

# The megalithic complex of Monte Baranta in Sardinia: a pilgrimage center of the early Bronze Age?

## *El complejo megalítico de Monte Baranta en Cerdeña: ¿centro de peregrinaje en la Edad del Bronce Antiguo?*

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### ABSTRACT

*The imposing megalithic complex located on the Monte Baranta plateau, near the town of Olmedo in North-west Sardinia is one of the best preserved monuments of the pre-nuragic period, and pertains to the cultural horizon called Monte Claro (2500-2200 BC circa). The complex is particularly interesting in the context of late-Neolithic architecture since it was abandoned already during the Monte Claro phase, and only sporadic frequentation is documented afterwards. The site is usually interpreted as a fortified stronghold but this interpretation has many drawbacks. As a consequence, we have subjected the site to a new survey with the specific aim of gaining a better understanding of its function. Our survey, based on classical topographic observations combined with GPS measurements has led to a new reading of the megalithic complex: topographical and archaeo-astronomical data indeed clearly point to a radically new interpretation of this site as a sacred place, probably a pilgrimage centre.*

**KEY WORDS:** Monte Claro. Pre-Nuragic. Megalithism. Archaeoastronomy. Sardinia.

### RESUMEN

*El imponente complejo megalítico situado en la meseta del Monte Baranta, cerca del pueblo de Olmedo en el Noroeste de Cerdeña, es uno de los monumentos mejor preservados de la época pre-nurágica y pertenece al horizonte cultural Monte Claro (c. 2500-2200 a.C.). El interés del complejo, en el contexto de la arquitectura del Neolítico Final, se debe a que fue abandonado durante la propia fase Monte Claro y solo se ha documentado una ocupación de tipo esporádico posteriormente. El yacimiento se ha interpretado en general como un baluarte fortificado, pero esta interpretación presenta muchos problemas, y por ello hemos realizado una nueva prospección en el sitio para discernir mejor su función. Siguiendo los métodos clásicos topográficos combinados con mediciones de GPS, hemos podido realizar una nueva lectura del complejo, del cual los datos arqueoastronómicos y topográficos apuntan claramente a una interpretación completamente nueva como un lugar sagrado, probablemente un centro de peregrinación.*

**PALABRAS CLAVE:** Monte Claro. Pre-nurágico. Megalitismo. Arqueoastronomía. Cerdeña.

**SUMARIO** 1. Introduction. 2. The Monte Baranta complex. 3. New survey and interpretation. 3.1. The relation with the landscape. 3.2. The architectural features. 3.3. The archaeo-astronomical features. 4. Discussion.

## 1. Introduction

The Sardinia Island is famous for the thousands of megalithic “towers” called *Nuraghi*. These monuments date back to the middle Bronze Age, so that their first construction is roughly contemporary to megalithic structures built by the Mycenaeans and the Hittites. However, megalithic architecture in Sardinia commences quite before, and we shall be interested here in a monument which belongs to the pre-nuragic cultural horizon called *Monte Claro* (2500-2200 BC circa). It is the imposing megalithic complex located on the Monte Baranta plateau, near the town of Olmedo. The complex is securely dated since stratigraphic levels pertaining only to the Monte Claro culture were found, at least in all the parts which have been subjected to excavations (Moravetti 1998, 1999, 2000, 2004); during the Monte Claro phase the area was abandoned for unknown reasons, although frequentation in the Nuragic phase likely occurred as well (Ugas 2006).

By the majority of scholars, the site is interpreted as a fortified stronghold (see for instance Lilliu 1988, Moravetti 2000; a different viewpoint is given in Ugas 2006). The “stronghold” interpretation looks however unconvincing for a series of reasons which will be discussed at length in this paper. Actually, in recent years, “fortified” enclosures dated to the same period of Monte Baranta, such as Castelo Velho in Portugal, have been the subject of a complete re-assessment. Indeed, the hypothesis of a ‘fortified settlement’ has been shown to conflict with many characteristics of the sites (Jorge 1999). So motivated, we have subjected the Monte Baranta complex to a new survey with the specific aim of gaining a better understanding of its function. Our survey, based on classical topographic observations (Azimuth, Zenith and distance) combined with GPS observations has led to an accurate photogrammetric reconstruction of the whole complex (the 3D model is freely available at the website <http://geomatica.como.polimi.it>). Here, we focus on the results relevant for the interpretation. As we shall see in the discussion section, our data, together with data coming from the recent analysis on another enigmatic monument of pre-nuragic Sardinia, the “altar” of Monte d’Accoddi (Pili *et al.* 2009) located some 20 km to the north, lead indeed to propose a radically new interpretation of Monte Baranta.

## 2. The Monte Baranta complex

The Monte Baranta complex is located on the southern flanks of the homonym plateau, a top-flat hill that runs roughly in a north-south direction between Monte Rosso and Monte Miale Ispina. It has a steep east flank and a rather smooth west flank. The complex can be accessed today from the west via a modern hike, partially carved in the rock, which very probably reaches the summit on the same path of one of the ancient access ways (see map in Figure 1). On reaching the summit, the visitor is stricken by the view of a huge megalithic building (usually called “tower-enclosure”) composed by a double-curtain megalithic wall with two entrances. One of the entrances fronts the hike to the west; while the other runs north-south (precise azimuths will be given below). The wall delimits an area which directly overlooks the gorge on the east flank of the hill (Figure 2). On the internal side of the wall a sort of balcony, accessible



**Figure 1.-** Map of the Monte Baranta complex. 1) Direction of the ascending path from the west 2) Tower-enclosure 3) Stone ellipse 4) Recumbent menhir 5) Megalithic wall 6) Dwellings.

with a rough stone stairway, is present. The quality of the joints between the megalithic blocks is poor, and many filling stones are used to close the gaps; between the two curtains a filling of smaller stones is used. The entrances are built as stone-lined corridors in the body of the wall, covered with huge lintels; the doors do *not* show signs of closure mechanisms whatsoever (there is a notch for a wooden hold bar in the *exterior* of the western gate, certainly carved when, in recent times, the north gate was blocked obtaining a closed room and the building was used as a sheep recover).

To the north of the enclosure runs another megalithic wall (Figure 3), which crosses - in north-east-south-west direction - the upper summit of the hill, enclosing an area which overlooks a moderate ridge located on the very summit of the hill, a few meters inside with respect to the steep east flank. Whatever strange it may seem, the wall and the tower are *not* connected: to go from the tower to the inside of the walled area it was (and it is) necessary to get out of the tower and follow almost all the external perimeter of the wall because its unique entrance is located near its northern end.

It is pretty clear that this is due to a precise will of the builders. It would have been indeed relatively easy to bend the wall slightly, elongate it a few tens of meters and connect it with the tower, which

at that point would have functioned as a sort of double-chamber entrance way.

The megalithic wall divides the summit of the plateau into two parts. The “internal” part houses a small village of six stone-founded dwellings which might have been inhabited at most by a few tens of people (the total surface of the walled area is about 2700 square meters). No springs or water wells can be recognized here. The external part of the hill’s summit is usually defined as a “sacred area” composed by a circle of stone slabs (today not standing any more) lying on an artificially levelled bedrock, and by two menhirs. The tallest of the two was quarried and brought to the site, but never erected; the building site appears indeed to have been suddenly abandoned. Stretching things a bit we could



**Figure 2.-** The tower-enclosure viewed from the approach to the Monte Baranta hill.



**Figure 3.-** The megalithic wall.

even say that it was abandoned *precisely the day in which this monolith was to be erected*, since the huge stone lies at the final point of its journey from the quarry. Indeed, on the ground just below the base, the contour of the socket was carved in the bedrock. The stonemason sketched the profile of the socket and what was missing was only the excavation of the pit inside which the stone was to be fixed (Figure 4).



**Figure 4.-** The menhir ready to be put in place from 4400 years, with the profile of the socket carved in the bedrock.

### 3. New survey and interpretation

The interpretation of the Monte Baranta complex which is commonly accepted is based on the fact that the “village” is enclosed between the megalithic wall and the ridge of the plateau. Therefore, Monte Baranta is considered as an inhabited stronghold, or fortified village (see e.g. Lilliu 1988, Moravetti 2000).

Settlements interpreted in this way are relatively common in the Mediterranean area in the third millennium BC; for instance, Los Millares, Castelo Velho and Zambujal in the Iberian Peninsula, or Le Lezeres in France. Some sites in Sardinia are also known to be quite similar to Monte Baranta in that they are conceived as walls “cutting” the summits of hills to create enclosures (e.g. Monte Osoni hill in Castelsardo); no one of them, however, has a “sacred area”. The only known “sacred area” of the Monte Claro period (composed by a settlement and a levelled terrain with menhirs) is located in a prominent position on the Birai highland and it is actually unfortified (Castaldi 1999).

The efforts spent in constructing defensive enclosures in the period 2600-2000 BC are usually explained with movements of people (“coloniza-

tions”) and the diffuse state of warfare which followed the discovery of the metals (Moravetti 2000: 32, trans. by the authors). In recent years, however, the standard interpretation of many imposing, ancient monuments as “fortified settlements” has been severely challenged. For instance, an extensive analysis of the so called *acropolis* of central Italy (megalithic monuments with huge polygonal walls, probably dating to the Iron Age) has been carried out, showing that they were most likely symbols of pride and power connected with the pre-Roman and early Roman religion, rather than being functional for defence purposes (see e.g. Magli 2007, 2008, Magli and Schiavottello 2008). Going further back in time, several doubts have been raised on the “standard” interpretation of the Bronze-age Nuragic complexes, which puts them in analogy with Medieval castles (see e.g. Zedda and Belmonte 2004: 85-107, Zedda 2009). Finally, particularly relevant for the present paper is a similar re-assessment which, as mentioned in the introduction, has been carried out for enclosures dated to the same period of Monte Baranta in the Iberian Peninsula, such as Castelo Velho in Portugal. Here, the hypothesis of a “fortified settlement” has been shown to conflict with many characteristics of the site, such as, for instance, its location on the most visible point of the hill, the placing of the supposed “defensive systems” on the sides opposite the easiest access point, and so on (Jorge 1998).

Taking into account such a framework, we have re-analysed the Monte Baranta complex focusing our attention on those elements which went almost unnoticed in previous surveys and clearly conflict with the “stronghold” interpretation (in the final section, we will try to investigate in which direction they actually point).

#### 3.1. The relation with the landscape

A key element in the surrounding landscape of Monte Baranta is the hill called Santu Pedru. This hill has a peculiar “crest-like” shape and has been considered as sacred during all the prehistory of Sardinia. It hosts indeed a *Necropolis* of *hypogea* excavated in the rock whose construction starts in the Ozieri phase (around 3200 BC) and goes on up to the Middle Bronze Age, including therefore the Monte Claro phase (in nuragic times a huge Nuraghe was constructed on its summit).



**Figure 5.-** The S. Pedru hill viewed from the inside of the tower-enclosure.

The hill lies about 1 km to the south-east of Monte Baranta and forms a sort of scenery foreground for the horizon in that direction (Figure 5). The visibility of this hill from the summit of Monte Baranta is *constrained* by the ancient buildings in a very peculiar way; indeed, the hill turns out to be invisible for any people standing outside the megalithic wall or the tower, the view being impeded by the wall; an imposing view is instead allowed from the inside. In a sense, the tower-enclosure looks as a sort of *belvedere* open towards the hills to the south-east.

Interestingly, the azimuth of the summit of Santu Pedru as viewed from the interior of the tower-enclosure ( $\sim 148^\circ$ ) crosses in between the two entrance ways. This has the consequence that, when viewed from the summit of the plateau to the north-west, the tower enclosure itself forms a sort of artificial foreground for the hill at the horizon. A similar azimuth is shared by the entrance to the megalithic wall to the north; the corridor frames the elongated hill to the north-east of Santu Pedru, Pedru Longu (Figure 6).

### 3.2. The architectural features

Any visitor entering the tower-enclosure for the first time remains simply astonished. Indeed, the thickness of the wall varies from a minimum of 3 meters to a maximum of 6 meters; this means that the area occupied by the wall is greater than the very small area enclosed by the wall itself! Even



**Figure 6.-** The entrance to the megalithic wall.

admitting that what was preserved inside the building was a sort of treasure, it is difficult to think that its defence purposes were effective. Indeed, apart from the need of defending two entrances instead of one, the original height of the wall is still visible in many points and was around 3.45 meters, which seems too low to allow for an effective defence. To remedy this drawback in the “fortress” interpretation, some authors thought to a wooden barricade mounted over the wall, but - leaving aside its flammability - to sustain such a structure a fair less massive stone structure would have been pretty enough.

To summarize, the architecture of the tower-enclosure conflicts with any “defensive” hypothesis. Even more difficult is to explain its position, disconnected from the megalithic wall, in the “fortified settlement” theory. What is usually said is that it was possible from it to control the underlying

ing valley, a thing which would have been impossible from the megalithic wall; further it could serve as a guard post for the accesses to the dwelling area (Moravetti 2000: 49, transl. by the authors). Yet, this idea does not solve the problem that the building does not integrate with the wall: as mentioned above, the wall incomprehensibly ends less than one hundred meters west of the tower. In this way, the “defence apparatus” is composed by two completely disconnected elements. The enemies would have attacked any defender in the open space between the tower and the village, and prevented any kind of exchange of men or materials between the two. Even more incomprehensible is the presence of the two entrances to the tower separated by a few meters, which furthermore, as mentioned, show no signs of having been securely closed.

It is difficult to find any parallel for such a kind of building. The only possible one in Sardinia is the so called Coghinas building, located in Fraigata, very near the steep gorge of the Coghinas river (Figure 7). Unfortunately, although described in the archaeological literature (Moravetti 1998:161-178) it has been never excavated, so that its dating cannot, at present, be ascribed with certainty to the Monte Claro culture (it could be a Bronze Age monument instead). It is composed by a three-sided megalithic wall, with only one entrance located in the front, and the fourth side

open on the steep of the river. The similarity with the “tower-enclosure” is striking in that the surface area enclosed between the building and the gorge by this building is really minimal.

The analysis of the sacred area of Monte Baranta immediately raises other enigmatic questions, the first being, of course, the very fact that it is located outside the fortification, and therefore easily accessible to enemies which - presumably - would have devastated it. The unique answer to this question of which we are aware of was proposed by Lilliu and does not, at least in our opinion, look convincing. Lilliu indeed maintains that the area was “respected also by enemies, due to the common religious feeling” (Lilliu 1988, transl. by the authors). Even admitting such an “idealistic” viewpoint, it is anyway obvious that the areas located just below defensive walls have to be kept as clean as possible, in order to avoid helping the enemies to conceal themselves. Instead, the circle of menhirs was located directly below the wall, offering a useful recover for besiegers.

The fact that the sacred area is extremely close to the wall thus leads to think that the two actually form part of the same architectural unity; actually, the wall forms an artificial curtain for the west side of the sacred area. The summit of the wall is clearly too low to permit a secure defence; in turn it was easily accessed from the inside via a stone staircase and allowed for a perfect view of what could even-



**Figure 7.-** The Coghinas building.

tually happen in the sacred area just below. Finally, as far as the “village” is concerned, the lack of water sources or reservoirs is another drawback of the fortification theory. Unexcavated remains of other dwellings are scattered in the area to the northwest of the summit, while the burial site of the dwellers has never been identified.

### 3.3. The archaeo-astronomical features

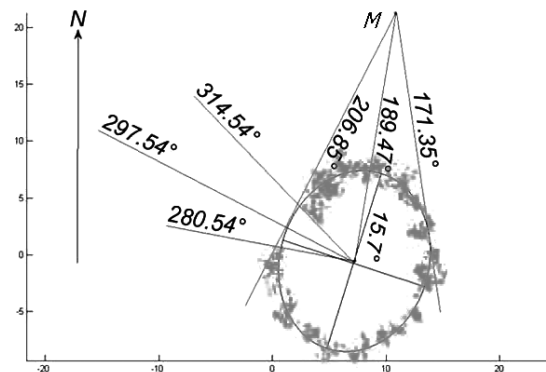
We have conducted a careful analysis in search for possible astronomical alignments at the site. Of course, the most promising candidate for astronomical alignments is the stone circle, which therefore has been carefully surveyed. The accuracy of our measures can vary slightly in dependence of the alignment measured since they depend from the local accuracy of the GPS observation and from the distance between the two points defining the considered direction; further, the ruined state of the monument introduces positioning errors. In any case, the achieved accuracy can be safely estimated to be  $\pm 1^\circ$  or below.

First of all, it turned out that the circle is actually an ellipse, with major and minor semi-axes of 8.05 m and 6.55 m respectively (Figure 8). We have measured the azimuths of the axes and the azimuths of the tangents and the centre of the ellipse as seen by the menhir sockets. The azimuth of the major axis is  $15.7^\circ$  while the azimuths of the tangents to the ellipse as seen from the menhir socket are  $171.35^\circ$  and  $206.85^\circ$ . None of these directions appears to be of particular astronomical significance, besides the fact that celestial north would have been visible over the menhir, once erected, from a position near the centre of the ellipse. More interesting appears the “vacancy” of stones (which is certainly original, i.e. the ellipse was intended to be left open). From the centre of the circle this opening spans about  $34^\circ$  with azimuths from  $280.5^\circ$  to  $314.5^\circ$ . Thus the direction bisecting such a opening is around  $297.5^\circ$ . Taking into account the height of the horizon, which is  $\sim 1^\circ$ , this direction is in good agreement with that of the summer solstice sunset at a reference date of 2500 BC (solar alignments do not depend on precession but only on a very slow variation of the obliquity of the ecliptic, so that the alignment is valid for all the Monte Claro period). Of course, such a “window” focussed on the summer solstice sunset allowed also the observation of the setting

of the Moon at the southern standstills; in particular, setting at the major southern standstill occurred at an azimuth of  $308.8^\circ$ .

As mentioned above, the “sacred complex” and the wall standing behind it were probably planned together. A reflection of this can be seen in the orientation of the first section of the wall which bears an azimuth of  $212.5^\circ$ , roughly orthogonal to the summer solstice sunset line.

A possible intentional alignment to the summer solstice *sunrise* is present in the complex as well. The Sun rising at the solstice was in fact observable looking towards the entrance of the tower-enclosure. The entrance corridor of this structure bears a main azimuth of  $\sim 96^\circ$  and is 4.8 m long and 1.3 m wide. As a consequence, the solstice sun was seen to rise near the far left corner of the corridor and then the rays crossed the whole monument.



**Figure 8.-** Sketch map of the stone ellipse. The stones are reported in grey around the ellipse. M denotes the socket of the recumbent menhir.

## 4. Discussion

In our opinion, the data presented here point to a rebuttal of the “defensive stronghold” hypothesis at Monte Baranta. This does not mean that we can solve the riddles posed by such a site; however, we can at least propose a likely alternative for its interpretation.

Interest in the celestial cycles is documented in Sardinia already in the case of the neolithic (Ozieri) culture (Hoskin and Zedda 1997, Hoskin 2001). During this period orientations of Dolmens are concentrated in the south-east quadrant. As mentioned above, in the following, Monte Claro phase astronomical alignments have already been prospected in the case of Biriai. Also there a stone

circle (or perhaps an ellipse, the published data are not sufficient for a secure assessment) seems to exhibit a privileged direction, in this case towards summer solstice sunrise. Astronomical alignments between the main platform and the menhirs scattered in its neighbourhood have been recently documented by our group also at the pre-nuragic “altar” of Monte d’Accoddi, a pyramid-like structure located 18 km to the north-west of Monte Baranta (Pili *et al.* 2009). One of the phases of this monument pertains to the Monte Claro horizon. Finally, astronomical alignments – again to the south-east and in this case concentrated near winter solstice sunrise – are well documented for the *Tombe di Giganti* of the Nuragic phase (Zedda *et al.* 1996).

The Biriai site is not fortified (exactly as Monte Baranta, in our view, but at Biriai walls do not exist at all) and with all probabilities it was a pilgrimage centre; a similar function was by all evidences performed by Monte d’Accoddi. Pilgrimage traditions will then cross the whole history of Sardinia: they are, for instance, documented without doubt in the Nuragic phase, being associated with the so called “well-temples” (the most famous ones being Santa Cristina and Santa Vittoria).

We thus propose that Monte Baranta was a ceremonial centre, frequented by pilgrims perhaps in certain recurrent dates of the year, and otherwise permanently inhabited only by a few people. This interpretation fits much better than the “fortified stronghold” hypothesis with the fact that the megalithic walls at the site look as symbols of power rather than actual defences, and provides – at least in our opinion – a feasible explanation for the otherwise mysterious “tower-enclosure”. Indeed, approaching the site from the pathway which ascends the plateau on the west side, one reaches the summit after a turn, and the view is blocked by the west front of the tower-enclosure, with only the west entrance visible, although the north entrance is just a few meters apart. Both the wall and the sacred area are invisible as well, located on the left, on the levelled bedrock a few meters higher. Therefore, it is likely that a person reaching the place from the west would have first entered the “tower-enclosure”, whatever the rites applied there could have been, and then he would have exited the enclosure from the north gate, approaching himself to the sacred area. The imposing thickness of the walls compared to their relatively low height

thus shows their symbolic, rather than functional character. This holds both for the tower-enclosure, which played the role of “introducing” the site and holds for the wall as well, whose meaning was to exclude – symbolically rather than physically – the access to the dwellings of the “priests” in charge of the site. The well-temples complexes of nuragic times usually had spaces and structures devoted to the occasional lodging of the pilgrims, and at Monte Baranta (unexcavated) Monte Claro dwellings exist in the upper area to the north of the complex, perhaps to be interpreted in a similar way.

As far as the specific rites which were carried out at the complex are concerned, it should be observed that the religious and symbolic world of pre-nuragic Sardinia is extremely difficult to decode, so that also the voluntary, sudden abandonment of the site – or at least of the stone circle still in construction – remains inexplicable. However, a comparison with the slightly later – and much more studied – nuragic period can be of help at least to identify similar religious patterns. In particular, an interesting point is the peculiar spatial arrangement of the structures on the plateau with respect to the visibility/invisibility of the Santu Pedru hill and Necropolis, as discussed in Section 2. This arrangement is likely, if not certainly, related to symbolic patterns: perhaps the hill was a revered Necropolis, where only prominent members of the Monte Baranta society were interred (Figure 9). This is what very probably happened in the *Tombe di Giganti*, the spectacular megalithic tombs of the nuragic phase. In a comprehensive approach to the spatial relationship between Nuraghes and tombs, Blake (2001, 2002) has indeed shown the existence of symbolic patterns in their relative locations: the spatial links served to draw attention on the symbolic links. A similar mechanism appears to be in action at Monte Baranta a few hundred years before, and the site remained with all probabilities a sacred place in the Nuragic phase as well.

We hope to extend our analysis to similar “fortified” structures in Sardinia, such e.g. Monte Ossoni. For the time being, Monte Baranta appears to be a “new” example to be added to the ongoing re-consideration of the late Neolithic – early Bronze Age “fortified” settlements of the Mediterranean area in terms of a different social and contextual framework.





**Figure 9.-** The visual relationship between the “village” at Monte Baranta (1), the “Tower-enclosure” (2) and the S. Pedru hill (3) (Image courtesy of Google Earth).

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