignments of cylindrical columns of stone, which are related to eight separated monoliths. In the fields near this two alignments there were found hundreds of enormous phallic columnar monoliths, some of them weighting several tons and with a height of more than 10 meters.

During the equinox the stone columns produce a unique shadow in form of a straight line across the alignments. The rest of the year we can see multiple shadows casting from each one of the columns. The alignments have a true



Figure 2. As we see in the photos, during the equinox the sun rises from Morro Negro in the exact point where the stone alignments are pointing.

azimuth of 91° East and 271° West. The east alignment points to a notable feature of the landscape surrounding the site: the hill of Morro Negro.

4. The Monolithic complex of the “Cojines del Zaque” in Tunja.

The Monolithic complex of the “Cojines del Zaque” in Tunja presents a series of alignments that relates it with another big group of monoliths that are presently located in the campus of the UPTC, that were excavated in the fields around the campus during the XX century. It is also related with the dismantled temple of Goranchacha. The present UPTC occupies the place of the historical “El cercado grande de los Santuarios” the most important complex of temples in the sacred city. The most important astronomical alignments in this complex are between the Cojines and some catholic churches from the time of the colony. From historical sources, we know that these churches occupy the place of pre-hispanic Muisca temples and Cercados, that were used by the Spanish invaders for constructing these catholic temples and thus acquiring for them the “power of the place”.

In the photo (Fig. 3) we see the principal alignment of the cojines with an azimuth of 106° to the cross quarter of the sun, passing over the church of San Francisco and ending in the sacred hill of Romiquira.



Figure 3. Cross Quarter at the “Cojines”.



Figure 4. Muisca “Xeque” Goldcraft. Gold Museum, Bogotá.

5. Astronomy and the Muisca Territory

The astronomy was the principal reference for the organization of the Muisca territory. Since they conceived their territory as sacred, and the sun and the water were the germs of all life in their relation to the earth; the sun and its movements were of uttermost importance. The sun, the moon, the planets and the stars probably were perceived as sacred weavers, which everyday weave the territory like a textile in a loom. That’s why the textile symbolizes the territory, weaved by the sacred sun (Sue) and his wife the moon (Chia). That’s why the loom is the frame of the world, because it represents the sacred four directions and the intercardinal points that were the most sacred of all. And that’s why the spindle whorl symbolizes the world in its circular movement that is the origin of all cycles.

6. The Myth and the Muisca Territory. The road of Bochica

The uttermost sacred determinant of the Muisca territory was the road of the civilizing god Bochica, which was the founder of the Muisca civilization and thus of their territory. What for many scholars were a simple myth, under the archaeoastronomical point of view came to reveal an astounding fact: The myth of Bochica codifies a sacred system of organization of the territory. Bochica arrives to the highlands in the town of Pasca and after completing his civilizing mission ascend to heaven in the town of Iza. If we trace a line between the two

sacred places we found that they are precisely aligned in a Southwest-Northeast direction with an azimuth of 45° . Also the two most sacred temples founded by Bochica were the temple of Bacatá (in the present day Bogotá) and the temple of the sun in Sugamuxi (the present day Sogamoso). The two are precisely aligned in a Southwest-Northeast direction with an azimuth of 45° . This alignment has a length of 110 km which corresponds exactly to 1° of latitude. If one extends the alignment further Northeast it reach the uppermost peak of the Colombian Eastern Andes, the Cocuy.

7. The “Xequé”: the Priest-Astronomer

The Xequés were the priest-astronomers of the Muisca Culture. As is clear from the Duquesne ethnohistorical evidence, the Muisca were in possession of a very complex system of many different calendars that interact between each other. The Xequés were the responsible of this calendars and their relation to ritual, religious and agricultural activities. The caste of the Xequés went onto a special education and training process; they learned astronomy, calendrics, metrology, arithmetic, architecture and meteorology and many other arts . They were exterminated in a genocidal persecution named “extirpacion de idolatrias” that went on for almost three centuries in the occupied Muisca territory.

8. The “Xequé”: the Priest-Astronomer and his astronomical instruments

One of the principal activities of the Xequés was to make astronomical observations for synchronizing calendars and performing rituals, also to align temples and “calzadas” that were huge ceremonial roads that connect temples with sacred ritual places on the landscape. These roads had a length of many kilometers each. As is clear from the archaeological artifacts that represent xequés, they used a set of astronomical instruments for their observations. The principal instrument was the sight-rod that was used for determine astronomical alignments on the field. They probably also used a plumb for determine the vertical with accuracy.

In the photo (Fig. 4) we see a gold craft of a Xequé establishing a sight line with his instruments and seemingly counting with his fingers and a quipu-like collar. With these simple instruments the Xequé managed to establish sightlines to astronomical bodies such as the sun, moon or stars, and transfer these alignments into the sacred calzadas and the alignment of temples and sacred spots of the landscape. Also he was able of making alignments of more than a hundred kilometers in straight line, thus resulting in the geographical alignments we see today in the Muisca Territory