WORKED ANTLER AT THE VETTONIAN (IRON AGE) SETTLEMENT OF LAS COGOTAS (CARDEÑOSA, ÁVILA, SPAIN)

Asta trabajada del yacimiento vettón (Edad del Hierro) de Las Cogotas (Cardeñosa, Ávila, España)

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ABSTRACT The aim of this paper is to analyse a small assemblage of worked red deer antlers that formed part of the faunal assemblage brought to light during excavations in the 1980's and 1990's of the Vettonian archaeological site of Las Cogotas (Cardeñosa, Ávila, Spain). This paper is intended as a contribution to the little known antler industry in the Iberian Peninsula during the Iron Age.

Keywords: Worked Wntler, Second Iron Age, Vettones, Las Cogotas, Iberian Peninsula, Zooarchaeology.

RESUMEN El objetivo de este artículo es analizar un pequeño cojunto de hasta de ciervo trabajada, el cual forma parte del conjunto de fauna documentado durante las excavaciones de los años 80 y 90 en el yacimiento vettón de Las Cogotas (Cardeñosa, Ávila). Nuestro objetivo es continuar profundizando en la aún poco conocida industria en asta de la Edad del Hierro en la Península Ibérica.

Palabras clave: Asta trabajada, Segunda Edad del Hierro, Vettones, Las Cogotas, Península Ibérica, Zooarqueología.

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INTRODUCTION

The site of Las Cogotas (Cardeñosa, Province of Ávila) is one of the most important Iron Age settlements of the Spanish Plateau. The occupation of this Pre-Roman site extends from the 4th to the 2nd century BC. It is located on the southern edge of Iberia's Northern Plateau in the foothills of the Sierra de Ávila near to the Adaja River and the Rominillas stream, six kilometres southwest of the town of Cardeñosa (Ávila). The settlement is perched on small hill topped by two *berrocales* (granite outcrops) known as "*cogotas*" or "*cogoteras*" that lend their name to the site (Ruiz Zapatero and Álvarez, 1995:211; Álvarez *et al*., 1998:75; Ruiz Entrecanales, 2005:5).

Due to the construction of a reservoir threatening part of the settlement, a team from the Department of Prehistory of the Complutense University of Madrid carried out rescue operations between 1986 and 1990 of the second walled enclosure surrounding the fortified settlement (*oppidum*). These excavations brought to light a pottery workshop and a large rubbish dump containing a vast quantity of faunal remains that are currently under study. The rubbish dump saw three phases of use (3rd, middle 3rd-2nd and 2nd centuries BC). The pottery workshop, in turn, was contemporary to the second phase (middle 3rd-2nd centuries BC) (Ruiz Zapatero and Álvarez, 1995:222; Álvarez, 2003:153).

Preliminary data of the archaeozoological analysis indicate a dominance of domesticated species (cattle, sheep, goats, suids and equids) with red deer (*Cervus elaphus*) as the main wild taxon (5% of the total). The assemblage of wild fauna under study comprises seven worked red deer antler artefacts. It can be inferred, therefore, that red deer antler was the predominant animal skeletal remain serving for tool making. Of the seven artefacts, four are from the rubbish dump, two from the pottery workshop, and one from the settlement. The last comes from an undefined area surrounding the site. The excavation reports, unfortunately, do not offer more detailed information as to their archaeological contexts.

The aim of this study is to advance hypotheses regarding the manufacturing process and possible uses of these artefacts, as well as to search for functional and decorative Iron Age parallels in the Iberian Peninsula. For this purpose, we have examined the artifacts found by Juan Cabré during the excavations of Las Cogotas hillfort and housed at the Museo Arqueológico Nacional (MAN) in Madrid.

Despite a long tradition of research on Palaeolithic and Neolithic bone and antler industries, the analysis of hard animal tissues in Iberian Peninsula Protohistoric contexts is rare. Along the lines of the study of examples from other periods of late Prehistory (Liesau *et al.,* 2011; Altamirano, 2012, 2013; Altamirano *et al*., 2013), several authors have highlighted the need to also systematise the technological and functional methodological approaches to these types of artefacts from Iron Age contexts (Liesau, 1988:183; Adán, 2003:90; Quintero, 2014:268). There are some studies of worked bone assemblages from this period we can cite (Liesau, 1988; Escudero and Balado, 1990; Tormo, 2003; Romero, 2013; Quintero, 2014; Blasco, 2015, 2016; Mata *et al.*, 2017).

This contribution therefore falls into this framework.

METHODOLOGY

The seven objects were sufficiently well-preserved for identification by the naked eye as antlers. The names of the antler parts serving for this production follow the descriptions put forward by Liesau (1988:185-189) (fig. 1). Moreover, the current study applied the classification criteria established by Billamboz (1977), Ruiz Nieto *et al.* (1983), Mac Gregor (1985), Liesau (1988) and Quintero Cabello (2014) taking into account the different phases of production starting with the extraction of a section from the antler matrix to the object's final phase of fashioning.

The technological process of fashioning antlers into tools, due to their hardness, is usually initiated by soaking, boiling or heating. This is followed by sectioning the antler into segments by means either of a metallic tool (cutting or sawing) or by torsion or impact. Yet because there is currently no antler matrix among the Cogotas material, the initial extraction process cannot be defined. This study therefore turns its attention on the subsequent stages summarised as follows:

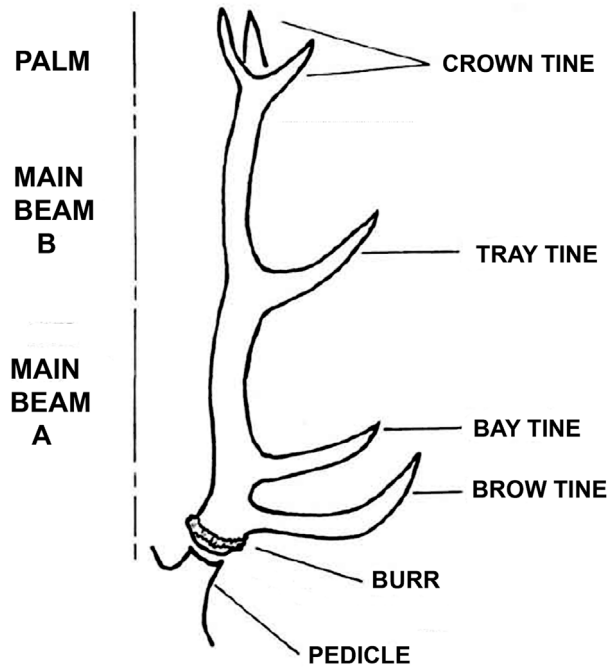

Fig. 1.—Red deer antler parts. Modified from Liesau 1988:186.

a) Scraping: removal of the antler cortex usually by means of metallic tool such as an axe.
b) Cutting: chopping of the antler to remove one of its secondary elements (point, tine ...) or to give shape to the object.
c) Sawing: cutting with a saw or similar tool. This process yields characteristic parallel marks on the object's edge.
d) Filing: evening of the surface with a tool with a rough or grooved surface.
e) Polishing: smoothing the surface with a fine abrading tool in order to eliminate imperfections and facilitate the handling.
f) Heating: placing the object in contact with a source of heat to render the surface more malleable to facilitate working it.

The traceological observations were carried out with a Leica M165C digital stereo microscope (7.2 × 120 magnification range) and the Leica Application Suite version 4.12.0 software in the Archaeobiology Laboratory of the Institute of History, Madrid (CSIC).

RESULTS

As mentioned above, the assemblage comprises seven objects of red deer antler. Other antler fragments bearing cuttings recovered at the site are not presented in the current study as they are interpreted as forming part of the initial phases of the processing.

Deer antlers possess functional characteristics that make them an optimal raw material. Certain treatments, for example, render them flexible and malleable (Quintero, 2014:268-269; MacGregor, 1985:55-73) while maintaining a resistance that is stronger than that of bone. Although the upper cortex of most of the studied artefacts was removed during scraping (n.º 3) and polishing (n.º 1, 4, 5, 6 and 7), the morphology and conservation of the internal spongy marrow of the antlers leaves no doubt as to the nature of the type of material.

Object 1 (fig. 2)

Raw material: red deer antler.
Type of work: cortex scraped, cut, filed, and polished.
Provenance: Las Cogotas rubbish dump.
Chronology: 2nd century BC.
Anatomical origin: base of beam A, next to the major burr.
Total length: 141.33 mm.
Length of the base: 62.61 mm.
Base width: 42.80 mm.
Interpretation: Half-worked, discarded chisel handle.
Description: The preserved upper edge of the object bears a clean cut but no slot to insert a metal blade. The internal spongy tissue was partially

Fig. 2.—Object no. 1. Chisel handle made of red deer antler. Las Cogotas rubbish dump, 2nd century BC.

removed although its real size cannot be determined due to the fracture. The object's lower part bears three facets. The first is transversal on the beam and constitutes the object's base and main working area. The second is diagonal and highly polished. The third is an oblique appendix (like a heel) and bears many longitudinal grooves. Also all along the shaft, there are a series of little transverse and parallel marks.

Object 2 (fig. 3)

Raw material: red deer antler.
Type of work: sawed.
Provenance: Las Cogotas pottery workshop.
Chronology: middle of 3th-2nd century BC.
Anatomical origin: tine.
Total length: 141.33 mm.
Length of the base: 62.61 mm.
Base width: 42.10 mm.
Interpretation: discarded tool.
Description: antler tine sawed near the shaft. Discarded in the first moments of manufacture.

Fig. 3.—Object no. 2. Red deer tine with saw marks. Indeterminated object, discarded. Las Cogotas pottery workshop. Middle 3rd century BC-2nd century BC.

Object 3 (figs. 4 and 5)

Raw material: red deer antler.
Type of work: facetted (rough).
Provenance: Las Cogotas pottery workshop.
Chronology: middle of 3th-2nd century BC.
Anatomical origin: tine.
Total length: 126.00 mm.
Maximum diameter: 20.88 mm.
Interpretation: horse bit, unfinished, discarded.
Description: roughly made *psalia* or horse cheekpiece. Its cortex was removed and its general form roughed out. The absence of polishing suggests it was discarded before use.

Fig. 4.—Object no. 3 *Psalia* (horse cheek piece) made out of antler. Las Cogotas pottery workshop. Middle 3rd century BC-2nd century BC.

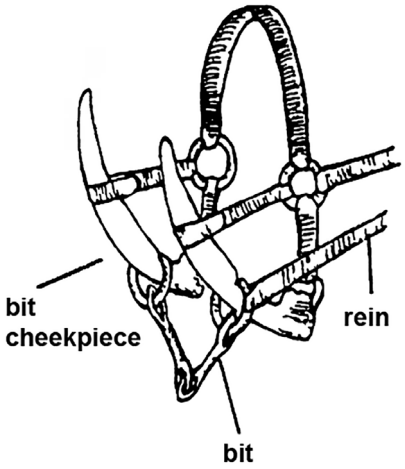

Fig. 5.—Interpretation of object no. 3 as a horse bit. Modified from Escudero and Balado, 1995:245.

Object 4 (fig. 6)

Raw material: red deer antler.
Type of work: polished, heated.
Provenance: Las Cogotas rubbish dump.
Chronology: 3th-2nd century BC.
Anatomical origin: base of main beam A.
Total length (broken): 95.47 mm.
Length of the base (approximated): 59.38 mm.
Base width: 33.80 mm.
Interpretation: undetermined, discarded artefact.
Description: heated to facilitate manufacture but discarded before further work.

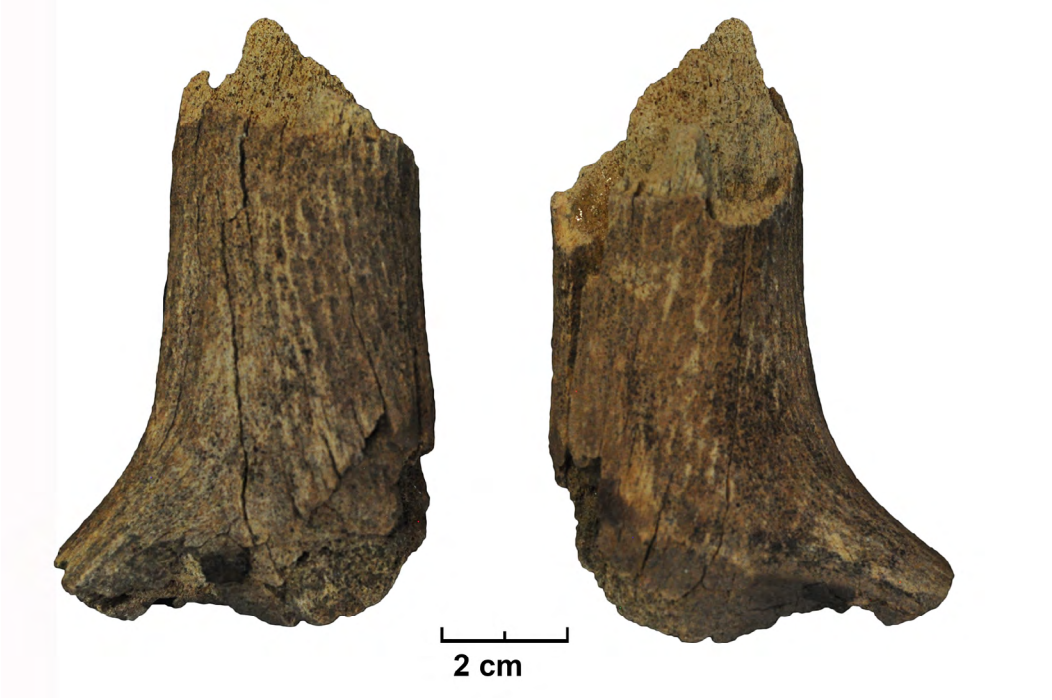

Fig. 6.—Object no. 4. Heated artefact, discarded before use. Las Cogotas rubbish dump. 3rd-2nd century BC.

Object 5 (fig. 7)

Raw material: red deer antler.
Type of work: sawed/cut, polished.
Provenance: Las Cogotas rubbish dump.
Chronology: middle 3th-2nd century BC.
Anatomical origin: tine.
Total length (broken): 94.08 mm.
Length of the base: 26.88 mm.
Maximum diameter: 24,61 mm.
Interpretation: handle, probably discarded.
Description: the surface is very smooth and highly polished. Yet the fact that the interior spongy tissue was never emptied and there is no trace of reduction of the edge indicates that the object was discarded before serving as a handle.

Fig. 7.—Object no. 5. Handle. The surface is intensely polished. Probably discarded. Las Cogotas rubbish dump. Middle 3rd century BC-2nd century BC.

Object 6 (fig. 8)

Raw material: red deer antler.
Type of work: polished.
Provenance: Las Cogotas rubbish dump.
Chronology: middle 3th-2nd century BC.
Anatomical origin: tine.
Total length (broken): 53.89 mm.
Maximum diameter (approximated): 20.89 mm.
Interpretation: Handle.
Description: small fragment of handle. The border is rounded.

Fig. 8.—Object no. 6. Fragment of handle with rounded border. Las Cogotas rubbish dump. Middle 3rd century BC-2nd century BC.

Object 7 (fig. 9)

Raw material: red deer antler.
Type of work: polished, decorated (with incisions).
Provenance: Las Cogotas settlement.
Chronology: 4th-2nd c. BC.
Anatomical origin: unknown.
Length: 52.77 mm.
Width: 7.84 x 6.83 x 7.26 x 7.21 mm.
Interpretation: Decorative object. Undetermined.
Description: small object with a squared section bearing an incised decor.

Fig. 9.—Object n.º 7. Small decorated object with incisions. Undeterminated function.

DISCUSSION

The taxonomic spectrum of the faunal assemblage recovered at the site of Las Cogotas, currently under study, reflects an economy based essentially on livestock breeding. Red deer is the most abundant taxon among the wild species. Yet the relatively low proportion of wild fauna reveals its feeble role in the local economy. This notion appears to be confirmed by the morphology of some antler segments described above extracted next to the burr (e.g., n.º 1 and 4), a criterion suggesting collection of discarded antler sheds. In sum, hunting was not common among the inhabitants of Las Cogotas.

The careful observation of each of their surfaces reveals different stages of the operational sequence. These range from the first cutting of the matrix to obtain a segment (fig. 3, obj. 2) to a heating for greater malleability (fig. 6, obj. 4). It has not been possible, nevertheless, to corroborate other methods linked to extraction such as soaking and boiling as they leave scant archaeological evidence. Thus, we can only speculate as to their application to our antler industry.

The process of manufacture of more elaborate objects of antler, after detaching the segment from the matrix, consisted of cortex removal by scraping followed by faceting. Faceting in the case of object 3 (fig. 4) was carried out very roughly. It was most likely carried out with a tool such as an axe equipped with a thick metal blade.

The traceological study of object 1 (fig. 2) and its comparison with both ethnographic and experimental parallels suggests that it was subject, after scraping, to filing with a metal rasp. Experimenting was carried out in the Archaeobotanical laboratory of the CSIC on a pine block with a rasp of medium coarseness (figs. 12 and 13). The rasp is a tool generally reserve for wood work that consists of a toothed flat or semi-circular bar that produces characteristic parallel traces (fig. 14). Although this type of tool is not recorded at Iberian Iron Age sites, it is possible that they have not been identified due to corrosion (Ignacio Montero, pers. comm.). After regularising the surface with the rasp, the tool was polished resulting in a smooth and easy to handle object. This type of treatment is illustrated in figures 2, 7, 8 and 9.

Two artefacts similar to object no.1 from the excavations carried by the archaeologist Juan Cabré at Las Cogotas at the beginning of the 20th century were identified among the collection of the National Archaeological Museum in Madrid (cat. n.^{os} 1989/41/757 and 1989/41/759; Cabré, 1930: pl. LXXVI, f.4, n.^{os} 9, 11). Despite the fact that the three objects present similar morphologies (a shaft with a cylindrical section, a flat base with an oblique facet, and an appendix at one end corresponding to the base of a tine) they represent three different phases of the operational sequence of producing tools (fig. 10). Several areas of the surface of the object MAN1989/41/757 show traces of the initial scraping and rough impacts of the metal tool.

Another artefact (MAN1989/41/759), by contrast, is a finished. It bears a shiny polished patina and light parallel chatter marks similar to those of object 1. These are interpreted as the result of filing with a rasp (fig. 11). This object also has a slight

Fig. 10.—Comparative of the three object interpreted as chisel handles: MAN1989/41/757 (left), Object n.º 1 (middle) and MAN1989/41/759 (right). We have identified different phases of the antler production sequence.

Fig. 11.—Detail of MAN1989/41/759. Parallel marks (pointed by the arrow), interpreted as a result of filing with a rasp.

cutting at the opposite end to the base that probably served to fix a metal blade. These two features allow positioning the artefact no. 1 at an intermediate stage in the productive sequence. The absence of a cutting in the end to insert a blade, and the presence of less polished surfaces, indicates that the object was discarded before use, a notion that coincides with its find spot in the rubbish dump next to food debris.

Cabré Aguiló interpreted the object labelled MAN1989/41/759 as a chisel handle (Cabré, 1930: pl. LXXVI), a type of tool serving in wood work to carve cuttings, notches or recesses. Although it no longer has its iron blade, the excavation report leaves no doubt that it was a complete tool at the moment of its discovery. This classification concord with its morphological similarity to object 1. Moreover, the width and flatness of its base (fig. 2) are indicative that it was designed to

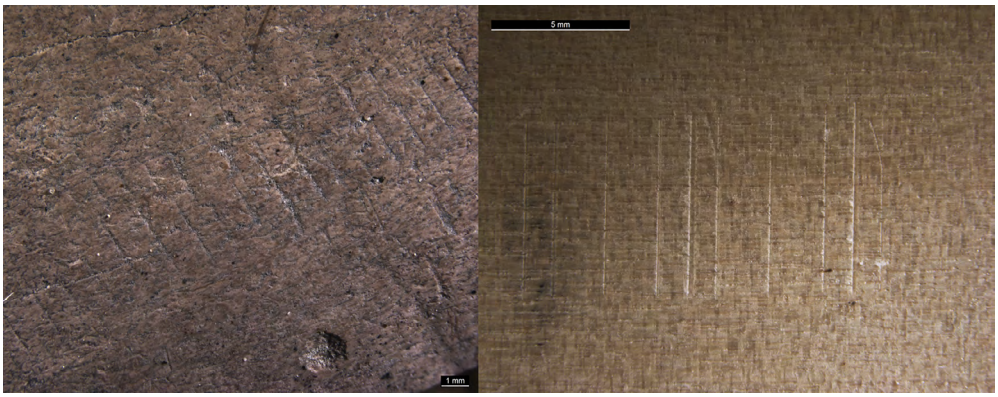

Fig. 12.—Left: Object no. 1 with parallel marks on the shaft. Right: Same type of marks produced by a rasp on a experimental pine wood block.

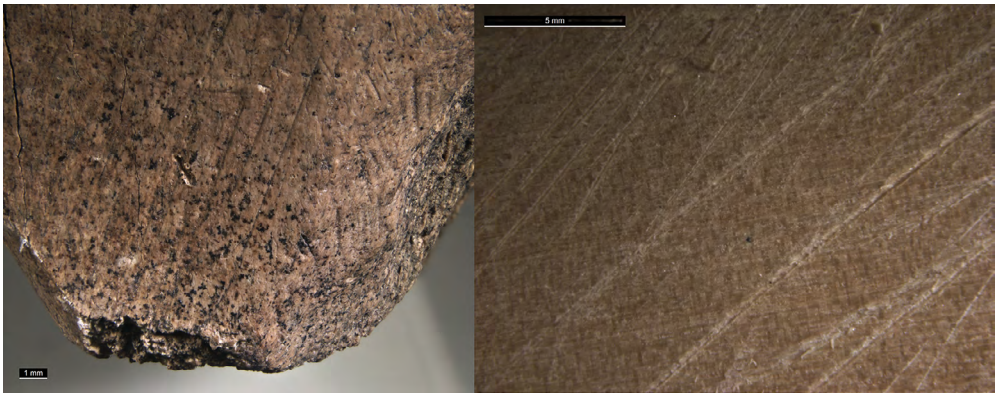

Fig. 13.—Left: Object no. 1 with a detailed view of the longitudinal marks —in the zone of the appendix of the artifact. Right: same type of marks produced on an experimental pine wood block.

withstand the impacts of a hammer. The oblique recess on the side opposite the appendix would have served for a quicker and more accurate diagonal extraction of wood slithers. Of interest is its appendix, a feature not identified in ethnographic contexts, which could have served as a barrier between the hand and hammer to protect the craftsman from awry hammer blows.

Another antler chisel handle of this assemblage stored in the museum (MAN1989/41/760) shares a similar morphology and oblique faceting of its base. Yet it has no appendix perhaps because it was hewn from the central beam of the antler and not from a segment of the base. Although similar handles are recorded at Iron Age sites such as El Soto de Medinilla (Liesau, 1988:202-208) or Castiello de Cellagú (Adán, 2003:93,100-101), there is no reference to a function as chisel handles.

Objects 5 (fig. 7) and 6 (fig. 8) have also been interpreted as handles due to their morphology and polished surface. Object 5 was probably discarded early in its manufacture due the presence of an un-emptied spongy mass and the absence of a slot for a blade. Object 6, in turn, could have been used as a tool as it has a softened and rounded edge compatible with the insertion of a metal blade.

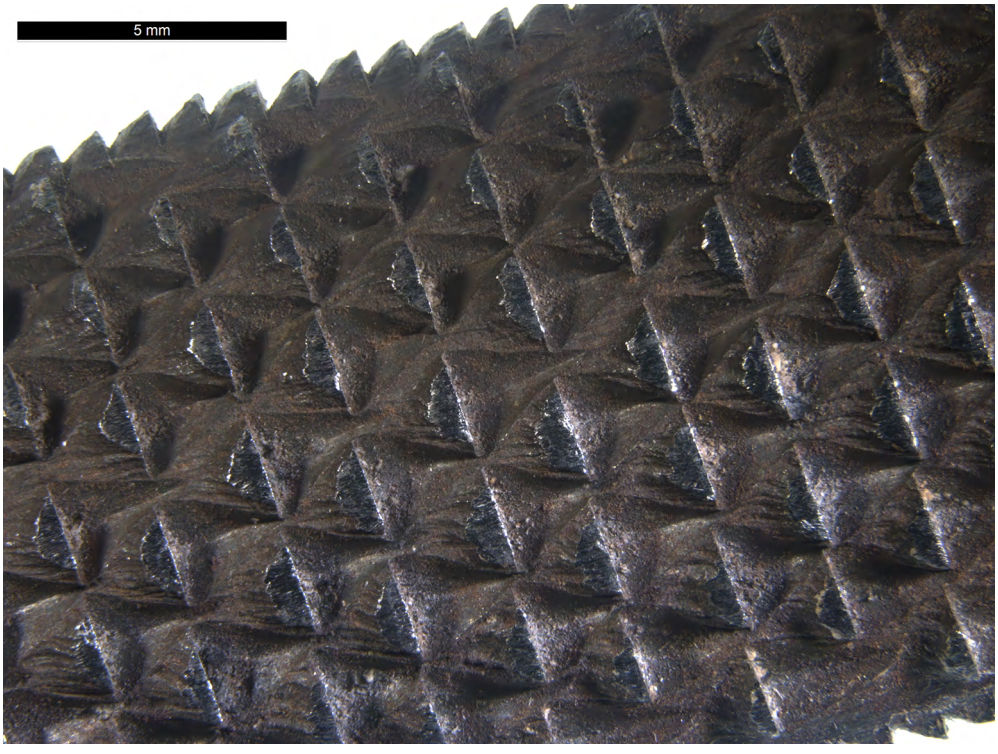

Fig. 14.—Rasp used in the experimental exercise. Detail of the blade.

Object 3 (fig. 4), despite its rough manufacture, is morphologically very similar to artefacts from other Iberian Iron Age sites and has parallels in Central Europe (Liesau, 1988, Escudero and Balado, 1990; Romero *et al.*, 2013). Although the nature of these artefacts, the subject of intense debate, has been linked to whistles or rattles, their function as a *psalia* or horse cheek piece is more plausible (fig. 5). The artefact from La Cogotas, unlike most of the parallels, is not perforated, probably because it was discarded before completion.

The main archaeological parallels are from Soto de Medinilla (Valladolid) (Escudero and Balado, 1990:236; Liesau, 2005:197), Numancia (Soria), Paredes de Nava (Palencia), Dehesa de Morales (Zamora), La Hoya (Álava) and Las Quintanas (Valladolid) (Escudero and Balado, 1990:236-241). Romero *et al*. (2013:87-89) compiles the bibliography of these objects and points out their other possible functions.

The function of objects 2 and 4 was not determined as they were discarded at outset of their production process.

Object no. 7 (fig. 9), devoid of archaeological context, cannot be assigned to a precise chronological phase of Las Cogotas. It has a quadrangular section, a highly polished surface and a decor consisting of crossed (in the form of blades) and diagonal incisions alternating on opposite faces. Both motifs are framed by parallel lines. Although these motifs appear in pottery from both Las Cogotas *castro* (Cabré Aguiló, 1930: pl. XXVII, fig. 13, pl. XXVIII, pl. LII), and its cemetery (Cabré Aguiló, 1932: pl. XXXVI, fig. 4, pl. XXXVII, figs. 2 and 27, pl. XXXIX, fig. 3), they also figure among the incised pottery from the Iron Age I phase (Blasco *et al*., 1988: 160, fig. 9) and other Vettonian sites (Baquedano, 2016:268,542,401). Analogous incised motifs are also known on small cylinders of medium-sized mammal bones recovered at the cemetery of La Osera (Barril, 2005:158-159), El Espartal (Barrio and Blasco, 1989:240), El Cerro de la Mesa (Chapa *et al.*, 2013: 152), Castiello de Cellagú (Adán Álvarez, 2003: 95) and the Castro de Las Cogotas itself (Barril, 2005:57), and are interpreted as handles. Yet the interpretation as a tool handle in this case can be discounted on account of its small size and quadrangular morphology. Object 7 is therefore probably either an appliqué or some other type of decorative element.

CONCLUSION

The seven artefacts of hard animal tissue of this study indicate that red deer antlers served as raw material at the Las Cogotas hillfort during the late Iron Age. Other analogous materials deposited in the MAN from old excavations combined with bibliographical revisions will increase the number of these types of artefacts and therefore offer a more complete vision of the role they played in the local economy of Las Cogotas.

The present study has identified different phases of the antler production sequence, notably extraction, polishing and decoration, by combining traceological

observations with archaeological and ethnographic parallels. From the observation of rasp traces, the techniques and tools for working antlers are in fact similar to those put to use in wood working. This innovative working hypothesis leads to the necessity of carrying out future experimental work on red deer antlers. Furthermore, the morphology and decoration of the Cogotas samples are analogous to artefacts from other sites in the centre of the Iberian Peninsula ranging from the Early Iron Age to the Roman conquest. Hence antler artefacts were fully integrated into the local and regional traditions.

Thus the analysis of the technological and functional aspects of objects manufactured with raw materials such as antlers and bone improves our understanding of productive activities of Protohistoric populations that would otherwise remain invisible.

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