

# Late Bronze Age sacred landscapes in Western Iberia: the case of Penedo do Lexim (Maфра, Portugal)

*Paisajes sagrados de la Edad de Bronce tardía en el occidente de la Península Ibérica:  
estudio del caso de Penedo do Lexim (Maфра, Portugal)*

Elisa Sousa<sup>a</sup> y Ana Catarina Sousa<sup>a</sup>

## ABSTRACT

Archaeological fieldwork at Penedo do Lexim (Maфра) brought to light interesting evidence related to the site's Late Bronze Age occupation. The available data indicates that its main function did not involve permanent domestic features but instead extraordinary and sporadic practices that seem to be related both to inter-regional or long distance trading and to ritual activities. In this paper, we present the archaeological evidence related to the site's occupation during the late 2<sup>nd</sup>/ early 1<sup>st</sup> millennium BC (ceramic and metallic assemblages) and discuss its function in the regional framework of the Late Bronze Age of the Lisbon Peninsula.

## RESUMEN

*Excavaciones arqueológicas en Penedo do Lexim (Maфра) han proporcionado datos interesantes sobre su ocupación durante el Bronce Final. La información disponible indica que su función principal no se relaciona con actividades domésticas permanentes, sino con prácticas extraordinarias y esporádicas, que parecen asociarse al comercio interregional o de larga distancia y/o con actividades rituales. En este trabajo presentamos las evidencias arqueológicas relacionadas con la ocupación del yacimiento durante los finales del II/ inicios del I milenio a. C. (conjuntos cerámicos y metálicos) y discutimos su función en el marco regional del Bronce final en la Península de Lisboa.*

**Key words:** Late Bronze Age; Western Iberia; Material Culture; Ritual practices; Trading.

**Palabras clave:** Bronce Final; Occidente de la Península Ibérica; Cultura material; Prácticas rituales; Comercio.

## 1. INTRODUCTION

The Late Bronze Age (LBA) occupation in Iberian Peninsula's central Atlantic coast is considerably intense, specifically in the Portuguese region of Estremadura. This strategic area is a long and narrow territory located between the flood plain of the river Tagus and the Atlantic Ocean and would have had pronounced peninsular features during the Flandrian transgression.

There are several sites in this area that provided metallic and ceramic artifacts that can be easily associated with human occupations dating from the late 2<sup>nd</sup> to the early 1<sup>st</sup> millennium BC (Fig. 1). Unfortunately, the available data from most of these locations derive from survey campaigns or ancient excavations that lack specific archaeological documentation.

Nonetheless, some elements seem to indicate that the human occupation in this region, specifically in its innermost area, is somewhat complex, even if it does not encompass highly developed or proto-state societies. In fact, the main social-economic foundation of these communities resides in farming and animal husbandry, although commercial transactions and possibly bronze and gold metalwork also played a key role in its structure.

In the interior of Lisbon's Peninsula, the LBA occupation seems to have favored high altitude settlements, such as Cabeço de Alcainça (Maфра), Serra do Socorro (Torres Vedras, Maфра) and Castelo dos Mouros (Sintra). However, we still lack concrete archaeological data from these locations, particularly in terms of extensive excavations that would confirmed their function as main habitat sites, actual dimensions, internal organization and associated material culture (Sousa 2016).

<sup>a</sup> Universidade de Lisboa; Faculdade de Letras; Uniarq – Centro de Arqueologia da Universidade de Lisboa. Alameda da Universidade 1600-214 Lisboa, Portugal. E-mails: e.sousa@campus.ul.pt <https://orcid.org/0000-0003-3160-108X>; sousa@campus.ul.pt <https://orcid.org/0000-0003-2709-3967>  
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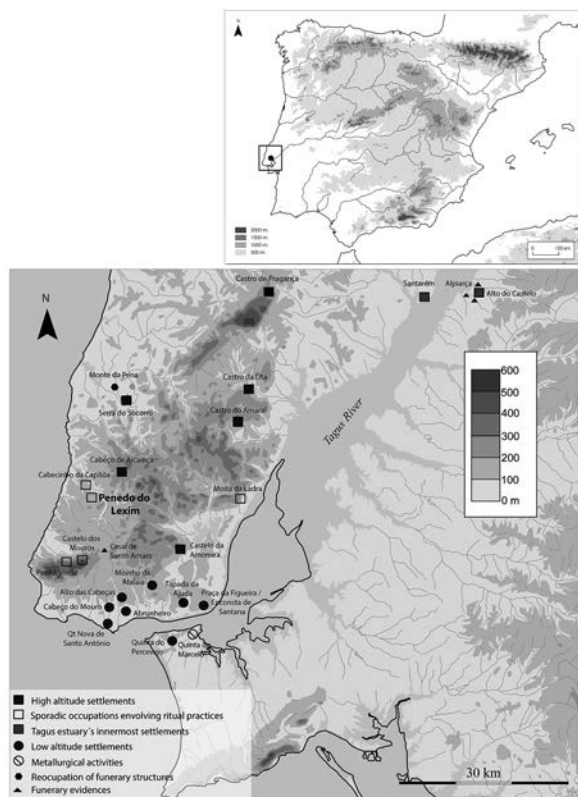


Fig. 1. Location of Penedo do Lexim in the Iberian Peninsula and the Late Bronze Age occupation of the Lisbon Peninsula (according to Sousa 2016: 399 - fig. 1, modified). Cartographic base: CMP 1: 250000, Instituto Geográfico do Exército, adapted by R. Boaventura.

The field work carried out at Castelo dos Mouros has shown that the site's earliest layers of human occupation were severely affected by more recent constructions, and the only elements related with its LBA occupation consist of small hearths and mostly decontextualized ceramic materials (Cardoso 1997-1998a; Cardoso and Sousa 2014).

In Cabeço de Alcainça, the available data consists exclusively of elements recovered during survey campaigns and other isolated findings (ceramics and metallic artifacts) that can be easily related with a LBA occupation. The identification of stone structures in the limits of some platforms suggests the existence of defensive or delimitation walls, whose presumed LBA chronology may only be established through future excavations (Ponce 2012: 43-44). Highly relevant is the recovery, in this site, of several bronze artifacts, namely six armrings, a dagger sheath, a socketed axe, and a palstave (Vasconcelos 1891; Vicente and Andrade 1971), although we lack knowledge concerning the exact context of these discoveries, which were mostly

found by local individuals. It is not, however, impossible that the first set (six armrings and the dagger sheath) and even the second one (a socketed axe and a palstave), may have originally corresponded to small hoards placed during the LBA at specific locations in the site.

Another important settlement in this area is Serra do Socorro, with an altitude of 395 m, one of the highest in the region. LBA artifacts have been systematically recovered in the site since the 1920's (Jalhay 1946; Matias 2003), but only recently was it possible to undertake the first archaeological excavations, directed by one of us (A.C.S.). Although the excavated area was fairly small, it revealed the existence of a small hut apparently associated with LBA contexts that are currently under study. It is possible that this settlement was, at some point, surrounded by defensive structures but whose archaeological confirmation was not yet obtained.

Other sites in the region were also occupied during the LBA, but the available data indicates that they were not settlements but had played other functions more directly related to extraordinary practices linked with ritual and symbolic activities. Penedo do Lexim (Mafra) is such a site. This group encompasses sites such as Penha Verde, in Sintra (Cardoso 2010-2011), which shares many of the characteristics displayed in Penedo do Lexim, as we will see later on, as well as sites such as Moita da Ladra - Vila Franca de Xira (Cardoso 2013; Monteiro and Pereira 2013) and Cabecinho da Capitôa - Mafra (Sousa 2008), recently discovered in the framework of preventive archaeological works, that seem to be related to specific types of ceremonial festivities. This data has helped highlight the complexity of ritual and ceremonial activities during the LBA in Estremadura. These were previously restricted mainly to metallic hoards and cave occupations and now extend also to episodic reoccupations of ancient Chalcolithic sites. The LBA data from Penedo do Lexim is directly linked with this latter phenomenon, indicating that in the LBA this site was used only in specific and short periods that were probably related to important and meaningful practices, particularly in the framework of regional or long distance trading and ritual activities. In this sense, it seemed imperative to gather and present all the LBA evidence retrieved in this site, a task we carry out in the following pages, and which will enable to discuss its function in the regional context during the late 2<sup>nd</sup> and early 1<sup>st</sup> millennium BC.

## 2. PENEDO DO LEXIM'S LBA ARCHAEOLOGICAL DATA

Located in the Western area of the Portuguese Estremadura (9°25'34"W, 38°53'22"N, elevation 232 m), Penedo do Lexim is a volcanic chimney located 10 km

from the coastline, in the left bank of Ribeira de Cheleiros, a watercourse that flows into the Atlantic Ocean (Fig. 2).

This natural fortification with striking vertical outcrops dominates the surrounding landscape. It has three major natural platforms: 1 – the upper platform, the core of the site; 2 – the intermediate platform, located in the halfway down the slope, with several *loci* delimited by rocky outcrops; 3 – the lower platform, at the base of the hill. The first two platforms, with a total area of 1.4 ha (339 m<sup>2</sup> excavated) were the central core of the prehistoric settlement that, along with the zone located at the base, sums up to 4.7 ha (Sousa 2010).

Unlike most of the other sites previously referenced, Penedo do Lexim has been the object of systematic archaeological research. This has three different phases.

The first, dating back to the late 19th century, is related with the recognition of its archaeological potential by Carlos Ribeiro and Joaquim Scola, from the Portugal's Geological Service Commission, and by Estácio da Veiga in his work *Antiguidades de Mafra* (1879). The first LBA artifacts were recovered approximately a few years later, in 1884, by Possidónio da Silva, including a unifacial bronze palstave, of which only an illustration remains (Fig. 3).<sup>1</sup>

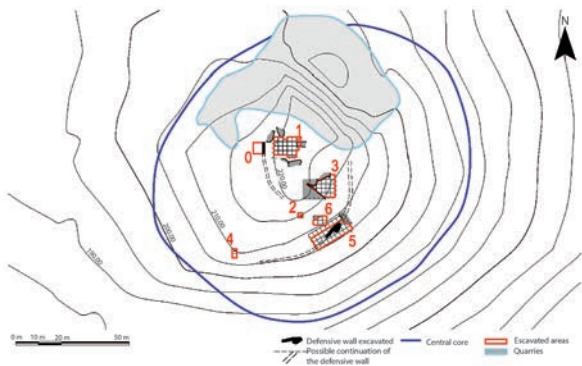


Fig. 2. Upper: east slope of Penedo do Lexim [photo by Victor S. Gonçalves]. Lower: general plan of Penedo do Lexim with indication of the excavated sectors (*loci*): *Locus* 1 upper platform, *Locus* 2 to 6 intermediate platform (both in colour in the electronic version).

<sup>1</sup> Martins, A. C. 1999: *Possidónio da Silva e a Memória Histórica: um percurso na arqueologia portuguesa de oitocentos*. Faculdade de Letras da Universidade de Lisboa. Master thesis. <http://dited.bn.pt/30830/index.html?rf>

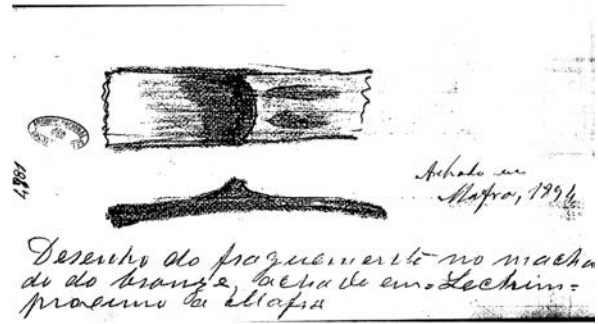


Fig. 3. Unifacial palstave from Penedo de Lexim recorded by Possidónio Silva (according to Martins 1999: fig. 126).

During the 1970's, the exploitation of a quarry in the site led to the destruction of a significant part of its archaeological contexts. As a preventive measure, two fieldwork campaigns were undertaken by José Morais Arnaud (Arnaud *et al.* 1971; Arnaud 1974-1977). The artifacts gathered during these excavations were latter deposited in the Archaeological National Museum, and have been reviewed in the course of this study. The continuing work at the quarry led to the recovery of several other artifacts that were obtained by private collectors, few of which have reached public domain.

More recently, between 1998 and 2004, a multi-annual research project was undertaken by one of us (A.C.S.), aiming not only to review the scattered data recovered in Penedo do Lexim, but also to proceed with new archaeological excavations. The fieldwork was organized in different sectors according to the above-mentioned platforms: in the upper platforms, *Locus* 1; in the intermediate platform, *Locus* 2 to 6 (Fig. 2). Only *Locus* 1 presents evidence related to primary contexts from all the human occupation phases from Penedo do Lexim, while in the other areas the more recent occupations are practically scattered throughout the surface.

The first moments of the site's occupation date back to the Late Neolithic but the most extensive phase starts during the early Chalcolithic (*c.* 2800 BCE), encompassing the construction of defensive walls and domestic structures, which were abandoned during the late phase of this period<sup>2</sup>. Following this moment, the site seems to have lost its function as a main habitat, attracting, however, other types of activities that seem to be strongly linked with ritual and symbolic meanings.

In fact, the archaeological evidence dated from the late 2<sup>nd</sup>/ early 1<sup>st</sup> millennium BC in Penedo do Lexim does not involve an intense occupation of the area but

<sup>2</sup> Sousa, A. C. 2010: *O Penedo do Lexim (Mafra) na sequência do Neolítico final e Calcolítico da Península de Lisboa*. Faculdade de Letras da Universidade de Lisboa. PhD thesis. <http://hdl.handle.net/10451/3480>

instead specific episodes of apparently short duration. Most of the LBA materials gathered during the fieldwork campaigns, particularly the ceramic vessels, were not recovered in primary contexts, seeming to have been unevenly dispersed throughout the upper (*Locus 1*) and intermediate platform (*Locus 3 to 6*), and on top of the Chalcolithic layers. There are, however, some indications that some metallic artifacts associated with the LBA occupation were, in fact, placed in specific locations that may reveal a special care in their deposition.

The *Locus 1* area is particularly significant, providing the only two LBA primary contexts uncovered throughout the site. Despite the reduced stratigraphic potential, the excavations led to the identification of a small metallic hoard (S.U. [4]) and a small pit (S.U. [17]) (Fig. 4), which contained a significant amount of potsherds, faunal remains and several small basaltic rocks. Despite the presence of some residual Chalcolithic fragments, most of the sherds found within



Fig. 4. Left: Penedo do Lexim. *Locus 1* area: pit S.U. [17], containing potsherds, fauna and basaltic rocks. Right: concentrations of ceramic materials scattered on upper platforms of Penedo de Lexim (both in colour in the electronic version).

this depression exhibit polished surfaces, belonging to carinated vessels or vases with nipple protrusions. These clearly indicate that this context has a LBA chronology. However, most of the LBA findings were retrieved from the area's surface levels (S.U. [1] and [2]), frequently mixed with artifacts from earlier and latter chronologies (Fig. 4). Contrary to what occurs in the previous (late Neolithic – Chalcolithic) and subsequent moments of occupation (Roman period) there are no built structures associated to the LBA phase.

In the intermediate platform, specifically in the area excavated during the 1970's (*Locus 0*), some sherds dated from the LBA were also retrieved, such as carinated bowls and wall fragments decorated with nipple protrusions, as well as a bronze ring (Arnaud *et al.* 1971). Once more, there are no references to the existence of preserved archaeological contexts dating from this phase.

Far more complex is the reconstruction of the original context of various finds retrieved in the site during the quarry exploitation. Although some of them have been deposited in the Mafra Municipal Museum, references concerning their provenance are rare and sometimes misleading<sup>3</sup>.

Considering the long historiographical record of this important archaeological site it is quite difficult to reconstruct accurately its ancient phases of occupation. However, and in what concerns the LBA period, the recent excavations campaigns seem to indicate that its use was, in fact, sporadic and that those episodes were concentrated mainly in the upper platform and in sheltered areas.

## 2.1. Ceramic assemblage

The LBA ceramic assemblage recovered in Penedo do Lexim shows limited morphological variety when compared with other contemporaneous sites in the region.

One of the most well represented types includes a series of carinated bowls (Fig. 5) with a considerable variation in terms of diameters (between 11 and 32 cm), rim height and orientation, and surface treatments (mainly polished but also roughly smoothed and simply rough). Some of these vases exhibit evidence of repairs (IGN.017.9483) and the application of gripping elements (IGN.017. 5128). Among the open vessels we have also identified a more hemispheric type of bowl (Fig. 6), with slightly everted rim and burnished surfaces (IGN017 4856).

Closed and semi-closed vessels are more common in this set (Fig. 6); they include vases with vertical walls (IGN 017 13726), "S" shaped pots, and others

<sup>3</sup> See note 2.

with vertical rims, all of them frequent in the regional LBA repertoire (for a recent synthesis see Arruda and Sousa 2015). Among this group we must also highlight the existence of two very small vases (IGN017 11780; IGN017 5123), with carefully burnished surfaces, that may have been used as drinking cups.

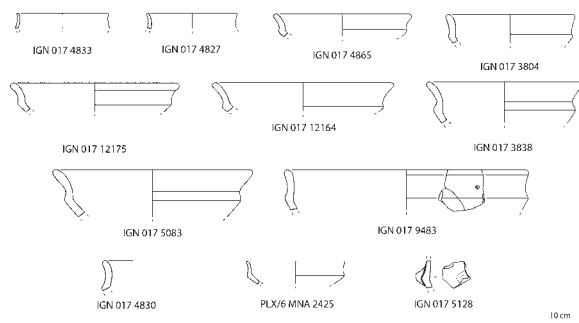


Fig. 5. Late Bronze Age ceramic carinated cups from Penedo do Lexim.

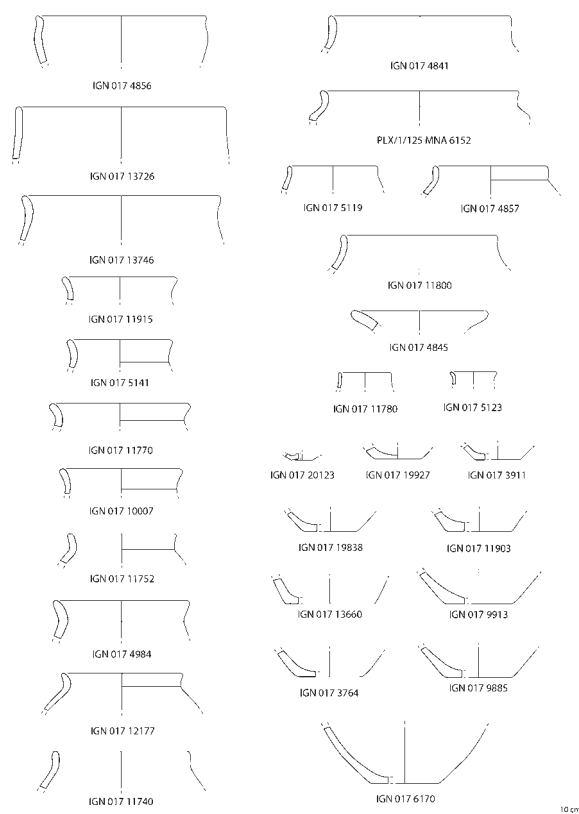


Fig. 6. Late Bronze Age ceramic bowls, closed and semi-closed vessels, bases from Penedo do Lexim.

The LBA ceramic assemblage of Penedo do Lexim also includes one fragment that may correspond to some type of small plate or lid (Fig. 6 - IGN.017.4845), and several base fragments.

In this set we should also include several fragments recovered during the excavations that took place during the 1970's that exhibit gripping elements in their outer surfaces, all of which already published (Arnaud *et al.* 1971).

A global appreciation of the ceramic assemblage indicates a considerable frequency of shapes with burnished surfaces, suggesting a use for drinking, such as the carinated bowls, the hemispheric bowl and the small vases. Although these types appear in practically all LBA regional sites, the reduced morphological variety in Penedo do Lexim's LBA ceramics, as well as a clear preference towards vases suitable for drinking and food consumption, may reflect a conscious selection that could be directly related with ceremonial practices or festivities, which could have taken place in the site. On the other hand, the absence of decorative motives, particularly the typical burnished patterns, is to be noticed, but it is not infrequent in this regional area, particularly in settlements that seem to share what we consider to be Penedo do Lexim's primary function during the LBA, as we will see later on.

## 2.2. Metallic assemblage

The LBA metallic assemblage recovered in Penedo do Lexim consists of 15 artifacts, some of which are unclassifiable, but shown by chemical analysis to be bronze pieces<sup>4</sup>. Most of them were uncovered during the excavations carried out in the 1990's, allowing for a more accurate contextual framework, while others appear scattered throughout the site. A few artifacts were found during the quarry's exploitation, in a specific location that suggests a more interesting interpretation.

This set includes a wide range of morphologies: ring shaped pieces (5), weights (3), axes and palstaves (3), a chisel (1), a blade (1), and also undiagnosed fragments (2). Most of them were uncovered in Penedo do Lexim's upper platform, in *Locus 1* (10 artifacts), while the others were retrieved in the intermediate platform, in surface levels.

One of the most interesting findings related with Penedo do Lexim's LBA occupation occurred during the quarry's exploitation in the 1970's, when at least two double looped socketed axes were retrieved from within a deep rocky crevice (Arnaud *et al.* 1971: 131).

<sup>4</sup> From this list were excluded other seven fragments that were not analyzed, and therefore may correspond also to copper alloys.

Unfortunately, only one of these axes is currently accounted for (Fig. 7). If we consider accurate the description of these findings, the original inaccessibility of the artifacts enables its interpretation as a small hoard, considering the wide diversity that this type of context encompasses during the LBA (Vilaça 2006).

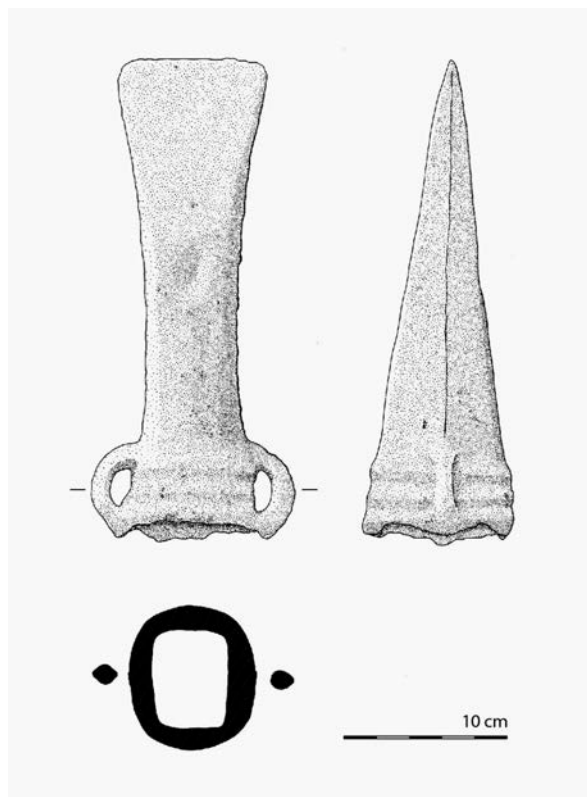


Fig. 7. Bronze double looped socketed axe recovered during the exploitation of the quarry at Penedo do Lexim (according to Sousa *et al.* 2004: fig. 14).

Similar artifacts (e.g., the fragmented unifacial palstave recorded by Possidónio Silva<sup>5</sup>) seem to have been retrieved from the site during the last two centuries, but unfortunately they remain in possession of private collectors (Arnaud *et al.* 1971: 131) and are unavailable for study. Considering the non-archaeological character of these findings, it is impossible to be sure if they originally constituted metal hoards or some other type of context.

<sup>5</sup> Martins, A. C. 1999: *Possidónio da Silva e a Memória Histórica: um percurso na arqueologia portuguesa de oitocentos*, fig. 126. Faculdade de Letras da Universidade de Lisboa. Master thesis. <http://dited.bn.pt/30830/index.html?rf>

During the recent fieldwork carried out in Penedo do Lexim, another singular discovery was made that also may be interpreted as a small metal hoard. In *Locus 1* (S.U. [4]), placed directly upon a Chalcolithic stone pavement (Fig. 9) that was probably reused during the LBA, was a metallic set formed by a spearhead, a chisel and a ring (Fig. 8). Although there are no signs of intentional concealment, we cannot be sure of its original setting.

The morphological features of these artifacts, particularly the socketed spearhead, which is similar to the ones found in Alqueva (Cardoso *et al.* 1992), Porto do Concelho (Pereira 1970), Castelo de Montemor-o-Velho (Coffyn 1985), Fiéis de Deus (Melo 2000), Solveira (Costa 1963) and Pragança (Figueiredo *et al.* 2007) show that they belong to the LBA period, probably during the earliest stages of the 1<sup>st</sup> millennium BC. The spearhead has a long and narrow leaf shaped blade, with



A



B

Fig. 8. Penedo do Lexim: small hoard of bronze artifacts in *Locus 1* (S.U. [4]), placed upon a Chalcolithic stone pavement probably reused during the LBA: A. Spearhead found *in situ*; B. Rings (IGN.017.9561) found in association with the chisel and spearhead (according to Sousa *et al.* 2004: fig. 16) (in colour in the electronic version).

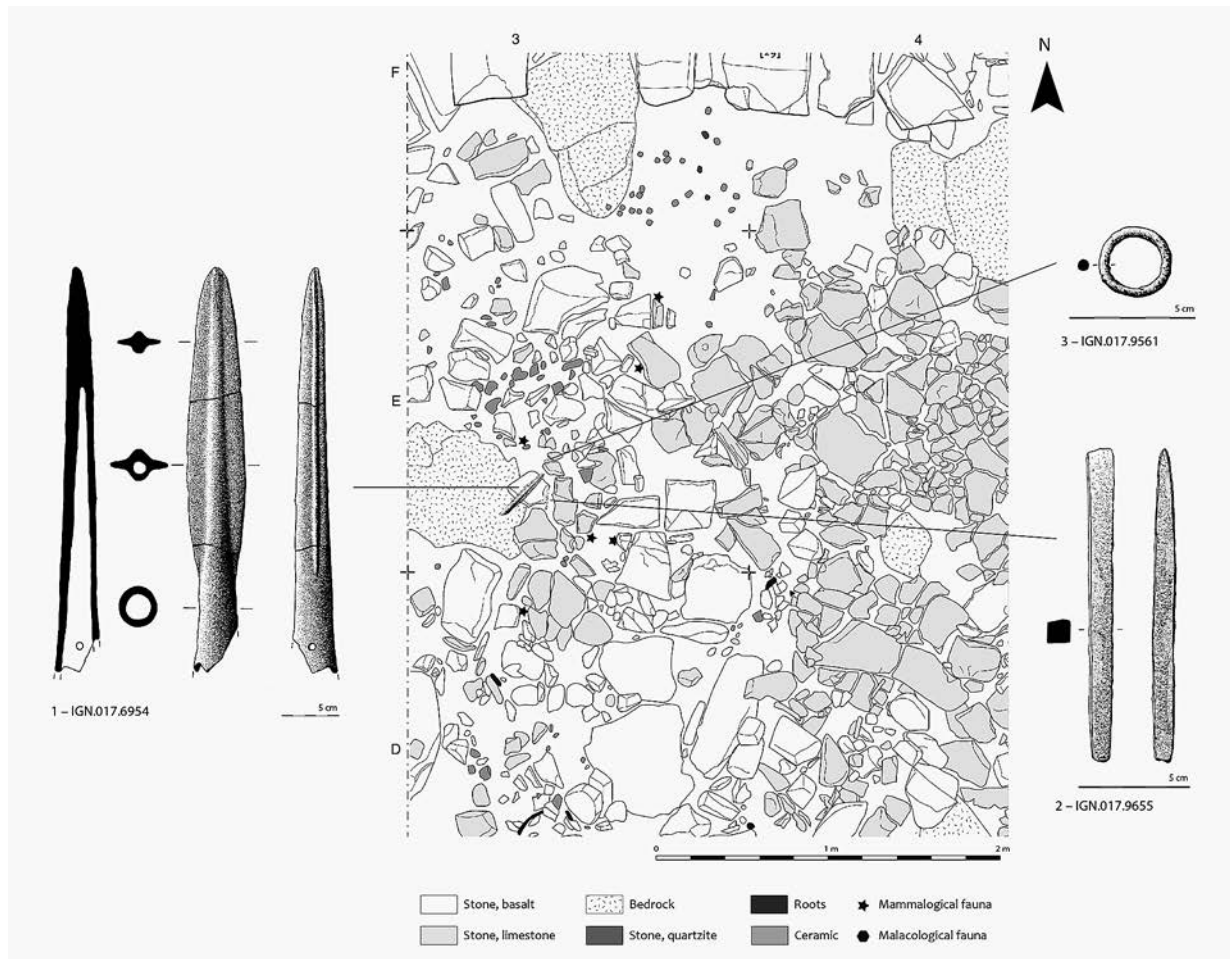


Fig. 9. *Locus 1* (S.U. [4]) at Penedo do Lexim: Chalcolithic stone pavement, with indication of the primary location of LBA bronze artifacts: 1. spearhead, 2. chisel, 3. ring.

a simple longitudinal groove, and a lozenge section. The shaft is circular in shape, widening at its end, and still preserves one peg hole. It is 182 mm long, of which 140 mm is the blade; the socket mouth has a diameter of 14 mm. The piece weighs 125.82 g. Its typological attribution is not easy, considering the high variability that this type of artifacts normally present, but it shows strong similarities to Coffyn's *type Vénat* or *dérivé de Vénat* (Coffyn 1985). Both the bronze chisel and ring are typical of the regional LBA horizon. The first piece is 145 mm long, 12 mm width and 14 mm thick, weighing 90.36 g. The bronze ring has a diameter of 32 mm and its thickness is 6 mm; it weighs 5.04 g.

Recent excavations carried out in Penedo do Lexim also retrieved parts of one or several sets of bronze scale weights (Fig. 10), composed by three artifacts, each of them uncovered in a different area: *Locus 1* (S.U. [017] - IGN.017.05576), *Locus 2* (S.U. [04] - IGN.017.03946)

and *Locus 3b* (S.U. [07] - IGN.017.12993). The only weight recovered in a primary LBA context was the one retrieved in *Locus 1*, in the interior of the abovementioned small pit. The others were intrusions found in the upper levels of the Chalcolithic occupation.

The smallest weight (IGN.017.12993) has a sub-cylindrical discoid shape and a sub-rectangular section. Its maximum diameter is 0.9 cm, 0.4 cm thick and weighs 1.40 g. It reveals few signs of corrosion on its surfaces, on which no marks are visible. The weight IGN.017.05576, presents a bi-truncated cone shape, with a maximum diameter of 1.2 cm, 0.6 cm thick and weighs 3.69 g, with some evidence of corrosion on its surface. The larger one (IGN.017.03946) has a hexagonal section with a maximum diameter of 1.5 cm, 0.8 cm thick and weighs 8.70 g, with no signs of corrosion. None of them presents marks on their surfaces.

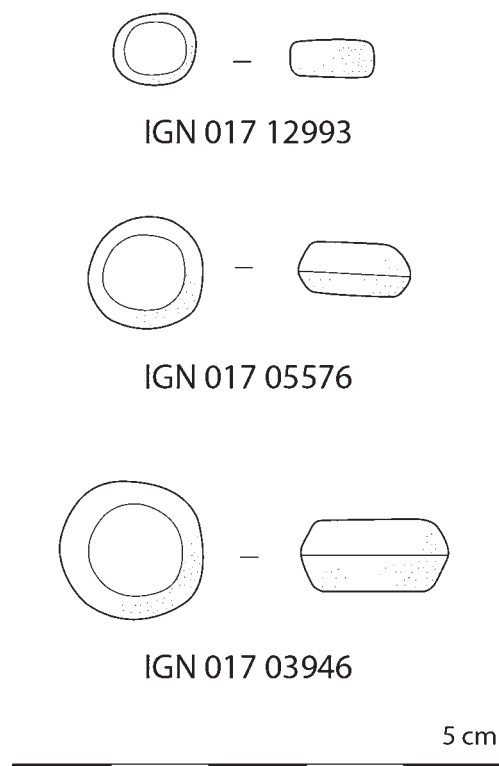


Fig. 10. Bronze weights from Penedo do Lexim.

Similar artifacts were found in several sites in Western Iberian Peninsula (Vilaça 2003, 2011). Morphologically, the lightest weight from Penedo do Lexim is identical to the artifacts recovered in Abrigo Grande das Bocas (Carreira 1994: 86, 129; Vilaça 2003: 255, 282, fig. 1-3) and Castro dos Ratinhos (Berrocal-Rangel and Silva 2010: 309, fig. 143-15), although its weight is considerably lighter. Metrically, it is similar to some of the weights found in Penha Verde (maximum diameter – 0.9/1 cm; weight – 2.2 g) (Vilaça 2011: 146, fig. 5-6) and in Baleizão (maximum diameter – 1.2 cm; weight – 2.32 g) (Vilaça 2011: 152). The bronze weight of Penedo do Lexim, with 1.40 g, is, so far, one of the smallest recovered in Western Iberian, along with the artifacts recovered in Cabezo de Araya (Almagro Basch 1961: fig. 4-23), and Pragança (Vilaça 2003: 257). It is interesting to highlight that these sub-cylindrical discoid shape with sub-rectangular section pieces seem to be associated with lower weights (normally between 1 and 5 g).

The other two bronze weights from Penedo do Lexim are share in the most common morphology known among these artifacts (Vilaça 2003: 263-264). Similar pieces were found in Castro da Ota (Vilaça 2003: 259, 282, fig. 1-1), Penha Verde (Vilaça 2003: 256-257, 282,

fig. 1-2), Moreirinha (Vilaça 2003: 253, 282, fig. 1-4), Monte do Trigo (Vilaça 2003: 254, 282, fig. 2-1 e 2), Pragança (Vilaça 2003: 257-259, 283, fig. 3-1 a 9), Cabezo de Araya (Almagro Basch 1961: fig. 4-23), Los Concejiles (Vilaça *et al.* 2012: 150-151, fig. 20-1), Castro da Cola and Baleizão (Vilaça 2011: 152), most of which are in primary LBA contexts. Of these two, the smallest (3.69 g) is similar to the one found at Pragança (3.87 g), as well as to others with a range between 3 and 4.5 gr (Vilaça 2003: 266 – quadro II). The heaviest (8.70 g) coincides, once more, with one of the artifacts from Pragança (Vilaça 2003: 258), being also similar with others from Penha Verde (8.5 g), Ota (8 g) and Sr.<sup>a</sup> da Guia (9.1 g) (Vilaça 2003, 2011).

As we stated previously, nine of the LBA metallic artifacts retrieved from Penedo do Lexim were previously published and analyzed by Energy Dispersive X-Ray Fluorescence spectrometry (Sousa *et al.* 2004). In most cases (double looped socketed axe, blade, rings, chisel and some undiagnosed fragments) the archaeometric data shows elevated values of Sn (between 17.3 % and 32 %, reaching, in some cases – an undiagnosed fragment and a ring – 44.7 % and 53.4 %), a typical feature of the western Iberian Peninsula LBA (Sousa *et al.* 2004: 106).

However, a peculiar anomaly appeared in one of the pieces. The bronze weight recovered in *Locus* 1 (IGN.017.5776) shows a fairly high percentage of Pb values (8.14 %), an aspect that improves the fluidity and lowers the alloy's melting point. This is not entirely uncommon in the western Iberian LBA, although generally in much lower percentages (Melo 2000). The high quantities of Pb in Penedo do Lexim's bronze weight clearly differs from the data available for similar pieces found in the Portuguese interior, with binary alloys dominated by Cu and Sn (Merideth 1997, *apud* Vilaça 2003), which have been interpreted as native productions. The only bronze weights from the Iberian Peninsula that exhibit similar, even if lower, percentages of Pb were retrieved in Los Concejiles (Spain), with values between 1.96 % and 5.91 %, although this last result is associated with a cubic shaped weight, which is more typical from the Iron Age (Vilaça 2011: 143; Vilaça *et al.* 2012: 150-151). This apparent anomaly in Penedo do Lexim could be related with the nondestructive nature of the compositional analyses, which overstates the enrichment of some chemical elements in the surface of the bronze weight (Sousa *et al.* 2004). However, if this was the case, we should expect to observe similar anomalies in other pieces, which do not occur. Therefore, we must remain open to the possibility that this piece may be an artifact of foreign origin (possibly from the Mediterranean basin), an idea that can only be confirm or denied upon future archeometric analyses, not only of



the entire set recovered in Penedo do Lexim, but also on objects from nearby sites.

As a final remark, it should be stated that there is no direct evidence of metallurgic practices at Penedo de Lexim during the LBA, since all of the analyzed casting drops are related with the Chalcolithic occupation (Sousa *et al.* 2004). This absence of metallurgic evidences is not unusual in Atlantic Estremadura, particularly in what concerns bronze production. Unlike what occurs in innermost areas of the Portuguese territory, there is, so far, no direct evidence concerning this type of activities, with the exception of a single mold of a Rocanes type sickle, retrieved in the eponymous site, which corresponds to an isolated finding, unrelated to other LBA materials (Coelho 2002: 281). This shortage of direct evidence for bronze metallurgy may be due to the scarcity of recent methodical excavations in the region's LBA settlements. Nonetheless, it is important to recall that the Atlantic region of Estremadura has no natural tin or copper resources. Therefore, if bronze metallurgy was practiced in this region, it would probably depend upon the supply of the raw materials from the interior (Cardoso 2015: 153-154). The only direct metallurgic evidence found in Estremadura during the LBA is from Quinta do Marcelo and is related to the exploitation of the Tagus's auriferous alluvial sands (Cardoso 2004: 198), a resource which probably underpinned the importance of this region during the late 2<sup>nd</sup> and 1<sup>st</sup> millennium BC, particularly in the framework of long distance trading.

### 3. INTERPRETATION

The LBA archaeological evidence recovered in Penedo do Lexim is undoubtedly interesting and suggests the specific functions played by this site in the regional context. As we have previously stated, the extensive excavations carried out on the site's several platforms have not revealed any architectonic evidence that can be related to an intensive occupation during the late 2<sup>nd</sup>/ early 1<sup>st</sup> millennium BC. Apart from the two primary contexts discovered in *Locus* 1, the artifacts that can be associated with this phase appear scattered throughout the site, mostly within layers that encompass also more recent materials, from the Iron Age to the Roman period. Therefore, it seems that small concentrations of LBA materials were deposited on the surface of that time, in which the previous construction dated from the Chalcolithic period were still visible and were probably reused.

Even if not intensively occupied, the LBA elements recovered in this site indicate that its use occurred in a particular framework that might have been strongly linked with extraordinary practices. In this context, the

three bronze weights recovered in Penedo do Lexim may provide a particular insight. Recent studies conducted upon these artifacts have shown that they are relatively frequent in the Western Iberia's LBA (Vilaça 2003, 2011). Their metric similarities seem to indicate the existence of standardized values in the area's LBA exchange system (Vilaça 2003: 249), possibly related with the use of an "international" standard value, namely the Syrian 9.3/9.4 g shekel, being fractions and multiples of such value present in the Iberian bronze weights (Vilaça 2011: 164). The metric data from the Penedo do Lexim's artifacts can be also easily integrated in this system, even if we are aware that the original weight of these artifacts may have suffered some alterations through the centuries (Vilaça 2003: 252).

In other areas of the Western Iberia, such as the Portuguese interior and Spanish Extremadura, with the exception of Baleizão (Vilaça and Lopes 2005; Vilaça 2011), this type of artifacts seems clearly to be linked with large habitation sites, even if the exact archaeological context may, in some cases, be associated with ritual and symbolic activities carried out in domestic areas (Vilaça 2003: 273-274, 2011: 143, 160). This association is not, however, as clear in the interior of the Lisbon Peninsula.

Most of the bronze weights recovered in this geographical area, namely in Castro da Ota and Castro de Pragança, are old findings, so it is impossible to reconstruct their original contexts or understand the exact area in which they were retrieved (Vilaça 2011: 150). From a third site that provided one of these artifacts, Abrigo Grande das Bocas, we know that it was not recovered in what we assume to be the main habitat, Alto das Bocas (Carreira 1994: 49), but in a nearby cave, associated with several other exceptional materials that include a bronze razor, an elbow fibula, a *tranchet*, as well as several ceramic vessels, some of which decorated with burnished patterns (Carreira 1994). Such cave occupations are frequent in LBA Portuguese Estremadura, as well as in several other areas in the Iberian Peninsula, and are frequently associated with symbolic and ritual practices (Gomes and Calado 2007; Cardoso 1997-1998b, 2004, 2015).

The only site in which we have precise archaeological data associated with the recovery of bronze weights is Penha Verde, in Serra de Sintra, a case that must be emphasized considering its geographical proximity and significant analogies with the LBA occupation of Penedo do Lexim (Cardoso 2010-2011: 586). Excavations carried out in Penha Verde revealed an occupation dated mostly from the Chalcolithic period. One of the structures constructed during this time, "Casa 2", produced evidence that strongly sustains an unintensive reoccupation of the space during the LBA (Cardoso 2010-2011). The the LBA assemblage includes some

exceptional artifacts: three bronze weights, a gold pin and a gold bi-truncated cone shape bead, a bronze ring and a bronze bar, as well as a few ceramic fragments (Cardoso 2010-2011: 580-586). Other areas of this site produced another bronze weight, as well as a bone fragment (*Bos taurus*), retrieved near the Chalcolithic defensive wall, that was dated by C14, providing a calibrated date between 1000 and 820 cal BC (Cardoso 2010-2011: 586-587).

The analogy between the LBA occupations of Penha Verde and Penedo do Lexim are remarkable. Both sites are located in areas with a strong visual impact in the landscape that probably assumed important symbolic and religious meanings during the protohistoric period<sup>6</sup> (Cardoso 2010-2011: 587). The extensive archaeological work carried out at both sites indicates that they were not intensively occupied during the LBA (Cardoso 2010-2011: 588), and that only a small part of its ancient structures, in both cases dated from the Chalcolithic, was reused during the late 2<sup>nd</sup>/early 1<sup>st</sup> millennium BC.

The activities developed in these spaces seem to have assumed exceptional and non-permanent features (Cardoso 2010-2011: 588), in which the valuation and exchange of valuable artifacts, not only in material but also in social terms, may have played an important role. Among these we can surely include gold pieces, recovered in at least one of these sites<sup>7</sup>, and also amber artifacts (Vilaça 2003: 269-270; Odriozola *et al.* n. d.). The recovery of a necklace made of 44 amber beads, imported from the Baltic area<sup>8</sup>, in a LBA ritual area near Penedo do Lexim named Cabecinho da Capitôa (Sousa 2008) should be emphasized in this framework (Fig. 11). Other types of materials, such as tin, glass, semi precious stones and a variety of perishable products (drugs, spices) may also have been part of these transactions (Vilaça 2003: 269-270; Ruiz-Gálvez Priego 2013).

It is possible that in Portuguese Estremadura, unlike other nearby areas (Vilaça 2003, 2011), the spaces chosen as sites of trade and contact between different communities were deliberately not settlements but other specific locations with reciprocal visual control over the surrounding territory, easily identifiable

in the landscape, and with a strong sacred character that could be directly associated with the practice

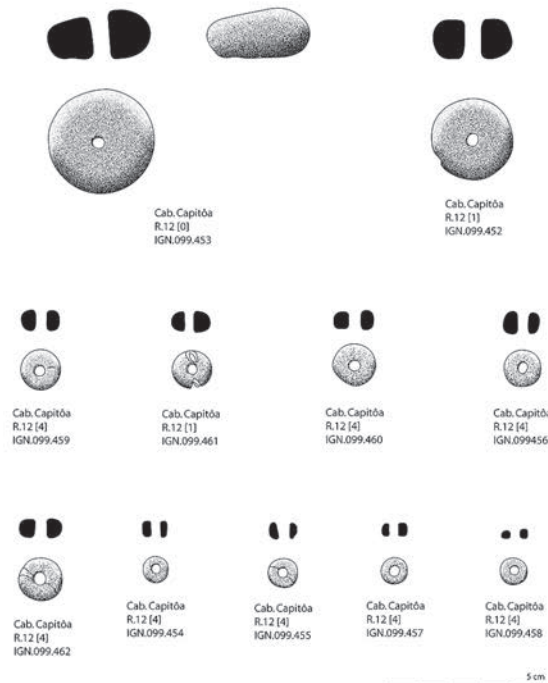


Fig. 11. Amber beads from Cabecinho da Capitôa found *in situ* (in colour in the electronic version). This LBA site is located 15 km from Penedo do Lexim.

<sup>6</sup> See note 2.

<sup>7</sup> Curiously, the weight of the gold bead from Penha Verde (1.273 g) is similar to the lowest bronze weights retrieved in Penha Verde (2.2 g) and Penedo do Lexim (1.4 g)

<sup>8</sup> The analytical data concerning Cabecinho da Capitôa amber beads is to be presented in the 24<sup>th</sup> European Association of Archaeologists Annual Meeting (Barcelona 2018), by A. C. Sousa; C. Pereira; C. P. Odriozola; A. M. Soares; M. Miranda; A. M. Arruda: "An amber necklace: the Late Bronze Age ritual deposit of Cabecinho da Capitôa (Mafra, Portugal)" in session no. 188 "Outside Influences. Expressions through portable material culture in later prehistory."

of these exceptional episodes<sup>9</sup> (Cardoso 2010-2011: 589; Vilaça 2003: 274). These localities would be linked with the regional LBA settlement pattern that includes larger settlements (Castelo dos Mouros [Cardoso 1997-1998a; Cardoso and Sousa 2014], Cabeço de Alcainça<sup>10</sup>; Serra do Socorro [Matias 2003; Sousa 2011]) as well as other sacred or ceremonial sites, such as Cabecinho da Capitôa (Sousa 2008).

A difficult question relates to the agents involved in these transactions. The apparent existence of a common value and its fractions in the Estremadura bronze weights, possibly related with the Syrian shekel 9.3/9.4 g as proposed by R. Vilaça (2003, 2011), could be a sign that suggests the participation of foreign agents, probably of Mediterranean origin, that we know that visited the Western Iberian coast during the LBA. On the other hand, we must also take under consideration that this “measure system” may have been incorporated by the local LBA communities, which may have used it for internal or cross-regional transactions.

Nonetheless, and no matter who were the agents involved, it seems clear that, in the Portuguese Estremadura, these spaces were carefully selected for such activities that may not be exclusively related with commercial transactions, but also with social celebrations (such as feasting activities or symbolic hoards), a practice to which we could also associate the various concentrations of LBA ceramic vessels found scattered across the surface of the sites. In this context, we should highlight one of the few LBA preserved contexts from Penedo do Lexim: the pit S.U. [17]. Although its interior did not provided diagnostic potsherds, most part of the fragments exhibit polished surfaces and, in some cases, carinated profiles that indicate a LBA chronology. This context does not appear to be a silo, but instead a simple depression on the terrain which was filled with potsherds, faunal remains and small basaltic rocks. In this framework, it is important to compare this evidence with what was recently discovered in the proximity of the Tagus river at Moita da Ladra (Cardoso 2013; Monteiro and Pereira 2013). Here, in the area surrounding an important fortified Chalcolithic settlement that occupied the top of a prominent basalt chimney, several depressions were used during the LBA. In some cases their interiors were lined with ceramic fragments, on top of which animal remains were burned as part of ritual practices (Cardoso 2013; Monteiro and Pereira 2013). In the case of Penedo do Lexim, no clear evidences of combustion were recovered inside the pit S.U. [17]. Nonetheless, the presence of significant faunal remains (currently

under study) in its interior could be related with the occurrence of feasting activities.

It is also interesting to notice that Penedo do Lexim none of the ceramics is decorated with the burnished patterns that are, to some degree, typical of this region and are normally related with strong prestige values (Cardoso 2004). Nonetheless, this type of decoration appears in greater numbers in cave occupations than in settlements (Sousa 2016). It may be that its absence in sites such as Penedo do Lexim<sup>11</sup>, Penha Verde, Cabecinho da Capitôa and Moita da Ladra could be related to the small size of the ceramic assemblage. But it also may have a more profound meaning, related with the previous selection of artifacts for specific extraordinary practices, suggesting that its value and symbolism may not be transversal to all ritual activities.

On the other hand, the metallic hoards of Penedo do Lexim, found either in concealed areas or in what appears to be “open terrain”, may also implicate the practice of offerings to some type of deity or, more simply, the material recognition of the sacred character attributed to this landmark (Brück 2011: 290), even if the meaning attributed to this type of contexts is still highly debated across the scientific community (among others, Childe 1930; Coffyn 1985; Bradley 1990, 2005; Vilaça 2006).

#### 4. FINAL REMARKS

The data presented throughout this paper strongly indicates that the hill of Penedo do Lexim may have had a strong sacred significance during the LBA. Its unique geographical settings and its visual impact across the Portuguese Estremadura landscape were factors that have probably justified its selection as a privileged space of supra- and inter-regional contacts, during which extraordinary practices took place, including commercial transactions, ritual offerings or maybe even feasting activities, as well as others that leave fewer archaeological traces, such as pacts, alliances and other social ceremonies (Fig. 2). “The spaces in which rituals occur are often liminal, having the condition of being between two worlds: the everyday world, and the ‘other’” (Blake 2005: 109). Its sacred character was probably used as a mediating factor granting divine protection both to the agents involved and to those same activities (Dietler 2011).

<sup>9</sup> See note 2.

<sup>10</sup> See note 1.

<sup>11</sup> The only fragment decorated with burnished patterns that is attributed to Penedo do Lexim was published by J. Carreira in 1994. However we do not know if this vase was truly recovered in the site, considering that it was part of a private collection that also entails materials gathered in other LBA settlements from the region, as for example, Cabeço de Alcainça.

The emergence of this type of sites during the LBA of Portuguese Estremadura is probably justified by the increase of short and long distance connections that occur during this time and implicated not only the circulation of certain objects but also of ideals, symbols and rituals (Cardoso 2004; Vilaça 2007; Ruiz Galvéz 2013). In this framework, a special feature of this geographical region seems to be the selection of specific areas for these events, located outside the main settlements, although this situation occurs as well in other Iberian areas (Delgado 2010). Perhaps not coincidentally, sites in Portuguese Estremadura such as Penedo do Lexim and Penha Verde have revealed more ancient occupations whose structures were still clearly visible during the LBA. Their reuse could be interpreted as some type of additional ancestral cult linked to these locations.

On the other hand, as we have already stated previously, these sites are integrated in a relatively complex regional settlement pattern that includes hilltop settlements, where (some of) the agents involved in those events certainly resided, as well as other types of sporadic occupations, such as Cabecinho da Capitôa (Sousa 2008) and Moita da Ladra (Cardoso 2013; Monteiro and Pereira 2013), at which other types of rituals took place, apparently related with feasting ceremonies. As we stated previously, it is still not clear if Penedo do Lexim was also a stage for these types of celebrations. Although no direct evidences of these practices were found, some apparent preferences in the selection of the LBA ceramic assemblage could be related with feasting ceremonies. If this was, in fact, the case, it would seem that Estremadura's LBA communities display a clear predilection in selecting ancient Chalcolithic settlements, which normally occupied prominent natural landmarks and whose constructions were probably still visible during the late 2<sup>nd</sup> / early 1<sup>st</sup> millennium BC, as the main stage for ritualized commensal consumption. This intentional change in location with respect to the usual domestic environments would have been essential towards the distinction between ritual and quotidian practices, and may have been intimately related with other (simultaneous) activities, such as commercial trade, hospitality pacts or religious actions, among others (Dietler 2011: 182, 185). The singular significance of these practices and the intentional selection of these specific locations are translated in the archaeological record, particularly in exceptionality of certain artifacts therein retrieved: bronze weights, amber beads and gold and bronze pieces, all of which rare or even unknown in LBA domestic settings.

The sacred significance of Penedo do Lexim may have diminished during later times, but it was not lost completely. There are some evidences that the site was also frequented during the Iron Age and the Roman

period even if, once more, not intensively. It is curious, however, to notice that even in modern times this landmark shelters important local festivities, such as *Quinta-feira da Ascensão, dia da espiga*<sup>12</sup>, showing that its profound symbolic meaning seems to have endured during the last three millennia.

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<sup>12</sup> "Spike Day" or "Spike Thursday" is a Portuguese celebration that takes place on Ascension Thursday. In this day the population go to the field to gather ears of various cereals, field flowers and olive branches to form a branch, which must be placed behind the entrance door during a year. This ritual is associated with propitiatory practices of fertility and agricultural abundance. In Mafra this day is a municipal holiday, with frequent visits to Penedo do Lexim.

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