

pca

european journal of
postclassicalarchaeologies

volume 10/2020

SAP Società Archeologica s.r.l.

Mantova 2020

EDITORS

Gian Pietro Brogiolo (chief editor)

Alexandra Chavarría (executive editor)

ADVISORY BOARD

Martin Carver (University of York)

Matthew H. Johnson (Northwestern University of Chicago)

Giuliano Volpe (Università degli Studi di Foggia)

Marco Valenti (Università degli Studi di Siena)

ASSISTANT EDITOR

Francesca Benetti

EDITORIAL BOARD

Paul Arthur (Università del Salento)

Margarita Díaz-Andreu (ICREA - Universitat de Barcelona)

José M. Martín Civantos (Universidad de Granada)

Girolamo Fiorentino (Università del Salento)

Caterina Giostra (Università Cattolica del Sacro Cuore di Milano)

Susanne Hakenbeck (University of Cambridge)

Vasco La Salvia (Università degli Studi G. D'Annunzio di Chieti e Pescara)

Bastien Lefebvre (Université Toulouse - Jean Jaurès)

Alberto León (Universidad de Córdoba)

Tamara Lawit (University of Melbourne)

Federico Marazzi (Università degli Studi Suor Orsola Benincasa di Napoli)

Dieter Quast (Römisch-Germanisches Zentralmuseum Mainz)

Andrew Reynolds (University College London)

Mauro Rottoli (Laboratorio di archeobiologia dei Musei Civici di Como)

Colin Rynne (University College Cork)

Post-Classical Archaeologies (PCA) is an independent, international, peer-reviewed journal devoted to the communication of post-classical research. PCA publishes a variety of manuscript types, including original research, discussions and review articles. Topics of interest include all subjects that relate to the science and practice of archaeology, particularly multidisciplinary research which use specialist methodologies, such as zooarchaeology, paleobotany, archaeometallurgy, archaeometry, spatial analysis, as well as other experimental methodologies applied to the archaeology of post-classical Europe.

Submission of a manuscript implies that the work has not been published before, that it is not under consideration for publication elsewhere and that it has been approved by all co-authors. Each author must clear reproduction rights for any photos or illustration, credited to a third party that he wishes to use (including content found on the Internet). For more information about **ethics** (including plagiarism), copyright practices and guidelines please visit the web site www.postclassical.it.

PCA is published once a year in May, starting in 2011. Manuscripts should be submitted to editor@postclassical.it in accordance to the guidelines for contributors in the webpage <http://www.postclassical.it>

Post-Classical Archaeologies' manuscript **review process** is rigorous and is intended to identify the strengths and weaknesses in each submitted manuscript, to determine which manuscripts are suitable for publication, and to work with the authors to improve their manuscript prior to publication.

This number will be entirely in **open access**. For more information on our open access policy please visit the web site www.postclassical.it.

How to **quote**: please use "PCA" as abbreviation and "European Journal of Post-Classical Archaeologies" as full title.

Cover image: Giorgio de Chirico, *L'archeologo*, 1927, Monaco, private collection (reproduced with permission of the Fondazione De Chirico).

"Post-Classical Archaeologies" is indexed in Scopus. It was approved on 2015-05-13 according to ERIH PLUS criteria for inclusion and indexed in Carhus+2018. Classified A by ANVUR (Agenzia Nazionale di Valutazione del sistema Universitario e della Ricerca).

DESIGN

Paolo Vedovetto

PUBLISHER

SAP Società Archeologica s.r.l.
Strada Fienili 39/a, 46020 Quingentole, Mantua, Italy
www.archeologica.it

Authorised by Mantua court no. 4/2011 of April 8, 2011

For subscription and all other information visit the web site www.postclassical.it.

CONTENTS PAGES

EDITORIAL

5

DOSSIER - ARCHAEOLOGY: FROM THE AGENDA 2030
TO THE WORLD POST-COVID

- G.P. Brogiolo, A. Chavarrfa Arnau** Archeologia e sostenibilità nell'era post (?) COVID-19 7
- P. Gould** Resilience and innovation: an economic contemplation on public-facing archaeology after COVID-19 21
- P. Gelabert** Past diseases: present questions and future perspectives from an archaeogenetic approach 35
- C. Holtorf** An archaeology for the future: from developing contract archaeology to imagining post-corona archaeology 57
- P. Everill** *Quo vadis?* What next for British archaeology? 73
- D. Henson** Archaeology's place in education: under threat or an opportunity? 91
- A. Rey da Silva** Sailing the waters of sustainability. Reflections on the future of maritime cultural heritage protection in the global sea of development 107
- R.J. Williamson, M. Nevell, B. Humphrey-Taylor** Increasing the resilience of cultural heritage using novel technologies: the perspective from a UK volunteer-led site 135
- C. Rynne** Waterpower and sustainable energy in 19th-century Europe and the USA. An archaeology of the water turbine 147
- RESEARCH - RETHINKING THE LATE ANTIQUE COUNTRYSIDE
- C. Corsi** The villa-*mansio* in the Late Antique Mediterranean: between historiographical creation and archaeological impotence 165
- T. Lewit** "*terris, vineis, olivetis...*": wine and oil production after the villas 193

- N. Conejo** Coins and *villae* in late Roman Lusitania: collapse of the Roman currency economy? 219
- A. Carneiro** Adapting to change in rural Lusitania: zooarchaeological record in the Horta da Torre Roman villa (Portugal) 247
- R. Montagnetti, D. Pickel, J. Wilson, F. Rizzo, D. Soren** New research in the Roman villa and late Roman infant and child cemetery at Poggio Gramignano (Lugnano in Teverina, Umbria, Italy) 279
- J.M. Nolla, M. Prat, A. Costa, N. Corominas, L. Palahí** La visualización de los visigodos en Gerunda y sus entornos. Datos significativos de un problema sin resolver 303

BEYOND THE THEME

- N. Tsvikis** Moving beyond the Invisible Cities of Byzantium 325
- P. Todaro, G. Barbera, A. Castrorao Barba, G. Bazan** *Qanāts* and historical irrigated landscapes in Palermo's suburban area (Sicily) 335
- S. Bianco, E. Allué, S. Riera Mora, A. Fernández, M. Soberón Rodríguez, C. Miró Alaix** The evolution of wood fuel exploitation in the El Born Market site (Barcelona, Spain) during the 15th-18th centuries starting from charcoal analysis 371
- A.R. Staffa** La transumanza in Abruzzo fra tarda antichità e medioevo 401
- P. Marcato** Analisi diacronica del paesaggio storico delle malghe di Brentonico (TN) tra XIX e XXI secolo 449

REVIEWS

- E. Dodd, *Roman and Late Antique Wine Production in the Eastern Mediterranean: A Comparative Archaeological Study at Antiochia ad Cragum (Turkey) and Delos (Greece)* - by **T. Lewit** 473
- M. Cavalieri, F. Sacchi (eds), *La villa dopo la villa. Trasformazione di un sistema insediativo ed economico in Italia centro-settentrionale tra tarda antichità e medioevo* - by **G.P. Brogiolo**
- F. Grassi, J.A. Quirós Castillo (eds), *Arqueometría de los materiales cerámicos de época medieval en España* - by **C. Citter**
- G.P. Brogiolo, A. Chavarría Arnau, *Archeologia postclassica. Temi, strumenti, prospettive* - by **A. Guidi**
- C. Giostra (ed), *Migrazioni, clan, culture: archeologia, genetica e isotopi stabili* - by **V. La Salvia**
- E. Guttmann-Bond, *Reinventing Sustainability: How Archaeology Can Save the Planet* - by **M. Fecchio**
- I. Huvila (ed), *Archaeology and Archaeological Information in the Digital Society* - by **L. Durjava**
- C. Holtorf, A. Pantazatos, G. Scarre (eds), *Cultural Heritage, Ethics and Contemporary Migrations* - by **A. Borsato**

Noé Conejo*

Coins and *villae* in late Roman Lusitania: collapse of the Roman currency economy?

The present paper aims to characterise the economy and society of rural Lusitania through the analysis of the numismatic record from 37 *villae*, especially during Late Antiquity. After examining the development of coinage in rural contexts during the Empire, different velocities of money are attested in the cities and the countryside. Finally, I have tried to understand how the major changes undergone by *villae* and the disruptions of money supply to the West during the 5th and 6th centuries affected monetary economies.

Keywords: coinage, *villae*, currency circulation, rural economy, Lusitania

L'articolo vuole tracciare le caratteristiche dell'economia e della società della Lusitania rurale in epoca tardoantica attraverso l'analisi del registro numismatico proveniente da 37 ville. Dopo lo sviluppo della monetazione nei contesti rurali durante l'Impero, una differente circolazione monetaria è attestata nelle città e nelle campagne. L'autore esamina come i maggiori cambiamenti che avvennero nelle ville e l'interruzione del flusso monetario in Occidente nel V-VI secolo abbiano influito sull'economia monetaria.

Parole chiave: monetazione, ville, circolazione monetaria, economia rurale, Lusitania

1. Introduction

To date, coinage in rural Hispania has not been paid systematic attention, with few exceptions. Some works have presented the numismatic record from important *villae*, such as La Olmeda (Palencia) (Campo 1990) and El Saucedo (Talavera la Nueva) (Cabello 2008) in Spain and São Cucufate (Beja) (Bost, Pereira 1990) and Torre de Palma (Monforte) (Bost 2000) in Portugal. However, these studies examine the circulation of coinage from a strictly local point of view, and no links have been drawn with nearby or similar sites or with the urban record. This gap is not caused by methodological shortcomings; in fact, these studies continue to be a reference for Spanish numismatics. Yet, they lack a

* Departamento de Prehistoria y Arqueología, Universidad de Sevilla, Spain - Centro de Arqueología da Universidade de Lisboa (Uniarq), Portugal, ccvdenoe@hotmail.com.

wider general or even provincial perspective, which would allow us to better understand the operation of rural economies in *Hispania* during the Early Empire and Late Antiquity.

This is compounded by the lack of numismatic studies focused on the use and circulation of coinage in urban contexts. While some paradigmatic studies exist – *Belo* (Bost *et al.* 1987) and *Clunia* (Gurt 1985) in Spain, *Conimbriga* (Pereira *et al.* 1974) and *Ammaia* (Ruivo 2012) in Portugal – these present a narrow urban perspective, without examining the broader relations between cities and their hinterland, in which coinage played a key role. One exception is the work by Lledó Cardona (2008) on monetary circulation in the coastal cities of *Tarraconensis*. This work includes the numismatic finds from the cities' dependant territories, allowing the author to investigate differences in monetary circulation in urban and rural contexts, shedding light on the broader relationship between cities and the countryside.

Similarly, studies which focus on the world of the villa have, as a rule, neglected the numismatic evidence. With the exception of Bost's (1992-1993) pioneering studies and the work of Chavarría (2007, pp. 86-87), who has stressed the significance of these finds both as a chronological marker and as tangible trace of economic transactions, most works and conference presentations about the villa as the basic rural unit in the Roman world have paid little heed to the importance of coinage (Revilla Calvo 2008; Fernández Ochoa *et al.* 2008; Hidalgo Prieto 2016). In contrast, in other provinces of the Empire numismatists have combined the interpretation of coinage and that of the rural world, presenting a more holistic perspective of Roman society and economy (Pavoni 2005; Doyen 2015; Walton 2012; Martin 2016b among others).

Lusitania is rich in excavated rural sites, 37 of which (36 *villae* and an *agglomération secondaire*) have yielded a significant number of coins (3669 overall) ranging in chronology from the 1st century BC to the 6th century AD (fig. 1). By examining the use and circulation of these coins, we shall be able to better understand the complex economic operation of *villae* in Lusitania. Three interrelated questions need to be investigated: 1. who were the agents that introduced coinage to the Lusitanian countryside?; 2. what differences were there in terms of monetary circulation in the cities and the countryside?; 3. how were monetary economies affected by the major transformations undergone by *villae* and the restrictions in money supply suffered by the west during the 5th and 6th centuries AD?

The analysis of coinage in the Lusitanian countryside can also serve as the basis for future research in other provinces, both in the Iberian



Fig. 1. Cities and rural sites (*villae* and *agglomerations secundaires*) mentioned in this article.

Peninsula and elsewhere in the Empire. Only in *Britannia* (Reece 1995, 2002; Walton 2012) and Gaul (Doyen 2015; Martin 2016a) has coinage in the rural world been analysed in depth; other areas, such as North Africa and even Italy, lack comprehensive studies (except for Pavoni 2002), despite the fact that these areas are not lacking in well-excavated rural sites with a rich numismatic record, apart from having a wealth of complementary information – inscriptions and written sources – that would considerably enrich the interpretation.

2. How did coins reach the Lusitanian countryside?

Coin finds clearly demonstrate that coinage was common in the Lusitanian countryside, and that it even played a key role in its economic model. However, the process by which coins arrived there are not clear. Let us examine the factors that may have contributed to supplying the rural areas with coinage.

The number of coins and coin hoards dated to the Republican period found in the rural sites of the province (hoards: Hipólito 1960-1961; rural sites: Ruivo 1993-1997, 2010) proves that the use of coinage was common in Lusitania even before the Roman province was created. The distribution of the finds has led some authors to argue that the main monetising agent in the future province was the army – with the aid of existing communication routes (Blázquez 2002, pp. 260-261). After the creation of the province, cities became the main agents of supply, either through the operation of urban mints – e.g. *Augusta Emerita* and *Pax Iulia* (Beja) – during the opening decades of the 1st century AD (Bost, Chaves 1990), or that of rural markets.

Periodic rural markets were perfectly described by de Ligt: “periodic markets can be seen as ‘periodic central places’, one of whose objective functions it is to reduce the distance rural consumers must travel to obtain externally-supplied goods and services” (de Ligt 1993, p. 108). Some authors have also stressed the role played by rural markets in the supply of coinage to rural areas (Shaw 1981, pp. 56-58; de Ligt 1993, pp. 146-152; Morley 2002, p. 212; Katsari 2008, pp. 261-263; Wickham 2016, pp. 136-138). One type of market which is frequently mentioned in the sources are *nundinae* (Cir., *ad Quint.fr.* 3.1.3; Cir., *ad Att.*, 4,3,4; Amin. Marc. 14.3.3., Cypr., *De Lapsis*, 6 [de Ligt 1993, pp. 51-52]; and Columella, *Rust.*, 11.1.23 [Ker 2010, p. 372]). In the Republican period, and in Italy also during the first centuries of the Christian era, these markets were held every eight days (Ker 2010, p. 372), but elsewhere they became less frequent over time, and regional differences are attested (de Ligt 1993, pp. 51-52). The literary and epigraphic sources confirm that *nundinae* were celebrated in the rural areas of Italy (*nundinae* lists found in *Allifae* and *Pompeii*: Ker 2010, p. 278), Africa (*CIL VIII* 25902; *CIL VIII* 8082, *CIL VIII*, 20627 [Chaouali 2002, pp. 375-376]) and Gaul (*CIL XII*, 2462a,b,c [Martin 2016b, p. 21]), and there is evidence for rural landowners addressing the Senate to request the *ius nundinarum*, which allowed them to organise periodic markets on their estates. These markets were a direct and indirect source of income for rural landowners. Pliny (*Ep.* 5.13) recalls a famous dispute between

the inhabitants of *Vicentia* and *L. Bellicius Sollers*, when the latter was granted this right. The conflict was clearly economic in nature, as the periodic market in *Sollers's* land threatened the interests of the inhabitants of *Vicentia*. In Africa, at a much later date, *Lucilius Africanus* and *Antonia Saturnina* were officially entitled to interfere with the economic transactions carried out in the markets that took place in their dominions (Chaouali 2002, p. 378). Something similar may have happened in Gaul; an inscription found in Aix-le-Bains demonstrates the celebration of *nundinae* in the province. The location of the find was defined as “un bourg rural dominé par une élite rurale résidant dans les villae alentours” (Leveau 2007 quoted by Martin 2016b, p. 21). It would not be rare if these elites had the right to intervene directly in economic transactions for their own profit, even if this was officially against the law (de Ligt 1993, p. 170).

In *Hispania* there is only one reference to these periodic markets. It is contained in the records of the Council of Elvira (circa 300-306), whose canon number 19 bans the religious hierarchy to attend these public markets, as this was against their ecclesiastical decorum and dignity (Arce 2012, p. 24). No direct reference to markets has been found in Lusitania to date, but this in no way rules out the possibility that they existed: “short-cycle periodic markets must have been a common phenomenon in every part of the Roman Empire” (de Ligt 1993, p. 108). Another interesting type of market was the *forum*. These places – very common in Italy – have been defined by de Ligt as “non-urban market centers” (de Ligt 1993, p. 113). Several examples of *fora* are known in the northwest of the Iberian Peninsula which are mentioned in the Classical sources (Sastre *et al.* 2017, pp. 546-549). No direct references to *fora* been found in Lusitania to date, but it is possible that they also existed there.

Problematically, the rural markets are very difficult to characterise archaeologically (Martin 2016b, p. 20; cf. Arthur 2000, which also discusses Roman markets and coins), but some evidence exists concerning their location. Based on the location of monetary finds in a number of *villae* in northern Gaul, including Andilly-en-Bassigny, Doyen (2015) has argued that some *villae* may have hosted periodical markets in their surroundings. Most of the coins found in Andilly-en-Bassigny were located in a series of open aisles and courtyards, which were an ideal location for these markets, in which coinage played a central role (fig. 2). This may have also been the case in Lusitanian *villae*. Several ample courtyards, which may have been occasionally used to accommodate markets, have been found, for instance in Torre de Palma (Monforte, Portugal), a

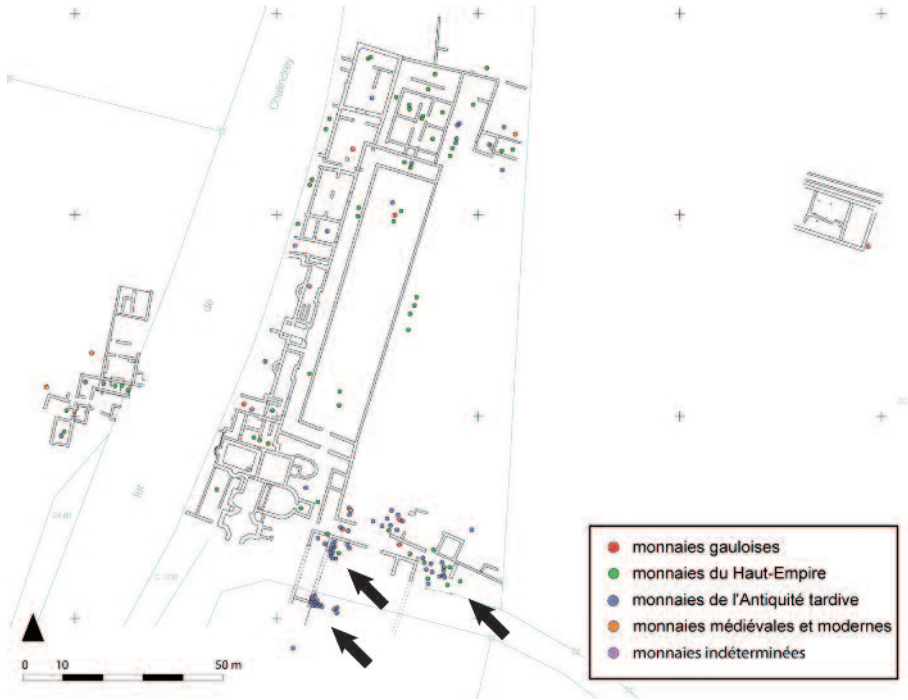


Fig. 2. Villa of Andilly-en-Bassigny with the detail of currency accumulations (from Doyen 2015, p. 272, fig. 3).

major wine-producing centre (Brun 1997) where horse rearing may have also been an important economic activity (Carneiro 2010, p. 244). The dimensions of this villa are remarkable, as are the large number of coins discovered during excavation (a total of 1400, evenly distributed between the 1st century BC and the 5th century AD: Bost 2000). It is not implausible that the *pars rustica* of this villa hosted markets from time to time. Unfortunately, we are lacking in a precise map of monetary finds such as the one used by Doyen in northern Gaul. However, wherever this information is available – São Cucufate (Vila de Frades, Portugal) (Alarcão *et al.* 1990, planche XCIII) and Milreu (Faro, Portugal) (Teichner 1997, p. 111) – the monetary finds share many features with those attested in Andilly-en-Bassigny: they were located in outdoor areas of the *pars urbana*, and sometimes in the vicinity of the *pars rustica* (fig. 3). The location of these finds suggests that Jean Marc Doyen's conclusions may also be applicable to Lusitania. We must keep in mind that these areas were not paved, so losing coins would be an easy thing to do.

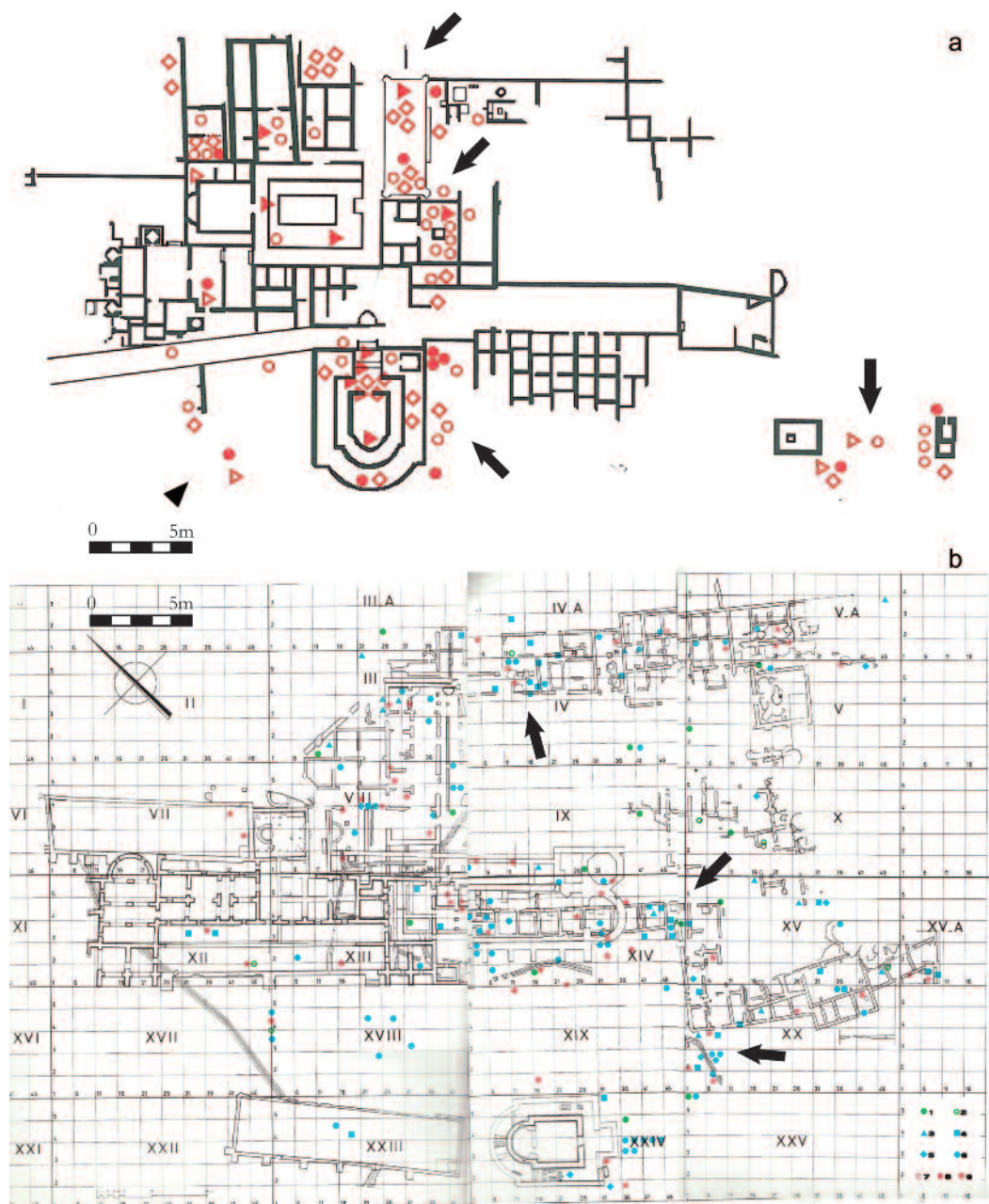


Fig. 3. *Villae* of Milreu (Faro) (from Teichner 1997, p. 111, fig. 2) and São Cucufate (Vila de Frades) (Alarcão *et al.* 1990, planche XCIII) with the detail of currency accumulations.

Doyen's (2015) and Martin's (2016b) work, which also takes into consideration other forms of evidence, such as pottery, proves that the celebration of periodic markets was an important economic asset for rural areas. In these markets, wealthy landowners could find urban products and hire services (Morley 2002, pp. 220-221) while others marketed their produce or manufactured goods (Martin 2016b, p. 20; de Ligt 1993, pp. 132-133). Several Lusitanian *villae* have yielded evidence of manufacturing activities, the main outlet of which were probably periodic markets and/or wandering peddlers: dyes in Casais Velhos (Cascais, Portugal) (Teichner 2007), textiles in Alto da Cidreira (Alcabideche, Portugal) (Nolen 1988), ceramics in Santo André de Almoçageme (Sintra, Portugal) (Sousa 1989), salted products in Loulé Velho (Loulé, Portugal) (Arruda 2017) and mosaic tesserae in Granja dos Serrões (Montelavar, Portugal) (Caetano 2006). This suggests that the rural economy was not exclusively agricultural in nature but that it was much more complex, combining different activities in the search for profit.

In addition to *nundinae*, artisans travelled along the main communication routes to offer their services or sell their wares (de Ligt 1993, p. 129; Colin 2002, p. 149). These services, some of which could only be afforded by wealthy patrons (mosaic pavements, stucco decoration, construction work) were paid for with high denomination coins. Several of these craftsmen have been attested in Lusitania. A master builder is known to have offered his services to *villae* owners in *Via XVI* in the Antonine Itinerary, between *Olissipo* (Lisboa, Portugal) and *Bracara Augusta* (Braga, Portugal). The *villae* at Vila Cardilio (Torres Novas, Portugal), Frielas (Loures, Portugal), Freiria (Cascais, Portugal) and Santo André de Almoçageme (Sintra, Portugal) all have a symmetric square peristyle with semi-circular *exedrae* on each side and a garden at the centre (fig. 4). Germán Rodríguez and Antonio Carvalho have suggested that these could be the work of a single itinerant master builder working along this road (Rodríguez, Carvalho 2008, pp. 313-314). Concerning the arrival to the Iberian Peninsula of the AE2 struck by the Valentinian and Theodosian dynasties, Cepeda (2000, pp. 168-171) argues that these bronze coins were distributed by caravans of merchants setting off from the main cities to sell African fine wares. The AE2 have been abundantly attested in Lusitanian *villae*, where these ceramic wares are also found, this province being the region where the largest number of these coins have been documented. Interestingly, these finds are often located in the vicinity of major communication routes, which again suggests the role played by communication routes in the monetary supply of rural areas.

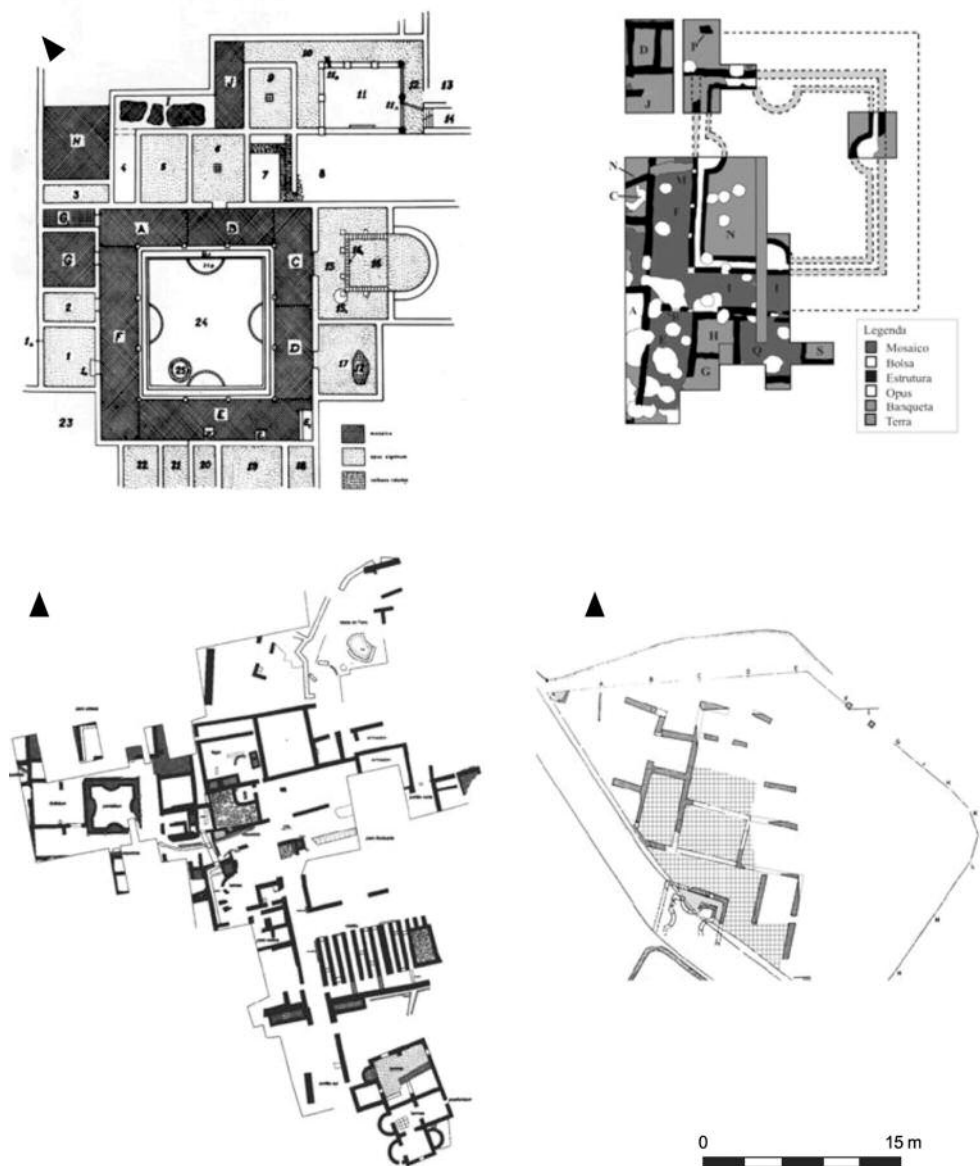


Fig. 4. Comparison of *villae* plans of Vila Cardilio (Torres Novas, Portugal), Frielas (Loures, Portugal), Freiria (Cascais, Portugal) and Santo André de Almoçageme (Sintra, Portugal) (from Rodríguez, Carvalho 2008, p. 314, fig. 3).

Finally, harbours may have also played a central role in keeping Lusitania supplied with coinage; several Lusitanian ports acted as important commercial links between the east and the west. *Olisipo* (Lisbon, Portugal) and *Ossonoba* (Faro, Portugal) were major export centres. The connection between harbours and interior areas – especially their rural hinterlands – encouraged the rapid distribution of the goods and coins that arrived to the ports. The *agglomération secondaire* of Cerro da Vila (Faro, Portugal) had close economic links with the nearby *Ossonoba* (Teichner 2017). The site comprises a residential area, a port, and substantial facilities for the production and storage of sea products. Archaeological excavations have found over 450 coins ranging between the 1st century BC and the 8th century AD. Unfortunately, no detailed map of find distribution exists, but the large number of specimens found (Milreu, which is located less than 30 km away from Cerro da Vila, yielded under 90 coins), and the identification of imitations and of coins struck in very distant mints, suggests the density of coin circulation in the area. Also of note is the fact that the index of lost coins per year in the *villae* located in the *ager* of *Olisipo* (Conejo 2019) clearly outstrips that documented in *villae* located in other districts, such as Rio Maior (Rio Maior, Portugal) and Columbeira (Bombarral, Portugal).

3. Coinage in cities and the countryside. Different monetary circulation?

The study of coins found in rural sites can be used to discern whether monetary circulation in these areas was different to that attested in cities. Several studies have addressed the monetary circulation in *Hispania*'s cities, especially when the finds are found in stratigraphically sound contexts (*Coninbriga* and *Ammaia* in Lusitania, *Belo* and *Italica* in *Baetica* and *Clunia* and *Cauca* in *Tarraconensis*). Comparisons between urban and rural contexts, and conclusions concerning possible differences in circulation of money are, however, scarce.

One of the most valuable variables in this regard is the index of coins lost per year (Pereira *et al.* 1974; Bost *et al.* 1987; Campo 1990; Ripollès 2002), which allows for different areas and cities to be compared. The following figures present the results of this comparison in *Hispania* (figs. 5-6). The figures clearly illustrate that the level of money supply in the Lusitanian countryside was similar to that attested in Iberian cities. Similar conclusions have been reached in other regions, for instance the coast of *Tarraconensis*, where no major differences are detected in terms of monetary supply between the cities and their respective *agri* (Lledó Cardona 2008, p. 307). These similarities, however, should not

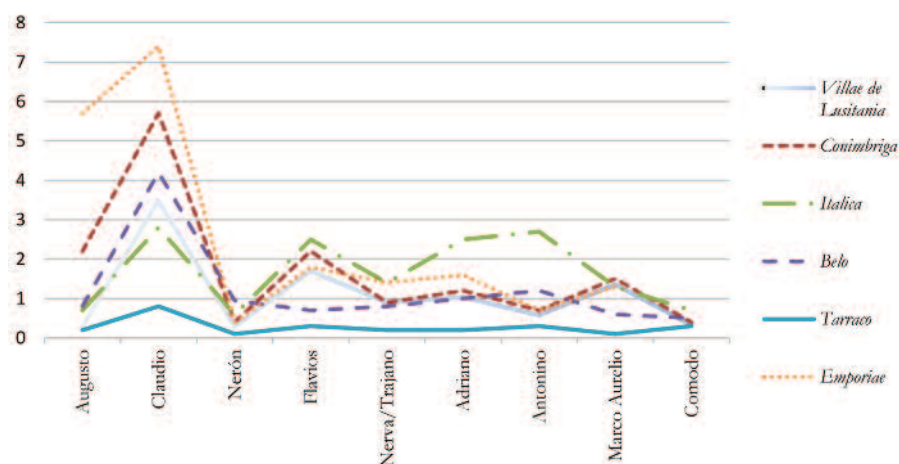


Fig. 5. Lost currency index per year during the High Empire.

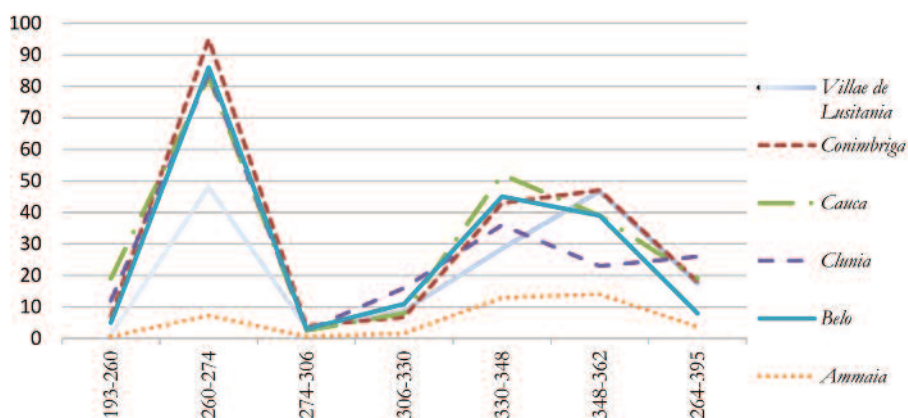


Fig. 6. Lost currency index per year during the Late Empire.

obscure the existence of small but significant differences, which must be analysed in detail.

Initially, it was thought that rural Lusitania underwent problems of money supply, because of the large number of imitation coins found. One of the most significant examples is the *Divo Claudio* type (after AD 270), which is found in large numbers in the 37 sites under study; it is argued that the shortage in supply was caused by the closure of mints during the reign of Aurelian (Ripollès 2002, p. 208). Owing to this dearth of coinage, the inhabitants of the Lusitanian countryside swiftly accepted

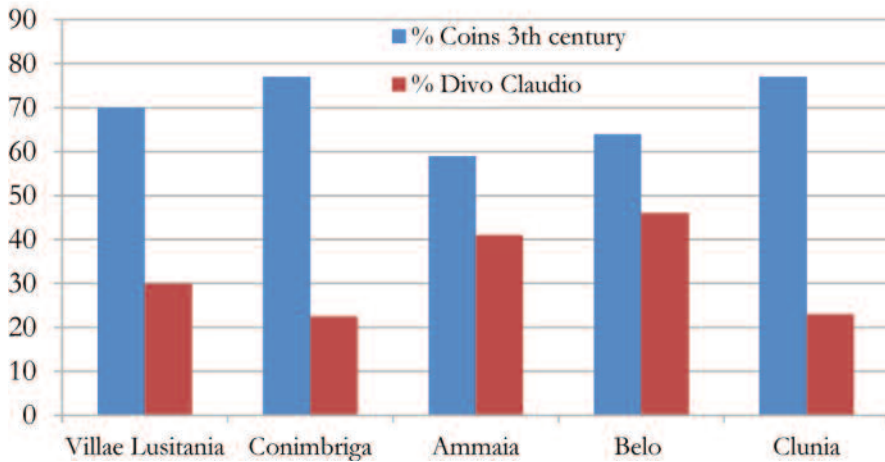


Fig. 7. Comparison of the percentages of the 3rd-century coin and the imitations of the *Divo Claudio* type.

these imitations in order to keep the economy running. However, this was not an exclusive feature of rural Lusitania, as the type is also abundantly found in several urban contexts, especially in the southern regions and the coast (Ripollès 2002, p. 208). Sometimes, as many as half of the 3rd-century coins found in Iberian cities correspond to this type, as shown in the following figure (fig. 7). In some of these contexts, the type is even proportionally more abundant than in rural Lusitania. This proves that imitations did not only circulate in harbours and commercial areas, but were also present in rural areas, in which coinage was crucial for everyday economic transactions. Therefore, rural Lusitania underwent the same problems of supply attested in cities, encouraging the acceptance of imitation coins.

Also of note is the continued use of old coins. This can take three different shapes. The first is the discovery of coins in association with well-dated, and much later, ceramic finds (ARSW and amphorae), for instance at Saelices el Chico (Salamanca, Spain) and Quinta das Longas (Elvas, Portugal). At the former site, the coins were a piece from Gallienus' reign (c. 260-268) and a *Divo Claudio* imitation type (*Post.* 270), which were found in association with a TSHT Drag. 37t sherd, dated to the 5th century (Dahí, Martín Chamoso 2012, pp. 221-228). At the latter site, several coins struck by the Constantinian dynasty (c. 340-350) were found alongside a TSA-D Hayes 91b type dated to 450-530 (Almeida, Carvalho 2005, p. 348); that is, officially demonetised coins coexisted with legal tender. In São Cucufate (Vila Frades, Portugal) a heavily

worn 1st century AD coin was found in a deposit overlaying Late Roman structures (Bost, Pereira 1990, p. 222). According to the authors, the continuity of the Early Imperial piece is explained by its purity and weight, especially because by the Late Empire the quality of coinage had seriously deteriorated. Another interesting case is presented by the coexistence at Quinta do Lago (Loulé, Portugal) of the *Divo Claudio* type and several specimens struck by the Constantinian dynasty in the mid-4th century (Arruda 2017, p. 295). These pieces were found in a series of rooms used for the preparation of fish sauces, which was associated with the nearby villa. Finally, we may recall coin hoards found in the rural areas of Lusitania. Most of the coins in the hoards correspond to the AE2 type issued by the Valentinian (c. 378-383) and Theodosian (c. 392-395) dynasties and by the usurper Magnus Maximus (c. 383-388). These hoards also include Antoninian coins issued during the second half of the 3rd century. This demonstrates that the old coins were still in circulation when the hoards were deposited, sometimes as much as 150 years after they were struck. Especially significant are the hoards of El Saucejo (Talavera la Vieja, Toledo) (Cabello 2008, pp. 202-204), Freiría II (Cascais, Portugal) (Cardoso 1995-1997), Garciaz (Garciaz, Cáceres) (Sienes 2000, p. 44) and Santa Vitoria de Ameixial (Estremoz, Evora) (Sienes 2000, p. 46).

The survival of ancient coins in these rural areas in late antiquity may be interpreted as a symptom of slow or scarce supply. When coinage was in short supply, or was not renewed regularly, it was common to use obsolete pieces or imitation coins. The index of coins lost per year, however, suggests that the volume of supply was very similar in the countryside and the cities, which indicates that coinage arrived regularly. There seems to have been gaps in supply, however, such as during Diocletian's monetary reform. In these settings, demonetised and ancient coins continued circulating and coexisting with new arrivals. New coins may have gone out of circulation rapidly, as their silver content was much higher than that of previous types. Therefore, users preferred to use ancient coinage and keep the new types in reserve as security against economic fluctuations. This monetary behaviour is known as Gresham's Law, and various authors have used it to explain monetary developments in different periods and regions (Asolati, Gorini 2006). Ruivo has used this principle to explain the dearth of coinage in Lusitania after Diocletian's monetary reform (Ruivo 2008, pp. 303-306). The shortage of coin has also been attested in rural Lusitania (see fig. 6), but it is to be noted that the years in which the reform was in full swing and the years of the Tetrarchy coincided with the architectural renovation of many of the province's *villae* (Gorges 2008, pp. 38-44; Rodríguez Martín, Carvalho 2008, pp.

309-310; Chavarría 2013, pp. 137-138). It is possible that the scarcity of coinage documented in excavations is related to Gresham's Law. After being taken out of circulation, it is likely that this good quality coinage was used to pay for building works at Lusitanian *villae*. This was also when *Augusta Emerita* was made the capital of the *Diocesis Hispaniarum*, turning the city into a hub of imperial officials and other wealthy citizens (Arce 2012, pp. 18-19).

Therefore, as it has also been observed in other regions of the Mediterranean (Cardon 2015-2016, pp. 20-21; Clément 2015-2016, pp. 321-322; Arzone 2018, p. 66), the ancient coins with a long circulation played a central role in rural economies in Lusitania, as in the rest of Hispania (Marot 2000-2001; Domènech 2013, p. 387; Mora Serrano 2016, pp. 142-143), as it kept the monetary economy running in conditions of short supply. We shall revisit this question below.

4. Was the end of *villae* also the end of the monetary economy in the countryside?

During the 5th century, many *villae* in Lusitania were abandoned, but show no signs of accidental or violent destruction. In the *villae* of Horta da Torre (Fronteira, Portugal) (Carneiro 2016, p. 295), Freiria (Cascais, Portugal) (Cardoso 2016, p. 512), Frielas (Loures, Portugal) (Quaresma 2017a, p. 433), Quinta das Longas (Elvas, Portugal) (Carneiro 2016, p. 297), Torre del Águila (Barbaño, Spain) (Rodríguez Martín 1993, pp. 172-173), Milreu (Estoi, Portugal) (Teichner 2006, p. 212) and Cerro da Vila (Vilamoura, Portugal) (Teichner 2017, p. 424), the archaeological record provides good chronological markers for their abandonment and further reuse. In these *villae*, the *pars urbana* lost its former residential nature in the 5th century, being reoccupied by squatters until the late 6th century. These groups transformed the interior of the *pars urbana* to create new domestic spaces, for instance by building low quality partitions over luxurious pavements, and sometimes even mosaics (Horta da Torre, Torre de Palma, Freiria, Frielas, Milreu, Cerro da Vila), and by enclosing and dividing peristyles to create new residential rooms (Torre del Águila, Frielas). Similar features are found in *villae* all over the Iberian Peninsula during this period (Chavarría 2013, p. 140). It is likely that the squatter groups were the peasants that used to work the villa's *fundus*, because in some of these sites the *partes rusticae* continued producing wine and olive oil, although in smaller quantities than in previous centuries: the *torcularia* of Torre Águila, La Sevillana, and Torre de Palma were active until the 7th century (Peña Cervantes 2010, p. 193). In the south of the

province, even *partes urbanae* were reused for production purposes (Bernardes 2014, p. 133). In Milreu, for instance, a wine cistern has been found in the middle of the domestic rooms of the *pars urbana* (Teichner 2011-2012, p. 482); and in Cerro da Vila the new residences are associated with a metallurgical workshop (Teichner 2017, p. 424).

During the 6th century, many of these *villae* seem to have been abandoned for good, when some of their buildings were adapted for religious purposes. This is also attested elsewhere in the Iberian Peninsula (Chavarría 2013, p. 142). In Torre del Águila, several Christian burials were found inside the peristyle of the villa (Rodríguez Martín 1993, pp. 172-173) and in La Sevillana (Esparragosa de Lares, Spain) a 1st century building was also used as a necropolis (Águilar, Guichard 1995, pp. 205-206); in La Cocosa (Badajoz, Spain) (Cordero Ruiz 2013, p. 328) Milreu (Estoi, Portugal) (Teichner 2006, pp. 212-213), Castro Marim (Graen 2008) and Cerro da Vila (Faro, Portugal) (Teichner 2006, pp. 218), former Roman funerary *mausolea* were progressively turned into small Christian buildings (Bernardes 2017, p. 379). In Torre de Palma (Monforte, Portugal), a monumental church was built in the 6th century (Maloney 1995). This construction coincides with the transformations of the *pars urbana* by squatters and the continuity of the *torcularium*. Recent interpretations have related this with the estate becoming the property of the Church, probably after it was donated by its owners (Carneiro 2019, p. 372), as Alexandra Chavarría has argued for other Hispanic rural properties (Chavarría 2007, p. 41; Chavarría 2013, p. 142).

During the early decades of the 5th century, the monetary supply of the Iberian Peninsula suffered disruptions (Cepeda 2000, p. 162). This led the monetary economy to rely on the continued use of old coins; the AE2 issued by the Valentinian and Theodosian dynasties, which were the last bronze series to arrive to *Hispania* regularly (Cepeda 2000, p. 162), played a decisive role in preserving the monetary structures, especially in everyday medium and small transactions. This situation is also clearly visible in *Conimbriga*, as coins from a wide chronological range seem to have been in use simultaneously during the 5th century (Pereira *et al.* 1974, p. 300). The excavations even unearthed two small hoards deposited during the 5th century (Depósitos A y E: Pereira *et al.* 1974, pp. 319-323, 327-328) which included split coins. According to Marot (2000-2001, p. 151), this suggests a shortage of monetary fractions as a result of poor supply. Old bronze pieces were also in use at *Olisipo*: one AE2 type *Gloria Romanorum* (c. 392-395) was found in association with a fragmentary LR1-type amphora, dated to the 5th and 6th centuries (Fabião 2009, p. 27).

Cepeda has argued that problems in money supply encouraged the ruralisation of Hispanic territories, where many *villae* adapted their economies to activities for which coinage played but an ancillary role (Cepeda 2000, p. 175). While it is true that *villae* underwent profound transformations during this period, this does not imply the abandonment of the use of money and the swift adoption of alternative practices such as barter. I think that this transition could be anything but easy, among a population used to the use of coinage for over four hundred years. Coin finds in well-dated stratigraphic contexts in some Lusitanian *villae*, as much as in *Conimbriga* and *Olisipo*, show that 3rd and 4th century coins remained in circulation during the 5th and 6th centuries. Their presence in *villae* which had lost their residential functions and were being inhabited by squatters demonstrates that these groups tried to maintain the economic regime to which they were used. This must have been the case all over the Iberian Peninsula (Marot 2000-2001; Ripollès 2002, p. 214; Mora Serrano 2016, p. 140). Table 1 presents several sites in which evidence for the survival or old coins in Lusitanian *villae* has been attested.

Alongside bronze coins, gold pieces also circulated in rural Lusitania in the 5th century. Several *solidi*, issued in the 4th century, have been

<i>Villae</i>	Coin type	Associated materials	References
Saelices el Chico (Salamanca, Spain)	Antoninian of Gallienus (c. 260-268) Antoniniano Divo Claudio (Post. 270)	TSHT Drag. 37t (5 th century)	Dahí, Martín Chamoso 2005
Corral de los Caballos (Villalba de los Barros, Spain)	AE4 Constantius II (Post. 350) AE2 Gratian (378-383)	Visigothic pottery (5 th -6 th centuries)	Pérez García 2009
Quinta das Longas (Elvas, Portugal)	AE4 sons of Constantine (cir. 340-350)	TSA-D Hayes 91b (c. 450-530)	Almeida, Carvalho 2005, p. 348
São João Laranjeiras (Seixal, Portugal)	AE2 Gratian/Valentinian II (378-383)	bowl TSA Hayes 64 (c. 400-450); TSA Hayes 89 (450-500)	Santos 2009
Freiria (Cascais, Portugal)	68 AE2 (378-392)	TSA D Hayes 67B (c. 400-450)	Cardoso 2016, p. 255

Table 1. Relation of 3rd-4th century coins found in 5th and 6th century strata.

found in urban (*Conimbriga* y *Centum Celas* [Belmonte]) and rural contexts (Cerro da Vila y Torrecaños [Guareña, Spain]), in addition to multiple chance finds of coins and even hoards, now lost, in many rural sites in the south of the province (Santos 1971, pp. 52, 102, 111). These coins must have played a significant role in the rural economy during the 5th and 6th centuries, both as a medium of exchange and as a unit of account. From Constantine's reign onwards and also under the Valentinian and Theodosian dynasties gold coins had become the unit of reference for all transactions (Carlà 2009, pp. 283-284). This encouraged the establishment of a series of equivalences between gold and bronze coins, and between coins and other goods. The *Codex Theodosianus* sets the bronze/gold exchange rate at 25 pounds of bronze (8.175 kg) (*CTh.* 11.21.2) for one gold coin in 396; while in 424 the equivalence was 100lb (32kg)/1 gold coin (*CTh.* 11.21.3).

The large number of 4th-century hoards found in Lusitanian *villae* suggests a brisk supply of coinage. Marot argued that these hoards were deposited during the 5th century and the first half of the 6th century, and show an attempt to accumulate bronze in order to exchange it for gold coins, which were by then issued by the Visigothic crown (Marot 2000-2001, p. 151). Several such hoards of AE2, of different sizes, have been found in Boca do Rio (Budens, Portugal) (Bernardes 2014, p. 132), La Sevillana (Esparragosa de Lares, Spain) (Aguilar, Guichard 1993, p. 191-193), Freiria (Cardoso 1995-1997) and El Saucedo (Talavera la Nueva, Spain) (Cabello Briones 2008, pp. 202-204) (fig. 8). The state of wear of the pieces and the location of the finds suggest that these hoards were deposited between the 5th and 6th centuries, after the *villae* had lost their former residential nature and were being inhabited by groups of squatters. It is likely that the hoards were deposited by these groups in order to exchange them for gold. The high bronze/gold ratio established by Visigothic laws explains the lack of interest in recovering these hoards when the groups abandoned their residence; there is no indication that the hoards were hidden as a result of an external threat.

The selection and hoarding of bronze coins and some chance finds suggest that Visigothic coinage circulated in the rural areas of Lusitania during the 5th and 6th centuries. However, only the villa of El Saucedo has yielded two *tremisses*, one by Reccared, the archaeological context of which is unknown, and another one by Wittiza, located in a room alongside a number of large vases found *in situ*, which may have been related with the operation of the villa's *torcularium*, which remained active until the 7th century (Cabello Briones 2008, p.181). The lack of similar finds in other Lusitanian sites does not necessarily mean that coinage did not

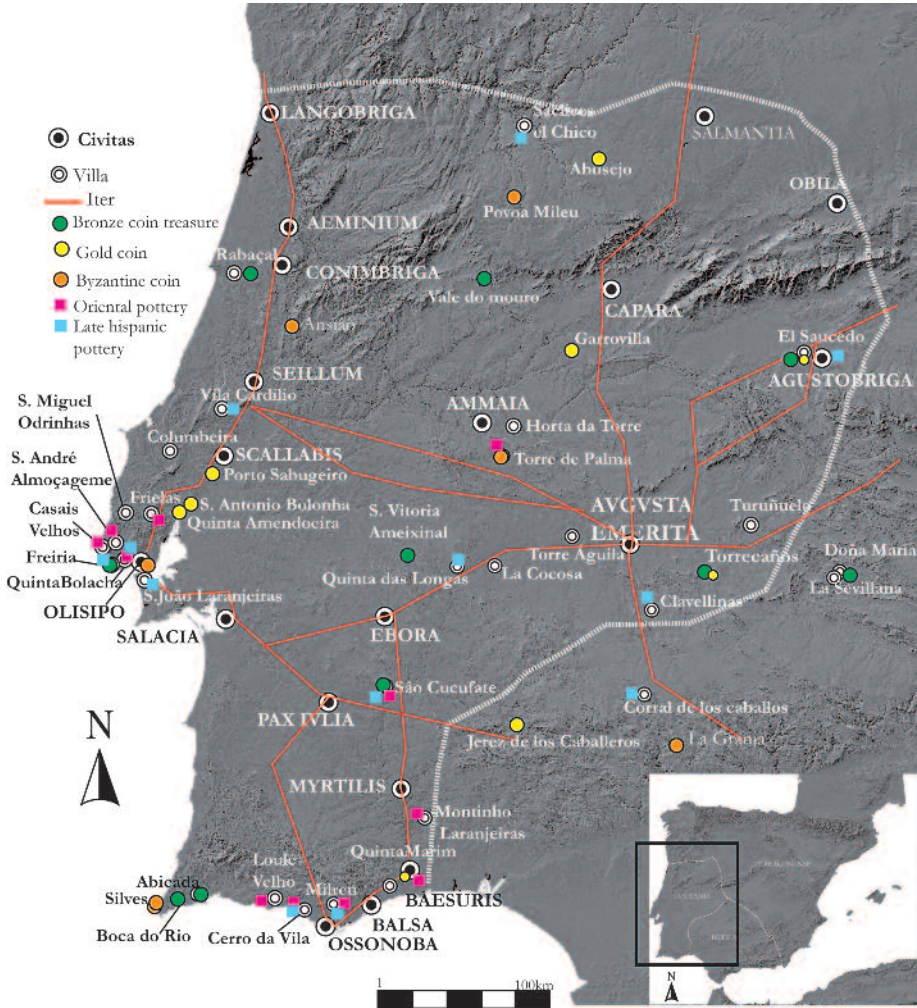


Fig. 8. Cities and rural sites (with different types of numismatic and ceramic materials found) mentioned in this section.

circulate, because the hoards of Jerez de los Caballeros, La Garrovilla and Abusejo (Pliego 2009, pp. 232-233, 250) (fig. 8) and the other finds as Porto do Sabugueiro (Pimenta *et al.* 2014, p. 47) in Santarem (Portugal), S. Antonio de Bolonha and Quinta da Amendoeira (Pimenta, Mendes 2016, pp. 273-279) in Vila Franca de Xira (Portugal) were also found in rural contexts. However, some authors are of a different opinion. De Santiago argues that, despite the high degree of monetisation of

the Visigothic economy, coinage was out of reach for the humbler classes (de Santiago 2011, p. 62). According to de Santiago, despite being used to pay taxes and carry out loans, most references to coinage in the legal and epigraphic sources only expressed a unit of account, but most payments were undertaken in kind (de Santiago 2011, p. 59). These arguments are based on a series of Visigothic inscriptions on schist slabs which express the equivalence between certain amounts of wheat and wine and gold coins (de Santiago 2011, p. 59; Velázquez Soriano 2004, p. 104).

In my opinion, things were more complex than this. The familiarity of Visigothic society with coinage expresses a relationship that goes well beyond coin denominations being used as a unit of account (de Santiago 2011, p. 63). The discovery of similar inscriptions in secondary contexts dated to the 4th century (Dahí Elena 2007) indicates that this type of inscription was not exclusive of the 5th and 6th centuries, but was already being used in the Late Roman period, and similar practices for this period have been attested in Egypt (Callu 1989). Some authors suggest that these epigraphic sources are the direct inheritance of Late Roman accounting systems (Díaz, Martín Viso 2011, pp. 225-226) which in the Visigothic period were used for tax purposes (Cordero Ruiz, Martín Viso 2012, p. 261).

Equivalences were a common feature of the Late Roman economy under the concept of *adaeratio*, which involved the direct conversion of a certain quantity of goods in kind into gold coinage for fiscal purposes (Corbier 2007, p. 381). Although the practice is exclusively related to tax, conversions were also used to account for profits. A clear example of this is the complex accounting system used by Appianus in *Hieroninos* (Egypt) in the 3rd century. It was traditionally thought that the management of Appianus' estates was based on payments in kind, and that money was only used as a unit of account. However, a better understanding of the complex credit system involved, and of the importance of banks for the Egyptian rural economy, has ultimately posed a strong challenge to this idea (Rathbone 1991, pp. 318-328). Similarly, Carrié has demonstrated the double use of money, as medium of exchange and unit of account to calculate expenses and returns, in Egypt in the 3rd and 4th centuries (Carrié 2003, p. 179).

Although our evidence is not as detailed as that from Egypt, it is likely that rural estates in Lusitania and the rest of *Hispania* were managed in a similar way. If the schist slabs are the heir of Roman accounting systems, it is possible that the complex system of equivalences that they convey were so too. As such, I think that these equivalences may express

actual commercial transactions, although the possibility that these were carried out in kind, something common already in the Late Roman period, cannot be ruled out (Rees 2004, p. 39). In this vein, Metcalf argued that gold Visigothic coinage played a central role in commercial transactions. Based on coin finds in the Iberian Peninsula, Metcalf suggested that the use of coinage may not have been as restricted as hitherto believed, but that it was open to broader social groups in both towns and the countryside (Metcalf 1988, pp. 17, 24). Following Metcalf, Pliego (2009, p. 226) demonstrated that gold coinage was in use in the rural areas of Lusitania, by showing that some transactions could only be carried out in coin, and not through non-monetary practices such as barter.

De Santiago, followed by others, is not convinced by Metcalf's arguments. He claims that, should money be used in this way, the Visigothic crown would have issued smaller denominations to facilitate smaller transactions (de Santiago 2011, p. 61). However, recent years have witnessed the discovery of bronze Visigothic coins that may have played just this role. Pliego has examined the production of various mints in the south and the east of the Iberian Peninsula, arguing that these series were mostly local in nature, and responded to a commercial need for small denominations (Pliego 2015-2016, pp. 154-155). None of these pieces have been found in Lusitania to date, but future finds must not be ruled out, especially because commercial transactions that would have required these denominations are abundantly attested, leading to coins, including Byzantine money, to circulate freely at all levels.

Without being overly abundant, Byzantine coins have been found in rural Lusitania in both the coast and the interior (fig. 8). These finds correspond to bronze coins issued by Justinian and some weights (Mora Serrano 2016, p. 140) used as coinage (Vizcaíno 2007, p. 696). The presence of these pieces in Lusitania is explained by the links between the west and the east (Fernandes, Valerio 2013, p. 97). Recent research has demonstrated that these links were not only commercial, and that political, diplomatic and religious considerations were much weightier than hitherto believed. Chavarría argues that the appointment of Orientals, with the support of Hispano-Roman elites, as bishops in *Augusta Emerita* (Mérida, Spain) underlie a clear political strategy, as their appointment coincides with the reign of Justinian and the *renovatio imperii* (Chavarría 2018, pp. 27-28).

Lusitanian cities such as *Olisipo* (Lisboa, Portugal) *Myrtilis* (Mértola, Portugal) and *Augusta Emerita* (Mérida, Spain) hosted oriental communities which posed a demand for eastern goods (Vallejo Girvés 2012, p. 177; Chavarría 2018, p. 26). One clear example is the large gold fibula



Fig. 9. Detail of gold fibula found in the necropolis of Granja del Turuñuelo (photo: Ángel Martínez Levas, National Archeology Museum of Madrid, CER.es, <http://ceres.mcu.es>, Ministry of Culture and Sports, Spain).

made in Syria with a depiction of the Epiphany (fig. 9), found in the necropolis of Granja del Turuñuelo (Medellín, Spain); this cemetery was associated with a possible monastery (Pérez Martín 1961) built on the remains of a former Roman villa (Haba Quirós 1998, p. 327).

Other archaeological remains that establish the commercial links between the East and the West are the eastern ceramic imports found in a large number of rural sites, as demonstrated by Fabião (Castro Marím, Milreu, Montinho Laranjeiras, São Cucufate, Quinta da Bolacha, Frielas, Freiria and Santo André de Almoçageme), including Phocian fine wares and oriental amphorae dated to the 5th and 6th centuries, found in association with Byzantine coins (Fabião 2009, pp. 34, 38-39) (fig. 8). On the other hand, ARS A/D imports are also interesting; they played an important role in Mediterranean economic relations (Reynolds 2010, pp. 101-105) as evidenced by their significant presence in numerous Lusitanian archaeological sites (Viegas 2007, pp. 72-73;

Osland 2012; Quaresma 2017b, p. 145). The joint discovery of these goods and coins in rural settings which no longer served residential purposes, being occupied by squatter peasant groups, is of great interest; essentially because these goods needed to be paid with strong tender and bronze coins had little value. Therefore, Visigothic and Byzantine gold coins played a central role in these commercial transactions. No reliable finds from Lusitania have been recorded, but a few isolated examples are nevertheless known (Almeida 1974-1977). The presence of Byzantine bronze coins in rural Lusitanian sites demonstrates that these series were rapidly absorbed by the monetary system, and the use of weights as coins suggests that small denominations were sorely needed, a fact also suggested by the Visigothic bronze series. All of this indicates that coinage circulated in rural Lusitania during the 5th and 6th centuries.

Most of the sites mentioned were abandoned in the late 6th century, except for Milreu and Cerro da Vila, which show signs of occupation after the Muslim invasion. In Cerro da Vila, especially, the reuse of former structures and the continuation of economic activities have been attested, including large quantities of pottery, funerary inscriptions on reused columns and Islamic coinage (Teichner 2006).

5. Conclusions

The use of coinage in rural Lusitania encouraged a dynamic and complex economic system even during Late Antiquity, when the regular supply of coinage was interrupted. The continued use of coinage facilitated commercial transactions between the cities and the countryside, which continued being closely interconnected.

This is also demonstrated by the fact that the monetary circulation in towns and the countryside seems to have been similar, as suggested by the fact that the index of lost coins per year in rural Lusitania and in several cities all over the Peninsula present no major differences. The use of imitations and the continued use of demonetised coins during periods of limited supply, are characteristic features of monetary circulation in rural Lusitania until the 5th and 6th centuries.

Major changes in Lusitanian *villae* during the 5th and 6th centuries, more or less at the same time as the supply of coinage of the West was interrupted, did not result in the end of the monetary economy in Lusitania or a return to non-monetary systems such as barter. Rural Lusitania adapted to the new economic conditions, taking all the necessary

measures to maintain the system despite the collapse of its foundations: the use of old and demonetised coins, and the swift adoption of new monetary types, such as the Visigothic and Byzantine series. Therefore, coinage remained a central factor in commercial transactions, everyday life and the ideology of the 5th and 6th centuries. The use of units of account and equivalences clearly shows that a complex monetary system was still in place: many Europeans still need to think in terms of their former currency to assess the profitability of a transaction.

There is much work to be done to fully substantiate my view of the use of coinage in rural Lusitania (currency use in late Roman cemeteries, the price and the payment methods involving ceramics and other imported materials in rural Lusitania during Late Antiquity, the relationships between the *villae* and their territory, and the Lusitanian Church as rural entrepreneur). This perspective, however, can be extrapolated to other regions of the Empire, such as North Africa and northern Italy, where the archaeological, epigraphic and literary evidence is more abundant, and coinage in the rural world can best be characterised from an economic and social perspective, especially during Late Antiquity, coinage providing a privileged perspective over the great transformations that characterise the period.

Acknowledgments

We would like to thank the anonymous reviewers for the constructive comments and suggestions to improve this paper, as well as Alexandra Chavarría for her comments to the initial version and publication.

References

- A. AGUILAR, P. GUICHARD 1993, *Villas romaines d'Estrémadure: Doña María. La Sevillana et leur environnement*, Madrid.
- J. ALARÇAO, R. ÉTIENNE, F. MAYET 1990, *Les villas romaines de São Cucufate (Portugal)*, Paris.
- J.J. ALMEIDA 1974-1977, *Nota sobre moedas visigóticas II*, "O Arqueólogo Português", 7-9, pp. 383-388
- M.J. ALMEIDA, A. CARVALHO 2005, *Villa romana da Quinta das Longas (Elvas, Portugal): A laxeira baixo-imperial*, "Revista Portuguesa de Arqueologia", 8, pp. 299-368.
- J. ARCE 2012, *Campos, tierras y villae en Hispania (siglos IV-VI)*, in L. CABALLERO, P. MATEOS, T. CORDERO (eds), *Visigodos y Omeyas: El territorio*, Mérida, pp. 21-30.
- A.M. ARRUDA 2017, *As ocupações antigas da Quinta do Lago (Almansil, Loulé) in Loulé: territórios, memorias, identidades*, Lisboa, pp. 292-300.
- P. ARTHUR 2000, *Medieval Fairs: an archaeologist's approach*, in A. BUKO, P. URBANCZYKA (eds), *Archeologia w teorii i w praktyce*, Warszawa, pp. 419-436.
- A. ARZONE 2018, *Monete e stratificazioni urbane a Verona*, in G. PARDINI, N. PARISE, F. MARANI (eds), *Numismatica e Archeologia. Monete, stratigrafie e contesti. Dati a confronto*, Workshop Internazionale di Numismatica, Roma, pp. 57-74.
- M. ASOLATI, G. GORINI (eds) 2006, *I ritrovamenti monetali e la legge di Gresham*, Padova.
- J.P. BERNARDES 2014, *Estruturas de produção no mundo rural do sul da Lusitânia durante a antiguidade tardia (séculos V-VII d.C.)*, in S. GÓMEZ, S. MACIAS, V. LOPES (eds), *O sudoeste peninsular entre Roma e o Islão*, Mértola, pp. 124-137.
- J.P. BERNARDES 2017, *A transformação do espaço funerário no Ocidente entre os séculos IV e VI. Ambiguidades e Loci Sepulturae em espaços rurais do sul da Lusitânia: o caso dos templos*, in C. TEIXEIRA, A. CARNEIRO (eds), *Arqueologia da transição: entre o mundo romano e a Idade Média*, Coimbra, pp. 367-386.
- C. BLÁZQUEZ 2002, *La circulación monetaria en el área occidental de la Península Ibérica. La moneda en torno al Camino de la Plata*, Montagnac.
- J.-P. BOST 1992-1993, *Villa y circulación monetaria: hipótesis de trabajo*, "Studia Historica. Historia Antigua", 10, pp. 219-225.
- J.-P. BOST 2000, *As moedas*, in J. LANCHÁ, P. ANDRÉ (eds), *Corpus dos Mosaicos Romanos de Portugal: Torre de Palma*, Lisboa, pp. 72-78.
- J.-P. BOST, F. CHAVES TRISTAN 1990, *Le rayonnement des ateliers: de Pax Iulia, Eborac et Emerita. Essai de géographie monétaire des réseaux urbains de la Lusitanie romaine à l'époque Julio-claudienne*, in GORGES 1990, pp. 115-121.
- J.-P. BOST, F. CHAVES TRISTAN, G. DEPEYROT, J. HIERNARD, J.-C. RICHARD 1987, *Belo IV. Les monnaies*, Madrid.
- J.-P. BOST, I. PEREIRA 1990, *Une économie monétaire*, in ALARÇAO et al. 1990, pp. 217-233.
- J.-P. BRUN 1997, *Production de l'huile et du vin en Lusitanie romaine*, "Conimbriga", 36, pp. 54-72.
- A.M. CABELLO BRIONES 2008, *Moneda e historia en tierras de Talavera de la Reina: Los hallazgos monetarios del Yacimiento de el Saucedo. (Talavera la Nueva, Toledo)*, Talavera de la Reina.
- M.T. CAETANO 2006, *Mosaicos de Felicitas Iulia Olisipo e do seu ager*, "Revista de História da Arte", 2, pp. 41-47.
- J.-P. CALLU 1989, *Monnaies de compte et monnaies réelles. L'ostrakon 54 de Douch*, "Zeitschrift für Papyrologie und Epigraphik", 79, pp. 73-79.
- M. CAMPO 1990, *Las monedas de la villa romana de La Olmeda*, Palencia.
- T. CARDON 2015-2016, *Monnaies de bronze en contexte medieval: la position du problème en France*, "Journal of Archaeological Numismatics", 5-6, pp. 11-26.
- G. CARDOSO 1995-1997, *Um tesouro monetário do Baixo-império na villa de Freiria (Cascais)*, "O Arqueólogo Português", 13-15, pp. 393-413.
- G. CARDOSO 2016, *Estudio arqueológico de la "villa" romana de Freiria*, Tesis doctoral inédita de la Universidad de Extremadura.
- P. CARLÀ 2009, *L'oro nella tarda antichità: aspetti economici e sociali*, Torino.

- A. CARNEIRO 2010, *Em "pars" incerta. Estructuras e dependencias agrícolas nas "Villae" da Lusitânia*, "Conimbriga", 49, pp. 225-250.
- A. CARNEIRO 2016, *O Alto Alentejo durante Antiguidade Tardia*, in J. ENCARNAÇÃO, C. LOPES, P. CARVALHO (eds), *A Lusitânia entre romanos e bárbaros*, Coimbra, pp. 283-307.
- A. CARNEIRO 2019, *Território, poder e controlo. A dinâmica da Igreja e dos seus agentes nas actividades económicas da Lusitania durante a Antiguidade Tardia*, in J. LÓPEZ VILAR (ed), *Tarraco Biennial. Actes 4º Congrès Internacional d'Arqueologia i Món Antic – VII Reunió d'Arqueologia Cristiana Hispànica*, Tarragona, pp.371-376.
- J.-M. CARRIÉ 2003, *Aspects concrets de la vie monétaire en Province*, "Revue Numismatique", 159, pp. 175-203.
- J.J. CEPEDA 2000, *Maiorina Gloria Romanorum. Monedas, tesoros y áreas de circulación en Hispania en el tránsito del siglo IV al siglo V*, "Anejos de Archivo Español de Arqueología", 73, pp. 161-192.
- M. CHAOUALI 2002, *Les nundinae dans les grands romaines en Afrique du Nord à l'époque romaine*, "Antiquités Africaines", 38-39, pp. 375-386.
- A. CHAVARRÍA ARNAU 2007, *El final de las villae en Hispania (siglos IV-VII d.C.)*, Turnhout.
- A. CHAVARRÍA ARNAU 2013, *¿Castillos en el aire? Paradigmas interpretativos "de moda" en la arqueología medieval española*, in *Semana de Estudios Medievales de Estrella*, 39, Pamplona, pp. 131-166.
- A. CHAVARRÍA ARNAU 2018, *A la sombra de un Imperio: Iglesias, obispos y reyes en la Hispania tardoantigua (siglos V-VII)*, Bari.
- N. CLÉMENT 2015-2016, *Les monnaies du Bas-Empire dans des contextes médiévaux (Ve-XIVe s.) en Vivarais*, "Journal of Archaeological Numismatics", 5-6, pp. 319-334.
- X. COLIN 2002, *Commercants itinérants et marchands sédentaires dans l'Occident romain*, in LO CASCIO 2002, pp. 149-160.
- N. CONEJO 2019, *Moneta in rure: usos y formas de la moneda romana en el ager de Olisipo (Lisboa, Portugal)*, "ETF, Serie I, Prehistoria y Arqueología", 12, pp. 117-149.
- E. CORBIER 2007, *Coinage and taxation: the state's point of view A.D. 193-337*, in A. BOWMAN, P. GARNSEY, A. CAMERON (eds), *The Cambridge Ancient History. Vol. XII. The Crisis of Empire A.D. 193-337*, Cambridge, pp. 327-392.
- T. CORDERO RUIZ 2013, *El territorio emeritense durante la Antigüedad tardía (siglos IV-VIII). Génesis y evolución del mundo rural lusitano*, Madrid.
- T. CORDERO RUIZ, I. MARTÍN VISO 2012, *Sobre los usos y la cronología de las pizarras numerales: reflexiones a partir del caso del yacimiento de Valdelobos (Montijo, Badajoz)*, "Anejos de Archivo Español de Arqueología", 85, pp. 253-266.
- S. DAHÍ ELENA 2007, *Un contexto cerámico de la Antigüedad tardía: el yacimiento de San Pelayo (Aldealengua, Salamanca). Nuevos datos sobre la cronología de las pizarras visigodas*, "Pyrenae", 38(1), pp. 79-104.
- S. DAHÍ ELENA, M.C. MARTÍN CHAMOSO 2012, *Un vaso de terra sigillata hispánica tardía con decoración singular procedente de la Villa romana de Saelices El chico (Salamanca, España)*, "Anejos de Archivo Español de Arqueología", 85, pp. 221-228.
- L. DE LIGT 1993, *Fairs and Markets in the Roman Empire: Economic and Social Aspects of Periodic Trade in a Pre-Industrial Society*, Amsterdam.
- J. DE SANTIAGO 2011, *Legislación y moneda en la Hispania Visigoda*, "Mélanges de la Casa de Velázquez", 41(2), pp. 55-74.
- P. DÍAZ, I. MARTÍN VISO 2011, *Una contabilidad esquiva: las pizarras numerales visigodas y el caso de El Cortinal de San Juan*, in P. DÍAZ, I. MARTÍN VISO (eds), *Between Taxation and Rent: Fiscal Problems from Late Antiquity to Early Middle Ages*, Bari, pp. 221-250.
- C. DOMÈNECH 2013, *La circulation de monnaie carolingienne dans la péninsule ibérique, À propos d'un denier de l'atelier de Roda*, "Revue Numismatique", 170, pp. 383-410.
- J.-M. DOYEN 2015, *La monét(ar)isation des grands domaines ruraux de Gaule septentrionale: entre gestion capitaliste et commerce de proximité*, "Revue Belge de Numismatique", 161, pp. 121-144.

- C. FABIÃO 2009, *O Ocidente da Península Ibérica no século VI: sobre o pentanommium de Justiniano I encontrado na unidade de produção de preparados de peixe da Casa do Governador da Torre de Belém, Lisboa*, "Apontamentos de Arqueologia e Património", 4, pp. 25-50.
- E.M.C.M. FERNANDES, M.F.G. VALERIO 2009, *Comunidades helenógrafas en la Lusitania visigoda (s. VI)*, "Pyrenae", 44(2), pp. 69-108.
- C. FERNÁNDEZ OCHOA, V. GARCÍA-ENTERO, F. GIL SENDINO (eds) 2008, *Las "villae" tardo-romanas en el Occidente del Imperio. Arquitectura y función*, IV Coloquio Internacional de Arqueología en Gijón, Gijón.
- J.-G. GORGES (ed) 1990, *Les villes de Lusitanie romaine: Hiérarchies et territoires*, Paris.
- J.-G. GORGES 2008, *L'architecture des villae romaines tardives: la création et le développement du modèle tétrarchique*, in FERNÁNDEZ OCHOA et al. 2008, pp. 27-48.
- D. GRAEN, T. KLEINSCHMIDT, T. SCHIERL, K. ZIMMERMANN 2008, *The site of Quinta de Marim (Olhão): results and perspectives of investigation*, "Xelb", 8, pp. 247-265.
- J.M. GURT 1985, *Clunia III. Hallazgos monetarios. La romanización de la Meseta Norte a través de la circulación monetaria en la ciudad de Clunia*, Madrid.
- S. HABA QUIRÓS 1998, *Medellín romano: la colonia "Medellinensis" y su territorio*, Badajoz.
- R. HIDALGO PRIETO (ed) 2016, *Las villae romanas de la Bética*, Granada-Sevilla.
- C. HIPÓLITO 1960-1961, *Dos tesouros de moedas romanas em Portugal*, "Conimbriga", 2-3, pp. 1-165.
- C. KATSARI 2008, *The monetization of the Roman Frontier*, in W.V. HARRIS (ed), *The Monetary Systems of the Greeks and Romans*, Oxford, pp. 242-266.
- J. KER 2010, *Nundinae: the culture of the roman week*, "Phoenix", 64(3), pp. 360-385.
- N. LLEDÓ CARDONA 2008, *La moneda en la Tarraconense mediterránea en Época Imperial*, Valencia.
- E. LO CASCIO (ed) 2002, *Mercati permanenti e Mercati periodici nel mondo romano*, Atti degli Incontri capresi di storia dell'economia antica (Capri, 13-15 ottobre 1997), Bari.
- S. MALONEY 1995, *The early Christian Basilican complex of Torre de Palma (Monforte, Alto Alentejo, Portugal)*, in IV Reuni d'Arqueologia Cristiana Hispânica (Lisboa), Barcelona, pp. 449-461.
- T. MAROT 2000-2001, *La Península Ibérica e los siglos V-VI: consideraciones sobre provisión, circulación y usos monetarios*, "Pyrenae", 31-32, pp. 133-160.
- S. MARTIN (ed) 2016a, *Monnaies et monétarisation dans les campagnes de la Gaule du Nord et de l'Est, de l'Âge du Fer à l'Antiquité tardive*, Bordeaux.
- S. MARTIN 2016b, *Monnaies et marchés dans les campagnes gauloises: concepts, lieux, objets*, in MARTIN 2016a, pp. 13-32.
- D.M. METCALF 1988, *For what purposes were Suevic and Visigothic tremisses used? The contribution of topographical analysis, illustrated by some comments on single finds from alentejo, and on the mint of Elvora*, in M.G. MARQUES, M. CRUSAFONT (eds), *Problems of Medieval Coinage in the Iberian Area*, Santarem, pp. 15-34.
- B. MORA SERRANO 2016, *Old and new coins in southern Hispania in the 6th century AD*, in J. CHAMEROY, P.M. GUIHARD (eds), *Produktion und recyceln von Münzen in der Spätantike*, Mainz, pp. 139-153.
- D.G. MORLEY 2002, *Markets, marketing and the roman elites*, in LO CASCIO 2002, pp. 211-221.
- J. NOLEN 1988, *A villa romana do Alto da Cidreira em Cascais: os materiais*, "Conimbriga", 27, pp. 61-140.
- D. OSLAND 2012, *Documenting change in Late Antique Emerita through the ceramic evidence*, "Journal of Late Antiquity", 5(2), pp. 322-344.
- M. PAVONI 2005, *Moneta in villa: economia nelle campagne dell'Italia settentrionale attraverso i rinvenimenti monetali di età romana*, Tesi di dottorato, Università degli studi di Padova.
- Y. PEÑA CERVANTES 2010, *Torcularia. La producción de vino y aceite en Hispania*, Barcelona.
- I. PEREIRA, J.-P. BOST, J.-C. HIERNARD 1974, *Fouilles de Conimbriga. III Les Monnaies*, Paris.

- C.M. PÉREZ GARCÍA 2009, *Informe de excavación arqueológica de el vaso del futuro embalaje de Villalba de los Barros. Yacimiento nº 17. Corral de los caballos*, Memoria de intervención, Mérida.
- M.J. PÉREZ MARTÍN 1961, *Una tumba hispano-visigoda excepcional hallada en el Turuñuelo. Medellín (Badajoz)*, Madrid.
- J. PIMENTA, H. MENDES 2016, *Carta Arqueológica de Vila Franca de Xira*, Vila Franca de Xira.
- J. PIMENTA, H. MENDES, A.M. ARRUDA, E. SOUSA, R. SOARES 2014, *Do pré-romano ao Império: a ocupação humana do porto de Sabugueiro (Muge, Salvaterra de Magos)*, "Muge", 1, pp. 39-59.
- R. PLIEGO VÁZQUEZ 2009, *La moneda visigoda*, Sevilla.
- R. PLIEGO VÁZQUEZ 2015-2016, *The circulation of copper coins in the Iberian Peninsula during the Visigothic Period: new approaches*, "The Journal of Numismatic Archaeology", 5-6, pp. 125-160.
- J.C. QUARESMA 2017a, *A villa de Frielas na Antiguidade Tardia: evolução estratigráfica entre c- 410 e 25-550 d.C.*, "Medieval Sophia. Studi e Ricerche sui Saperi Medievali", 19, pp. 431-454.
- J.C. QUARESMA 2017b, *Thoughts on Lusitania's economic interaction between c. 50 and c.550 AD: An analysis of exportable good*, "Spal", 26, pp. 135-150.
- D. RATHBONE 1991, *Economic rationalism and rural society in third-century AD Egypt. The Heroninus archive and the Appianys Estate*, Cambridge.
- R. REECE 1995, *Site-finds in Britain*, "Britannia", 26, pp. 179-206.
- R. REECE 2002, *The Coinage of Roman Britain*, London.
- R. REES 2004, *Diocletian and the Tetrarchy*, Edinburgh.
- V. REVILLA CALVO (ed) 2008, *Actes del Simposi: Les vil·les romanes a la Tarraconense: Implantació, evolució i transformació*, Barcelona.
- P. REYNOLDS 2010, *Hispania and the Roman Mediterranean AD 100-700. Ceramics and Trade*, London.
- P.P. RIPOLLÉS 2002, *La moneda romana imperial y su circulación en Hispania*, "Anejos de Archivo Español de Arqueología", 185-186, pp. 195-214.
- F.G. RODRÍGUEZ MARTÍN, A. CARVALHO 2008, *Torre Águila y las villas de la Lusitania Interior hasta el Occidente Atlántico*, in FERNÁNDEZ OCHOA et al. 2008, pp. 303-344.
- F.G. RODRÍGUEZ MARTÍN 1993, *Arqueología de la villa romana de Torre Águila*, Tesis doctoral, Universidad de Extremadura.
- J. RUIVO 1993-1997, *Circulação monetária na estremaura portuguesa até aos inicios do séc. III*, "Nummus", 16-20, pp. 7-117.
- J. RUIVO 2008, *Circulação monetária na Lusitânia do século III*, Tesis doctoral, Universidade do Porto.
- J. RUIVO 2010, *Espólio Metálico*, in J. ALARÇÃO, P. CARVALHO, A. GONÇALVES (eds), *Castelo da Lousa. Intervenções arqueológicas de 1997 a 2002*, Badajoz, pp. 481-518.
- J. RUIVO 2012, *As moedas da Porta Sul, do Forum e das Termas*, in C. CORSI (ed), *Ammaia II: The Excavation Contexts. 1994-2011*, Ghent, pp. 335-351.
- M.L.E.V. SANTOS 1971, *Arqueologia Romana do Algarve*, Lisboa.
- C.R. SANTOS 2009, *Villa romana da Quinta de São João/Laranjeira: enquadramento estratigráfico dos materiais datantes*, Tesis de Máster, Universidade de Lisboa.
- I. SASTRE, A. OREJAS, B. CURRÁS, E. ZUBIAURRE 2017, *La formación de la sociedad provincial en el Noroeste hispano y su evolución: civitates y mundo rural*, "Gerion", 35/2, pp. 537-552.
- B.D. SHAW 1981, *Rural markets in north Africa and the political economy of the Roman Empire*, "Antiquités Africaines", 17, pp. 37-83.
- M. SIENES HERNANDO 2000, *As imitações de moedas de bronze do século IV d.C. na Península Ibérica: o caso do AE2 Reparatio Reipvb*, Lisboa.
- E.M. SOUSA 1989, *Ruínas romanas de Santo André de Almoçageme*, in M. PONE (ed), *Espaço rural na Lusitânia, Tomar e o seu território*, Actas do Seminário, Tomar, pp. 85-91.
- F. TEICHNER 1997, *Die römischen villen von Milreu (Algarve/Portugal). Ein beitrag zur romanisierung der südlichn provinz Lusitania*, "Madrider Mitteilungen", 38, pp. 106-162.

- F. TEICHNER 2006, *De la romana a lo árabe. La transición del sur de la provincia de Lusitania a al-Gharb al-Aldalus: nuevas investigaciones en los yacimientos de Milreu y Cerro da Vila*, in A. CHAVARRÍA ARNAU, A. ARCE, G.P. BROGILO (eds), *Villas Tardo-antiguas en el Mediterráneo Occidental*, Madrid, pp. 207-220.
- F. TEICHNER 2007, *Casais Velhos (Cascais), Cerro da Vila (Quarteira) y Torreblanca del Sol (Fuengirola): ¿Factorias de transformación de salsas y salazones de pescado o tintes?*, in *Actas del Congreso Internacional CETARIE. Salsas y salazones de pescado en Occidente durante la Antigüedad* (Cádiz, Noviembre 2005), Oxford, pp. 117-125.
- F. TEICHNER 2011-2012, *La producción de aceite y vino en la villa romana de Milreu (Estói): El éxito del modelo catoniano en la Lusitania*, "Anales de Arqueología y Prehistoria de la Universidad de Murcia", 27-28, pp. 451-469.
- F. TEICHNER 2017, *Cerro da Vila: A rural commercial harbour beyond the Pillars of Hercules*, in J.M. CAMPOS CARRASCO, J. BERMÉJO MELÉNDEZ (eds), *Los Puertos Romanos Atlánticos Béticos y Lusitanos y su relación comercial con el Mediterráneo*, Roma, pp. 403-433.
- M. VALLEJO GIRVÉS 2012, *Hispania y Bizancio. Una relación desconocida*, Madrid.
- I. VELÁZQUEZ SORIANO 2004, *Las pizarras visigodas (entre el latín y su disgregación. La lengua hablada en Hispania, siglos VI-VIII)*, Burgos.
- C. VIEGAS 2007, *Les céramiques tardives dans les sites du Sud-Ouest de la Péninsule Ibérique (Algarve-Portugal)*, in M. BONIFAY, J.C. TRÉGLIA (eds), *LRCW2. Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry*, Oxford, pp. 71-83.
- J. VIZCAÍNO SÁNCHEZ 2007, *La presencia bizantina en Hispania (Siglos VI-VII): La documentación arqueológica*, Murcia.
- P.H. WALTON 2012, *Rethinking Roman Britain: Coinage and Archaeology*, Wetteren.
- C. WICKHAM 2016, *Una nueva historia de la Alta Edad Media. Europa y el mundo mediterráneo 400-800*, Barcelona.