

The axe of the Obidos lagoon (Portugal): an uncommon find recovered during an underwater archaeological survey (1999)

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A B S T R A C T In the spring of 1999, during an underwater archaeological survey related to a dredging project in the Óbidos lagoon and supported by the INAG – Instituto da Água (Water Institute), the team of the Centro Nacional de Arqueologia Náutica e Subaquática (CNANS) recovered a large perforated amphibolite axe at a depth of 9 m under water, at the bottom of the lagoon, unfortunately out of context. The Obidos axe is one of only 8 known perforated axes known from Iberia. All the other Iberian axes were recovered in megaliths dated to the Copper Age, and thus, it is likely that the Obidos axe dates to the same period and originates from a similar context. These perforated axes are found dispersed throughout western Iberia (Portugal and northwestern Spain), and thus, we suggest that these objects were status markers of elite individuals who had authority in or over a particular region.

R E S U M O Na Primavera de 1999, durante uma missão de prospecção arqueológica subaquática realizada pelo Centro Nacional de Arqueologia Náutica e Subaquática (CNANS) no quadro das dragagens de desassoreamento da lagoa de Óbidos promovidas pelo INAG – Instituto da Água, foi descoberto a 9 m de profundidade, mas infelizmente fora de contexto, um grande machado-placa de anfíbolito polido e perfurado. O machado-placa de Óbidos é um dos oito exemplares perforados deste tipo conhecidas na Península Ibérica. Todas os restantes machados-placa com esta origem foram encontradas em megalitos datados da Idade do Cobre e, portanto, é presumível que o de Óbidos date do mesmo período e provenha de um contexto semelhante. Estes machados-placa perfurados encontram-se dispersos pelo ocidente da Península Ibérica (Portugal e noroeste de Espanha) e, portanto, sugerimos que estes objectos eram atributos de estatuto de indivíduos de uma elite que detinha autoridade numa ou sobre uma região particular.

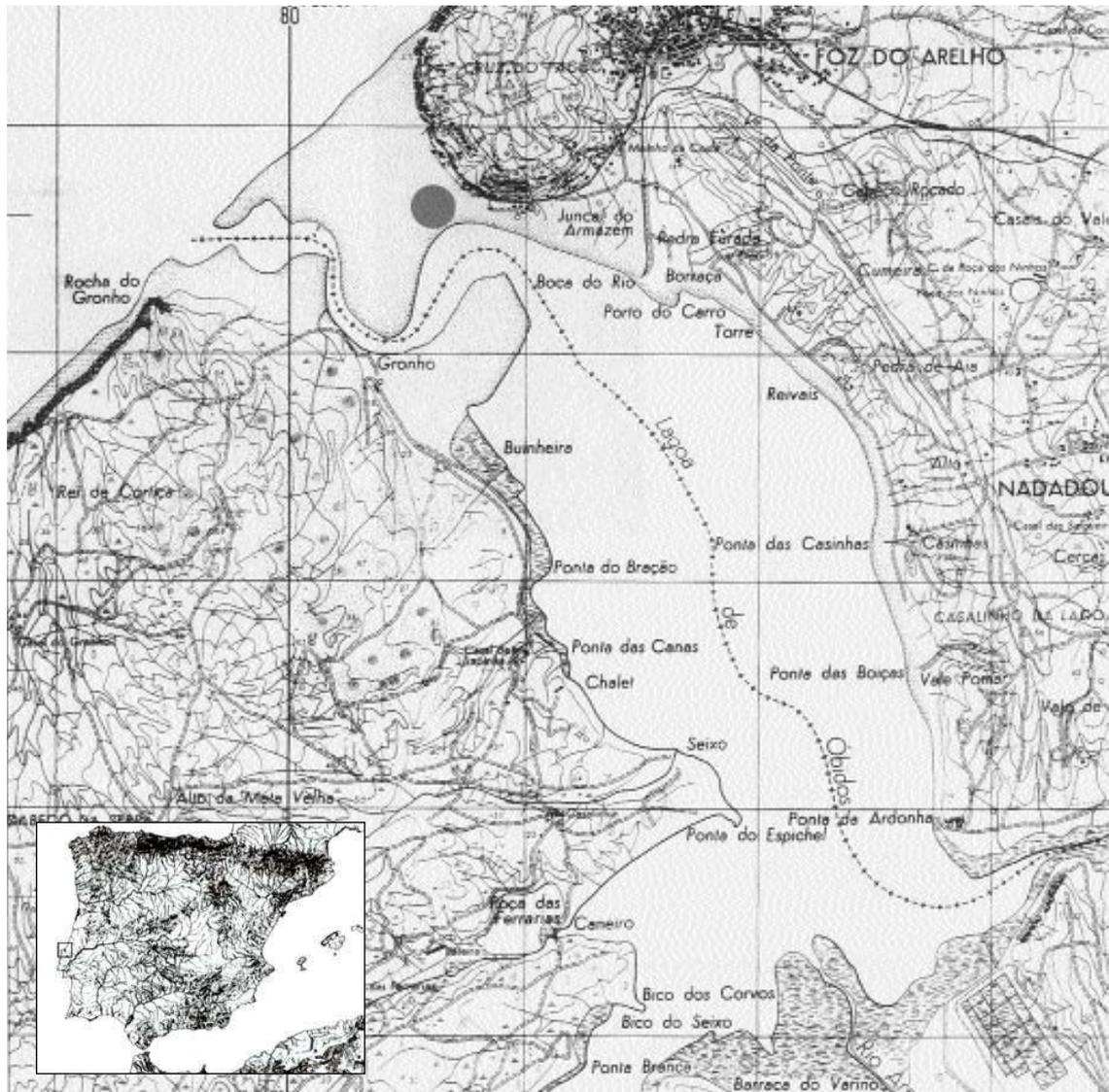


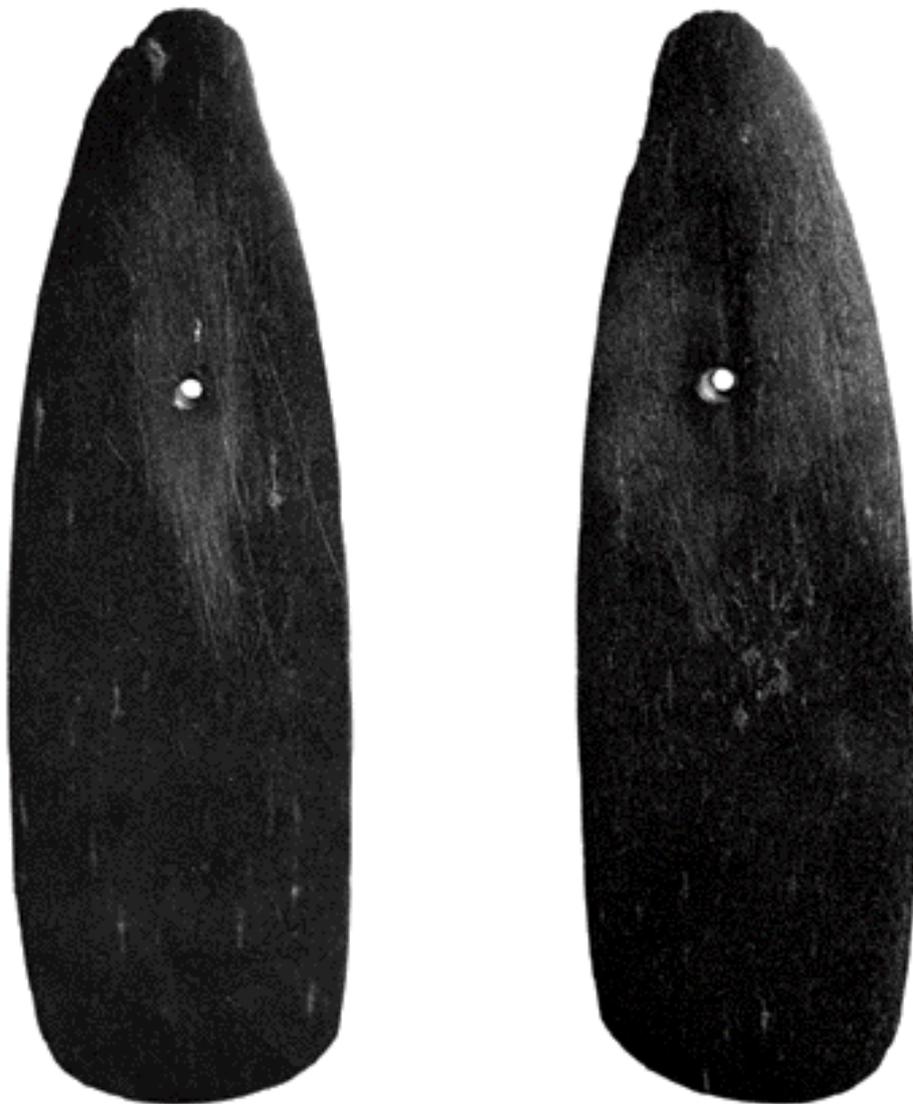
Fig. 1 Map showing location of Obidos axe in the context of the Obidos Lagoon.



Fig. 2 Location of the find.

1. Introduction

The Óbidos lagoon is one of the many bodies of water in the interior of the west-central coast of Portugal (Fig. 1). Today almost totally silted up, the area of the Óbidos lagoon, owing to its geomorphological characteristics, has been a unique ecological niche encouraging human occupation for millennia. As a result of the rise in sea level and sedimentary filling of all the coastal waterways and bodies of water, archaeological data, both for early prehistoric sites as well as those of the more recent past, are rare for this area. The rare exception is the stratigraphic investigation conducted along the Sizandro River, located less than 50 km to the south, and related to the study of fluvial access to the well-known Chalcolithic settlement of Zambujal (Hoffman and Schulz, 1994) (#9 in Figure 3). Human occupation



Figs. 2a and 2b The axe of the Óbidos lagoon. 2a - Side A / 2b - Side B.

during the Roman and Medieval periods are better known in this area, the former evidenced by the presumed city of *Eburobrittium*, currently the focus of archaeological investigation, and the latter, evidenced by remains from this period of the city of Obidos. In addition to the abundance of written sources that refer to it, the importance of Obidos to the maritime commerce of the time is evidenced by the preserved circuit of walls, which were formerly contiguous to the waters of the lagoon.

It was in the context of a program accompanying the dredging of the lagoon and initiated by the Instituto da Agua – INAG – that a perforated amphibolite object (Figures 2a and 2b) was found on the March 26th, 1999 by a member (MA) of the team of the Centro Nacional de Arqueologia Náutica e Subaquática (Alves and Aleluia, 1999). The aim of the program was to stabilize the sandbar and to open the canal to facilitate the tides of the sea. The piece was found at approximately 9 m in depth during a phase of underwater archaeological survey carried out at the bottom of the opening of the lagoon, and was found alone on the surface of the sediments mixed with numerous bivalve shells (oysters). As it was found outside of any archaeological context, one presumes that its location was ultimately the result of natural erosion or earlier dredging.

2. Preliminary considerations

The object, roughly axe-like in form, is remarkable for a number of reasons. First, it represents a skill in polished stone tool production almost unmatched in the prehistoric record of Portugal. Although made from one of the hardest stones that prehistoric peoples worked in Portugal, it was finely polished down to a thickness of 0,5 cm. Second, it is one of only a few examples of a perforated axe in western Iberia. Third, it is the largest (as well as thinnest) perforated stone axe known from western Iberia. Fourth, it was recovered from an unusual context – a lagoon. Fifth, it is one of the oldest artifacts found in an underwater context in Portugal. The oldest of these underwater finds are the bifaces recovered in the Guadiana River, on the border of south Portugal (Algarve) with Spain (Andalucia) (Viana and Zbyszewski, 1949). Roughly contemporary to the Obidos axe is the small copper or bronze plaque (with gold leaf) found in the soundings of the Tagus River and considered to be dated to the Final Chalcolithic or the earliest phase of the Bronze Age. Finally, and perhaps most significantly, the object was made from a stone whose sources are found at a great distance from the Obidos Lagoon, possibly even outside Portugal.

This paper will describe the formal and material characteristics of the object. For the sake of convenience, we will call the object an axe because of its formal resemblance to an axe, although it shows no signs of having been used as an axe or as any other cutting tool. Comparanda to the Obidos axe will be summarized, and finally, some possible interpretations of the function and meaning of the axe will be offered.

3. Formal description

The Obidos axe is roughly trapezoidal in form, measuring 28 cm in length, 8 cm in width, and 0,5 cm in thickness, and weighs 432 g. A biconical drill hole pierces the narrower end of the axe. Its two sides (A and B) have been polished to a smooth finish.

One side of the axe, Side B, has a smooth and deep groove running parallel to the sides and over the drill hole. In addition, regular parallel striations (more superficial than the groove) cover almost half of this side. The other side, Side A, does not have the smooth groove, but does have some shallow parallel striations also running over the drill hole. One interpretation for the striations and groove is that they helped to provide a rough and stable surface through which the drill hole could be created.

The drill hole has a different aspect when examined from the two sides. From Side B, the hole is concentric, and appears to have been produced successfully on the first attempt (no partially penetrating holes are evident). On Side A, however, there are at least two holes that only partially penetrate the rock's surface, and the successfully produced hole penetrates the stone at an angle. Given the added evidence of the striations and groove for Side B, it would appear that the manufacturer produced the hole for Side B first, then, after two attempts, succeeded in creating a hole through Side A, albeit it at a different angle than that on Side B.

J. Mark Kenoyer (University of Wisconsin-Madison, USA), a specialist in ancient technology, offers a different interpretation. To him, the striations do not have anything to do with the perforation. Rather, they appear to be post-drilling (Kenoyer, personal communication).

A more reliable method for assessing the relative sequence of striations, grooves, and drilling would be to examine the object under a microscope. And to determine the drilling method, an impression of the drill hole should be made and examined under a scanning electron microscope.

4. Material description

Using a binocular microscope, Read carried out a hand specimen examination of the axe. The axe is made of amphibolite, specifically a mafic mylonite. Mineralogically, and in decreasing order of abundance, the rock contains actinolite, plagioclase, hornblende, garnet, and chlorite. It is medium-fine grained, with aligned elongated plagioclase and acicular actinolite splays defining a mylonitic foliation. Relic garnet porphyroclasts occur with plagioclase-rich pressure shadows, as do mm thick deformed felsic melt segregations. The garnet porphyroclasts have been partially altered to amphibole and hematite.

Given these characteristics, the rock appears to be of mafic igneous origin. The occurrence of relict garnet and possibly hornblende, as well as gneissic melt textures, indicate at least upper amphibolite facies peak metamorphism prior to mylonitization. Shearing is associated with retrogression to a greenschist facies assemblage.

Sources of such amphibolite occur locally within the Badajoz-Cordoba Ductile Shear Zone (BCSZ) within central Portugal and southwest Spain. The BCSZ runs some 400km NW-SE across Iberia, acting as the structural boundary between the Central Iberian Zone to the north and the Ossa-Morena Zone to the south. Retrogressed mafic mylonites are intercalated with more felsic mylonites within this zone and have been metamorphosed to amphibolite facies conditions, then cooled and decompressed to lower-greenschist facies (Quesada and Dallmeyer, 1994; Dallmeyer and Quesada, 1992).



Fig 3 Sites in Iberian Peninsula where perforated axes have been found. 1: Obidos Lagoon, 2: Santa Cruz, 3: Abelleira, 4: Monte Cordova, 5: Orca do Fojinho, 6: Cerro del Garrote, 7: Fronteira, 8: Vale de Rodrigo. 9: The Chalcolithic settlement of Zambujal.

5. Comparanda and possible dating

Other perforated axes are known from a number of sites, principally megaliths, from Portugal and northwest Spain (Fig. 3).

In Portugal:

- Monument 3 at Vale de Rodrigo (Evora) (#8 in Figure 3). Object #1210.7. This axe is unpublished, but was examined by Lillios in the Instituto Arqueológico Alemão in Lisbon in the summer of 1999. L: 27 cm, W: 6,2 cm, Th: 1,4 cm.
- Orca de Fojinho (Vila Nova de Paiva, Viseu) (#5 in Figure 3) Object #9451. This piece is published in Leisner, 1998 (p. 58 and Tafel 50) and was examined by Lillios in the Museu Nacional de Arqueologia, where it is housed, in the summer of 1999. L: 15,5 cm, W: 6 cm, Th: 1,5 cm.
- Fronteira (Alentejo) (#7 in Figure 3). According to Veiga Ferreira (Ferreira, 1970, p. 167-168), this piece is made from fibrolite and measures 20,5 cm in length, 4,8 cm in width, and 1,7 cm in thickness. He notes that it has a biconical perforation, and writes that he does not know of any other comparable piece with a perforation. This piece comes from the collection of Professor Manuel Heleno and dates, according to Veiga Ferreira, to the Eneolítico Pleno (Late/Full Chalcolithic).

- Monte Córdova (Santo Tirso) (#4 in Figure 3). This piece is referred to in Bouza Brey et al., (1973, p. 49) and housed in the Museu Abade Pedrosa, in Santo Tirso. A photo of this piece appears on the web site for the Museu Abade Pedrosa in Santo Tirso (www.geira.pt/museus.atrrio).

In Spain:

- Mound 1 at Abelleira (Xermade, Lugo) (#3 in Figure 3). This axe was published by Fábregas Valcarce (1984, p. 153-154, fig. 18) and is considered by the author to be made from 'esquisito clorítico' (chloritic schist). From the drawing of the piece in fig. 18, it appears this piece measures approximately 18 cm in length, 4 cm in width, and 1 cm in thickness. This seems to be the same piece published by Bouza Brey et al. (1973, p. 46, 50, 52, Lám I.1), although Bouza Brey et al. state that it is made of 'pizarra magnésica'.
- Sepultura 2 at Cerro del Garrote (Cáceres) (#6 in Figure 3). This perforated axe is referred to in Fábregas Valcarce (1984, p. 153), as a 'largo colgante en esquisto' (a large schist/slate pendant) with a biconical perforation, and is described to be similar, though smaller, in form to that of Abelleira. It was associated with material of the 'Calcolítico evolucionado' (evolved/late Chalcolithic).
- Santa Cruz (Oviedo) (#2 in Figure 3). At least one perforated axe was recovered from the dolmen at this site. The dimensions of the axe (made of fibrolite) that certainly came from this site are: 20,7 cm in length, 4,4 cm in width, and 1,2 cm in thickness (Jordá Cerdá, 1977, p. 186-187; Pablo Arias, personal communication). According to Jordá Cerdá, this axe is Chalcolithic, and, assuming this axe form postdates similar axes in southern Iberia, dates to about 1600 BC (Jordá Cerdá, 1977, p. 187).

The Obidos axe is, in comparison to these known axes, the largest and the thinnest of the perforated axes known in western Iberia. This may be a function of the raw material used or might reflect something about the user or users of this object. Given, however, the overall similarity of the Obidos axe to other perforated axes found in western Iberia, and the dating of these objects to the Chalcolithic, we propose that the Obidos axe is, similarly, Chalcolithic in date. In addition, the discovery of all known perforated axes from megalithic tombs makes it likely that the original context of the axe was also a megalithic tomb. Thus, this object was probably a burial offering to or a possession of a deceased individual or individuals buried in a Chalcolithic megalith. How the object got to the bottom of the lagoon, however, must await future geomorphological analyses of the Obidos lagoon and the surrounding region.

6. Interpretations

If we accept that this object is:

- 1) a representation of an axe (or adze),
- 2) unused, in the sense of it never having been used to cut wood or till soil, and
- 3) an object associated with the dead, since all other similar objects were found in megalithic burials,

then it seems reasonable to infer that its primary function was symbolic or ideological. Why, then, would such a mundane and utilitarian object as an axe or adze be 'honored' by a representation of it and be included as a burial offering?

Botanical and faunal evidence from Neolithic and Chalcolithic sites in Portugal, such as Zambujal (Sangmeister and Schubart, 1981), point to a dominant reliance on plant and animal domesticates during this period. And, to clear land for farming and herding polished stone tools, such as axes and adzes, would have been required. Thus, axes and adzes (as unfinished objects and finished tools) were essentially the means of production for these late prehistoric communities, and control over these means of production may have provided a basis for status, prestige, or true political power. Their symbolic and social potency might also be explained by their transformative qualities. Using these tools, nature becomes cultural. The wild becomes domesticated (Hodder, 1990). A forest becomes a field. An enemy becomes a dead enemy.

Framed in this way, it should not be surprising that adzes and axes are commonly depicted in votive forms in later Portuguese prehistory. In some Copper Age burials of the lowlands, for example, limestone ritual adzes in the form of hafted adzes, clearly quite useless in working wood or tilling soil, were deposited with the deceased. Sites where these have been found include Praia das Maças, Palmela, Cascais, São Martinho de Sintra, Anta de Estria, Pai Mogo, Bautas, Samarra and Tojal de Vila Chã (Lillios, 1991). Lillios has also suggested that engraved slate plaques found in Late Neolithic and Copper Age burials may have been representations of adzes (Lillios, 1997). These plaques share numerous formal and design elements in common with ritual limestone adzes and 'real' hafted adzes, particular in their trapezoidal shape and diagonal incisions. While these have traditionally been interpreted as mother goddesses (Castro, 1963), eye goddesses (Crawford, 1957), or owl goddesses (Gimbutas, 1991), the fact that only 2% of the approximately 600 known plaques have anthropomorphic features (Lisboa, 1985) suggests that an alternative, less anthropo-/zoocentric interpretation is required.

Indeed groundstone axes and adzes are classic ethnographical and archaeological examples of artifacts with potent symbolism in agricultural communities. For the Maori of New Zealand, for example, ceremonial greenstone adzes, or *toki poutangata* ("the adze which establishes man in authority" [Riley, 1994, p. 25]), have been, and are, considered *taonga*, or treasures, in which family and lineage histories are symbolically inscribed. Adzes with particularly important life histories have names (Best, 1912). The Maori saying "Though the adze be small, yet does it equal a man" reflects the central role groundstone tools had in the construction of Maori personhood (Peter Addis, personal communication; Davidson, 1987, p. 61). Among the Siane of highland New Guinea, men without axes were said to be 'like women' (Salisbury, 1962, p. 49). For Ormu chiefs of Irian Jaya, axes which are large and have long histories are visible signs of chiefly rank (Pétrequin and Pétrequin, 1993). Among the Yir Yoront of north Queensland (Sharp, 1952), axes were symbols of age and masculinity. The axes belonged to older men, and women and younger men who wanted to use them had to borrow them from these older men.

A tentative interpretation of the Obidos axe, and indeed other perforated axes from western Iberia, is that they were status markers of 'big-men' or chiefs. That the Iberian axes are not found clustered in particular regions of western Iberia, but rather dispersed somewhat evenly throughout western Iberia, might indicate that they were associated with individuals who had some degree of authority over large regions, yet who also shared similar ideas regarding material culture.

One might usefully compare these axes to the *mere*, or club-like weapons often made of jade, traditionally owned by Maori chiefs. *Mere* were so highly valued that they often had their

own personal names, and when not being used as weapons, they were potent symbols of the rank and status of the chief. *Mere* also often had perforations in the narrower end through which a thong of flax or dogskin was looped. That thong was then looped around the wrist to prevent the weapon from slipping from the warrior's grip (Neich, 1997, p. 15-16).

7. Conclusion

Many questions clearly still remain to be asked and answered about the Obidos axe. What was its original context and to what period does it date? How did it get to be at the bottom of the Obidos lagoon? What, in fact, was the function of the perforation? Why was amphibolite, an exotic raw material whose nearest outcrops are hundreds of kilometers from Obidos, chosen to make the axe? Is there any significance to the fact that all other known perforated axes have been found in western Iberia and in megaliths? Indeed, what was the function or meaning of this object? For the moment, we are left to admire the technical skills embodied in the Obidos axe, to marvel at the hours of hard work that were necessary to bring it to its breathtaking polish and thinness, to imagine the long journey it traveled before it reached the hands of its owner or owners, and to speculate about the role it played in the lives of people in ancient Portugal.

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