

SEAC 2011 Stars and Stones: Voyages in Archaeoastronomy and Cultural Astronomy

Proceedings of the SEAC 2011 Conference

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PROTOHISTORIC AND HISTORICAL ATLANTIC NAVIGATION: ARCHAEOLOGICAL EVIDENCE FROM THE AZORES

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Abstract: This paper presents unpublished data on archaeological sites located in the Azores Islands that suggests the possibility of sailing in ancient times in the Atlantic, namely in the Proto-historic and Roman periods. Several structures, identified as hypogea, are reminiscent of Phoenician sanctuaries and, in their architecture, seem to represent the goddess Tanit. In addition, results of the epigraphic analysis of an inscribed stone, are presented wherein the “god of the Dacians” is mentioned, suggesting their presence in the islands during the Roman period. Overall, these preliminary finds raise new questions regarding the pre-Portuguese occupation of the archipelago as well as pre-compass navigation in the Atlantic, possibly using the stars.

Keywords: *Atlantic navigation, Proto-history, Portuguese History, Hypogea.*

Introduction

This paper aims to present unpublished archaeological data, and discuss the possibility of navigation in open sea to the Azores archipelago, at least in the first half of the first millennium B.C. and during Roman times. We shall also examine possible links that may have existed with Britannia, North Africa and the Mediterranean.

Journeys in the Atlantic coast were made in antiquity, both in the African and in the European facades. Punic ceramics and a fragment considered Iberian from 3rd century BC were found in Cape Ghir (30 km north of Agadir) (López-Pardo 1996: 262), in Essaouira (Mogador) was located a Phoenician settlement from where a Carthage-sponsored voyage in the 5th century BC reached further south round the West African coast (Cunliff 2001: 89-91). The Phoenician enclaves from the 7th century BC in the Sado river and Santa Olaia and in the Mondego estuary in central Portugal (Vilaça 2008) were part of an Atlantic trade maritime route for metals, fish and salt animal products, oil, wine and craft goods. The Canary Islands were certainly known by Roman times, Pliny the Elder described them and relics from Roman landfalls have been found (Mitchell 2005: 175-78).

Some basic astronomical navigation was known for a long time in the Mediterranean: Classical sources often refer to the use of the stars in navigation. Before the introduction of the magnetic compass, which occurred in the Mediterranean in the twelfth century, it enabled men to navigate the open sea. The oldest allusion to celestial navigation seems to be Homer’s epic poem the *Odyssey*

(written around 1000 BC) with a reference to various sky elements used by Odysseus for sailing: the Pleiades, Arcturus and the Great Bear (Ursa Major) (Howse 1982). Roughly, the use of the constellation Ursa Major was attributed to the Greeks, while Ursa Minor was allegedly preferred by Phoenician sailors (Boeuffle 1989). For mid-northern latitudes, stars and constellations near the North celestial pole are visible all night, and were an indication not only of direction but also position, especially to navigate at the same latitude. The altitude of a star was possibly taken with the help of the hand, an arrow, a spear or the top of the mast (Ifland 1998).

Hypogea-like structures in Terceira Island

We present here the results of several visits to the Azores archipelago undertaken since August 2010. We visited the islands of Corvo (West Group), Terceira (Central Group) and Santa Maria (East Group). On these islands we were able to identify various types of structures excavated in the rock. They have not yet been dated and some are related to agriculture, locally recognised according to their latest known use. The function of some are unknown, even to the local population. We shall also present an unpublished inscription, engraved on what is possibly the base of a statue now in a house in Posto Santo, near the city of Angra on the Terceira Island. It was possible to establish the origin of the material composing the base for the inscription: about 1 km away from where it is now. The studied archaeological remains show a possible pre-Portuguese origin, with parallels to similar structures found within the great Mediterranean cultures since the Late Bronze Age. Apparently, the majority of these structures

did not produce material remains on the superficial level. In our research Joaquim Fernandes raised the first questions and, locally, Antonieta Costa and Félix Rodrigues, based on Terceira Island, and Ricardo Freitas on Santa Maria Island were especially helpful. Subsequently, Herbert Sauren accepted the task of translating the discovered inscription and helping to understand a mosaic of data, at times surprising. An important number of archaeological sites of different eras were inventoried, in the hope of improving our understanding of the human colonization of the region. Our discussion will focus on new, still unpublished, data gathered since March 2011.

Of the various kinds of similar monuments present on the Azorean islands, the hypogeum-like are the most prominent ones, especially from Terceira Island. They are located on a military restricted area, classified as World Heritage by UNESCO. This area, called Monte Brasil, bears several clusters, the most important one being at the Fort of São Diogo. More structures are present in this open-air area, on one of the highest peaks of Monte Brasil, one called Pico do Facho, located near historical structures. The ancient remains are characterized by the presence of dozens of postholes of various dimensions, small canals, basins, possible chairs excavated from the outcrop and by at least one reservoir. They might form a proto-historic sanctuary. This assemblage was discovered by pre-historian Manuel Calado during a visit organized by APIA in December 2010.



Figure 1. Monte Brasil in Terceira Island (1-hypogeum-like Structure 2; 2-Monte do Facho, 3 to 6 – hypogeal-like Structures 3 to 6).

Several more hypogeal structures were found on Monte Brasil (Fig.1). In August 2010 a first hypogeum was discovered, and six more were found during the following months, located in Monte Zimbreiro. All six structures have the same western geographical orientation, with their opening directly facing west towards Fanal Bay.

The second hypogeum is rather damaged, and has a small altar or bench and a possible niche excavated in the tuff. It is situated on the upper part of a hillside, over the Forte de São Diogo area, where we find the other monuments whose descriptions follow.

The third cluster of hypogea excavated in the rock is at Forte de São Diogo near the sea. It can be reached through an old road that led to the port in the fifteenth and sixteenth centuries. This structure is composed of two chambers, or two adjacent hypogea. One presents a bigger chamber bearing marks of a closing device excavated in the rock and some characteristics revealing a space probably related to some kind of cult.

In the most interior wall of the chamber is a small basin that measures about 27 cm by 55 cm, associated with two canals sculpted in the wall on both sides. Its purpose seems rather more symbolical than practical, as it collects humidity running down the walls. Inside the monument and on the surface, a small marine mollusc shell was discovered. It is still being studied. It belongs to the “*murex*” family, used in antiquity in the dye industry to produce Tyrian purple (Cunliffe 2008:241). Both structures show signs of recent re-use, like numbers and letters inscriptions.

Following the path that leads to the described structures, we reach what we consider to be the main group and could be a place of worship. They will be designated hypogea 4, 5 and 6. They face the sea, at a distance of about thirty meters. Like the previous structures, they stand near a road, but at a level that would have made them safe from a sea assault.



Figure 2. Monte Brasil Structures 4, 5 and 6.

The entrance to these structures is circular and more than 2.20 meters high. Structures 4 and 5 have approximately the same plan, almost forming a triangle, with sides measuring between 5,5 and 6 meters, with the point converging towards the entrance in both monuments. Structure 4 is slightly inclined from the inside towards the outside. In the innermost part, a set of four almost circular sculpted cavities was identified, measuring between 50 to 70 cm in diameter and less than 40 cm deep (Fig.3).

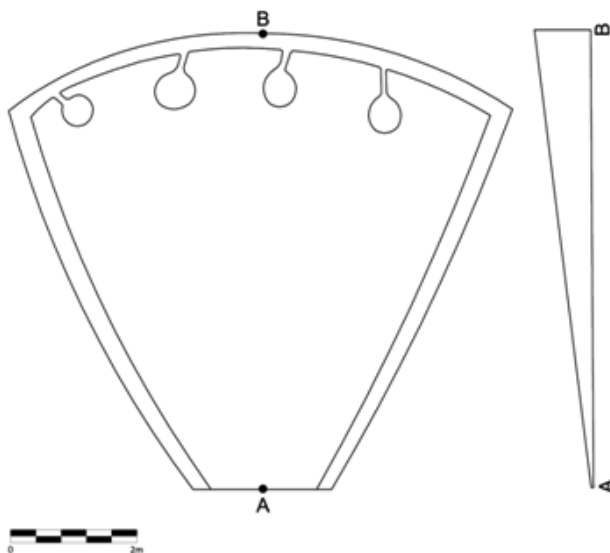


Figure 3. Plan of Structure 4.

They are linked to a channel excavated in the rock and that runs along the bottom of the wall through canals about 10 cm thick and 25 - 45 cm long. The channel along the bottom of the wall at floor level runs toward the monument's entrance.

Structure number 5 is of a similar plan, and presents a set of elements once again associated with water. We can gain access to it via an almost circular entrance of about 2,40 meters. One of the walls, about 65 cm high, seems to have been made in modern times as it bears traces of lime. Inside we can find an excavated reservoir, almost triangular in shape. A small staircase leads to it. The bottom of this structure reveals a platform resembling a bench, running along the whole structure, and possibly used for ablutions (Fig.4).

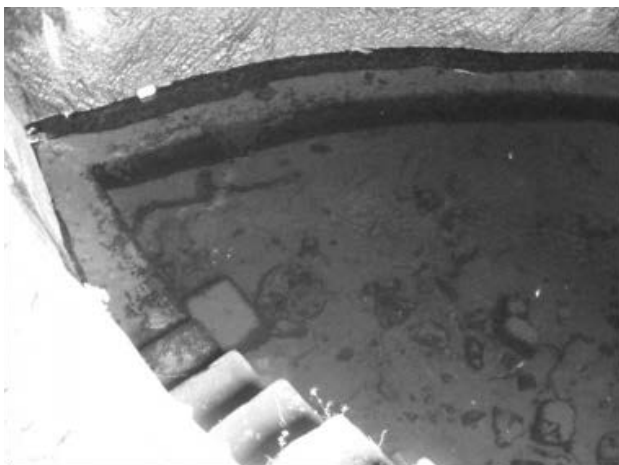


Figure 4. Monte Brasil Structure 5.

On a higher level of the surface and near the walls inside the monument, there is a channel excavated in the rock that runs along the whole of the interior structure. This bears traces of lime, indicating re-use. In a corner of this structure, about 1.70 m high, we noted an anthropomorphic niche, with an 80 cm base and a 50 cm upper part. Its variable depth is more inclined in the upper part, resulting

in a different field of vision from the centre of the entrance towards the exterior of the monument, in the direction faces Serra de Santa Bárbara, the highest point in Terceira Island, .

We shall stress that the entrances to these monuments all face due west, towards Pico and S. Jorge islands, over which the sun sets in the equinoxes.

Finally hypogeum 6, near hypogeum 5, is characterized by the fact that it is located on a higher level than the previously described monuments, at least 3 meters above ground. Access can be gained to it via a circular entrance about 1.82 m high, like the previous ones. Its plan is less complex and smaller (only 2.93 by 2.84 m), and of a uterine shape. The existence of this monument near the two other structures and at a level accessible only with a staircase raises the possibility that it was used for leaving votive offerings. This hypothesis can only be verified with an archaeological excavation.

The location of these structures, on a natural peninsula bordered with two ports, one on each side, resembles the Phoenician town of Malaka (present-day Malaga).

Espirito-Santo, discussing "*The Syrian Goddess*" from Lucian of Samosata, a Syrian/Greek writer from 2nd century A.D. wrote (Espirito-Santo 1993:38):

The Phoenician sanctuaries were also called "high places", their localization not necessarily being at the top of the mount, but on the slope, on the western side for a better climatic exposition. A river, stream, spring or cistern was always part of the structure, as, according to the Phoenicians and the Hebrews, "God would only manifest himself near water"

The use of the trapezium / isosceles triangle and variations of these is frequent in Phoenician culture and are related to the figure of Astarte/Tanit, as represented in stele, figurines, amulets, seals, funeral monuments and pavements (Lipinski 1995:206-7).

The Phoenician goddess Astarte was brought to Carthage (which means "the new Phoenicia") under the name of Tanit, keeping some of her attributes (Strong & Garstang 1913) such as fertility, pleasure and beauty. Her cult was implanted along the Phoenician – Carthaginian route, in the newly created city-states of Cadiz (Gades) and Malaka in Hispania for example. Designated "Astarte" or "Tanit", she has been associated with many interpretations of female cults covering a vast geographical area, gathering here and there additional regional particularities. Her symbol appears as a trapezium closed by a horizontal line at the top and surmounted in the middle by a circle. This shape was later replaced by an isosceles triangle. The most common symbol of Tanit, the trapezium, is often found in ancient inscriptions and sculptures of the goddess, and is often used in calculus. This is the shape of the two hypogea under study, constructed on a trapezoidal plan (eg structure 5 is a trapezium with no parallel sides). The

feeling resulting from this alteration of symmetries, where no right angle can be seen, proves to be uncomfortable and unfamiliar. Even the niche situated in the back wall of the artificial cave presents a trapezoidal shape. In this geometrical arrangement, the familiar notion of centre disappears, as we found particularly notable in hypogea 4 and 5. As for the circular entrances, they could represent a head.

The geometry of the plans of these two hypogea may then correspond to the tridimensional figuration of the divinity, expressed and condensed in Tanit's abstract symbol. As we can see with the examples presented below and with the different building materials used, their various functions reveal the importance of the goddess in the daily life of the people.

Easy access to water was not the only requirement, also it was important the relation between the divinity and the earth, as the sanctuaries were excavated in the rock and made in the shape of a uterus.

As a protector or patron of mariners, as well as of the city of Carthage (Stuckey 2009), Tanit was associated with defence and war. This explains why many of her sanctuaries are located near the sea.

The location of the possible sanctuaries seems intentional, and perhaps symbolic of the goddess' attributes. The artificial caves or hypogea (Fig. 5, identified with arrows) are situated on the western slope of the Zimbreiro Peak and just above the sea, at the border between the woody part of the slope and the severely eroded area.



Figure 5. The artificial caves in Monte Brasil.

Epigraphic data

A rock bearing an inscription (Fig. 6) has been preserved in a private home, situated in the city of Angra do Heroísmo, Terceira Island, for several decades. The circumstances of the find are not known, however the stone base was originally 4 km distant at a place named Posto Santo. The rock material was studied and compared with rocks found nearby by one of the authors (A. Félix

Rodrigues). Initial visual inspection indicated that the rock is a trachyte or ignimbrite. It was determined that the rock is pyroclastic, frequently associated with high temperature materials derived from pyroclastic flows from a volcano. We collected samples in the district of Posto Santo, in what seems to be an ancient quarry. The rocks there are trachytes, and they show exactly the same granulometry as our inscribed rock. They also have the same phenocrysts and the same vitreous, fine semi-crystalline matrix. A statistical study of the phenocrysts of our rock, of the garden bench rock and of the rocks collected in the ancient quarry of Posto Santo, reveals that they are all identical at the 95% level of confidence.



Figure 6. Stone bearing an inscription.

Two lines of script are visible, some letters very well known as Latin or Greek majuscules, but others irregular in height. The letters are not standing on a straight line. The general impression is that the script has been realised by a less experienced sculptor or that it is rather old. The complete reading of the second line is: *Dacciōs theos*, the "god of the Dacciōs". The grammatical construction shows an inversed genitive construction, genitive plural followed by the determined word. It is an epithet of a god. The three letters at the end of the first line show: I O N. (Fig. 7)



Figure 7. Decal inscription found at the site of the "Posto Santo" Terceira Island - Azores.

The form of the last letter seems to be difficult. The form of the letter is closer to the Etruscan writing, than to the Greek and Latin majuscules. The letter *n* shows different forms at the end of words in some writing systems. The complete translation marks another epithet of the god, whose statue was placed over the base, he was the most powerful, the supreme god, following the belief of the

people of the Dacciōs: *Elo 'ōs eōn*, “the lord of the gods”. The language is neither Greek nor Latin, nor Semitic, even if words from the three linguistic families appear. It is an Indo-European language to judge from the only attested morpheme of the genitive plural, equal to the old form attested in Latin: *pater familiās*, father of the families. The name in the second line is the name of the people venerating and worshipping the god on the statue: Dassiōs, in Latin documents: Dacicos, the Dacians. The Dacians were people living at the mouth of the Danube. History reports a war of the Roman Empire against the Dacians in 85 – 86 A.D. It seems rather enigmatic to see the Dacians on the Azores. But just on this point the inscription is sure.

Concluding remarks

Our interpretation of these puzzling sites, at the moment based on the architecture of the existing monuments only, and awaiting archaeological excavations, needs confirmation.

However, a medieval or modern origin of the remains is ruled out. We compared them with what is known about fifteenth and sixteenth century Portuguese and Spanish architecture - the time when the island was supposedly first colonised. We shall also stress that these monuments were already marked on twentieth century maps, but not as military structures (as they have been interpreted by mainstream Portuguese archaeology).

The association of these monuments with an inscription of Dacian origin confirms an occupation of the island earlier than what is generally accepted. However, it raises some pertinent questions:

Could there have been a Roman military unit of Dacian origin in Angra do Heroísmo? Do we come across these Roman units in Mauritania and in Britannia at the beginning of the 2nd century and during the 3rd century AD, and if so, why? Did a native population exist there during Roman times that had to be controlled? When was the island abandoned (it was already abandoned at the time of the discoveries)? Future investigation will attempt to answer these questions.

The data presented and discussed here is part of a growing body of evidence in favor of the hypothesis of open sea navigations to the Azores in antiquity. And for these long voyages navigators have, very likely, used the astronomical techniques available at the time.

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