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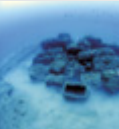
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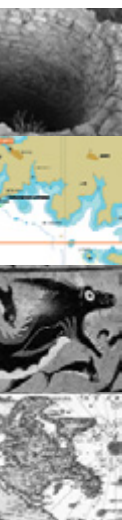


The wrecks and artifacts discovered in the excavations indicate that the harbor began gathering ships at its western end soon after the mole was constructed to form the harbor basin. In time, as the silting progressed eastward and



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Titelmotiv

Historische Darstellung des Systems von Befestigungswerken zwischen Usedom und der Südküste Rügens, die der Sperrung der Zufahrt nach Stralsund dienen, 1715.

*Aus: Th. Förster,
Die strategische Lage der Insel Rügen in
Verbindung mit Stralsund und dem
Hinterland, Abb. 8.*

A glimpse into the Early Imperial Roman Atlantic trade

Historical and marine context of a ceramic assemblage in a shipwreck at Cortiçais (Peniche, Portugal)

Jean-Yves Blot¹ – Sónia Bombico²

Abstract – A strict isochrony of fragments of Haltern 70 Baetican amphorae, Italian sigillata, and a few fragments of thin-walled pottery and common ware led to the identification of a shipwreck at Cortiçais, on the southern rocky coast of the paleo-island of Peniche, to-day a peninsula. Within the chronology initially suggested by the amphora materials, the fineware findings support a date around 15 BC to 15 AD.

The analysis of the data collected fits in with the known patterns of foreign trade and geostrategic and economic role of this coastal region two millenia ago. The tiny shipwreck site fits within the broader pattern including the expansion of Rome's power towards the Iberian Northwest, the related trade or military supply networks established along the Atlantic route and the debate regarding their relationship with trade routes towards Britannia and Germania Inferior.

Inhalt – Die genaue Gleichzeitigkeit von Scherben baetischer Amphoren des Typs Haltern 70, italischer Sigillata und einiger weniger Fragmente dünnwandiger sowie einfacher Keramik führte zur Identifikation eines Wracks bei Cortiçais an der südlichen Felsenküste der einstigen Insel, jetzt Halbinsel Peniche. Innerhalb der von Anfang an vom Amphorenmaterial nahegelegten Chronologie stützen die Funde an Feinkeramik ein Datum um 15 v. bis 15 n. Chr.

Die Analyse der gewonnenen Daten passt gut zum bekannten Bild des Fernhandels sowie der geostrategischen und wirtschaftlichen Rolle dieser Küstenregion vor zwei Jahrtausenden. Die sehr kleine Wrackstelle fügt sich in ein breiteres Muster ein, das die Expansion römischer Macht in den iberischen Nordwesten, die damit verbundenen, längs der Atlantikroute angelegten Netze des Handels oder des militärischen Nachschubs und die umstrittene Frage nach ihrem Zusammenhang mit Handelsrouten nach Britannien und Germania Inferior einschließt.

Introduction

The site of Cortiçais is located in the southern side of the Peniche peninsula, on the western coast of Portugal (Fig. 1). Geomorphology combined with historical and geographical data indicate that the Peniche peninsula of to-day was an island in ancient times³. Later cartographical documentation such as Pedro Teixeira's *Atlas* (2nd quarter

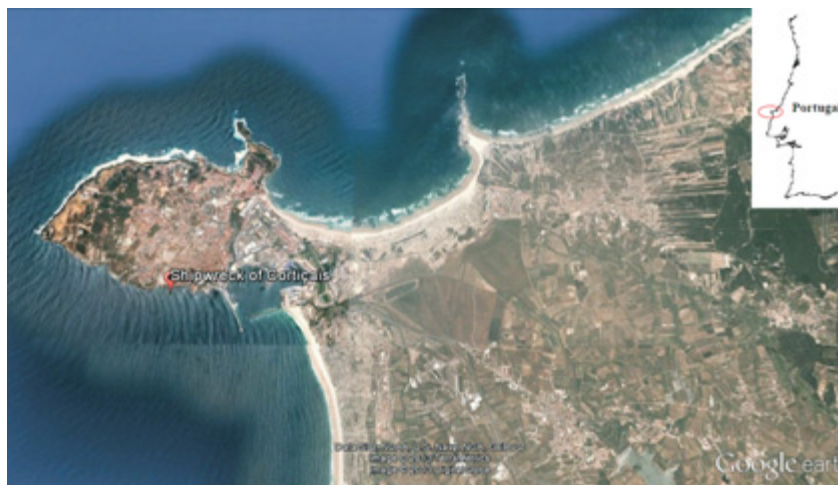


Fig. 1: Location of Cortiçais Shipwreck.

of 17th century) help to define the geomorphological context which led to the gradual connection of the Peniche paleo-island to the

mainland through a stretch of sand, derived from sedimentary transport at the estuary of a river nearby (Fig. 2).

The archaeological site was found by chance early in 2004 by a local underwater spearfisherman, Luís Santos Jorge, who observed a

number of potsherds recently uncovered by a recent shift of sand on the seabed among large sunken rocky outcrops in depths ranging





Fig. 2: Pedro Teixeira (1634), *Description de España y de las costas e puertos de sus reynos*, Puerto y villa de Peniche, folio 67.

from 4 to 6 m. The change resulted presumably from a high-energy episode occurred in late springs affecting this area very exposed to wind and marine action from the SW sector.

Jorge Carvalho, a local resident and previous participant in archaeological fieldwork in Peniche (SAN PEDRO DE ALCANTARA's collective burial shipwreck site, 1786 AD) informed marine archaeologist Jean-Yves Blot, then a researcher at CNANS (IPA-Portuguese Institute of Archaeology), that the ceramic sherds gathered at Cortiçais corresponded to one or possibly two types of clay and appeared as parts of amphorae. The following research derives from the collaboration of a large team, including a majority of volunteers. The fieldwork was undertaken under the auspices of the nautical branch

(CNANS) of IPA in collaboration with the Municipality of Peniche and the Municipal Museum. It received further logistical support and collaboration from organizations based in Peniche including the Peniche Naval Club and GEPS, a local non-profit organization now extinct.

First missions in situ and excavation campaigns

The site of Cortiçais is located on a rocky coast facing south, exposed to occasional high energy marine action from SW, but protected from the predominant N and NW winds and related swell. Lying among rocky shoals forbidding any kind of navigation, the sea bottom at the location ranges from 4 to 7 m, depending on tide amplitude.



Fig. 3: Fragment number 30.



Fig. 4: Underwater work.

The underwater local was formally identified and geo-referenced in late September 2004 in collaboration with Luís Santos Jorge, the original finder. On that same occasion, archaeologist and ceramics expert António Dias Diogo examined the original lot of ceramic fragments and identified a single type of amphorae corresponding to Haltern 70 from Baetica. This type of amphora was produced in the Roman province of Hispania Baetica during the 2nd half of the 1st century BC and the 1st century AD, and is probably a wine container. The examination of the rim of fragment number 30 provided a narrow chronological range soon confirmed by further fragments resulting from sampling surveys undertaken in situ in the following weeks (Fig. 3).

The site lies very close to shore, on a rocky bottom and respective gullies running North-South, perpendicular to the coast while very large and deeper patches of sand range from then on to deeper water. These geological characteristics

make it difficult for the archaeological work to be carried out (Fig. 4).

The first excavation campaign took place in May 2005. The numerous finds of Haltern 70 fragments continued to show a remarkable isochrony pointing at a ship cargo. The presence of Italian sigillata fragments helped to narrow the time scope of the wreck to between 15 BC and 15 AD. In June 2006 another campaign was organized. At the very end of this second campaign, a test-survey to the potential of the large sandy patches at the southern margin of the site was undertaken through a temporary reference grid, with 2×2 m, set next to the location of the original finds by L.S. Jorge. As compared with the scattered and severely abraded fragments found in the rocky gullies, that southern test-area revealed the presence of larger fragments of amphorae, including rims

Fig. 5: Photomosaic of the archaeological site.



and handles, several of them in connection, in sizes quite larger in. All materials were left *in situ* as a starting point for future field-work (Fig. 5). These underwater campaigns were supplemented by two campaigns for cataloging and inventory of materials, performed in November 2005 and 2006.

Exposure to major marine events from SW and related cyclical sedimentary and erosive processes, attested on all ceramic categories, led to the characterization of post-depositional features

including primary fracture, attested on mostly unabraded fragments, secondary fracture, related with deeply abraded fragments, abrasion and cleavage, within a distribution reflecting the marine environment along the last two millennia (Fig. 6). Such constraints have guided the methodology applied to the shallow site, which included as a preliminary approach to shipwreck scatter analysis the application of fuzzy classification to the characterization of the ceramic wear and fragmentation, in collaboration with mathematician and classification expert Yauheni Veriya.

The fragments have been typified by three distinct team members acting individually according to a pre-defined descriptive range based on three parameters derived from initial comments by A. Dias Diogo and from the observation of 2908 ceramics fragments brought from



Fig. 6: Cleavage marks.

the site after the first intensive survey campaign of May 2005.

This detailed preliminary observation had led to conclude that in most cases the three wear-type factors, commented below, were combined at different levels within one single fragment: A: Abrasion (rounded corners, coarse texture of the clay); C: Cleavage (horizontal or tilted fractures or marks of impacts); and F: Neat Fracture (not abraded), which is expected from

recently broken ceramics. All three factors „A“, „C“ and „F“ fit within a four-levels gradient explicitly defined in plain natural language and deriving from the visual personal observation of each fragment:

Very visible - 3; *Barely visible* - 2; *Almost invisible* - 1; and *Invisible* - 0.

Derived from the previous experience acquired, since 1988, on the more exposed SAN PEDRO DE AL-CANTARA underwater site on the northern coast of Peniche, the underwater topographic network set up at Cortiçais was composed of labeled stainless steel markers drilled into the upper parts of the rocky outcrops. The resulting positioning network was acquired through the measurement of Direct Distances (DD) and relative depths between points. The related data-processing (trilateration) of distances and depths was undertaken through the WEB DSM software, developed by the British program-

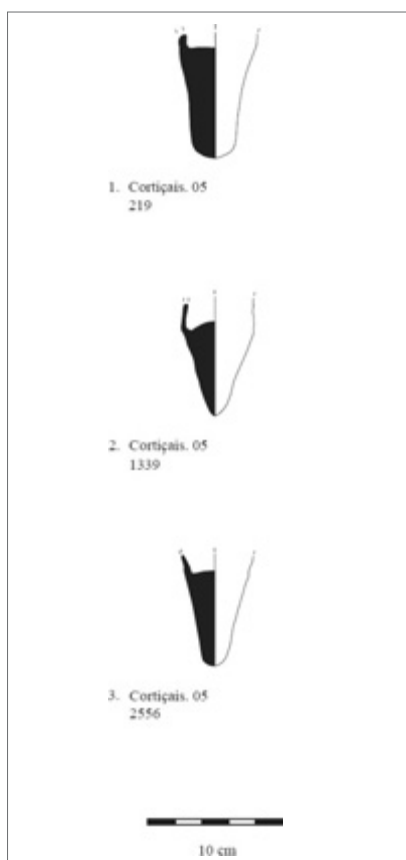


Fig. 7 (oben): Amphorae fragments (spikes of Haltern 70).

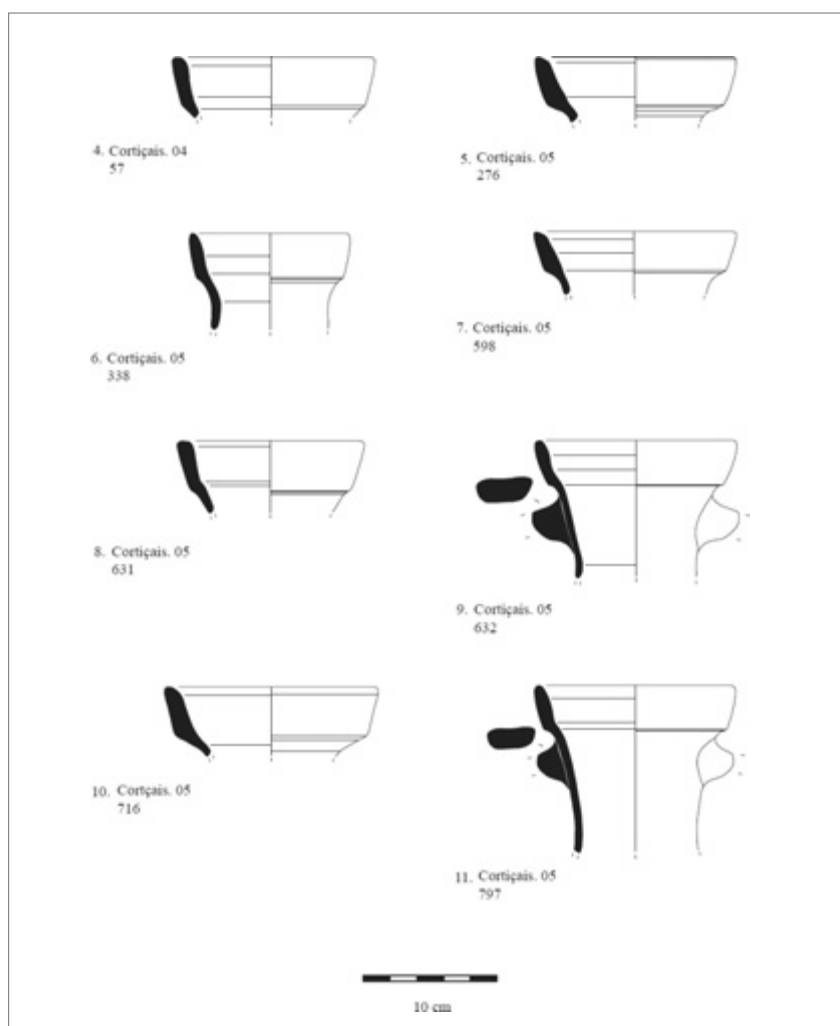


Fig. 8 (rechts): Amphorae fragments (rims of Haltern 70).

mer Nick Rule. The underwater positioning network at Cortiçais was complemented with a few stainless steel markers drilled into the rocks above water level. In collaboration with surveyors from Peniche municipality, these steel markers were soon after geodetically positioned at low tide through theodolite set up in the immediate vicinity, on land.

Ceramic assemblage and the Early Imperial Roman Atlantic trade

The strict isochrony of fragments of Haltern 70 Baetican amphorae (probably wine containers), Italian sigillata, and a few fragments of thin-walled pottery and common ware led to the identification of the materials as part of a shipwreck. Within the chronology initially suggested by the amphora materials, the fine ware findings support a date around the transition of the Era (15 BC to 15 AD).

The fragments of Haltern 70 represent 98,79% of the recovered ceramic assemblage, with is composed in total by 4988 ceramic fragments, corresponding to a MNI (Minimum Number of Individuals) of 23 amphorae (Figs.7-8).

The fine and common ware findings account for a very low percentage. To date we were able to identify 24 fragments of Italian sigillata, 19 fragments of thin-walled pottery, 3 fragments of common ware and 2 amphora lids.

The fragments of Italian Sigillata allow us to calculate a MNI of 10 pieces. Initially identified by A. Dias Diogo, the assemblage of pieces from Cortiçais corresponds to plain plates and bowls of Haltern Service I, with shapes belonging to types 12 and 15 of *Conspectus*⁴ (Fig. 9). The assemblage of thin-walled pottery fragments may be associated with the shapes of plain cups from



Fig. 9: Italian sigillata fragments (*Conspectus* 15: 205, 124 and 1225; *Conspectus* 12: 1359 and 1968.).

the Augustan period. Despite these identifications, the fragments of Italian sigillata and thin-walled pottery still require typological classification and further study.

Preliminary fieldwork done at Cortiçais opens the path to future developments, including full spatial analysis of the materials recovered until 2006 as part of a general approach aiming at defining the presumable area of impact attached to the taphonomy of the ceramic materials. The extreme shallowness and marine exposure of the underwater site, and the respective taphonomy attached to the ceramic materials themselves, preclude any expectation regarding the conservation of ship structure, a common issue in such shallow exposed marine contexts. The ship was probably surprised by a storm and, when trying to find shelter near or close to the shore, may have gone too far and crashed against the rocky coast. On the other hand, the very shallowness of the underwater site, its proximity to the coast, the associated efficient shelter from dominant northern winds prevailing days in a row on this stretch of the southern coast of Peniche, namely in summer, and human occupation and industrial presence on the paleo-island at the same period, contribute to the likeliness of contemporary extensive salvage of all re-usable materials.

The presence nearby, at Berlenga anchorage and island, of a large number of lead anchor stocks from the Roman period, besides amphorae and related remains reflect the economic importance of the region within the scope of the Atlantic circulation⁵. The underwater fieldwork undertaken at Berlenga revealed the importance of the island anchorage and its role along the Atlantic façade of the Iberian Peninsula. The Haltern 70 shape represented a majority (58%) of the amphorae there identified⁶.

In addition to the remains at Berlenga, the Roman occupation of the region is perfectly confirmed by another set of archaeological



Fig. 10: Map of the Roman occupation of the region.

data: the proximity to the Roman town of *Eburobritium* and the discovery of a potter's complex, in 1998, in the place known as Morraçal da Ajuda, where a set of kilns was found for the production of amphorae and other wares. This amphorae production center started its activities at the end of the 1st century BC and produced amphorae with a close affinity to Baetic forms datable to the change of the era, especially to Dressel 7-11 and Haltern 70. In fact, this potter's complex is one of the oldest in present-day Portuguese territory⁷ (Fig. 10).

The isochrony of the fragments of the goods on board allow us to place the shipwreck among the imports of the change of the era recorded in the western Iberian Peninsula. Import patterns that relate to the networks that supplied not only the cities along the Atlantic façade, namely *Salacia*,

Scallabis, *Olisipo* and *Bracara Augusta*, but also, and above all, the fixed military camps located in the north-western Iberian Peninsula, supplied through the *annona militaris*. The archaeological data suggests a preferred relationship with the province of Baetica and the port of Cádiz, in which the supply of corn, wine and olive-oil was controlled by the State⁸.

After the end of the Cantabrian Wars (29-19 BC) most of the military units departed for new conflict zones in the northern frontiers. However, three legions were placed on permanent stations arranged as a defensive cordon: the legionary camps of the *legio III Macedonica* in Herrera de Pisuergra, the *legio VI victrix* in León and the *legio X gemina* in Astorga⁹.

The study of amphorae from Astorga and León, made by César Carreras Monfort, allow us to recognize that military sites in the Northwest do not document the typical amphorae from military sites along the German and British *limites* (such as Dressel 20 amphorae), but a high proportion of Haltern 70¹⁰. Likewise, the early contexts in Astorga, León and Herrera de Pisuergra camps show a great amount of Italic sigillata containers, with shapes belonging to 10-15 BC and 10-15 AD¹¹.

Fig. 11: Map of Haltern 70 densities.

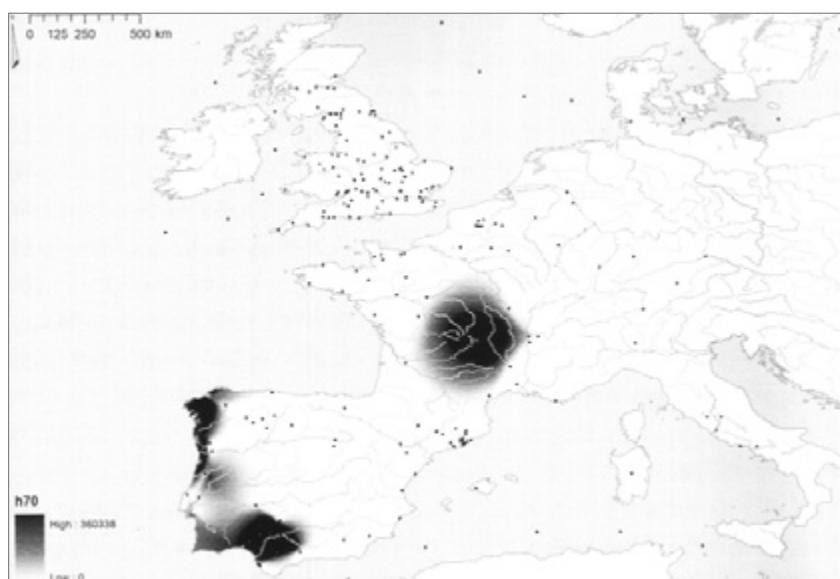




Fig. 12: Underwater contexts with Haltern 70 amphorae. 1 – Isla de Cortega (Pontevedra); 2 – Cabo de Mar (Ria de Vigo); 3 – Punta Udra (Bueu); 4 – Rio de Moinhos (Esposende); 5 – Cortiçais and Berlenga; 6 – Cabo Sardão; 7 – Meia-Praia (Lagos); 8 – Arade; 9 – Tavira.

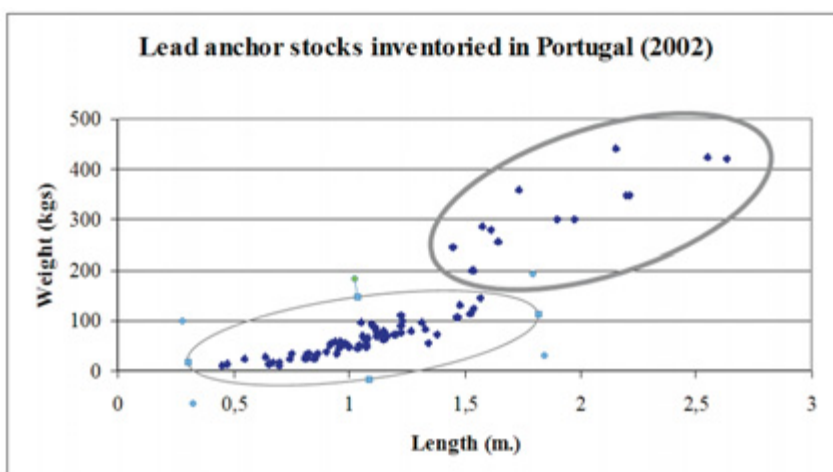
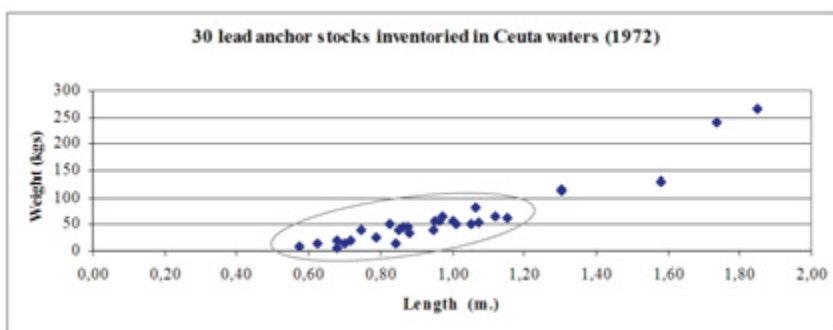
The high concentration of Haltern 70 along the Atlantic façade of *Lusitania*, mainly in the Northwest of the Peninsula, is evident¹² (Fig. 11). The combination of the archaeological data recorded on land with the underwater identification of Haltern 70 amphorae, coming from Baetica, suggests the existence of navigation routes based on the sig-



Fig. 13: Access routes to Britannia.

nificant transit of Haltern 70 amphorae. With cargoes being supplemented by fine ware, like Italian sigillata, thin-walled pottery or Baetican common ware, as also seems to suggest a shipwreck, datable to the Augustian period, in Rio de Moinhos (Esposende, North of Portugal)¹³ (Fig. 12).

In conclusion, the tiny shipwreck site fits within the broader pattern, which includes the expansion of Rome's power towards the Iberian Northwest, the related trade or military supply networks established along the Atlantic route, and the debate regarding their relationship with routes towards *Britannia* and *Germania Inferior*¹⁴ (Fig. 13). Actually, despite some sailing difficulties, the Atlantic route constituted the best choice considering the distance-cost relationship¹⁵.



The previous remarks raise a major issue regarding Roman nautical practices along the coasts ranging from NW Iberia to NW Europe since the transition of the era. This issue is born from the massive presence of lead anchor stocks attested from the Straits of Gibraltar, to Galicia, including NW Morocco and Portugal, and the corresponding scarcity of such lead anchor stocks in NW Europe. Such a contrast raises the question of the respective diachrony attached simultaneously to mainstream anchor technology related with Roman presence in that area since the 1st century AD and to lead mining

Fig. 14: 30 lead anchor stocks inventoried in Ceuta waters (1972).

Fig. 15: Lead anchor stocks inventoried in Portugal (2002).

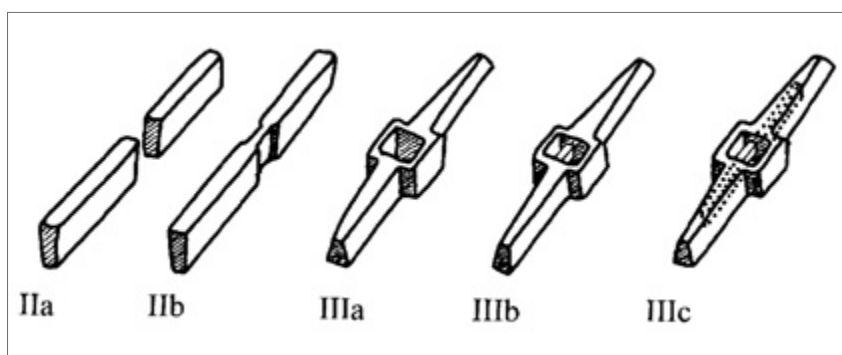


Fig. 16: Lead anchor stock shape III in Haldane's typology.

in Iberia and Britain for the same period.

In contrast with the well-attested presence/near-absence of lead anchor stocks opposing NW to SW Europe, the corpus of lead anchor stocks derived from accidental finds made by sports-divers in Ceuta (Straits of Gibraltar) and Portugal, and progressively published since 1972, permits to observe in both cases (Ceuta and Portugal) a linear dimensional relationship between weight and length of those anchor stocks, suggesting the overwhelming presence of small to medium-sized vessels using lead anchor stocks weighing less than around 150 kgs. (Fig. 14).

The presumably ship which, some two millennia ago, lost the ceramic assemblage found among the rocky shoals at Cortiçais will have belonged to this group of smaller vessels.

However, a second group of anchor stocks weighing from 200 to more than 400 kg, in the case of Portugal, does indicate that much larger vessels occasionally frequented these waters, raising once again the question of the relationship between mainstream networks as attested at Cortiçais and scarier archaeological testimonies attached to „another“ kind of nautical presence within the same maritime territory, possibly at a later date since most lead anchor stocks referred in the plot above do belong to the Haldane III type, a shape which, according to Haldane's inventory of the mid-1980s, spans over five centuries (200 BC-300 AD) (Figs. 15-16).

Acknowledgement

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Notes

- ¹ Universidade Autónoma de Lisboa, Portugal and LAMOP Université Paris 1/ Sorbonne, France.
- ² PhD scholarship at FCT (Fundação para a Ciência e Tecnologia) and Universidade de Évora, Portugal.
- ³ Blot, M.L. 2003, 226.
- ⁴ Ettlinger et al. 1990-2002.
- ⁵ Blot, J.-Y. 2002, 2005a, 2005b, 2006; Bugalhão – Lourenço 2006; Diogo 2005.
- ⁶ Diogo – Trindade – Venâncio 2005.
- ⁷ Cardoso – Rodrigues – Sepúlveda 2006; Morais, 2010, 97.
- ⁸ Remensal 1986, 111; Morillo – Salido Domínguez 2010, 148.
- ⁹ Morillo Cerdán 2010, 161.
- ¹⁰ Carreras Monfort 2010, 242.
- ¹¹ Morillo Cerdán 2010, 162.
- ¹² Carreras Monfort – Morais 2012, 433.
- ¹³ Morais 2013.
- ¹⁴ García Vargas 2010, 65; Fernández Ochoa – Morillo Cerdán 2010, 115.
- ¹⁵ Fabião 2009, 53; Blot, M.L. 2003; Carreras Monfort 2000.

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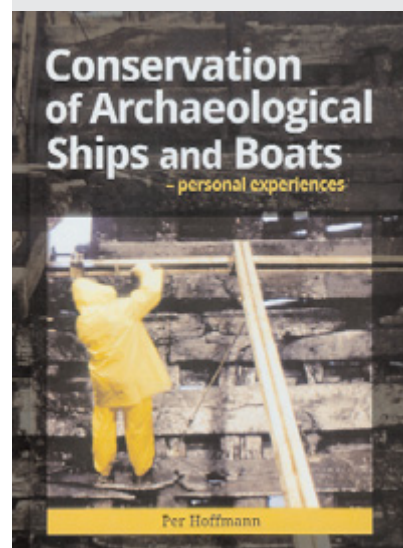
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