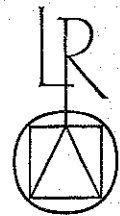


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Almudena Orejas Saco del Valle – Ignacio Montero Ruiz – Yolanda Álvarez González – Luis Francisco López González – Miguel Ángel López Marcos – Isabel Rodríguez Casanova

ROMAN DENARII FROM NORTH-WESTERN HISPANIA, FINDINGS FROM CASTROMAIOR (LUGO). A CONTEXTUAL, NUMISMATIC AND ANALYTIC APPROACH

1. Introduction: *Castromaior*

Castromaior is an Iron Age hillfort – castro – located in the interior of Galicia, near the Miño river¹ (fig. 1). Systematic excavations have taken place between 2006 and 2009. This castro is one of the most exceptional archaeological sites of Galicia, with a great heritage potential due to its location close to the Camino de Santiago and its excellent conservation. The archaeological studies have enabled the morphological characterisation of the site. Some 6 hectares were modified configuring 6 juxtaposed enclosures and some small spaces between them, with more than 3 hectares apt for habitation. The difference and monumentality of the delimitation structures and accesses documented (walls, gates, ditches, ramparts, parapets) around the upper enclosure (*croa*) show a complex habitat that experimented profound changes during its existence. Within that area was the largest dwelling area of the castro: the wall that delimits it defines a perimeter of 316 m and a surface of some 5400 m². It was only accessible from the east side where a gate led to other annexed enclosures (fig. 2, 3).

Castromaior has visual command of a large and fertile territory on the right bank of the Miño; it was strategically placed in this natural corridor connecting the interior of Galicia and the Atlantic coast. This strategic value and the agrarian potential of the surrounding land justify the work and time spent in transforming, isolating the site and physically separating the habitation surfaces. The still incomplete results of archaeobotanical analysis (wood, seeds, pollen) suggest a serious anthropisation of the adjacent area and the importance of cereal crops from the earliest occupation of the site. Archaeological studies show that several partial or global transformations were progressively shaping the morphology of the site, but they do not reflect a regular demographic growth, but rather changes in the spatial and functional conception, which requires a social reading.

¹ López-Marcos et al. 2011.

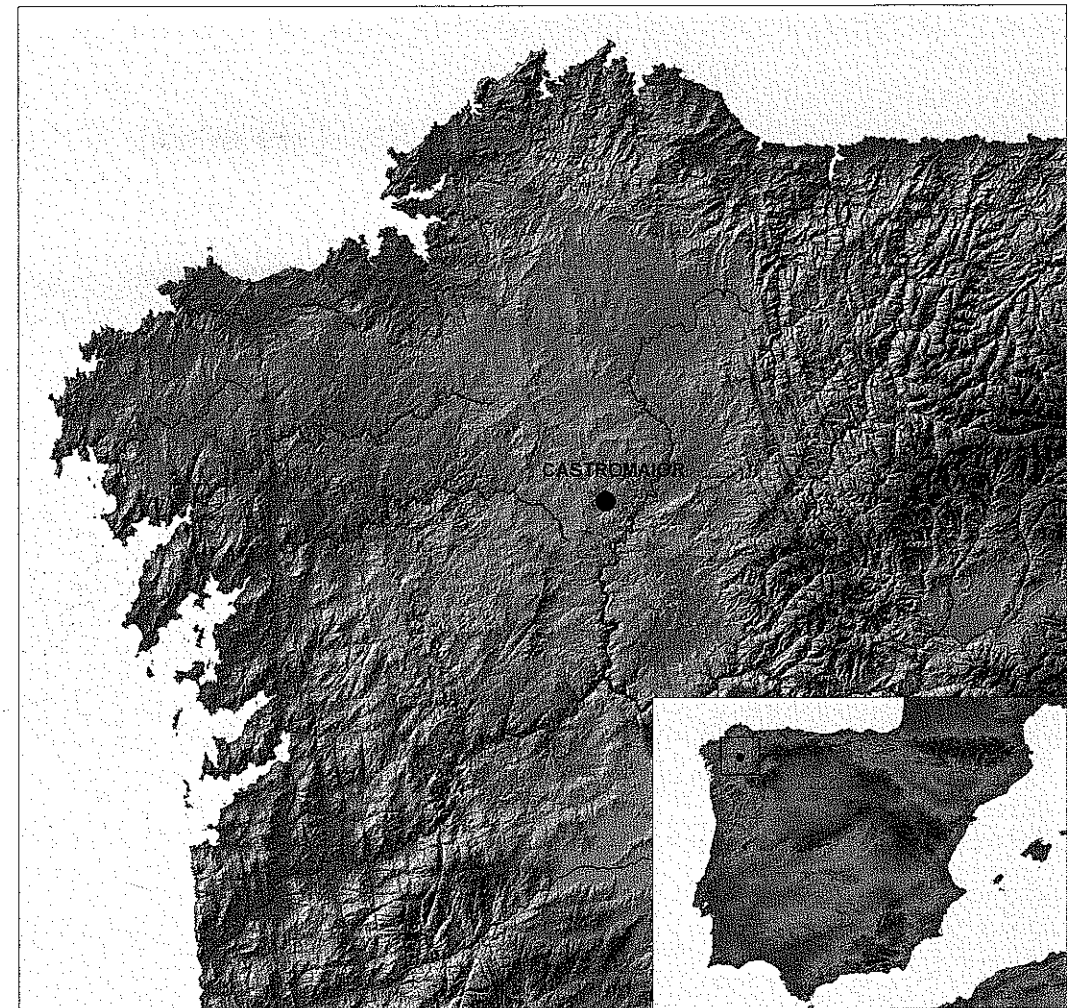


Fig. 1 Location of Castromaior hillfort (Lugo, Galicia, Spain).

Regarding Castromaior's historical evolution, some insights have been gained. Some charcoals from building timber have been dated to the 6th–3rd centuries BC; this early phase is only partially documented thanks to the sparse and fragmented parts of some huts made of vegetal materials. During this first phase there were just two walled enclosures, some form of occupation has been documented outside these two delimited areas. The first main reform, dated to the 2nd–1st centuries BC, was characterised by the enlargement of the occupied area and the construction of stone houses with vegetal roofs up to 4 m high. The spatial organisation of the houses runs parallel to the wall line, respecting a separating corridor. This contrasts with former forms of housing, which seems to point to isolated buildings to which rooms were annexed.

The second and last main reform of the castro implied a large transformation of the occupied areas, reaching the extent and appearance we recognize today. The overall morphology of the site acquired then its final characteristics, with the construction or reform



Fig. 2 General view of the hillfort.



Fig. 3 Gate and walls of the upper enclosure.

of the annexed enclosures. The corridor lining the wall was widened, which was probably the reason small fires were caused in some houses (fig. 6). Both the wall and the parallel corridor were also modified in this period, creating small passages and cul-de-sac spaces, contributing to the spatial articulation of the domestic units. In fact, the whole occupied area

in the upper enclosure was redesigned, and the built spaces internally divided. One of the major transformations during this phase was the arrangement of a big structure that should be interpreted as a public area or building, located just in front of the main entrance to the croa. The transformation of this sector implied also the reform and monumentalisation of the whole access area (fig. 2. 3). This later occupation of Castromaior could be dated in the 1st century BC and the very beginning of the 1st century AD, thus in the context of the early provincial domination of Rome and its immediately previous phase. But it seems that Castromaior was definitively abandoned early in the 1st century AD. All these changes have been archaeologically documented, and their interpretation lies in the process of contact with Rome. Final abandonment can probably be related to the Augustan organisation of the *conventus lucensis*, an interpretation which is consistent with the dates provided by the coins described below.

2. The archaeological context of coins

The hoard of denarii

The ensemble of coins was found in 2009, in the process of a systematic archaeological excavation of House 3, room E36 (fig. 4. 7) located in the croa. This house is the most complex one of Castromaior: it was totally reformed in the last phase of the castro, when both its plan and its elevation were modified. A new eastern wall was built in front of a new public open area created at the entrance of the upper area of the hillfort.

In its last stage, the house occupied the space of at least two of the previous domestic units. Their new walls were carefully built, particularly the parts of them where two doors were open just in front of the new public area. The whole construction was reinforced in order to support a second floor, with walls more than 4 m high. A wood structure supported the vegetal roof covering the rooms of the house.

This House 3 has two rooms (E36 and E22) connected through a door in the North wall of E36. The constructive relation between House 3 and the public area is clear: first, the East façade of the house shows a careful execution: its two doors open over a small tiled patio. From this patio some steps allow direct access to the public place or building. In fact, this sector is still incompletely excavated, but the dimensions and the design of the structures could be associated to some collective or public use. This would explain why this house had a special place in the general restructuring of the site in its last stage. Both in terms of construction and space the last phase of House 3 is the result of the architectural reforms that dramatically transformed this part of the castro.

Despite the constructive differences between this house and others excavated, the sedimentary process documented in E36 is similar to that identified throughout the whole site. The stratigraphic analysis of E36 shows, under the most recent depositional levels, the remains of the collapse of the roof and walls, and under these layers, the levels corresponding to the phase of use of the room. We have systematically documented in Castromaior this particular process: after the abandonment and the collapse of the vegetal roofs – that keeps the constructive structure together –, the walls topple in one go over the remains of the roof. Thus, they seal the lower levels, shaping a continuous and intricate layer of stone facing, cor-

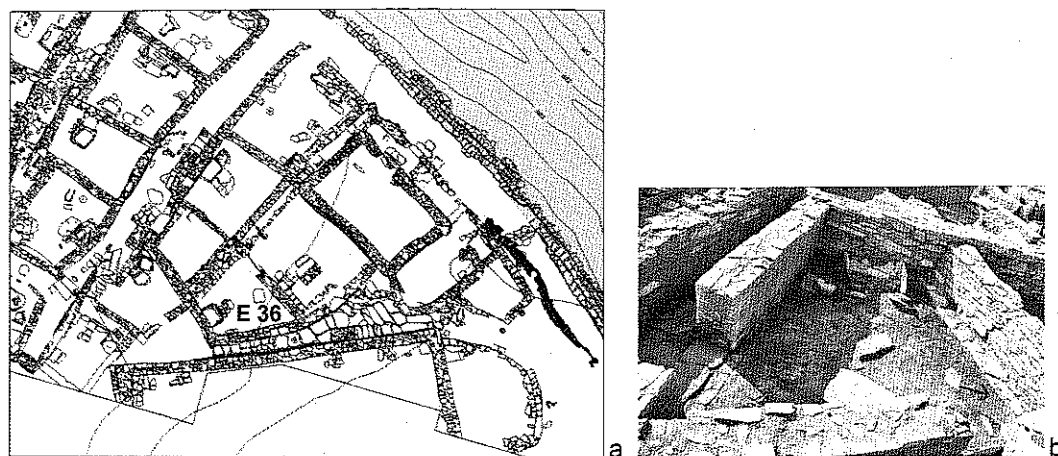


Fig. 4 House 3 and neighbouring structures: plan and photos.



Fig. 5 Sondage in R3 (enclosure 3) where one of the denarii was found.

responding to the complete collapsed wall. Such a process has been clearly documented in E36; therefore the context of the coins has been perfectly preserved.

Within room E36 a fireplace has been discovered, leading to its interpretation as a kitchen. The eleven coins were found in the North corner, near to the threshold connecting E36 and E22. They were all in a pile near the wall, presumably having fallen from a disap-



Fig. 6 Rampart walk and porch where the aes was found.

peared piece of furniture or sack of some sort. The occupation level included, besides the coins, a great number of domestic remains, always locally produced and similar to that collected in other buildings corresponding to this final phase. The most frequent element are fragments of cooking ware – of the so-called «castreña» type – and metallic pieces associated to agrarian activities, such a one sickle, a knife and an iron axe. Some bronze elements have also been found: one ring and some chain links. A bronze comb (or ornamental comb) could be reflecting the possession of a precious object, as far as these kinds of pieces are not usual in the castros. In this context, the only Roman productions found near this sector are some rare fragments of amphora; while in the rest of the excavated no other Roman production has been found.

The denarius from Lugdunum (CMP.2.06.11.9)

This coin was found in the sondage carried out in the enclosure number 3 (R3) just under the collapse level of a partially excavated house. The remains of a wall define a quadrangular room in which the stone walls collapsed to the inside, forming a rich archaeological level. Under this layer a mortar floor (structure II) corresponds to the occupation layer. On it the coin was found. Besides the coin the only meaningful material found was a mortar stone (fig. 5. 7).

This house actually seems to correspond to the latest period; under it some levels associated to the preparation of a terrace and vestiges of vegetal huts were documented. Unfortunately, the archaeological layers recorded in this sondage can not be significantly connected to the stratigraphy documented in the upper enclosure.

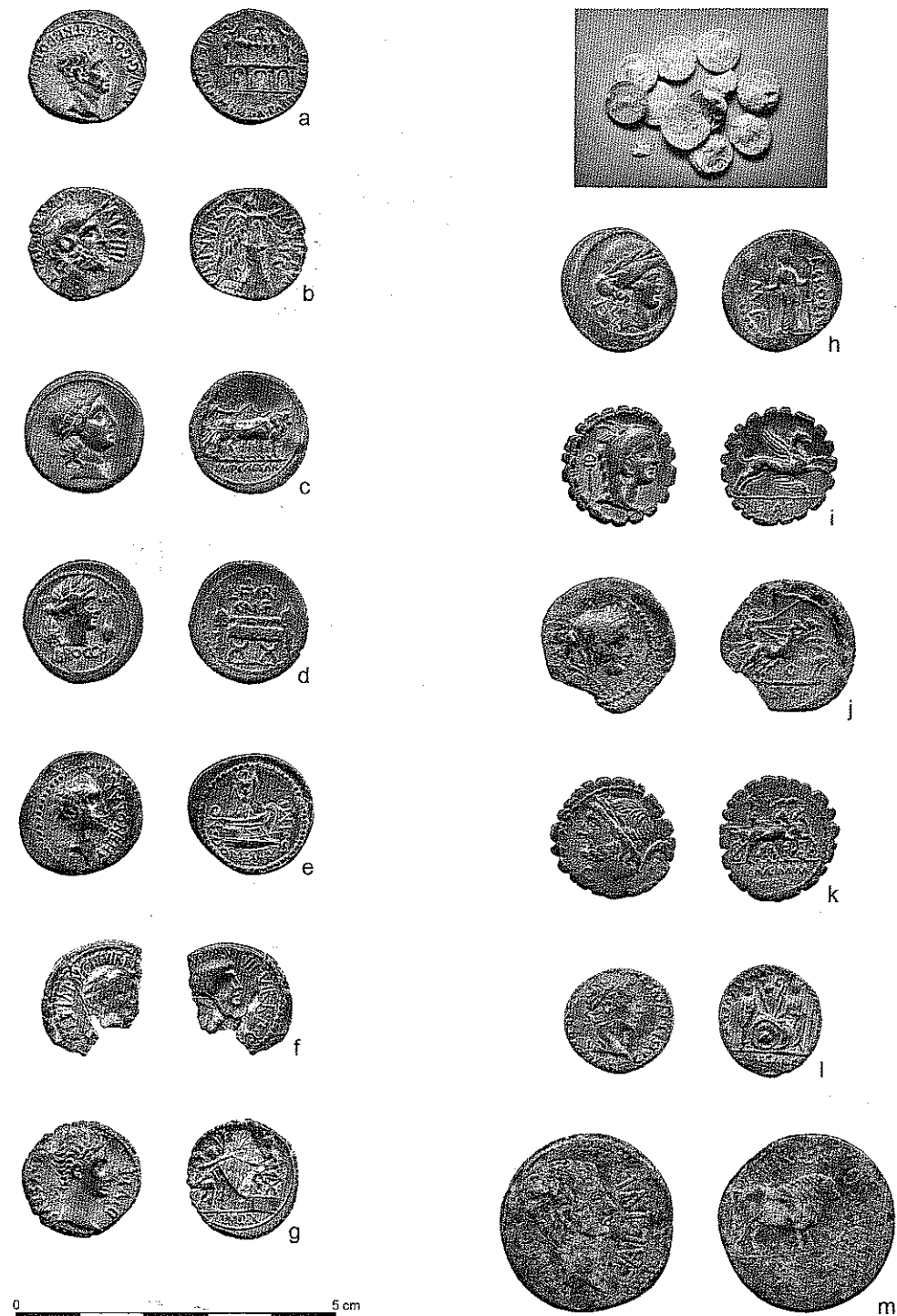


Fig. 7 Coins found in Castromaiaor: a CMP.1.09.E36.6.15; b CMP.1.09.E36.6.9; c CMP.1.09.E36.6.12; d CMP.1.09.E36.6.13; e CMP.1.09.E36.6.14; f CMP.1.09.E36.6.18; g CMP.1.09.E36.6.16; h CMP.1.09.E36.6.11; i CMP.1.09.E36.6.17; j CMP.1.09.E36.6.19; k CMP.1.09.E36.6.10; l CMP.2.06.11.9; m CMP.1.09.R2.35.2.

The aes found in the rampart walk (CMP.1.09.R2.35.2)

Finally, a bronze coin was found in the corridor between the houses and the wall. It was located in the entrance to the porch (E30) giving access to room E21, within an archaeological layer related to the wall's reform in the last phase of occupation. These porches were built in the last phase of the site, as annexes to the houses in order to regularise the path (fig. 6. 7).

3. Numismatic and analytic data (XRF and LIA)

The 13 coins have been studied and classified numismatically (tab. 1). Their composition has been determined through elemental analysis and ten pieces have also been subjected to lead isotope analysis (tab. 2; fig. 8. 9).

An Innov-X Systems Alpha Series portable XRF was used for Elemental Analysis. The analyzer has an Ag anode, X-Ray tube excitation source and Si Pin diode detector. Measuring conditions were: 35 kV, 2 μ A, 2 mm Aluminum filter and 40 seconds for each analysis. Prior to the analyses selected areas around the edge of the coins were cleaned of the corrosion layer. We used abrasive grinding points of aluminum oxide for this mechanical cleaning, and part of the debris obtained was kept for LIA analysis. Each coin was cleaned with a different point to avoid contamination.

The samples were sent to the Curt-Engelhorn-Centre for Archaeometry at Mannheim and were first analyzed with energy-dispersive XRF following Joachim Lutz and Ernst Pernicka methodology of 1996². The same samples were also subjected to lead isotope analysis (LIA) by multiple-collector inductively-coupled plasma mass spectrometer (MC-ICP-MS). The samples were dissolved in diluted HNO₃ and lead was separated with ion chromatography resins from the matrix. In several cases the separation procedure had to be repeated several times in order to separate the lead from the bismuth, which interferes with the determination of lead isotope ratios. These isotope ratios were corrected for mass discrimination by adding Tl. A value of $^{205}\text{Tl} / ^{203}\text{Tl} = 2.3871$ was taken and an exponential relationship assumed. ^{204}Pb was corrected for the isobaric interference with ^{204}Hg by measuring ^{202}Hg and using a $^{204}\text{Hg} / ^{202}\text{Hg}$ ratio of 0.2293. The in-run precision of the reported lead isotope measurements was in the range of 0.02 to 0.05 % (2σ), depending on the ratio considered³.

In order to get a consistent interpretation of the analytical results, both the geographic distribution of the Mints and the chronology heterogeneity of this set of coins should be taken into account.

In general terms, silver coins have high purity (> 95 % Ag) in both series of analysis (PA and MA), with just two exceptions: the coin from Lugdunum (CMP.2.06.11.9) shows a very high gold content (3.2 %), while the coin from Cyrenaica (CMP.1.09.E36.6.9) presents unusual levels of copper (4.3 %) and lead (2.3 %). Both coins also contain the highest values of gold, silver or lead in the PA analysis. Both series also match very well when comparing the tendency of each element measurement (the higher or lower % is found in the same coins), but the differences found in each case could be explained by the different sample analyzed: a cleaned surface area in the PA analysis and shavings obtaining after a first cleaning of the

² Lutz – Pernicka 1996.

³ Niederschlag et al. 2003.

COIN	ANALYSIS	Ag	Cu	Sn	Au	Hg	Pb	Bi	208Pb/ 206Pb	207Pb/ 206Pb	206Pb/ 204Pb	207Pb/ 204Pb	208Pb/ 204Pb
1	CMP.1.09.E36.6.10	97.3	0.25	n.d.	n.d.		0.19	n.d.	2,0859	0,84006	18,672	15,686	38,948
	MA-114729	97.0	0.32	n.d.	0.19	0.06	0.57	0.06					
2	CMP.1.09.E36.6.19	97.8	0.65	n.d.	0.59		0.34	n.d.	2,0629	0,83264	18,837	15,684	38,859
	MA-114731	97.0	0.69	n.d.	0.95	0.04	0.40	0.02					
3	CMP.1.09.E36.6.17	98.3	0.42	n.d.	0.10		0.31	n.d.					
	PA20429	98.6	0.78	n.d.	0.40		0.24	n.d.	2,0945	0,84919	18,433	15,653	38,608
4	CMP.1.09.E36.6.13	96.0	1.69	n.d.	0.68	0.03	0.56	0.06					
	MA-114728	97.1	1.37	n.d.	0.48		1.02	n.d.					
5	CMP.1.09.E36.6.11	98.9	0.30	n.d.	0.55		0.23	n.d.	2,0752	0,83672	18,739	15,679	38,887
	PA20430	98.0	0.36	n.d.	0.67	n.d.	0.23	n.d.					
6	CMP.1.09.E36.6.18	98.7	0.44	n.d.	0.68		0.19	n.d.	2,0767	0,83632	18,756	15,686	38,951
	MA-114725	97.0	0.46	n.d.	1.13	0.02	0.33	n.d.					
7	CMP.1.09.E36.6.14	96.7	1.85	n.d.	0.42		1.01	n.d.	2,0858	0,84013	18,661	15,678	38,923
	MA-114726	91.0	4.3	n.d.	0.66	n.d.	2.34	0.02					
8	CMP.1.09.E36.6.9	99.1	0.28	n.d.	0.34		n.d.	n.d.					
	PA20431	97.8	0.17	n.d.	0.67		0.16	0.13	2,0968	0,84942	18,437	15,661	38,659
9	CMP.1.09.E36.6.12	99.1	0.28	n.d.	0.34		n.d.	n.d.					
	PA20423	96.0	0.14	n.d.	1.69	0.08	0.64	0.32	2,1057	0,85633	18,245	15,624	38,418
10	CMP.1.09.E36.6.15	97.3	0.29	n.d.	1.80		0.16	n.d.					
	MA-114727	97.0	0.07	n.d.	2.27	0.04	0.20	0.18	2,1043	0,85649	18,251	15,632	38,406
11	CMP.1.09.E36.6.16	n.d.	22.2	51.4			26.3	n.d.					
	PA20419	0.041	17.1	63.0			19.0	0.04					
12	CMP.1.9.R2.35.2	97.5	0.18	n.d.	1.4		nd	0.13	2,1005	0,85444	18,312	15,647	38,464
	MA-114723	94.0	0.07	n.d.	3.2	0.08	0.04	0.15					
13	CMP.2.06.11.9												
	PA20420												
	CMP.2.06.11.9												
	MA-114724												

Tab. 2 Major and trace element concentrations in the metal samples and isotopic analysis. All values are given in weight percent. »n.d.« means »not detected«. Detection limits in PA analysis is 0.1 % and in MA analysis is 0.05 % for the elements in the table. Cd was sought in the MA analysis but was below 0.05 % in all samples.

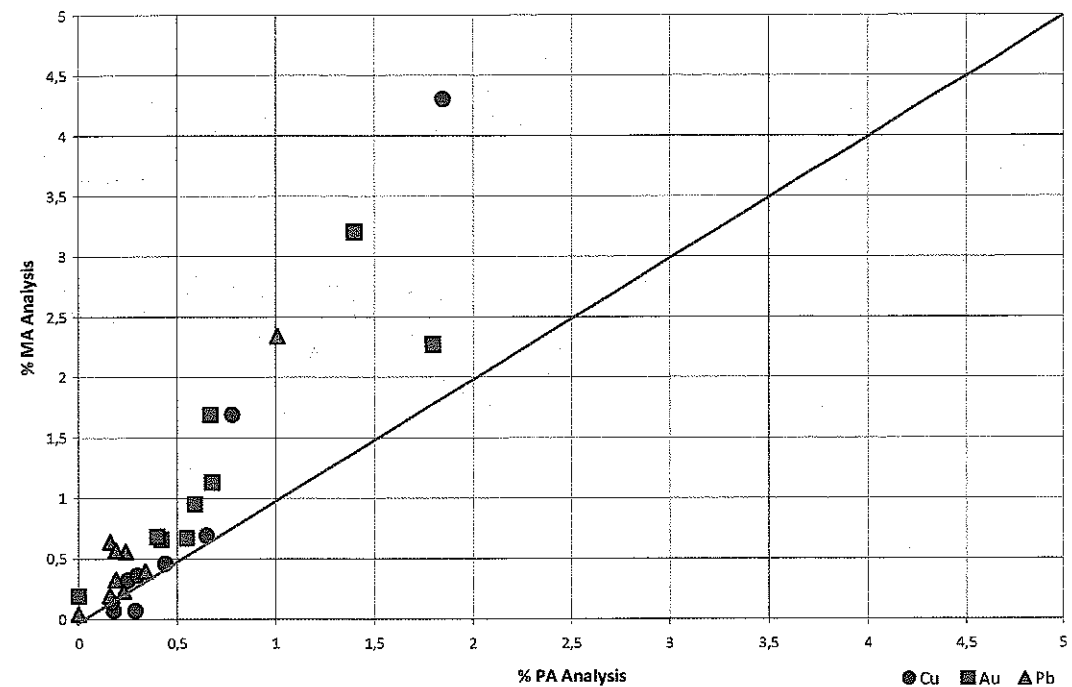


Fig. 8 Comparative laboratory results of the Castromaior coins XRF Analysis.

surface in the MA series. Gold content is always higher in the MA series, and bismuth (Bi) and mercury (Hg) seem to respond to the higher precision of this analytical technique, detecting under 0.1 %.

High purity silver is usual in Roman Republican denarii, although some exceptions have been detected related to political crises⁴. This purity is also common in Greek coins after the 4th century BC, as well as in silver coins minted in the Iberian Peninsula, such as at Emporion⁵ as well as in Punic⁶ or Celtiberian Mints⁷, including the first Julio-Claudian denarii⁸.

The XRF analysis applied in this case does not allow a detailed study of the trace elements, like the analysis with ICP-MS published by Kevin Butcher and Matthew Ponting⁹, however it is worth to stress the detection of gold in all the coins, and the highest content of bismuth, linked to this significant gold percentage. The high figures for gold and bismuth in coins coming from Lugdunum are not accidental, as far as this is characteristic of silver from jarosites ores¹⁰ in the South-western Iberian Peninsula. We will return to this point in the context of the interpretation of the results of the LIA.

The aes from Calagurris (today's Calahorra, in the Ebro Valley) is a leaded bronze, but its state of near-total corrosion has not allowed reaching the metallic core of the coin (CMP.1.09.

⁴ Walker 1976; Pardini et al. 2012.

⁵ Pitarch – Queralt 2010.

⁶ Sejas 1993.

⁷ Montero et al. 2008.

⁸ Butcher – Ponting 2005.

⁹ Butcher – Ponting 2005.

¹⁰ Craddock et al. 1985, 207.

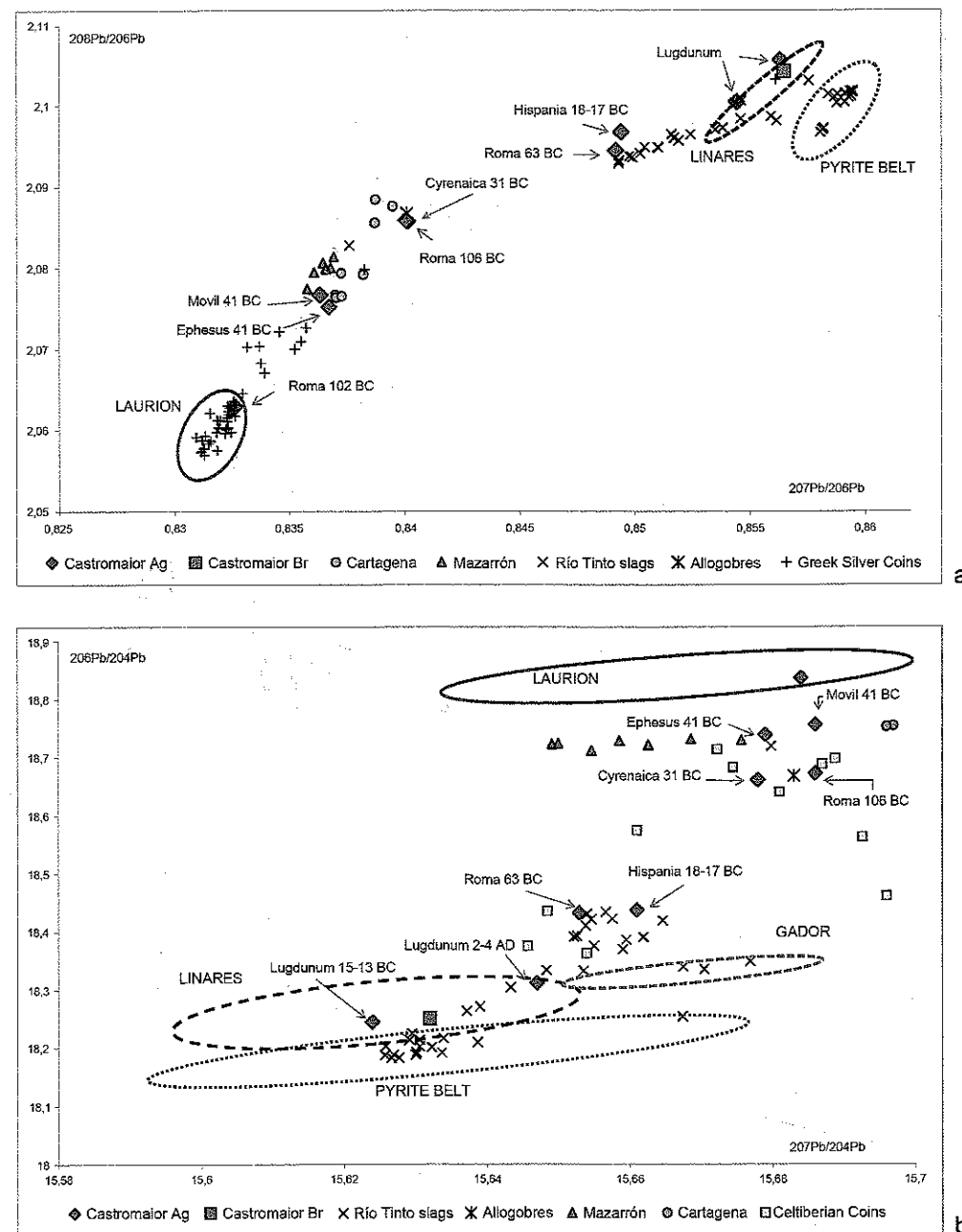


Fig. 9 Castromaior coins LIA ratios compared to geological and other archaeological/numismatic data.

R2.35.2); thus, the results are merely representative of the alloy, but not of the proportional presence of each element. Calagurris was one of the most active Mints until the reign of Tiberius¹¹. Coins from the Augustan and Tiberian periods are usually made of a ternary alloy

¹¹ García-Bellido – Blázquez 2001, II, 221–223; Ripollès 2010, 259–272.

(Cu-Sn-Pb), but with a tendency towards high lead content¹². This amount of lead in the alloy is also common in other Iberian and Celtiberian Mints such as Bilbilis, Bolskan or Kelse, but also in Castulo or Obulco¹³. Coins with Latin legends seem to maintain this leaded alloy in the Hispania Citerior Mints active under Augustus (such as Bilbilis, Cascantum or Celsa), with the only exceptions being Osca¹⁴, Clunia or Tarraco; coins minted in Caesaraugusta and Carthago Nova under Tiberius and Caligula do not follow this rule¹⁵, and lead is detected in lower percentages in Latin coins from Ulterior and Lusitania provinces¹⁶.

Calagurris seems to have acted as one of the secondary workshops of the Lugdunum Mint working in the Augustan period. Two pairs of dies for aurei and denarii of the Caius et Lucius Caesares series were found in Calahorra¹⁷. María Paz García-Bellido¹⁸ proposed a direct relationship of these Mints with the military requirements of coinage based on the abundance of coins produced in Ebro Valley Mints, quite particularly in Calagurris, and its role as auxiliary of Lugdunum.

4. The contextual interpretation of the coins

As mentioned the 13 coins have precise archaeological contexts: Eleven of them forming a small hoard, and the other two coming from two different sectors of the site, but found in stratigraphical contexts. All of them correspond to the Republican and Augustan periods. In the North-West of Hispania the findings of coins are particularly rare: on the one hand because of the lack of minting before the Roman dominion, and on the other hand because of the later and very partial monetisation of these regions. In fact, only during the Cantabrian and Asturian Wars (29–19 BC) did the first significant presence of coins occur. Before that period, only some isolated pieces had arrived to the coastal areas of Galicia, probably related to trade connections with the South of the Peninsula¹⁹. Other findings prove the existence of an intentional hoarding of valuable objects (coins, jewellery, fragments of metal ...) hidden in the unstable period preceding the Roman conquest and the subsequent integration of the area into the province. Thus, only from Augustus can we document some monetisation and monetary circulation²⁰.

The most recent chronological reference given by the ensemble of eleven silver coins from Castromaior is the end of the 1st century BC: a denarius of Augustus' minted at Lugdunum between 15 and 13 BC. The absence of any coins from the Caius et Lucius Caesares series, dated to 2 BC – AD 4, which is quite abundant in the Hispanic Northwest, including Castromaior (CMP.2.06.11.9), establishes an *ante quem* indicium. This would lead to believe that the coins were assembled during the turn of the century.

¹² Ruiz Trapero 1968, 129; Parrado 1998, 231.

¹³ Parrado 1998, 50–80. 174.

¹⁴ Domínguez et al. 2004.

¹⁵ Parrado 1998, 110–166. 181–187.

¹⁶ Parrado 1998, 81–109.

¹⁷ Giard 1983, 31; Giard 1988, 9. 18.

¹⁸ García-Bellido 1996, 104.

¹⁹ Rodríguez-Casanova 2009, 66 f.

²⁰ Centeno 1987; García-Bellido 2008.

The composition of this hoard is not very different to similar ones coming from the territories of ancient Gallaecia, Asturia and Northern Lusitania (tab. 3). The oldest coins are 2 denarii dated from the latter 2nd century BC (CMP.1.09.E36.6.10 and CMP.1.09.E36.6.19). The presence of denarii from this period is usual – with varying presence – in Spanish hoards, including those dated to 1st century AD contexts. Within the Castromaior find only two pieces are from the first half of the 1st century BC (79 and 63 BC), with most others (seven of eleven) belonging to the imperatores of the 2nd half of the 1st century BC. This ensemble constitutes too small a sample to provide conclusions regarding coin circulation in each period. Nonetheless, in general terms, its composition is consistent with other numismatic findings within this geographical and chronological context.

The ensemble of coins, which was of course intentionally kept but not really hidden, was buried through a depositional process related to the collapse of the building. As said above, the absence of denarii of the Caius and Lucius series is the key for dating it in the first Augustan period, but caution is necessary: These coins are conventionally used for the establishment of two phases in the monetary circulation under Augustus in North-western Spain. The first one (characterised by the lack of these coins) is usually related to the conquest period²¹. The very abundant production and dissemination of Caius and Lucius pieces implied a fundamental change in the coin supply to these (and other) regions. The main production centre was the Mint of Lugdunum, though there probably were some auxiliary workshops, some of them supposedly located in Hispania.

Nevertheless, linking the conquest to any treasure found dating from the first Augustan period is haphazard (tab. 3). Castromaior's ensemble serves as proof of it. Some other hoards (called »tesoros« or »tesorillos«) found in the region haven been unanimously understood as direct results of the military operations pertaining the conquest. This is the case of the »Tesoro de Ramallas« or »Rabanales« (Zamora), with 27 denarii found, the most recent being minted by the Augustan legatus Publius Carisius²²; which sets a post quem date of 25–23 BC. From the same province of Zamora comes the rich »Tesoro de Arrabalde«, including both Celtiberian coins and Roman denarii, similarly dated: after 31 BC²³. This is also the case in the finds at Guiães (Vila Real, Portugal)²⁴. The chronology of the last coin found at the Citânia de Sanfins hoard (Paços de Ferreira, Porto, Portugal) is also 25–23 BC²⁵. Other findings from Northern Portugal fit into the same chronological frame: the most recent date of the four denarii found in Monte Mozinho (Oldrões, Penafiel, Porto, Portugal) is also 31 BC²⁶; and the same final date could be proposed for the coins coming from Vila de um Santo (Viseu)²⁷. The closing dates of these deposits span from 31 to 25–23 BC and their internal compositions also indicates that they are older than that of Castromaior, as far as only one third of the pieces are dated after 49 BC. For instance, only 33 % of the Ramallas coins, 36.98 % from Sanfins and 30 % from Guiães. These percentages, derived from small samples of the actual hoards, should be

²¹ Centeno 1987, 212–216; García-Bellido – Blázquez 2001, I, 168 f. map 7.

²² Esparza 1986, 268–273; Centeno 1987, 45 n° 27.

²³ Esparza 1986, 261–268; Centeno 1987, 42 n° 23.

²⁴ Centeno 1987, 58 n° 44.

²⁵ Centeno 1987, 50–53 n° 35; Barbosa 2002.

²⁶ Centeno 1987, 50 n° 34.

²⁷ Barbosa 2002, 65 n° 44.

Hoard	Number of coins noticed	Number of catalogued/studied Roman denarii	More recent coin date	% of coins minted after 49 BC
Arrabalde	20	4	32–31 BC	15 %
Monte Mozinho	4	4	32–31 BC	25 %
Guiães	?	10	32–31 BC	30 %
Castro de Alvarelhos	> 5000	3481	27 BC	23.2 %
Ramallas	27	27	25–23 BC	33 %
Sanfins	306	303	25–23 BC	36.98 %
São João dos Caldeiros	Ca. 1000	126	25–23 BC	44.16 %
Abertura	38	38	19–18 BC	47.4 %
Tiermes	12	9	19–18 BC	50 %
Ruidera	51	51	Ca. 19 AD	56.86 %
Penamacor (Barroca do Antero)	87?	81	15–13 BC	61.52 %
Castromaior	11	11	15–13 BC	63.63 %
Santo Estêvão	Ca. 300	16	15–11/10 BC	68.75 %
Ampurias	89	89	11–9 BC	42.76 %
Burgo de Osma	Ca. 500	19	8–7 BC	65 %

Tab. 3 Coin findings mentioned in the text.

used with caution, but in general it can be assumed that of those hoards hidden during the war, two thirds are dated before 49 BC²⁸.

An outstanding reference is the Castro de Alvarelhos hoard (Santo Tirso, Porto, Portugal), where the most recent coins date from 27 BC²⁹. Published information reveals that more than 5000 silver coins (mainly denarii and some quinarii) and nine silver ingots (two of them with the name »Caesar« inscribed) were found in this site, with additional finds of coins being noticed. 3481 pieces have been studied and all of them belong to the Republican period to Augustus (from 211 to 27 BC). This very particular ensemble has been interpreted in relation with a possible military site – a military cashbox – belonging to the earlier Augustan period. In this case only 23.2 % of the coins were minted after 49 BC.

Nonetheless the Castromaior ensemble is a bit more modern, after 15–13 BC. It is also the case of the hoard from Santo Estêvão (Chaves, Vila). Unfortunately Santo Estêvão is very partially known: of their ca. 300 denarii only 16 have been studied³⁰. The pieces from this hoard that have been studied point to a similar closing date (15–11/10 BC)³¹ and similar compositional characteristics two thirds of the coins being minted after 49 BC in both cases: 63.63 % Castromaior and 68.75 % Santo Estêvão.

If we compare the Castromaior ensemble to other peninsular Augustan hoards, without coins belonging to Caius and Lucius series, the results are similar (tab. 3). In fact, their num-

²⁸ It has already been suggested that the armies involved in the war in North-western Hispania were paid with »old silver« pieces (García-Bellido 2006a, 634).

²⁹ Centeno 1987, 34–41 n° 19–21; Centeno 2011, 364 f.

³⁰ Centeno 1987, 80 n° 74; Volk 1997, 178 n° 82. Volk adds a second lot of coins belonging to this treasure, known by oral information. A Tiberius' denarius is mentioned.

³¹ In Santo Estêvão is an Augustus denarius minted at Lugdunum (RIC I², 52 f.) dated between 15 and 10 BC.

ber is quite small: Penamacor (Castelo Branco), São João dos Caldeireiros (Beja), Ampurias (Girona), Tiermes (Soria), Tricio (La Rioja), Abertura (Cáceres), Ruidera (Ciudad Real) and Burgo de Osma (Soria)³². The circumstances of the discoveries and the certitude about their original compositions vary, but the percentages of coins minted after 49 BC are quite similar: Tiermes 59.93 %, Penamacor 61.52 %, Abertura 63.64 %, Uxama 65 %. Only two offer lower figures: Ampurias (41.56 %) and São João dos Caldeireiros (44.16 %).

In conclusion, both the scarcity of this kind of hoards and its ample distribution throughout the Iberian Peninsula make it difficult to establish a direct relationship with any particular conquest episode. In the North-west of Hispania, for the hoards whose most modern coins are dated from 15 to 11/10 BC, and including around two thirds of the pieces minted after 49 BC, a post-conquest chronology must be accepted. The lack of coins of the Lucius and Caius series could indicate concealment immediately after the war, or perhaps related to the direct consequences of it.

A key scientific issue is to understand the relation between the final phase of the castro, and the finds of House 3. As mentioned, the hoard does not constitute strictly an intentionally hidden ensemble because, though they have been found in a domestic space, they were not stowed away, but kept, perhaps in a bag or box whose vestiges have long disappeared, and probably on some furniture element near the wall (e. g. cupboard, shelf).

Regarding the site context one point is particularly interesting: the relation of the hoard with the final stage of the site and its abandonment. At the moment we have very partial information about the end of the site. It probably was not abandoned simultaneously, with some sectors being deserted while other remained inhabited (or at least frequented) for some years. In general terms, the archaeological layers that allow the documentation of the collapse of the structures indicate a progressive collapse of the roofs and walls rather than a rapid or violent destruction. The coins were located under these levels and this circumstance must be taken into account when interpreting the find: Was the abandonment of this sector of the croa unexpected, complete and very rapid, and did the houses experience a natural process of destruction after their abandonment? Why did the inhabitants not come back to look for their belongings? The abundant material record collected in E36 and E22 is consistent with a rapid and definitive evacuation of this sector, though this has not been entirely confirmed.

These contextual characteristics are reminiscent of two hoards found in the Castro de Chano (Peranzanes, León), an interesting small hillfort located in the North-western limits of León. In this case the two hoards were also found in the course of archaeological excavation³³. In both of them Spanish denarii were collected, minted in Iberian Mints which during the 2nd and 1st centuries BC. Among them, the latest one to remain functioning was the Sekobirikes Mint, in circulation until the final decades of the 1st century BC³⁴. The presence of Spanish silver coinage is usual in Western Meseta hoards, while the more North-western ones contain mainly Roman Republican denarii.

A group of 17 Iberian denarii was found in the archaeological level corresponding to the collapse of the roof of House 4; thus it can be assumed that the coins were somewhere in

³² Rodríguez-Casanova 2008.

³³ Alegre – Celis 1994; Celis 2002.

³⁴ Delibes et al. 1993, 445–450; García-Bellido – Blázquez 2001, II, 338–341.

the upper part of the wall or just under the roof, and probably in a sack (a large bronze ring found with the coins could be all that remains of the sack). A second hoard with 27 Iberian denarii was found in House 5, adjacent to House 4. Here the coins were under the collapsed wall, thus they could have been in a hollow in the wall or in a ledge or shelf (as far as these kinds of elements have been documented); the coins had a green patina showing a bronze mineralisation, perhaps the only proof of a bronze box containing the coins. Of course the coins were intentionally kept in safe places, but not strictly hidden. On the other hand, the archaeological excavation doesn't reveal any sign of a systematic destruction of the site. The presence of the coins and other metallic objects, as well as the process of collapse of the domestic structures, point to a rapid and definitive abandonment.

The most recent minting date of the coins cannot be used for establishing the hoarding date of the coins and, henceforth, the date of the abandonment of the castro. But the material record of the site, and its role in a precise territorial pattern, do provide some information. The excavated sector shows a relatively short life for the site: a single constructive phase with some very partial reforms; ceramics and metal items correspond to local productions dated between 3rd century BC and the early 1st century AD; but both some local vases and late Celtiberian ceramics confer a turn of the Era chronology. Besides the on-site analysis, the Castro de Chano is integrated in a very different occupation model from that prevailing in the pre-Roman period³⁵. It has been suggested that this short-life site could be linked to the readjustment of local population and of resource exploitation strategies in the initial moments of Roman domination.

Finally, some information is provided by the other two coins found in the site. Both of them prove that the site (or some parts of it) was inhabited – at least frequented – after E36, and the coins therein, had collapsed. The denarius found in the enclosure 3 belongs to the Caius and Lucius series; so, it indicates an Augustan (or later) chronology for the last stage of that part. The minting of this series started in 2 BC and continued at least until AD 4³⁶ – probably even until AD 12³⁷. The aes from Calagurris found in the rampart wall correspond to the type RPC 435 and this corpus proposes a vague Augustan chronology post. 27 BC; nevertheless other authors have proposed a more precise date ante quem 11 BC³⁸. Its presence in the castro is not surprising, as far as the Mints of the North-East of Spain provide usually bronze coinage to the North half of the peninsula, from the Meseta to the North-West³⁹. Rui Centeno, in his book on the monetary circulation in North-western Hispania, concluded that Calagurris is the best represented Mint for bronze coinage dating to Augustus (14.09 %) and Tiberius (17.24 %). The figures have certainly changed since the publication of Centenos' work, but these remarks are still well-fundamented. García-Bellido insists on the importance of Calagurris as a main military cash box, source of the monetary military provision for the Northwest⁴⁰.

³⁵ Celis 2002, 197–200.

³⁶ RIC I², 28. 55.

³⁷ Centeno 1987, 215.

³⁸ García-Bellido – Blázquez 2001, II, 221–225.

³⁹ Centeno 1987, 237–240. The metallographic analysis of the coins confirms the use of bronze in this series as commented by P. P. Ripollès (Ripollès 2010, 262).

⁴⁰ García-Bellido 2006c, 686.

5. Roman Republican and Augustan coinage: some new data on silver supply

The increasing number of analytical studies of ancient coinage constitutes an essential issue in attempting to provide a solid basis for the connection of ancient mining regions and minting history. The amount of records is still scarce and sometimes the comparability of data is limited (both regarding the isotopic signature and trace elements of the ores, and the number and representativeness of the coins analysed). The results now presented could contribute to the construction of an analytic database of Roman coinage and to the debate on the advantages and limits of these studies⁴¹. This study could be particularly relevant due to the scarce number of analyses available for Republican denarii.

The Lead Isotope Analysis (LIA) of eight of the Castromaior coins shows a great dispersion area of the resultant values; however some of them present similar isotopic ratios suggesting a similar provenance (tab. 2; fig. 9). This is the case of the two coins minted in 41 BC (CMP.1.09.E36.6.18; CMP.1.09.E36.6.14); the coin from Cyrenaica dated in 31 BC (CMP.1.09.E36.6.9) is similar to the denarius dated from 106 BC (CMP.1.09.E36.6.10); and the metal of the denarius minted in Rome in 63 BC (CMP.1.09.E36.6.13) could have the same origin than that of the denarius minted in Hispania in 18–17 BC (CMP.1.09.E36.6.15). Finally there is a close relationship between the Lugdunum denarius from 15–13 BC (CMP.1.09.E36.6.16) and the aes from Calagurris (CMP.1.09.R2.35.2). In this last case, the lead present in the aes' ternary alloy is similar to the lead added in the cupellation process to obtain the silver present in the Lugdunum denarius. This could reinforce the links between Calagurris and Lugdunum above mentioned.

In order to try to identify more precise regions of provenance, we compare the coins to the geologic data available for the whole Mediterranean area⁴², but also we take into account LIA Data from other Greek and Roman silver coins⁴³ and coins from Emporion and Celtiberian Mints⁴⁴.

1. There are few doubts regarding the Laurentian provenance for the silver of the Rome denarius dated from 102 BC (CMP.1.09.E36.6.19). In the graphic representation (tab. 2; fig. 9) its position inside Laurion's isotopic field, and close to most of the Greek silver coins dated between 5th and 3rd centuries BC linked to these mines, reinforces this option⁴⁵.

⁴¹ Ponting et al. 2003; Klein et al. 2004; Butcher – Ponting 2005; Butcher – Ponting 2009; Ponting 2009; Klein et al. 2010; Rafel et al. 2010; Butcher – Ponting 2011; Montero et al. 2011; Butcher – Ponting 2012; Pardini et al. 2012; Ponting 2012. See also the project website »The Roman Silver Coinage. The Metallurgy of Roman Silver Coinage« (<<http://sace.liv.ac.uk/romansilver/>>).

⁴² References of each area are compiled by Cattin et al. 2009.

⁴³ Stos-Gale – Gale 2009; Desauty et al. 2011.

⁴⁴ Montero et al. 2011.

⁴⁵ Stos-Gale – Gale 2009; Desauty et al. 2011. The Laurion mines were still active in Hellenistic times, although its importance was lower than in previous periods. There are some references regarding works in Laurion during the 2nd and 1st centuries BC: a) In the first half of the 2nd century BC, started the production of new Athenian silver coins so-called New Style, which series lasted until the eighties of the 1st century BC; b) In 103 BC, slaves' revolts are noticed in the Attic mines, simultaneously to those of Sicily (Posidonius, apud Athenaeum 6, 272); c) According to the Strabo's description, at his time, works in the Laurion mining area were limited to searching in the wastes accumulations and in the slag heaps (Strab. 9, 1, 23) and Pausanias mentions Laurion as a place where some time ago were the Athenian's silver mines (Strab. 1, 1, 1).

2. The detection of gold and bismuth in both coins from Lugdunum could hint at a provenance from the argentiferous jarosite ores mined in the South-West of Hispania (CMP.1.09.E36.6.16; CMP.2.06.11.9). The location of both coins is far from the Pyrite Belt isotopic field (fig. 9), but it is close to the Linares isotopic field. Silver obtained from these jarosites does not always exhibit the isotopic ratios expected for the Pyrite Belt field due to the addition of alien lead for the cupellation process⁴⁶. The trade network of lead is well documented in the Iberian SW since Phoenician times, and well into the Roman period⁴⁷. Lead from the Linares mines (Jaén, Sierra Morena) and Gador (Almería, South-eastern Spain) is well attested in the slags from Rio Tinto dated from the Orientalising period⁴⁸, but isotopic signatures of Roman Republican slags show mainly a combination of metals coming from the Mazarrón–Cartagena (Murcia) mines and the Pyrite Belt. These denarii minted in Lugdunum seem to contain lead from Linares, confirming the supply of lead from Eastern Sierra Morena, although for the moment it has not been detected in the Rio Tinto slags analyzed. The use of lead from Linares is supported by the isotopic results obtained in the Calagurris' aes; this coin presents similar ratios and certainly matches the Linares isotopic field. The Rio Tinto argentiferous jarosites were also proposed as the source of silver for the Lugdunum denarius WM34 dated from 15–10 BC⁴⁹.

3. Figure 9 visualizes the mixing line that can be traced between Pyrite Belt or Linares Isotopic fields and the mining region Mazarrón – Cartagena. The denarius from Rome dated from 63 BC (CMP.1.09.E36.6.13) matches this mixture, exhibiting isotopic ratios similar to the Rio Tinto slags. Its lower gold percentage, however, and the absence of bismuth within our detection limit (> 0.04 %) suggest a probable recycling of metal from both origins (Pyrite Belt and Murcia mines) and not primary silver from jarosites.

4. The denarius minted in Hispania in 18–17 BC (CMP.1.09.E36.6.15), with isotopic ratios close to those of the previous coin, could have a similar combination origin, but in this case high gold and bismuth values have been detected in the elemental analysis. Thus, probably it is the result of the use of primary silver obtained from the South-western jarosites and lead from Cartagena.

The identification of metal sources of the other four coins from Castromaior analyzed is more complex:

5. The coins from 41 BC (CMP.1.09.E36.6.18; CMP.1.09.E36.6.14) minted in the Eastern Mediterranean (Ephesus and an itinerant Mint) probably were produced using silver from that area. Although Laurion can be ruled out, it is not possible to detect a precise provenance from Aegean Islands or Turkish mines; and the similar isotopic ratios of some South-eastern Iberian Peninsula mines complicates the interpretation. If there was a mixture of silver from Eastern Mediterranean mines, we are not able to identify them.

⁴⁶ Hunt 2003.

⁴⁷ Anguilano et al. 2010.

⁴⁸ Murillo-Barroso 2013.

⁴⁹ Butcher – Ponting 2005, 192.

6. Finally, in the graphic representation, the denarii minted in Cyrenaica (31 BC) and Roma (106 BC) (CMP.1.09.E36.6.9; CMP.1.09.E36.6.10) are located in an intermediate position between several Iberian mines, but the best match is with an Allogobres silver coin, dated from 80–75 BC⁵⁰. These isotopic signatures are not related to the mines of the Massif Central⁵¹ and the possibility of a silver mixture should be explored. If we compare the isotopic signatures of these two coins found in Castromaior to some Celtiberian coins minted in the Ebro valley, we can observe a similar distribution, being the silver from Murcia the major part of the silver mixed⁵².

6. Concluding remarks

1. The finding and the study of this ensemble of coins adds new data on the significance of the early presence of coinage in the North-western regions of Hispania in civilian and indigenous contexts. Current assumptions stress the role of the military camps as distributors of coinage in the NW. Though this is an undoubted proposition, the presence of coinage in areas located far from them, such as the rural interior, requires an interpretation in the contexts of the contacts between local population and Rome. The 13 coins from Castromaior (both the hoard and the other two isolated coins) can be considered a symptom of contacts with Rome in the conflictive context of the conquest period and the immediate years⁵³. Only coins and some fragments of amphora reveal a foreign origin, in a material context characterised by local productions.

The hoard was found within the croa sector, where architectonic restructuration during 1st century BC was most drastic and visible. The coins, as well as the deep transformation of this part of the site – including both private houses and other possibly public areas –, could be interpreted as proof of the contacts between local populations and Romans just before, or during the wars of conquest. Is this a sign of restricted contacts involving only a part of the site's population? Does the dramatic change in the organisation of this part of the site indicate the rupture of the social, spatial and territorial structure of the castro community?

The last phase of Castromaior could be key in the understanding of the process of dissolution of the castro social structure. It illustrates changes within local communities in the long and complex process of contacts with Roman imperialism that results in the effective integration in the Roman rule as provincial land after 19 BC. From the Augustan period a new settlement network was established; the provincial system was then supported by a new geo-political map where civitates became the basic administrative and territorial unit, and where the neighbouring city of Lucus Augusti became the conventus capital. Castromaior's last phase illustrates the disintegration of the castro as social and territorial unit. Further research on the history of the abandonment of the diverse sectors of the site could help understand better the nuanced process that was the consequence of Roman dominion.

⁵⁰ Desautly et al. 2011.

⁵¹ Baron et al. 2006.

⁵² Montero et al. 2011, 208.

⁵³ Orejas – Sánchez-Palencia 1999.

2. The contextual finding of a hoard always constitutes an exceptional circumstance and it gives to the archaeologists the opportunity of characterizing the depositional and post-depositional processes associated. When hoards are recovered from their archaeological context, their historical value is increased several times over. The archaeological context of the Castromaior hoard shows, on the one hand, a significant lack of other Roman artifacts (except some fragments of amphora and a comb), and on the other hand a dramatic transformation of the plan and architectural features of the site.

3. The analytical data could contribute to the corpus of data already available. The results and their interpretations stress the difficulty of identifying a unique source of the metals used in coinage and the need of combining several variables (elemental analysis, trace elements, isotopic ratios) for putting forth a likely proposal. This requires, however, that analytical data be connected to the historical contexts: above all, location and particularities of Mints, history of mining areas and metallurgical processes.

If the interpretation of the provenance of metals suggested is right, most of the silver detected in the denarii found at Castromaior, and minted in the Western provinces and in Rome came from Hispanic mines; the exception is the denarius minted in Rome in 102 BC. This tendency has already been noted in previous studies, even for Julio-Claudian denarii⁵⁴. This highlights the important role of Spanish silver in coinage, which is consistent with the archaeological and literary evidence about the intense mining activity in Southern Hispania during the Republican period⁵⁵.

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⁵⁴ Butcher – Ponting 2005; Ponting 2009, 279.

⁵⁵ Orejas et al. 1999; Orejas (in press).

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Addresses: Dra. Almudena Orejas Saco del Valle, Dpto. de Arqueología y Procesos Sociales, Instituto de Historia del CSIC, c/ Albasanz n.º 26–28, 28037 Madrid, ESPAÑA, E-Mail: almudena.orejas@cchs.csic.es – Dr. Ignacio Montero Ruiz, Dpto. de Arqueología y Procesos Sociales, Instituto de Historia del CSIC, c/ Albasanz n.º 26–28, 28037 Madrid, ESPAÑA, E-Mail: ignacio.montero@cchs.csic.es – Yolanda Álvarez González, TerraArqueos, S.L., c/ Fonte do Bispo n.º 4, 4ªA, 32002 Ourense, ESPAÑA, E-Mail: terraarqueos@hotmail.com – Luis Francisco López González, TerraArqueos, S.L., c/ Fonte do Bispo n.º 4, 4ªA, 32002 Ourense, ESPAÑA, E-Mail: terraarqueos@hotmail.com – Miguel Ángel López Marcos, Arqueólogo, Paseo de las Delicias n.º 11, 3ªA, 28045 Madrid, ESPAÑA, E-Mail: mlopezmarcos@yahoo.es – Dra. Isabel Rodríguez Casanova, E-Mail: isanova69@gmail.com.

ZUSAMMENFASSUNG – RESUMEN – SUMMARY

Im Jahr 2009 wurden im Rahmen einer systematischen archäologischen Ausgrabung Castromaiors (Portomarín, Lugo, Spanien) elf römische Denarii gefunden, die zwischen 106 v. Chr. und der augusteischen Zeit datieren. Das Haus 3, in dem die Münzen aufgefunden wurden, ist beispielhaft für die Neugestaltung der Hügelburg während deren letzter Epoche. Archäologische Untersuchungen Castromaiors beweisen die Neugründung einer Vorgängersiedlung, die in der jüngeren Eisenzeit (Eisenzeit II) erneuert wurde. Das Zentrum des höher gelegenen umfassten Areals wurde im 1. Jh. v. Chr. – der letzten Phase der Anlage – einer grundlegenden Reform unterzogen.

Bei dem Münzfund handelt es sich um eines der wenigen Beispiele im Nordwesten der Iberischen Halbinsel, deren Kontext bekannt ist. Es ergab sich für uns die Möglichkeit einer vollständigen Erforschung der Denarii, einschließlich numismatischer Studien und archäometallurgischer Analysen (XRF und LIA), die den Zweck hatten, die Herkunft des verwendeten Metalls zu klären. Zwei weitere Münzen (ein Denarius und ein Aes) wurden in die Untersuchung mit einbezogen.

Schlagworte: Denarius – Aes – Pb Isotope – XRF Analyse – Hügelburg (castro) – antike Minen – Nordwest-Spanien

En 2009, en el curso de las excavaciones arqueológicas desarrolladas en Castromaior (Portomarín, Lugo, España), se encontró un conjunto de once denarios, datados entre el 106 a. C. y el periodo augusteo. La casa 3, donde fueron halladas las monedas, ilustra bien las reformas que caracterizaron la última fase de este castro. Efectivamente, los trabajos arqueológicos llevados a cabo en Castromaior han puesto de manifiesto un proceso de refundación durante la Segunda Edad del Hierro de un asentamiento más antiguo. En particular, la zona central de su recinto superior fue objeto de una profunda renovación en el siglo I a. C., durante la última etapa del sitio.

En conjunto de denarios de Castromaior constituye uno de los raros casos de hallazgos en contexto del Noroeste peninsular. Hemos tenido la oportunidad de efectuar un estudio completo de estas monedas, incluyendo su clasificación numismática y análisis arqueometalúrgicos (XRF y LIA), con el fin de caracterizar el origen del metal empleado en su acuñación. Otras dos monedas procedentes de las excavaciones en el yacimiento, un denario y un as, también han sido incluidas en este trabajo.

Palabras clave: Denario – as – isótopos de plomo – análisis FRX – castro – zonas mineras antiguas – Noroeste de Hispania

In 2009, in the frame of the systematic archaeological excavations carried out in Castromaior (Portomarín, Lugo, Spain), an ensemble of eleven Roman denarii, dated between 106 BC and the Augustan period, was found. The house 3, where the coins were located, exemplifies the reforms that characterise the last stage of the hillfort. In fact, archaeological research carried out in Castromaior has brought to light the re-foundation of a former settlement, which was totally renewed in the Second Iron Age. The central area of its upper enclosure was deeply reformed in the 1st century BC, during the last phase of the site.

It constitutes one of the rare cases of contextual coin findings in the Northwest of the Iberian Peninsula. We have had the opportunity to undertake a complete study, including the numismatic study and archaeometallurgical analyses (XRF and LIA) of the denarii in order to characterise the origin of the metal employed for minting them. Two other coins found in the site (a denarius and an aes) are also included in this study.

Keywords: Denarius – Aes – Pb isotopes – XRF analysis – hillfort (castro) – ancient mining areas – North-western Spain