

THE ATLANTIC ROMAN TRADE DURING THE PRINCIPATE: NEW EVIDENCE FROM THE WESTERN FAÇADE

Summary. In this paper new evidence is presented for long-distance trade in the western Atlantic in the Roman period, chiefly from Augustus to the second century AD, on the basis of documented shipwrecks and numerous amphora types. Well-dated contexts from northern Portugal and Spain, as well as similar sites in northern France and Germany, suggest a thriving trade of amphora-borne commodities during the Principate. The Atlantic route was initially developed during Augustus' campaigns against the Cantabri and Astures, and later consolidated with the exploitation of the mines in the north-west of the Iberian Peninsula. Supplying the Roman armies in the German Limes gave a new impetus to this commercial route, complemented by the conquest of Britain.

People normally associate Roman civilization with the Mediterranean, the so-called *Mare Nostrum*, which the Romans ruled over from the second century BC until the fifth century AD. However, they also conquered the northern lands, whose coasts were washed by a fierce sea – the so-called Outer Sea (Atlantic Ocean). For a long time, this Outer Sea was considered to have been hard going for the ancient sailors with their somewhat basic technology, but recent archaeological discoveries challenge this point and reflect the existence of important commercial trade routes along the Atlantic coast.

In recent years, new research has appeared on the Atlantic trade in antiquity: from the Iron Age (Cunliffe 2001) up to the Late Roman and medieval periods (Campbell 2007; Reynolds 2010). Most of these studies recognize commercial contacts in the very early and late periods, but they do not pay much attention to Roman Republican and Imperial times, when the Outer Sea became a single political entity. Further, these scholars often focus on cross-Channel exchange (Morris 2010), leaving the other areas of the Atlantic untouched. The present paper attempts to reveal new evidence of this Atlantic trade during the Roman period encompassing the western region, namely the coastal strip extending from the Straits of Gibraltar up to the Cape of Finisterre – the Atlantic western façade (Carreras and Morais 2010).

The western Atlantic façade in the Roman period

Cunliffe's work (2001, 16–50) gathers together a mass of archaeological evidence for Atlantic contacts between different territories, from the Neolithic up to the Iron Age; this reveals two intensive contact areas: the southern and the northern cores (see Fig. 1).

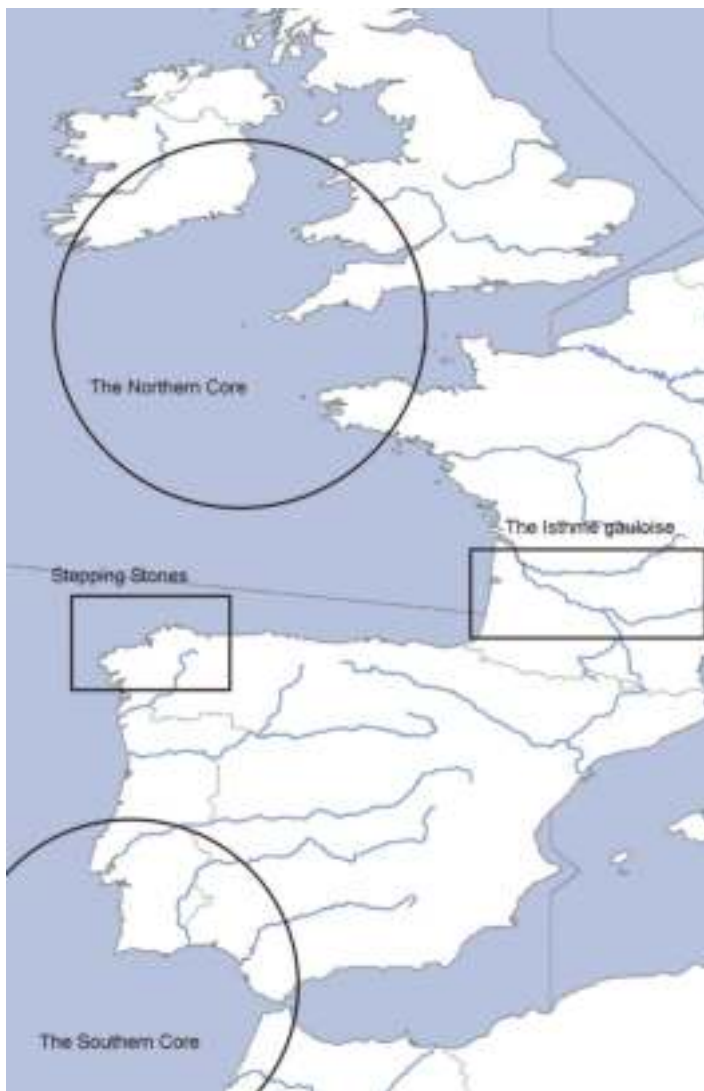


Figure 1
An interpretation of the Atlantic (after Cunliffe 2001, 35).

The northern core is at the heart of the Atlantic zone; it fostered contacts between the Irish communities, Britain and Brittany – from the Shannon to the Loire, reaching into the English Channel. In navigation terms, these territories are very close to each other (two–three days), and they shared a common material culture, including such items as Bell Beakers, carp’s tongue swords, cauldrons and articulated spits. Other exchange indicators, such as pottery or coins, also reveal continuous contacts, though not to such a degree, between communities settled along the various coasts of this common northern core.

Likewise, the southern core includes the Canary Islands, North Africa (Sousse in Morocco), southern Portugal (the River Tagus) and the Gulf of Cadiz, where again a constant contact is detected between settlements and in the exchange of goods and cultural traditions. At the beginning of the first millennium, Phoenicians and Greeks sailed the western Mediterranean coasts in their quest for metals (i.e. iron, copper, tin), establishing their colonies in Italy, Gaul, North Africa and the Iberian Peninsula.

The Phoenicians of Tyre founded the colony of *Gadir* at the end of the second millennium BC, which became the colonial entrance to the Atlantic southern core. *Gadir* was a springboard for expeditionary missions to the western coast of Africa and the western Iberian façade. It appears that these eastern colonizers were searching for tin along the Atlantic coasts (see Figure 2, showing sources of tin), though the ancient sources are imprecise. Herodotus (*Histories* 3.115) refers to his lack of knowledge: ‘. . . nor do I know of any islands called the Cassiterides whence the tin comes which we use’. These Cassiterides islands were supposed to be somewhere north-west of Iberia; some authors placed them in south-eastern Britain.

Another later ancient source is the *Ora maritima* of Avienus (fourth century AD), which contains earlier documents referring to the *Oestrymnis*, a place where people were wealthy in tin and lead, and sailed in leather boats (*Ora maritima* 92–106). Nowadays, it is believed that *Oestrymnis* was located on the northern coast of Galicia where tin and lead mines have been well documented.¹ The Phoenicians from *Gadir* controlled the tin trade of this western façade up to the Roman period, despite the fact that little Phoenician material (i.e. Phoenician amphorae) is recorded on the coasts of Galicia or the British Isles.

The voyage of the Greek Massiliot Pytheas in the fourth century BC as recorded by Strabo (*Geog.* 1.4.5) appears to document an alternative route by which to reach the Atlantic territories, by travelling through the ‘isthme gauloise’ up to the mouth of the Garonne (Cunliffe 2001, 308–9). From there, it may have taken him three days to get to Kabaion and Uxisame. These two names probably refer to places on Brittany’s western coast. Thus, the Phoenician and Greek colonizers, for the first time, established a thriving exchange route between the two Atlantic cores, the southern and the northern. In this way, the Atlantic became a unique exchange corridor where sailors could ship their merchandise from one end to the other.

Nevertheless, a major change took place during the last two centuries BC when the Romans began to make contact with populations living on the Atlantic. According to Strabo (*Geog.* 3.5.3), *Gadir* at that time was a place where: ‘live the men, who are equipped with the most and largest merchant-vessels, from our sea and the outer sea’. In addition to new political conditions and the Romans’ quest for metals, the thriving trade in the western Atlantic façade was also the result of better weather conditions.

Data obtained by an analysis of meteorological and oceanographic circumstances suggest that in Roman times there existed different conditions, much more conducive to navigation than those of the present day.

We have to consider that there is evidence that climatic conditions, including prevailing winds on the western coast of Portugal before the Roman period, during the Roman era and even until 1000 AD, were quite different from today’s strong north wind or “nortada” (Soares 1987). Since this publication, A. Soares’ study was recently presented by the author as an

1 Some of the clays of the local ceramics and amphorae, such as those from the workshop of Bueu (Pontevedra), contain cassiterite, a mineral associated with tin.



Figure 2
Sources of tin in antiquity (Cunliffe 2001, 303).

academic thesis, and it indicates how the evidence of much milder wind conditions could help us understand these sailing conditions in ancient times, as well as the fact that the Atlantic sea lanes had specific conditions, with tides bringing important changes in sea-level and tidal streams from the Mediterranean (Blot 2010, 83).

These favourable weather and navigation conditions lead us to agree with Blot when she states that the western coast of Iberia would have been navigable by Mediterranean ships from

ancient times until well into the Roman period. Some advantages, she also suggests, might have survived until the seventeenth century AD (Blot 2010, 85).

The Portuguese and Galician coastline offered a variety of navigation routes along estuaries, marine lagoons and rivers. A good example is the Rías Baixas, as Fernández notes (Fernández 2010, 229): it enjoys a lengthy coastline that begins in the estuary of the River Minho and goes up to the Cape of Finisterre with four major bays (i.e. Vigo, Pontevedra, Arousa and Muros/Noia) that penetrate inland. Thanks to this special coastal morphology, the ‘castros’ situated in this area had the benefit of excellent conditions, with natural harbours suited to maritime trade. The fact that a significant number of imported items, such as glass and coins, were found in these ‘castros’ is further proof that they were privileged places, attracting trade goods produced throughout the Roman Empire. However, one quickly realizes that the most abundant material excavated at them was amphorae of various types and fabrics, corresponding to the different periods when the territories were conquered. The study of the substantial number of amphorae discovered in this area, most probably unloaded on to the well-known Areal beach, states first that the best represented period is that from the second century BC to the first century AD (Morais 2010, 103–4; Fernández 2010, 229–37) and then that the most common type is the Haltern 70 amphora, with about 1000 examples (Morais and Carreras 2005, 93–112). The identification of a shipwreck in Ria de Arousa (Vilagarcía de Arousa, Pontevedra) documents the importance of these places in Roman times. Archaeologists found the remains of a vessel’s ballast there, along with fragments of imported wine amphorae (some of which had resin inside) and other imported fragments among which were south Gaulish *terra sigillata* (Luances and Toscano 1989, 259–62).

Nevertheless, we must remember that the shape of the coastline has undergone changes through time, which makes it hard to identify sites that may have been important in antiquity. As a consequence, we have to take into consideration the contributions of other areas of study, such as geomorphology, to assist us in locating ancient natural ports through the recovery of both ship remains and any type of ancient harbour activity (Blot 2010, 81).

According to the same author (Blot 2010, 85–6), the Romans chose places near river mouths and lagoons to establish their most important cities, which may explain the existence of an interconnection between their roads and the river and maritime routes. The Roman town of *Bracara Augusta* is one of the best examples of this interconnection of roads and water routes.

The economic and commercial importance of this town has already been highlighted (Morais 2010). It is unquestionable that *Bracara Augusta* was an important centre for the shipping and redistribution of food and manufactured commodities, which came from several large production centres – thus suggesting that this city was well integrated into the Empire, as can be seen from the quantity and types of amphorae found in the city (Morais 2010, 216–18).

Nevertheless, the city did not benefit directly from the ports-of-call along the Atlantic route, though it may have done through secondary ones involved in the traffic of both small and larger cabotage that were situated in the mouths of the Ave and Cávado rivers. The larger vessels, heading towards the main ports-of-call on the Douro and Minho rivers, may well have unloaded part of their cargoes at the Ave and Cávado rivers. It is in this context that we can also accept as correct Ausonius’ reference (*Ordo*, XIV), when he places the city of Braga near a gulf-shaped river mouth.

The complexity of this subject calls for a multidisciplinary analysis which cross-checks data from the geomorphology and sedimentology with the evidence of archaeology, historic



Figure 3
Hypothetical palaeo-estuary of the Ave river during the Roman period.

cartography and the literary and epigraphic sources. The palaeoenvironmental conditions of these estuaries during the Roman period both suggest the existence of a palaeo-channel in the Cávado river and put forward the possibility that the Cávado and Ave river estuaries (see Fig. 3) might have been wider and deeper than at present (Granja and Morais forthcoming).

These landscape changes combined with significant climatic alterations might have caused a drop in sea level: this seems perceptible in some lagoon deposits documented in the Cávado estuary, where remains of Roman date were found (see Fig. 4). These involve a probable Roman harbour where a large number of amphora sherds (in particular Haltern 70) and fish tanks were found, probably related to the existence of a Roman villa.

The Roman evidence is complemented by later data, particularly by the discovery of a caravel of the sixteenth century AD in the portage area of the Cávado river: this would seem to corroborate the existence of a channel in its riverbed. This channel would have been situated to the south side, towards Fão, as we have confirmed in the above-mentioned geomorphological and sedimentological data.

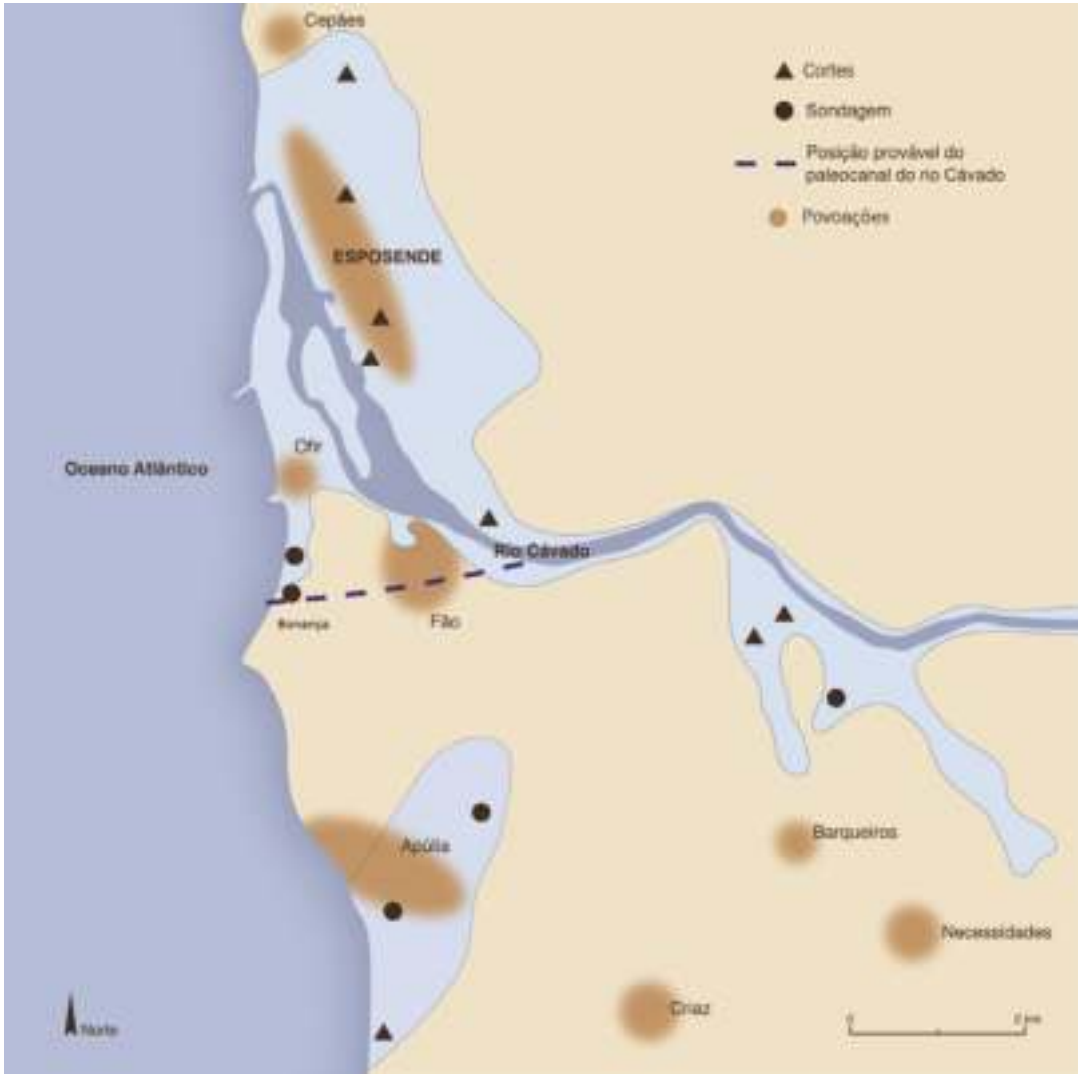


Figure 4
Hypothetical palaeo-estuary of the Cávado river during the Roman period.

It is in this context that the data from modern age cartography – particularly the map of João Teixeira I drawn in 1648 – are of the utmost relevance in that they depict the estuary of the Cávado river near Fão and the mouth of the Ave river as wider and gulf-shaped – very different from the current configuration.

Dependable evidence exists for shipwrecks along the Galician coast, even though no structural remains of Roman boats have actually been found there. Despite the problems of preservation – the dynamics of the sea bed make locations difficult to trace – there are indications that suggest at least three shipwrecks (Naveiro 1991, 63–7, fig. 14).



Figure 5

Wooden remains probably belonging to a Roman vessel in the mouth of the Peralto (Esposende).

The first may be situated in the Ria de Arousa, near the island of Cortegada (Vilagarcía de Arousa, Pontevedra), where at least 34 specimens of Haltern 70 amphorae were concentrated, 22 of which were unbroken or nearly unbroken: traces of resin inside (Luances and Toscano 1989, 259–62; Morais and Carreras 2005, 104) have been recovered (not to mention the *sigillata* fragments from the south of Gaul). It is possible that the sand-bar built up by the river may have been responsible for the shipwreck of this vessel.

The second possible shipwreck may be located in Cabo de Mar, where a large number of Haltern 70 amphorae were found, four of which were unbroken. At this spot is a dangerous shoal that extends into the sea, and this might have been responsible for the sinking of the vessel. It is possible that these amphorae were intended for disembarkation at the nearby Praia do Areal, as is suggested by the large number of amphora fragments collected in excavations there.

The third place, situated in Punta Udra, may mark another shipwreck. Even though we are unaware of any cargo remains, three stumpy pieces of lead from a medium-sized vessel have been found in a relatively small area (about 12 sq m).

On the Portuguese coast is further evidence of shipwrecks. On the north coastline of Portugal, archaeological discoveries in the intertidal area of the mouth of the Peralto – the former estuary of the ‘Rio de Moinhos’ (Esposende) – revealed several traces of Roman occupation.² Among them we highlight the existence of a shipwreck of a Baetican vessel, datable to the Augustan–Tiberian period, that transported Haltern 70 amphorae (see Fig. 5). Together with them were also collected fragments of Dressel 7–11 (Cadiz), *urceus* type, as well as Baetican common wares (including two fragments of *dolia*) and thin-walled ware of probable Italian origin.

² We thank Ivone Magalhães, Director of the City Hall Museum of Esposende, and Ana Paula Almeida, archaeologist at that same institution, for the opportunity of including this still unpublished information.



Figure 6
Haltern 70 amphora collected at the shipwreck of Cortiçais (Peniche).

Further to the south, at the underwater site of Cortiçais (Peniche),³ is documented a shipwreck with Haltern 70 amphorae and thin-walled wares, among which are more than two dozen Italian *sigillata* fragments from the time of Augustus. This shipwreck, situated off the southern coast at the city of Peniche, is situated at a shallow depth (between 4 and 6 m) and at a distance of 30 m from the coastline (see Fig. 6).

The evidence of trade: archaeological indicators of the western Atlantic routes

After the Lusitanian Wars (155–138 BC), southern Lusitania, including part of the southern Atlantic core, came under Roman control. The movements of the Roman legions and the new urban settlements also brought new commercial trade in Mediterranean goods to the western Atlantic façade.

This first period of Roman commercial influence in the western Atlantic (155–50 BC) was a collaboration with traders from *Gadir*, an allied city (*civitas foederata*), who had contacts with local communities and also had an accurate knowledge of navigation in the Atlantic. In terms of material culture, the evidence of such commercial dynamics is recorded in the volume and distribution of the typical Roman amphorae of this period: Italian Dressel 1B, Adriatic Lamboglia 2 and North African Mañá C2c.

The excavation of Castelo de São Jorge (Lisbon) provides a good example of this commercial trade during the Republican period, beginning with some Greco-italic amphorae, but with a significant presence of Dressel 1B, Mañá C2c and Lamboglia 2 amphorae (Pimenta 2005),

3 No. 6950 of the National Inventory of the Nautical and Underwater Portuguese Patrimony (Inventário Nacional do Património Náutico e Subaquático Português). Intervention conducted by Centro Nacional de Arqueologia Náutica e Subaquática and Grupo de Estudos e Pesquisas Subaquáticas and led by Jean-Yves Blot, with the support of Peniche City Hall and Clube Naval de Peniche.



Figure 7
Distribution of Mañá C2c.

together with other vessels from the Gulf of Cadiz (T.9.1.1.1). Greco-italic and Lamboglia 2 amphorae were not very popular and are present in only a few sites of southern Lusitania.⁴

The second most important vessel is the Phoenician Mañá C2c, spanning the mid-second century BC up to the Augustan period. It was initially produced in North African workshops and later imitated in the Baetican production centres. The Mañá C2c amphorae are supposed to have contained fish-sauce products which were mainly consumed in southern Lusitania (Pimenta 2005, 124) and in some northern 'castrejos' (Fernández 2010) close to the local sources of tin (*Oestrymnis*) (Fig. 7).

Perhaps the best-known indicator of these Republican trading networks is the Dressel 1 wine amphora, with its three different variants (A, B and C). Amongst these three variants, the Dressel 1B is the most widely distributed because its long production range dates from the end of the second century BC up to the BC/AD juncture. Probably most of them were traded through

⁴ Greco-italic amphorae appear at Chões de Alpompe, Santarém, Lisboa and Mértola, whereas Lamboglia 2 amphorae are recorded at Chões de Alpompe, Santarém, Lisboa, Mértola, Cabo Sardão, Mesas do Castelinho, Ilhéu do Rosário and Castro Marim.



Figure 8
Distribution of Italian Dressel 1 (A, B and C).

the southern core since the southern sites record higher numbers and densities, though a Bay of Biscay route cannot be completely disregarded.

The distribution map for the western Atlantic façade (Fig. 8) records finds of Dressel 1 amphorae published by Pimenta (2005, 120, fig. 31), Naveiro (1991, 66–7) and Fernández (2010). A spatial analysis of proto-historic and Roman settlement distribution in the Ave region proves that not only was there a difference in the choice of habitat during these two periods but also that these preferences were closely followed (Struut 2000).

According to Struut (2000, 126), the Romans preferred to settle on river terraces and coastal plains, which presented better farming conditions and abundant water resources, whereas the people from ‘castrejos’ chose high places, overlooking river courses, on which to establish their fortified settlements.

As noted above, Dressel 1 amphorae were also transported along other routes to reach the Atlantic, such as the so-called ‘isthme gauloise’. Thus, these Italian goods began their journey in Narbonne (Narbo Martius) and followed the Aude upriver. Thence they were transported 50 miles overland to the River Garonne at Tolosa (Toulouse). From here they followed the river course downstream to the important emporium of Bordeaux (Burdigala) on



Figure 9
Distribution of Italian Dressel 1 in Gaul and Britain (after Fitzpatrick 1985).

the Atlantic coast. There the goods were unloaded to be sent to *Britannia* and the entire peninsular north-west through a system of cabotage navigation (Iglesias Gil 1994, 70; Carreras 2000, 209).

The route of Pytheas' trip is fully echoed by large quantities of Dressel 1 amphorae all along the way. In addition, high densities of these vessels are found in Vielle-Toulouse – at the end of the overland part of the journey, where Italian wines may have been decanted into more convenient containers. Tchernia (1986) and Fitzpatrick (1987), in their studies of the distribution of Dressel 1 in Gaul and Britain, realized the importance of the 'isthme gauloise' in the articulation of trade between the Mediterranean and the Outer Sea (see Fig. 9).

However, the impression is given that most merchandise crossing the 'isthme gauloise' was heading north of the Bay of Biscay – towards Brittany, Britain or the Atlantic coasts, instead of south. The Spanish Cantabrian coast records few Dressel 1 finds – a good indicator to the same end.

During the first half of the first century BC, the Roman armies reached the north-west of the Iberian Peninsula. Initially, Publius Crassus undertook a military expedition there in 96–94 BC, while Julius Caesar as *praetor* reached the River Douro (Mt Herminius) in his campaigns of 61–60 BC. In these later campaigns, Julius Caesar received support from the people of *Gadir*,

who provided a fleet of around 80 ships (Cassius Dio 37, 52–3; Zonaras 10.6), and probably traded part of the spoils. As a result of this collaboration, Julius Caesar appointed L. Cornelius Balbus as *praefectus fabrum*, the chief engineer of his armies in Gaul: he became one of Caesar's closest advisers (Carreras 2010, 249).

Scallabis was the headquarters of Julius Caesar's armies at that time. It demonstrates a change in the sources of supply: apart from Italian amphorae and fine wares, there is now a wide variety of new forms of Baetican amphorae from the coast and the Guadalquivir valley (i.e. ovoids, Mañá C2c, Lomba do Canho 67; Almeida 2008).

This trend increased during the Principate of Augustus, when he waged war against the *Astures* and *Cantabri* in the north-west of the Iberian Peninsula (29–19 BC) with five legions (I, II, IV, IX and XX), and supplies had to be acquired from the Atlantic. Most amphorae from this period come from Baetica, chiefly fish-sauce vessels (i.e. Dressel 7–11 and Dressel 12), or those for olive-oil (i.e. Oberaden 83), and numerous contents in the case of Haltern 70 (i.e. wine, olives, *defrutum*, *muria*).

The Baetican Haltern 70 (see an example in Fig. 10) is the most common amphora in the western Atlantic façade from the Augustan to the Flavian period, reaching 60–70 per cent in some local amphora assemblages. Such a volume of amphorae, already recognized by Naveiro (1991), demonstrates the existence of a dynamic commercial traffic in the region that probably goes far beyond the peninsula. The same amphora type is recorded in good numbers in early Augustan contexts (12 BC–AD 9) in the military camps of *Germania Inferior*, such as Xanten, Neuss, Haltern or Oberaden. As far as we know, the same amounts and densities are not recorded in southern and central Gaulish sites, except for Gergovia, Lyon and Bibracte.

The Atlantic Gaulish sites do not record high densities of Haltern 70 amphorae, but they are frequent enough in places like Touffré-Ville (Caen), Angers or Rennes (in reasonable volumes), and recently have been found at Hulluch, Arras and Beauvais. Other sites in north-west France also record a significant amount of this amphora type, such as Rouen, Soissons, Amiens or Bavay (Laubenheimer and Marlière 2010, 51), but densities have not been calculated so far. Figure 11 is an interpolation of the densities of Haltern 70 retrieved in the western Roman Empire. It reveals an interesting pattern, with high concentrations on the Atlantic coast.

Haltern 70 amphorae appear to be the first proof of the connection between the two Atlantic cores, the southern and northern, which in Augustan times gave rise to a fluid commercial contact, involving at least Baetican and African products. Augustus managed to create a political unity in the Outer Sea during his rule that finds concrete evidence in certain commercial exchanges.

The latest studies of the amphorae from Augustan military camps in the German *Limes*, such as *Novaesium* (Neuss) and Kops Plateau (Nijmegen),⁵ confirm the early date for the import of Haltern 70 amphorae to such distant locations. With the fish-sauce Dressel 7–11 from the Cadiz region, they are the commonest amphora types between 16 BC and AD 16 in the four military camps at *Novaesium*. Likewise, the evidence from the military camp at Kops Plateau, dated from 12 BC up to the Flavian period, identifies an early period with a substantial percentage of Haltern 70 amphora imports as well as Dressel 7–11 vessels from the Cadiz region. The main difference between Kops Plateau and Neuss is the large presence of Baetican olive-oil

5 Both sites are currently under investigation by an international team including Patrick Monsieur, Joost van der Berg, Rui de Almeida, Horacio González, Piero Berni and Cesar Carreras.

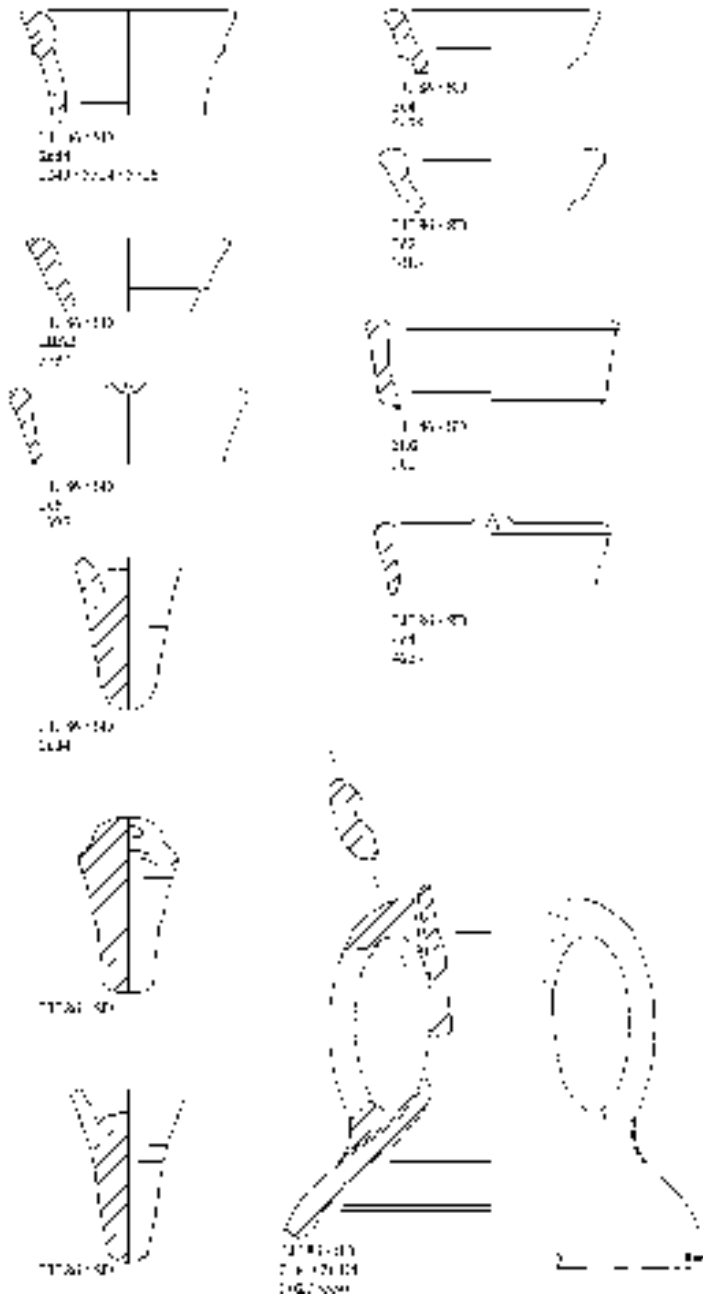


Figure 10

Augustan Haltern 70 amphorae, documented in the Sto. Domingo excavation at Lugo (north-west Spain).

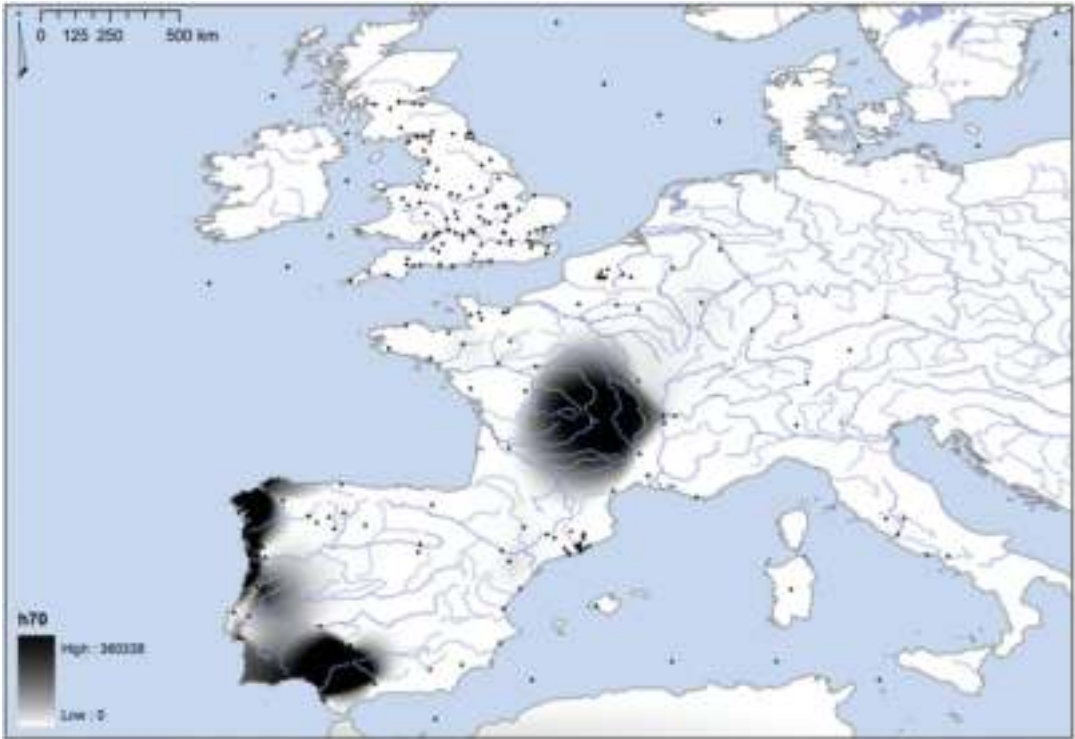


Figure 11
Distribution of Haltern 70 amphorae (densities kg/m^2) from 260 sites.

amphorae at the first site: this includes a variety of Oberaden 83 and Haltern 71, the predecessors of the globular Dressel 20. The same pattern in the presence of Baetican olive-oil amphorae is documented at Oberaden, dated between 11 and 7 BC.

Other products from north-east Tarraconensis, such as the wine carried in the Pascual 1 amphorae, still used the old 'isthme gauloise' route. There is a high concentration of Pascual 1 amphorae and stamps dated between 20 BC and AD 20 along the Aude and Garonne corridor, but also in Brittany and certain German military camps. Thus, the same route was being employed to access the distant German markets. In north-west France, Pascual 1 amphorae are recorded in high densities at Rouen, Evreux, Amiens, Soissons, Beauvais and Arras, and at other minor sites (Laubenheimer and Marlière 2010, 36). On the other hand, Pascual 1 vessels rarely appear on the Lusitanian coasts of the Atlantic façade, perhaps because they could not compete with the Baetican wines.

During the Principate, and after the conquest of Britain by the Emperor Claudius, the whole Outer Sea became a peaceful sea under Roman rule. Trading routes were open to anyone willing to take the risk of crossing the stepping stones of the northern Gaulish and British ports. Following the path of the Haltern 70 amphorae, other Baetican vessels such as the Dressel 7–11 fish-sauce containers appear in good numbers in the northern sites. In fact, Dressel 7–11, contemporaneous with Haltern 70, are even predominant in some contexts in the north during the Julio-Claudian period.

The better-known Baetican amphora form in the north during the Principate was the Dressel 20 – an olive-oil container that accounts for more than 50 per cent of the amphorae of any assemblage in Roman Britain in the first and second centuries AD (Carreras and Funari 1998; Carreras 2000). This type of vessel is also overwhelming in its numbers in *Germania Inferior* (Nijmegen, Neuss and Xanten) and north-west Gaul (Amiens, Rouen, Evreux, Soissons, Beauvais, Bavay, Arras, Théroutanne and Boulogne-sur-Mer) (Laubenheimer and Marlière 2010, 63). However, it is hardly present on the western Atlantic façade of the Iberian Peninsula (Lusitania and north-west Spain).

The reason for this latter pattern may lie in the fact that Dressel 20 travelled in military transports directly to the legions settled in the provinces of *Britannia* and *Germania*. It is possible that such ships carrying Dressel 20s in the Atlantic did not trade them in the ports-of-call on their journey towards the *Limes*. It has also been recently stated that Dressel 20s are absent from the military sites of north-west Spain, as they probably obtained olive-oil from local resources (such as the north Portugal–Mirandela region: Carreras and Morais 2011).

Recent work along the coast of Belgium has identified five possible shipwrecks in the shallow waters offshore (Pieters *et al.* 2011). Four out of the five shipwrecks appear to have been transporting Dressel 20 amphorae. Typologically, two of these possible Dressel 20 shipwrecks located near Nieuwpoort and Westhinderbank contained amphorae from the second half of the first century AD, whereas the other two are dated from miscellaneous finds in the early third century AD (Pieters *et al.* 2011, 192). The evidence proves that at least a steady Atlantic commercial route was operational during the Flavian period (see Fig. 12).

Other amphorae also documented in Lusitania and north-west Spain may have reached northern Gaul, *Germania* and Britain via the Atlantic route. For instance, eastern Mediterranean vessels are very common (i.e. the Rhodian type) in early contexts as is the Italian Dressel 2–4.

During the Roman period the volume of material passing along the Atlantic route greatly increased, partly due to Roman merchants, or *negotiatores*, intent on developing lucrative northern markets, and partly due to the legions themselves, which consumed a wide range of commodities that were in constant need of supply. A good example of these phenomena is the inscription dedicated, in the time of Claudius, to *Gaius Caetronius Miccio* by the Roman citizens who traded in *Bracara Augusta* (*CIL* II 2423: *cives romani qui negotiantur Bracaraugust[ae]*).

Crossing the stepping stones: Brigantium as a port- of-call on the route towards the northern core

The rounding of Cape Finisterre was a dangerous and arduous task because of the Atlantic and Cantabrian currents. In both cases, it was advisable to sail far from the coast to avoid the powerful waves that are common near the reefs. Lighthouses were an integral part of the Roman navigation system: an element of the state support necessary to keep the maritime routes safe. The existence of the Roman lighthouse at *Flavium Brigantium* (modern La Coruña) presumes that the Atlantic coast formed part of a natural circuit of navigation. It was consequently an area for the convergence of cultures from the Bronze Age to pre-Roman times. This region was later coveted by Roman generals, as was the case with D. Junius Brutus who launched a punitive expedition into the north-west on account of its gold resources (Strabo 3.176). Later on, Caesar, helped by Balbus from *Gadir*, reached *Brigantium* (Betanzos–Coruña) and forced the surrender and eventual submission of the native peoples of the north-west (Cassius Dio 37.52; 37.53.4; Plutarch, *Caes.* 12). With the territory now under Roman control,

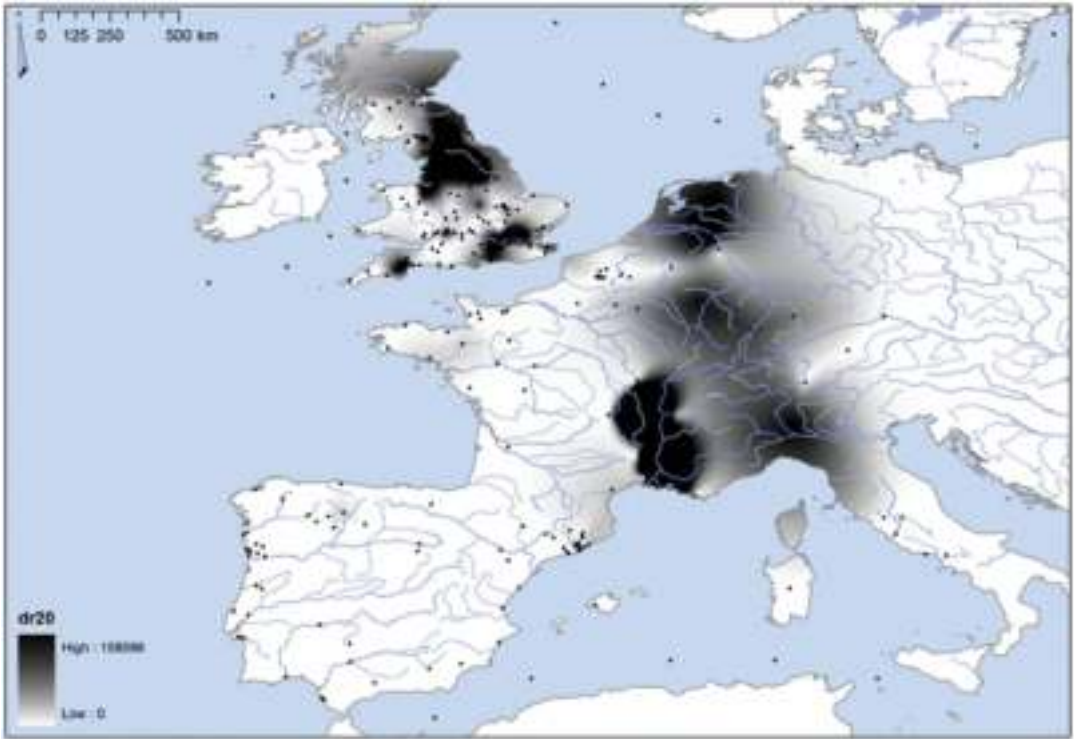


Figure 12
Distribution of Dressel 20 amphorae (densities kg/m²) from 260 sites.

a lighthouse, known at the time as '*altissimum pharum*', was built to watch over the vessels travelling from Rome to *Britannia* (Orosius, *Pag.* I. 1.2.71) and also to the German frontiers (Morais 2010, 104–5).

The distance between Cape Finisterre and the Pointe de Penhir (Brittany) was approximately 325 nautical miles and involved three–six days of navigation (Cunliffe 2001, fig. 13.3). It was the most difficult stage in the journey between the two Atlantic cores. The next stage of 110 nautical miles was from Pointe de Penhir to Land's End (Cornwall): it took only one–two days by ship. The final stage of 115 nautical miles, from Land's End to Cork Bay, also involved only one–two days. In other words, the whole journey from *Brigantium* up to the bay of Cork could take from ten to only five days.

According to a study carried out by Fernández Ochoa and Morillo entitled 'Roman lighthouses on the Atlantic coast' (Fernández Ochoa and Morillo 2010, 110), based on Le Roux (1977, 92), there was a '*statio* of the *portorium*, deduced from the dedications to *Marcus Aurelius* and *Lucius Verus* by *Reginus*, *exactor*, possibly a civil servant for the collection of the shipping tariffs at the port of La Coruña'. The fact that this port was of the utmost importance for ships travelling to *Britannia* along the Atlantic and Cantabrian coasts must have led to the construction of a lighthouse during Roman times; it could also have been used as a logistic support for Roman military camps (Fernández Ochoa and Morillo 2010, 115).

From here up to the Cantabrian region, the coast gradually becomes less accessible: the only havens are the so-called Rias Altas, especially the ‘multiple’ estuary of Coruña–Betanzos–Ares–Ferrol with its indented coastline. Further to the north the estuaries of Cedeira, Ortigueira, O Barqueiro and Viveiro are the last places of refuge before one reaches Cantabria, even though their mouths, orientated to the north, only offer safe navigation under favourable conditions. The maintenance of the ports on the Cantabrian coast is testified by sources that mention *Portus Amanum*, *Portus Victoriae Iuliobrigensium*, *Portus Blendium* and *Portus Veseiasueca* (Pliny IV. 20.111), places that have been identified as Castro Urdiales, Santander and Nuances, respectively (Martínez Maganto and Carreras Monfort 1995, 102). This route along the northern coast, from *Brigantium* to the Cantabrian region, was connected with the ‘isthme gauloise’ route, as described above.

The south Gaulish *terra sigillata* and the ceramics from Rioja were taken to *Gallaecia* via the route referred to above and were then distributed to other places by river or land. Galician minerals, especially gold, would also arrive at the sea and river ports and would then be transported to other regions of the Empire along the Atlantic route or the ‘Cantabrian–Aquitanian’ route (Sáez Taboada 2001, 262).

The sea currents obviously conditioned navigation along the Cantabrian and Atlantic coasts, which favoured an east–west and north–south navigation respectively. However, the currents do not always run in the same direction since they depend on the weather, especially between spring and the end of autumn (Naveiro 1991, 116–17). The relevance of the Atlantic route and its estuaries in the Roman period is well documented by the underwater discoveries off the present Portuguese and Galician coast, which were recorded by Blot (2003, 146–50). Among the reported remains we would like to highlight a stock of anchors, which might have belonged to 100- or 200-ton vessels that would have been capable of carrying up to 3000 amphorae.

Recent studies of the distribution of La Graufesenque *terra sigillata* in the northern provinces according to stamps support the idea of two supply routes. One of them followed the main river axes of Gaul (Rhône, Saône, Moselle, Rhine), while the other took full advantage of the Atlantic route (Mees and Polak forthcoming).

Chronology of the expansion into the Outer Sea

According to the data presented here, it is believed that a three-stage dynamic process may be distinguished in Atlantic navigation in Roman times. This Roman expansion succeeded for the first time in connecting the southern and northern cores of Atlantic commercial activity. No longer just a minor activity in the hands of a single colonial power, commercial ventures of all types were opened up in Atlantic waters by Roman political and economic rule.

The first stage of this process can be dated to Augustus’ time, when he directly intervened in the military campaigns in north-west *Hispania*, in the wars against the *Cantabri* and *Astures* (28–18 BC). The Roman armies required supplies from the Atlantic, since overland routes crossing *Hispania* westwards were slow and expensive in terms of human and economic costs. Thus, Roman armies relied on the people of *Gadir* as the main transporters of supplies from southern Baetica up to the northern lands. A consequent hegemony over trade by Italy and *Gadir* evolved, as is evident from the ceramics and amphorae recorded: this was directly related to the supply circuits of the armies on campaign. A clear break from pre-Roman traditions is apparent. Together with Italian wine products, archaeological contexts on the Lusitanian coast and in north-west *Hispania* document fish and oil amphorae from *Baetica* – showing that there

was an early awakening of *Hispania* and in particular the *Baetica* region in the last decades of the late Republican period. However, the most remarkable imports are the Haltern 70 amphorae found throughout the Atlantic façade, especially in the north-west peninsula (Morais and Carreras 2005, 93–115), reaching the highest percentage of any amphora assemblage in this period.

The Augustan period represents an important turning point in the economy and trade of the ancient world. The territory, as an empire, became more integrated economically, the result of the intensification of sea traffic and the gradual Romanization of the provincial territories. At the same time, there was a decentralization of the financial system and the growth of provincial exports. Meanwhile, the north-west and the Atlantic coast enjoyed strong economic growth, the result of the exploitation of wealth from mining. This development started immediately after the Cantabrian Wars and the increase in exports of other types of products.

As for the rest of the Atlantic zone, Baetican fish-sauce and Haltern 70 amphorae are present on the north Gaulish coast (Laubenheimer and Marlière 2010), but not in the percentages and volumes recorded in Lusitania and north-west *Hispania*. This northern core saw other products and amphora types coming from alternative routes such as the ‘isthme gauloise’. Apart from the Italian *terra sigillata*, most sites on the Brittany and Normandy coasts record great quantities of Italian Dressel 1 amphorae and Tarraconensian Pascual 1. Baetican products are present in most Augustan contexts in northern Gaul. However, there is an exception to this pattern regarding the military sites in *Germania Inferior*, in which Baetican imports such as fish-sauces, Haltern 70 and Oberaden 83 reached more than 50 per cent of amphora assemblages. Such is the case for the military camps of Xanten, Neuss, Nijmegen, Haltern or Oberaden, which are currently being studied.⁶

The second stage may be dated to the Julio-Claudian, Antonine and Severan dynasties, which represent also a time of significant economic change in the peninsula, and consequently in its north-west territory. Despite Caligula’s brief reign, we know of his interest in the Atlantic. This concern is clearly evident in the fact that he was responsible for the building of a lighthouse in *Gesoriacum* to assist commercial navigation. Claudius is, however, the person most responsible for stimulating the Atlantic trade, which allowed him to claim that he was the ruler of the ocean. It was also during his reign that the Mauretanian kingdom was conquered and then administratively organized, that the Ostia harbour was built, and that *Britannia* was invaded: acts that consolidated the Atlantic circulation route (Morais 1998, 81; Carreras 2000).

In terms of the archaeological record, there is some degree of continuity in Lusitania and north-west *Hispania* with a significant presence of Baetican amphorae and Italian tablewares, until Graufesenque and Lezoux products reached the Atlantic. It is interesting to see that Graufesenque products appeared to come via the Mediterranean route, crossing the Straits of Gibraltar, while Lezoux products arrived from the Bay of Biscay. They each also seemed to control distinct consumption areas in the north-west Iberian Peninsula (Carreras and Morais 2011). Another aspect worthy of note is the lack of Dressel 20 amphorae in this western Atlantic

6 The amphorae from Xanten have been studied since 2001, and will be published soon. A first report on some selected excavation contexts was published in 2006 (Carreras 2006) including an Augustan context. The well-dated amphorae from the military camps of Neuss were studied in 2010 by H. González, P. Berni, J. van der Berg and C. Carreras. The same researchers together with R. De Almeida are studying the material from Kops Plateau (Nijmegen), whereas the military sites of the Lippe valley, such as Haltern or Oberaden, are being reconsidered by H. González.

façade despite the enormous number of imports in northern Gaul, Britain and *Germania*. There are only a few of these Baetican amphorae in the Lusitanian and Galician sites, perhaps due to the production of local olive-oils or the reduced presence of the Roman armies. It is believed that the high consumption of olive-oil in the British and German *Limes* was due to a control of public trade in supplies to the Roman armies.

During this second stage, the Atlantic route supplied the armies of Britain and the German *Limes* with similar products. The most common amphorae were Dressel 20, from Baetica (olive-oil), Gauloise 4 (wine) and certain Baetican types (fish-sauce). Apart from the Atlantic route, most Gaulish amphorae appear to be distributed along the inland waterways of Gaul and Germany, reaching the military camps in the *Limes* and the English Channel. There was, therefore, a vigorous traffic between both sides of the English Channel, which included many other goods – from wheat to pottery, *mortaria* or *salsamenta*. Romano-British settlements provide records of some of these Continental goods, whereas there is little evidence of British products on Continental sites.

Nevertheless, there is clear evidence of intensive trade between both sides of the English Channel at the mouth of the River Rhine. A second and third century AD temple and altars to the goddess Nehalennia were discovered at Domburg and Colijnspmaat (Holland) (Stuart and Bogaers 2001) (see Fig. 13). These altars record inscriptions of Atlantic traders (*salsarius*,



Figure 13
One of the altars to Nehalennia (Leiden Museum).

pottery) from *Germania Inferior* who specialized in commerce with *Britannia*, and who had dedicated the altars after a good trading venture.

The third and final stage embodies the end of some Atlantic navigation routes and markets. Despite the economic boom in the cities in previous centuries, the impetus of commerce seems to decline, leading to a progressive decrease with respect to the armies in *Britannia*. As a result, a drop in maritime trade occurs which is clearly apparent in the archaeological evidence. This caused a profound change in the lifestyle of the Atlantic populations, who were forced to form new practices and consequently make adjustments to the land routes between the coast and the interior, in pursuit of a better self-sufficiency.

Even so, from the late third century AD onwards, Baetican olive-oils⁷ and fish-sauces almost disappeared from the northern markets, though there was still some demand for Mediterranean goods such as African (Williams and Carreras 1995) and eastern amphorae (mainly Late Roman I and IV; Kelly 2010). Phocaean Red Slip Ware (PRSW) is another indicator of such minor commerce with the eastern Mediterranean in Irish and British waters, as are other Gaulish products such as E ware (Thomas 1976; 1981). There still remains evidence for long-distance trade in the Late Roman period in the north-west of the Iberian Peninsula, as the presence of oriental Late Roman and African vessels reveals, in which Vigo and Gijón played a special role (Reynolds 2010, 105–11).

The case of Vigo is truly exceptional: its evolution and continuity of trade exchanges place the ria of Vigo beside other major ancient port enclaves, such as those at Alexandria, Ostia, Carthage, Marseille or Cadiz. Hopefully, Vigo⁸ will throw new light on this little-known late Atlantic trade that brought eastern Mediterranean and African goods into Irish and British waters.

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7 There are only a few examples of late Dressel 23 at Köln–Sant Gedeon church and supposedly Trier (though the author has not seen the examples).

8 In a recent doctoral thesis entitled *El comercio tardoantiguo (ss. IV–VII) en el Noroeste Peninsular a través del registro arqueológico de la Ría de Vigo*, Adolfo Fernández (forthcoming) has begun to publish the abundant late material from the local rescue excavations. There remains much potential in this site that will help to explain the commercial circuits of this Late Roman period.

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