

Complutum

ISSN: 1131-6993

<https://dx.doi.org/10.5209/cmpl.92262> EDICIONES
COMPLUTENSE

Valorisation of pre and protohistoric twin vessels found in the Portuguese territory

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Recibido: 15 de agosto de 2023 / Aceptado: 02 de noviembre de 2023

Abstract. This text examines twin pottery forms dating from the Bronze and Iron Ages found in the current Portuguese territory. The published data is gathered and explored further whilst presenting five unpublished specimens, as well as others nearly forgotten until now. This integrative approach allows for a thorough inventory of this pottery universe, accompanied by the elaboration of a typology proposal, although subject to the sample's high level of fragmentation. The analysis of specimens and the valorisation of their contexts (mainly settlements, except a cave of ritual nature) is combined with the scenery of twin vessels in the remaining Iberian space and even beyond it, commenting on some of the interpretative challenges around these peculiar pottery forms, namely in the matter of function and semantics.

Keywords: Twin vessels; contexts; Bronze / Iron Age; Portugal

[es] Interpretación de los vasos gemelos pre y protohistóricos hallados en el territorio portugués

Resumen. Este texto estudia las formas cerámicas gemelas fechables en las edades del Bronce y del Hierro localizadas en el actual territorio portugués. Se recopilan los datos publicados, que se exploran con mayor profundidad, y se presentan cinco vasos inéditos, así como algunos otros que habían permanecido prácticamente olvidados. Esta aproximación integradora permite ofrecer un inventario exhaustivo de este universo cerámico, acompañado de la elaboración de una propuesta tipológica, aunque condicionada por el alto grado de fragmentación de la muestra. El análisis de los ejemplares y la evaluación de sus contextos (principalmente asentamientos, salvo una cueva de carácter ritual), combinados con la valoración de vasijas gemelas en el resto del espacio ibérico e incluso más allá, permite afrontar algunos de los retos interpretativos en torno a estas peculiares formas cerámicas, concretamente en materia de función y semántica.

Palabras clave: vasijas gemelas; contextos; Edad del Bronce / del Hierro; Portugal

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Cómo citar: Vilaça, R.; Santos, A. A. (2023): Valorisation of pre and protohistoric twin vessels found in the Portuguese territory. *Complutum*, 34(2): 415-439.

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1. Introduction: A peculiar pottery form

In the pre and protohistoric pottery production universe of the Iberian Peninsula, the designated “twin vessels” hold a special place, namely for their peculiar form that, in their long diachrony and manipulation in distinct geographic and cultural contexts, has assumed particular and diverse plastic configurations. Intrinsic to this multiplicity of contexts is a potential diversity of functions, uses and meanings.

The common name given to two or more formally similar pottery vessels that are physically attached or linked with each other is “twin vessels”, based on the supposition that the pottery bodies that make them are or could have been, identical in every formal aspect (therefore, making them “twins”). The present work uses this minimalist perspective for the concept of “twin vessels”, thus excluding other pottery forms with multiple components that are not in a strict sense identical or “twin”. These, however, cannot be ignored in the discussion.

In general, each piece is comprised of two, occasionally three, pottery vessels of similar technical and decorative characteristics, made separately and later united near the rim, sometimes resorting to the application of handles of different forms (Sesma *et al.* 2007-2008). Still, these similarities could be translated through distinct formal approaches and even of scale, emphasising the underlying heterogeneity of this pottery universe.

A critical detail that we henceforth highlight is that, in some cases, the distinct ceramic bodies are intercommunicating, contrary to those in which each is independent of the other(s). In some cases, it is a concept of juxtaposition, in others of compartmentalisation, something that naturally would or could be translated in terms of specific content(s) and function(s).

Therefore, the twin vessels as study objects, frequently associated with wealth, abundance and being able to express a ritual or sacred dimension, manifest supreme interest on multiple levels, namely semantic. From another perspective, they are also revealing the level of technological skill of the potter(s), considering the complexity of the fabric inherent to these forms.

2. Data and objectives

Twin vessels are present in distinct regions beyond Pyrenees, as well as in the Mediterrane-

an area, dating back its record in the Iberian Peninsula to Neolithic chronologies, including Early Neolithic, with the older examples identified in the regions of Valencia, Alicante and Granada. This reality is illustrated, among others, by the examples from Cova de la Sarsa (Bocairent, Valencia), Cova de l’Or (Beniarres, Alicante), and Sima Rica (Alhama, Granada) (Martí Oliver and Cabanilles 1987: 47; Bernabeu 1989: 53; Sesma *et al.* 2007-2008: 929).

Quiet expressive are the groups in the most oriental area, namely of the East and Northeast (Navarra, Catalunya, Alicante, Castellón), where they adopt special protagonism during the 2nd millennium B.C., in contexts from the Early Bronze Age and particularly from the Middle and Late Bronze Age, as is the case of the so called “Valencian Bronze” (v.g. Enguix 1981: 70-71; Maya and Petit 1986: 56-57). Taking as an argument the particular concentration of specimens in the province of Valencia, it has even been proposed by Soriano and Amorós i Gurrera (2014: 19-20) as the probable origin area for these forms, dating from the final stages of the 3rd millennium B.C., where the broadest chronology can also be found, going as far as the Iron Age.

Despite the twin vessels’ special character, bibliography exclusively produced about them is scarce, even on an international level. The inventories and systematisations of these forms are limited in the far-most western European world, having been put forward for Italy (Bartoloni *et al.* 1980) and for Spain, here only on a regional level, centred essentially on the Levante and Northeast (Sesma *et al.* 2007-2008; Soriano and Amorós i Gurrera 2014; 2015).

For the Portuguese territory the panorama is very incomplete, especially in quantitative terms, as there are not much more than twenty twin vessels identified to date. Nor is there an in-depth, up-to-date, and intelligible data overview, the final aim of of this text.

A first and brief systematisation goes back to Vilaça’s work (1995), when the few examples known at the time were gathered, such as those of Castelejo and Moreirinha, published there first hand, and those of Baiões and of S. Julião, studied respectively by C. T. da Silva and A. Coelho, in the first case, M. Martins and A. Bettencourt, in the latter (Silva 1979: 524; Silva 2007: 184; Martins 1987: 49; Bettencourt 1999: 1095). Despite abstractly being attribut-

ed a ritual meaning, the way in which these ceramics were problematised differed from author to author, but fundamentally showcased the possibility of two divergent paths. A. Coelho advocated a religious meaning for the Baiões vessel, perhaps with cultural roots related to the “mother-goddess” cult, associating it with the influences of the “Urn Fields” of the Late Bronze Age (Silva 2007: 184). From another perspective, the symbolic dimension of the twin vessels was valued, emphasising the importance of certain African analogies in the understanding of these special forms (Vilaça 1995: 292, 303).

After this publication, other finds of different provenance were released and, already at the beginning of this century, new twin vessels from excavations in the settlement of Canedotes were also released, as well as those dating from the end of the Bronze Age, leading to a reassessment of the subject (Canha 2002: 211-213). More recently, the subject was the object of interest on another academic project, leading to new reflections and the elaboration of the first proposal of typological systematization of these forms (Santos 2020: 132-147).

In this text, we intend to continue with these contributions, delving deeper into them and incorporating other unpublished examples, namely from sites excavated in the scope of different research projects developed in central Portugal. This revision is also set in a long diachronic perspective, allowing us to draw a more detailed picture of the recorded twinned forms and to better understand the specificities of this pottery group through the respective contexts of manipulation or deposition and their cultural dimension.

3. The Portuguese *corpus*

The fact that most of the identified specimens are reduced to fragments, almost always constituting connecting elements of two or more ceramic bodies, is a major obstacle to a full and secure understanding of them.

Thus, it is plausible that there are other cases besides those presented here which have been wrongly classified, either by the absence of connecting elements, or by unawareness in the identification of these elements. For this reason, some of the reconstitutions presented in this work must also be understood as hy-

pothetical; the impossibility of determining the precise orientation of some other fragments prevented us from representing them in drawing, so those are only photographically presented with multiple perspectives. On the other hand, the lack of publication of technical aspects of some of the specimens, or even the poor quality of some images, as well as the lack of musealisation of several pieces and the unknown whereabouts of others, raise further problems to the systematic research we have sought to develop.

It is also important to mention that the materials under analysis are limited to the Late Bronze Age and Iron Age chronologies, therefore excluding vessels with older chronologies - unknown in the Portuguese territory, in contrast to the case of the Spanish territory.

We have counted 22 specimens, excluding two situations in this calculation. One refers to the existence of twin vessels in the settlement of Santa Olaia (Figueira da Foz) (Lopes 1993: 138-139), which do not exist. The author probably had in mind the composite lamp or “*pebeteros*” (Pereira 1997: 223, fig. 108). The other relates to the find at Agra do Crasto (Aveiro) of a fragment initially interpreted as a tripod twin vessel (Baptista *et al.* 2022: 190), but that in the alternative reading of S. Almeida, with which we agree, corresponds to a simple tripod bowl with ovoid opening (Almeida *et al.* 2022, fig. 3). It could be an example that should be added to the same formal universe of the “*barchetta*” vases (Bartoloni *et al.* 1980: 154).

Among the various hypotheses of organization of the corpus that follows, we have chosen to adopt a geographical order, from north to south (Fig. 1), independent of the chronology or the uniqueness of the specimens.

3.1. São Julião (Vila Verde, Braga)

At the beginning of the 1st millennium B.C., a settlement was established on a high platform with natural defensive conditions and broad visual control over the landscape; its occupation continued for the following centuries. Besides a double defensive line, constituted by a wall of earth and stones and a ditch, archaeological interventions at the site have identified, among others, occupation soils and circular and oval shaped residential structures, built in stone and perishable materials (Martins 1988; Bettencourt 1999).



Fig. 1 – Sites with twin vessels in the Portuguese territory (map by José Luís Madeira).

The only twin vessel example dates from the Late Bronze Age, given the artefactual contexts and the fifteen C_{14} dates of this first phase of occupation, whose weighted average and calibrated at 2 sigma establishes an occupation in the 9th century BC (Bettencourt 2000: 101-102). It corresponds to Martins' Form 10, or Bettencourt's Form 16 (Martins 1988: 140-141, Est. XL-10; Bettencourt 1999: 1095) and is comprised of three small double-carinated bowls connected to each other both externally and internally, since they have both external "bridges" and internal communication through each ceramic body. Each bowl has approximately 4.5 cm in diameter and 3.9 cm in height; the bottoms are umbilical (Martins 1987: 49; 1988: 150) (Fig. 2). The paste is of good quality, with small temper quartz grains, well calibrated and homogeneously distributed; the surfaces are polished, giving a shiny aspect to the piece (Martins 1987: 46; 1988: 150). The three bridges that externally connect the ceramic bodies create a small central hole which, given the dimensions of the piece, could have been used to hold it.

Due to the similarities of the fabric in relation to other finer pieces from the same settlement, Martins (1988:150) suggests that this is a local production, considering also that it had a ritual character.

This piece belongs to the collection of the D. Diogo de Sousa Museum (Braga).

3.2. Canedotes (Vila Nova de Paiva)

Standing out in the landscape with its almost conical silhouette on top of which several rocky outcrops have formed, Canedotes corresponds to a Late Bronze Age settlement. The immediate area is visually dominated in almost all directions, thus also guaranteeing the control of one of the main natural passages of the Alto Paiva region (Canha 2002: 31-33). The occupation favoured the highest platforms, where semi-circular structures, post-holes and pits were identified, among others, correlating with differentiated areas of use, namely of storage, preparation or consumption, in all likelihood of a collective nature. That chronology is supported by material typology and their associated contexts, to which six statistically similar radiocarbon dates are associated,

whose weighted average allows us to place, for 2 sigma, the occupation of the site between the first quarter of the 10th century BC and the end

of the 9th century BC (Canha 2002: 132-154; 168-169).

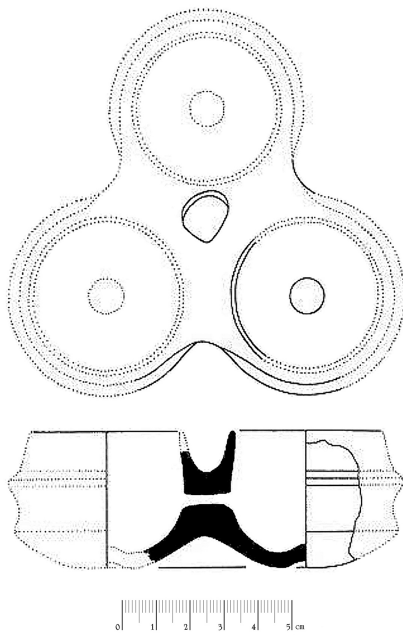


Fig. 2 – Twin vessel from São Julião, Braga (a- according to Martins, 1988; b- photo: D. Diogo de Sousa Museum, adapted).

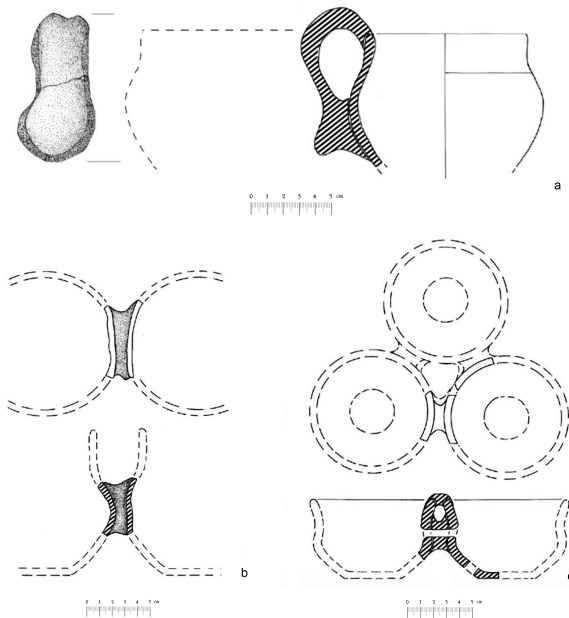


Fig. 3 – Twin vessels from Canedotes, Vila Nova de Paiva (a, b, c – according to Canha, 2002: est. XX-2, 3; d – photo: Archaeological Museum of Alto Paiva).

There are three fragmented twin vessels of small dimensions, with smoothed and polished surfaces, which fit into group 11 defined by Canha (2002: 200, 207-208). The fragments

were collected in subsector IA of the settlement, associated with those habitation contexts.

One of the forms (variant A from Canha) corresponds to a twin vessel with a globular

belly and vertical neck joined at the belly and rim by a handle; the surfaces are polished, and the diameter is 9 cm (Canha 2002: 74, Est. XX-1) (Fig. 3a). The edges of the fracture were refined, seemingly indicating the vessel remained in use with a single bowl, that is, it was recycled as a simple vessel (Canha 2002: 75).

Another twin-vessel was equally found under a structure and, in view of its fragmented state, it is of difficult classification (variant A or C in Canha 2002). It corresponds to a connecting component between the bellies of the ceramic bodies of smooth outer surfaces, with a diameter of about 11 cm (Fig. 3b) (Canha 2002: 74, 76; Est. XX-3).

The third piece is a triple-vessel (variant B) joined at the rim with three handles and at the belly with three small holes that allow the communication of the ceramic bodies (Figs. 3c and 3d). The surfaces are polished, and the diameter of each bowl is 9 cm (Canha 2002: Est. XX-2). As it was found underneath one of the slabs of the structure composed of several semicircles, the piece may “connote some symbolic act” (Canha 2002: 75-76).

It is currently on display at the Alto Paiva Archaeological Museum (Vila Nova de Paiva).

3.3. Nossa Senhora da Guia de Baiões (São Pedro do Sul)

Overlooking the Vouga river, the Nossa Senhora da Guia hill knew a special occupation from the end of the Bronze Age that has been researched since the 1970s, namely with respect to the well-known assemblage of metal materials (Silva *et al.* 1984; Vilaça 2020: 306-310, with seminal bibliography).

It is possible to associate the twin vessels' fragments to this chronology, also supported by C_{14} dating whose weighted average, with calibration at 2 sigma, points to an occupation centred on the 10th-9th centuries BC (Vilaça 2008: 384-385). The specimens were identified for the first time by C. T. da Silva (Silva 1979: 524) and correspond to three connection fragments, plus a fourth vessel, which has been restored, but whose graphic representation differs according to the authors (Silva 2007: 184, 234, Est. XXXVII-12; Lopes 1993: 138-140). The latter work also identifies other twin vessels, yet their graphic representation

raises some doubts both as to their individualization (since they might have been part of the same piece) and as to their nature as twin vessels itself.

The restored twin vessel is double, united by the belly and with a raised handle connecting the rims. The two bodies have subvertical necks and globular bellies, with a smooth profile and sublevelled bottom. The handle, creates an empty space between it and the connection of the two bodies, each having a 13 cm diameter opening and a height estimated in c. of 8 cm. The manufacturing is medium-sized, with homogeneous paste and well distributed small and medium calibre temper. The surfaces are polished and have a light brown tone (Fig. 4).

A portion of the materials from Baiões can be found in the Municipality of São Pedro do Sul, where a small exhibition was recently created.

3.4. Quinta das Rosas (Maceira, Fornos de Algodres)

The Quinta das Rosas settlement is located on a gentle slope southwest of the Maceira village, nestled between the Ribeira dos Telhais valley.

Between 2003 and 2006 the site was excavated by means of several surveys which allowed for the identification of occupations from the Early Neolithic, Late Chalcolithic and Late Bronze Age. The reference to the remains of this reoccupation (dated by radiocarbon to the transition from the 2nd to the 1st millennium BC) mentions the existence of a double twin vessel from sector 5 (Valera 2008: 139; 144).

Unpublished to date, the specimen (no. 408) corresponds to a vessel that would have consisted of two twin bowls, of which a fragment of the connecting element of the bellies was preserved; it is thought that it might have had a small neck (Fig. 5). The maximum diameter of each part was calculated at c. of 8 cm. The paste is not very compact, with well distributed small and medium sized temper, with small particles of feldspar and mica. Brownish smooth surfaces with an orange core.

The fragment is displayed in the Fornos de Algodres Municipal Museum.



Fig. 4 – Twin vessel from Baiões, Viseu (a – photo: André Lopes Pereira; b –infographic: José Luís Madeira).

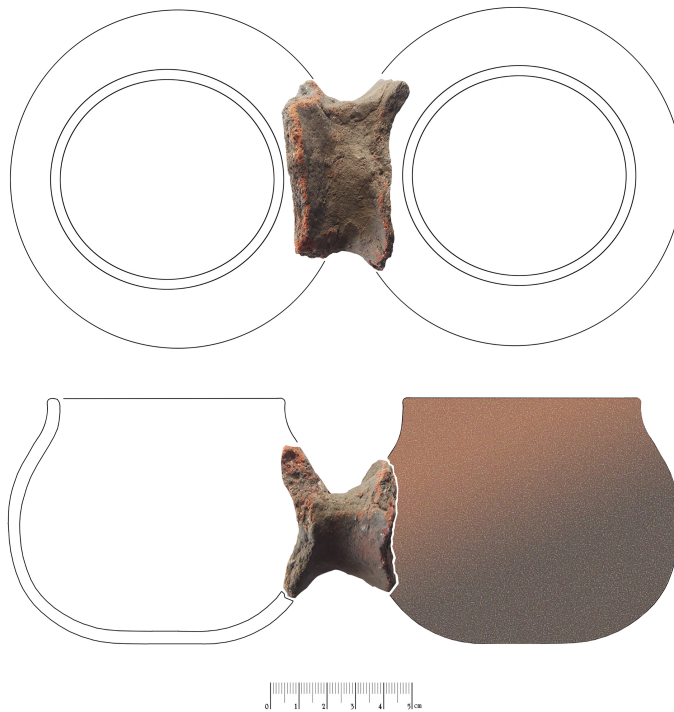


Fig. 5 - Twin vessel from Quinta das Rosas, Fornos de Algodres (infographic: José Luís Madeira).

3.5. Castelejo (Sortelha, Sabugal)

Castelejo is located on top of a granite hill-top with visual dominance over the surrounding valleys and was occupied during the Late Bronze Age. The three excavation campaigns unearthed residential structures (hearths, post holes) and traces of a dry-stone wall in the most vulnerable area of the inhabited space (Vilaça 1995: 90-123).

The highest area of the settlement corresponds to a small platform on which metal-working activities were carried out. In this context also appeared fragments of twin vessels, part of type 10 of Vilaça (1995: 117-119).

Fragment 1 [Cast.88 ID], the only so far graphically represented, is a connecting element with the start of a handle (Vilaça 1995: 119, Est. XXIV-2). The distance between the two ceramic bodies would be c. 4 cm, and the estimated diameter of each opening was calculated at c. 7 cm; it has the start of a possible handle. Although with pronounced wear marks, its fabric is medium, and the paste is homogeneous with good distribution of medium calibre temper. The surfaces are brownish

in colour. It is not possible to accurately identify the complete shape of the vessel, although reconstitution has been hypothesised (Fig. 6).

Fragment 2 [Cast.88 ID1' 01] is a connecting element of small dimensions, with a distance of at least 3.6 cm between two ceramic bodies that would be connected in the belly area. The surfaces are brownish and very polished. It was not possible to determine the fragment's orientation (Fig. 7a).

Fragment 3 [Cast.88 I D1 01] corresponds to a rim element with the start of a banded wing with a width of c. 2 cm and with traces of another connecting element, very close to the start of the handle. It is thin and homogeneous with a good distribution of medium calibre temper. The surfaces were polished on the exterior and spatulated on the interior, both showing a brownish tone. On the exterior, it is possible to recognise slight traces of practically imperceptible burnished lines. As with the previous piece, its orientation is problematic (Fig. 7b).

All the pieces are part of the collection of the Municipal Museum of Sabugal.

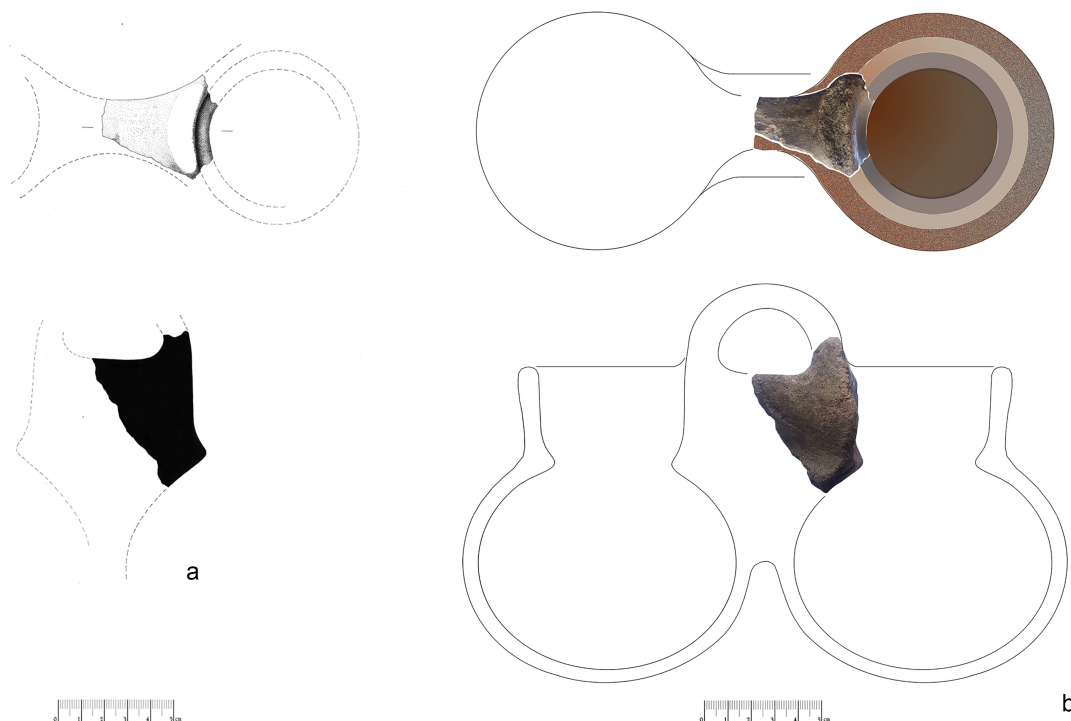


Fig. 6 – Twin vessel from Castelejo, Sabugal (drawing and infographic: José Luís Madeira).

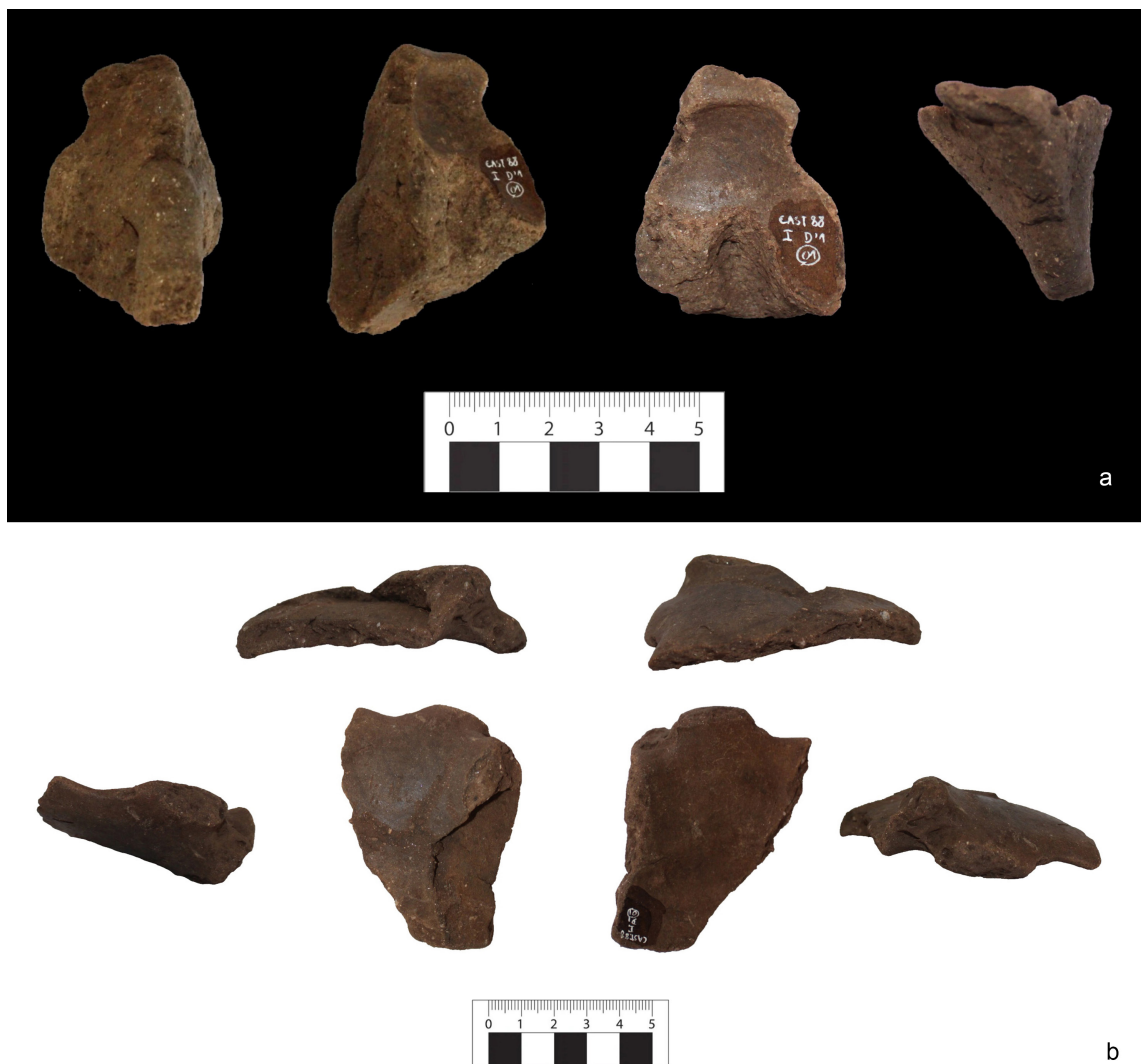


Fig. 7 – Other twin vessels from Castelejo, Sabugal (photo: André Lopes Pereira).

3.6. Moreirinha (Idanha-a-Nova)

A high-altitude settlement with an expressive Late Bronze Age occupation, located on the summit of an “inselberg”, thus benefiting from excellent defensive conditions and ample visual control. During the archaeological excavations carried out in the 1990’s, several structures were identified, namely subcircular-plan huts, floors defined with pebbles, combustion structures, etc. (Vilaça 1995: 211-236). The only twin vessel identified was part of a level dated by C_{14} , whose calibrated result, at 2 sigma, points to a range between 1257-931 BC (Vilaça 1995: 236).

The fragment [Mor.90 IA’6 02] corresponds to a connecting element of medium fabric and a greyish-brown colour, representing Vilaça’s Form 7 (1995: 221, 231-232; Est. CCXXXVIII-1). Although it maintains the start of the two ceramic bodies that originally made up the specimen through a carination, the complete form is unknown, despite the opening diameter of c. 14 cm. It has medium-sized temper, and the surfaces were polished on the outside, whilst the inside shows traces of spatulation (Fig. 8).

This fragment is integrated in the Didactic Museum of the Archaeological Institute of the Faculty of Arts and Humanities of the University of Coimbra.



Fig. 8 – Twin vessel from Moreirinha, Idanha-a-Nova (a- drawing: José Luís Madeira; b- photo: André Lopes Pereira).

3.7. Monte do Trigo (Idanha-a-Nova)

The site is an isolated and prominent conical relief in the landscape, on top of which we find a platform of roughly oval configuration (Vilaça and Cristóvão, 1995). The excavations revealed traces of a second half of the 3rd millennium BC occupation, and another associated to the sections of a wall, revealing an important occupation from the transition of the 2nd to the 1st millennium BC. The two ceramic fragments under consideration here, unpublished thus far, are ascribed to this second occupation.

One of the fragments [MTrig.97 B4 01/163] corresponds to a connecting element with the start of a handle. The distance between the two ceramic bodies would have been of at least c. 3.5 cm. The handle would start in the lip area

of one of the bodies and plausibly end in an identical area on its twin counterpart at a short distance, thus making it a small handle. The paste is heterogeneous, with well-distributed small calibre temper, and the fabric is average. The surfaces are smooth and brownish and show no traces of decoration (Fig. 9a).

The second fragment [MTrig.97 B/C9 sup./170], whose orientation is difficult to determine, corresponds to two juxtaposed parts of a ceramic vessel. With paste and tonality identical to the previous fragment, the surfaces show a more refined finish, with traces of polishing (Fig. 9b).

These specimens are part of the Didactic Museum of the Archaeological Institute of the Faculty of Arts and Humanities of the University of Coimbra.



Fig. 9 – Twin vessels from Monte do Trigo, Idanha-a-Nova (a- drawing: José Luís Madeira; b- photo: André Lopes Pereira).

3.8. Nossa Senhora da Confiança (Pedrógão Pequeno, Sertã)

Strategically located on a hill overlooking the Zêzere river, this settlement was surveyed and excavated between 1995 and 1998. The published data reveals a Late Bronze Age occupation, although researchers do not rule out the possibility of the site being occupied from the Chalcolithic to the Iron Age, to which should correspond a wall, and to the Roman Period (Batata 1997: 165; Batata and Gaspar 2000: 682).

It was precisely in context of surveying that a small fragment of a connecting element of a twin vessel was identified which, due to its characteristics, was attributed to the Late Bronze Age (Batata 1997: 166-167; Fig. 5). Considering its published drawing (Fig. 10a), the piece would have consisted of two vessels with c. 17 cm in diameter. Data regarding the paste is absent.

The current whereabouts of this specimen are not mentioned in the publication.

3.9. Cerro do Castelo (Seada, Vila de Rei)

Situated on a conical hill, this walled settlement was excavated in 1995 and 1996. The recovered remains point to a chronology of Late Bronze Age and Early Iron Age occupation (Batata and Gaspar 2000: 677; 688).

In Sector D, one of the most important according to the authors, fragments of a twin vessel were collected in association with a carinated pot with nipple-like elements around the carination, and a level of ashes and charcoal inside a possible dwelling structure, from which it was also unearthed a net weight and half of a granite grindstones. Chronology of the Late Bronze Age was confirmed by two C_{14} dates that, calibrated at 2 sigma, place the occupation between 1310 and 821 BC (Batata and Gaspar 2000: 676, 679).

The identification of the twin vessel was based on a fragment corresponding to the connecting element of the two containers (Fig. 10b). The diameters of their openings would be c. 12.5 cm (values obtained through the analysis of the published drawing). No information is known about the technical features of the specimen, despite it seeming to have a medium manual fabric and smoothed surface, as seen on display in the Museum of Vila de Rei (Castelo Branco).

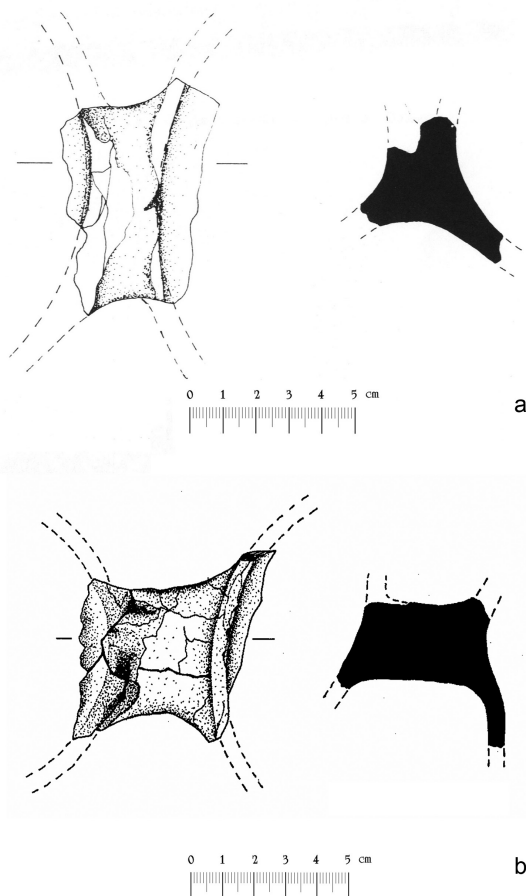


Fig. 10 – Twin vessels from Nossa Senhora da Confiança, Sertã (a- according to Batata 1997: fig. 5) and Cerro do Castelo, Vila de Rei (b- according to Batata and Gaspar 2000).

3.10. Lapa do Fumo (Sesimbra)

Well-known in the literature, Lapa do Fumo is a natural cavity overlooking and facing the Atlantic, with a long diachrony of use/occupation from the Middle and Late Neolithic to the 12th century AD. It is a reference site for the Late Bronze Age because a significant group of burnished ornate ceramics were found there, praised for the first time in the middle of the previous century by Eduardo da Cunha Serrão (Cardoso, 1996, with reference bibliography).

The assemblage from the Late Bronze Age includes a fragment of a connecting element of two carinated twin bowls (Cardoso 1996: 7, 10, fig. 2). The diameter of the opening of each of the ceramic bodies would be approximately 18.5 cm, which means that it is the

largest known specimen published, although it is not possible to reconstruct its original shape. Furthermore, its burnished decoration is of the “Lapa do Fumo type” which, according to João Luís Cardoso (in personal communica-

tion) corresponds to grooves slightly sharper than usual (Fig. 11).

The piece belongs to the Sesimbra Municipal Museum.

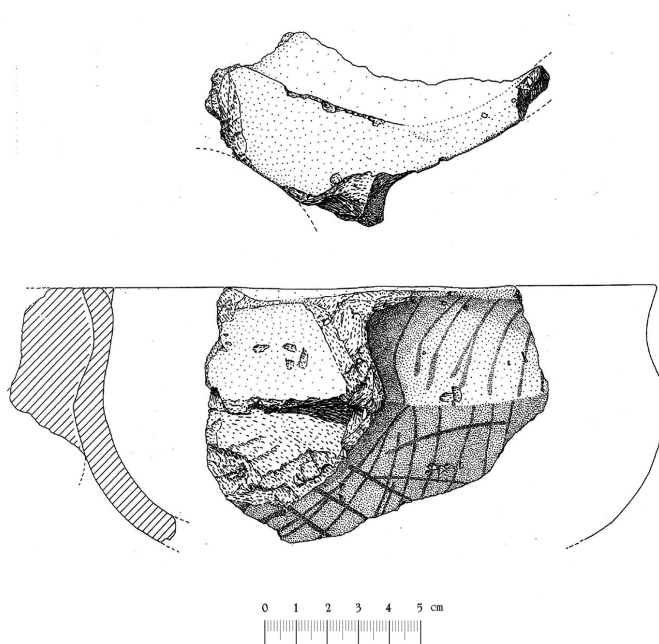


Fig. 11 – Twin vessel from Lapa do Fumo, Sesimbra (according to Cardoso, 1996, adapted).

3.11. Cabeça de Vaiamonte (Monforte, Portalegre)

Located on an isolated hill west of the village of Vaiamonte, this important archaeological site has known various periods of occupation, from the Chalcolithic, the Final Bronze Age, the Iron Age, as well as the Roman and Islamic periods (Fabião 1996: 40, 43).

Between 1951 and 1964, the settlement was excavated by M. Heleno (1956: 231). However, the specific context of the two twin specimens is unknown, and even our search for references in Heleno’s field notebooks (available at <http://arquivo.patrimoniocultural.gov.pt/apinet>) also proved unsuccessful. Emphasising their exotism, C. Fabião refers to partially restored vessels that would have been part of a cup-type piece formed by several ceramic bodies from the second Iron Age, being impossible to determine the complete shape (Fabião 1998, I: 43, 45, 196; III: Est. 42-11 and 12).

Based on the analysis of the specimens, which we had the opportunity to do at the Na-

tional Museum of Archaeology (Lisbon), it is clear that both suffered unfinished restoration, since they are not totally painted nor have the same finish. They are wheel-made - the only cases in the *corpus* under analysis - apparently with handmade finishes and connecting elements. Both have light brown coloured pastes, with reductive firing (greyish core and light brown exterior). They are also finely made, with few small calibre degreasers, well distributed, and smooth finish. Morphologically, they correspond to vessels with an extroverted rim, convex lip and S-shaped profile with “pastille” bases.

One of the specimens (No. 984.229.19) is composed of two joined ceramic bodies (hereafter referred to as A and B) in an unequal fragmentary state. It is an asymmetric twin vessel since A has a larger body than B, and they also differ in their bases, with A being slightly more concave than B, which has only a slight central projection. However, between the rim and the belly, both bodies have a smooth ribbing (Fig. 12a, b, c).

Body A is more complete, with a maximum diameter of 6.7 cm and a height of approximately c. 7.6 cm. Body B has a maximum diameter of 6.2 cm and a height of 6.6 cm. The two bodies are connected by the central area, with an irregularly contoured communication hole which is c. 0,7 cm in diameter. There is a start of a handle with c. 2 cm width where the two bodies connect, coincid-

ing with the most complete area of its exterior. Although quite incomplete, on the opposite side it is possible to recognise the negative of at least another connecting element, evident by the fracture zone of body A, which also has an irregular hole with c. 0.8 cm of approximate diameter, suggesting the specimen would have a third communicating ceramic body.



Fig. 12 – Different perspectives from a twin vessel from Cabeça de Vaia Monte, Portalegre (photos: André Lopes Pereira).



Fig. 13 – Another twin vessel from Cabeça de Vaia Monte, Portalegre (photos: André Lopes Pereira).

A third body (hereafter referred to as body C) was found, which must have been part of a twin vessel (No. 984.229.20) (Fig. 13). It

corresponds to a single piece, morphologically and typologically similar to Bodies A and B, but in a worse state of preservation. Even so,

it seems that body C, with maximum diameter of c. 6.3 cm and c. 7.1 cm in height, would have been connected to other body(ies) by a small handle that starts from the lip and seems to fork in a dissymmetric way, preserving a subcircular section with c. 1.2 cm in the less fragmented area.

In the light of the above, it is not unreasonable to think that the pieces from the Cabeça de Vaíamonte might have corresponded to a single twin vessel composed of multiple bodies, possibly quadruple.

4. A comprehensive view

Having presented the *corpus* of twin vessels currently known in the Portuguese territory, it is now important to characterise it as a whole, highlighting its specificities and similarities, due to its importance in the context of Iberian pre and protohistoric twin vessels.

4.1. Geographies, chronologies, and contexts

Looking through the dispersion of the peninsular twin vessels, the first idea that comes to mind is that there are distinct areas that gather a greater density of records, as opposed to others where emptiness reigns, where specimens are dispersed or where this dispersion may be only apparent. This situation cannot be dissociated from a chronological reading.

In fact, and contrary to other regions of the Iberian Peninsula, in its westernmost area, the manipulation of twin vessels seems to have been a late phenomenon and of remarkable chronological homogeneity, essentially associated with the later stages of the Late Bronze Age.

Nevertheless, some exceptions come to mind when considering chronology, as is the case of the previously commented vessel from Cabeça de Vaíamonte, dating from the second half of the 1st millennium BC. Older specimens can also be found when broadening the geographical analysis to other western peninsular areas, for example with the seeming single case from Galicia, found in the megalithic monument of Monte Pirleo 5 (O Buriz, Lugo), possibly dating from the 3rd millennium BC. It is a quadrilobular piece with internal communication; the decoration is incised, forming herringbone and ocular motifs, and was considered of ritual nature

(Fábregas Valcarce and Vilaseco Vázquez 2004: 74, fig.4-3; Fuente Andrés 1988). A specimen of chalcolithic chronology has also been found in the westernmost part of Andalusia, constituting a very interesting piece not only because of its shape, since it is a rare triple vessel, but also because of its find context: the *tholos* of El Moro (Niebla, Huelva) (Garrido Roiz and Orta García 1967: 22, 31, fig.10-8, lamina XIV-1).

The chronologies of these examples contrast with the Portuguese records, all of which belong to a much later period, as we have seen. At the same time, the density of records between the Douro and Tagus rivers is clear (Fig. 1). The idea that this situation might be due to less investment in Bronze Age excavations in other areas does not seem easy to uphold today, given that not only have excavations and finds multiplied from north to south, with assemblages from this period, but also ancient remains in museum collections have been the object of recent and, in some cases, systematic revisions. The same happens with other pre and protohistoric contexts with a symptomatic absence of twin vessels.

Thus, and considering that current data is insufficient to extrapolate secure considerations as to the significance of the geographical dispersion of this type of pottery, the truth is that the analysed situation seems to configure a particular model in the Portuguese case. The twin vessels express a late and very consistent chronological phenomenon: they are not prior to the 12th-11th centuries BC, nor do they go beyond the 9th century BC, parameters supported by the contexts (stratigraphy and materials) and by C₁₄ dating existing for seven of the eleven sites in the *corpus*.

We can therefore conclude that, in the current state of research, twin vessels represent a previously unknown typological reference of the Late Bronze Age pottery productions in the Portuguese territory, disappearing in the immediate aftermath, only to return, occasionally, at a very advanced stage of the 1st millennium BC.

Given the provenance contexts, where the record is invariably marked by the rarity of specimens, the data also reveal an almost total harmony between the twin vessels production and their underlying residential character. They are all connected to settlements. The only exception can be found in the remarkable piece from Lapa do Fumo, a natural cave with a non-habitational character, with burnished

ornate ceramics, like its twin vessel, whose contexts correspond to ritual deposits (Cardoso 1996: 8).

4.2. Shapes, fabrics, and decorations

The aspect that best characterises most of the twin vessels in the West of the Iberian Peninsula is their striking fragmentation, as is evident in the pieces reviewed or presented in this work, and that is not unrelated from the habitational contexts from which they originate from. Although this characteristic can also be seen in the specimens found in the Spanish territory, in the Portuguese case it makes the recognition of the original forms even more difficult, not only because of the aforementioned low number of examples per site, but also because of the few cases of less fragmentation.

Nevertheless, and in general, the twin vessels from Portugal seem to have some points in common with other Bronze Age *corpora* from the Iberian Peninsula, since here they too seem to correspond mainly to double twin vessels and of predominantly open profile, despite the existing enormous variety. Some authors argue the carinate profile is the only form documented for the twin vessels of the Iberian Peninsula (Sesma *et al.* 2007-2008: 931), while others tend to agree this is the most common shape with few exceptions (Gusi and Olària 2014: 124, fig. 53.2). However, other possibilities should also be considered, despite fragmentation of most specimens. Simpler or more globular vessels, sometimes with a small intersection point in the profile or smooth carination, and regardless of their chronology, are also part of distinct twin pottery repertoires. This seems to be the case of the Portuguese examples likely to provide information in this domain, such as the pieces from São Julião, Canedotes and Baiões. The containers are connected in one or two areas: on the rim, sometimes with the addition of a handle; and/or on the most prominent part of the body, particularly the belly.

An obvious consequence of the fragmentary nature of most of the specimens in question is the lack of information also regarding the base of the specimens, allowing for plausible heterogeneity in the whole, as it seems to have occurred in the remaining shapes. Thus, the triple-vessel from São Julião stands out due to its omphalos base; the double twin vessel from Baiões has a flattened base, but it is a reconstitution; the pieces from Cabeça de

Vaiamonte have “pastille” bases, a detail that is indissociable from their later chronology.

Regarding the scale of the Portuguese pieces, there is a clear predominance of small-sized forms. An evident exception is the specimen from Lapa do Fumo, the largest of the corpus, with c. 18.5 cm maximum diameter in each of its parts. The contrast is striking with the smaller piece, from São Julião, where the opening diameters do not exceed 4.5 cm. Although it is a specimen of reduced scale, it cannot be classified as a “miniature”, although twin micro-vases are known for the same chronology, as the French piece of Fort-Harrouard (Eure-et-Loire), to which Swiss parallels have also been pointed out (Mohén and Bailloud 1987: 71, 124, Pl. 75-24).

On the other hand, and again with the contingencies imposed by fragmentation, the double twin vessels seem to be dominant, making even more flagrant the exceptionality of the twin forms composed by a larger number of bodies. In Portugal, there are two examples of triple vessels, from São Julião and Canedotes, both comprised of small and intercommunicating bodies. It is interesting to note that the triple forms also seem to be an exception in other Bronze Age peninsular records, and perhaps even more strikingly on earlier records, exemplified by the chalcolithic triple vessel from El Moro previously mentioned. They reoccur in funerary contexts already of the Second Iron Age, as shown, for example, by the tripod triple vessel from Las Erijuelas de S. Andrés (Cuéllar, Segovia) (Barrio Martín 1987: 120, fig. 2, 6-23). From the same period, we can mention another triple vessel with inter-communicating parts and high foot from the Parrallí incineration no. 11 of Ampurias (Almagro 1955: 352 and fig. 335-4; Pons i Brun 1984: 321).

This later phase of pottery production reaches particular importance and coherence within the scope of composite forms in the eastern part of Meseta, an area linked to the ‘Vacceos’, where the presence of containers of this type has been documented in well preserved cremation funerary contexts with chronologies from the second half of the 1st millennium BC (5th-4th centuries BC to the later phases of the 2nd century BC, initial 1st century BC), namely from the necropolis of Las Ruedas (Valladolid), shapes XIV and XVII (Sanz Mínguez 1998: 241-244; Sanz Mínguez and Pedro 2014: 10; Sanz Mínguez and Rodríguez Gutiérrez 2019: 8) and of Cuéllar (Segovia)

(Barrio Martín 2012: 30). These are extremely elaborated and composite shapes, sometimes reaching a certain “baroquism”, and significantly contrast to the better preserved forms found in the Portuguese record.

In this regard, it is worth mentioning that the specimen from the Cabeça de Vaiamonte may correspond to a quadruple and intercommunicating vessel. Here, the small dimensions - height varying between c. 6.2/7.1 cm - should be noted, despite the clear formal differences with the other specimens discussed.

The rarity of decorated forms seems to be another attribute of the twin vessels under analysis. However, this may be only apparent if we consider the preserved parts that have survived to this date, as there predominantly are fragments of pieces joined together. The Lapa do Fumo specimen stands out once again for being the only one securely decorated, specifically with burnished grooves. One of the three specimens from Castelejo could also have been, given the slight burnished traces that can still be observed.

In the remaining Iberian Peninsula and as far as the Bronze Age is concerned, there are known twin vessels with the so-called “boquique” decoration, as is the case of the vases from Tomb I of Serra Clarena and Cova Verda (Maya and Petit 1986: 67; Soriano and Amorós i Gurrera 2014: Fig. 8). Other Valencian cases also show incised lines on the upper part of the flat connecting elements (Enguix 1981: 71) and some specimens from Catalonia also show “punto y raya” garland decorations (Sesma *et al.* 2007-2008: 933).

In any case, the decoration in the sample we studied seems to have been relegated to a secondary plan, possibly because of the strong expressive charge that emanated from a twin vessel form, as a potential vehicle for transmitting messages (Vilaça 1995: 292).

We should also consider the degree of difficulty in producing these forms. More than the craftsman’s necessary skill to replicate the first body, it would be of the utmost importance to have good time management during the “operational chain” of pottery production so that the first one(s) did not dry out too much before the application of the connecting element(s). This would be perhaps the most challenging aspect of the production of the twin vessels, as prior knowledge of the thickness of the clay suitable for connecting the bodies is required,

not only so that during the firing process they do not break, but also for the effective union of the bodies.

The piece(s) from the Cabeça de Vaiamonte seem to be an elucidative example of the difficulties of manufacture and assembly, with bodies also revealing slight variations, that is, not completely identical. This situation can be verified with other cases, such as some of the specimens from Las Erijuelas de S. Andrés (Cuéllar, Segovia) (Barrio Martín 1987: fig. 2). If we establish some ethnographic analogies, we see that they show this formal imbalance with distinct bodies, as in Awka and Aguleri, in Nigeria, or even with opposite orientations (which poses other problems), as occurs in Bohicon, Abomey, in Benin (Jeffreys 1939; Meyerowitz 1940) (Fig. 14-a and b).

Finally, we would also like to point out that the pieces attributable to the Late Bronze Age which were the object of our direct observation, or for which there is information on the type of paste and manufacture, allow us to consider that they fit in with the characteristics of the respective local or regional productions, bearing witness to the great mastery of the potters of these indigenous communities.

4.3. For a typological (re)formulation

So far, specimens of twin vessel forms have been collected in 11 archaeological sites in the current Portuguese territory, totalling at least 22 specimens. Only four cases were able to be reconstructed (São Julião, Baiões, Canedotes and Cabeça de Vaiamonte).

Given the reduced number of the sample, with records characterized by high fragmentation, is it possible and relevant to speak of typologies for twin vessels? To us it seems like it is, albeit with the necessary reservations, since the twin vessels constitute, in themselves, a perfectly individual type. In this sense, more than types, we propose the creation of variants of twin vessel forms which will help not only the framing of the finds, resulting in a unifying action, but also their understanding.

We propose a reformulation of Santos’ typology (2020: 132-147), also incorporating contributions from the proposal presented by Gusi and Olaria (2014: 127, fig. 45, form 6). We focus on the different types of connecting elements, which are the most precise, and also the most numerous indicators of twin vessels.

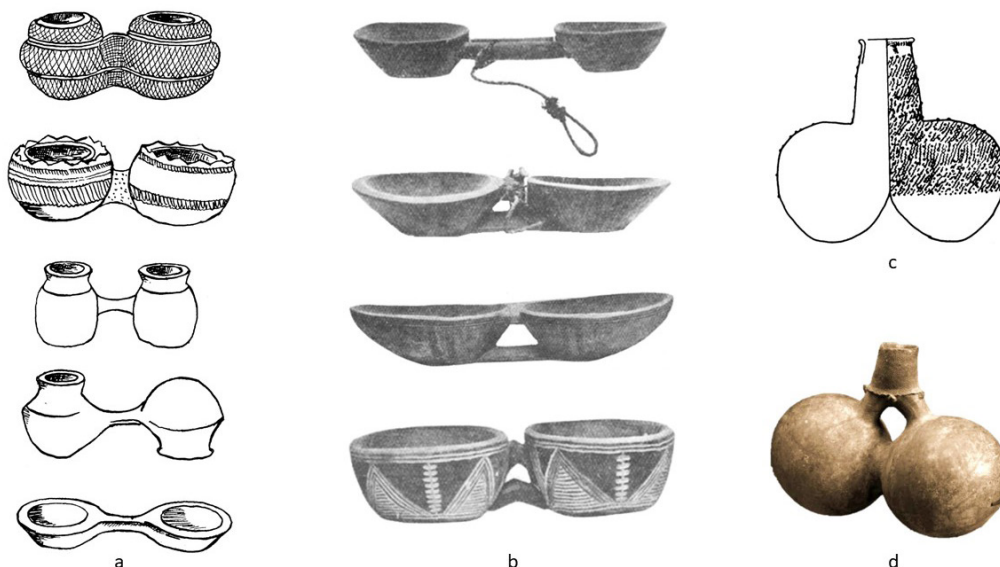


Fig. 14 – Different ethnographic examples of twin vessels, adapted: a- vessels from Bohicon (Abomey, Benin), according to Meyerowitz 1940; b- vessels from Awka and Aguleri (Nigeria) by Jeffreys 1939; c- *tsakaliy* vessel from the Mafa tribe (Cameroon), according to David *et al.* 1988; d- vessel from the Mangbetu people (Democratic Republic of the Congo) as displayed in the Birmingham Museum of Art, according to Roberts 2013. Different scales.

This prototype test (Table 1) starts from the twin vessels studied in the current Portuguese territory with four variants: the main connecting components are “bridges”, mainly near the lip of the vessels (Variant 1); the connection can also be made on the vessels’ carinations or bellies, without “bridges” (Variant 2); with handles (Variant 3); with internal communication between vessels (Variant 4). These variants are mere guidelines and should not be understood as restrictive, since different connecting elements can coexist in the same twin vessel; for example, the “bridge” (Variant 1) in the lip can coexist with the union in the carination (Variant 2), which should also contribute to the functionality of the piece (regardless of what it might have been).

The analysis of the peninsular twin vessels seems to show a predominance of the application of connecting elements at the level of the belly and rim, the upper part being joined by a handle (Variant 3), sometimes with a raised band which, in the Spanish case, could be decorated or not with incisions or ribbings. This prevalence may have to do with the concern for the durability of the joint of the ceramic bodies. It should also be noted that in the case of the Portuguese examples, only the twin vessels consisting of more than two bodies have communicating channels, which is not the case

in Spain, as shown, for example, by the (double) communicating twin vessel from Cabezo Redondo (Villena, Alicante) (Soler García 1987: figs. 98-12).

The proposed table does not incorporate any twin vessels variant with developed foot, which are unknown in Portuguese territory, unlike the Spanish part of Iberia, as witnessed, among others, by the specimen from El Molino (Buñuel) (Sesma *et al.* 2007-2008: 928), or those from Las Erijuelas de S. Andrés, (Cuéllar, Segovia), the latter of late chronology within the Iron Age (Barrio Martín 1987).

5. Beyond twin vessels

In the minimalist definition adopted in this work, formally similar ceramic vessels joined together are called “twin” (*vide supra*). We have thus excluded other ceramic forms that are not strictly and exclusively twin and, although some bibliography considers them as such, they may incorporate twin components from parts of the vessels, but not only these. They are globally and conceptually complex, sometimes reflecting a true “ceramic architecture”, and it makes sense to include them in this discussion.





<p>Variant 1 - Bridges</p> 	<p>The connecting component is “bridge”-like, usually connecting the two or more ceramic bodies near the rim.</p>	<p>N.ª Sr.ª Confiança Cerro do Castelo Castelejo Lapa do Fumo</p>
<p>Variant 2 – Carination/Belly</p> 	<p>The connecting component occurs on the carination or belly of the vessels, without the need for “bridges”.</p>	<p>Moreirinha (?) Quinta das Rosas (?) Lapa do Fumo Cabeça de Vaiamonte</p>
<p>Variant 3 - Handles</p> 	<p>The connecting components include a handle and a connection on the belly of the vessels. The handle usually connects the rims of two ceramic bodies.</p>	<p>N.ª Sr.ª Guia (Baiões) Canedotes (?) Monte do Trigo (?) Castelejo</p>
<p>Variant 4 - Internal communication</p> 	<p>Internal communication between two or more ceramic bodies, with or without other connecting elements.</p>	<p>São Julião Canedotes Cabeça de Vaiamonte</p>

Table 1 - Twin vessels from the Portuguese territory – Variants

The most canonical category includes the vast panoply of “*kernos*” type forms, in which smaller vessels are attached to the main body of the vessel, externally and/or internally (these sometimes symmetrical to each other), as the pieces from Cabezo de Monléon (Caspé, Zaragoza) (Beltrán 1961) and Cova Fonda (Salomó, Tarragona) (Rovira i Port 2006) so well demonstrate. As we know, the “*kernoi*” in their more classical sense are forms used in worship and linked to ritual environments, and can assume a quite diverse set of compositions, among which are also included the rings or trays with several small vessels (v.g. Bartoloni *et al.* 1980: 18, 155-2 and 3, tav. XLVII). They are absent from the indigenous contexts we have analysed but are particularly expressive in the Peninsular Levant during the Iron Age.

In addition to this category, we can report other formally complex cases, yet singular in the sense of their rarity, that deserve to be commented on. We refer to single-body forms, i.e., not twin, but with twin (or semi-twin) double or multiple nozzles.

These forms are designated by Bartoloni as “*vasos a piu bocche*” (Bartoloni *et al.* 1980:

117, tav. IX) and reveal heavy formal heterogeneity, long diachronies and diverse geographies.

For western Europe, but from beyond the Pyrenees, it is worth recalling the large vase from the cave of St.-Paul-de-Fenouillèdes (eastern Pyrenees), with ovoid body and cylindrical neck, with triple nozzles, a central one and two symmetrical adjoining ones, attributed to the Middle Bronze Age (Treinen-Claustre 1982). It is an apparently isolated find, probably of an intentional deposition. Another vessel worthy of note comes from one of the Neolithic pit tombs (also present) at the Protohistoric site of Croix-Verte (Antran, Vienne), which has three narrow openings on a globular body fitted with a handle (Pautreau 1985). They are both examples elucidative of diverse formal solutions in the long diachrony within a peculiar family of vessels.

In the present-day Portuguese territory, we find two examples that we can insert in this same family of atypical and complex shapes, and both, once again, with Bronze Age chronology.

One of them derives from the well-known hypogeum of Herdade de Belmeque (Serpa,

Alentejo), where two adult individuals (at least one of them male), without skulls (possibly decapitated), were buried, with a C_{14} date that points to the middle of the 2nd millennium BC (Schubart 1975; Soares 1994: 183).

The funerary assemblage consisted of at least one bronze knife with *electrum* rivets, two daggers with silver rivets and several loose silver tacks, besides the remains of a bovid (legs) and the vase. This one, elliptical in shape (14 x 28.4 cm) and with a convex base, is closed, with a maximum diameter (22.8 cm) in the central part, which is flanked by two slightly dissymmetric nozzles. Very neatly handmade, it is decorated in the upper half by a series of wide, parallel, subvertical grooves (Fig. 15).

Undoubtedly this is an elite assemblage, given the range of materials used. The formal uniqueness of the unparalleled vessel should be noted, rather than its manufacture and decoration, namely the ribbed decoration characteristic of ceramics from the so-called “Southwestern Bronze” (Silva and Soares 2018, with reference bibliography).

The other case corresponds to an incomplete vessel from the necropolis of Tanchoal dos Patudos (Alpiarça) found in imprecise conditions in the early 20th century. It is a small, flat hemispherical vessel (9.5 cm high) with an omphalos bottom, originally made up of three triangularly arranged, subcylindrical, vertical spouts, of which one remains (3.5 cm diameter) and there still is the start of a second, separated from the body of the vessel by a slightly concave, carinate shoulder (Fig. 16a). It is in the T2 type of Gustavo Marques, who also mentions the existence of dotted decoration with white paste inlay, still visible in faint traces in the mouth area and occasionally on the belly. We highlight the composition of alternately smooth and filled rhombuses (on the body) and of alternating squares (on the nozzle) (Marques 1972: 21-22 and Est. I). This dotting is also thinner when compared to the dotting of the two lines near the rim (Fig. 16b).

Although the Tanchoal dos Patudos necropolis is well dated, as revealed by the typological study of various materials supported by radiocarbon dating, placing it between the middle of the 11th century BC and the beginning of the 9th century BC (Vilaça *et al.* 1999, with reference bibliography), the finds, made at different times by rural workers, have some materials that point to more diverse chronologies. It is difficult to specify the date of the

vase under study, but we believe that it may belong to the Bronze Age, although perhaps earlier than its final stage, given its decoration, technique, and style.

Unlike the pieces from the twin vessel *corpus* analysed in point 3, these two examples correspond to closed forms with spouts, suitable for drinks, as has already been suggested for the Belmeque vessel (Mederos 2009: 241). In this hypothesis, and using some ethnographic analogies, the use of auxiliary utensils such as “straws” to facilitate the effective consumption of liquids should be seriously considered (Barley 1994: 31). Bearing in mind that both are associated with funerary contexts, although quite distinct from each other and again distancing themselves in this respect from the specimens in the *corpus*, they would correspond to vessels used in rituals of that nature. The shape, with individualised spouts, gives some likelihood to the hypothesis that they were used in ceremonies of a collective nature, performed by people as distinctive as the vases were. It is undeniable that they are special, exclusive vases, unique pieces, not only *per se*, but also in relation to the twin vessels which are the focus of this work.

6. Other interpretative problems

At this point, it is important to return to the *corpus* and reinforce that the fragmentation of the specimens we have studied makes it difficult to recognise their possible uses or functionalities, to which must be added our (almost) total ignorance about possible content remains, an aspect that had already been noted for other peninsular specimens (Soriano and Amorós i Gurrera 2014: 19).

It is possible that their function could vary according to the dimensions of the pieces and the existence of handles since their application indicates the possible suspension and consequent transportation (Santos 2020: 133). The number of ceramic bodies, the existence of internal communicating and, obviously, the contexts of their manipulation are indispensable factors in this analysis. It is highly plausible that the twin vessels were connected to commensality or served as offering containers (Vilaça 1995: 292). For variant 4, i.e., the vessels with communicating bodies, its relation to the consumption of liquids has been suggested (Sesma *et al.* 2007-2008: 934; Canha 2002: 207).

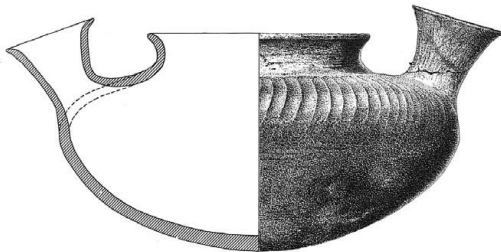
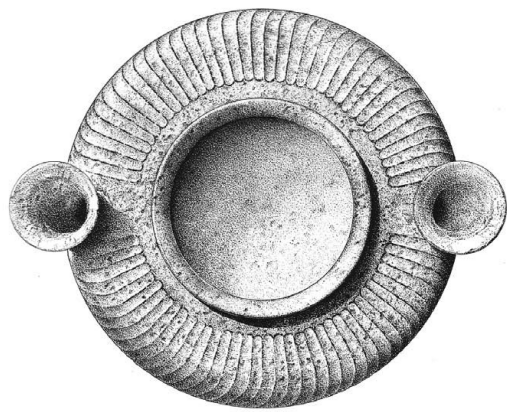


Fig. 15 – Vessel from the hypogeum of Herdade de Belmeque, Serpa (according to Schubart 1975; photo: Municipal Museum of Serpa, adapted).

But, in general, the reason that stands out seems to derive mainly from the exceptional character of the pieces. Naturally, this detail of (minor) quantity cannot be ignored.

However, if we recall once more some ethnographic records, we see that they can incorporate, besides twin ceramic forms, others made of perishable materials, such as gourds and wood (Meyerowitz 1940). This leaves the



a



b

Fig. 16 – Vessel from the necropolis of Tanchoal dos Patudos, Alpiarça (a- drawing: Marques, 1972: est. I; infographic José Luís Madeira; photos: Raquel Vilaça).

question open for other possibilities not preserved in the archaeological record. Or those only exceptionally preserved.

This illustrated as surprising as clairvoyantly by the cylindrical twin vessels, one double, the other trilobed, in wood (*Olea europaea*) and bone, from the Late Bronze Age burial cave of Es Càrritx (Menorca, Balearic Islands). These vessels did not contain food re-

mains, but human hair - a relic? - which could have been associated with funerary and other rites of passage that took place inside the cave (Whitehouse 1997). Recent publication using chemical analysis of such hair has revealed the existence of hallucinogenic drug use, a practice which reinforces the ritual character of the context and use (Guerra-Doce *et al.* 2023).

The ritual character has constituted the interpretative ballast for the twin vessels and other complex forms, conjugating two of their most notorious attributes: form and rarity (even considering eventual cases in perishable materials currently missing). Here, the form plays a crucial role because its survival in a plurality of contexts, crossing geographies and chronologies, gives it a very rich semantic dimension, besides being ubiquitous.

In this sense, and without losing sight of the symbolic dimension inherent to the objects, it is important to stress the interest in combining the archaeological study of twin vessels with ethnographic and anthropological approaches (Vilaça 1995: 292, 303; 1997: 18-19).

In this regard, it is very revealing how the symbolism of the human body can be evoked among, for example, the Bulahay tribe of the Mafa (Cameroon). They produce twin forms, known as “tsakaliy” or “halalai” (Fig. 14-c), ritual vases that evoke the birth of twins or multiple births, the mouth of the ceramic form symbolising the linking of the souls or spirits of the twins, evoked in turn in the two ceramic bodies that make up the vase (David *et al.* 1988: 371, fig. 3-5). It is interesting to note not only that it is the Ngwazla women who are in charge of ceramic production, as has been pointed out (Vilaça 2007: 19), but also that the fertility rituals related to the “tsakaliy” include the process of dressing and adorning the vase with necklaces of herbs and leaves, identical to those worn by the parents of the twins (David *et al.* 1988: 371). Similar vessels have also been reported for the Mangbetu people (Democratic Republic of the Congo) (Roberts 2013: 45) (Fig. 14-d).

The idea of twins or multiple births, i.e., abundant fertility, carries the notion of wealth, of power. Not surprisingly, the handling of twin vessels also occurs on festive occasions of request of or celebrating abundant harvests (David *et al.* 1988: 371-374). In this sense, it has been considered quite suggestive that one of the semi-divided vases at Cabezo Redondo (Villena) was associated with a large ceramic vessel with barley grains (Vilaça 1995: 292), a

reading that is far removed from the one that sees in this twin vessel an instrument for measuring the quantity of grain (Soler 1987: 78).

But the ritual is often intertwined with the non-ritual. For the twin vessels of Jordan of the later stages of the Early Bronze Age, Chesson (2000: 372-375) suggests both a daily function, related to the use of olive oil, and/or ritual - since the two are not necessarily exclusive, i.e. ritual can be part of everyday life - which could have involved the temporary or long-term storage of goods (dry or liquid) for ritual activities and/or in funerary rituals.

Past societies did not establish tight compartments between the world of people and the world of things (v.g. Tilley 1994: 247). And, among these “things”, ceramics can be sublime as a mediator between the way the world, the cosmos, was thought and the behaviours, the actions, that expressed it in the becoming of time and space. In this instrumental conception of ceramics, the human body, or part of it, or attributes associated with it, may be projected onto the forms, the decorations, taking on an anthropomorphised aspect.

The evocation of the human body, understood as the act of creating objects that recall one or more anthropomorphic elements, independently of intention or meaning, is a controversial issue of enormous complexity, since an object that today recalls the human body might not have this connotation in its various “lifetimes” (Santos 2020: 131, Santos *in press*). This evocation is not always obvious (anthropomorphic or even hybrid figurative motifs, mammary applications, fingerprints, etc.), but the relationship with the body may be only insinuated, that is, manifesting itself in the objects through an interpretative record of them. It is in the latter that the twin vessels may be included.

7. Concluding remarks

As it seems to have been demonstrated, the exceptionality of twin vessels entails many problems, particularly at the interpretative level, which may justify the delay of their detailed study. Of no less importance is the fact that, in the specific case of the ceramics we studied, the sample is formed of a great majority of fragments, many of which are difficult to formally understand. Although with the inherent limitations, we considered it opportune to

draw attention to this tiny portion of the ceramic productions of the pre and protohistoric communities of the westernmost part of the Iberian Peninsula.

As we have seen, the centrality of their manipulation focused on the Bronze Age, especially in its last stages. In this region it seems that other, older chronologies are excluded (with rare exceptions), in contrast to specimens from the Spanish part, where they are known from the Early Neolithic and then with a very expressive presence in the Early and Middle Bronze Age of the southernmost, eastern and north-eastern arc of Mediterranean Iberia. The production contexts, as well as the distribution circuits, were clearly differentiated.

As has also been duly pointed out, the twin vessels are part of an ample family spread over different latitudes and longitudes, in the long diachrony, necessarily involving different cultural affiliations. Communities organised in very diverse ways felt the need to incorporate in their social practices the manipulation of ceramics with a strong semantic charge, without temporal limits. The convocation of certain ethnographic realities allowed for a broadening of interpretative possibilities.

In the light of the data currently available, we have no way of recognising the true meaning, use and functionality of twin ceramic pieces, neither in Prehistory, neither Protohistory of the Iberian Peninsula.

Nor do we have empirical evidence to attribute female production to these ceramics, that is, to associate them with women potters. However, the unusual shapes, plausibly alluding to abstract evocations of twin human bodies, could reflect relationships with concepts of fertility and/or multiple births. In other words, abundance, wealth.

If this was confirmed, it would then mean that these forms would be imbued with ritual connotations, inferred by various authors, among whom we position ourselves. This does not invalidate or discard a more pragmatic and daily function defended by others (Chesson 2000; Sesma *et al.* 2007-2008: 934).

9. References

- Almagro, M. (1955): *Las Necrópolis de Ampúrias*. Barcelona. Monografías Ampuritanas, n.º II.
- Almeida, S.; Baptista, L.; Ferreira, C.; Silva, S.; Couto, M. (2022): Agra do Crasto (Aveiro, Portugal) in the mid-1st millennium BC - a remote community with oriental roots [Poster presentation]. *X Congresso Internacional de Estudos Fenícios e Púnicos*, Ibiza, 2022.

We have seen that the sample studied comes from 10 of the 11 settlement sites (9 of which are from the Late Bronze Age). These settlements were not only spaces where domestic, day-to-day activities took place. There is also evidence of other ritual activities that were not mere epiphenomena, but rather consubstantiated sedimentation and cultural practices; even if they are not recognised in the archaeological record as autonomous spaces, discriminated, for example, as sacred spaces or sanctuaries. As argued, these (or some of these) sites where people lived can be understood as places of ambi(poly)valent spatialities, where underlying, distinct but relational spaces and actions would congregate, in permanent recreation, a reading inspired from the notion of “heterotopia” proposed by Foucault (Vilaça 1999: 176). In this line of interpretation where do we leave the twin vessels?

Ceramics are much more than containers; they may, like the twin vessels, insinuate themselves into plastically unassuming bodies, and may move from the sacred to the profane and vice-versa. The profane, if we discriminate it, is not synonymous with a non-ritualised daily life.

It is thus clear that it will not be possible to arrive at an equal valuation for all the twin vessels, making it necessary to know more numerous and precise contexts to advance new answers or to sustain existing proposals.

8. Acknowledgments

The authors would like to thank the National Museum of Archaeology, in the person of its Director, António Carvalho. To António Carlos Valera, and to the Municipal Museum of Fornos de Algodres, in the person of Bruno Rebelo. To Pedro Sobral, for the photo of the triple vessel from Canedotes. To D. Diogo de Sousa (Braga) Museum, in the person of its then director, Isabel Silva. To the Municipal Museum of Serpa, in the person of Miguel Serra. To André Lopes Pereira, for photographing the pieces from Castelejo, Monte do Trigo and Cabeça de Vaiamonte.

- Baptista, L.; Ferreira, C.; Silva, S.; Couto, M. (2022): Construção de infra-estruturas desportivas do Campus Universitário de Santiago – Aveiro. Agra do Crasto. Resultados da intervenção arqueológica (2017-2018). In Silva, A., Gomes, S. (coords.), *Agra do Crasto. Aveiro. Arqueologia e Geofísica*, UA Editora, Universidade de Aveiro: 169-203. <https://ria.ua.pt/handle/10773/34047>
- Barley, N. (1994): *Smashing Pots. Feats of Clay from Africa*. British Museum Press. London.
- Barrio Martin, J. (1987): Los vasos trípodes de la necrópolis de Las Erijuelas de S. Andrés (Cuéllar, Segovia). Apuntes para su estudio. *O Arqueólogo Português*, Série IV, 5: 101-123.
- Barrio Martin, J. (2011): Cuéllar Vaccea. Arqueología de un asentamiento vacceo al sur del Duero. *Vaccea Anuario* 5: 26-32. <https://pintiavaccea.es/seccion/vaccea-anuario/item/93>
- Bartoloni, G.; Sestieri, A.; Delpino, M.; Govi, C.; Badoni, F. (1980): *Materiali dell'età del Bronzo finale e della prima età del Ferro. Dizionario Terminologici I*. Instituto Centrale per il Catalogo e la Documentazioni. Firenze.
- Batata, C. (1997): A Sertã na transição entre a Pré-História Recente e a Proto-História. *Estudos Pré-Históricos*, V: 163-167.
- Batata, C.; Gaspar, F. (2000): Castros da Bacia Hidrográfica do Rio Zêzere (Zona do Pinhal, Centro de Portugal). *Revista de Guimarães*. Volume especial, II: 671-697.
- Beltrán, A. (1961): Un nuevo Kernos del oppidum hallstattico del Cabezo de Monlón (Caspé). *VI Congreso Nacional de Arqueología* (Oviedo, 1959), Zaragoza: 144-148.
- Bernabeu Aubán, J. (1989): *La tradición cultural de las cerámicas impresas en la zona oriental de la Península Ibérica*. Servicio de Investigación Prehistórica, Serie de Trabajos Varios, 86, Diputación Provincial de Valencia: 52-53.
- Bettencourt, A.M.S. (1999): *A Paisagem e o Homem na Bacia do Cávado durante o II e o I milénio AC*. Braga. Tese de doutoramento. Universidade do Minho (polycopied).
- Bettencourt, A.M.S. (2000): *O Povoado de São Julião, Vila Verde, Norte de Portugal, nos Finais da Idade do Bronze ena Transição para a Idade do Ferro*. Cadernos de Arqueologia. Monografias 10. Braga.
- Canha, A. (2002): *Canedotes: Povoado do Bronze Final do Alto Paiva*. Dissertação de Mestrado em Arqueologia. Faculdade de Letras da Universidade do Porto (polycopied).
- Cardoso, J. L. (1996): O Bronze Final da Baixa Estremadura e as cerâmicas de ornatos brunidos da Lapa do Fumo (Sesimbra). *Sesimbra Cultural*, 5: 6-14.
- Chesson, M. (2000) Ceramics and daily life in the EBA household: form, function and action in residential compounds at Tell el-Handaqq South, Jordan, in Philip, G. & Baird, D. (ed.) *Ceramics and Change in the Early Bronze Age of the Southern Levant*. *Levantine Archaeology* 2. Sheffield Academic Press, England, pp. 365-377.
- David, N.; Sterner, J.; Gavua, K. (1988): Why pots are decorated. *Current Anthropology*, 29 (3): 365-389. <http://www.jstor.org/stable/2743453>
- Enguix Alemany, R. (1981): Tipología de la cerámica de la cultura del Bronce Valenciano. *Saguntum*, 16: 63-74.
- Fabião, C. (1996): O povoado fortificado da Cabeça de Vaíamonte (Monforte), *A Cidade*, 11 (Nova Série), Portalegre: 35-84. <https://repositorio.ul.pt/handle/10451/10640>
- Fabião, C. (1998): *O Mundo Indígena e a sua Romanização na área céltica do território hoje português*. Tese de Doutoramento em Arqueologia. Universidade de Lisboa (polycopied).
- Fábregas Valcarce, R.; Vilaseco Vázquez, X.I. (2004): El megalitismo Gallego a inicios del siglo XXI. *Mainake*, XXVI: 63-87.
- Fuente Andrés, F. de la (1988): El material cerámico. In R. Fábregas Valcarce; F. de la Fuente Andrés, *Aproximaciones a la cultura material del megalitismo gallego: La industria lítica pulimentada y el material cerámico*, Santiago de Compostela: 69-154.
- Garrido Roiz, J.P.; Orta García, E. (1967): *Excavaciones en Niebla (Huelva): El "tholos" de "El Moro"*. Excavaciones Arqueológicas en España, 57. Ministerio de Educación y Ciencia. Madrid.
- Guerra-Doce, E.; Rihuete-Herrada, C.; Micó, R.; Risch, R.; Lull, V. (2023): Direct evidence on the use of multiple drugs in Bronze Age Menorca (Western Mediterranean) from human hair analysis. *Scientific Reports*, 13 (4782). <https://doi.org/10.1038/s41598-023-31064-2>
- Gusi, F.; Olária, C. (2014): *Orpesa La Vella (Orpesa del Mar, Castellón, España). Um asentamiento fortificado del Bronce Medio y Bronce Final em el Litoral Mediterráneo*. Castellón. Monografies de Prehistòria i Arqueologia Castellonenques 10. <https://repositori.uji.es/xmlui/handle/10234/116770>

- Heleno, M. (1956): Um quarto de século de investigação arqueológica. *O Arqueólogo Português*, nova série, III: 221-237.
- Jeffreys, M. (1939): Sacred twinned vessels. *Man*, XXXIX: 137-138. <https://doi.org/10.2307/2793326>
- Lopes, A.B. (1993): *A cerâmica do Castro da Senhora da Guia (Baiões)*. Dissertação de Mestrado, Faculdade de Letras da Universidade do Porto (polycopied).
- Marques, G. (1972): *Arqueologia de Alpiarça. As estações representadas no Museu do Instituto de Antropologia do Porto*. Trabalhos do Instituto de Antropologia Dr. Mendes Corrêa, n.º 13, Faculdade de Ciência do Porto.
- Martí Oliver, B.; Cabanilles, J.J. (1987): *El Neolític Valencià. Els primers agricultores i ramaders*. Servei d' Investigació Prehistòrica. Diputació de València.
- Martins, M. (1987): A cerâmica proto-histórica do Vale do Cávado. Tentativa de Sistematização. *CADERNOS DE ARQUEOLOGIA*, Série II, 4: 35-77. https://repositorium.sdum.uminho.pt/bitstream/1822/10351/1/CA%201987%20SERIE%20II_VOL%204%20A%20cer%C3%A2mica%20proto-hist%C3%B3rica...pdf
- Martins, M. (1988): *A citânia de S. Julião, em Vila Verde: memória dos trabalhos realizados entre 1981-1985*. Monografias, 2, Braga.
- Maya, J.L.; Petit, M.A. (1986): El grupo del Nordeste. Um nuevo conjunto de cerâmicas con boquique en la Península Ibérica. *Anales Prehistoria y Arqueología*, 2: 49-71. <https://revistas.um.es/apa/article/view/58371/56231>
- Mederos Martín, A. (2009): La sepultura de Belmeque (Beja, Bajo Alentejo). Contactos con el Egeo durante el Bronce Final I del Suroeste de la Península Ibérica (1625-1425 AC). *Veleia*, 26: 235-264.
- Meyerowitz, E. (1940): Sacred Twinned Vessels from West Africa. *Man*, 40: 16. <http://www.jstor.org/stable/2792679>
- Mohen, J.-P.; Bailloud, G. (1987): *La vie quotidienne à l'âge du bronze. Les fouilles de Fort-Harrouard*. L'âge du bronze en France. Picard. Paris.
- Pautreau, J.-P. (1985): Vase néolithique à triple goulot à Antran (Vienne). *Bulletin de la Société Préhistorique Française*, 82 (9): 264-265. https://www.persee.fr/doc/bspf_0249-7638_1985_num_82_9_8696
- Pereira, I. (1997): Santa Olaia et le commerce atlantique, In Étienne, R., Mayet, F. (eds.) *Itinéraires Lusitaniens*. E. de Boccard, Paris: 209-254.
- Pons i Brun, H. (1984): *L'Empordà, de l'Edat del Bronce a l'Edat del Ferro*. Centre d'Investigacions Arqueològiques de Girona.
- Roberts, D. L. (2013): The centrality of ceramics in African cultures, in *Ceramics Monthly*. February 2013. The American Ceramic Society. <https://ceramics.org/wp-content/uploads/2013/03/africanceramics1.pdf>
- Rovira i Port, J. (2006): El recipiente cerâmico com cazoleta interna de la Cova Fonda (Salomó, Tarragona) y sus homólogos de la península Ibérica. Sobre la relación entre el bronce valenciano septentrional y el bronce antiguo-medio de la Cataluña centro-meridional. *Quaderns de Prehistòria i d'Arqueologia de Castelló*, 25: 139-146. <https://repositori.uji.es/xmlui/handle/10234/46470>
- Santos, A.A. (2020): *Em busca de "body worlds": representação (e evocação) do corpo humano em objetos pré e proto-históricos da Península Ibérica*. Master thesis of 'Arqueologia e Território'. Faculdade de Letras da Universidade de Coimbra, Coimbra. <http://hdl.handle.net/10316/93660>
- Santos, A.A. (in press): *In search of 'body worlds': representation (and evocation) of the human body in pre and protohistoric objects in the Iberian Peninsula*. Monografias AAP. Associação dos Arqueólogos Portugueses. [Abridged and bilingual version of Master thesis].
- Sánz Mínguez, C. (1998): *Los Vacceos. Cultura y Ritos Funerarios de un pueblo prerromano en el valle medio del Duero*. Arqueología en Castilla y León, 6. Peñafiel, Salamanca.
- Sanz Mínguez, C.; Pedro, R. (2014): Campaña XXIV 2013 de excavaciones arqueológicas en Pintia (Padilla de Duero, Valladolid). *Vaccea Anuario* 7: 6-12. <https://pintiavaccea.es/seccion/vaccea-anuario/item/115>
- Sanz Mínguez, C.; Rodríguez Gutiérrez, E. (2019): Campaña XXIX 2018 de excavaciones arqueológicas en Pintia (Padilla de Duero, Valladolid). *Vaccea Anuario* 12: 6-12. <https://pintiavaccea.es/seccion/vaccea-anuario/item/164>
- Schubart, H. (1975): *Die Kultur der Bronzezeit im Sudwesten der Iberischen Halbinsel*. Walter de Gruyter & Co. Berlin.
- Sesma Sesma, J.; García Gazólaz, J.; Tabar Sarrías, M.I. (2007-2008): Vasos geminadas de la Edad del Bronce en Navarra. *Veleia*, 24-25: 925-936. <http://hdl.handle.net/10810/37022>

- Silva, A.C.F. (2007²) [1986]: *A Cultura Castreja no Noroeste Português*. Câmara Municipal de Paços de Ferreira.
- Silva, A.C.F.; Silva, C.T.; Lopes, A.B. (1984): Depósito de fundidor do final da Idade do Bronze do castro da Senhora da Guia (Baiões, S. Pedro do Sul, Viseu). *Lycerna*. Porto. *Volume de Homenagem a D. Domingos de Pinho Brandão*: 73-109.
- Silva, C.T.; Soares, J. (2018): Génese do conceito “Cultura do Bronze do Sudoeste”. *Estudos Arqueológicos de Oeiras*, 24: 375-396. <https://www.oeiras.pt/estudos-arqueologicos-oeiras-24>
- Silva, C.T. (1979): O Castro de Baiões (S. Pedro do Sul). *Beira Alta*, 38 (3): 511-531.
- Soares, A.M. (1994): O Bronze do Sudoeste na margem esquerda do Guadiana. As necrópoles do concelho de Serpa. *Actas das V Jornadas Arqueológicas*. Associação dos Arqueólogos Portugueses. Lisboa: 179-197.
- Soler García, J.M. (1987): *Excavaciones Arqueológicas en el Cabezo Redondo*. Alicante. Ayuntamiento de Villena.
- Soriano, I.; Amorós i Gurrera, J. (2014): El vaso geminado de Camp Cinzano (Vilafranca del Penedès, Barcelona) y las relaciones nordeste – levante – Valle del Ebro durante la Edad del Bronce. *Revista d’Arqueologia de Ponent*, 24: 9-25. <https://raco.cat/index.php/RAP/article/view/288702>.
- Soriano, I.; Amorós i Guerrerera, J. (2015): El vaso geminado de Cova dels Assedegats (Vimbodí i Poblet, Conca de Barberà, Tarragona). Adenda a Soriano y Amorós (2014). *Revista d’Arqueologia de Ponent*, 25: 329-333. <https://raco.cat/index.php/RAP/article/view/318397>.
- Tilley, Ch. (1994): *A Phenomenology of Landscape. Places, Paths, and Monuments*. Berg Publishers, Explorations in Anthropology. Oxford.
- Treinen-Claustre, F. (1982): Découverte d’un vase à triple ouverture dans le Fenouillèdes (Pyrénées-Orientales). *Bulletin de la Société Préhistorique Française*. 79 (5): 148-150. <https://www.jstor.org/stable/27918607>
- Valera, A.C. (2008): A Quinta das Rosas (Fornos de Algodres): expressão de matrizes prévias do povoamento da Pré-História Recente durante o Bronze Final. *Actas do III Congresso de Arqueologia: Pré-História Gestos Intemporais*, Trás-os-Montes, Alto Douro e Beira Interior: 136-150.
- Vilaça, R. (1995): *Aspectos do Povoamento da Beira Interior (Centro e Sul) nos Finais da Idade do Bronze*. *Trabalhos de Arqueologia*, 9. IPAR, Lisboa, 2 vols.
- Vilaça, R. (1999): Some comments on the archaeological heritage of the Late Bronze Age in Beira Interior. *Journal of Iberian Archaeology*, 1: 173-184. <https://dialnet.unirioja.es/servlet/articulo?codigo=1079231>
- Vilaça, R. (2007): Considerações sobre cerâmicas pré e proto-históricas do território português. *A produção de cerâmica em Portugal: histórias com futuro*, Museu da Olaria, Barcelos: 9-25.
- Vilaça, R. (2008): Reflexões em torno da presença mediterrânea no Centro do território português, na charneira do Bronze para o Ferro. In Celestino Pérez, S.; Rafel, N.; Armada, X.-L. (eds.), *Contacto cultural entre el Mediterráneo y el Atlántico (siglos XII-VIII ANE): La Precolonización a debate*. Escuela Española de Historia y Arqueología de Roma del CSIC, Série Arqueológica. Madrid: 371-400. file:///Users/raquelvilaca/Downloads/Contacto_cultural_entre_el_Mediterraneo.pdf
- Vilaça, R. (2020): O Ocidente Peninsular de há 3000 anos num cruzamento de escalas. Itinerários de coisas e de pessoas. *Estudos Arqueológicos de Oeiras*, 27: 281-316. <https://eao.oeiras.pt/index.php/DOC/article/view/355/351>
- Vilaça, R.; Cristóvão, E. (1995): Povoado Pré-histórico de Monte do Trigo (Idanha-a-Nova). *Estudos Pré-históricos*, III: 201-207.
- Vilaça, R.; Cruz, D.J.; Gonçalves, A.H.B. (1999): A Necrópole de Tanchoal dos Patudos / Alpiarça, Santarém). *Conimbriga*, XXXVII: 5-29.
- Whitehouse, R. (1997): Sa Cova d’es Carritx: a new prehistoric cult cave on Menorca. *Archaeology International*: 20-22. <http://dx.doi.org/10.5334/ai.0107>