Recorded Places, Experienced Places

The Holocene rock art of the Iberian Atlantic north-west

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BAR International Series 2878
2017
Chapter 15

Boats carved on the Atlantic coast of the Iberian peninsula. 
Landscape, symbols and people

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Abstract: The evolution of the Iberian Atlantic coastline specifically at the estuaries of the Douro and Mondego rivers – due to geomorphological changes and eustatic variations throughout the Holocene is a key point for any analysis of ancient settlement and to understand navigation in ancient times. Indeed, without an account, even hypothetical, of a reconstituted former coastline, following the available geomorphological data, one cannot really understand the littoral location of some settlements or even navigation in ancient times. We also present for discussion a mobile art fragment recently found in Porto. This small lithic object was discovered during archaeological surveys at Largo dos Lóios and is composed of several boat-like representations. The uniqueness of this object lies in the fact that it is the first mobile art found, so far, in northern Portugal, and represents shallow-draft boats that seem to have parallels in the south of the Iberian peninsula, with a chronology that fits approximately between the Second Iron Age and the Roman period. Thus, based on published information about other representations of boats found along the Atlantic coast of the Iberian peninsula, this chapter discusses the presence of nautical representations in strategic places of the landscape directly related to the sea, along with other nautical ancient traditions where the natural environment is made sacred in order to control resources and maritime routes.

1. The Atlantic coast of the Iberian peninsula

There are few studies of navigation in antiquity that analyse and characterize the geomorphology and climatic conditions of the Atlantic west coast (Naveiro Lopez, 1991; Arruda, 2002; Guerrero Ayuso, 2008; Pereira, 2011).

The dominant winds, mainly north/north-west, and the undulation of the sea, of more than 1 m in height for 85% of the year (Arruda, 2002), are some of the constraints highlighted by researchers when considering that navigation from the Mediterranean to the Atlantic was very sporadic. Ancient vessels were designed for travelling with the wind astern or on the quarters, despite the remote possibility of sailing with the wind abeam or forward of the beam (Casson, 1995; Guerrero Ayuso, 2008).

At the same time the Atlantic coastline configuration, north–south in orientation, has few coastal shelters where boats could take refuge in case of adverse weather conditions. However, we must not forget that both the climate as well as the coastal strip has experienced considerable fluctuations and changes during the Holocene.

2. Coastal geomorphology

The sea defines the limits of our study area to the west. However, this does not correspond to a significant structural demarcation given that the shoreline has suffered the abrasive impact perpetuated by variations in the sea level, known as eustatic variations, resulting in a series of oceanic and continental phenomena (Araújo, 2002). These variations and alterations in the terrain are also due to the erosion processes caused by human impact, since at least 6000 BP (Cordeiro, 1992).

The lithological constitution predominantly determines the formation of the coast, enhancing the formation of coastal lagoons and inlets as the result of coastal erosion of the least resistant geological constitutions, and the appearance of capes, tips and islands at igneous areas (Graña, 1997; Freitas and Andrade, 1998). It is therefore important to consider that the currently rocky shores have been gradually eroded as the sea level rises, while the recessed coastal areas were conducive to the supply and accumulation of sediments.

The coastline’s evolution has been the subject of numerous works, some with a long tradition (Girão, 1922; Souto,
mechanisms of these coastal forms and the reconstitution of the primitive state of the coastline.

During the period of Flandrian transgression, between 7000 and 6000 BP (Martins et al., 2007; Lantzsch et al., 2009), the sea level was slightly higher than the present one (Hoffman, 1989; Dias et al., 2000), followed by a stabilisation period marked by small marine oscillations. The coastal façade was essentially rocky with an irregular morphology, being deeply incised and having wider estuaries (Dias, 2004).

Between 5000 and 3000 BP the sea level stabilised, reaching approximately the present value (Dias et al., 1997). It began with hysteresis sedimentation characterised by the filling of estuarine bodies and the formation of spit bars, which turned significant parts of the estuaries into lagoon environments, triggering a process of rectification and regulation of the Atlantic coastline (Freitas and Andrade, 1998).

To the north, the coast would have consisted of a larger number of lagoon environments and open shallow estuaries, as seen in the freshwater lake environment or from the low salinity of Traba at Costa da Morte, dated from 5740 BP (Vallcarlos and Millán, 2006; Bao et al., 2007) and the barrier-lagoon complex of Louro (González -Villanueva et al., 2009).

At Rías Bajas, in addition to the deposits of Mouguás (Oia), Puerto Canela (Chao et al., 2003), Ramallosa (Bayonne), Moaña beach and the peat found at Patos beach (Nombe et al., 2005), the lagoon environments of Corrubedo stand out (Villas et al., 1991; Rey et al., 2004) and also at the Cies Islands (Costas et al., 2009), as well as the bay of San Simón (Vigo) whose gradual sedimentation started from 3330 ± 50 BP (Pérez-Arlucea et al., 2007).

The results obtained in the Minho River allowed the identification of a type of estuarine environment dated between 6624 and 2150 BP (Drago, 2005). After this period the formation of one sand barrier occurred and gradually enhanced the sedimentation in the estuarine domain.

Between the Neiva and Ave rivers, including the estuary of Cavado, a formation composed of fine sediments is known for containing peat, flora remains and lenticules of diatomaceous soil (Granja et al., 2009), indicators of a coastal lagoon system, dated from 4470 ± 50 BP. These results suggest that the estuaries of the Ave, Cavado and Neiva rivers were more extensive than they are now (Granja and Morais, 2010). The palaeochannel of the Cavado River would have spread out to Ponte do Estreito (Barqueiros, Barcelos) and widened further south, reaching Fão (Eosophende). The actual residual pond of Apúlia could be a residue of this old estuarine body (Granja, 2002; Carvalho and Granja, 2003; Carvalho et al., 2006).

At the Douro River, between 6530 and 1500 BP, we witness an attenuation of the rise in sea level and the presence of a strong hydrodynamic period, marked by the formation of a gravel barrier in the southern estuary mouth (Naughton et al., 2007).

The area enclosed south of the Douro River, covering the Mondego basin, has developed continuously from that period to the present (Pereira, 2011). According to a compilation of findings (Silva and Pereira, 2010), to the south of Espinho there was a wide and pronounced bay that was sheltered by Cape Mondego, marked by one or more complex estuarine systems; the existing lagoons of Esmoriz, Aveiro along with Mira could be remnants of that environment. Several authors have even proposed that the outer limit of the sand barrier or sandbank of this environment would range further west of the current coastal strip around the time of the 1st millennium BC (Granja, 2005; Bernardes and Rocha, 2007), proposing even the migration of the shoreline to the east, in Roman times, during periods of marine transgression, until it reached its current position (Granja, 2002).

The coastal strip of the Mondego River would be very close to the present one, about 1.5 km inland (Thomas et al., 2008; Danielsen, 2009). The course of the river remained navigable for about 20 km until 2300 BP, but became practically impassable from this period onwards (Wachsmann et al., 2009).

Among the capes of Mondego and Carvoeiro, the coast would only be interrupted by the formation of three lagoon environments as a result of the Holocene transgression (Dinis et al., 2006). We refer to the current lagoons of Pederneira (4890–3630 BP), São Martinho do Porto (3700–3490 BP) and Óbidos (Freitas et al., 2003).

The rocky outcrops of Baleal and Peniche were not yet connected to the mainland, so they were like small islands, whose process of sedimentation took several centuries to ensure their assimilation (Dias, 2009; Blot, 2003).

On the Tejo River, the data available suggests the existence, during this period (4020 BP), of a broad estuary that included the current lower basin, guaranteeing access to other inland locations (Azvedo et al., 2007; Almeida et al., 2009), through the navigability of some of its tributaries such as the Zêzere and Nabão (Blot, 2003).

Samples collected near the archaeological site of Abul, at the Sado River, revealed that since 6270 BP this site was a wide estuary in contact with the ocean. It was the terminus of a peninsula surrounded by shallow water subject to tidal variations. According to researchers, this environment would have existed during the Phoenician occupation of Abul, while the estuarine sediments were deposited gradually during the Roman period (Wachsmann et al., 2009).

For the south-west Atlantic coast we underline the studies carried out in the current lagoons of Melides and Santo
André, as well as in the estuaries of the rivers Mira and Aljezur, both located south of the cape of Sines (Freitas and Andrade, 2005). The data available suggests that after the period of marine transgression, the Mira and Aljezur waterways resulted in large estuaries that gradually silted up, thus reducing them in terms of depth and extension. Regarding the lagoons, research suggests that from 5000 BP to 4790 ± 40 BP in Melides and around 3750 ± 50 BP in Santo André detrital barriers developed in these formations, transforming the submerged areas into the present coastal lagoon systems (Freitas and Andrade, 2005).

In short, around 3000 BP, the western Atlantic coast of the Iberian peninsula would have a radically different aspect from that of today, with clogging sediments, large estuaries, lagoons, coastal bays or sea gulfs and small islands close to the coast (Figure 1).

3. Paleoclimate data

Between 3000 and 1500 BP, the available data suggests that the temperature was slightly higher than the current one, reflected in a rise of the order of 1–3°C (Cortizas et al., 1999). This data is also comparable to values registered at the Vigo estuary, dated c. 975 BC–252 AD (Alvarez et al., 2005).

The humidity index would register equivalent values from 3000 BP to the present (Valcarce et al., 2003). After this date the first cold climate event of the subatlantic begins, which consists of a relatively cold and wet period that began around 975 ± 36 BC in Ría de Vigo (Desprat et al., 2003). These results are consistent with data obtained in the lacustrine environment of Zonar (Andalusia), which also suggests an event with a high humidity index occurred around 2600–1600 BP (Martín-Puertas et al. 2008, Martín-Puertas et al. 2009).

This is probably the wettest period recorded in the Iberian peninsula in the last 3500 years, and has been dubbed the ‘Periodo Húmedo Ibero-Romano’ (Ibero-Roman humid period); it can be sequenced in four intervals: 2600–2460 BP, with a progressive increase in the humidity index; 2460–2140 BP with a higher humidity index, alternating between hot temperatures and moderate rainfall, up to about 2325 BP, with periods of high rainfall, between 2325 and 2140 BP; 2140–1800 BP saw essentially arid events, corresponding to higher temperatures in the Galicia region than those prevailing nowadays, by of the order of

Figure 1. Places mentioned in the text on the western Atlantic coast of the Iberian peninsula.
et al.

restoration of wet climatic constraints that prevailed during the decline of the Western Roman Empire (Martín-Puertas et al., 2008, 2009).

With regard to the wind systems, recent studies on the coastal upwelling and the ocean reservoir effect in western coastal waters suggest that between 3000 and 1200 BP the values of the reservoir effect would generally have been positive (Soares, 2010), depicting a situation of coastal upwelling with less intensity than in the present. This implies, as suggested by the researcher, that the dominant winds were also different from the present, being slightly weaker (Soares, 2008, 2010).

As in the Mediterranean Sea (Pomey, 1997), the available data could also suggest that local winds would take a leading role, since the clipping of the coastal strip would be deeper and eventually could provide more numerous breezes, which by its violence and spontaneity would facilitate certain crossings and reflect the constraints of regular winds.

4. Boats depicted at the Atlantic coastline of the Iberian peninsula

The plaque with incised vessels found in Porto must necessarily be assessed by taking into account other data about the western coastline of the Iberian peninsula, particularly the north-west. We must therefore begin by pointing out that this is precisely one of the regions where such evidence is better documented, being surpassed only by the Strait of Gibraltar area (Figure 2).

Although very schematic, there are the incised representations in petroglyphs of Borna (Figure 3A), in Pontevedra, where we see high-sided vessels with developed and curved prows and stems (Alonso Romero, 1976, 2011; Almagro Górbida, 1988). The hulls are mostly curved, although there is one case occupying the central position of the panel where the bottom is flat. Inside the hull there are several visible cruciform elements, one of which, located at the intersection of the bottom with the sternpost, could be interpreted as a rudder (Guerrero Ayuso, 2008).

To confirm these representations as particular types of vessels is not an easy task because of their schematic nature. This difficulty is evident in the interpretations already advanced by some authors. Alonso Romero (1976, 2011), based on ethnographic parallels and other iconographic evidence, proposed that these graffiti represent lined skinned boats. This hypothesis, which was not ruled out altogether by Guerrero Ayuso (2008), still faces some reservations, because Guerrero Ayuso suggests the possibility of them being representations of plank boats with flat bottoms, in the Mediterranean tradition. In fact, the resemblance to representations of the ancient Near East, specifically Temple 1 of Kition (Wachsmann, 1998), dated from the Bronze Age, cannot in this context be ignored.

![Figure 2. Boat depictions found at the western Atlantic coast of the Iberian peninsula.](image-url)
Furthermore, the chronology of the petroglyphs of Borna is also not easy to determine, although a dating to the end of the Neolithic and Chalcolithic has been assumed, taking into account the boats depicted or painted in megalithic monuments in northern Europe and also in Portugal (Guerrero Ayuso 2008). However, as we shall see, the representation of Anta Antelas can be interpreted from a completely different perspective. Because of this, a Bronze Age dating for the Borna images can, in our view, also be regarded as very plausible.

Easier to address, from the constructive point of view, is the case of the petroglyph of Auga de los Cebros (Figure 3B), Pontevedra (Alonso, 1995; Costa and Peña Santos, 2006). The hull is contained within two lines joined together with traits that could represent the framing of a plank boat. The type of vessel represented appears to be for navigation on the high seas and resembles the iconography of Mediterranean vessels (Guerrero Ayuso, 2008), mainly represented in recent Geometric Greek-type pottery. Therefore, a chronology of the First Iron Age, around the end of the 8th century, appears likely, and it seems impossible to accept the proposal of Alonso that made a parallel with Egyptian papyrus boats of the 3rd millennium, as Guerrero Ayuso (2008) has stated. Another proposal that is also acceptable was raised by Ruiz-Galvez (2005) who believes that the vertical lines at the hull indicate a gallery of rowers, presenting stem and stern, ending in a stylised prototype of a possible bird, dated between the Final Helladic IIIB and IIIC periods (13th–12th centuries BC). Two other representations in Auga de los Cebros are also worth mentioning. The first, designated boat No. 2 (Figure 3C) corresponds to a single mast of the sailboat, with two stays, one at each end (Costas Goberna and Peña Santos, 2006). The hull is arched, with what seems to be a stem post and possibly a cutwater or ram. According to the authors, this representation has affinities with Mediterranean sailing vessels of the 2nd millennium BC (Costas Goberna and Peña Santos, 2006).

Finally, boat No. 3 (Figure 3D), more difficult to interpret given the overlapping motifs, does not present clearly a mast or a rigging system. The hull is long and curved and has a slightly inwardly curved stem and sternpost (Rey Silva, 2014).

Still in the county of Oia, we also identified other petroglyphs that attest that navigation at sea was the most likely way to travel, since the rigging systems are also well identified.

In O Viveiro VI (Figure 3E), a depiction of a curved-inwards boat with a high stern has been found (Costas Goberna and Peña Santos, 2006). Although its schematic nature does not allow an easy chronological assignment, according to Guerrero (2008) this representation could be dated to the end of the Bronze Age.

Finally, at Alto das Veigas II, in Mougás (Figure 3F), among other motifs, a possible sailling vessel was identified (Verde Andrés and Costas Goberna, 2009). This is a shallow-draft representation of a flat-bottomed vessel with a pronounced wheel indicating a mast and a possible sail. According to the authors, the regularity of the stroke of the body of the hull suggests the possibility that it could be a raft (Ibid).

Also along the north-western coastline, there are the rock carvings of Laje da Churra (Viana do Castelo). Among the several motifs found there, 26 were depictions of shallow-draft boats (Figure 3G), like canoes or logboats, alongside other representations of boats under sail (Santos, 2014). The diversity of figures associated with different overlays...
and techniques have led the author to suggest an extended timeline: from the Neolithic to the Iron Age (ibid). Regarding the boat depictions, the proposed chronology has, however, been placed at the beginning of the Bronze Age to the Iron Age (Bettencourt, 2013; Santos, 2014).

These boat depictions from the north-west of the Iberian peninsula still deserve a final comment, since navigation in the Atlantic was definitely practised at least among the British Isles and along the French coast from the Late Bronze Age, a fact attested by archaeological materials, but also by some shipwrecks—the best known being the three found at North Ferriby, at the mouth of the Humber in East Yorkshire (Wright, 1976, 1990, 1994). The three vessels were constructed out of planks stitched together, but do not seem to have a keel, and would have been propelled with oars. These features would at least allow the crossing of the English Channel.

If we can dismiss the depictions of Borna and some of the representations found at Laje da Churra from the group of vessels that could manage Atlantic navigation, the truth is that the Auga de los Cebros and the representations found at Santa María de Noia may correspond to ‘ships’ of the 1st millennium intended to flesh out maritime cabotage routes. These voyages have to be taken into account as the ‘internationalization’ of the Late Bronze Age. Documented through numerous materials present from the British Isles and coast of Brittany to the eastern Mediterranean and with a strong presence in the west of the Iberian peninsula, such journeys are an unquestionable fact and were certainly carried out by sea.

Much more problematic is the assumption that the painting on the dolmen of Antelas, Oliveira de Frades (Viseu), corresponds to a vessel, as already proposed by Alonso (1993) and Bonino (2005, 2008). The truth is that the image previously published is placed in a position that is not the original one, which means that the craft would be upright and with the bow down, in a very unorthodox position for representation. In addition, the chronology of the megalithic monument of Antelas, 4th millennium age, seems incompatible with a vessel of considerable size and highly complex structure, allowing Atlantic navigation, even though cabotage. Also, we cannot forget, in this context, that the image is not isolated, and is part of a complex composition that can only be read in full and which represents ‘the sacred space of death’ (Gonçalves, 2008). The composition of the orthostatic number 8, precisely what has been interpreted as a boat over waves (Alonso, 1993; Bonino, 2005; Guerrero, 2008), should not, in our view, be deciphered without taking into account the full organisation of space/environment, in particular the remaining paintings that define a scenario where a vessel is unlikely to found. Nevertheless, we cannot completely rule out the possibility that this was, again, the so-called ‘sacred or astral boat’, an important element in Egyptian temples, that often appears associated with an ‘astronomical ceiling’ (Escacena et al., 2007), because the orthostatic number 5 is perfectly identified with the heavenly pair, the sun and the moon, separated by serpentine elements (Gonçalves, 2008). The latter are represented in several orthostats of the megalithic monument and may also indeed symbolise the ‘heavenly sea’ in which this boat sailed, separating the sun from the moon.

Certainly dating from the Iron Age are the iconographic depictions in items of pottery found in Lisbon (Arruda, et al., 1999–2000). (B) Coroplast fragments found at Rua dos Correiros, Lisboa (Sousa, 2014). (C, D) Depictions on pottery from Quinta de Almaraz (Cardoso, 2004).

Figure 4. Boat depictions found on south-western Atlantic coast of the Iberian peninsula. (A) Depiction on pottery of a hippos, Lisbon (Arruda, 1999–2000). (B) Coroplast fragments found at Rua dos Correiros, Lisboa (Sousa, 2014). (C, D) Depictions on pottery from Quinta de Almaraz (Cardoso, 2004).
The first may correspond to a *hippos* (Figure 4A), even taking into account the fact that the fracture in the area of the bow prevents us from verifying the presence of the *akroteria* that headed these particular types of Phoenician ship. A mast is also visible in the centre, and the trace, aft, can be interpreted as a rudder. Nevertheless, the shape of the hull and the stern termination are indications that support the hypothesis that it is a *hippos*. It is recalled that the representations of *hippoi* are common in the Mediterranean, especially in stelae of the tophet of Carthage (Bartoloni, 1979), although, as we all know, the best known are those of the Sargon's Palace in Khorsabad. Unfortunately, there is little archaeological data to reveal, in detail, the naval technology that allowed the construction of such vessels, but the sinking of the Ma’agan Mikael ship on the Israeli coast (Kahanov, 1999) and even the wrecks found at Mazarrón and Cartagena (Nereguela et al., 2000; Nereguela, 2005), despite differences, allow us to realise the existence of ships that resemble the iconographic representations: light board boats, with a keel, relatively shallow, and with the capacity to transport between 25 and 30 tonnes of cargo.

In the same archaeological context of Rua dos Correeiros where the graffiti on pottery was recovered, four shaped ceramic fragments representing curved-hull boats (Figure 4B) with a bow or raised stern were found (Sousa, 2014). It is not unlikely for this to be a coroplastic version of the vessel drawn via an incision on the ceramic. In Almaraz there are at least two ceramic pieces, which are visible representations of ‘boats’ obtained by incision (Barros, 1998; Cardoso, 2004). In one, the best preserved, the boat seems to be of an appreciable size, with a lifted stern (Figure 4C). The hull and the sail are high. The triangular appearance of the sail, which would generally be square, may be due to the fact that it is being gathered in (Arruda and Vilaça, 2006), a technique that is documented in other iconographic representations, as well as in various textual references. Evaluating the ship is not an easy task because it is a ceramic fragment. Although the possibility of it being a *gaulos* cannot be dismissed, given the dimensions, which can be deduced from what has been preserved, it also may correspond to a *hippos* (ibid). The other fragment, more incomplete, shows a sail and oars, and highlighting the hull, an eye (Figure 4D), an apotropaic – a common element that may also serve to identify the ‘flag’ of the vessel (Guerrero Ayuso, 2004).

5. Sailing boats: portable rock art at the city of Porto (Portugal)

In the context of the project of Urban Rehabilitation of the Mouzinho da Silveira–Flores axis, located in the historic centre of the city of Porto, several archaeological remains of great interest were unearthed and serve as an important contribution to the study of the collective memory of the city. Of particular interest, a small lithic object was discovered during archaeological surveys conducted at Largo dos Lóios. This is composed of several boat-like representations.

The first historical references to Largo dos Lóios are subsequent to the last quarter of the 14th century (Marçal, 1953). The site was then a suburb within walls, occupied by fields, trees and some houses. However, the place was known as the Fonte da Arca, a name derived from a water reservoir nearby. Over time, this water source became known as Fonte das Hortas and Fonte da Natividade.

Construction of the gothic city walls and the installation of the Convento da Nossa Senhora da Consolação (St Elói Convent), in the late 15th century, restricted the urban development of the site until more recent times (Freitas, 1947).

During the redevelopment process experienced by the city of Porto, we found the first initiatives, dating from the mid-18th century, that led to the Largo dos Lóios – in particular, the opening of the Porta do Almada, replacing the medieval opening, and the creation of the Largo of Saint-Elói (Nonnel, 2002).

During the archaeological monitoring of ditches prepared for new foundations, a set of sedimentary deposits was identified. These held ceramic fragments that dated from late antiquity (Figure 5). Thus, we proceeded to carry out diagnostic archaeological excavations, totalling 43 m², in order to characterise and evaluate the historical interest of the area and to provide elements for the definition of measures to reduce the negative impact of the project in question.

After the removal of the upper stratigraphic levels, related to the recent occupation of the site – from the present and modern period (16th–18th centuries) – a series of sedimentary deposits of silty/sandy characteristics was observed with ceramic fragments deposits of late antiquity and eventually medieval chronology. The presence of fine sand levels indicates a process of natural formation, possibly related to the bed of the Vila River or other tributary waterlines (Figure 6). In fact even in the 16th century a flood of this small river was documented, the violence of which broke down the wall of St Eloi Convent (Afonso, 2000). Furthermore, the presence of ceramic fragments, of extended timelines, seem to support this hypothesis, and may also be a result of the exploitation of the soil of this valley area, as suggested by the placename ‘Campo das Hortas’ documented in the medieval period (Marçal, 1953).

However, among the archaeological material we should highlight the appearance of a small lithic object, probably a plaque approximately 5.2 cm long by 4.5 cm wide and about 1 cm thick, on which appear several boat-like representations (Figure 7).

The raw material corresponds to a shale fragment with an olive gray color (Hue 2.5 Y 6/1) of the ‘phyllite’
Figure 5. Location of Largo dos Lóios (Porto) and the archaeological diagnostic trenches (dark grey).

Figure 6. Archaeological works at one of the trenches. Cross-section of the sedimentary deposits of silty/sandy characteristics.
type, a volcanogenic sedimentary rock, with traces of S0 stratification. In terms of notable features, on the reverse surface, there is some pyroclastic material, probably a fragment of a volcanic rock.

This soft shale fragment features a representation of a set of small vessels, surrounding a larger boat, as if it were a fleet.

We do not intend to analyse in depth the nautical aspects that characterise the vessels, being aware of the difficulty in interpreting the schematic nature of these graffiti, which include some incisions of random appearance.

Before any incisions were made, the rock was subject to an abrasive technique that gave the surface a certain polish. The representations of the boats were then made via rigid straight lines, through incision using a sharp object, possibly made of metal.

Regarding the larger boat, in a central position, elements suggest that this is a sailing boat, albeit in a very stylised way. It is possible to see a cloth sail or what may correspond to brails. Also visible are two parallel incisions that we interpret as possible bolt ropes.

Unfortunately, only a part of the yard is preserved, which also features an oblique incision that may correspond to a topping lift.

The hull has a slightly rounded shape, with the mast placed in a central position, and a line, which indicates a halyard, is also visible. At the bow another trait that first suggested a bowsprit can be seen. However, through microscopic analysis it was determined that this thin line does not hit the hull, and hence corresponds to a more recent accidental scratch. Finally, at the stern we have the left side rudder, which guarantees the antiquity of this graphite.

The smaller vessels all seem to correspond to shallow-draft boats, on which are represented two cruciform figures. Are these a representation of the cross-shaped double-mast vessels or are we dealing with anthropomorphic representations? The fact that they are very stylised hinders our interpretation.

Overall, the style is quite realistic and suggests that the artist knew in detail the characteristics of the vessels and their equipment. This leads us to consider the possibility that the engraver was an individual linked to nautical activities, probably someone connected to port activities or even a sailor.

In support of this second hypothesis is the fact that this object is not common in the lithology of the region. The only recognised presence of volcanogenic sedimentary rocks within the Iberian peninsula is about 130 km northeast – in the area of Trás-os-Montes – and in the south, where they are very common.

The presence of several vessels in the same lithic frame suggests an Iron Age chronology, just like the various representations found in the Mediterranean, but we must not forget that although the archaeological context is secondary, only late-antiquity pottery was found there. Bearing this in mind, we remain cautious about the allocation of a precise chronology until further study is completed.

Assessing the occurrence of archaeological remains, dating from the Iron Age and the Roman period in Porto, there is...
Figure 8. The occurrence of archaeological remains, dating from the Iron Age and the Roman period in part of the historic centre of Porto (adapted from Silva, 2009).

also the possibility that these findings could fall within the two periods (Figure 8).

Despite the many difficulties and limitations, these graphites are remarkable in regard to the navigation of the Atlantic in antiquity. This is the first mobile rock art object found in the north-west region to show several boat-like representations.

6. Interpretations and possible meanings

The petroglyphs representing ships on the Atlantic west side of the Iberian peninsula are fairly homogeneous in terms of structure and style. Although the Schematic style and their position in the landscape, mostly at open-air rock engravings, allow their association with megalithic art of the Atlantic and its symbols (Rey Silva, 2014), we cannot fail to emphasise that some seem to represent Mediterranean models and eventually may correspond to social mechanisms of apprehension of the ‘unknown’, of the ‘other’, the foreigner. Perhaps these representations can be understood as a way that local communities have sought to understand or even indicate a certain event in time.

In this sense and if we exclude the petroglyph of Borna and the painting on the dolmen of Antelas, as mentioned above, it appears that the vessels represented in the north-west of the Iberian peninsula seem to appear during the intensification of contacts between the Mediterranean and the Atlantic world in the Late Bronze Age, well documented from the archaeological point of view and apparently also enshrined in the Rufus Festus Avienus poem Ora Maritima (Cunliffe, 2001).

On the other hand, the graffiti identified in the Tagus estuary, Almaraz (Almada) and Lisbon, surely dates from the Iron
Age, because of its archaeological context and the type of vessels recorded. As well as the coroplastic elements of Rua dos Correiros, these are directly related with another phenomenon, later and undoubtedly connected with the Mediterranean shipbuilding and western Phoenician colonisation (Arruda, 1999–2000).

Finally, the vessels found on the small plaque from Porto show once more the difficulty of reading these types of representations. The association to a particular type of ship is always limited by issues of scale and schematics that inevitably arise with engravings or paintings of this nature. Furthermore, a chronological date is not easy to assign in this case, as indeed is true in most others that we have listed on the previous pages.

Nevertheless, in the shale fragment from Porto it seems clear that we are dealing with mixed marine propulsion vessels, with sails and oars, with a bow considerably raised and curved inwards and a high stern. The existence of rudders is also obvious and the complexity in the rigging system, including cables and stays, seems incompatible with logboats, a possible interpretation of some of the other representations. In addition, the curvature of the hull of the central boat depicted indicates the presence of a keel, unlike the other whose hull is flattened.

As maritime navigation occurred throughout ancient times, it is difficult to determine a historical chronology, given the specific characteristics of these ‘boats’. As mentioned before, the Iron Age occupation at Porto is proven and had contacts with the Mediterranean world at that time, a fact attested to by the presence of Attic pottery of the 4th century BC, a fragment of a amphoriskos, dated to the late 6th century BC and the beginning of the 4th century BC (Arruda, 1997; Real et al., 1985–1986), along with other materials of southern provenance. These contacts were certainly made by sea in vessels of the type reproduced on the shale fragment.

At a time when this study was already completed a recently published paper came to our attention. It presents proof of the presence of Mediterranean populations on the coast of Scandinavia by presenting representations of Cypriot-type ingots in cave panels where numerous rowing boats are also present (Ling and Stos-Gale, 2015). These images show not only the inclusion of Scandinavia in the Bronze Age European trade network, but also, of course, the frequency with which the west coast was included on the south/north peninsular route.

Acknowledgements

We express gratitude to Empatia Arqueologia, Lda., Sofia Soares, Raquel Ferreira, Stefano Medas, Manuel Abrunhosa and António Manuel Silva, for the contributions to this chapter.

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