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RESEARCH UPDATE

The ALBIMEH Project – Atlantic Late Bronze Age Metal Hoards Compared

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Introduction

Atlantic Late Bronze Age interaction through metal hoards (ALBIMEH) was a two-year research project funded by a Marie Curie Intra European Fellowship within the 7th European Community Framework Programme (Project no 628959). It was carried out at the UCL Institute of Archaeology in 2014–2016 with Xosé-Lois Armada as lead researcher and Marcos Martinón-Torres as scientist in charge, including also a number of both internal and external collaborations.

The project aimed to examine the nature and the degree of interaction between the Late Bronze Age (LBA) communities of the European Atlantic façade (*c.* 1300–850 BC) through the study of metal hoards and votive deposits (**Fig. 1**). We sought to determine the similarities and differences expressed by the hoards and votive deposits in relation to different spheres (economic, technological, ideological and symbolic) by undertaking an intensive and comparative study of the phenomenon in four selected geographical areas. To achieve this aim, priority was given to obtaining data using a standardised methodology in four areas located in different regions on the Atlantic façade: Central Portugal, Northwest Spain, Brittany and Southern Britain. This is a crucial aspect, as previous studies have often been based on partial information that is not very standardised, and are therefore difficult to analyse in an integrated manner.

Figure 1: Spearheads from Alcaián deposit (Alcaián lake, Seavia, Coristanco, NW Spain) (Museum of San Antón, A Coruña, Spain) (Photo ALBIMEH project).

Hoards constitute an excellent source of information for tracing technological and cultural similarities and differences over extensive geographical areas, given that they reflect deliberate acts of hiding, offering or depositing certain objects. While other facets of the archaeological record may be the result of chance or routine action, in the hoards there is an intentional and conscious dimension that is in keeping with specific, culturally important ideological schemes.

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LBA metal hoards present a classic subject in European archaeological research. While many studies have focused on the typology and chronology of the artefacts, other issues such as the archaeological context of the hoards or their interpretation have been less well explored from a systematic and comparative perspective (Bradley 1990; Needham 2001; Vilaça 2006; Yates & Bradley 2010).

At the same time, long distance contacts and relations, as well as their social implications, have been a long-term concern in studies of the LBA on the European Atlantic façade. Scholars such as Cunliffe (2013) see in this fluid interaction the most plausible explanation for the emergence of the Celtic languages in Western Europe. Furthermore, recent studies based on lead isotope analyses (LIA) suggest a significant flow of metal from Iberia to Sweden across the Atlantic façade during certain periods of the Bronze and Early Iron Ages (Ling et al. 2014). The evaluation of these hypotheses, with their important historical implications, needs to be supported by robust, small-scale studies and their subsequent integration in a wider framework. This was the approach developed in the present project.

Objectives and Project Design

The research questions we were hoping to address through the systematic analysis of the data include:

- Which quantitative variables are most significant in the study of hoards?
- Which artefact features are most relevant to the characterisation and interpretation of the hoard assemblages?
- What regularities or differences can be identified in the manufacturing technology of the items?
- What patterns and singularities are there in the acts of deposition and their geographic location?
- How do the above factors relate to each other and to other dimensions of the archaeological record? What social and historical conclusions can we draw from this integrated analysis?

We selected four study areas of some 4,500 km^2 each, all of them either on the coast or open to the sea and, therefore, potentially involved in LBA maritime trade. These areas are located in the Beira Litoral Sul and Alta Estremadura (Portugal), the North of Galicia (Spain), the Morbihan (France), and Kent and Essex (UK) (**Fig. 2**).

A key task in the project was the review and update of all available inventories of hoards and single finds in the selected areas. This compilation included not only published literature (Maraszek 2006; Turner 2010; Milcent 2012, among others) but also additional sources such as unpublished academic works (e.g. Bottaini 2012; Weller 2014), the Portable Antiquities Scheme (PAS) database, museum inventories and archival documents.

In addition, the project also included the direct documentation of hoards and single finds in the main museums and heritage institutions in each study area, as well as the creation of a new corpus of analytical data using a handheld X-Ray Fluorescence analyser (XRF), employing an analytical

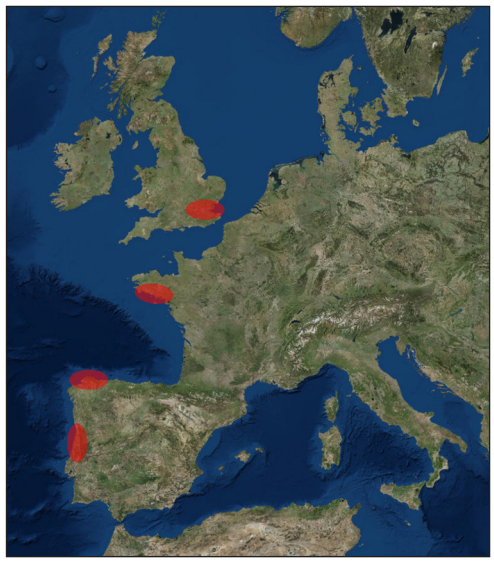

Figure 2: Location of the selected study areas (base image: World Imagery, Esri).

programme calibrated specifically for ancient copper alloys. By conducting numerous analyses on several spots on each object, both before and after mechanically removing the patina, we not only obtained the alloy composition of the objects but also interesting insights about metal segregation (and hence compositional variability) within bronze objects, as well as on the potentials and limitations of using this technique on corroded surfaces. Additionally, a total of 43 objects were sampled for trace element and lead isotope analyses (MC-ICP-MS) at the SGIker-Geochronology and Isotope Geochemistry Facility at the Basque Country University (UPV/EHU) (Spain). Alongside the new analyses, we undertook a systematic compilation of legacy data in the areas covered by the project.

Rather than a mere assessment of the question of metal provenance, a key purpose of the analytical data was to evaluate whether there is any correlation between alloy composition and such factors as the type of object, the type of hoard, the geographic area, the distance from the mining and metallurgical resources, etc. The examination of the objects, combined with the characterisation of their alloys, also allowed us to verify whether there was any relationship between the alloys used and the functional or merely ritual use of the object. Furthermore, we tried to use the variation in chemical composition as a proxy to address the degree of interaction and connectivity of the selected areas, alongside other variables such as the isotopic variation, the number and typology of objects or the amount of metal hoarded.

New Data, Results and Highlights

An aspect worth highlighting is the dramatic differences in the number and size of hoards among the four study areas, ranging from nine hoards in Beira Litoral Sul and Alta Estremadura to more than 60 in Kent-Essex (in addition to single finds). These disparities are the combined result of different factors. As Burgess and O'Connor (2008) pointed out, a crucial element affecting drastically the LBA development in the Atlantic façade of Iberia is the early Phoenician presence, which radically changed the regional networks of metal production, trade and consumption. In the French and British study areas, most hoards belong to the so-called carp tongue complex, containing a large amount of scrap or broken material and copper ingots. In contrast, hoards from the Iberian study areas are earlier in date and usually contain a smaller number of complete objects without copper ingots or scrap metal. Another important parameter is the unusual British policy about metal detecting and the role of the PAS, which explains at least in part the higher number of hoards in Kent-Essex.

The work plan involved research stays in several museums, sometimes in collaboration with colleagues such as Raquel Vilaça (University of Coimbra) in Portugal or Sophie Adams (University of Bristol) in Maidstone. In total, we have carried out multiple analyses of some 300 objects, in addition to *c.* 400 analyses undertaken in previous projects within the four study areas, which were also compiled and included into the project database.

Among several other famous assemblages, the project included the analytical study of the Boughton Malherbe hoard (Kent), in collaboration with Sophie Adams. Discovered in 2011 through metal detecting and currently kept at Maidstone Museum, with its more than 350 items it is one of the largest LBA metal hoards discovered in Britain (Matthews et al. 2012). More than 60 items of this assemblage have been analysed by handheld XRF, and a subset of them (mainly copper ingots) sampled for LIA.

Another significant achievement is the establishment of a new analytical series for the rotary spits, true masterpieces of Atlantic LBA bronzework (Armada 2011). Nearly all the known Iberian rotary spits have now been analysed and, despite the lack of analytical data for those found elsewhere in the Atlantic and the Mediterranean, the Iberian ones appear to have been locally manufactured.

Impact and Future Prospects

The main publications presenting the project results are in progress. However, some of these results have already been presented in some international conferences, including the Historical Metallurgy Society Research in Progress Meeting, Archaeometallurgy in Europe IV, and the 21st Annual Meeting of the European Association of Archaeologists. The project is fostering a renewed perspective on LBA metal hoards and on how they inform us about social interaction in Atlantic Europe.

The analytical database is probably the first transnational collection of chemical composition analyses in the Atlantic area since the *Studien zu den Anfängen der Metallurgie* (SAM) project of the 1960–70s, and it will be made available in open access in the near future. It is expected that it will have significant reuse potential for future research.

Last but not least, the success of the project design has been proven and as such it represents the beginning of a longer-term research strategy in which new study areas can be incorporated in order to test and refine current views on these key issues. In this sense, the networks and collaborations with colleagues from Portugal, Spain, France, the UK and Sweden built or reinforced during the project are of great importance.

Competing Interests

The authors declare that they have no competing interests.

References

Armada, X-L 2011 Feasting metals and the ideology of power in the Late Bronze Age of Atlantic Iberia. In: Aranda, G, Montón-Subías, S and Sánchez, M (Eds.) *Guess Who's Coming to Dinner. Feasting rituals in the Prehistoric societies of Europe and the Near East*. Oxford: Oxbow, pp. 158–183.

Bottaini, C 2012 *Depósitos metálicos no Bronze Final (sécs. XIII–VII a.C.) do centro e norte de Portugal. Aspectos sociais e arqueometalúrgicos*. PhD Thesis. Coimbra: Universidade de Coimbra.

Bradley, R 1990 *The passage of arms*. Cambridge: Cambridge University Press.

Burgess, C and **O'Connor, B** 2008 Iberia, the Atlantic Bronze Age and the Mediterranean. In: Celestino, S, Rafel, N and Armada, X-L (Eds.) *Contacto cultural entre el Mediterráneo y el Atlántico (siglos XII–VIII ANE). La precolonización a debate*. Madrid: CSIC, pp. 41–58.

Cunliffe, B 2013 *Britain Begins*. Oxford: Oxford University Press.

Ling, J, Stos-Gale, Z, Grandin, L, Billström, K, Hjärthner-Holdar, E and **Persson, P-O** 2014 Moving metals II: provenancing Scandinavian Bronze Age artefacts by lead isotope and elemental analyses. *Journal of Archaeological Science*, 41: 106–132. DOI: http://dx.doi.org/10.1016/j.jas.2013.07.018

Maraszek, R 2006 *Spätbronzezeitliche Hortfundlandschaften in Atlantischer und Nordischer Metalltradition*. Halle: Landesmuseum für Vorgeschichte.

Matthews, S, Jackson, J, Raposo, M and **Leedham, J** 2012 Prehistoric French scrap dealers in Kent? The Boughton Malherbe Bronze Age hoard. *Current Archaeology*, 267: 32–35.

Milcent, P-Y 2012 *Le temps des élites en Gaule atlantique. Chronologie des mobiliers et rythmes de constitution des dépots métalliques dans le context européen (XIIIe–VIIe s. av. J.-C.)*. Rennes: Presses Universitaires de Rennes.

Needham, S 2001 When expediency broaches ritual intention: The flow of metal between systemic and buried domains. *Journal of the Royal Anthropological Institute*, 7(2): 275–298. DOI: http://dx.doi.org/10.1111/1467-9655.00063

Turner, L 2010 *A re-interpretation of the Later Bronze Age metalwork hoards of Essex and Kent*. BAR (BS), 507. Oxford: John and Erica Hedges Ltd.

Vilaça, R 2006 Depósitos de bronze do territorio portugués. Um debate em aberto. *O Arqueólogo Português, série IV*, 24: 9–150.

Weller, S W 2014 *Bronze Age tin-bronze metalwork assemblages in Kent: Composition, distribution and context*. BA Thesis. Kent: University of Kent. Available at: https://kar.kent.ac.uk/47462/ (Last accessed 27 June 2016).

Yates, D and **Bradley, R** 2010 The siting of metalwork hoards in the Bronze Age of South-East England. *The Antiquaries Journal*, 90: 1–32. DOI: http://dx.doi.org/10.1017/S0003581509990461

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