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Status symbols or an insight into the earliest Middle Bronze Age in southwest Iberia: the funerary structures of Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal)*

Símbolos de estatus o una visión de los primeros momentos del Bronce Medio del suroeste: las estructuras funerarias de Horta do Pinheiro 5 (Torrão do Alentejo, sur de Portugal)

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ABSTRACT

The recent discovery and archaeological excavation of two funerary structures located at Horta do Pinheiro 5 (south of Portugal) shed new light on the early times of the Southwestern Middle Bronze Age. These structures, a pit and a hypogeum, both associated with another pit, deepen our knowledge about the funerary rituals practiced at that time. Grave goods recorded in both structures stand out for their opulent and luxurious character. Archaeometric analyses made possible to identify the raw materials with which the grave goods were manufactured. Two bracelets, one in each structure, are made of ivory, one from Asian elephant and the other from African elephant. The dagger recovered in the hypogeum has an arsenical copper blade with silver rivets. Its handle and the pommel are covered with silver and gold also forms part of the pommel. In the hypogeum chamber reddish spots adhering to both grave goods and bones are identified as cinnabar. The integration and interpretation of these imported prestige elements, their dating by radiocarbon, as well as the search for parallels for them, are the object of analysis and discussion.

RESUMEN

El reciente descubrimiento y excavación arqueológica de dos estructuras funerarias ubicadas en Horta do Pinheiro 5 (sur de Portugal) arrojan una nueva luz sobre los primeros momentos del Bronce Medio del suroeste. Estas estructuras, una fosa y un hipogeo, ambas asociadas con otra fosa, han

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permitido profundizar en el conocimiento de los rituales funerarios practicados en esa época. Las ofrendas funerarias recogidas en ambas estructuras destacan por su carácter opulento y lujoso. Los análisis arqueométricos también han contribuido a identificar las materias primas con las que se fabricaron los ajuares. Dos pulseras, una en cada estructura, son de marfil, una de elefante asiático y la otra de elefante africano, mientras que la daga recuperada en el hipogeo es de cobre y arsénico con remaches de plata, mango recubierto de plata y pomo recubierto de plata y oro. Las manchas rojizas identificadas en la cámara del hipogeo, adheridas tanto al ajuar funerario como a los huesos son de cinabrio. Se analiza y discute la integración e interpretación de estos elementos de prestigio importados, su datación por radiocarbono y la búsqueda de sus paralelos.

Key words: Southwestern Bronze Age; Iberian peninsula; funerary ritual; archaeometric analyses; radiocarbon dating; Asian ivory; African ivory; cinnabar; high status dagger; hierarchy and social stratification.

Palabras clave: *Edad del Bronce del suroeste; península ibérica; ritual funerario; análisis arqueométrico; datación por radiocarbono; marfil asiático; marfil africano; cinabrio; daga de alto estatus; jerarquía y estratificación social*.

1. INTRODUCTION

It is due to the German archaeologist Hermanfrid Schubart the first definition and characterization of the Bronze Age of southwestern Iberian peninsula (SWBA), which geographically encompasses the Portuguese south (the entire region south of the parallel of Évora), the province of Huelva and part of that of Badajoz, in Spain. This definition, formulated during the 1970's, was essentially based on grave goods, which came, overwhelmingly, from burials in stone cists, usually individual, where the deceased was deposited (Schubart 1971, 1974, 1975, 1976).

Schubart considered the cists – usually rectangular or trapezoidal stone boxes, commonly built up with four slabs placed vertically and covered by another slab, where the body was deposited in a lateral decubitus and fetal position – as the typical and almost unique funerary structure of the SWBA. Nowadays it is known that burials can occur in a wide variety of structures: not only in (i) cists, isolated or forming part of necropolises of diverse extension, inserted in *tumuli* of diverse architecture, but also in (ii) pits of rectangular or circular plants (silo-like pits), in (iii) hypogea (artificial caves constituted by a funerary chamber and an atrium, both presenting several architectures), and also in (iv) reuses of collective funerary monuments of Neolithic or Chalcolithic chronology. A specific chronology within the SWBA cannot be ascribed *a priori* to any of these funerary structures since the different architectures coexist (Soares *et al*. 2009).

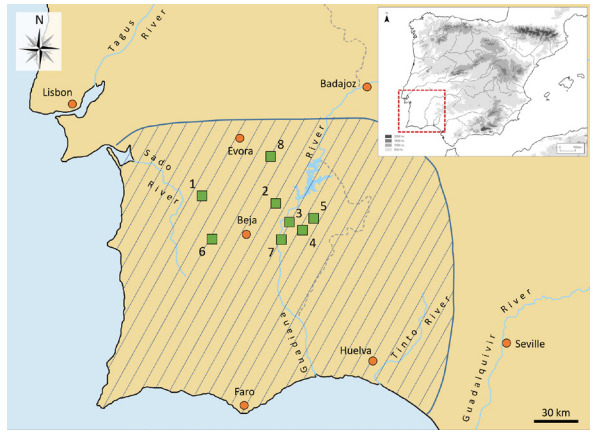

Fig. 1. The region of Southwestern Bronze Age (dashed) with the localization of archaeological sites with early Middle Bronze Age contexts: 1. Horta do Pinheiro 5; 2. Monte das Aldeias; 3. Maria da Guarda 3; 4. Torre Velha 12; 5. Montinhos 6; 6. Abelheira 1; 7. Bugalhos; 8. Monte da Cabida 3. In colour in the electronic version.

In recent years, mainly due to numerous rescue archaeological field excavations, carried out in the context of the implementation of the Irrigation Network of the Alqueva Dam, our knowledge about the pre and protohistoric archaeology in southern Portugal has undergone an enormous increment. This is especially true with respect to Chalcolithic and Bronze Age periods, for which archaeological research has been complemented by archaeometric investigations of various types. Our research concerning several early Middle Bronze Age contexts located in southern Portugal (Fig. 1), including an in-depth analysis of grave goods from two funerary structures at Horta do Pinheiro 5 (HP5), an archaeological site located in this region, near the town of Torrão do Alentejo, Alcácer do Sal municipality, will be important for the knowledge of the initial times of Middle SWBA. Results of this research and the inferences drawn from them will constitute the central theme of this work.

2. THE ARCHAEOLOGICAL SITE OF HORTA DO PINHEIRO 5: BRONZE AGE FUNERARY STRUCTURES AND GRAVE GOODS

The archaeological structures recorded in HP5 were all affected to a greater or lesser degree by the opening of a trench for the implantation of a water pipe. This affectation, which in some cases was very severe, hindered the complete identification of the shape and dimensions of some structures, while the absence of artefacts and ecofacts in others did not allow to ascribe a reliable chronology to those in this condition. However, in spite of these problems and considering that

archaeological contexts were only intervened in a restricted rectilinear section of the insertion corridor of the water adductor, it was still possible to verify the existence of a marked diachrony for recorded contexts, as is usual in such groups of negative structures ("pit fields")[1]. Despite this destruction, two funerary structures, a pit and a hypogeum, in Surveys 7 and 8 respectively, with an individual burial in each structure, stand out. It will be these two prehistoric funerary monuments, as well as the associated grave goods and funerary ritual, that will be discussed ahead.

2.1. Survey 7. funerary pit

The negative structure investigated in Survey 7 correspond to a pit with a more or less circular plant[2]. As the digging proceeded and upon reaching the remains of a burial [s.u. 704] (Fig. 2), it was found that in the northwestern area of the flat base of the funerary feature [s.u. 708], this pit was extended in depth by another pit [s.u. 707], a silo-type pit, smaller in diameter than that of the funerary feature and filled up with clayey sediments [s.u. 705] and [s.u. 706].

Underneath the bone remains, near the south wall of this last pit and on top of [s.u. 705], a fragment of a bracelet apparently made of ivory, perhaps from an elephant tusk due to the dimension of its diameter, was recorded (Fig. 3.1). Four fragments of handmade ceramics were found inside the pit [s.u. 707] in the deposit [s.u. 706], among them a spherical cup with a slightly reentrant rim and very well polished surfaces (Fig. 3.3). Also two prehistoric ceramic fragments, including a handmade ceramic rim (Fig. 3.2), were recorded in [s.u. 701], the stratigraphic unit that closed the sedimentary filling of the funerary structure.

The skeleton was dated by radiocarbon: Sac-3082 3530 ± 50 BP (2019-1698 cal BC [2σ]).

2.2. Survey 8. funerary hypogeum

The archaeological excavation allowed to identify the hypogeum architecture and to verify that an individual [s.u. 803] had been buried in the chamber [s.u. 805]. In addition, it was also possible to verify that the

Fig. 2. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal): A. the funerary structure of Survey 7 with the remains of a burial [s.u. 704]. In the foreground the silo-type pit [s.u. 707] had not yet been excavated; B. the skeleton, with the exception of the skull, the right ilium and bones of the feet, was in an inclined plane next to the edge and wall of the pit [s.u. 707] or on top of the filling [s.u. 705] of this pit. In colour in the electronic version.

hypogeum had cut what appeared to be a pre-existing pit (a silo-type pit) [s.u. 806], since the impression left by the slab or slabs that closed the chamber entrance can be seen not only on the rock substrate, but also on the top of the filling of the silo-type pit [s.u. 806][3] (Fig. 4A). Most of the skeleton had been greatly affected by the opening of the trench for the adductor, leaving only a few bones of the lower and upper limbs *in situ* (Fig. 4B). The atrium of the hypogeum had a semicircular plant, with a base in an inclined plane to the chamber entrance. The chamber would also have an approximately semicircular plant and a flat base where the deceased was deposited.

Several grave goods were recorded namely a dagger, a bracelet and a large ceramic vessel (Figs. 4-6). Between his hands was a 26.5 cm long dagger blade

[1] Soares, A. M. M; Martins, P. P.; Melo. L.; Soares, R. M. G. M.; Silva, A. M. and Valério, P. (in press): "O sítio da Horta do Pinheiro 5 (Torrão do Alentejo, Alcácer do Sal) - um contributo preliminar para o conhecimento do Bronze Pleno no Sudoeste da Península Ibérica". In *Actas do X Encontro de Arqueologia do Sudoeste Peninsular (Zafra, 9-11 Novembro 2018)*.

[2] Vide n. 1.

[3] Vide n. 1.

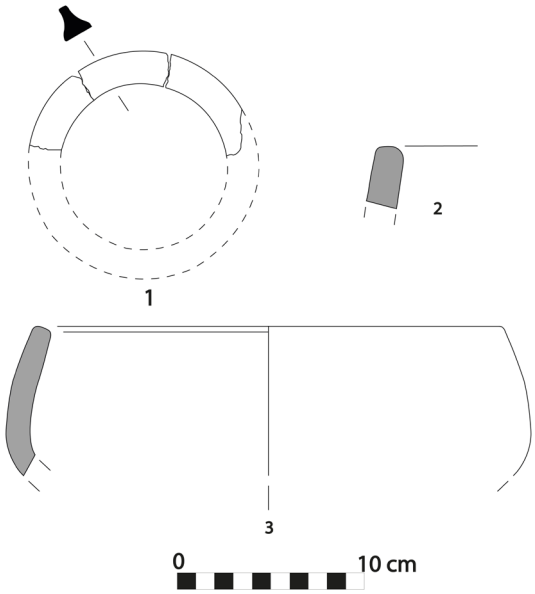

Fig. 3. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal): 1. ivory bracelet associated to the burial [s.u. 704]; fragments of ceramic vessels found: 2. in the stratigraphic unit that closed the sedimentary filling [s.u. 701] of the funerary structure of Survey 7 and 3. in the filling of pit [s.u. 707].

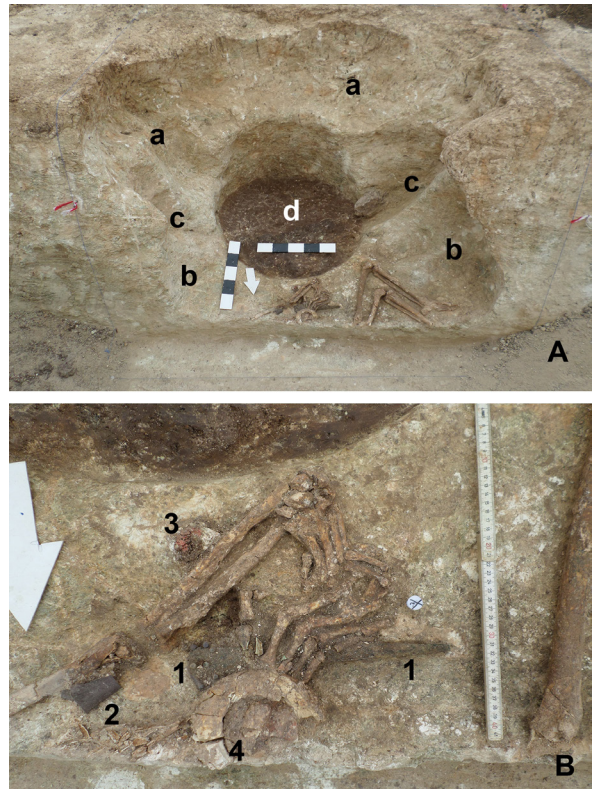

Fig. 4. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal): A. intermediate phase of the excavation of the funerary hypogeum of Survey 8, a. atrium; b. chamber; c. impression on the rock substract left by the slab or slabs that closed the chamber entrance; d. pre-existant silo-type pit [s.u. 806]; B. remains of the burial of Survey 8, including grave goods, cut by the trench for the insertion of the water pipeline: 1. dagger blade; 2. silver cover of the handle; 3. pommel with reddish sediment (cinnabar); 4. ivory bracelet. In colour in the electronic version.

(Figs. 4 and 5). The blade is copper based, with eight silver rivets (three of them still in the respective holes of the blade hafting). Near the right humerus, fragments of a cylinder made of a silver sheet of very thin thickness (200-300 µm thickness) were found. These silver fragments belong to the cover of the dagger handle. Two metallic pieces (one of silver and another of gold, this last one inside the first piece), separated from the blade of the dagger by the left arm of the buried individual, were also found. These two pieces would constitute the pommel of the dagger handle. On the surface of the sediment that filled these two pieces, a reddish coloration was observed, which was also punctually visible in some bones and other grave goods and also at other locations at the chamber. In addition an apparently decorated copper-based oval metal sheet, possibly a decoration element of the dagger handle or of the dagger sheath, was recorded in the area close to the skeleton. A large ceramic vase (Fig. 6) was placed near the feet of the buried individual. Finally, near the right hand, a bracelet (Figs. 4 and 6), apparently of ivory, fragmented by the opening of the trench for the adductor, was also found.

This skeleton was also dated by radiocarbon: Beta-425979 3490 ± 30 BP (1892-1699 cal BC (2σ)).

3. ANTHROPOLOGICAL AND ARCHAEOMETRIC ANALYSES

3.1. Human remains

3.1.1. Anthropological study

Skeleton [s.u. 704] was exhumed from the funerary pit 7. Bone preservation was affected by the collapse of the funerary structure. This was responsible for removing the bones from their original position, albeit some were recovered in articulation (see Fig. 2). The skeleton was quite complete, and with exception of the right scapula, the sternum, some thoracic and cervical vertebrae, and some bones of the left hand, all skeleton elements were recovered. According to field data, individual [s.u. 704] was deposited in fe-

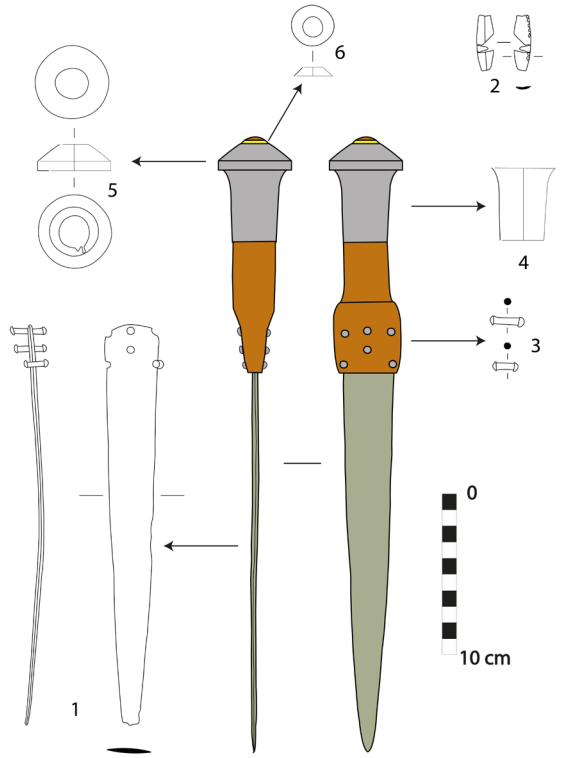

Fig. 5. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal). Dagger (and its reconstitution) of the inhumation of Survey 8: 1. blade of arsenical copper with three silver rivets still in the respective holes; 2. a small decorated copper sheet, perhaps a decoration element of the dagger handle or of the dagger sheath; 3. two silver rivets (eight were found); 4. silver cover of the dagger handle; 5. silver pommel; 6. conical gold piece of the pommel. In colour in the electronic version.

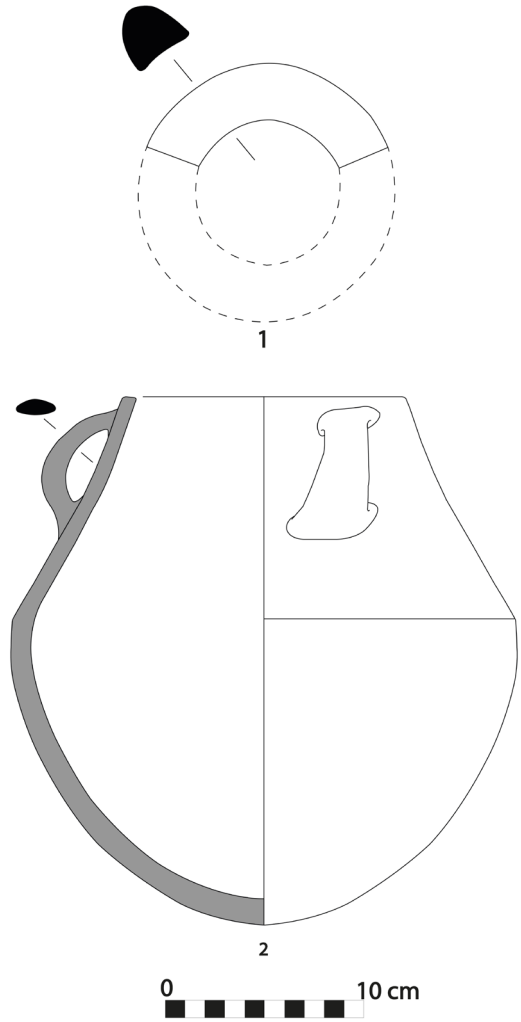

Fig. 6. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal): 1. ivory bracelet of the burial of Survey 8; 2. large ceramic pot used as a grave good for the inhumation of Survey 8.

tal position, over the left side of the body, orientated W (head) – E. This skeleton belongs to a young adult male, by his pelvic morphology (Bruzek *et al*. 2005), and diameter of the femur head (48 mm, according to the methodology of Wasterlain 2000). His age at death was estimated between 25-30 years due to the absence of fusion of the external end of the clavicle (MacLaughlin 1990). Although it was not possible to estimate skeletal indexes, the bones of this individual stands out for their robustness. 164.01 ± 8.44 cm was the estimated stature, based on the maximum length of right humerus (320 mm; Mendonça 2000). Both clavicles do not present rhomboid fossa or supraclavicular perforation, two non-metric morphological traits, usually observed in coeval samples (Silva 2003). This individual displays low-moderate dental wear of grade 3 (following Smith 1984)[4], based on the 21 recovered teeth, without visible cariogenic lesions or deposits of calculus. Slight degenerative alterations were noted in both ends of the humerus and radius, and in carpal and tarsal bones. Signs of remodeled periostitis (unspecific infection disease) were observed in the diaphysis of femurs and tibias. Mild signs of porotic hyperostosis were witnessed in his frontal bone.

[4] With the adaptations of A. M. Silva, *Hipogeu de Monte Canelas I (IV – III milénios a.C.): Estudo paleobiológico da população humana exumada*. Trabalho de síntese. Provas de Aptidão Pedagógica e Capacidade Científica. Departamento de Antropologia, Faculdade de Ciências e Tecnologia da Universidade de Coimbra. Coimbra, 1996. Unpublished.

Skeleton [s.u. 803] was recovered from the hypogeum of Survey 8, and was very affected by the machine that opened the trenches for the irrigation system (see Fig. 4). This allowed the loss of several bones, such as the skull, the upper right limbs (except hand bones), vertebrae and ribs, iliac bones, sacrum and right foot bones. Right hand bones and left radius and ulna exhibit green spots, probably caused by the associated copper-based grave goods. The individual was deposited in fetal position, over the left side of the body, orientated E (skull) – W. This skeleton belongs to an adult male. Sex diagnosis was achieved based on the maximum length of the talus (58 mm; Silva 1995), confirmed by overall robustness of the preserved bones. The left tibia, without flatness (flatness index: 69.44) allowed the estimation of his stature, 162.74 ± 3.85 cm (following Olivier *et al*. 1978). No hypotrochanteric fossa (non-metric morphological trait) was observed on the left femur. Among the paleopathological conditions, low grade non-articular degenerative lesions were observed in the proximal phalanges of the hands and in the distal end of the left tibia. Among the few preserved extremities of long bones, only the distal end of both radii displays minimal degenerative alterations. Signs of remodeled periostitis (unspecific infection disease) were observed in the diaphysis of both femurs and tibias.

3.1.2. Stable isotope analysis

Bone samples of these individuals were sent to the Hercules Laboratory (Évora University, Portugal) to determine $\delta^{13}C$ e $\delta^{15}N$ isotopic rates of their bone collagen to get insights about their diet. The obtained values (Tab. 1) indicate diets composed of mainly terrestrial animal protein (meat, dairy products) and C3 plants, although it has to be highlighted the absence of contemporaneous faunal isotopic analysis, due to the nonexistence of faunal samples in these burials, which would be used to determine endpoint values for purely terrestrial and marine diets.

Skeleton	$\delta^{13}C$	$\delta^{15}N$	Collagen (%)	C (%)	N (%)	C:N Ratio
704	-19.11	9.27	2.80	34.9	12.0	3.4
803	-18.89	10.34	3.01	24.9	8.0	3.6

Tab. 1. Summary of results of stable isotope ($\delta^{13}C$, $\delta^{15}N$) and elemental analyses (C, N) concerning skeletons 704 and 803 from Horta do Pinheiro 5.

Strontium (Sr) analysis of skeleton 704 (Tab. 2) were performed at the Memorial Applied Archaeological Sciences Laboratory (Canada), by Vaughan Grimes. As with the isotopic results for diet, these values have to be interpreted with caution, due to the absence of fauna samples, to determine the local bioavailable range. The obtained enamel values are likely giving the location where the individual was living during the time of tooth mineralization, which is clearly and significantly different than the paired dentine values for each tooth. This is reasonable evidence to say that the dentine has been diagenetically altered to correspond with the Sr values of the burial environment, i. e. something around 0.708-0.709, and this is further supported by the tibia sample where diagenesis is very likely an issue.

Sample	Enamel	Dentine
Premolar	0.7107	0.7086
RM1	0.7107	0.7088
RM2	0.7010	0.7085
Tibia	Bioapatite 0.7079	

Tab. 2. Summary of the Sr isotope data for individual 704 exhumed from Horta do Pinheiro 5.

In sum, two male individuals were exhumed from these funerary structures, a young adult [s.u. 704], less than 30 years, and one of unspecific adult age. These burials stand out by the recovered grave goods and by belonging to two very robust male individuals.

3.2. Metal artefacts

The elemental composition of metal items was determined by micro-energy dispersive X-ray fluorescence (EDXRF) analyses performed in an ArtTAX Pro spectrometer equipped with a 30 W Mo X-ray tube, an electro-thermally cooled Si drift detector (FWHM of 160 eV at 5.9 keV) and focusing polycapillary lens enabling the analysis of a very small area of the artefact (*c.* 70 μm diameter). The experimental conditions involved 40 kV of potential difference, 600 μA of current intensity and 120 s of live time, while calculations were made with WinAxil software (for additional experimental details see Valério *et al.* 2014, 2017). The analysed components of the long dagger recovered inside the burial chamber of hypogeum 8 were the blade, 5 rivets and 3 elements of the handle decoration (handhold lining and pommel) (Tabs. 3 and 4).

The long blade (803-1-b) was found to be composed of copper with high arsenic content (4.9 % As). Although the addition of arsenic to copper produces a minimal increase of hardness to the cast alloy, the arsenical copper alloy can be highly hardened by cold work (Lechtman 1996). On the other hand, one should

expect the development of the arsenic-rich phase Cu_3As even for low arsenic contents (*c.* 2 % As) due to the high propensity to segregation of the Cu-As system (Mödlinger and Sabatini 2016). The significant existence of this arsenic-rich phase provides a distinctive silvery colour to arsenical copper alloys, thus being ideal for high-status items. Moreover, even in the absence of significant segregation, homogenized Cu-As alloys with 4-6 % As already display a more silvery colour than pure copper, as demonstrated by recent experiments of Radivojević *et al.* (2018: fig. 9).

Component	Reference	Cu	As	Pb	Fe
Blade	803-1-b	94.9 ± 0.2	4.9 ± 0.2	0.10 ± 0.03	0.05 ± 0.01

Tab. 3. Elemental composition of the blade of the long dagger (see Fig. 5) of hypogeum 8 from Horta do Pinheiro 5 (average and standard deviation of four analyses; values in %).

These long daggers as well as swords were viewed as symbols of prestige, hence being preferably made with high arsenic contents (Ponte *et al*. 2012; Soares *et al*. 2020), even during Chalcolithic times (Pereira *et al.* 2013; Vidigal *et al.* 2016). Moreover, there was an increased use of arsenical copper alloys to produce weapons and tools between the Late Chalcolithic and Middle Bronze Age suggesting the growing importance of such items among communities of the 2nd millennium BC in southwestern Iberian peninsula (Valério *et al.* 2014, 2016b, 2019, 2020).

The rivets (803-3-r1 to 803-3-r5) show silver-copper alloys with 4.6-6.4 % Cu, while the coating of the handle (803-4-h) and the pommel main body (803-5-p1) are composed of pure silver with minor copper contents (0.28 and 0.48 % Cu, respectively) (Tab. 4). The pommel main body has a complex shape, probably obtained by hammering a discoidal sheet. One should emphasise that such manufacture evidences an extraordinary technological expertise concerning silver artefacts with this early chronology. The silver cover of the handle is relatively thin (*c.* 200-300 µm thickness) most likely being sustained by a wooden core. Structural components such as rivets would require a higher strength and, therefore, the high copper content of rivets could suggest a deliberated use of this alloy to improve the mechanical properties of silver (Rehren *et al.* 1996). However, it must be considered that research concerning silver artefacts from southeastern Iberian peninsula, namely those belonging to El Argar Culture, suggests that the use of natural silver alloys seems to be more plausible than the use of artificial ones (Bartelheim *et al*. 2012). Copper is commonly present in Argaric silver objects and in a total of 826 artefacts, 792 are made of silver (Cu < 1 %), while the remaining 34 have a copper content ranging from 1 % up to 20 %. Trace element patterns and lead isotope ratios indicate that this variable copper content is the result of the natural variability of copper inclusions in native silver (Bartelheim *et al.* 2012; Murillo-Barroso *et al.* 2014). In our case, Pb isotopic analysis and determination of trace elements of the silver coating of the handle and rivets, which are underway, may also provide some information about the provenance of the metal or metals, as well as whether the Ag-Cu alloy is natural or artificial.

Component	Reference	Au	Ag	Cu
Rivet	803-3-r1	n. d.	95.4 ± 0.3	4.6 ± 0.3
Rivet	803-3-r2	n. d.	93.6 ± 0.1	6.4 ± 0.1
Rivet	803-3-r3	n. d.	94.5 ± 0.6	5.5 ± 0.6
Rivet	803-3-r4	n. d.	94.4 ± 0.5	5.6 ± 0.5
Rivet	803-3-r5	n. d.	94.0 ± 0.1	6.0 ± 0.1
Silver cover of the handle	803-4-h	n. d.	99.7 ± 0.1	0.28 ± 0.03
Pommel	803-5-p1	n. d.	99.5 ± 0.1	0.48 ± 0.08
Pommel	803-6-p2	89.3 ± 0.2	10.7 ± 0.2	<0.04

Tab. 4. Elemental composition of rivets and handle components of the long dagger (see Fig. 5) of hypogeum 8 from Horta do Pinheiro 5 (average and standard deviation of four analyses; values in %; n. d. not detected).

The gold portion of the pommel (803-6-p2) is a discoidal sheet (*c.* 0.15 mm thickness) hammered into a tronco-conical shape to fit partially inside the pommel main body. This inner section is composed of a gold-silver alloy with 10.7 % Ag (Tab. 4). The high silver content of such alloy can also hardly be considered evidence of alloying, as the majority of prehistoric gold came from secondary deposits bearing gold with highly variable silver contents (up to 20-30 %) (Montero and Rovira 1991). In fact, the composition of Chalcolithic gold artefacts from southwestern Iberian peninsula reflects such variability, ranging from pure gold (Au > 99 %) to gold with high silver contents (up to 21 %) and minor amounts of copper (up to 0.34 %) (Valério *et al.* 2017).

3.3. Ivory

The fragments of bracelets recorded and collected on the two prehistoric funerary structures, which apparently appeared to be ivory, were analyzed by means of Nuclear Microprobe and Infrared Spectroscopy techniques, in order to access their elemental compo-

sition and the nature/type of the raw material used in their manufacture.

3.3.1. Nuclear Microprobe analysis

A OM150 scanning nuclear microprobe was used for the quantitative analysis and elemental distribution imaging of the two bracelets. A 0.7 MeV proton beam focused down to 4 x 5 µm² was rastered over a 450 x 450 µm² sample area and the produced X-rays collected with an SDD detector with 180 eV resolution. Basic data manipulation and experimental control was made using the OMDAQ software and quantitative results obtained with the GupixWin code. The spectra and the elemental distribution imaging are presented in figure 7, while the quantitative results in table 5.

Artefact	Na	Mg	Al	Si	P	S	Cl	Ca	Fe
Bracelet 704	0.3	0.2	0.03	0.1	14.9	0.01	0.2	46.2	0.03
Bracelet 803	0.3	0.2	0.5	1.1	13.6	0.2	0.2	45.4	0.4

Tab. 5. Elemental composition of ivory bracelets from Horta do Pinheiro 5 (values in %).

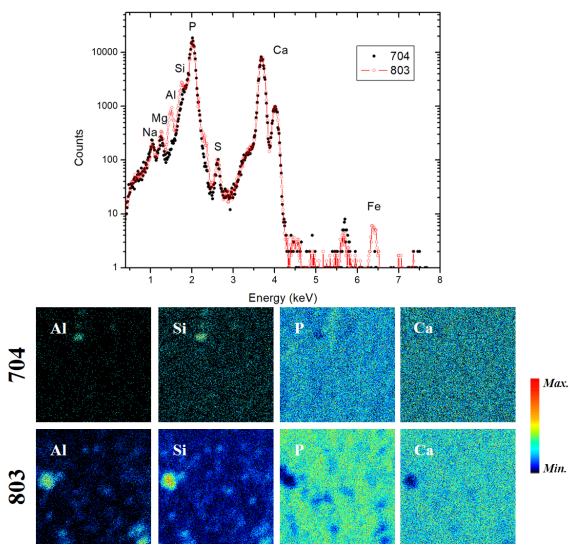

Fig. 7. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal), top: X-ray spectra obtained from the two analysed bracelets showing P and Ca as the main constituents and minor or trace amounts of Na, Mg, Al, Si, S and Fe; bottom: elemental distribution maps obtained for samples 704 and 803 over an area of 450 x 450 µm². In colour in the electronic version.

Results suggest a hydroxyapatite matrix containing some mineral inclusions probably constituted by aluminum silicates, certainly due to diagenetic processes. Besides these inclusions, diagenetic processes also cause losses of some chemical constituents, occurring an increased replacement of PO_4^{3-} by CO_3^{2-} in the hydroxyapatite lattice, while the percentage of Ca can be slightly higher than in the nominal hydroxyapatite as is shown by results of analysed samples. The heterogeneity of each elemental distribution observed in the image maps is due precisely to the diagenetic processes that occurred while the bracelets were buried in the ground.

The nature of the analysed organic raw material (bone or ivory) used in the manufacture of bracelets will be determined using Fourier Transform Infrared Spectroscopy (FTIR Spectroscopy).

3.3.2. Fourier Transform Infrared Spectroscopy EDXRF

FTIR spectra of the two "ivory" samples ([s.u. 704], from the funerary pit, and [s.u. 803], from the funerary hypogeum) were obtained using a Thermo Scientific Nicolet iS50 FT-IR model Spectrometer, from "ivory" powders (few micrograms previously collected) by potassium-bromide-pellet technique using dry potassium bromide (spectral grade). Two disks of each sample were prepared and analysed. The experiments were performed at controlled room temperature and humidity. Data were acquired in the 4000-400 cm^{-1} range, at the resolution of 4 cm^{-1}, and by scanning 128 times. FTIR spectra of the analysed samples are shown in figure 8.

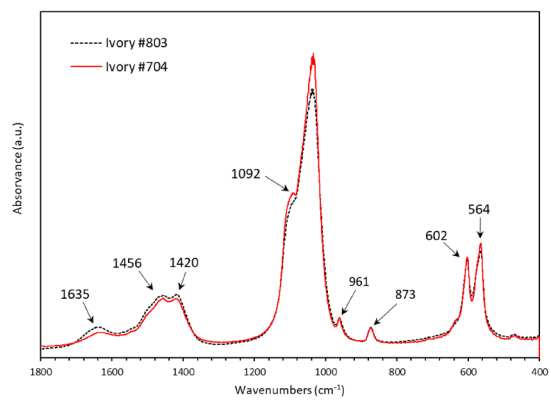

Fig. 8. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal). Fourier Transform Infrared (FTIR) spectra of the two ivory samples: 803 from the funerary hypogeum and 704 from the funerary pit between 1800 and 400 cm^{-1}. In colour in the electronic version.

Comparing both spectra with high quality IR reference spectra data from Infrared & Raman Users Group (IRUG), it is possible to confirm the nature (ivory) of the samples, since a good match is obtained between IR spectra and the reference ones.

The main characteristic vibrational expressions observed in samples spectra are originated from collagen, carbonate and phosphate content, including absorptions bands associated with hydroxyl groups (OH^-) and water molecules. Characteristic absorption bands of ivory observed in acquired spectra were assigned as follows (Tab. 6) (Silverstein *et al*. 1981; Banerjee *et al*. 2008; Berzina-Cimdina and Borodajenko 2012; Schuhmacher and Banerjee 2012; Nocete *et al*. 2013) [5].

Band (cm^{-1})	Comment
≈ 3400	H_2O content present in the samples and possibly part adsorbed by KBr from the environment (not shown in Fig. 8)
≈ 1635	Amide I from collagen content
≈ 1456	$-CH_2$, $-CH_3$ groups (side and terminal chain scissoring vibration mode) from organic content in samples
≈ 1420	Carbonate (CO_3^{2-}) groups from mineral content
≈ 1092-1034	Phosphate (PO_4^{3-}) group vibrations from mineral content
≈ 961	Phosphate (PO_4^{3-}) group vibrations from mineral content
≈ 873	CO_3^{2-} and/or HPO_4^{2-} groups from mineral content
≈ 602 and 564	Phosphate (PO_4^{3-}) doublet

Tab. 6. Characteristic absorption bands observed in ivory bracelets from Horta do Pinheiro 5.

As it is common in archaeological ivory artefacts[6], samples [s.u. 704] and [s.u. 803] show a poor content in collagen and carbonate, as can be seen from the weak peaks in the ≈1635 cm^{-1} and ≈1420 cm^{-1} regions, respectively. This can be associated to diagenesis processes as well as to the increased solubilization of the carbonate incorporated in the hydroxyapatite lattices due to the effect of moist clay soils where the artefacts were buried. On the other hand, the absorption bands associated with phosphate content is very intense and well defined, presenting a maximum peak at ≈1034 cm^{-1} and the characteristic doublet at ≈602 and ≈564 cm^{-1}.

However, even though the maximum absorption peak of PO_4^{3-} is located for both samples at ≈1034 cm^{-1}, the spectrum of sample [s.u. 704] shows a marked shoulder at ≈1092 cm^{-1}, which is not so pronounced in the spectrum of sample [s.u. 803].

According to several authors (Wang *et al*. 2007; Schuhmacher and Banerjee 2012; Luciañez Triviño and García Sanjuán 2016), the differences that may be observed in the fingerprint region of ivories IR spectra are associated with ivories origin. This factor influences the size of hydroxyapatite crystals (which are smaller in Asian elephant ivory than in African one) and the collagen composition. Because of that, the shape and intensity of characteristic vibrations associated to carbonate and phosphate groups in the fingerprint region of IR spectra are different. In our samples, there is not too much difference in the collagen content expression (same profile at ≈1635 cm^{-1}), perhaps because they were both subjected to a similar marked diagenesis process, since both bracelets were buried in the same type of soil during an almost equal time period. Nevertheless, the marked shoulder at ≈1092 cm^{-1} in [s.u. 704] sample compared with the smooth slope in the same region of the spectrum of sample [s.u. 803], denotes different origin for the ivory of the [s.u. 704] and [s.u. 803] bracelets, since the "marked shoulder" near 1092 cm^{-1} is characteristic of the IR spectra of ivory from African savannah elephant (Berzina-Cimdina and Borodajenko 2012; García Sanjuán *et al*. 2013; Nocete *et al*. 2013). Based on these observations, the sample [s.u. 704] can be assigned to the African savannah elephant (*Loxodonta africana africana*), while the sample [s.u. 803] to the Asian elephant (*Elephas maximus*).

3.4. Cinnabar

The [s.u. 803] ivory bracelet recovered near the right hand of the individual buried in the hypogeum had some spots with a reddish coloration, which were subjected to micro-EDXRF analyses to identify such material (Fig. 9).

The comparison of micro-EDXRF spectra of bracelet main body and reddish material identified the latter as being composed by mercury and sulphur. Therefore, this distinctive material was identified as cinnabar (HgS), a red pigment known to be used in funerary ritual practices in Iberian peninsula since Neolithic times (Emslie *et al.* 2015, 2019), *e. g.* in the dolmen of La Velilla (Palencia, Spain: Martín-Gil *et al.* 1995) and in the megalithic tomb (passage grave) of Santa Rita (Cacela, Portugal: Inácio *et al.* 2010, 2012). Later evidence of its use for funerary rituals was found in several monuments, such as the Chalcolithic hypogeum of Carrer Paris (Barcelona, Spain: Gómez-Merino *et*

[5] G. Turner-Walker and B-Y Xu, "Identification of animal hard tissues using Fourier transform infrared spectroscopy". In J. Bridgland (ed.): *ICOM-CC, 17th Triennial Conference Preprints (Melbourne, 15-19 September 2014)*. International Council of Museums. Paris, Art. 1205, 11 pp.

[6] Vide n. 5.

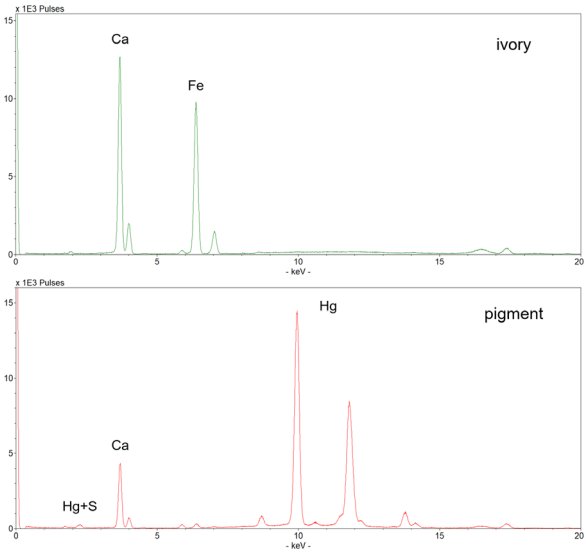

Fig. 9. Horta do Pinheiro 5 (Torrão do Alentejo, southern Portugal). Micro-energy dispersive X-ray fluorescence spectra of the ivory close to the reddish pigment (top) and of the reddish spot itself (bottom) on the [803] ivory bracelet. In colour in the electronic version.

al. 2011), tombs I and II from Perdigões (Emslie *et al.* 2015), tholos 1 of La Pijotilla (Badajoz, Spain: Hunt-Ortiz *et al*. 2011), tholos of Montelirio (Valencina de la Concepción, Spain: Hunt-Ortiz *et al*. 2011; Bueno Ramírez *et al.* 2016), the Bell Beaker tombs of Humanejos (Parla, Madrid, Spain: Garrido *et al*. 2019), and, in more recent contexts, in Argaric burials of the 2nd millennium BC (Aranda Jimenez *et al.* 2015).

4. MIDDLE SOUTHWESTERN BRONZE AGE. EARLY ARCHAEOLOGICAL CONTEXTS – PARALLELS, PRESTIGE SYMBOLS AND SOCIAL STRATIFICATION

As mentioned above, there were very few known contexts that could be attributed to the early Middle SWBA and, therefore, could serve as parallels to the HP5 contexts studied here. Nowadays there are eight archaeological sites (Fig. 1) with contexts attributed to the period in question. These are all funerary contexts, with the exception of one, having been dated by radiocarbon (Tab. 7 and Fig. 10), which allowed a precise and reliable chronological assignment. Some of them, still unpublished, were excavated and recorded under the direction of one of us (LB).

Hypogeum 1 (MG3-H1) at the Maria da Guarda 3 archaeological site (Serpa) has one of the oldest radio-

Reference	Archaeological Site/Context	Stratigraphic Unit	Sample description	^{14}C Date (BP)	Calibrated Date* (cal BC)		Bibliography
					1σ	2σ	
Sac-2894	Maria da Guarda 3 (MG3-H1)	[110]	Human femur	3650±60	2134-1941	2201-1831	Unpublished
Beta-338483	Monte das Aldeias (MA-H156)	[15615]	Textile (linen)	3670±30	2133-1980	2141-1951	Soares *et al*. 2018
Sac-2927	Monte das Aldeias (MA-Pit126)	[12603]	Human humerus	3540±60	1953-1769	2035-1693	Unpublished
Sac-2930	Monte das Aldeias (MA-Pit162)	[16205]	Human femur	3420±40	1862-1632	1878-1616	Unpublished
Sac-3082	Horta do Pinheiro 5	[704]	Human femur	3530±50	1936-1771	2019-1698	Unpublished
Beta-425979	Horta do Pinheiro 5	[803]	Human bone	3490±30	1880-1751	1892-1699	Unpublished
Sac-2888	Monte da Cabida 3 (MC3-Pit41)	Pit 41	Human bone	3490±50	1882-1748	1948-1642	Valério *et al*. 2014
Sac-2918	Abelheira 1 (AB1-C13)	[1305]	Human Femur	3460±40	1876-1695	1889-1639	Valério *et al*. 2016b
Sac-2843	Montinho 6 (MT6-Pit147)	[14703]	Charcoal	3450±50	1878-1688	1890-1622	Valério *et al*. 2016b
Sac-2833	Torre Velha 12 (TV12-Pit13)	[1303]	Human femur	3450±45	1876-1689	1884-1630	Valério *et al*. 2016b
Beta-120049	Bugalhos	Cist 2	Textile (linen)	3450±40	1875-1690	1883-1634	Soares 2000

Tab. 7. Radiocarbon age of archaeological contexts ascribed to the early Middle Southwestern Bronze Age (see Fig. 1). * calibration of ^{14}C dates using the IntCal20 calibration curve (Reimer *et al.*, 2020) and the OxCal v4.4.2 program (Bronk Ramsey, 2009).

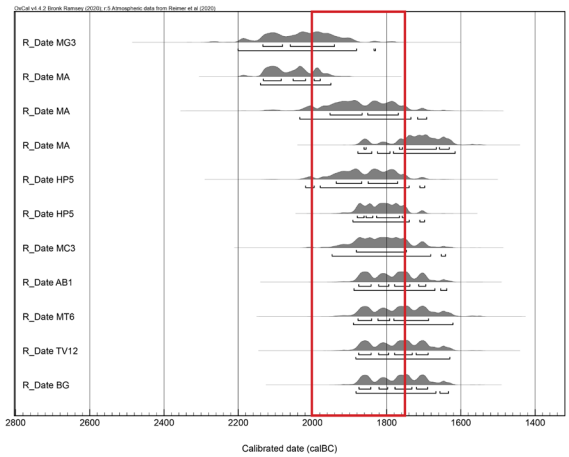

Fig. 10. Calibrated radiocarbon dates of archaeological contexts assigned to the early times of Middle Southwestern Bronze Age (MG3 Maria da Guarda 3; MA Monte das Aldeias; HP5 Horta do Pinheiro 5; MC3 Monte da Cabida 3; AB1 Abelheira 1; MT6 Montinhos 6; TV12 Torre Velha 12; BG Bugalhos) (see Fig. 1 and Tab. 7). In colour in the electronic version.

carbon dates in this set of archaeological contexts. It was obtained by dating a femur from one of the two individuals buried there. Both individuals were deposited in lateral decubitus, in fetal position, with a N (skull) – S orientation. The dated skeleton is an adult female [s.u. 110] lying in the right lateral position. The second skeleton [s.u. 109], corresponding to a non-adult individual (12 ± 2.5 years), of undetermined sex, was deposited in left lateral decubitus position, with the face turned to the face of the other deceased. No grave goods were recorded in this hypogeum.

Another funerary hypogeum with a statistically non-differentiable radiocarbon date from the previous one was recorded at the Monte das Aldeias archaeological site (Pedrogão, Vidigueira). In this hypogeum, MA-H156, a single adult female (age <30 years) [s.u. 15608] was deposited in fetal position, in a right lateral decubitus, with an NW-SE orientation. Next to the hands, a spherical ceramic vase was recorded containing an awl with an asymmetric rhomboid shape (*i. e*. an alêne) (Fig. 11), to which a fragment of a linen fabric adhered. A fragment of the handle, manufactured in walnut (*Juglans* sp.), was still in position at one end of the awl (Soares *et al*. 2018). It is worth noting that this funerary structure is the only parallel known so far for the hypogeum 8 of HP5, as MA-H156 was also built on a pre-existing pit (Fig. 11A). The atrium [s.u. 15611] reuses part of that pit [s.u. 15613], which would already be partially filled with clay sediments [s.u. 15612] without any artefacts. The chamber [s.u. 156010] where the deceased was deposited is also partially over the pit and its entrance was closed by a stone structure [s.u. 15605] composed of two large slabs of greenish shale placed vertically to which several other smaller shale slabs were leaned. Another funerary structure, the pit 126 of Monte das Aldeias (MA-Pit126), with an approximately circular plant, an ovoid profile and a flattened bottom, has a more recent date but fully integrating the 1st quarter of the 2nd millennium BC. In this pit, an adult individual was buried in fetal position in right lateral decubitus. A ceramic vase with a hemispheric shape was recorded next to the elbows and, in the neck area, seven sea snail shells, which may correspond to a necklace, were also recorded (Fig. 11B). These artefacts would constitute the grave goods associated with this burial. Another pit (MA-Pit162), with a plant and profile similar to the previous one, also used as a funerary structure, was dated by radiocarbon into the transition from the 1st to the 2nd quarter of the 2nd millennium BC or from the beginning of this last quarter. Two individuals were buried in this structure, an adult male, whose skeleton was found disarticulated, and a child (age <2 years), deposited in left lateral decubitus with a NW-SE orientation. No grave goods were recorded.

Finally, four other funerary and one non-funerary contexts, all attributable to the 1st quarter or with a smaller probability to the beginning of the 2nd quarter of the 2nd millennium BC, should be mentioned, which can therefore still be considered as from the early Middle SWBA: pit 41 (MC3-Pit41) of Monte da Cabida 3 (São Manços, Évora), cist 13 (AB1-C13) of Abelheira 1 (Ervidel, Aljustrel), pit 13 (TV12-Pit13) of Torre Velha 12 (Serpa), Bugalhos necropolis (Serpa) and pit 147 (MT6-Pit147) of Montinhos 6 (Serpa). MC3-Pit41 had a circular plan and a niche dug in the wall where two individuals were buried. Both were in the right lateral decubitus with an N-S orientation. One [931] was a child aged 3 to 4 years, which was dated by radiocarbon, while the other deceased [932] was a baby, aged between 3 and 12 months. No grave goods were recorded. The cist AB1-C13 was, like two other cists recorded in this archaeological site, covered by a stone *tumulus*, but, unlike these last ones, the cist did not have the usual four upright slabs overlapped by a large lid slab. The cist, with a sub-rectangular shape, presented the side faces covered by several small and thin slabs of schist and apparently the lid slab was absent. The cist had an NW-SE orientation and a non-adult individual had been deposited there. However, the skeleton was, for the most part, disarticulated, suggesting a reduction and not a primary burial. A carinated ceramic cup (Atalaia-type) and an arsenical copper awl (6.38 % As, Valério *et al*. 2016b) were the grave goods of this burial. TV12-Pit13, with a sub-rectangular plant covered by a stone *tumulus,* cut two older pits whose recovered artefacts point to a chronology of the Late Neolithic /

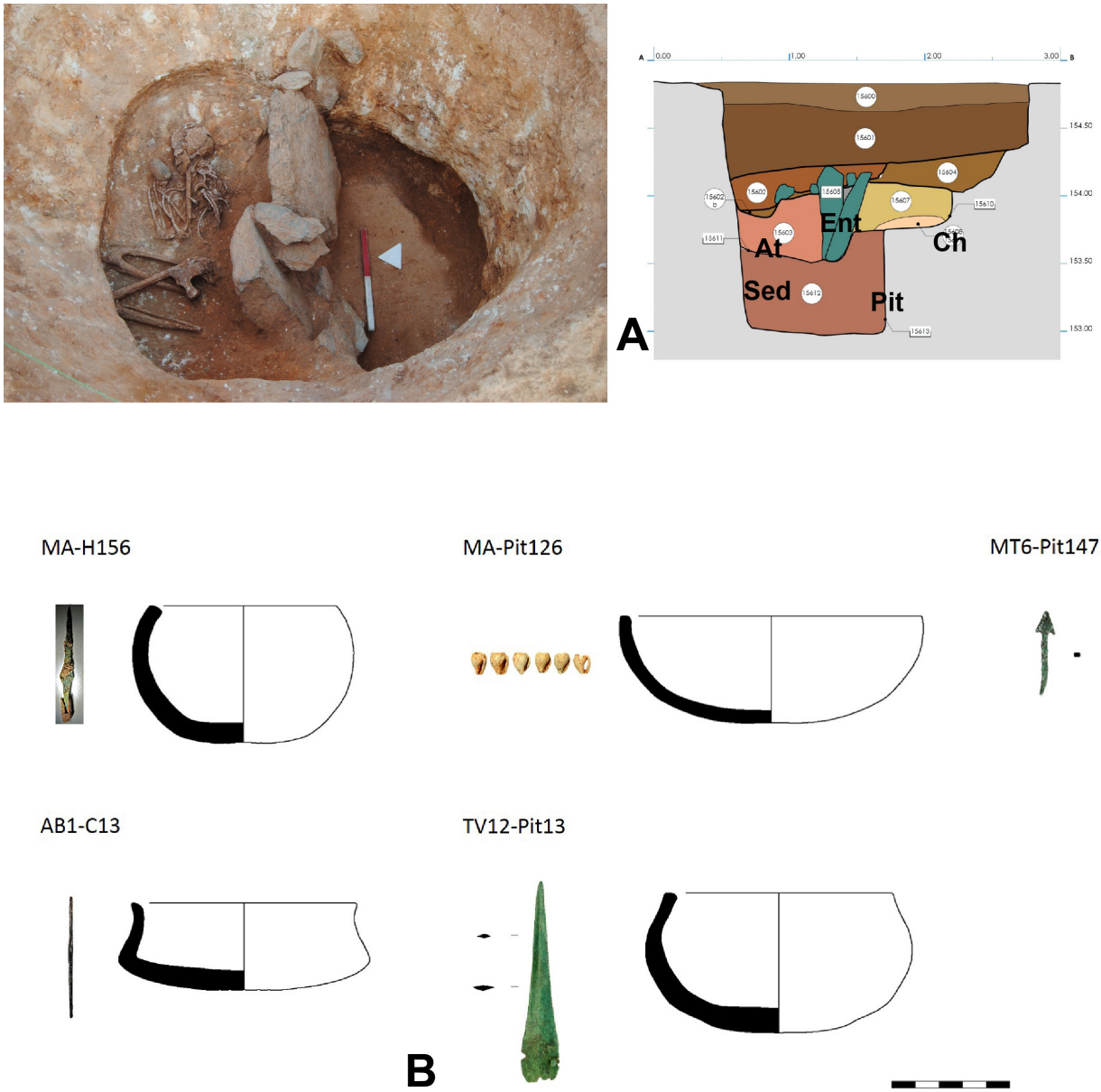

Fig. 11 - A. The funerary hypogeum 156 of Monte das Aldeias, the only parallel known so far for the hypogeum 8 of Horta do Pinheiro 5 (see Figs. 1 and 4). MA-H156 was also built over a pre-existing pit [Pit: s.u. 15613]. The atrium [At: s.u. 15611] reuses part of that pit, which would already be partially filled with clay sediments [Sed: s.u. 15612] without any artefacts. The chamber [Ch: s.u. 156010] where the deceased was deposited is also partially over the pit. The chamber entrance was closed by a stone structure [Ent: s.u. 15605] composed of two large slabs of greenish shale placed vertically. B. grave goods of hypogeum 156 and pit 126 of Monte das Aldeias, of cist 13 of Abelheira 1, and of pit 13 of Torre Velha 12. Arrowhead of pit 147 of Montinhos 6. In colour in the electronic version.

Early Chalcolithic transition (Gomes *et al.* 2013). An adult female aged > 30 years was buried in the pit, in left lateral decubitus and fetal position. Between the arms and legs there were the grave goods made up of a spherical ceramic vase, with a very smooth carination, and an arsenical copper riveted dagger inside (dagger 2.14 % As; rivet 2.17 % As, Valério *et al*. 2016b). The Bugalhos necropolis (Soares 2000) consisted of two stone cists, without human bones, possibly due to the acidity of the rocky soil (shale). Cist 1 contained three ceramic carinated pots as grave goods, with the carination at the bottom and a handle near the rim in two of

them, while in cist 2 there were two ceramic vessels, one carinated also just on the bottom, the other with an oval rim and both with a handle near the rim. Two arsenical copper daggers and a fragment of a linen fabric were recorded associated with those vessels, being a sample of this fabric dated by radiocarbon. Finally, the non-funerary pit (MT6-Pit147) of Montinhos 6. This pit has a sub-circular plant, with an ovoid profile and flat bottom. At the base of the structure, a level of charred cork and charcoal was identified, which was associated with a triangular shaped arrowhead, with incipient barbs and a long peduncle (arsenical copper with 3.79 % As, Valério *et al*. 2016b).

Therefore, currently we can list ten funerary and one non-funerary contexts ascribed to the early Middle SWBA. Regarding the latter one, we have only to consider an arsenical copper arrowhead with a relatively rare typology in Bronze Age contexts, and a structure of recurrent typology in prehistoric contexts (a circular pit). Thus, its contribution to the characterization of habitat spaces of that period is practically irrelevant. Funerary contexts, on the other hand, already allow a characterization of those times, albeit relatively preliminary, which should be detailed and complemented as new contexts are recorded and studied. A first observation is the existence of a marked polymorphism of funerary structures and funerary rituals that can be inferred from them, polymorphism that is typical of the whole SWBA (Soares *et al*. 2009). Thus, burials are recorded in hypogea, in pits of circular or sub-rectangular plan and in cists, each type of these structures with architectural variations. Single or double depositions in lateral decubitus and fetal position predominate. Burials are often accompanied by grave goods, which is not the case in most pits of circular plant (Valério *et al*. 2014). This absence of grave goods may indicate that we are facing burials of individuals of low social *status* (Soares *et al*. 2009), although the opposite was also recorded in pit 7 of HP5. On the other hand, grave goods of female individuals usually comprise a ceramic vase associated to an awl (in MA-H156 and in AB1-C13) or to a dagger (TV12-Pit13 and, probably, in cist 2 of Bugalhos necropolis, if the burials are of female individuals) that, like in the El Argar Culture, where this association is usual, would have the function of a kitchen tool and not of a weapon. However, it should be noted that sometimes this association raises some doubts, as is the case of a long dagger (about 28 cm length) associated with a female individual buried in hypogeum 9, also at TV12, dated of the 2nd quarter of the 2nd millennium BC (Gomes *et al*. 2013; Valério *et al*. 2016b: fig. 1). Note that these two arsenical copper daggers have a diamond-shaped section, which at this time is not usual in artefacts with this typology. The MA-H156 alêne, the AB1-C13 awl, the MT6-Pit147 arrowhead, and the two daggers of Bugalho necropolis were also manufacture with arsenical copper, which is prevalent throughout the Middle SWBA (Valério *et al*. 2016b). The pottery (see Fig. 11 and Soares 2000: fig. 8) associated with these metallic grave goods are spherical vessels in MA-H156 and TV12-Pit13 and a spherical cup in MA-Pit126, common and recurrent shapes both in Chalcolithic and Bronze Age periods, and carinated cups and bowls with a handle near the rim (Bugalhos) and one Atalaia-type carinated cup (in AB1-C13), being these characteristic pottery shapes of the Middle SWBA.

It can therefore be said that, either the diversity of funerary structures, or the grave goods recorded in them, namely ceramic shapes and arsenical copper artefacts, are generally in line with what was already known from the Middle SWBA, although one must take into account that these older contexts were practically unknown until now. However, and besides this new knowledge of a still badly known period, there are two additional new facts. One is the existence in hypogeum 8 and pit 7 of HP5, as well as in MA-H156, of a pit possibly pre-existing the construction of the funerary structure that reuses it, apparently including that pit in the funerary ritual that was practiced there. This reuse seems clearer in the case of pit 7 of HP5 in which the pre-existing structure [s.u. 707] would not be completely filled when the funerary construction was built. The observed disposition of the skeletal bones, with the registration of several anatomical connections, can be explained if we admit that the deceased will have been buried in a platform of perishable materials, a stretcher perhaps, partially superimposed on the pit [s.u. 707] and covered by earth after its deposition in the grave. The platform will have collapsed shortly after burial, when soft tissues still existed, causing most of the skeleton to slide close to the wall of this pit [s.u. 707], while parts of the skeleton that were not over [s.u. 707] - the skull, the right ilium and bones of the feet - remained on the plane of the base of the funerary pit (Fig. 4). Also in the MA-H156 hypogeum there was a pit [s.u. 15613] apparently not completely filled when the burial took place, which was used for the insertion of slabs closing the chamber entrance. On the other hand, the pit [s.u. 806] of the hypogeum 8 of HP5 seemed to be filled up when the funerary structure was built, although an old violation may have obliterated evidence of the original situation. Nevertheless, it must be said that we are not sure if these pits would be pre-existing to the construction of the funerary structures or if each set was planned just at one time. In any case, the existence of these pits in these three graves is too conspicuous to be feasible to admit that the "pre-existing" pit or its use would be part of the funerary ritual.

The other novelty is the exceptional quality of the grave goods recorded in these three funerary contexts. The two funerary structures of HP5 are located about 1 m from each other and their contemporaneity is attested by the radiocarbon dates. Both must have been built for the burial of individuals of high social status, considering the rarity of funerary gifts and raw materials with which the luxurious artefacts were manufactured. Ivory was undoubtedly an imported exotic raw material, which appears in Chalcolithic funerary contexts of high wealth people of the 3rd millennium BC (see, for example, tomb 2 of the Perdigões (Valera 2009; Soares *et al*. 2018) or the tholos of Montelirio (Luciañez Triviño and García Sanjuán, 2016) and whose utilization will have been prolonged to the beginning of the 2nd millennium in southwestern Iberian peninsula, as these funerary contexts of HP5 demonstrate. The same occurs in Iberian southeast during the El Argar Culture (Schuhmacher and Banerjee 2012). Research has been showing that during the Chalcolithic, in Iberian peninsula, the ivory of the Asian elephant predominates in the southeast and in the Guadalquivir middle valley, while the African ivory, resulting from a trade coming from the north of Africa, appears in Portugal and in the Guadiana middle valley. Later, the two types of ivory coexist in the El Argar region (Schuhmacher and Banerjee 2012; Schuhmacher 2017). An ivory workshop where both types of raw material were worked during the 3rd millennium BC has been recorded at Valencina de la Concepción (Nocete *et al*. 2013). On the other hand, the Chalcolithic tomb 10042-10049 of Montelirio, also at Valencina de la Concepción, is the only example of a funerary monument where these two types of ivory coexist (García Sanjuán *et al*. 2013). It is, therefore, to emphasize the fact that the same occurs in HP5, *i. e*. the coexistence of the two types of ivory, African and Asian. However, it should be noted that ivory disappear later in the archaeological record of the Portuguese territory. It will reappear much later in the south of Portugal due to the Orientalizing trade (Mederos Martín *et al*. 2017), as for instance in the monument of Roça do Casal do Meio (Vilaça and Cunha 2005) and in hypogeum 4 of Monte da Ramada 1 (Baptista *et al.* 2018; Valério *et al*. 2018).

The ivory bracelet that accompanied the burial of pit 7 and the other ivory bracelet of the hypogeum 8 are therefore prestige artefacts, indicative of the high status of the deceased. The absence of other funerary gifts in pit 7 may only be the result of the modern destruction suffered by the opening of the ditch for the adductor. The same did not happen with the monument of survey 8 at HP5, in which, since the modern destruction resulted in the loss of most of the skeleton of the buried individual. The ancient violation, that occurred perhaps in Medieval times, would have had little effect on the hypogeum chamber where the burial was located, since only the entrance was affected by the extraction of the slab or slabs that closed the chamber. Here, as mentioned above, the grave goods comprised, in addition to the ivory bracelet, a large ceramic vase, whose dimensions are not usual in SWBA funerary contexts, and a metallic dagger. This will also constitute a high prestige weapon, since it uses silver rivets to fix the blade to the handle, also silver in the handhold lining, and silver and gold in its pommel (Fig. 5B). The use of copper and gold metals appeared in the Iberian peninsula during the Chalcolithic (Valério *et al*. 2016a; Soares *et al*. 2017), while silver artefacts only made their appearance during the Middle Bronze Age, with the first examples occurring in the peninsular southeast (El Argar) in the transition from the 3rd to the 2nd millennium BC (Hunt-Ortiz 1998; Montero Ruiz 1999). Nevertheless, the radiocarbon date obtained for the burial of the hypogeum 8 is very close to the oldest dates for El Argar contexts with silver artefacts (it is not statistically different from one of the two oldest dates: 3635 ± 60 BP and 3670 ± 70 BP, according to Montero Ruiz (1999: 352). On the other hand, the expertise of the silversmith that made the pommel of the dagger is comparable to whom produced the silver items recorded in the Argaric grave 38 of La Almoloya (Murcia) (Lull *et al*. 2021) with parallels in the grave goods of the Argaric cist of Los Villares (Andújar, Jaén), namely the silver cover of the handle of a copper awl or the silver cover of the rim of a carinated ceramic vessel (Carrasco *et al*. 1979). However, it should be noted that the grave goods from HP5 are more than a hundred years older than those recorded in grave 38 of La Almoyola, which raises questions, namely where did silver metallurgy first appear in the Iberian peninsula and in which direction the spread of this metallurgy occurred. The different alloys of HP5 dagger endorse its extraordinary value as a symbol of high status or an emblem (following Lull *et al.* 2021) among those communities of the beginning of the 2nd millennium BC.

In this region of the Portuguese south, other Bronze Age daggers and swords are known to portray the high social status of the buried individual, although these examples lack noble metals and/or have a later chronology. This is the case of a sword from an 1880-1550 cal BC (2s) hypogeum at Horta do Folgão (Serpa), being both the blade and rivets composed of arsenical copper (Valério *et al.* 2012). The similar and coeval sword of La Mesa de Setefilla (Seville) also shows only arsenical copper components (Hunt-Ortiz 2003). Recently published work on a sword, the Monte das Oliveiras sword, also ascribed to the SWBA shows arsenical copper components but the rivets' heads are spherical caps covered with a golden leaf (Soares *et al*. 2020). Another example came from a small bronze dagger

with two silver rivets recovered inside a 1680-1450 cal BC (2s) hypogeum at Torre Velha 3 (Serpa) (Valério *et al.* 2014). Finally, one should mention the 1670-1390 cal BC (2s) hypogeum of Belmeque (Serpa) having an unusually rich set of grave goods, including a bronze knife with gold rivets, a pair of copper and bronze daggers with silver rivets, and several silver nails perhaps used as a belt decoration (Schubart 1974; Soares 1994; Soares *et al*. 1996).

In addition to these artefacts, the presence of reddish cinnabar stains in the burial of hypogeum 8, a substance also exotic and certainly imported, perhaps from Almadén mines (Ciudad Real, Spain) (Rodríguez *et al.* 2020), should also be highlighted.

Finally, mention should be made of the female burial of MA-H156. Here the grave goods consisted only of an ordinary ceramic vessel, but the awl that was apparently wrapped in a linen fabric has a very rare shape in the southwestern Iberian peninsula, which suggests that it would also be a prestige artefact. If so, the absence of artefacts manufactured from noble metals or luxurious raw materials would only indicate a gender differentiation.

Thus, the grave goods of all these burials suggest a hierarchy and social stratification that, starting with the Bell Beaker period and the Early Bronze Age, will have been accentuated from the beginning of the Middle Bronze Age.

5. CONCLUSIONS

Among several structures ascribed to Middle SWBA at the site of Horta do Pinheiro 5 (HP5), two complex funerary structures stand out, a pit and a hypogeum, dated by radiocarbon to the 1st quarter of the 2nd millennium BC, which came to shed some light on the first times of that millennium in this region, namely on funerary rituals and, also, on the stratification of society in those first centuries of the Middle SWBA.

Although the known funerary contexts assigned to the beginnings of the SWBA are still in small number, they nevertheless allow to verify the existence of a great polymorphism in the architecture of funerary structures (cists, hypogea, pits) with the corresponding differences in funerary rituals, a variability that constitutes itself a characteristic of the entire SWBA. Thus, the archaeological record has shown that if human depositions in a fetal position are usually a constant, being accompanied by grave goods, this does not happen, however, in pit burials, which are generally not accompanied by funerary gifts. However, the HP5 pit grave departs sharply from this pattern, since the deceased was accompanied, at least, by a luxurious gift, an ivory bracelet. Both the funerary pit and the hypogeum of HP5, as well as another hypogeum also only now known, that one of Monte das Aldeias, located not far from HP5, had associated a pre-existing pit of circular plant and U-shaped profile cut by the funerary structure, which would probably play some role in the funerary ritual. In addition, the two very close funerary structures of HP5 (about 1 m apart) each containing a burial where the body was lying in lateral decubitus, in fetal position, which is "looking" to the pre-existing pit. Regarding the HP5 hypogeum, the funerary ritual will also have included the spraying of cinnabar on the burial, since this reddish colorant was detected in several points of the chamber, as well as on bone remains and on some grave goods.

Finally, the funerary gifts include an ivory bracelet in both burials, as well as an arsenical copper dagger in the hypogeum, with silver rivets and a silver coated handle to which a pommel in silver and gold was associated. Regarding the ivory bracelets, one was manufactured with Asian elephant ivory, while the other was made with African elephant ivory. The Chalcolithic tomb 10042-10049 of Montelirio, at Valencina de la Concepción, is the only other example of a funerary monument where these two types of ivory coexist. On the other hand, the expertise demonstrated in the production of the dagger of the HP5 hypogeum, namely of its pommel, has rare parallels in the Iberian peninsula with such a backward chronology. All these prestige symbols or emblems, as Lull and collaborators call them, indicate that the individuals buried in HP5 pit and hypogeum would be of high social *status*, revealing the existence of a growing hierarchy and social stratification in those communities that occupied the peninsular southwest, coevals of El Argar communities in southeastern Iberian peninsula.

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