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AN ORIENTALIZING RITUAL BUILDING IN ALISEDA (CÁCERES, SPAIN)

Manuel Pérez Gutiérrez[1], Alonso Rodríguez Díaz[2], Ignacio Pavón Soldevila[2], David M. Duque Espino[2]

manolope@usal.es, alonso@unex.es, ipavon@unex.es, despino@unex.es

[1] Higher Polytechnic School of Ávila, University of Salamanca.
C/ Hornos caleros, 50. 05003 Ávila, Spain. Tel:+34920353500, Fax: +34920353505 (manolope@usal.es)
[2] History Department. University of Extremadura
Av. Universidad, s/n. 10003 Cáceres, Spain. Tel:+34927257400, Fax:+34927257401

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Corresponding author: Pérez Gutiérrez manolope@usal.es

ABSTRACT

The treasure of Aliseda was discovered by chance in the place of El Ejido ninety five years ago. However, the eventful character of the discovery and the circumstances that wrapped it left without answer multiple questions and, among them the archeological context where the emplacement belongs.

The ritual building (6th century BC), found and excavated about 180 m away, is associated to the protohistoric settlement of La Sierra del Aljibe, and not only does it show a simple metric and geometry, but fascinating as well, beside incorporating a singular element, which until now remains unknown if exist any parallel within any contemporary construction in the territory. We are alluding to the vertical opening in the center of the most northern wall, and that allow to define a precise orientation.

On a hand, it's been verified the use of a measurement unit based upon the human foot, in which there has been in use a foot of 0.275 m.

On the other hand, the building is totally unoccupied, without any archaeological findings that indicates the execution of any activity, and with an elegant soil of red clay, which it proportionality is 2:1.

Finally, as a fundamental characteristic, the NNE direction of it's main axis, and without any remarkable topographic element in whole the northern horizon, which aims, with a stunning precision, to the place in the horizon in which Arcturus rised in the time of the construction. It could be possible to affirm that the constructors would look for in this astral direction for the announcement of the spring equinox when it is possible to verify the apparent Heliacal rising of Arcturus some days before this moment of the year.

Added to this astral direction, another astronomical situation is verified. It's dimensions, the propose opening in the Northern wall and it's orientations, cause that the sunrays never enter to the opposite wall. Only in the most northern positions of the Sunrise, summer solstice, the sunlight enters across the opening to leave in the right shade the opposite wall.

KEYWORDS: Tartessos, Pre-iberian Culture, Ritual place, Treasure, Arcturus, Solar orientations, metric, proportionality.

1. INTRODUCTION

Tartessos, the legendary kingdom of Arganthonios was located by the classical sources in the most western side of the Mediterranean Sea. This realm shared space and time with the Phoenicians and Greeks during the first half of the first millennia BC. In this frame, the addiction of archaeological information to the classical written sources has been proof useful to define a complex reality in material terms, but also in the economical, social, political, ideological and cultural aspects. And other exhibition of this complexity is also the recent assessment, in spatial and regional terms as a "regional system" in that in the 9th-6th Centuries BC, the local population (but diverse ethnically) was interconnected in all area of the SW of the Iberian Peninsula (Rodríguez Díaz, 2014).

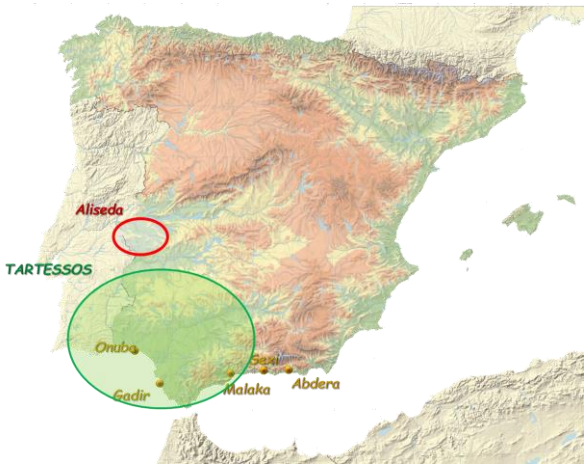

Figure 1. Aliseda, the Kingdom of Tartessos and the principal Phoenician factories in the Iberian Peninsula of the epoch

Because of that, Tartessos could be seen as a synonym of confluence, promoted by a rich and diverse geographic context (specially refer to the mineral and agricultural resources) and open to the sea by their access to the Mediterranean and Atlantic coast. A group with key areas (Bajo Guadalquivir-Huelva) and more periferic areas (Alto Guadalquivir, Middle Guadiana Basin and the Alentejo Portuguese) in constant interaction, and a prior history with the share process and other dissimilar ones, which asked for an analysis without simple approach (Rodríguez Díaz *et al.*, 2015a).

It is precisely in one of this isolated space in the periferic of Tartessos where the Treasure of Aliseda was found. This treasure is one of the most important set of orientalizing goldsmithing in the western Mediterranean Sea, and the Tartessos environment as well (Fig. 2). It was discover by chance in the place of "El Ejido", in the village of Aliseda in Cáceres, Spain (Fig. 1) at the end of February in 1920, due to the extractions of clay by the brothers Juan Jesús y Victoriano Rodríguez Santano to make bricks and tiles in the regional kiln (Mélida Alinari, 1921).

Figure 2. The Treasure of Aliseda, found close to our building, Photo of Archaeological Museum of Madrid (MAN)

Although it was missing a few days and out of sight of the authorities, it was rapidly recoved by the police by the request of the regional commission of monuments, and taken to the National Museum of Archaeology by José Ramón Mélida, director of the museum at the time, and was included in the collections and where it is shown today (Rodríguez Díaz *et al.*, 2014).

This famous set of jewellery, dated between the VII-VI centuries BC, was soon consider as the most important of the Spanish antiquity, this can be seen in the expense bibliography dedicated to the issue, that had been focus in the typological, iconographic, chronological analysis and only in the recent times a archeometrical analysis has been made (Rodríguez Díaz *et al.*, 2014). Nevertheless, the knowledge of the archeologically context had never been fully studied until now (Rodríguez Díaz *et al.*, 2015b), the only attempt made was the brief and unknown exploration carried by Juan Cabré Aguiló in November 1921, this contributed to fuel the speculations about its functionality (funerary objects of a lady, hideout, shrine).

In this context, three different approaches has been open to research: a) the most exact possible location of the discovery; b) the comprehension of the landscape; c) the excavation of an archaeological site known as "Las Cortinas" that is part of the archaeological complex where the treasure of the Aliseda was found. The first part concluded after the study and interpretation of the documentation generated by Juan Cabré, with special importance a set of photographies taken by him and preserve in the Cultural Heritage Institute of Spain (IPCE). By the examination and georeferenciation of the buildings, walls, or landmarks, was possible to situate, with little or no mistake, the furnaces, and the "X" which was could be used to mark the exact location of the treasure in

one of the paper copies conserved in the Spanish MAN (Gómez Guerrero *et al.*, 2015).

The second approach, the restitution of the site and the surroundings area, has been a complex deconstruction of the actual landscape, eliminating the traces of urbanistic projects carried in the years after the Discovery (1925-1933), In this way, the surrounding area, should be in 1920, and maybe in the ancient times, as a soft and spread elevation of 385 metres, with a wide view of the north skyline, clean of any vegetation, verged by four water courses, and quite close to the confluence of the commercial routes, that coming from the north, lead to the Guadiana Basin across the pass of "Los Terreros", just under the sight of the Tartesic settlement of Sierra del Aljibe (Rodríguez Díaz y Pavón Soldevila, 1999). In the north and as part of the very same region, in the other side of the cliff, the site known as "Las Cortinas" is found, offering physiographic similitudes, and some protohistoric fragments visible in the surface.

The third and last approach is develop in the next section

2. A RITUAL BUILDING NEAR THE TREASURE

2.1. *The surroundings of the building*

The digging site of "Las Cortinas", has about 3000m2, and is located about 180 meters NNE from the place where the famous treasure was found. The archaeological works developed in 2011-2013 has revealed a long protohistoric occupation, divided in two phases, I (a-d) and II (a-b), and dated between the centuries 6th to 5th BC. Considered as part of a larger ritual space (which include the location of the Treasure of Aliseda in "El Ejido"), the site now studied has been linked to the ritual circle of "Las Cortinas", especially to the sub-phases Ib y Ic. In the first of both (Ib), over a geminated pit orientated NE-SO (about 12.50-9.50m width y 20.80m length), excavated in red clay and able to be divided in two sub-cavities "A" and "B", started a process of construction and differential filling (Fig. 3). So, in the cavity "A" a small rectangular stance was build, with the same orientation which will be explain soon, and the sub-cavity "B", in which rest of ashes, combustion wastes, and different types of ceramic fragments were distributed in the perimeter. During the next sub-phases (Ic), the building constructed in the cavity "A" experimented a complex change in the organisation, although without changes in the dimensions nor orientation, by adding different structures and adjacent elements in the walls of the previous building. By doing this, a structural core was formed, that with time form the typical rooms in the unusual half buried house in the cavity "A": the previous mentioned central room, which may have a symbolic meaning, a hall in the façade, a warehouse, and a domestic area, the last two in the posterior part of the building. At the same time, the cavity "B" was filled, although not in a constant rate, but with a similar materials in each periods. All this area was amortized and without use during the subsequent phase II, in which the ritual circle was move to another area and with and other architectonical parameters.

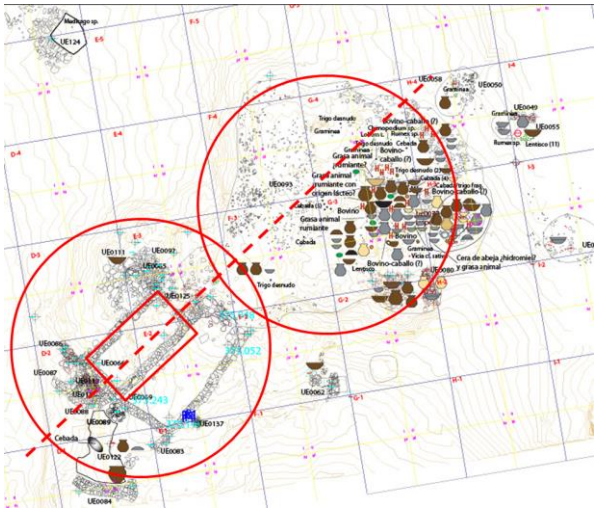

Figure 3. Phases of excavation in "Las Cortinas". The cavities "A" y "B", and the ritual building with the main axis, are marked in red

An assessment as a ritual circle that, among other important factors that will be discussed later, are the comensality events register in the cavity "B" as something to take in account. However, the questions that the motivation of the same provokes could be solved by studding the primordial structure in the cavity "A".

2.2. *The building and its metric*

The building is formed by a rectangular room (4.40m x 2.20m) and delimit by masonry walls with a poor quality, with an average width of 0.28-0.30m and a height that has been conserved of 0.30-0.40m. Above this foundations should was an orange mud-brick wall, which decomposition generated a residue with the same tonality and can be found in the interior of the walls. Little can be said about the total height of these walls; and also roof, that it was supposed to be flat and with beams. The only entrance, about 0.60m, and with different sizes rocks threshold, situates quite centrically in the north wall. The living surface is barely of 4.8m^2. The floor was formed by a thin layer of red topsoil over a substratum of red clay as well. Nevertheless, a small step can be observed in the right side of the door frame

because of the tiered baseboard and the flooring itself, although the last one is quite deteriorated. In this way, the floor would had two different levels, being the highest one the located in the east-side of the room. No evidences of structures or materials of any kind were faound, this lead us to make the assumption that this area was reserved for a "non-domestic use", with a poor illumination and possible characterize by the singular red floor. In the same interpretative line, besides the slightly illumination of the door, a narrow span of 0.28-0.30m should be mentioned; this small structure is also useful to define the axis of the structure. However, if the wide aperture was limited to the bottom of the wall, or if it was a narrow window with limited vision of the adjacent cavity "B" of the double hole, which fitted in the whole, and even with the skyline remains unknown. If so, as can be assumed, this small window, had contributed to the illumination of the space, even allowing the movement of some objects across, or a view of the sky above the skyline, in the bottom of the southeast corner, in the exterior a heavy evidences of domestic activities were found, in the sub-phase Ib, and increased in the sub-phases Ic-Id. The dimensions of the building are range in the values of 8'x16'. In fact, the corrected measurements gave us a multiple (integer) of the pattern foot, if it takes a value of 0.275m, slightly smaller than it was the norm in those times in the Iberian Peninsula.

Although it use was no so unusual, it was also used in some of the funerary chambers in the Iberian Necropolis of Túgi (Pérez Gutiérrez 2014a and 2014b) with the foot of 0.295 m, more used in the preiberian territory. It was also used in other areas of the Peninsula, as in the fortification of El Castellet de Banyoles with hellenistic influence, or in La Pícola (Moret 2008), or the house "C" in vettón hillfort of La Mesa de Miranda (0,280 m) (unpublished). Outside the Iberian Peninsula can also be found some interesting coincidences, with the Jonic foot (0,277 m) and the Oscan foot (0,275 m) (Panchón and Manzano 2002). The fact that the dimensions are harmonic, has been integer feet, can be an indicative of a previous planification by the builders. Therefore, it is no so strange the existence of some architectonical proportionality, that is quite obvious comparing the dimensions of the building: twice the length than the width (16'x8'), giving us a proportionality of 2:1. Maybe, it is possible to find an explanation to the use for this proportionality as an attempt to recreate, by the constructors, the proportionality used in the ritual space.

The symmetry of the building in relation to the hole proposed by the archaeologies in the most northern wall, and that will be used to define the orientation of the building, if it is considerate as the main axis of the construction.

Again, the coincidence between the axis of the ritual space and the building can be explain by a wilful planification of the builders in the direction that these axis must be prevail over the others.

2.3. *The orientation of the building*

The skyline in "Las Cortinas" is divided in two well differenced sides. On the first side, the most northern skyline, that shows the valley of the river Salor, has no meaningful topographic element. On the other side in the southern skyline, appears the Sierra del Aljibe, less than one kilometre away and with a difference in height about 300m.

It seems that there is no interesting topographic orientation from the ritual space, which can be interpreted as if it is the building itself the one who is going to determinate the orientation. In that case, the reasonable thing would be to use the main axis of it, which is also defined by the previous mentioned opening in the north wall. The astronomical azimuth has been determinated by a topographical survey (in UTM projection) realized by GPS technics, for the whole digging site (this technic is explained in Pérez Gutiérrez 2014a). This astronomical azimuth (from the north) is 45º 30'. And with the assistance of the application DTM (Digital Terrain Model) can be obtained an enough points of the skyline that can be used to define this profile from "Las Cortinas". With this procedure we obtain an altitude of 2º for the mentioned azimuth.

Table I. Declination and azimuth for Arcturus (latitude=39º25')

Date (BC)	Declination	Secular variation	Altitude	Azimuth
900	36º 18'	36'	2º	42º 10'
800	35º 42'	36'	2º	43º 09'
700	35º 06'	37'	2º	44º 07'
600	34º 29'	37'	2º	45º 02'
550	**34º 10'**		**2º**	**45º 30'**
500	33º 52'	37'	2º	45º 58'
400	33º 15'	36'	2º	46º 53'
300	32º 39'	36'	2º	47º 45'

In the simulations for the sky in the epoch, the only star that verifies its rise in that region is Arcturus, in the constellation of the Boötes, the most shiny third star in the celestial sphere after Sirius and Canopus, being the two of them much more southern. In this way, Arcturus is the most remarkable in the northern hemisphere, with other of the same magnitude (Vega and Capella), or with higher rank (Castor, Pollux or Deneb), which positions are discussed in the future (Table II). For that, the first candidate for this purpose is, in fact, Arcturus.

We already know that Arcturus has a very pronounce self-movement, with a variation about 2'' per year, what makes that in very sort periods of time movement is quiet pronounced. Taking as reference the 6th century BC for the time of construction, the Table I represents the values for the declination and the azimuth obtained for the place (39º 25'), and the secular variation of declination, for a period of 3 centuries before and after; the values are round to minutes of arch.

Can be check, that, the main axis of the building aims to the place that Arcturus raises in the middle of the century 6th BC, and coincides with the altitude from "Las Cortinas". If the building is really been constructed with the aim of having Arcturus in the middle of the field of vision that allows the opening in the most northern wall, this reason endorse the 6th century BC to date the building as a ritual space and the construction of the building, that is coincident with the archaeological dating.

Table II. Stars close to Arcturus, in the middle of 6th century BC

Star	Magnitude	Declination	Altitude	Azimuth
Vega	0,00	39º 00'	2º	37º 45'
Capella	0,06	38º 24'	2º	38º 50'
Deneb	1,25	38º 10'	2º	39º 10'
Castor	1,56	32º 40'	2º	47º 50'
Pollux	1,15	39º 40'	2º	52º 05'

Other candidates that verifies its rise in the vicinity can be eliminated. The careful observation of the sky shows that Vega (*Alpha Lirae*), Capella (*Alpha Aurigae*), Deneb (*Alpha Cygni*), verifies its rise with an azimuthal difference of 8º with respect to the rise of Arturus. The twins Castor y Pollux (*Alpha* y *Beta Geminorum*), closer to the skyline (about 3º and 6º, respectively), this stars are less shiny, and both displaced form the main axis of the building in the same direction (Table II).

The opening in the wall allows the observer, from the back of the room (remember that is slightly more elevated than the rest), an arch in the skyline about 5º, that would allow us to see the rise of Arcturus without problems.

However, the visibility of the rise extends along half of year, because of that, this single event would not establish a concrete date. Studies about heliacals rising and setting of Arcturus (Pérez Gutiérrez, in press) shows as this star is visible a few days before the spring in the sunset, and it cannot be visible a few days in the middle of September, shortly before autumn, because of that the rising and setting of Arcturus would annunciate the beginning of spring and autumn.

About this matter, can be said that the relation and interest for the spring are attested, for other reasons, by the floral adornments of the Treasure of Aliseda, found in the vicinities of the building, which shows mainly spring and floral motives. In the same way, we have to refer to the antracological profiles of the charred woods, still has bark, documented in the cavity "B", that suggest that were chop down used at the beginning of the growth (Duque Espino, 2015). This suggests that for these people the determination of these dates was important.

In that case, the northern orientation of the building stays out of solar range, this is, form the area in the skyline where is verified the Sunrise. However, the configuration of the opening in the wall, in conjunction with the width, allows the sunlight to come in, at dawn, since that the azimuth of the Sunrise is produced with 75º (declination 12º). In this situation, because of the apparent movement of the Sun, occurred twice a year: at the beginning of May and September. The rest of the year, between September and May, the sunrays will not illuminated the interior of the stance by the opening. The progression to more northern positions of the Sunrise make that the Sun illuminates more towards the bottom of the room. In the limit (maximum declination at the time, 23º 46') occurs in the Summer Solstice, and for a altitude of 2º, the azimuth is 59º, and the Sunlight almost reach the wall in the back, but never touches the opposite wall (Fig. 4). The orientation of the building, and the opening in the wall prevents that the Sunlight never illuminates the back of the room, being this in shadows all the Sunrises of the year.

3. DISCUSIONS AND CONCLUSIONS

The archaeological remains recovered in "Las Cortinas" are situated in a "singular place". The contributions of the location and physiographic; its peculiar design and development; and the recurrent profile of the materials, typological and functional, spatially distributed in a remarkable way. This particular distribution, as said before, may be consider as a "Ritual Circle" form by three different aspects of high social and symbolic content. The first, the shrine-house, build in the middle of one of the cavities during the preparation of the ground while delimiting the ritual space. Although the construction may be poor compare with the other excavated remains, the use of a metric (the foot of 0.275m) and a proportion (2:1) do not seem casual, and also suggests the existence of a constructive project and therefore a planification with unknown parameters.

Figure 4. The Sunbeam lighting inside the stance

The second, the comensality that occurs in the second cavity, where dozens of ritual fires were used and amortized during all life of the building. This same place would be reutilized during the 6th century BC in a ritual way, and with similar evidences of comensality, but constructing and other building with east-west orientation and different architectonical parameters; width of the wall about 1.5 feet, (about 0.280m foot), and the rectangular stance of 16'x10', as a remembrance of the golden ratio.

The third, the beginning of the spring announced by the heliacal rising of Arcturus, remembering the remarkable and recurrent floral motive of the Treasure of Aliseda, and suggesting the integration of it with an outstanding role, although in other ritual circle, in "El Ejido", in the ceremonies of social legitimization attached to the observations of the natural cycles.

The conjunction of the astronomical orientation with the geometry of the building makes that the illumination of the building is limited to the Sunrise between the first's days of May and September; about 2 months before and after the Summer Solstice. Would the entrance of the Sunlight have an important role in the ritual that could be celebrated there?

There is a Preiberian building (6th century BC) constructed with heavy influences of Greeks and Phoenicians in Bajo Ebro, which shows a quite similar characteristics to this one; it is isolated, it is a place for celebration commensality, and also presents an exquisite metric and propocionality, and an obvious astronomical orientation to Arcturus. The geometry also permits the Sunlight in the Summer Solstice to illuminate a small shrine, and a separated space and in a step: The Turó del Calvari, in Tarragona (Pérez Gutiérrez *et al.*, 2015). It is possible that despite the distance in space, not in time, the solution the same problem in a different way? Would be important the difference between the Sunrise and Sunset, or could be just a problem of opportunity?

Of Course, the affirmation that both places are the same thing is, a least, risky, but the geometry and astronomy inherent to the design of both are the same. Coincidence?

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