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# Archaeology and Economy in the Ancient World



55

**Single Contributions**

Sessions 6–8

Martin Bentz
Michael Heinzelmann (Eds.)

Propylaeum
SPECIALIZED INFORMATION SERVICE CLASSICS

# Proceedings of the

# 19th International Congress of Classical Archaeology

## Volume 55: Sessions 6–8 – Single Contributions

# Proceedings of the 19th International Congress of Classical Archaeology

## Cologne/Bonn, 22 – 26 May 2018

## Archaeology and Economy in the Ancient World

**Edited by**

**Martin Bentz and Michael Heinzelmann**

**Volume 55**



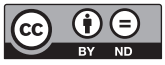
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# PREFACE

On behalf of the 'Associazione Internazionale di Archeologia Classica (AIAC)' the 19th International Congress for Classical Archaeology took place in Cologne and Bonn from 22 to 26 May 2018. It was jointly organized by the two Archaeological Institutes of the Universities of Cologne and Bonn, and the primary theme of the congress was 'Archaeology and Economy in the Ancient World'. In fact, economic aspects permeate all areas of public and private life in ancient societies, whether in urban development, religion, art, housing, or in death.

Research on ancient economy has long played a significant role in ancient history. Increasingly in the last decades, awareness has grown in archaeology that the material culture of ancient societies offers excellent opportunities for studying the structure, performance and dynamics of ancient economic systems and economic processes. Therefore, the main objective of this congress was to understand economy as a central element of classical societies and to analyze its interaction with ecological, political, social, religious, and cultural factors. The theme of the congress was addressed to all disciplines that deal with the Greco-Roman civilization and their neighbouring cultures from the Aegean Bronze Age to the end of Late Antiquity.

The participation of more than 1,200 scholars from more than 40 countries demonstrates the great response to the topic of the congress. Altogether more than 900 papers in 128 panels were presented, as were more than 110 posters.

The publication of the congress takes place in two ways: larger panels are presented as independent volumes (vol. 1–52). All other contributions – papers and posters – are published in four larger joint volumes (vol. 53–56).

We would like to take this opportunity to thank all participants and helpers of the congress who made it such a great success. Its realization would not have been possible without the generous support of many institutions, whom we would like to thank once again: the Universities of Bonn and Cologne, the Archaeological Society of Cologne, the Archaeology Foundation of Cologne, the Gerda Henkel Foundation, the Fritz Thyssen Foundation, the Sal. Oppenheim Foundation, the German Research Foundation (DFG), the German Academic Exchange Service (DAAD), the Romano-Germanic Museum Cologne and the LVR-LandesMuseum Bonn. Finally, our thanks go to all colleagues and panel organizers who who were involved in the editing and printing process.

Bonn/Cologne, in August 2019

Martin Bentz & Michael Heinzelmann

# SESSION 6

## Consumption: daily and luxury consumption, conspicuous consumption, waste, recycling, diet

# The Eternal Message of Marble: Prestige, Symbolism and Spolia in the Western Roman Provinces

**Panel 6.2**

**Organized by**

**Diana Gorostidi Pi – Anna Gutierrez Garcia-Moreno –**

**Virginia García-Entero – Oliva Rodríguez Gutiérrez**

# Quantifying Prestige: Towards a Systematization of the Prestige Categories in Latin Inscriptions

**Hernán González Bordas**

The project "Graver dans le marbre: Routes et Origines des Marbres antiques d'Aquitaine et d'Espagne (ROMAE)" is led by Anna Gutiérrez Garcia-M. and funded by the LaScArBx.[1] Within this framework, a study of five selected regional *corpora* of marble inscriptions of these two regions (i.e. Burdigala and Dax in Aquitania; Labitolosa, Galice, and Emerita Augusta, in the NE, NW, and SW of Hispania, respectively) has been undertaken. Despite their unequal importance, they include both private (funerary and votive) and public inscriptions. So, a basic step was to try to establish the degree of prestige embedded in each of the studied inscriptions, in order to subsequently cross-reference this data with the type of marble used (i.e. local, regional, or imported).[2] This short paper briefly presents the basis and methodology proposed to achieve this.

Quantifying prestige is a complex and even problematic venture. First of all, to evaluate the degree of prestige or ostentation of each inscription in a comprehensive way would ideally imply a comparison of each inscription to the rest of those found at the same area and period, which was far beyond the scope of the ROMAE project. Additionally, converting qualitative data into quantitative values is far from straightforward. Having said that, some interesting goals have been achieved, such as the definition of a specific, restricted[3] data-sheet to systematically record the most relevant features related to prestige (fig. 1). This emerged from a consensus among the epigraphists involved in the project[4] and the specialist in statistic data treatment. This data-sheet includes data from two major areas: the formal characteristics (i.e. the monument itself), and the textual content (i.e. the message inscribed). They are:

- The type of monument and the place of finding within the urban landscape (if known).
- The dimensions of the monument as well as those of the epigraphic field; the size of the monument is obviously especially significant in the case of displaying public inscriptions.
- The quality of the surface finishing of the monument, as well as the quality of the carving (the layout/*ductus* and the paleography, with emphasis on elements such as *hederae,* apices, and elegant links). The prestige or the ostentation conveyed are linked to a careful and uniform finish. As for all aesthetic categories, the possibilities were reduced to three (e.g. careful, medium, and careless for the *ductus*).
- The decoration or the absence of decorative motives, as well as the quality of the ornamental elements when present.
- The type of location within the ancient urban landscape, since this can mean a great difference in terms of visibility, intentionality, ostentation, and prestige.

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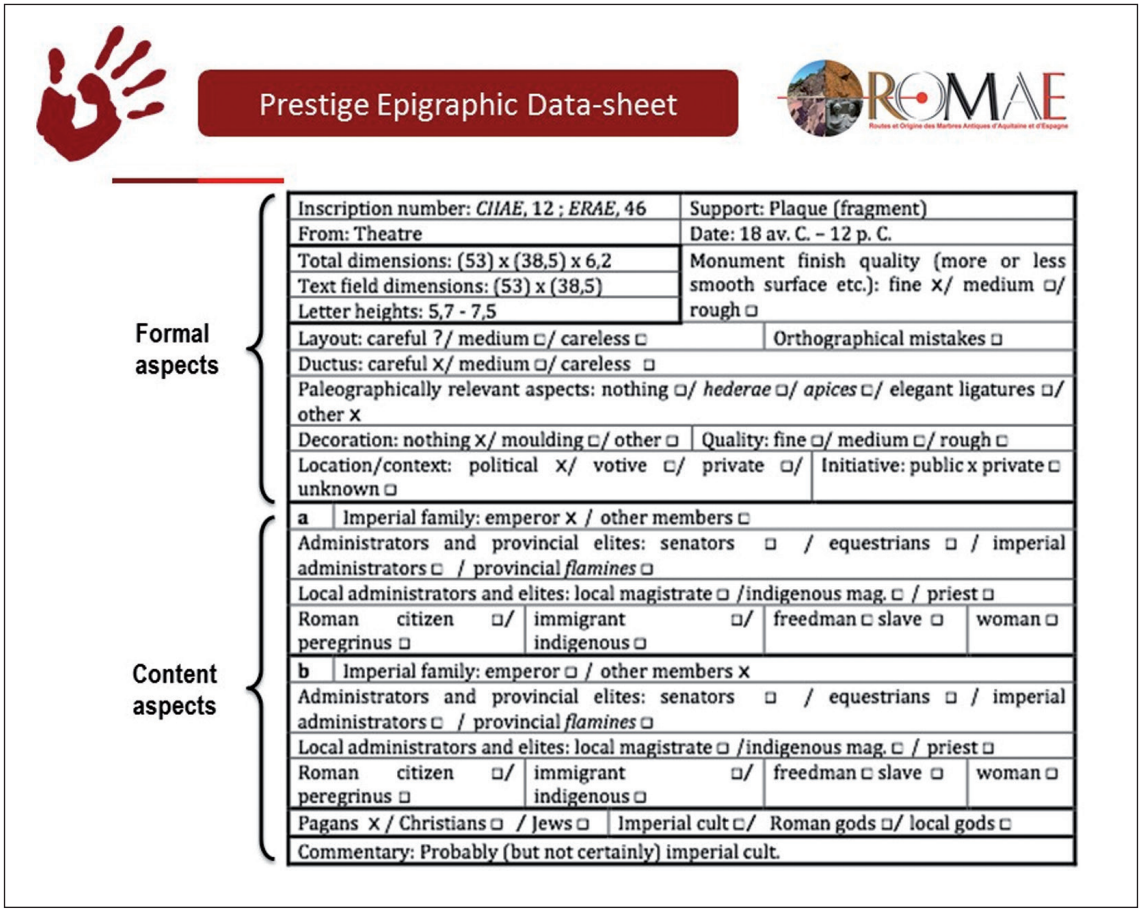



Fig. 1: Example of the Epigraphic Data-sheet with indication of the two main types of data recorded (i.e. according to formal aspects and based on the text content); duplication of the textual fields is a result of the two individuals mentioned in this particular inscription.

- The social, political or the religious position of the individuals, if it is a votive inscription; this is assessed in a hierarchy going from the Emperor and his family to the local level.
- The legal status of the individuals and if they originally belonged to the community where the inscription is made or not.

Although these may also convey a message of prestige, economic and military aspects are not considered since they do not appear in our *corpus*.

Despite particular problems encountered, which cannot be discussed here due to the limited length of this contribution, this card has proven useful for our purposes within the ROMAE project. It can also serve as a universal model for prestige or ostentation studies which can be adapted to the study of other epigraphic *corpora* in any type of material.

## Notes

[1] This project focuses on the use of local marbles as an element of prestige in these western Roman provinces (<https://blogs.uab.cat/romae>). I would like to thank particularly Anna Gutierrez-García-M. for her advice and help with this paper.
[2] The origin of the marble is established through a multi-method archaeometric analysis, which was another important part of the ROMAE project. For an example of this, see González Soutelo et al. 2020.
[3] Contrary to the usual composition of epigraphic corpora; this restricted approach is due to the need for as few emply fields as possible in the subsequent statistical treatement of the data. Also, too many parameters may prevent the appearance of behaviors that explain trends.
[4] Namely, Jonathan Edmondson (York University), Milagros Navarro Caballero (Ausonius Institute), and the author of this paper.

## Image Credits

Fig. 1: by the author.

## References

**González Soutelo et al. 2020**

S. González Soutelo – A. Gutiérrez Garcia-Moreno – H. González Bordas – M.-C. Savin, Estudio epigráfico y arqueométrico de la placa funeraria de Cela (Mos, Pontevedra): Nuevas propuestas de interpretación, Estudos do Quaternário/Quaternary Studies 20, 2020, 71–84.

# "Mythologische Prachtreliefs": Decorative Elements in Luxury Roman Housing

**Mariella Cipriani**

This research started from the study of the well-known relief of the Sleeping Endymion at the Capitoline Museum in Rome,[1] which raised important questions about the necessity to define this particular class of materials: *mythologische Prachtreliefs.* The first important *silloge* was Theodor Schreiber's *"Hellenistische Reliefbilder"*,[2] which collected and published 112 miscellaneous reliefs of various sizes. It was not until 1974 that Jean Sampson[3] updated Schreiber's work by adding 101 more small reliefs. In a revised version of his dissertation,[4] Stefan Lehmann[5] examined only large Roman reliefs (average ca. 150–170 cm × 100–110 cm) sculpted with mythological scenes and he defined a new category.

The survey on luxurious mythological reliefs is very complex. These items have always been joined with other categories and mostly decontextualized. Therefore, after their discovery, they were placed in private collections and important Italian and European museums. Moreover, some of these plates, such as the Endymion relief, were reused. In the 1720s it was found in the remains of the Decius Baths on the Aventine Hill.[6] The Spada series were turned upside down and used as steps of the central staircase of the Church of S. Agnese fuori le mura on Via Nomentana (Fig. 1).[7]

The luxurious mythological examples have all been considered by scholars, and have been dated, almost unanimously, as being from the late Hadrianic to early Antonine periods.[8] In reality, such reliefs present an undeniable stylistic and formal diversity, even within the same "series", as in the case of the Colonna and the Spada reliefs. For this reason, we propose a wider chronological collocation from the Augustan to the Antonine age.

Current research takes into consideration the individuality of the *genre* and the peculiarities of the reliefs. The mythological examples have the following features: 1) the reliefs were usually sculpted in peninsular marble, with a few exceptions such as the Colonna "series"[9] in Greek marble; 2) they are generally arranged vertically on rectangular panels. The human figure is often either isolated or paired (frontally or sideways) but rarely represented in profile; 3) all the scenes are characterized by a precise mythological content, decodable by the study of literary sources; 4) on retrieving the reliefs, some of them were not displayed individually, but in pairs, or in "series", based on a precise decorative program.

Within the latter group, there are some "series" consisting of several reliefs found at the same time, and that are homogeneous on stylistic and formal relationships, such as the two Rondinini reliefs;[10] the three Colonna "series"[11] and the eight Spada.[12] It is very likely that the reliefs were exposed in cycles, like wall paintings, and have strong similarities starting from "the second Pompeian Style", not only in their dimensions,

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Fig. 1: The Spada relief showing Odysseus and Diomedes.

but also in their iconographic *repertoire.* In this regard, as in a pictorial field, scenes take place in a rocky and bucolic setting; the landscape is often shown by idyllic-sacral contexts with small buildings, sylvan shrines, architectural elements, trees and animals.

The reliefs were destined to decorate the walls of important representative rooms, like the *oeci,* and recreational spaces, or libraries of luxurious suburban villas owned by the Roman aristocracy. Most likely the plates were set into rectangular and shallow wall niches or affixed to them by metal clamps.[13]

The preciousness of using marble as the raw material for these large reliefs is undoubtedly an expression of wealth and social status. However, it may not have been the only reason to justify the choice of material. In ancient times, as a matter of fact, the preference for precious materials such as marble in reliefs of mythological content could have been due especially to their durable nature. This material could immortalize the message of the subjects represented and to emphasize their importance.

Therefore, the mythological reliefs are *nobilia opera,* which in *domus* or in *villas* have only one attestation. In this case, the topographical area of the *Urbs* plays a role in supporting the identification of individual workshops and the diffusion of their products.

## Notes

[1] Cipriani 1996, 197–212.

[2] Schreiber 1894.

[3] Sampson 1974, 27–45.

[4] Lehmann 1989, 221–263 (only about the restoration of the Spada reliefs).

[5] Lehmann 1996.

[6] Cipriani 1996, 200.

[7] Winckelmann 1767, 127; Guattani 1805, 127; Fusco 2004, 399–419.

[8] Unlike the others, Herdejürgen 2001, 24–34 (Augustan Age).

[9] Lehmann 1996, 102–120, pls. 32–34; M. E. Micheli in: Picozzi 2010, 269–278. 283–286, nos. 50. 51. 53.

[10] L. M. Vigna in: Candilio – Bertinetti 2011, 108 no 71; 110 f. no 74; Marcattili 2016, 209–223; Cipriani 2019, 183–191.

[11] See above n. 9.

[12] Wace 1910, 166–200; P. Zanker in: Helbig 1966[4], 755–768, nos. 2000–2007; Kampen 1979, 583–600; Lehmann 1996, 13–85; Herdejürgen 2001, 24–34; Newby 2002, 110–148.

[13] Kampen 1979, 597.

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Fig. 1: H. Behrens, Neg. D-DAI-Rom-dig2006.1533.

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# Roman Sculptural Recycling in the Western Provinces

**Simon Barker**

Throughout the course of Late Antiquity, particularly from the third century onwards, cities and local communities all over the Roman empire increasingly turned to material produced in earlier times for new buildings and sculptural monuments. While not a new phenomenon, the scale and intensity of late-antique recycling became an important feature of the period. Recent years have seen much new work on late-antique recycling. Diverse attitudes towards and activities within *spolia*-use have been identified, with both pragmatic and symbolic motivations identified;[1] however, even with a seemingly clear 'macro-picture' of increased recycling across the empire, regional and local pictures remain to be fully determined.[2] Regional analysis is therefore vital to understanding how recycling developed in different parts of the empire. It is equally important to consider re-use from a variety of monument types within their specific physical, historical, and cultural contexts so that larger trends can be identified alongside aspects that are specific to a city or region. By marking out both local and wider trends, it is possible to identify regional patterns of recycling and to see which regions had similar or different patterns of recycling. This paper presents preliminary observations about re-use from the northwestern provinces during Late Antiquity in order to provide an understanding of recycling practices during this period.

The evidence for the northwestern provinces, while perhaps not as rich (with the exception of city walls) as that for the eastern provinces, indicates a clear concordance with the overall picture of the widespread re-use of building and sculptural material from the third century AD. However, there is a notable peak in recycling activities during the fourth and fifth centuries AD, particularly the breaking up and re-use of sculptural, epigraphic and architectural objects for building material. City walls and late Roman forts provide some of the best and most consistent examples of this practice. In almost every example in the northwestern provinces, we find recycling of architectural, sculptural and epigraphic material, sometimes on an enormous scale. The re-use of material in the city walls of London and other British towns (such as Lincoln, Cirencester, Chichester, Caerwent, Godmanchester, Greater Casterton and Kenchester) included material from private housing, public buildings (*fora,* temples, *mansiones*) and cemeteries. This mirrors wider patterns of recycling in city walls across the empire.[3]

The preliminary survey of recycling in the northwestern provinces, however, also reveals much divergence in recycling practices from elsewhere in the empire. The practice of re-carving imperial portraits was common in Rome, Italy and the eastern provinces, where such portraits were made and displayed. However, this was less common in other parts of the empire. In Gaul, only a few examples exist, such as a portrait head of a short-bearded man (probably Maxentius) dated to the early-fourth century AD from Lugdunensis I (Lingones).[4] The head was re-cut from an earlier portrait with longer hair and then combined with an early-fourth-century togate statue. In Britain,

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only one imperial portrait – an early-fourth-century over-life-size portrait of (probably) Constantine from Eburacum (York) – has been identified as being re-carved from a previous portrait.[5]

Overall, the variation in the amount and types of recycling in different regions should not be unexpected. Recycling depended on a variety of circumstances, such as the availability of skilled carvers, as well as the availability and suitability of existing material (marble, for example, is more suited to re-carving; moreover, re-carving required an original object of suitable size). In addition, different requirements by patrons in different regions and the presence or lack of suitable locations or buildings for continued display also contributed to regional variation in recycling practices. These differences in the adaptation of the urban landscape and the treatment of second-hand material demonstrate the necessity of studying recycling in relation to regional responses to urbanism in Late Antiquity.

## Notes

[1] The bibliography on this subject is vast, and continues to grow. For a review of *spolia* studies, see Pensabene 2015. See also, Altekamp et al. 2013 and 2017.

[2] For the potential of regionally-specific analyses of re-use within a specific class of monument, see Frey 2015, who addresses three case studies of late-antique fortification projects in the Roman province of Achaea.

[3] Barker et al. 2018.

[4] De Kersauson 1996, 520–521, no. 248.

[5] LSA-1226 in The Last Statues of Antiquity Project (LSA) Database (http://www.laststatues.classics.ox.ac.uk/). The project is co-directed by R. R. R. Smith and B. Ward-Perkins, and includes further discussion, references and photographs.

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# La reutilización de elementos ornamentales y epigráficos de ámbitos públicos altoimperiales en la necrópolis paleocristiana de Tarragona

**Julio C. Ruiz Rodríguez – Raúl Aranda González**

En el área funeraria paleocristiana de Tarragona,[1] al oeste de la ciudad romana, se han documentado a lo largo del siglo XX numerosas sepulturas individuales y destacados enterramientos colectivos, así como algunas basílicas.[2] Para la construcción de todas estas estructuras fueron reaprovechadas piezas arqueológicas de épocas anteriores, incluyendo elementos ornamentales. Destacan aquéllos que habían formado parte de programas monumentales y decorativos en espacios de representación, especialmente estatuas e inscripciones monumentales. Entre estas últimas se encuentran pedestales de divinidades, emperadores, prominentes individuos del Estado romano y destacados magistrados locales.

Como se ha señalado, tras la amortización del foro "colonial" (mediados del s. IV d.C.) en los siglos V–VI sus monumentos se reutilizaron en la necrópolis paleocristiana debido a su relativa escasa distancia.[3] En su mayoría las piezas corresponden a elementos arquitectónicos.[4] En cuanto a la escultura, el ejemplo más claro es un retrato imperial masculino con corona cívica[5] que debió erigirse originalmente en el foro "colonial", donde fue colocado un grupo estatuario imperial en la época julio-claudia.[6] Lo mismo puede aplicarse a una estatua militar en bronce,[7] cuyos fragmentos fueron recuperados también en un punto indeterminado de la necrópolis paleocristiana.[8]

De algunas de las inscripciones en origen procedentes del foro se conocen mejor las circunstancias concretas de hallazgo. Entre las más significativas se hallan una *mensa ponderaria*[9] y un pedestal dedicado a Vespasiano divinizado.[10] La base de estatua en honor de la *flaminica* local *Munnia L. f. Severa*[11] había sido en su día erigida en el foro por autorización del senado local. Junto a otros pedestales y aras funerarias, sumando un total de nueve inscripciones, los dos últimos epígrafes mencionados fueron reutilizados como bloques para la construcción de un monumento funerario.[12] Para la misma finalidad y en el mismo enterramiento fueron reaprovechadas basas de pedestales, siendo incluso probable que hubieran correspondido a los mismos monumentos honoríficos.

Las diversas formas de los soportes epigráficos altoimperiales reutilizados condicionaron aparentemente su destinación y las finalidades de su reaprovechamiento. El caso de la tumba citada es ilustrativo de cómo los pedestales, a modo de bloques bien escuadrados, convenían p.e. para la fábrica constructiva de monumentos funerarios. En cambio, los placados y lastras no son aptas para esta función. En la necrópolis paleocristiana de Tarragona conocemos placados epigráficos, procedentes seguramente una vez más de ámbitos públicos, utilizados como cubiertas de tumbas. Dos ejemplares bien conocidos son sendos placados de grandes dimensiones. El primero, que contenía una inscripción honorífica a Caracalla,[13] fue seccionado aproximadamente por la mitad para cubrir

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Fig. 1: Planimetría general de Tarragona en época tardoantigua. 1: necrópolis paleocristiana, 2: foro colonial.

una tumba. El segundo corresponde a una inscripción edilicia en la que se menciona la construcción de una *porticus Ioviae* a cargo de los emperadores Diocleciano y Maximiano,[14] cuyo fragmento mayor fue recuperado asimismo cubriendo un sepulcro.

En definitiva, la reutilización de elementos ornamentales y epigráficos altoimperiales tras su traslado desde sus contextos de exposición originales se hace patente a partir de ejemplos como los que hemos mencionado, todos ellos procedentes con bastante seguridad del foro "colonial". Los condicionantes favorables para ello debieron ser, por un lado, la propia abundancia de los mismos en el que fue otrora el principal espacio público de esta área de la ciudad; por otro, la relativa proximidad de la necrópolis. Debió tratarse asimismo de un proceso paulatino y dilatado en el tiempo. En cuanto a las finalidades del reaprovechamiento, no es fácil distinguir entre reutilización simbólica y puramente funcional, máxime cuando no siempre están claros los límites entre ambas. Los ejemplos aducidos pueden explicarse por razones prácticas, pero es necesario profundizar en esta cuestión para obtener nuevos elementos de juicio.

## Notes

[1] Este trabajo se inscribe en el proyecto I+D HAR2015-65319-P (MINECO/FEDER, UE). Se enmarca también en las tesis doctorales de sus autores, financiadas respectivamente por el Ministerio de Ciencia, Innovación y Universidades del Gobierno de España (FPU2016/00675) y el Institut Català d'Arqueologia Clàssica.

[2] Sobre esta necrópolis véanse López Vilar 2006; López Vilar – Puche 2013.

[3] Ruiz de Arbulo 1990, 128; Ruiz de Arbulo et al. 2004, 146.

[4] Gimeno 1990, esp. 94–102; Domingo 2010, 805.

[5] Recientemente reconocido como un retrato de Calígula reelaborado posteriormente en Claudio: Ojeda 2010, 267–268 n.º 5; 271–272 fig. 6 y 276–277; Ruiz 2018.

[6] Breve estado de la cuestión sobre estas estatuas: Ruiz 2017.

[7] Acuña 1975, 119–120 n.º XXXII; Claveria – Koppel 2007, 259.

[8] Serra Vilaró 1930, 19–20 lám. X n.os 1–3.

[9] CIL II²/14, 1205.

[10] CIL II²/14, 894.

[11] CIL II²/14, 1222.

[12] Serra Vilaró 1929, 49–50. 92–98 n.os 2–12, lám. XXXV, 1–2.

[13] CIL II²/14, 920.

[14] CIL II²/14, 931.

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Fig. 1: plano base de Macias et al. 2007, plano V.

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# Textiles and Fashion in Antiquity

**Panel 6.3**

**Organized by**

**Mary Harlow**

# A Focus on Textile Production in Lucania in the Hellenistic Period

**Francesco Meo**

The research conducted during the last years on textiles and textile tools in southern Italy is giving meaningful results regarding the knowledge of ancient cloths and their production system.

This paper will briefly focus on textile production in a specific area of the south of Italy, Lucania, through three key contexts. The first of them is the so-called Casa dei Pithoi of Serra di Vaglio, a 4th century BC aristocratic house excavated in 1986 by Giovanna Greco of the University of Naples Federico II.[1] This dwelling is important because traces of a burnt loom, with several pieces of the wooden posts and about 100 loom weights, have been discovered in the main room, along an inner wall, which is about 2.5 metres long. All the loom weights were documented and new methods of investigation based on research conducted at the Centre for Textile Research in Copenhagen were applied. These methods allow us to establish the quality of the fabric produced by analysing the relationship between the weight and thickness of the loom weights.[2]

All the loom weights of the Casa dei Pithoi are truncated-pyramidal and have one hole. Despite the fact that one loom has been discovered, two sets of weights have nevertheless been identified. A closer examination by the CTR method, which considers the thickness-to-weight ratio of each loom weight, shows the uniformity of these two groups of weights. Fabrics with threads of very good to good quality would have been woven, needing a tension of 12.5 to 15 g with the group A weights and of 7.5 to 10 g with those of group B. However, the density would have been relatively low with both sets. The identification of more than one set can be linked to the production of several qualities of cloths, depending on the household needs.

This data provides a useful basis for comparison with other southern Italian contexts – a late-Archaic dwelling in the Greek polis of Kaulonia and a 3rd century BC farm at San Biagio alla Venella, in the Metapontine territory[3] – where at least one loom has been identified to date.

The second context of great importance is the Square Building of the Sanctuary of Hera near the mouth of the Sele river at Paestum, a context that has long been a source of inspiration for scholarly reflection and academic debate.[4] Here, 272 loom weights have been discovered and studied applying the same methods of the previous house. The presence of some looms for the production of several qualities of cloth has been hypothesized by Giovanna Greco in 1995, arguing that it was rather a cult building where the daughters of the local aristocracy spent a period of isolation in preparation for marriage, during which they wove the goddess' *peplos*.[5]

Although the lack of precise archaeological documentation entails an error margin regarding the number of looms, the loom weights found would have been used to

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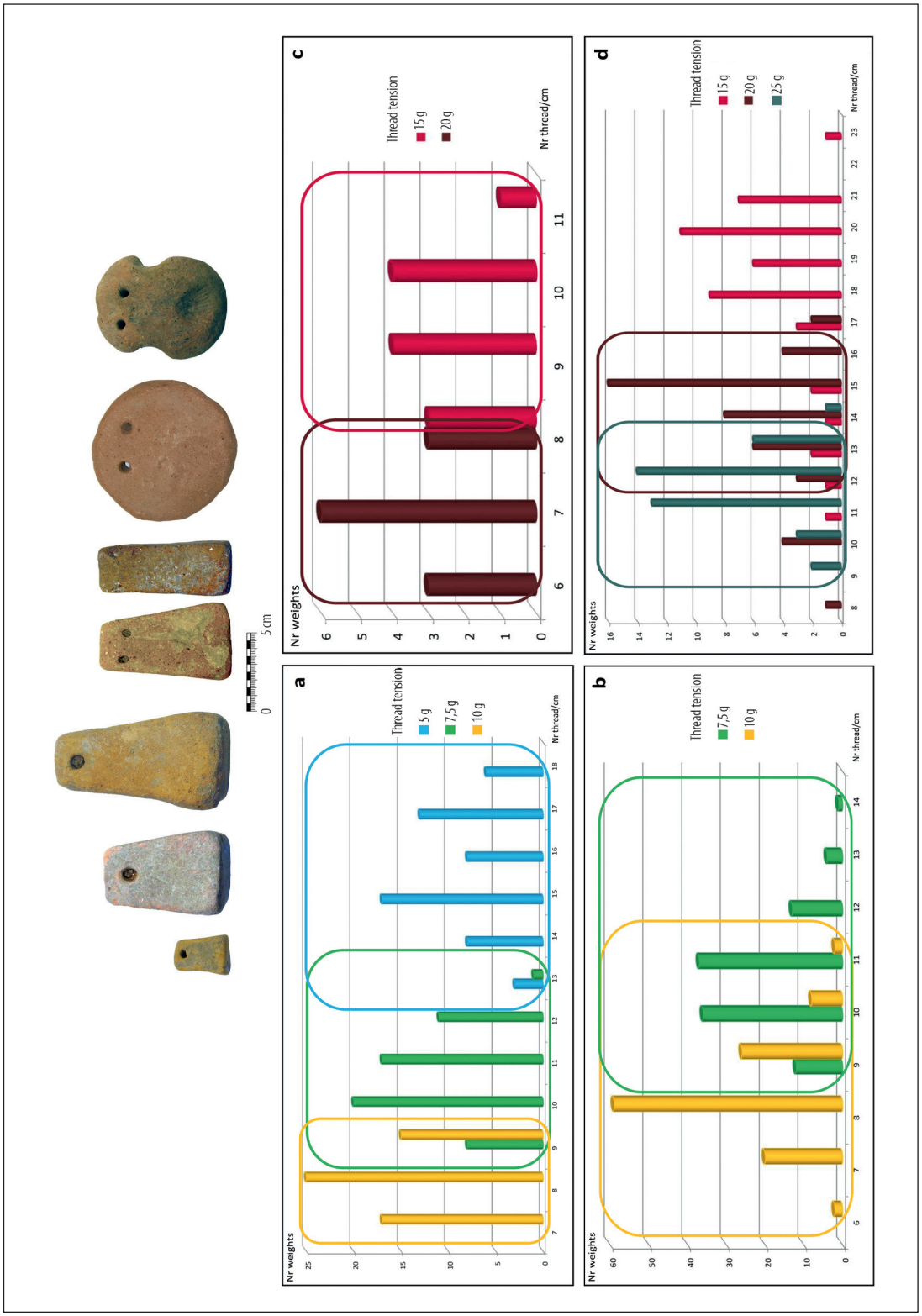



Fig. 1: Fabrics from the groups of loom weights from the Square Building.

produce various qualities of fabrics, with the thread tension included between 5–10 g and 20–25 g (fig. 1).[6] The difference in the quality of fabrics woven with the sets of weights identified is most probably linked to the various garments that the statue of the goddess Hera wore during the annual procession in her honor. As the girls had to weave chitons, cloaks, veils, drapes, himatia and the mitre, they needed loom weights of different thicknesses and weights to produce cloths of varying qualities in terms both of warp density and thread tension.

The data from these two contexts can be now compared with the first pieces of cloth found mineralized and calcified in a 4th century BC Lucanian burial of Paestum (Spina Gaudo 418) and recently published.[7] All the fragments belong to a weft-faced tabby, which means that the cloth is unbalanced, with the number of threads/cm of the warp equals to 10–14 and the density of the weft of about 50 threads/cm. The average diameter of the threads used is equals to 0.24–0.34 mm for the warp and 0.13–0.19 mm for the weft. Both the weft and the warp threads are Z twisted, but the torsion angle is strong in the warp and weak in the weft. The quality of the fabric, in terms of the density of the weft, is therefore average.

The analysis of some samples with the scanning electron microscope confirms the fabric has been woven with wool fibres, recognizable by the imprints of cuticle on the surface. The analysis of the quality of the wool fibers, aimed at determining the type of fleece of the ancient sheep and to shed light on ancient races, revealed that the fabric was produced using fine and very well processed wool, with only two fibers exceeding 40 microns.[8]

The combination of the results from these three contexts is the first step to begin to have a first picture of textile production in Lucania during the Hellenistic period.

## Notes

[1] Greco 1991.

[2] Mårtensson et al. 2007; 2009; Andersson Strand 2012; 2013; 2014; Andersson Strand – Nosch 2015.

[3] Meo 2015, 315–319; Luberto – Meo 2017.

[4] Zancani Montuoro – Stoop 1965–66, 23–195; Greco 1995; Greco 1996, 263–282; Greco 2003, 103–122.

[5] Greco 1995.

[6] Ferrara – Meo 2016; 2017.

[7] Meo – Gleba 2017.

[8] See details in Meo – Gleba 2017.

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Fig. 1: By author.

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# Interdisciplinary Perspectives on the Sails of the Athenian Trireme

**Stella Spantidaki – Peder Flemestad – Marie-Louise Nosch**

The trireme was the most important and iconic type of warship in Classical Greece. Its superior speed, manoeuvrability and ramming power made it a formidable weapon. Modern studies of the production and function of the trireme have mainly focused on hull and oar construction and on timber, but less on the indispensable sails and rope.[1] In spite of early studies,[2] the gap in our understanding of ancient sails and rigging is problematic. Research on the production, function and maintenance of the sails of the trireme must build on historical, maritime, and textile studies. There are several kinds of evidence for sails and rope: archaeological, iconographical, epigraphical, and literary sources, and to these data from modern experimental archaeology must be added.

The only find of ancient sailcloth in Greece comes from Amorgos (ca 3rd century AD).[3] Comparative material comes from 1st century AD Egypt, from Thebes: fragments of a torn linen sail used as mummy wrap, and Berenike: fragments of linen and cotton tabby-woven sails.[4] Ancient iconography provides valuable information on shapes and relative size of sails, as well as on colours and rigging. Depictions, however, must be treated cautiously, due to the problem of their accuracy, as well as potential chronological developments and regional variation. The largest corpus of information on sails and rigging of the Athenian fleet is the naval inscriptions of Piraeus. They consist in annual administrative inventories (378/7–325/4 BC) listing triremes and their equipment, both present and absent. They offer significant insight into the ships' ropes and textiles, but equally on the institutional framework established by the polis for its administration and maintenance. In addition, literary sources provide data on materials and occasional insights on colours, crafts, sail terminology as well as on practical knowledge of sailing.

Nevertheless, many aspects and important information are missing but these may be complemented by modern experimental archaeology. For the trireme, the famous *Olympias* reconstruction, a full-scale replica with two sails, provides data, but research has mainly focused on the hull and oars and the *Olympias* is therefore problematic regarding sails. However, reconstructions of fully equipped Viking ships provide extensive knowledge on sails and rigging,[5] which is valuable for theoretical and methodological reflections, despite the differences in material and chronological period.

Using the data for Viking Age sails, the cloth requirements for the sails of one trireme may be reconstructed as follows. The *Olympias* reconstruction used a main sail of 96 m² and a mast sail of 26 m². In experimental reconstructions, flax sails weigh between 500–720 g/m². A hypothetical 100 m² linen sail could thus amount to 72 kg. A hypothetical boat sail of 25 m² may have had a lower average weight of 500 g/m² amounting to 12.5 kg. In total, 84.5 kg of linen cloth. To this we must add the weight of the selvedges, reinforced edges, holes for ropes etc., which would presumably all add up to a total

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of ca. 100 kg of cloth. 100 kilos of linen cloth could be produced from 1,000 kg of flax stems. A tabby of 1 m² with 10 × 10 threads/cm² needs 2,000 m linen thread plus 10% for the interweaving in the fabric, thus 2,200 m or 2.2 km thread/m². For 125 m² of sailcloth, the yarn consumption equals 275 km.

If we transfer these numbers to estimates of total load time based on calculations from experimental textile archaeology,[6] the following time is required. A spinning pace of 50 m/h would amount to 5,500 h of spinning for 275 km of thread. Experiments suggest that a sail is woven in panels of a width of ca 0.65 m; a weaver would thus weave 200 m of long panels that could be joined into a 125 m² sail and c. 5 m² additional linen cloth for edges and reinforcements. With a hypothetical weaving pace of 50 cm/day, one person would need 400 days to weave the cloth. If we convert these numbers to a model workload of 7 hours work/day, 300 days/year (a workload of 2,100 h/year), the sails of one trireme would require one person for ca 2 ½ years to spin the yarn and 1 ½ years to produce the cloth. This amounts to 4 years of textile work per trireme per person for the sails. Sails for 400 war ships would amount to ca. 1,600 years of textile work for a single person.

## Notes

[1] Morrison – Coates 2000.

[2] Böckh 1840; Cartault 1881.

[3] Alexiou et al. 2017.

[4] Wild – Wild 2001.

[5] Bender Jørgensen 2012; Andersen – Nørgård 2009; Andersen – Bischoff 2016.

[6] Andersson Strand – Nosch 2015.

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# Mobiliario textil en la casa romana: la comodidad perdida. Fuentes para su estudio

**Rocío Cuadra Rubio – Jordi Pérez González**

**Abstract**

El presente estudio representa la síntesis de una reflexión acerca de la casa romana. La casa romana es estudiada como un contenedor de la que se toma en consideracion su arquitectura, su decoración, su evolución y en algunas ocasiones también su contenido. Las investigaciones sobre la casa romana han sido siempre enfocadas en función a los hallazgos físicos, aquellos objetos que nos hablan de la vida cotidiana de una sociedad. Sin embargo, existía una serie de objetos que hoy no encontramos pero que formaban parte en el día a día de la vida de un ciudadano romano y sobre los que se han realizado hasta el momento pocos estudios. Hablamos del mobiliario textil, es decir, aquel grupo de objetos como cojines, cortinas, manteles, etc. que creaban el confort en la casa y contribuían, como hoy, al descanso o a las tareas del hogar de una familia. Obviamente, el estudio del mobiliario textil debe basarse en su gran parte en la iconografía y a partir de ésta, lograr entender cómo era y cuál era su presencia en la casa romana.

Una vez realizada una primera aproximación al mundo de las telas como parte indispensable del mundo privado de las casas romanas, estudiaremos cuales fueron los diversos tipos y cualidades de las telas utilizadas en el mobiliario romano, de donde procedían y cuales eran las rutas de acceso utilizadas por los comerciantes textiles. Para ello será indispensable conocer quienes estuvieron detrás del comercio de las mejores lanas, linos, sedas y púrpuras representados en las figuras de los *lanarii, sericarii* o *purpurarii*. En este sentido será interesante conocer mediante el análisis epigráfico de los personajes (de la región señalada) la importancia del comercio de telas al por menor al margen de la clásica visión comercial dedicada en su conjunto a dar a conocer la venta de tejidos para su uso ornamental como prendas de vestir.

## Introducción

El objetivo esencial del estudio sobre el mobiliario textil reside en la comprensión de las formas de vida cotidiana, tanto en ámbito privado como público, en época Romana, empleando todo tipo de fuentes. Es a través de la observación del repertorio iconográfico, dividido en diferentes soportes tales como pintura parietal, relieves, escultura exenta, mosaicos, etc., como se pueden colmatar vacíos tales como el conocimiento de la división de espacios, la privacidad y la utilidad de los mismos. Un estudio detallado de los tejidos puede servirnos para conocer modas, decoraciones y métodos de instalación. De esta manera podemos ayudar a otros profesionales como aquellos que trabajan

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en reconstrucciones virtuales aportando datos relativos a cortinas, alfombras, manteles, colchones y toda una serie de objetos que formaban parte del día a día de la sociedad romana.

## Mobiliario textil y cortinas en las fuentes literarias

Uno de los primeros usos de las telas a modo de cortinas estuvo relacionado con la creación de espacios habitables a modo de tienda. El empleo de lonas o carpas se extendió entre las comunidades nómadas, sobre todo en los desiertos egipcios o sirio-arábigo. Quizás por este motivo, cuando Jehová se dirige a Moisés para que construyan el lugar sagrado donde poder entrar en comunión con su pueblo, le hace construir un tabernáculo a modo de Santuario. En la descripción que se narra en el libro del Éxodo (más tarde recogida por Flavio Josefo), se menciona el uso de grandes telas para la construcción de una carpa. Una vez dentro del tabernáculo, se debían disponer diversas cortinas que generasen nuevos espacios.[1] Las cortinas debían servir para decorar la estancia interna, cubriendo los espacios sagrados, paredes y techos. Según la demanda de Jehová las cortinas debían confeccionarse con lino y se combinarían entre sí para crear una cortina de mayor longitud (28 codos = 12,60 m). La unión de estas se realizaría mediante broches de oro, debiéndose teñir y bordar con púrpuras, escarlatas y azules.

A esto se le podía sumar el bordado de otras figuras, excepto animales y cortinas confeccionadas por pieles de animales.[2] Se conoce en otra noticia de costosas cortinas bordadas con figuras de animales y con oro en el Banquete de los eruditos de Ateneo de Náucratis.[3] Sobre el bordado de oro sobre telas se conoce en Roma la existencia de dos epígrafes que mencionan a dos,[4] cuyo oficio se ha relacionado con la presente especialidad artesanal.[5]

Por Plinio se conoce la existencia del uso de anillas hechas de madera de *doum* o palmera tebaica (*Hyphaene thebaica*).[6] Según el autor se trata de un material magnífico para la confección de estos objetos. La madera se extrae de una palmera de diversos troncos originaria de la ribera del Nilo y de la que se aprovecha también su fibra para la realización de cestas y sus dátiles para hacer pasteles y dulces para su consumo diario y como ofrenda funeraria.

Al margen del tabernáculo judío, el uso de las cortinas en el interior de los templos sirvió desde muy pronto como diferenciador de espacios y para adornar la residencia divina. Es Pausanias quién, al describir el Templo de Zeus Olímpico (Olimpia, Grecia), menciona la existencia de una cortina de lana, adornada con tejidos asirios y púrpuras fenicias.[7] Esta tela fue donada por Antíoco IV Epífanes, quién también ofrendó la égida dorada con la Gorgona presente en el Teatro de Atenas. En la descripción de Pausanias se comenta que la cortina no se estiraba hacia el techo como en el templo de Artemisa en Éfeso, sino que al contrario descendía al suelo mediante el uso de cuerdas.

Además de servir para decorar espacios sagrados, las cortinas también se emplearon para adornar las estancias palaciegas y los espacios funerarios de las élites más pudientes.[8] Después de las conquistas de Roma de su Oriente, gran parte de las telas bordadas que decoraban las estancias de los dirigentes vencidos, también conocidas como atálicas[9] (por ser las más famosas las telas bordadas de oro del rey asiático Átalo) fueron importadas durante los principados de Augusto y Nerón a Roma.[10] Gracias a Chioffi sabemos que éste fue uno de los periodos en los que circuló un mayor número de estas telas por Roma "una discreta quantità delle *auratae vestes* di cui parla Ovidio (Met. 8, 448: *et auratis mutavit vestibus atras;* cf. 14, 263: *insuper aurato circumvelatur amictu*)".[11] Junto a la Porta San Paolo se conoce la tumba en forma de pirámide de un magistrado romano, Cayo Cestio. La pirámide fue construida alrededor del 18–12 a.C. alcanzando los 37 m de altura por 100 pies romanos de base (29,6 m). Una de las inscripciones halladas en la base identifica a sus herederos, Marco Valerio Mesala Corvino y Publio Rutilio Lupo, el primero un célebre general y el segundo un orador, hijo de un cónsul del 90 a.C. del mismo nombre. En el epígrafe comentan que mandaron erigir estatuas y sus bases en el complejo funerario con el dinero obtenido por la venta de las atálicas propiedad de Cestio. Estas telas fueron expuestas en la tumba por orden testamentaria de Cestio, pero cuya exposición quedó prohibida por culpa de las leyes suntuarias.[12]

Por su parte Plinio se hace eco del gusto por estas telas, llegando a formar parte de competiciones de reconocidos artistas, pintándolas.[13] Esta misma práctica se usó para decorar las escenas teatrales, usándose cortinas pintadas donde se representaban situaciones propias de la representación.[14] En este contexto, es conocido de sobras el uso de cortinas de gran tamaño a modo de telón en el escenario para que pueda bajarse y subirse.[15]

En paralelo, son varias las referencias literarias que comentan el empleo de las cortinas como diferenciador de espacios. Así, pudieron usarse para distinguir entre las diversas estancias internas de la *domus,*[16] a modo de puertas[17] y/o como parasoles.[18] El empleo de cortinas interpuestas generó espacios reservados, ocultos, donde escuchar chismes y secretos. Quizás una de las momentos más celebres fuese protagonizado por Agripina, quien aprovechaba para mantenerse escondida detrás una cortina en las reuniones celebradas por los miembros del Senado en el palacio del emperador, presumiblemente en la biblioteca-curia de Augusto, según la propuesta de Carandini.[19]

Por último, otro ejemplo de la importancia del análisis de las fuentes literarias para el desarrollo del presente estudio es la novela del Satiricón,[20] donde encontramos algunos pasajes que nos hablan de la presencia de mobiliario textil incluso en ambientes como prostíbulos o posadas:

Petronio escribe:

En lo que refiere a alfombras:

20. "La esclava que se llamaba Psique extendió una alfombra en el suelo"

40. "Luego, unos esclavos extendieron, sobre nuestros lechos y en el suelo, alfombras en las que había pintados monteros armados de venablos y todo el aparato de una cacería".

Sobre cojines y almohadas:

32. "Admirando estábamos tanta magnificencia cuando a los acordes de una sinfonía apareció Trimalción, conducido por dos esclavos que lo colocaron sobre un lecho formado de pequeños y ricos cojines."
38. "Mira cuántos cojines: si, están todos rellenos de púrpura o escarlata"
78. "Las frecuentes libaciones ya nos causaban náuseas, y Trimalción, aunque borracho perdido, lo notó, haciendo entrar en la sala, para procurarnos un nuevo placer, a un coro; después, colocándose en un lecho de parada, la cabeza apoyada en una pila de cojines exclamó:
– Suponed, exclamó, que estoy muerto, y hacedme una bella oración fúnebre."
134. "Vertí entonces un torrente de lágrimas, me recosté sobre la almohada y tapé mi cabeza con el brazo derecho."

Sobre colchones:

94. "Sin perder instante, ordené a Gitón echarse al lecho y ocultarse entre la ropa revuelta, como en otro tiempo Ulises se ocultó en el vientre de un carnero."

Sobre cortinas:

7. "Se levantó y comenzó a andar ante mí. La reputé adivina; y al llegar en una calleja oscura, ante una casucha vieja, abrió la puerta. – Aquí, debes habitar – dijo."[21]

Y sobre el empleo de mantas:
41. "Creedme, una buena bebida caliente es mejor que una manta"
11. – ¿Qué estás haciendo, hombre honestísimo? ¿Qué? ¿Los dos acostados y cubiertos con el mismo manto?
78. "No se demoró mucho Stico y entró bien pronto con una cubierta blanca y una túnica consular. Trimalción nos las hizo tocar para que viésemos que estaban tejidas de rica lana…"

## La iconografía como fuente de estudio del mobiliario textil

Además de la literatura, la iconografía constituye otra de las fuentes inestimables con las que poder interpretar cómo podían haber estado amueblados los espacios cotidianos internos, privados o compartidos. Ésta complementa visualmente aquellas noticias halladas en las fuentes escritas y colmata las lagunas halladas en la literatura. Podemos, también, encontrar imágenes de jardines o espacios abiertos en los que el mobiliario textil cubre un importante papel.

La pintura pompeyana[22] nos ofrece innumerables ejemplos de escenas convivales, cotidianas y escenas mitológicas en las que aparecen representados un gran número de elementos textiles. Por ejemplo, en el fresco en el que figura la patrona de la casa asimilada a la diosa Venus reposando en una silla de respaldo alto acompañada por Ares, dios de la guerra, mientras son observados por un amorcillo, es evidente el uso de tejidos los cuales en forma de cojines, recrean la comodidad del mueble (fig. 1a). La pintura nos habla también de espacios públicos, como el santuario republicano de Brescia, donde el zócalo que recorre el muro de la sala principal está decorado con una cortina blanca con motivos rojizos (fig. 1b).

Otros soportes iconográficos de gran importancia son los relieves, o bajo relieves. Algunos de ellos escenifican con gran precisión escenas cotidianas en ambientes privados pero también transacciones en tiendas o ambientes de trabajo. Un ejemplo de una escena de vida cotidiana es el relieve de *Maternus* (Colonia, Alemania), donde podemos observar una escena de banquete. La mesa está preparada con un mantel con flecos y la espalda de *Maternus* apoya sobre un cojín a su vez apoyado al respaldo de su lecho convival (fig. 1c).

Son numerosas las escenas figuradas halladas en los pavimentos en mosaico que nos hablan de mitos y de momentos de la vida de los propietarios de la casa. Es el caso, por ejemplo, del mosaico de la villa de La Olmeda (Pedrosa de la Vega, España),[23] en el que a separar la escena principal de aquella en segundo plano son unas ricas cortinas de color verde seguramente bordadas (fig. 1d).[24] Otro famoso ejemplo es el del mosaico parietal de la iglesia de Sant'Apollinare en Classe (Ravena, Italia), en el que observamos columnas del pórtico del *palatium* de Teodorico[25] entre las cuales cuelgan cortinas blancas (fig. 1e). En otras escenas, como aquellas relacionadas con jardines y espacios abiertos, el tejido crea tendones para dar sombra, como es el caso de la escena del pequeño mosaico de Centocelle (localidad cercana a Roma) en el que unos comensales disfrutan de un refresco bajo la sombra de un tendón atado a un árbol (fig. 1f).

Podemos afirmar por lo tanto, que un estudio pormenorizado de las fuentes clásicas, acompañado a un estudio de las fuentes iconográficas podría aportar un conocimiento específico en el campo de la investigación que se ocupa de las formas del vivir de la sociedad romana. Con ello, como ya explicábamos anteriormente, otras ciencias que se están desarrollando en la actualidad, se verían beneficiadas y enriquecerían su labor en cuanto responsables de la comunicación de aspectos de la vida cotidiana del pasado. Ha-




Fig. 1 - a. Fresco pompeyano. Matrona y Ares (Pompeya, Italia).
Fig. 1 - b. Santuario republicano de Brescia (Italia).
Fig. 1 - c. Relieve de Maternus (Colonia, Alemania).
Fig. 1 - d. Mosaico de la Villa de la Olmeda ((Pedrosa de la Vega, España)
Fig. 1 - e. Basilica de San Vitale (Ravena, Italia).
Fig. 1 - f. Mosaico de Centocelle (Roma, Italia).

Fig. 1: 1a–f: Iconografía para el estudio del mobiliario textil.

blamos de ciencias tecnológicas que trabajan en la reconstrucción de ambientes para exposiciones museales y publicaciones didácticas.

## Comerciantes y artesanado textil: Evidencias epigráficas

Al margen de las fuentes arqueológicas, literarias e iconográficas, gracias a las fuentes epigráficas conocemos la existencia de parte de los personajes encargados del comercio textil.

En la epigrafía latina destacan 167 epígrafes relacionables con comerciantes y artesanos vinculados con la confección, elaboración y tintado de telas.[26] La gran mayoría de estos hallazgos pertenecen al Occidente del Imperio romano. Con el fin de ofrecer una imagen de quienes pudieron ser los encargados de la confección y venta de telas para la confección de mobiliario textil destacamos la figura de los *vestiarii, sericarii, purpurarii* y *lanarii.*[27] El grupo más notorio está representado los comerciantes dedicados a la confección de telas y vestidos, los *vestiarii,* con 95 testimonios, muy presente en suelo itálico (*Regio* I/*Latium et Campania; Regio* X/*Venetia et Histria* o *Regio* VIII, *Aemilia,* cf. fig. 3), así como en *Galia* (*Narbonensis et Lugdunensis*) y *Belgica.* En otra línea, el número de epígrafes vinculados con los personajes encargados de la comercialización de púrpura, los *purpurarii,* llega a los 34 testimonios. Con un número similar se conocen 33 *lanarii,* personajes dedicados al comercio y elaboración de lanas. Por último, se conocen 8 inscripciones sobre *sericarii* (*vel siricarii*), el colectivo de artesanos especializados en la confección de uno de los bienes de prestigio más codiciados por las élites romanas, la seda (fig. 2).

Como venimos defendiendo,[28] el mayor número de artesanos y comerciantes de productos de carácter suntuario testimoniados en la epigrafía latina desempeñaron su profesión en la capital del Imperio (fig. 3). En este sentido, casi la mitad de las referencias epigráficas sobre este artesanado especializado en la elaboración y comercialización de textiles del presente colectivo se hallaron en Roma, en contraposición al resto del Imperio romano. La existencia de una élite consumidora agrupada en la capital del Imperio, convirtió a la ciudad en el lugar idóneo para hallar representados a todos los colectivos

Comerciantes y artesanado textil

| | Oficio (agrupado) | | | | |
|---|---|---|---|---|---|
| Provincia/Regiones (grupo) | vestiarii | purpurarii | lanarii | sericarii | Total general |
| Resto del Imperio | 46 | 24 | 22 | 2 | 94 |
| Roma | 45 | 10 | 11 | 6 | 72 |
| Total general | 91 | 34 | 33 | 8 | 166 |

Número de registros 2 46

Suma de Número de registros desglosado por Oficio (agrupado) v/s. Provincia/Regiones (grupo). El color muestra suma de Número de registros. Las marcas se etiquetan por suma de Número de registros. Los datos se filtran en Provincia/Regiones, lo que excluye ignotus.

Fig. 2: Tabla de comerciantes y artesanado textil en Roma y el resto del Imperio.

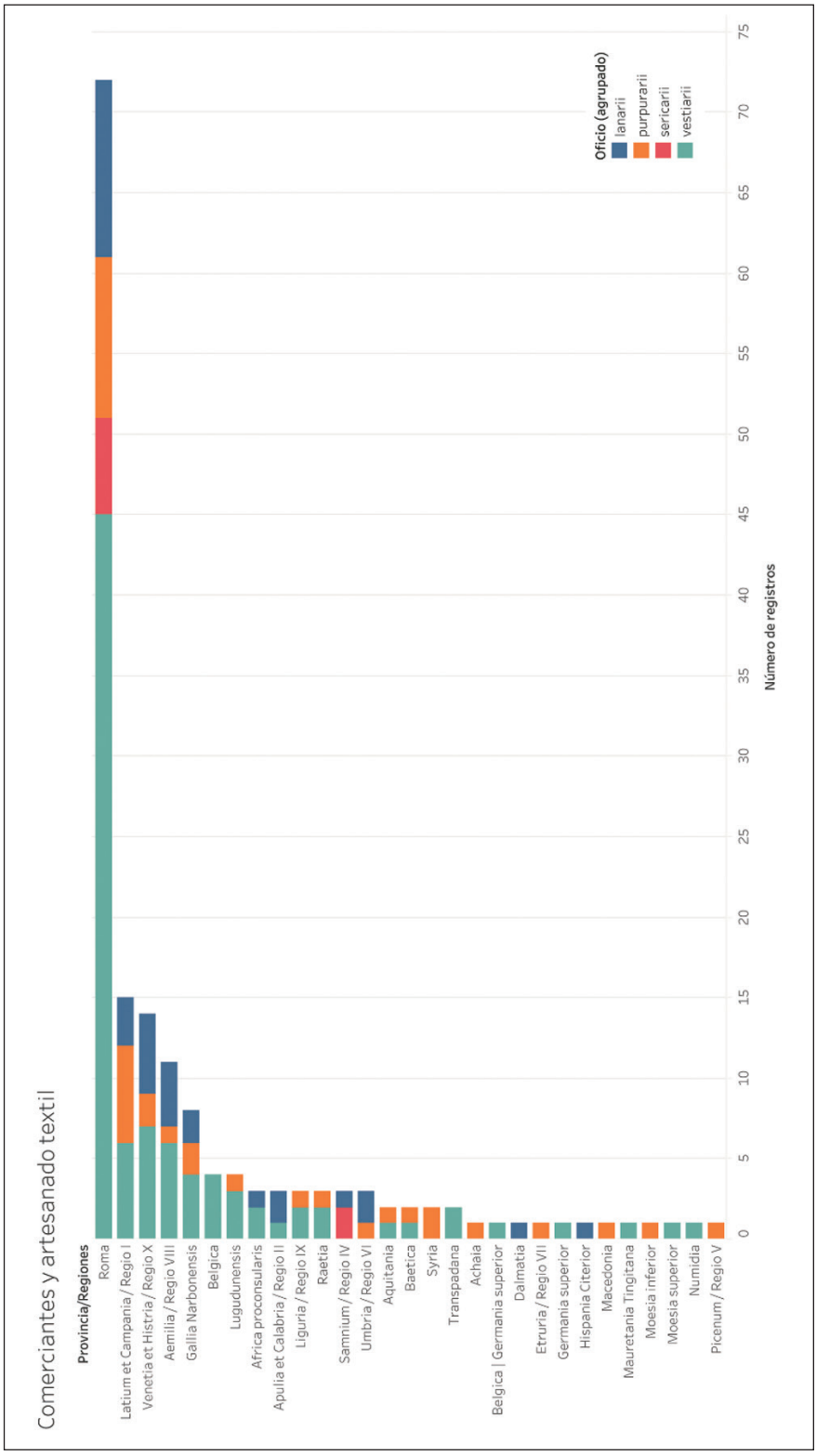



Fig. 3: Relación de comerciantes/artesanos textiles en Roma y el resto del Imperio.

textiles. Junto a ésta élite urbana, el restante de ciudadanos que imitaban los gustos textiles del grupo dominante, convirtieron Roma en la ciudad consumidora por excelencia de las mejores telas y tejidos. Incluso llegaron a agrupar sus negocios entorno a la zona central de Roma, en particular: la *via Sacra,* el *vicus Iugarius,* el *vicus Tuscus* y el barrio del Velabro.

## Notas

[1] Ex 25–26; Ios. Ant. Iud. 3, 122.

[2] Ios. Ant. Iud. 3, 108.

[3] Athen. 12, 54.

[4] CIL 9213. 9214.

[5] Pérez González 2017a, 54–56.

[6] Plin. nat. 13, 18.

[7] Paus. 5, 12, 4.

[8] Ortíz-García 2018, 65–78.

[9] Chioffi 2004, 89–90. 93.

[10] Solin 1982, n. 594.

[11] Chioffi 2004, 92.

[12] Casinos Mora 2015.

[13] Plin. nat. 35, 36, 10.

[14] Amm. 16, 12, 56–57.

[15] Amm. 16, 6, 3; 26, 6, 15; 28, 6, 29.

[16] Amm. 14, 9; Athen. 5, 26.

[17] Petron. 7. En el Satiricón se menciona su uso como punto de acceso a un burdel.

[18] Amm. 28, 4, 18.

[19] Carandini 2014, 239. Carandini 2018, 182–183, tav.10b, D.e.

[20] Rubio Fernández 1978.

[21] La versión italiana habla de una cortina "Dopo un po' arriviamo in una zona fuori mano: lì quello spasso di vecchietta scosta una tenda color birulò e fa: Mi sa che abiti qua". Chiara 2016.

[22] Cfr. Bragantini – Sampaolo 2010.

[23] Palol 1982.

[24] Para el origen y el comercio de los tejidos bordados. Cfr. Fynlaison 2002, 79.

[25] Bendazzi – Ricci 1992, 129.

[26] El dataset de los datos analizados puede descargase de forma libre en el repositorio online Github: https://github.com/JordiPerezGonzalez/Textile-Trade-in-Rome/blob/master/Roma%20epigraphy.xls. Los datos proceden principalmente de las bases de datos Epigraphik-Datenbank Clauss-Slaby (EDCS) (http://www.manfredclauss.de/es/), Epigraphic Database Roma (EDR) (http://www.edr-edr.it/default/index.php) y Epigraphic Database Heidelberg (EDH) (https://edh-www.adw.uni-heidelberg.de/home). Sobre el contenido y uso de las bases de epigrafía latina, véase: Pérez González 2018, 5–16.

[27] Un desarrollo mayor sobre los comerciantes de telas, vestidos y púrpuras en: Pérez González 2017b, 149–194.
[28] Véase la comunicación/trabajo en el mismo congreso de J. Pérez: The Singularity of Rome. The Sumptuary City. En este sentido sobre la disposición de las tiendas y talleres artesanales dedicados al comercio de productos de lujo en Roma, véase: Pérez González 2017c, 143–174.

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# The Performative Clothing in Pre-Roman Italy. Ritual Function of Etruscan Dress among Mediterranean Interactions and Cultural Identity (6th–5th century BC)

**Audrey Gouy**

The representations of ritual performances found in Tyrrhenian Etruria and dated from the 6th and 5th centuries BC enable the identification of a complete repertoire of Etruscan clothes for this period. The studies of Larissa Bonfante[1] distinguished the clothes inspired by the Mediterranean area and those properly Etruscan. My paper proposes an innovative functional and anthropological study in order to stress a cultural definition of Etruscan dress and to focus on its importance as a ritual device. Thus, it is focused on Etruscan dance and representations of body movements in visual art and was built on the results of my PhD, which constituted the first comprehensive study on Etruscan dance and the first 'anthropo-iconological' study of ancient dance by focusing on iconography, non-verbal communication, visuality and phenomenology. It was based on the serial and typological analysis of the Etruscan visual representations of dance and of 2,143 body postures – or *schemata.*[2]

(1) How can we determine clothes had a ritual function, and what was it? My thesis on Etruscan dance highlighted that specific clothes were employed for rituals, and that they were used according to the moments and the functions of the rituals. This brings me to consider them as performative tools. I presented the reliefs from Chiusi and the tomb paintings from Tarquinia where we can see that specific types of dance were always carefully selected, as well as specific moments of dance, and most of the time final moments of these dances. This helps to understand the different phases and sequences of each kind of dances. Additionally, it is possible to argue that the orgiastic dance is very often the kind that is selected and represented, and the culmination point of the dance is most of the time the moment chosen to be depicted. This culmination point is indicated by the body postures (legs wide open and jumping, arms raised, mantle knotted around the females' chest or waist). It is usually argued that all the feminine figures wearing the long *chiton,* the mantle on the shoulders and the conic hat, that we call a *tutulus,* are aristocratic women. A new study of these feminine figures and of their clothes invites an argument for a different interpretation. It seems indeed that these figures appear in specific phases of the dances, and seem to have had a specific role compared to the other female dancers. Rather than an aristocratic status, I suggest they had a powerful ritual function, highlighted by the clothes. Further, that these particular figures were in charge of the ritual's opening, while others figures, e.g. those wearing two overlapping tunics, were in charge of the ending.

(2) Consequently, it questions the actors' status in rituals. It is possible to draw differences of clothing between performers and thus their different functions during rituals. In consequence, the clothes are understood as propitiatory ritual devices. On this

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point, the female castanet player is of primary importance. While all the female dancers have the same clothes, this figure wears significantly different clothes and often appears in representations of dance. She appears as marginal, wearing a long and transparent *chiton,* on which a short *chiton* is placed, red, and sleeveless. Moreover, this figure is interesting because she does not appear only in representations of dance, but also in representations of sports performance. The sound of her castanets was resonating and thundering. So she might have had the function to raise and increase the pressure and the suspense. In orgiastic dance performances, the aim of this castanets player was to increase the effects of wine consumption, and to help the dancers to access another state of consciousness, certainly a state of trance.

(3) Finally, the differences of use and clothing between imported textiles from the Mediterranean area and those Etruscan have been analysed. It seems that the ritual function of clothes is defined by their geographical origin, their colours and motives. If buying clothes far from Etruria reinforced their marginal and thus their ritual function, and if the ritual function of clothes was defined by their geographical origin, it possibly created a ritual trade. This point dealt with aspects of identity and cultural interactions.

## Notes

[1] Bonfante 1975.

[2] Catoni 2005.

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# Fashion or Function? Costume, Colour, and Cultic Codes. Clothes in the Great Dionysiac Fresco in Villa of the Mysteries, Pompeii

**Torill Christine Lindstrøm**

## Introduction

*The Great Dionysiac Fresco*

The great fresco in a *triclinium* in Villa of the Mysteries was painted around the middle of the 1st century BC, according to Maiuri, the villa's main excavator (fig. 1).[1] More precisely, it was painted between 60–40 BC according to Barbet.[2] Gazda[3] concludes that the majority of researchers now seem to have most confidence in Maiuris' and Barbets' datings, namely that the Fresco was painted sometime between 60–40 BC. The fresco is a megalography, according to the criteria by Vitruvius[4]; and painted in Style II, phase 1b, according to Beyen.[5] The fresco covers all four walls of the dining-room, and



Fig. 1: The triclinium of the Great Fresco in Villa of the Mysteries.

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is a contingent cycle, although broken up by a large window on the southern wall, the large entrance to the room on the western wall, and a small door-opening in the north-western corner.

The villa the fresco is located in is commonly called "Villa of the Mysteries", and the fresco is likewise commonly called "the Dionysiac Fresco". However, both these names rest on the interpretation that the fresco has a Dionysiac content, and perhaps shows Dionysiac mystery-cult ceremonies, such as initiations. However, these interpretations have been highly disputed in almost 100 years since the fresco was discovered and uncovered.

*Cultic Motifs in the Fresco?*

The fresco has been given numerous interpretations. All recognize the Dionysiac elements, but their implications have been variously interpreted. The most salient interpretations are that the fresco shows Dionysiac initiations and mystery-rites.

And indeed, the Dionysiac content of the fresco is obvious, both with regard to persons and objects: Dionysos himself resides in the central part of the fresco, two Silenoi and four satyrs are easily identifiable, and a maenad (although she is somewhat different from most depicted maenads). Further, the presence of two *thyrsoi,* a *liknon,* a torch, and a shrouded *phallos* also indicate a Dionysiac content. These elements have been taken to support the hypothesis that the fresco shows cultic activities, primarily Dionysiac initiation and mystery-rites. Some of the main classes of interpretations are: Dionysiac initiation and mystery-rites,[6] hieros gamos,[7] religious education in these connections,[8] scenes of divination,[9] bridal preparation and prenuptial initiation.[10] Many interpretations are mixtures of these themes.

These interpretations have been mainly based on data from the persons in the fresco, their behaviours, certain objects in the fresco, and compositional characteristics of the fresco, and the frescos' references to Dionysos, his mythology and rites. However, Dionysiac motifs were among the most popular motifs in art at the time when the fresco was painted, both locally in Pompeii and generally in Campania, so one cannot conclude with certainty that cultic activities were painted in this fresco on the basis of the motifs alone. The data regarding the identity of the persons, their behaviours and objects are definitely relevant; however, the Fresco contains other classes of data that are still poorly explored and interpreted. One of them is the textiles, particularly the clothes.

*Characteristics of Cultic Costumes*

Various kinds of "priests", from shamans to popes, as well as their assistants and attendants, wear costumes that are particular for their role, status and ceremonial service in the cult. Cultic costumes have certain properties.[11] Cultic clothes usually contrast the contemporary "fashion": Their style is often old-fashioned or foreign, or both. When they are old-fashioned, it is related to the age of the religion; when foreign, it is related

to the origin of the religion. Cultic costumes also have cultic codes: symbolic colours, patterns, ornaments and accessories; and they tend to be uniform and standardized. If it is so that the fresco's content is cultic, and shows people engaged in cultic activities, one should expect to see the person dressed in cultic clothes. – So, the question is: Are there any indications that this fresco contains persons dressed in cultic costumes? And if so, or not, what consequences can that have for the interpretation of the fresco? – In this analysis, I will first analyze the clothes worn by the persons in the fresco with regard to the following criteria for cultic costumes: age, origin, uniformity and particularly colours. Secondly, I will try to connect this information to the persons' behaviours and possible roles.

*Data: Costumes, Colours and Colour-combinations*

Garments in the fresco are presented in Table 1. Of the 29 human or divine persons, 27 can be data-registered. On 2 the paint is destroyed and the colours unclear. Of the remaining 27 figures, 2 are completely naked, leaving 25 figures that are dressed or semi-naked. (The Chi-square-analysis is based on these 25 persons.)

Distinctly Greek clothes, a *chiton* and a *peplos,* are worn by 2 persons (fig. 2). 7 other persons can also be regarded as "Greek" since they are Silenoi (2), satyrs (4) and Dionysos himself, but their clothes do not have any distinct Greek features. Of these, 3 satyrs

Table 1.

| PERSONS | white tunica | purple border | yellow palla purple border | white shawl purple border | light purple | purple tunica/stola | purple palla | Greek garment | fur |
|---|---|---|---|---|---|---|---|---|---|
| P 1 Woman standing/walking | | X | | X | | | | X | |
| P 2 Boy reading | | | | | | | | | |
| P 3 Woman seated next to reading boy | X | X (?) | | | X | | | | |
| P 4 Woman carrying object | X | | | | | | X | | |
| P 5 Woman bending, holding object | X | X | X | | | | | | |
| P 6 Woman sitting, seen from behind | X | X | | X | | | | | |
| P 7 Woman pouring liquid from a jar | palla | | | | | X | | | |
| P 8 Man with lyre (Silenos) | | | | | X | | | (X) | |
| P 9 Boy with syrinx (satyr) | | | | | | X | | (X) | X |
| P 10 Boy or girl with fawn /(satyr) | | | | | | X | | (X) | X |
| P 11 Woman running | | | | | | | X | X | |
| P 12 Man sitting, holding bowl (Silenos) | | | | | | | X brownish | (X) | |
| P 13 Man bending over bowl (a satyr?) | | | | | | | | (X) | X |
| P 14 Man standing, holding mask (satyr?) | | | yellow only | | | | | (X) | |
| P 15 Man reclining in woman's lap (Dionysos) | | | | | X | | | (X) | |
| P 16 Woman sitting, holding P15 | X | X | | X | | X | | | |
| P 17 Woman kneeling, arms towards object | X | X | X | | | | | | |
| P 18 Woman standing behind P17 | - | ? | - | - | ? | | - | | |
| P 19 Woman standing close to P18 | - | - | yellow only ? | - | - | | - | | |
| P 20 Woman winged, holding whip | | X | X | | | | | | |
| P 21 Woman kneeling over a woman's lap | | | | | | X | (?) | | |
| P 22 Woman sitting with P21's head in her lap | X | | | | | | X | | |
| P 23 Woman standing, holding thyrsos | | | | | | X | | | |
| P 24 Woman dancing | | X ? | yellow only ? | | | | | | |
| P 25 Boy winged, holding mirror (an eros) | | | | | | | X belt&cloth | | |
| P 26 Woman looking at mirror | X | X (?) | | | X | | | | |
| P 27 Woman sitting, doing her hair | X | X | X (light) | | | | | | |
| P 28 Boy winged, holding a bow (an eros) | | | | | | | | | |
| P 29 Woman sitting | X | X | X | | | | | | |

Table 1: Types of clothes worn by the persons in the fresco, and their colours.




Fig. 2: The two distinctly Greek garments.

wear fur (fig. 3), 2 of them wear fur over a purple tunica (or *chitoniskos,* the Greek parallel to *tunica*). 10 persons wear white *tunicae,* and 6 wear purple *tunicae* (tab. 1). A *tunica* was primarily an undergarment. 3 wear a purple *palla* and 1 a purple belt; 8 persons, possibly 12, have a purple border (*clavus*) on their clothes (tab. 1).

There are two kinds of white, one very bright (on shawls), and one more off-white (mostly on *tunicae*). So, there are only 2 chromatic colours on the clothes: purple, (in dark and light variants) and yellow. 4 persons are dressed in light purple (fig. 4, lower part). 4 persons are mainly dressed in deep purple (fig. 4, right part). There are 3 colour-combinations in the garments: Purple and white clothes in combination (white *tunica* and purple *palla*) are worn by 4 persons (fig. 4, upper part); purple borders on yellow garments (*pallae*) are worn by 5 persons (fig. 5, upper part); and purple borders on white shawls are worn by 3 persons (fig. 5, lower part). In addition, there are two cloths that may also be yellow with a purple border (fig. 6). The dancing woman wears one of them, the other lays folded over a woman's lap, and might also be a garment. However, since the data from these two are unclear, they are not included in the further analysis.



Fig. 3: Three persons wearing fur.

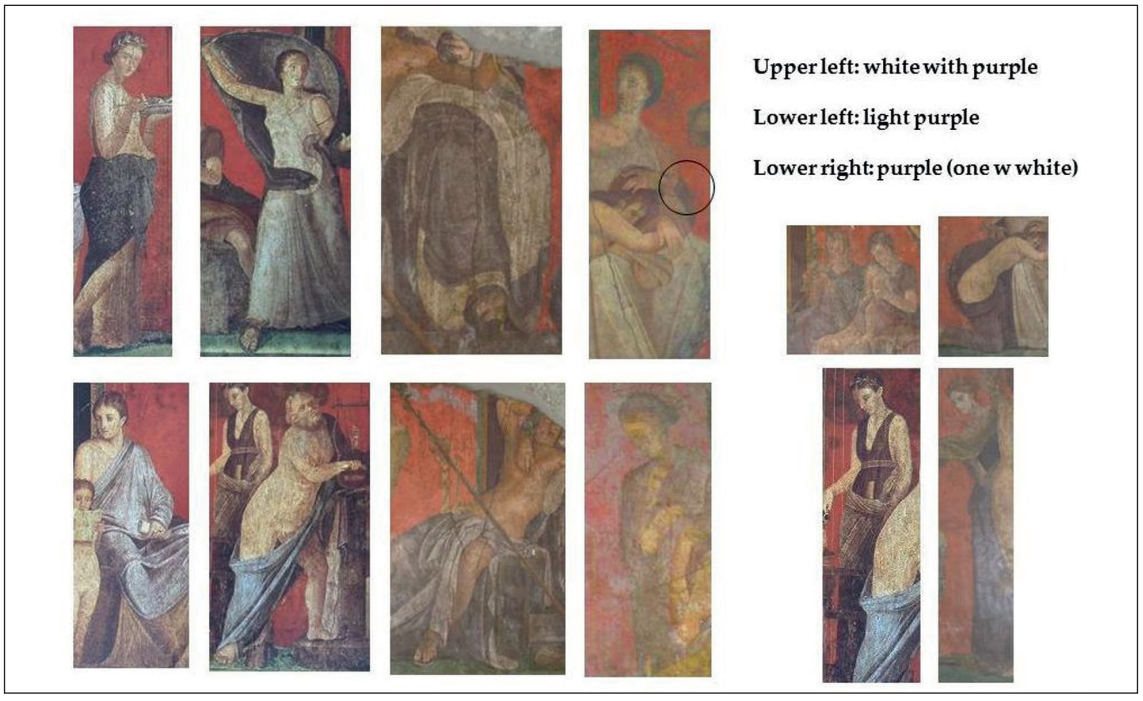



Fig. 4: Characteristic colours and colour-combinations in the clothes in the fresco: Light purple (lower part of fig. 4), mainly deep purple (right part), deep purple and white (upper part).

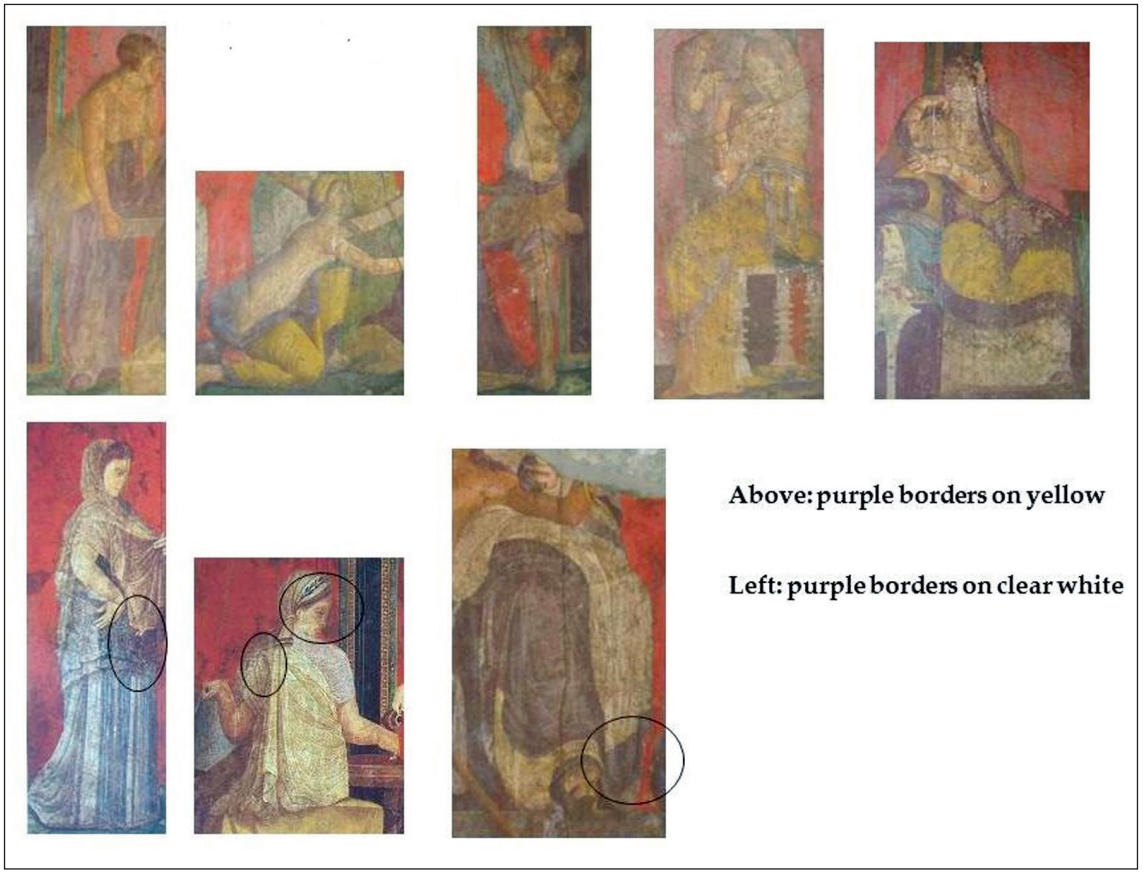



Fig. 5: Characteristic colours and colour-combinations in the clothes in the fresco: Purple borders on yellow fabrics (upper part of fig. 5), purple borders on white shawls (lower part).

In order to test whether the colour-combinations in the clothes could be arbitrary or not, a Chi-square test (2-tailed) was done with N = 25, 6 possible (theoretical) combinations of: purple, yellow, white, and clear white, and with 5 degrees of freedom (6 theoretical possibilities minus 1), and I used a two-tailed test. The result was: Chi-square: 12.50 with P-value < .03. This means that there is less than 3% chance that the repetitive colour-combinations in the clothes in the fresco were arbitrary, and 97% likely that they were intended.



Fig. 6: Other possible garments with yellow and purple colour-combinations.

## Discussion

Are there any indications of cultic costumes in the fresco? Are the criteria for cultic costumes, old age, foreign origin, uniformity, and particular symbolic colours, fulfilled?

There are two distinctly Greek garments in the fresco, a *chiton* and a *peplos.* Motifs from Greek mythology were common in paintings in Roman (Pompeiian, Campanian) contexts, but one could say that the Greek clothes in this fresco are "foreign" in the sense that the persons wearing them are without any clear thematic reference to Greek mythology. This type of *chiton* was old-fashioned even in Greece when the fresco was painted. So, there are two distinctly foreign costumes and one of them is also old-fash-

ioned. The Greek connection is obvious if the fresco is Dionysiac. Dionysianism was most probably Thracian and Greek in origin, and was a very ancient cult, with antecedents as early as in Minoan Crete.[12] So these two costumes fit the two first criteria for cultic costumes: they are foreign and old-fashioned.

Cultic costumes have semantic, symbolic features. Colours are one of them. The colours convey symbolic information. The question is: Do the colours and the colour-combinations on the clothes in the fresco convey any symbolic significance?

The result from the Chi-square test is very significant: The colour-combinations were deliberately chosen. Further, the restricted range of colours in the garments, white (in two hues), purple (in two hues) and yellow, also seems deliberately chosen. The clothes in Roman paintings are usually quite colourful and varied. Here, the two only chromatic colours are purple and yellow. It is significant that both have particular connections to Dionysos. Dionysos was the god of wine (among other things). Purple is the colour of wine, and may thus symbolize Dionysos. Yellow is also particular to Dionysos, as he is described as wearing saffron yellow by Aeschylos[13] and Aristophanes.[14] In addition, yellow and purple were among the most exotic and expensive colours one could have on textiles. Genuine saffron yellow (*crocum*) was extracted from the stamens of crocus or lotus flowers,[15] and genuine purpur (*purpurea*) was made from murex snails from the eastern Mediterrenean.[16] Clothes in these colours (but not their cheaper imitations) were exclusive. – So, the purple and yellow colours are symbolic in two ways. The light purple clothes, the clothes in dark purple, the dark purple clothes in combination with white, and the dark purple border on yellow *pallae* or on white shawls, are so repeatedly found throughout the fresco, that I will say that they show clothes that are uniform and standardized. So, also in that respect, and supported by the statistically significant Chi-square result, they meet the criteria of cultic costumes.

A tentative suggestion regarding cultic roles, primarily on the basis of the colours on the garments, could be the following: Light purple costumes might refer to roles as teachers. That colour is worn by a woman who supervises a little boy who is reading, by Silenos who was Dionysos' teacher, by Dionysos who brought culture and taught people how to make wine, and by a woman who takes divinations from a mirror and instructs them to the woman who is doing her hair. All these four have some role of being a teacher or an instructor.

The white shawls with purple borders are apparently worn by very prominent women with particular positions in the fresco: by the woman who "starts" the fresco-cycle and wears the foreign and old-fashioned *chiton,* by a woman frequently defined as a priestess since she is the major person in some behaviour involving, at least, two other women, and by Dionysos' female partner. It is also significant that the woman called "a priestess" sits on a piece of furniture that is covered by a cloth which is yellow with a purple border (fig. 7), just like the *pallae* of 5 other women (fig. 5, upper part).

The yellow garment (*palla*) with a purple border (*clavus*) seems to be worn by persons who perform particularly important activities, and thus have important roles. One

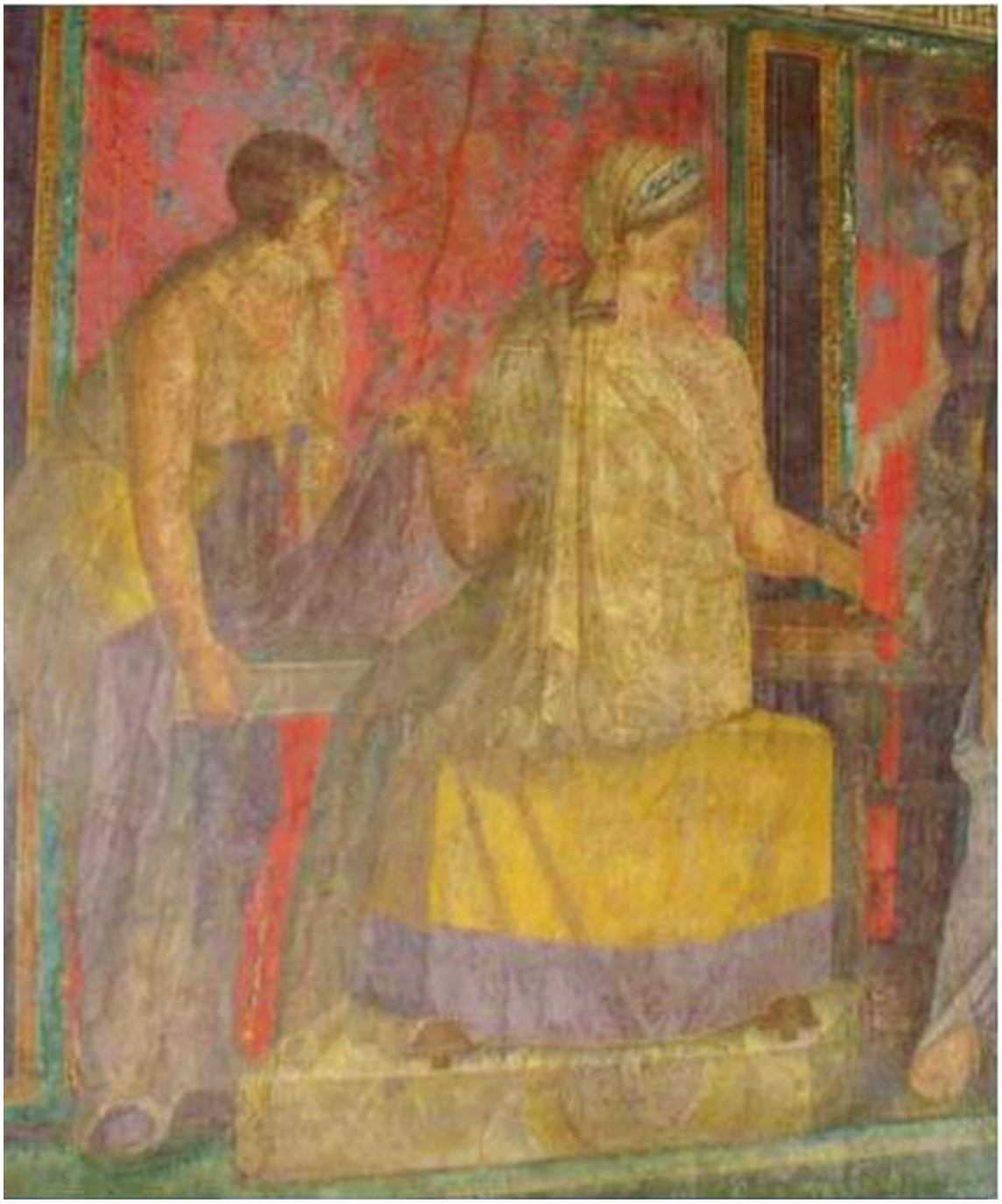


Fig. 7: Other paintings with persons wearing yellow garments with a purple border.

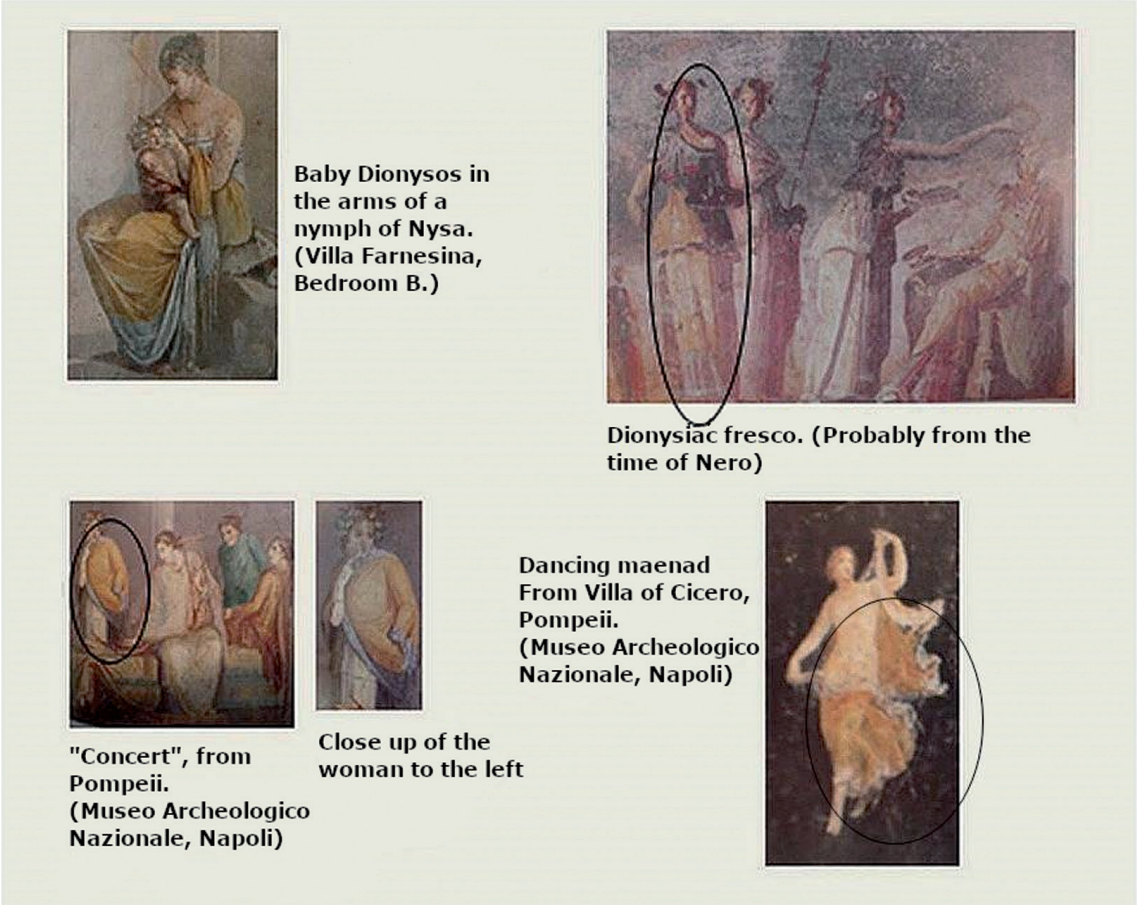



Fig. 8: A piece of furniture covered by a cloth, which is yellow with a purple border.

assists the woman who sits on the above mentioned yellow-and-purple cloth, one is surrounded by or handle typical Dionysiac objects (torch, shrouded *phallos,* and *liknon*), one swings a whip, one is being dressed in the manner of a bride (but in the wrong colours), and finally, one sits somewhat solemnly, alone, and fully shrouded in a yellow *palla* with a purple border. She looks back towards, and "ends" the fresco-cycle. – These costumes are convincingly cultic. There is also comparative evidence to connect the yellow garment with a purple border to Dionysos. Other paintings show women dressed in such garments, several of them in clear connection to Dionysos (fig. 8). One is the nymph Nisa (Nysa) holding baby Dionysos in her arms, one is a ceremonial scene where women puts a wreath on Dionysos' head, and one is a dancing maenad (bacchant). The last picture in fig. 8 is not necessarily Dionysiac, it is called "The concert" (in the Museo Archaeologico Nazionale in Napoli). But the woman wearing the yellow-and-puple *palla* in this painting has a wreath on her head, and music was in many ways associated with both Dionysos and Orpheus. They were closely linked in Orphic-Dionysiac mystery cults, so there might be a link also here.

Yet, what roles and functions the clothes in the fresco might signify are very hypothetical. The Dionysiac mystery-cults were secret. Only the initiated fully knew their symbols, rites and roles. Still, some information has come down to us: Some are negative and critical, such as the "Senatus consultum de Bacchanalibus" from Roma 186 BC[17] and religious texts by Clement of Alexandria[18] and Firmicus Maternus.[19] Others are positive, and written by Dionysiac cult-members themselves, such as the "Rule of the Iobacchoi" from Athens (178 AD),[20] and the Torre Nova inscription from outside Roma (160–170 AD).[21] The Torre Nova inscription mentions a list of functions and roles. Among others: priests, priestesses and a hierophant (dealing with initiation), people who should carry various sacred objects such as: torch, *cistae, liknon, phallos,* flames, and even a god-bearer; but also more mundane roles such as: neatherds (shepherds), a financial administrator, and an instructor of adolescent members. Although the inscription is somewhat vague regarding the status of these various roles, it is reasonable to expect that there were hierarchical differences in status. The teacher-role I suggested above matches with the "instructor of adolescent members" in the Torre Nova inscription. The satyrs wearing fur in the fresco could represent the *Apo katazoseos* ("those who girded themselves with the skin of a newly sacrificed animal"). That the Fresco contains a torch, a *liknon* and a *phallos,* makes the existence of "bearers" of these objects, or at least "handlers" of them, likely; and they may be present in the fresco. The Torre Nova inscription explicitly states that such objects were carried, – possibly in processions. – But a word of caution: all these suggestions regarding possible roles indicated in the fresco, are only tentative suggestions. They are not conclusive.

Actually, whether the fresco shows real people involved in cultic behaviours, divine mythological beings, or both, is still disputable. The fact that theatrical processions, costume-wearing and role-play were common in Dionysiac cultic activities,[22] makes the fresco ambiguous. For instance, the satyrs in the fresco could simply be satyrs, or could be human persons dressed up as satyrs. The same holds for the other divine beings in the fresco. – And, finally, most importantly, one must acknowledge that such intricate and subtle ambiguity was indeed very typical and characteristic of Roman painting.

## Conclusion

The fresco contains two definite foreign costumes, and one of them is old-fashioned. The colour combinations in the clothes in the fresco were not arbitrary, but deliberately chosen. The number of chromatic colours was only 2, purple and yellow, which were both very expensive dyes, and had clear symbolic connections to Dionysos. In general, the limited number of colours used and their similar arrangements and combinations indicate that the clothes were uniform, standardized costumes. The final conclusion is therefore, that the clothes worn by the persons in the fresco in Villa of the mysteries in Pompeii fulfil the criteria for cultic costumes. They are cultic costumes with particular

symbolic colours and colour-combinations. They convey symbolic, cultic codes that refer to various cultic roles and offices within a Dionysiac cultic society, a *thiasos*. With regard to the general interpretation of the fresco, I will conclude that: The fresco either shows or refers to Dionysiac cultic activities, and the fresco does indeed deserve its name: The Dionysiac Fresco.

## Notes

[1] Maiuri 1964, 100.
[2] Barbet 1985, 37–40.
[3] Gazda 2000, 13.
[4] Vitr. 7, 5, 2.
[5] Beyen 1938.
[6] Kerényi 1948, 1976; Herbig 1958; Maiuri 1967; Seaford 1991; Sauron 1998, and others.
[7] Comparetti 1921; Bieber 1928; Toynbee 1929; Nilsson 1957; Isler-Kerényi 2009, and others.
[8] Turcan 1995.
[9] Mudie Cook 1913; Macchioro 1920; Kerenyi 1948; Matz 1963; Gallistl 1995; De Grummond 2002, and others.
[10] Houtzager 1963; Zuntz 1963; Brendel 1966; Eitrem 1968; Little 1972; Veyne 1998; Kirk 2000; Mielsch 2001, and others.
[11] Lindstrøm forthcoming.
[12] Kerényi 1976; Adams 2005.
[13] See Sommerstein 2015.
[14] See Dover 2018.
[15] Bradley 2009, 184.
[16] Bradley 2009, 200–202.
[17] Grant 1957.
[18] Smith 1973.
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# Making Value and the Value of Making: Theory and Practice in Craft Production

**Panel 6.4**

**Organized by**

**Helle Hochscheid – Ben Russell**

# Making Romano-British Glass Bangles: Inside the Craftsperson's Mind

**Tatiana Ivleva**

The main aim of the paper is 'to bring the makers out of the shadows and to celebrate the creativity of their achievements'.[1] This case-study concerns Romano-British glass bangles, seamless ring-shaped adornments made of coloured glass. A maker of these glass bangles is placed at the centre of attention to allow them to tell their stories of how knowledge of making a glass bangle can grow and what this growth tells us about the craft itself.

To achieve this, the author has worked with an experienced glass artisan, Connor Garton from GartonGlass, who was commissioned to make replicas of Romano-British glass bangles. The questions addressed were: a) what does the maker of a replica of an archaeological artefact have to stay about how he experienced the production of a glass bangle; and b) as the craftsman had never before produced a seamless glass bangle and only attempted it with the author's guidance, how might his experience inform us about training of craftspeople and the craft development in Roman Britain?

Glass bangles appeared in Britain in the mid-1st century AD, coinciding with the Roman conquest of the southern regions of England. Prior to the Roman invasion, Britain had no history of seamless glass bangle production, although on the continent glass bangles had been in circulation already for two and half centuries.[2] Romano-British bangles are usually divided into three main types based on the colour of their glass core and the colour of the applied decoration.[3] The objects occur predominantly in north-eastern England and southeastern Scotland.[4]

Various ethnographic studies have provided clues to how a glass bangle can be made seamlessly.[5] The information from these studies was used by a French team that tried to replicate Late Iron Age glass bangles by following a number of the techniques currently known.[6] The experimental research and application of scientific techniques showed that the method most likely used was winding and stretching with the help of two iron rods or pontils.[7]

Equipped with this information, Connor Garton made numerous attempts to reproduce the Romano-British glass bangles; however, this technique, which was seemingly easy in theory, was difficult to replicate in practice (fig. 1). In essence, the provision of necessary information did not guarantee that the knowledge was easily replicated. The technique of winding and stretching is easier to see and describe than it is to execute. Instead, Connor found he had to follow the material at hand and not impose onto the material the form and knowledge that was offered to him. He had to work things out as he went along, following the rules and guidance of the glass, and the constraints laid down by the material itself rather than following procedures precisely laid down in advance by someone else.

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Fig. 1: Misfires of glass bangles produced with the winding and stretching technique.

The failure to replicate, however, has provided compelling insights into the process of making a glass artefact in the past. Most likely the makers of glass bangles in Roman Britain had to follow the material and learn from it as well. Trial and error would have been key and indeed attempts to produce a seamless glass bangle with insufficient skill or poor knowledge of the material has been detected for at least 12 fragments found on different sites breadth and length of Britain. Moreover, it became clear that the craft of bangle making in Roman Britain did not develop in a progressive sequence – with bangle production continually improving across the province; instead, the craftspeople responsible and the craft itself went through multiple phases of self-discovery, learning by doing, trial and error, with knowledge probably spread via a system of apprenticeship that was necessary highly localised. These processes were not confined to one place or one workshop but rather occurred simultaneously in various Romano-British regions. This underlines that the development of craft does not follow a linear sequence but very much depends on the developing knowledge of the craftsperson involved in the making process.

## Notes

[1] Ingold 2013, 22.

[2] Haevernick 1960; Gebhard 1989; Wagner 2006.

[3] Kilbride-Jones 1938.

[4] Ivleva 2018, 2 and fig. 4.

[5] Korfmann 1966; Rolland et al. 2012.

[6] Rolland – Clesse 2014.

[7] Video on the production of Late Iron Age Continental glass bangles by experimentation can be accessed here: <https://www.youtube.com/watch?v=IoW19SkpxLY> (accessed 12. 09. 2018).

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Fig. 1: T. Ivleva.

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# An Agent Based Model to Detect Variations in the Transmission of Potters from Baetica Province

**María Coto Sarmiento – Simon Carrignon***

Patterns of variability found in amphora production can help us understand the mechanism of social learning used in teaching individuals how to make amphorae. For instance, some differences can be detected in the production technique through time and space that might explain different degrees of cultural transmission.[1] Traditionally, we detect three modes of transmission: vertical, horizontal and oblique. Vertical is when techniques are transmitted from parents to offspring; oblique from individuals of one generation to unrelated individuals of the next generation and horizontal between individuals of the same generation.[2] In archaeology, cultural transmission has been used for studying the production of handmade pottery.[3] In our case, we want to know if the modes of transmission could be similar to a more standardized pottery production process typical of the Roman period.

The goal of this study is to analyze the transmission of technical skills among potters within Baetica from the 1st to the 3rd century AD. We propose two questions: first, how amphora production was organized and second, if it would be possible to establish how the production techniques spread from generation to generation. Difficulties in answering these questions are the lack of relevant written sources and uncertainty in the data. To remedy the latter, we use concepts from an evolutionary framework, in order to study the impact that social learning processes may have had on pottery production. Specifically, we want to identify if the differences in the amphorae might reflect differences in the transmission of learning due to the distance between workshops. To do this, we test two hypotheses: 1. the variability in the morphometric traits is correlated with the geographical distance (closer workshops have more contact) and 2. techniques are only transmitted by vertical/oblique transmission at the beginning (from masters to disciples).

In our study, we analyzed more than 400 samples of olive oil amphorae (Dressel 20) from five different workshops. In each amphora, we measured eight different positions on the rim. We calculated the mean of each measurement for all workshops and the standard deviation of this mean for each workshop. We propose here an Agent Based Model that implements a mechanism of pottery production subject to different social learning processes or cultural transmission modes. Our goal is to quantify which one of these learning processes might explain the distribution observed in our dataset. For the model, we will take into account the two measurements with the highest variation (H and D).

We define five workshops sharing the same production techniques. Each workshop produces amphorae and changes their production techniques by modifying their own techniques VT (Vertical/Oblique Transmission), or copying one from another workshop

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HT (Horizontal Transmission). We designed three models to test this influence: Model 1 is when VT is the predominant mode of transmission. The probability of copying between workshops is 0. For instance, workshop A and workshop B produce the amphorae but they do not share techniques because there is no contact between them. Model 2 combines HT and VT (HT+HV(d)). The probability of copying is proportional to the geographical distance. For example, two closer workshops, which produce amphorae, will share more similar traits than more remote workshops, like C. In this case, distance will be taken into account in the design of the model. In Model 3, the probability of copying is equal between all workshops. The amphora produced by any workshops will likely share similar traits because workers can copy techniques from any other workshop. Hence the distance is not relevant.

For each model, we ran 200 simulations lasting 30,000 time steps. At the end of the model we measured the variation between all the workshops for our two measurements of interest as we did with the empirical data. The results can be seen in Fig. 1. The vertical red line represents the variation measured in the real dataset. The largest variation was located in the Model 1 (VT) instead of Model 3 (VT+HT) where the variation is lower than our dataset. By contrast, Model 2 (VT+HT (d)) shows similarity with our dataset (red line).

As preliminary results, the agent-based model allows us to quantify how different transmission mechanisms may impact the variation of the amphora production. In the

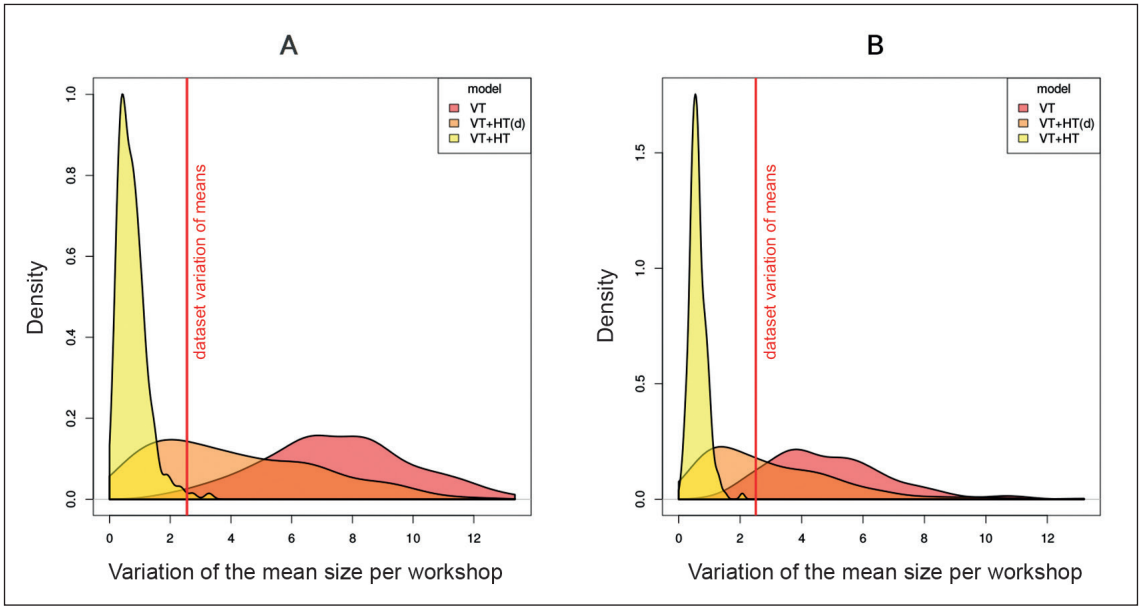



Fig. 1: Results obtained by simulation is given in VT (Model 1), VT+HT (d) (Model 2) and VT+HT (Model 3). Red line correspond to the variation of the results of the mean in our dataset. Image A is the measurement D whereas Image B is the measurement H.

case of the model where VT dominated, the variation was higher: the techniques diverged more due to the isolation of the workshops where potters produce amphorae with their different techniques. By contrast, when the transmission was not correlated with spatial distance (HT), the variation was lower because all the workshops tend to use the same techniques to produce amphorae. The dataset corresponds most to Model 2 (VT+HT (d)) when the distance is correlated. The results of Model 2 show that simply adding a cost to social interaction proportional to the distance between workshops allows the variation to be kept lower than when no interaction occurs, but enough to correspond to what is observed in the dataset.

Empirical studies and the Agent Based Model show that variability is correlated with geographical distance: the similarity of the traits increases or decreases depending on the geographical distance among the workshops. The results suggest that the similarity in morphological traits are produced by continuous contact between the closest workshops, as is the case in Model 2. This could be explained by the fact that pottery techniques were learned from master to disciple at the beginning, and these potters were exchanging their techniques with the nearest workshops. By using the model presented here, a strong baseline can be set for the exploration of transmission processes related to large-scale production.

## Notes

* María Coto Sarmiento: PALAEOSILKROAD project, Universität Tübingen; Simon Carrignon: McDonald Institute for Archaeological Research Cambridge University

[1] Eerkens – Lipo 2005.

[2] Cavalli-Sforza – Feldman 1981; Acerbi – Parisi 2006.

[3] Neiman 1995.

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# Crafting as Making, Thinking and Being (together)

**Ann Brysbaert**

Part of human nature is to make. Today, 'crafting' can evokes a messy DIY shed visited on weekends by 'the guys' while 'the girls' meet in knitting clubs, thus engendering activities that seem to affirm classical masculine and feminine identities. In reaction, the 'Do It Together' (DIT) movement emphasizes the collaborative character of crafting, undoing some of the gender codes. This movement believes that anyone can reverse-engineer to find out how something is made. Fab Labs and Fab Academies link people of all ages and backgrounds world-wide with the common interest in making things and turning ideas into material realities. Their actions strongly resemble craft activities, not in how crafts are traditionally understood, but as Richard Sennett describes them: a craftsperson as maker *and* thinker.[1] Both form a unifying process, in which crafting is exploring, problem-finding and -solving, and a social process. Crafting becomes the making of personal self-identity and citizenship, whether the craftsperson is an architect, gardener, or seamstress.

Adamson's definition of craft allows us to draw connections across a much wider range of activities than only the 'crafts' themselves.[2] Crafts are 'a set of concerns that is implicated across many types of cultural production: a pervasive, 'everyday' activity, implicated in the contingent flux of life'. Similar to 'cross-craft interaction', past or current crafts, their material outcomes, and aligned social practices do not stand on their own. Instead, they are interlinked at any given stage, through material acquisition, any part of their production lines, consumption, reuse and recycling, and final discard.

Crafting is a thoroughly embodied social practice: artisans being there with their entire being, *and* a as practice that connects. Crafting is about making, thinking, and about 'being': 'The action of making *and* its outcome *connect:* they connect people, materials, places, communities, landscapes, and generations. And, as handmade objects were touched, manipulated, hammered, thrown, blown and carved by human hands and, in being joined up, they become the story as they gather time.[3]

Recording objects' minute details enables us to reconstruct their biographies imprinted in their material make-up or break-down. In investigating workshops we aim to provide a realistic picture of what took place there, even if this does not fit existing interpretations.[4] Such socially-informed studies illustrate a larger compatibility with the complexity of people's existence with each other and materials. In studying objects and features from both empirical and social perspectives, we may weld technologies, meanings, practices and histories together into meaningful contextualized narratives about people's past lives where spatial and temporal aspects play their own interlinked role. Gauntlett's (2011) understanding of making as being creative while sharing and collaborating is thoroughly social. His 'social capital' is the satisfaction of making something useful (for others), *and* 'the community-glue made up of friendly connections with others'.

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Through training and practicing, people become skilled and develop differently than those who do not specialize. Socio-technical distinctions thus lead to value attributions. Social status within the person's household and within their 'communities of practice' become apparent. Value 'lies at the interface between individual and collective tastes, desires, sentiments and attitudes that inform the ways people select one thing over another'.[5] Value ascription may be both inclusive and exclusive: acquiring exotic goods, charged with high symbolic meaning and value may only be possible for specific groups. The object's age, its trajectory in time and space, and the mutually understood perception of these, may add to an object's rich biography before it is being valued as a new possession. Heirlooms exemplify this.

In architectural energetic studies, the traditional value ascription for labor is taken as a *measurable* value of energy expenditure invested in the *chaîne opératoire* of constructing. Labor is measured and calibrated to a standard, called person-hours. Looking differently at the value of labor is possible through the temporality of the taskscape.[6] Taskscape is the entire ensemble of mutual heterogeneous and qualitative interlocking tasks, such as building while also producing food for family and animals. The temporality of a taskscape is totally social because in performing our tasks, we also attend to one another. At once, the value of labor is social *and* economic; one does not exclude the other.

Bodies, places and things are all active agents in the construction of value. In constructing roads to transport building materials in a mountainous landscape, involving local farmers is ideal since they know how to cut terraces and to lead oxen yokes. As space is bodily experienced the significance of places is created through acts and performances played out in specific locations. With this in mind, examples from multiple-room workshop contexts combine quantitative and qualitative value ascriptions successfully too.[7]

Embedded in making, in using, and in the interaction between thing and maker, values as connectors entail both capacities (which emerge), and properties (which are measureable) that grow or decline, and can become lost. The Maussian (1925) approach whereby value linked to aspects of exchange makes it obvious that value goes far beyond the economic, and that rare, transformed, live, or inanimate items of high value were crucial in marking high status and maintaining it. Exotic items produced by highly skilled people embodied these far distant, unknown, dangerous, and unstable places, and link their characteristics to the heroic and mythical picture with which elites wanted to portray themselves. When offering gifts, the giver could create obligations, in which the receiver became indebted to reciprocate at least the same or more, in number or in mutually understood values. Thus gift economy personifies the object: the gift takes the qualities of the people involved and may increase or change the objects' value. In contrast, the commodity economy establishes an equivalence of value *between* objects.[8]

Each individual item or object, irrespective of its similarity to others, likely carries (intrinsic) multiple sets of values, and must have been valued by at least two people em-

bedded in its biography: its maker and its consumer, assuming they were not one and the same. If the item was appreciated, the artisan certainly 'made it'.

## Notes

[1] Sennett 2009, 7–12.

[2] Adamson 2010, 4.

[3] After Ingold 1993.

[4] Brysbaert 2014.

[5] Papadopoulos – Urton 2012.

[6] Ingold 1993.

[7] E.g. Brysbaert 2014.

[8] Papadopoulos – Urton 2012, 15.

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# Owning the Stones: Craft Identity and Ownership in Classical Athenian Sculpture

**Helle Hochscheid**

Recent scholarship about ancient craft production has increasingly investigated the impact it had on the community and in turn, how communities were affected by craft practice. As is argued by several other participants in this publication as well as in wider scholarship, making things is a particularly formative activity both in a personal and a social sense.[1] This paper argues that the relation between making and makers hinges on the feelings of ownership that are inherent in human interaction with the things that they possess, be they material or immaterial. In particular, the evidence of self-representation of craftsmen in classical Athens suggests that professional association with, or skill in, particular crafts lent considerable sense of self-worth to makers, who seem to have identified quite strongly with their professional craftsmanship. Arguably, this also the case where the socio-political status of craft practioners was low, e.g. for working women, freedmen or even slaves. Viewing their representations through the lens of ownership uncovers a new perspective on the attitudes of ancient craftspeople towards their crafts and on the meanings their labour may have held to them.

The concept of ownership is derived from psychology and has more recently been studied in cognitive science. Ownership hinges on three engrained human motivations. First, it regards a person's control over the environment; second, it helps generate a sense of belonging; and third, it engenders self-identification.[2] All three of these aspects can tie in with craft production. Making things requires the ability to manipulate materials and tools. The resulting object or the tools used in the process are owned by the maker and are part of their identity; more importantly, so is the craft skill and the body performing the action. Skillful manipulation of material fosters feelings of control over the environment and adds to an embodied sense of self.[3] Being surrounded in daily life by objects that are, through the labour invested, closely connected and intimately known to the craftsperson, increases the sense of belonging and grounds them in their environment.

Labour is particularly regarded as grounds for ownership, both economically and on a cognitive level. In an ongoing series of studies, Patricia Kanngiesser has investigated what and how creative labour adds to psychological ownership. In Western societies, ownership tends to be based on first possession, but this is reinforced if labour is invested to alter an object or material.[4] Studies of attitudes of children and adults in various countries show that the higher rating of invested labour than of possession without further action is widely spread across cultures.[5] The value that craft processes add to raw materials is therefore not only measurable in economic terms, but also in social identification, and on a cognitive level, as entanglement: formative responses between humans and things in various constellations.[6]

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In classical Athenian votives, tombstones and building accounts, references to crafts reflect ancient craftspeople's awareness of their status as makers. The self-representation in gravestones and on votives is arguably rooted in psychological ownership: for example, Smikythe inscribes her profession of washerwoman on the pedestal of her votive basin. On the grave stele of Xanthippos the shoemaker, he is holding his last as an emblem of his craftsmanship, while the inscription on the gravestone of Mannes literally boasts his skill as a lumberjack.[7] As more of these instances of craft representation in text and image appear on monuments over the 5th and 4th centuries, the group identity of the craft community in classical Athens seems to be increasingly and consciously foregrounded.

Moreover, the building accounts of the Erechtheion famously list both citizen and metic craftsmen, and almost certainly also slaves.[8] The public recognition in the building accounts and the continued presence of the resulting architecture must have raised their sense of ownership considerably, in all three respects of control over the environment, belonging and self-identification. Possibly, the greater number of craftpeople's professional self-representations was influenced by the acknowledgement of their great contribution to the city's appearance both within the craft community and in the polis at large.

## Notes

[1] E.g. Brysbaert elsewhere in this volume; Gauntlett 2011, 32–34. 77–81; Sennett 2009, 9–16.

[2] Pierce et al. 2003, 88–94.

[3] Hodder 2012, 35–37; Pierce et al. 2003, 88–94.

[4] Kanngiesser – Hood 2014a, 354.

[5] Ibid.; Kanngiesser et al. 2010. For the influence of raw materials' value, Kanngiesser – Hood 2014b.

[6] Hodder 2012, 88–89.

[7] Smikythe, Akropolis Museum 607; stele of Xanthippos, British Museum, BM 628 1805.7-3.183; stele of Mannes, Louvre, MA 4207.

[8] Silver 2006.

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# Time and Place in Distance Value. The Case of Cylinder Seals in Bronze Age Greece

**Gert Jan van Wijngaarden**

Cylinder seals are among the most iconic archaeological artifacts from Near Eastern archaeology. From about the mid-4th millennium BC until c. 600 BC, the practice of sealing with cylinders spread from Iran to Syria and including Israel-Palestine. The cylinders are made of semi-precious stones or glass and often contain elaborate depictions. They are small and portable objects, which are widely distributed in and beyond the area of their use.

The contemporary Aegean of the Minoan and Mycenaean worlds had completely different sealing practices, in which stamp seals were used.[1] Nevertheless, there are cylinder seals in the LBA Aegean, albeit not many: I have been able to identify a total of 147 cylinders. In this article I will explore the question how these objects acquired value in the Aegean context.

The cylinder seals in the Aegean are part of a wider phenomenon of cross-cultural consumption of material culture in the eastern and central Mediterranean during the Late Bronze Age (ca. 1600–1100 BC). In particular, they belong to a group of 'low-value manufactured items", which were distributed widely in the Mediterranean and were produced and imitated in different parts of the Mediterranean.[2] The value of this type of manufactured object originates in the meanings and social roles that are attached to them in the contexts in which they are used. In particular, these objects, even though some were manufactured or modified in the area itself, can be characterized as exotica: they refer to a distant origin.

Value is a central concept in social theory and in material culture studies, such as archaeology. The main reason for this is that value lies at the intersection between the material world and the social.[3] At the heart of the concept lies a fundamental opposition between intrinsic versus extrinsic value. In this article, I address the interplay between material and immaterial characteristics of objects and the relation to cultural and archaeological context. In particular, I will investigate four aspects of the seals: their material (1), the style and technique (2), their context (3) and their exoticism (4).

With regards to the raw materials used, it is clear that most cylinders are made of soft stone such as steatite and hematite. In addition, there is a substantial group of glass and glass paste. The range of these materials is not very different from that of the corpus of Aegean stamp seals, which incorporates the same type of materials. The only clear difference is the relatively high number of lapis lazuli cylinders, a material that is extremely rare among Aegean stamp seals. However, the majority of cylinders in this material come from an extraordinary deposit in the Mycenaean palace of Thebes.[4]

Styles and techniques on the seals are usually defined by a combination of iconography and workmanship. The majority of our cylinders are in the so-called Mittanni

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common style, which in the Late Bronze Age is also the most popular style in the Near East. Several other Near Eastern carving styles are also represented, among which is the old Babylonian Style: cylinders in this style are all much older than their Aegean find contexts. Interestingly, there are some cylinder seals carved in styles particular to Aegean seal carving. In addition, there are several cylinders in Cypro-Minoan Style, which is related to Aegean and, in particular, to Levantine-Cypriot iconographies.[5] The gold-cappings of several cylinder seals in the Aegean are also evidence of a reworking on the island of Cyprus. These aspects suggest an important role of Cyprus in the distribution and transformation of these seals.

It is unfortunate that the find contexts of most Late Bronze Age cylinder seals are unknown. Among those with a known context, most come from tombs, where they usually occur in small numbers. So there is no hoarding of these objects in funerary practice. Few of them have been found in settlements, mostly in disturbed layers. Both at Knossos and in Mycenae, cylinder seals have been found in the palace. This is also the case at Thebes, where a hoard of lapis lazuli seals was found in a palatial workshop.[6]

Where we can reconstruct the tomb context, it is clear that the cylinder seals are usually associated with local artifacts. These associations with local materials become especially clear in the case of the Kazarma tomb, where three cylinders were part of a necklace with local semi-precious stones.[7] Such associations of exotic and native items result in a display of authenticity, which is variable and can be manipulated.[8]

Of many of the cylinder seals, the place of production cannot be determined. There is a distinct group that is imported from Mesopotamia or the Levant. Others have been produced or have been transformed on Cyprus. A third group appears to have been produced in the Aegean itself.

The detailed analysis of the different aspects of these seals suggests that the geographical or cultural distance and the age of these objects appear to have played only a minor role. Instead, it is the way in which these objects fit in local repertoires of artifacts that appears to be decisive. Moreover, we see that the exoticness is controlled and curbed through craftsmanship, by physical transformations such as recurving and gold-capping, and by the manipulation of authenticity through associations with native objects. The Mycenaean palaces and the traders on Cyprus appear to have played a role in these mechanisms of control. It is in the extrinsic interaction between the ruling centers, the transforming craftsmen and the consumers that the intrinsic aspects of these exotic cylinder seals acquire a highly specific, Aegean value.

## Notes

[1] Krzyskowska 2005.

[2] Heymans – Van Wijngaarden 2011, 124–136.

[3] Graeber 2001.

[4] Kopanias 2008.

[5] Steel 2013, 77–83.

[6] Kopanias 2008, 39–96.

[7] Aruz 2008, 167–169.

[8] Feldman 2015, 340–344.

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# Precious Pots: Making and Repairing Dolia

**Caroline Cheung**

Dolia defy generalizations about pottery. Considered a class of pottery yet often manufactured alongside bricks and tiles in workshops that supplied building industries, dolia were large storage containers for agricultural commodities that were also considered architectural features. Despite their widespread use in the ancient Mediterranean, little work has been done on their production and repair.[1] This paper discusses findings based on over four hundred dolia and dolium fragments from three sites in western central Italy: Cosa, Pompeii, and Ostia. Although dolia were usually robust vessels that were estimated to have been in use for decades, a significant portion of them experienced some form of damage. Because dolia were expensive farm equipment, any damage was usually repaired. Unlike other types of pottery though, damage on dolia demanded different types of treatments and materials to support their heavy and bulky parts. Dolium mending techniques were not static or fixed; instead, they reveal developments in skills, knowledge transfer, and industries, as well as the different workforces, and their skill sets, responsible for treating damage. As craftspeople gained a deeper understanding of material properties for producing dolia, they developed more sophisticated techniques and materials for repairs that were made during the production-phase. Dolium repairs shifted from traditional pottery mending techniques added during the vessel's use to architectural joinery techniques applied during the production.

This paper first provides an overview of the different techniques used for repairing smaller types of pottery and then surveys the various methods and materials craftspeople used to repair damaged dolia. Because small pottery often became damaged while in use (pottery damaged during production was likely discarded rather than sold), craftspeople such as tinkers and pottery menders generally repaired these vessels using lead on an *ad hoc* basis. Lead was a relatively abundant and low-cost metal with a low melting point; it was also easy to work, so tinkers and pottery menders often used it to fill cracks, patch holes, and form staples or clamps that would join fragments. Dolia, on the other hand, were large and bulky vessels. When severely damaged, the malleability of lead meant that the metal might not provide enough mechanical strength to mend and support dolia. Moreover, archaeological examples show that drilling holes through a damaged dolium to form staples or clamps could actually worsen the damage, or even destroy the vessel completely. As a result, dolium repairers began to experiment with different methods and materials, such as adding other metals to the lead to strengthen the repair. Moreover, the repairers drew on the mortise-and-tenon joinery techniques from the architectural realm as a more effective way to mend these large vessels, and even began making preemptive repairs during the production-phase. Based on the neatness and consistency of these new double dovetail and double dovetail tenon repairs, the makers of these preventive repairs were forming them on the vessel before they were fired in the kiln, meaning that the repairers of these new methods were based

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in the workshop. While the craftspeople making use-life repairs were non-specialist tinkers or pottery menders, those forming production-phase repairs were likely also the makers of dolia, or at least worked alongside them.

Studying both the production and repair (during production-phase and use-life) of dolia illuminates not only the value of these containers, but also the complex relationship between making and repairing. Initially, different craftspeople with different sets of knowledge and skill were responsible for the production and repair of these vessels, with potters making dolia in the workshop and tinkers and pottery menders forming repairs during use-life. The new preventive repairs formed during production-phase suggest that there was interaction and some sort of feedback between makers and users, creating an impetus on the part of the maker to identify and treat preemptively common problems that would form on dolia during the production-phase in a collaborative workshop setting. Over time, the role of the dolium maker expanded to include the responsibilities of a repaired.

## Notes

[1] Some exceptions include Rando 1998; Peña 2007, 35 and 213–227; Peña – Cheung 2015, 2121–2222.

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# Material Records, Consumption and Local Habits in a Proto-global Antiquity

**Panel 6.5**

**Organized by**

**Erich Kistler**

# Rhodes and the Eastern Mediterranean in the Late Hellenistic-Early Imperial Periods: The Ceramic Evidence

**Lisa Betina**

## Introduction

In archaeological material records, local habits can most precisely be defined when reflected upon large and diverse finds ensembles of clearly chronologically confined periods. In regard to past ceramic material culture, local habits can best be recognised when comparing vessels declared as imports with synchronic pottery, presumably native to the site of their recovery.

The Eastern Mediterranean – and the Aegean area in particular – was subjected to diverse influences in the (late) Hellenistic and Early Imperial periods. These influences came through prospering commercial contacts and the movement of individuals.[1] The circulation of goods and people arriving from other territories affected the lifestyle and preferences of ancient society.

Was the external impact powerful enough to cause changes, adaptations or modifications in the local material culture? Or did local and regional traditions survive and further develop their own visual language? Is the co-existence or syncretism of local/regional and external habits traceable?

Engaging with the investigation of ceramic fine ware of the later 2nd and 1st centuries BC excavated at the Papachristodoulou-Karika plot in the necropolis of Rhodes,[2] patterns of pottery distribution in the Aegean area will be reviewed and accordingly interpreted. The island of Rhodes is well-suited as a case study for this purpose; it is located favourably at trade routes connecting Western Asia Minor, the Aegean, Cyprus and the Levant, having close economic ties with the major commercial centres at that time.[3] In the periods of interest, several ceramic production centres in Western Asia Minor had their highest fabrication and export rates.[4] Is this trend also reflected in Rhodes?

## Material Record and Volume

Relatively little evidence of imported ceramics exists or has been published to date in Hellenistic and Early Roman Rhodes.[5] Preliminary statistical analyses of the ceramics excavated at the Papachristodoulou-Karika plot give a first insight into ceramic exchange, provenance and, as such, cultural networks. Around 15% of the total ceramic assemblage evaluated so far can be classified as imports, indicated by their clay composition and morphological characteristics (fig. 1). Of this proportion, an impressive 12% of the ceramic fragments can be assigned to workshops in Western Asia Minor

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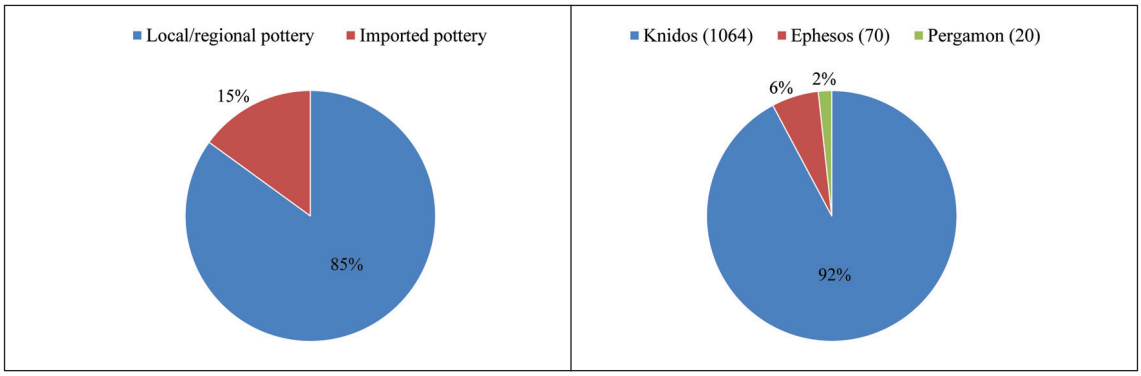



Fig. 1: Percentual representation of local/regional and imported ceramics at the Papachristodoulou-Karika plot, and attribution of imports to production centres in Western Asia Minor.

(leaving 3% to other imports produced elsewhere). Pergamon, Ephesos and Knidos have been the leading ceramic production centres in the 2nd and 1st centuries BC and, therefore, not surprisingly, these three cities are represented by the ceramic items uncovered in Rhodes. More astonishing is the respective percentage allocation of the Western Asia Minor products, as follows (fig. 1): 92% Knidos (n = 1,064), 6% Ephesos (n = 70) and 2% Pergamon (n = 20). The clear domination of Knidian ceramic products is an unusual pattern, and even at excavations within Western Asia Minor, such high quantities of Knidian Fine Ware are rarely documented.

## The Repertoire of Imported Ceramics

*Ephesian Pottery*

Three examples of mould-made Ephesos-lamps are attested in the assemblage from Rhodes. The presence of Ephesos-lamps on the island had already been noted by T. K. Tezgör and T. Sezer when compiling a catalogue of lamps stored in Istanbul Museum. The two lamps discussed by Tezgör and Sezer, however, belong to another, later variant of these lamps than our examples.[6]

Our lamps have the typical biconvex profile, with a bulge around the upper filling hole, a triangular nozzle and an oval base. Although Ephesos-lamps are often signed on the base by their potters, this does not apply to the specimens examined so far on Rhodes. Still, the adornments might be conclusive in allowing an attribution to a workshop and establishing their chronology. The shoulder fragment of lamp Λ5491 is characterised by an egg-and-dart decoration, surrounded by a fish-bone pattern, which ends in a volute at the point where the nozzle is fixed to the ceramic body. Lamps Λ9382 (fig. 2.1) and Λ3090 (fig. 2.2) are both defined by a pattern of undulating waves on the shoulder area, though the formal details of the design of the waves differ slightly. On

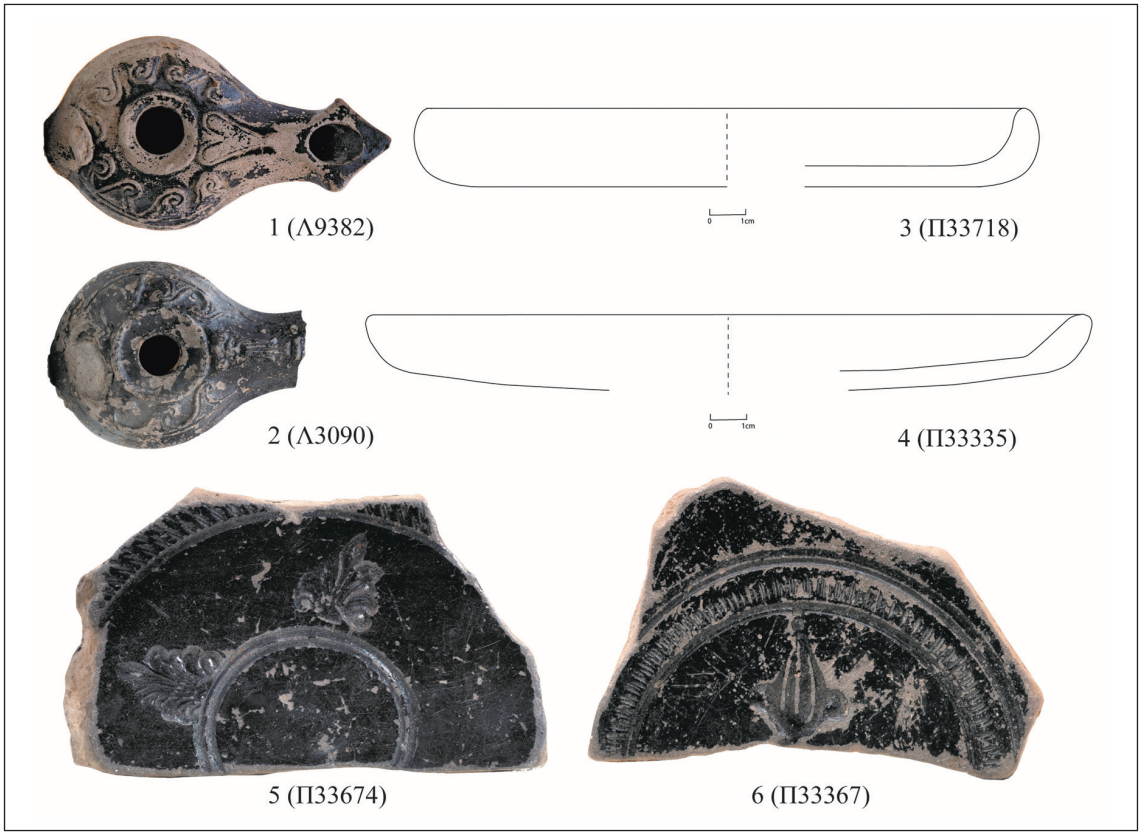



Fig. 2: Ceramic wares from Ephesos. 1–2) Ephesos lamps; 3–4) Ephesian Grey Ware platters, profile drawings; 5) Base of Ephesian Grey Ware with stamped palmettes; 6) Base of Ephesian Grey Ware with stamped lotus motif. Photos not to scale.

the nozzle, a heart (Λ9382) or a bearded mask – based on analogies possibly placed above a column-shaped structure (Λ3090)[7] – are positioned. Lamps with an identical decorative canon are assigned to the Asklepiades workshop in Ephesos,[8] as signatures on comparative lightening devices reveal.[9] The activity period of the Asklepiades workshop has been set to around the mid-1st century BC to the early 1st century AD.[10]

Another type of ware to be traced back to Ephesos is the so-called Ephesian Grey Ware, which compositionally[11] resembles the Ephesos-lamps. These platters for serving food occur in circular and rectangular shapes in Ephesos, within each of these types also exhibiting variants, e.g. based on the height of the rims or design of the lip. In Rhodes, only one type has been recognised so far; the circular platters with low rim, rounded lip and low ring foot (fig. 2.3–4). Various kinds of palmettes (e.g. Π33674, fig. 2.5)[12] and a lotus flower motif (Π33367, fig. 2.6) are radially stamped in the central portion of the platters.

Some of the examples found on Rhodes were not fully covered with black gloss, but the lower surface of the platter remained plain. It is thought that this is an indicative

feature of Ephesian Grey Ware standing in the late Hellenistic tradition.[13] A dating of this type in the late Hellenistic period, probably in the middle of the 1st century BC, can be proposed.[14]

*Knidian Fine Ware*

Recently, the ceramic finds of Rhodes associated with Knidos have been presented separately; for this reason, only a brief overview of the most relevant observations will be given here.[15] The vast majority of Knidian Fine Ware in Rhodes is represented by carinated cups. Typological criteria allow their dating to the 1st century BC, which is also verified based on the frog appliqué positioned on the interior surfaces. Lamps of the well-known type Howland 40A[16] further support the main share of the Knidian imports being placed in the first half of the 1st century BC. Occasional fragments of globular lamps yet testify to the arrival of Knidian ceramic products as early as the 2nd century BC, as do hemispherical bowls with rouletting.

*Pergamene Appliqué Ware*

The final ware to be discussed is the so-called Pergamene Appliqué Ware, which is documented in Rhodes with a few examples which exhibit variability in decorative motifs. Detailed studies of the ware in Pergamon, where its central production has been located,[17] differentiated several types,[18] dating from the mid-2nd century BC to the 1st century AD.[19] A. Giannikouri and V. Patsiada have already noted the influence of Pergamene ceramic products on Rhodes starting from the 2nd century BC.[20] Reproductions of the shape have been confirmed for Ephesos[21] and Knidos.[22] A characteristic of true Pergamene examples is the mostly "mottled" appearance of the slip, varying between black and orange colour. Sample Π33574 (fig. 3.1) from Rhodes belongs to this group; its interior is defined by an orange gloss. In the central portion of the ceramic body, two roughly rectangular appliqués are positioned, depicting an erotic symplegma scene with the protagonists resting on a cline – a common motif of appliqué ware.[23] The skyphoi might be compatible with "Typus 1, Form 1" as denominated by Hübner,[24] dating to the late production phase of the ware in the early to mid-1st century BC.

The type of Appliqué Ware most frequently encountered in Rhodes is Hübner's "Typus I, Form 4" with a straight wall and bevelled rim, which can be thickened, and a groove on the interior just below the rim. Sample Π33564 (fig. 3.2) exemplifies the type best. Bundles of ivy leaves and umbels of fruits are horizontally placed on the ceramic body; the gloss has a metallic black sheen. Sample Π33563 (fig. 3.3) corresponds in its general morphology to the vessel described before. However, the bundles of ivy leaves are arranged differently, placed vertically commencing from below the rim, and additional incisions around and below the fragmented handle are present, arranged in vegetal motifs. On top of the reconstructed ring handle, a thumb-rest in the shape of a volute was placed (fig. 3.4). Both features, thumb-rest and incised (vegetal) decoration, in combination with ivy leaf appliqués, are, according to Hübner,[25] known from the late




Fig. 3: Appliqué Ware from Pergamon. 1) Symplegma scene; 2) Ivy leaf-fruit garland; 3–4) Skyphos with bundles of ivy leaves and berries, and additional incised decoration; top view of handle plate. Photos not to scale.

phase of appliqué production in the 1st century BC.[26] Our examples of Appliqué Ware seem to date from the late Hellenistic and possibly Augustan period, being in concordance with distributional patterns observed in the Aegean area or Delos.[27]

## Imitations and the Rhodian Response to Western Asia Minor Wares

Owing to the imitation of Ephesian, Pergamenian and Knidian ceramic prototypes discussed above, ceramics deviating from the well-known visual appearance of these key shapes might be suspected of being reproductions from elsewhere.

Samples П33956 (fig. 4.1) and П33585 (fig. 4.2) can be defined as appliqué ware, but lacking the bichrome colours and surface properties of Pergamene prototypes. In fact,

the clay composition of Π33585 with a grotesque/mask and rosette finds close parallels in the fabrics observed for Ephesian Grey Ware and Ephesos-lamps. Concerning fragment Π33956 with the figure of a naked youth, his shoulders covered with a cape, an Ephesian provenance might also be supposed. Orange-brownish slip colours on both interior and exterior surfaces, as present, have been noticed as a peculiarity of appliqué ware from Ephesian workshops.[28]

A possible Knidian imitation of appliqué ware is demonstrated by sample Π33927 (fig. 4.3). The fragment belongs to the lower part of a skyphos, having a horizontally incised line below the appliqué decoration and above the carination leading towards the foot. The bunch of ivy leaves has been applied imprecisely, with a blurry appearance to the contours.




Fig. 4: Imported Appliqué Ware, imitations and drinking vessel from Rhodes. 1) Applique of a naked youth; 2) Applique Ware in Ephesian fabric depicting a grotesque/mask; 3) Knidian imitation of Pergamene skyphos with appliqué decoration; 4) possible Rhodian imitation of Pergamene Appliqué Ware; 5–6) Rhodian skyphos with vertical ribbed decoration and thumb-rest. Photos not to scale.

Comparative studies on the ware in Knidos highlight the occurrence of appliqué ware with similar characteristics in the Early Augustan period, having an orange to light brownish slip.[29] The most important factor in a likely provenance from Knidos is the clay, developing the characteristic greyish and orange hues in cross-section – identical to patterns observed on synchronic Knidian cups.

An indication that we are dealing with imitations might also be the surface finish of the interior of the skyphoi. The interior surface of П33927, but also of another example, П33954 (fig. 4.4), have not been smoothed. Instead, marks of wheel-throwing are preserved. On the latter sample, the bunch of applied ivy leaves looks rough, with indistinct borders – generally complicating its identification. Clay characteristics and surface finish, as assessed on the macroscopic level, might possibly allow us to presume an origin from Rhodes.[30] Natural-scientific analyses are required in order to confirm the possible provenance regions of the suspected imitations.

## Equivalents in Local Pottery Production

Synchronic with the importation of Pergamene Appliqué Ware, namely in the 1st century BC, workshops in Rhodes were manufacturing skyphoi in a local style (fig. 4.5).[31] Their most important features are: a hemispherical body; a straight wall and rim; horizontally incised lines below the rim, which can be filled with a pattern of lance-shaped notches ("Kerbschnittdekor"); the central part of the body defined by vertically incised ribbed lines or flutes, individually shaped with a sharp tool; the lower part of the body might have a rouletting pattern; radiating lance-shaped notches below the handle; a ring handle with rotellae; an appliqué attached to the upper part of the handle, forming a thumb-rest (fig. 4.6); the surface is fully covered with reddish to orange-coloured slip.

Obvious analogies between the stylistic idiom of Appliqué Ware and the Rhodian skyphoi with ribbed decoration do exist, for instance regarding the rotellae or the practice of placing appliqués on handle plates.[32] The vertical ribbed decoration confirms that our skyphoi stand in a Hellenistic tradition.[33] The skyphoi, as such, represent a hybrid drinking vessel combining elements of several key late Hellenistic ceramic wares.

Parallel examples of skyphoi with ribbed decoration in the Mediterranean are almost absent; P. Kögler depicted only one comparable fragment uncovered in Knidos, which she dated, based on the finds context, to the first half of the 1st century BC.[34] Furthermore, N. Fenn published one example of a skyphos with ribbed decoration[35] from Priene, without being able to propose a provenance for this fragment. Sporadic examples of the ware have been identified on Delos, e.g. in the "Maison des sceaux", assigned by S. Élaigne to ateliers on Rhodes.[36]

Considering the abundance of these skyphoi in Rhodes and their absence at major contemporaneous sites in the Aegean and beyond, we might indeed assume it to be a typical Rhodian style or invention. Resembling in general lines the properties of Aegean

mass-ware and serving the same function, the skyphoi with ribbed decoration might be considered as the Rhodian equivalent or response to common Aegean phenomena in the late Hellenistic period.

The situation is somewhat different for the Knidian carinated cups. Despite principally serving the same purpose as the skyphoi, the drinking traditions connected with the Knidian cups do deviate. Imitations of Knidian cups in local Rhodian fabric are evident,[37] but no Rhodian equivalents of carinated cups have been identified at the Papachristodoulou-Karika plot, apart from two exceptions: the carinated cup fully covered with brownish slip and defined by multiple lines of rouletting above the carination or patterns of incised notches ("Kerbschnittdekor") – similar to those observed on the skyphoi – above the carination. The decorative style of both examples is exceptional and, again, illustrates the combination of different potting traditions.

## Export, Import, and Adaptations in Rhodian Ceramic Manufacture

The ceramic evidence from the late Hellenistic and Early Imperial periods from Rhodes demonstrates that imported vessels, considered as standard export items at that time, found their way onto the island.[38] Detailed studies on trade routes in the Eastern Mediterranean by P. Arnaud attest to the role of Rhodes as a distribution centre for commercial goods. Sea routes to the Black Sea and the northern Aegean operated via Rhodes, and ships sailing towards the Levant or Egypt stopped in Rhodes on their way.[39] Certainly, commodities were unloaded and others loaded in the harbours of the island.

Regarding outgoing ceramic goods, the distribution or production of so-called Hellenistic Colour Coated Ware A has been associated with Rhodes by scholars. A peak in the exchange of the ware was reached in the late 3rd and the early 2nd century BC, when Rhodes was the uncontested power in the Eastern Mediterranean.[40] K. Domzalski explained the occurrence of the table ware with this Rhodian domination in the Pontic area in contexts of that period and the following diminution of the ware with the establishment of the free port in Delos in 166 BC.[41] The distribution of Rhodian ceramic products to Egypt and the Levant, on the other hand, was consistent: table ware from Rhodes[42] and Western Asia Minor[43] arrived, for instance, in Alexandria and Beirut during the entire 3rd and 2nd century BC.[44]

Concerning incoming ceramic products, the advent of vessels from Western Asia Minor initialised the adoption of these key shapes into the Rhodian ceramic repertoire, but with certain adaptations, ultimately leading to the creation of a hybrid skyphos shape and carinated cups in slightly differing style – a combination of various elements of well-known Western Asia Minor prototypes and local traditions.

## Notes

[1] Archibald 2011, 45. 46.

[2] The analysis of ceramic finds from the Papachristodoulou-Karika plot, specifically, the so-called *mavra chomata* assemblage which the discussed ceramics belong to, is part of "The Rhodes Centennial Project" based at Saxo Institute, University of Copenhagen (funding: Carlsberg Foundation; project director: V. Gabrielsen) and conducted in collaboration with the Ephorate of Antiquities of the Dodecanese. For a summary of the excavation: Dreliossi-Herakleidou – Betina 2019 and Dreliossi-Herakleidou 2018. Results described in this paper reflect the state of research in 2018.

[3] An overview of trade routes in the Eastern Mediterranean has been given by Arnaud 2005, 212–228.

[4] Poblome – Zelle 2002; Giuliani 2011; Rogl 2004.

[5] Tezgör – Sezer 1995, 123, Inv. no. 296 and 298; Giannikouri – Patsiada 1997, 106–109; Papachristodoulou et al. 1993, 53.

[6] Compare Tezgör – Sezer 1995, 123, Inv. no. 296 and 298.

[7] Giuliani 2001, 47 describes this composition. Our lamps with egg-and-dart decoration and waves belong to "type 1" discussed by Giuliani (Giuliani 2011, 535).

[8] Giuliani 2001, 46; Giuliani 2007, 174.

[9] A lamp with the signature of Asklepiades also has been found in the *mavra chomata,* but has not been studied yet.

[10] Giuliani 2001, 48. The type corresponds to "group I" of Bruneau in Delos (Bruneau 1965, 56–64).

[11] Archaeometric analyses by Zabehlicky-Scheffenegger et al. 1996 first proved an Ephesian provenance of the ware.

[12] Rogl 2004, 209. 210 gives reference to the variability of palmette stamps also detected in Ephesos.

[13] Rogl 2004, 207.

[14] Rogl 2004, 208. 211. Zabehlicky-Scheffenegger et al. 1996, 45 for a dating of the circular platters with low rim in the late Hellenistic-Augustan period.

[15] Betina 2021.

[16] Bailey 1975, 153. 154.

[17] Workshops in the Ketios-valley: Japp 2013, 165.

[18] Overview of the shape repertoire of Pergamene Appliqué Ware in Hübner 1993.

[19] Japp 2013, 170.

[20] Giannikouri – Patsiada 1997, 107–109.

[21] Natural-scientific analyses supported the attribution of Appliqué Ware to Ephesian production, see Zabehlicky-Scheffenegger – Schneider 2000, 105 at least in the Augustan period.

[22] Kögler 2010, 281 sets the beginning of the production of Appliqué Ware in Knidos at the mid-2nd cent. BC, with its peak being reached in the 1st cent. BC.

[23] For the motifs: Japp 2013, 170; Rogl 2003, 189. 190; Rotroff – Oliver 2003, 156; Schäfer 1968, 79.

[24] Hübner 1993; corresponding to Schäfer's (1968, 67) "Typus A".

[25] Hübner 1993, 50.

[26] Similarly: Japp 2013, 170.

[27] Bruneau 1991, 610 states that Pergamene Appliqué Ware from Delos, based on their find contexts, dates between 110 and 70 BC.
[28] Zabehlicky-Scheffenegger – Schneider 2000, 105.
[29] Kögler 2010, 290. 291 (variant b). Imitation of Pergamene Appliqué Ware in Knidos: Kögler 2000, 70. 71; Kögler – Mandel 2004, 89–91.
[30] A Rhodian provenance has also been supposed for a few carinated Knidian cups, see Betina 2021, 29. Recently, the Rhodian provenance of carinated cups has been confirmed scientifically.
[31] X-ray Fluorescence analyses on selected skyphoi are planned in order to prove natural-scientifically production in Rhodes.
[32] Hübner's "Type I, Form 4" (see Rotroff – Oliver 2003, 166, for instance Inv. no. 715 and 716).
[33] Patsiada 1990, 159–161.
[34] Kögler 2010, 479 (Inv. no. E273). belongs to the late 2nd and 1st cent. BC.
[35] Fenn 2016, 117. 118 (see Inv. no. B17).
[36] Élaigne 2007a, 522. 523 and fig. 6.1 (Inv. no. 87[16]) for a description and depiction of the Delian example.
[37] Betina 2021, 29.
[38] Either via Delos (Japp 2013, 167) or, in the case of Knidos and Rhodes, through direct exchange (Arnaud 2005, 224. 225). Rogl 2007 for exchange between Delos, Knidos, Ephesos and Samos. Distribution of Knidian Fine Ware: Kögler 2010.
[39] Arnaud 2005, 212–215.
[40] Fraser 1972, 162–169; Reger 1994, 264–267.
[41] Domzalski 2007, 166–172; Tsakos 1994, 15–17; Rostovtzeff 1941, 771–776.
[42] A Rhodian provenance has been confirmed through archaeometric analyses (Elaigne 2007c, 118).
[43] Élaigne 2007c, 117. 118.
[44] Élaigne 2007b and Élaigne 2007c, 118–120 reporting for instance bowls and plates of Rhodian production. For trade between Rhodes and Alexandria after 166 BC, see Gabrielsen 2013.

## Image Credits

Fig. 1: by author. – Fig. 2–4: photo credit: G. Kasiotis; drawings: L. Betina, © The Rhodes Centennial Project.

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# Classical Food and Diet under the Microscope

**Panel 6.7**

**Organized by**

**Evi Margaritis – Efthymia Nikita – Anita Radini**

# Dental Microwear as Evidence of Human Diet in the Classical World: A Pilot Study

**Cindy Ventura Abade – Lucy Lawrence – Victoria Sabetai – Elena Vlachogianni – Efthymia Nikita**

## Abstract

The current study explores inter-tooth and inter-cusp variability in dental microwear features (pits and scratches) using material from ancient Akraiphia, Boeotia, central Greece, dating from the Archaic period to the Roman era. The scope is methodological as this is the first study to focus on microwear patterns visible on the thin enamel rim preserved perimetrically on the occlusal molar surface in highly worn teeth. Our results show variation in the frequency and dimensions of pits and scratches among cusps and teeth, but very few statistically significant differences. The latter may be attributed to the fact that our sample size is particularly small due to the preservation of the material from ancient Akraiphia, and it is an inherent limitation of statistical analysis that small samples rarely reveal significant effects, even when such effects are present. Therefore, our current results suggest that there is potential in the direction of studying microwear patterns using non-traditional occlusal facets; however, more research is needed towards revealing meaningful patterns and associations with other lines of dietary and occupational evidence.

## Introduction

The term 'dental microwear' encompasses the microscopic damage that accumulates on dental surfaces, most notably scratches and pits on the enamel of the occlusal surface. Dental microwear studies of extant animals have shown that multiple factors may affect microwear expression. Among these are the amount, size, and shape of the abrasives ingested with food,[1] enamel microstructure[2] and jaw biomechanical properties.[3] Nevertheless, the mechanical properties of the diet are still considered the primary cause of microwear variation among species and populations.

Dental microwear studies of extant primates with known diets have argued that a diet based primarily on hard foods, such as seeds and nuts, produces pitted enamel occlusal surfaces;[4] a diet of grasses or leaves generates heavily scratched surfaces;[5] and a mixed diet produces intermediate microwear patterns.[6] These observations have given rise to numerous studies, which explored the potential of occlusal dental microwear to provide insights to tooth use and diet in different extant and extinct animal taxa,[7] fossil hominins,[8] and human groups from archaeological contexts.[9]

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Methodologically, the past ten years have witnessed the emergence of even more advanced techniques to capture dental microwear features, compared to the traditional recording of pits and scratches. The new technique, texture analysis, combines white-light confocal profilometry and scale-sensitive fractal analysis, and allows obtaining three-dimensional surface measurements.[10] Despite the fact that this approach allows the automated characterization of microwear surfaces, the traditional method of counting scratches versus pits remains important because it provides complementary information compared to surface texture analysis, it is much more cost-efficient to apply, and it generates data that are directly comparable to a large number of earlier studies, allowing for broader patterns to emerge.

One of the main limitations of dental microwear studies with regard to human osteoarchaeology is that this type of analysis has been applied in archaeological human groups to a rather limited extent, contrary to extensive applications among primates and hominins (see example case studies above). Given the complexity of the dietary regimes of human groups diachronically, along with the extra-masticatory activities in which the human dentition is involved (e.g. fiber processing),[11] little is known about the expected microwear patterns in groups with different subsistence patterns and activities. In addition, most studies to date have focused on the microwear recorded on Phase II crushing/grinding facets (i.e. facets 9, 10n, or x).[12] While this is justified from a functional point of view as these facets reveal key information regarding the mastication process, the extensive degree of wear that characterises archaeological teeth has often eliminated them altogether. Indeed, in skeletons from archaeological settings dental wear is often so pronounced that enamel is merely preserved at the perimeter of the tooth crown as a thin rim. As a result, the sample studied for microwear patterns often has to be restricted to a very small subset of the available teeth and given the age-progressive nature of dental wear, this subset usually represents only the youngest adults in the assemblage. Finally, very few studies to date have explored inter-tooth variability in dental microwear patterns. These have suggested the existence of variation along the tooth row in the same individual[13] but they did not show consistent microwear differences and more research is needed in this direction.

The focus of the current study is methodological as it aims to explore the applicability of dental microwear analysis in human osteoarchaeology. In this context, the scope of the current study is: a) to examine microwear patterns on the enamel rim that is preserved perimetrically on the molar occlusal surface even on very worn teeth to see how visible these are and whether they produce consistent results, and b) to identify inter-cusp and inter-tooth variation in microwear patterns (i. to what extent do we observe a consistent pattern in the microwear of M1s, M2s and M3s?, ii. to what extent do we see a consistent pattern of microwear between the buccal-mesial, buccal-distal, lingual-mesial and lingual-distal surfaces of the enamel rim?). We need to stress that the small sample sizes per analysis that were available for our study suggest that any results

presented in the following sections should be treated strictly as preliminary and more research is required before they can be generalised.

## Materials and Methods

For the purposes of this study, we examined human teeth from the cemetery of ancient Akraiphia in Boeotia, central Greece (fig. 1). The skeletal remains examined were excavated from 1994 to 1998 by the Ephorate of Boeotian Antiquities (then Theta Ephorate of Prehistoric and Classical Antiquities) under the direction of Dr Victoria Sabetai and Dr Eleni Vlachogianni. The excavation took place in the context of widening the highway connecting Athens with Thessaloniki and it brought to light 698 tombs dating from the Geometric to the Early Christian era.[14] Even though 293 skeletons from this material




Fig. 1: Location of ancient Akraiphia.

have been macroscopically studied, the preservation of the remains is very partial due to the proximity of the cemetery to the now drained Lake Kopais. Given the sensitivity of dental microwear analysis to taphonomic alterations in the enamel surface (e.g. post-mortem erosion), only 30 permanent maxillary and mandibular molars were deemed sufficiently well preserved for the purposes of this study. All teeth came from adult males and females.

Following standard procedures, dental microwear analysis was not applied directly on the tooth surfaces but on high-fidelity resin casts of these surfaces. Specimens were first cleaned with cotton swabs soaked with acetone. High-resolution casts of the teeth were taken using a polyvinylsiloxane impression material (Coltène President Jet Light Body) and applicator gun. From these casts, replicas of the teeth were created by setting the casts in dental putty (Provil Novo Putty) and pouring resin and hardener (Araldite 2020) into the silicone casts.[15] This method has been found to reproduce microwear features with a resolution of a fraction of a micron.[16]

The replica casts were photographed at 40× magnification using a Leica stereomicroscope with attached camera and external light-box placed underneath the casts. Calibrated photographs of standardised areas of each cusp where microwear features could be seen were taken. The images were obtained from the middle of the enamel rim per cusp (fig. 2). This method of low-magnification light microscopy or low-magnification

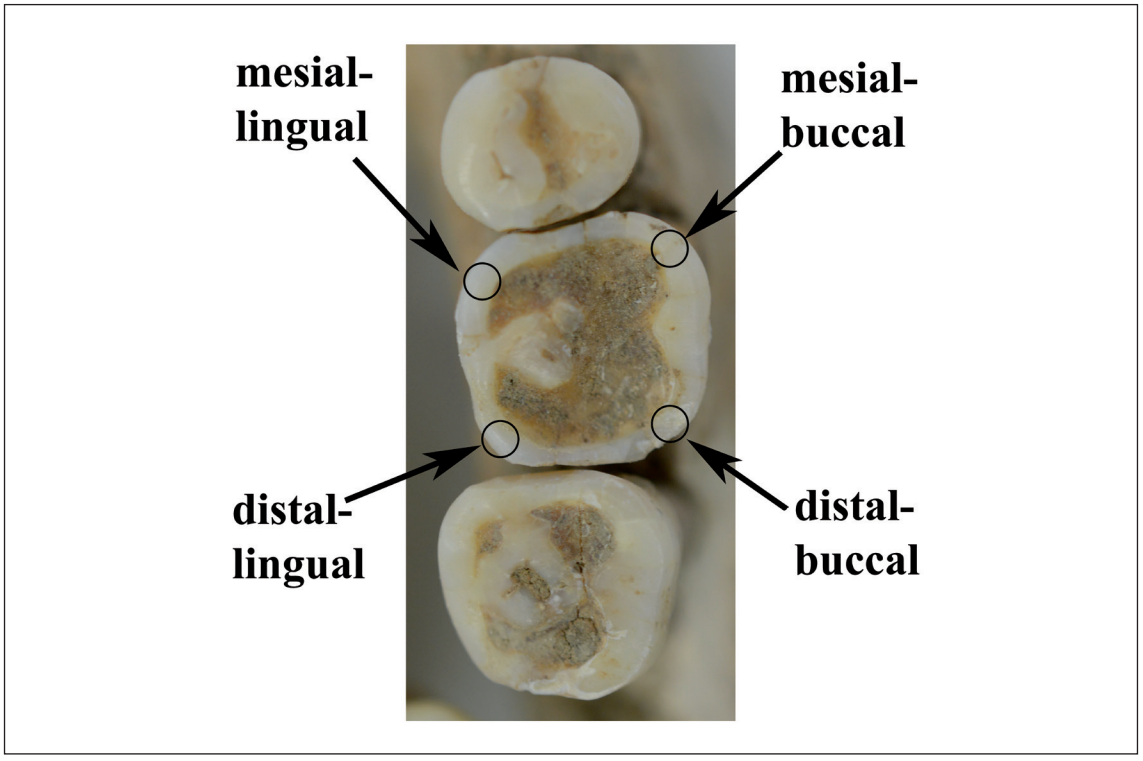



Fig. 2: Indicative location of examined facets.

light photomicroscopy[17] has been criticised of producing high intra- and inter-observer error rates.[18] To improve its performance and enhance the visibility of the microwear features, High Dynamic Range (HDR) images were created by combining nine photoframes with different exposure levels using the software Photomatix (pro).[19] The images were then cropped and microwear features were recorded using the software Microware 4.02.[20] This software uses metrical ratios to classify pits and scratches, whereby pits are circular features and are classified as such by having a length to breadth ratio ≤ 4:1, while scratches are elongated features with a length to breadth ratio > 4:1.[21]

The variables generated by Microwear 4.02 were analysed in SPSS version 21.0. Most of the continuous variables (pit length, pit width, scratch length and scratch width) violated the normality assumption, hence non-parametric tests were used for their statistical analysis. In particular, Kruskal-Wallis tests were adopted to compare pit length, pit width, scratch length and scratch width among different cusps per tooth. These were followed by Mann-Whitney tests for each pair of cusps, again per tooth type. Similarly, Kruskal-Wallis tests, followed by Mann-Whitney tests, were used in order to compare pit length, pit width, scratch length and scratch width among different teeth for the same cusp. A significance level of 0.05 was adopted but this was adjusted using the Holm-Bonferroni correction for the pairwise comparisons.

## Results and Discussion

Table 1 gives the number of pits and scratches per tooth and per cusp. It can be seen that these microwear features differ in frequency among different molars as well as among different cusps.

Table 2 gives the mean, standard deviation, minimum and maximum values for pit length and width as well as scratch length and width for the different teeth under study. The data in the table is not divided per cusp to save space; however, each cusp has been taken into account in the estimation of these descriptive statistics as a separate entity. Similarly, table 3 presents the same summary statistics as table 2 for the different molar cusps. On this occasion, the data is presented for all molars together. When visualising these differences per tooth and cusp using boxplots, it becomes clear that there is rather marked variation in pit and scratch dimensions. Figures 3 and 4 provide such results indicatively for pit width and scratch width in mandibular teeth, but the picture was similar for pit and scratch lengths, as well as for maxillary teeth.

The comparison of the size of the pits/scratches among different cusps per tooth revealed a statistically significant difference among cusps for pit width (p-value = 0.013) and scratch width (p-value = 0.026) only in the maxillary right first molar. Testing for pairwise cusp differences, all significant results were found again in the maxillary right first molar. In particular, significant differences were found in the mesial-lingual versus mesial-buccal cusp (scratch width: p-value = 0.004), the mesial-lingual versus distal-

| Tooth | Cusp | No. of Pits/ No. of teeth | No. of Scratches/ No. of teeth |
|---|---|---|---|
| Max RM1 | mesial-lingual | 28/6 | 78/6 |
| | mesial-buccal | 15/5 | 35/5 |
| | distal-lingual | 53/5 | 80/5 |
| | distal-buccal | 26/5 | 54/5 |
| Max RM2 | mesial-lingual | 5/1 | 0/1 |
| | mesial-buccal | 6/1 | 12/1 |
| | distal-lingual | 9/1 | 8/1 |
| | distal-buccal | 10/2 | 9/2 |
| Max RM3 | mesial-lingual | 6/2 | 16/2 |
| | mesial-buccal | 9/1 | 6/1 |
| | distal-lingual | 13/1 | 0/1 |
| | distal-buccal | 3/1 | 0/0 |
| Max LM1 | mesial-lingual | 22/3 | 33/3 |
| | mesial-buccal | 16/3 | 22/3 |
| | distal-lingual | 10/1 | 13/1 |
| | distal-buccal | 16/3 | 24/3 |
| Max LM2 | mesial-lingual | 28/4 | 22/4 |
| | mesial-buccal | 36/4 | 33/4 |
| | distal-lingual | 21/3 | 24/3 |
| | distal-buccal | 5/2 | 11/2 |
| Max LM3 | mesial-lingual | 13/1 | 9/1 |
| | mesial-buccal | 8/1 | 16/1 |
| | distal-lingual | 14/1 | 26/1 |
| | distal-buccal | 4/1 | 8/1 |

Table 1: Number of pits and scratches per tooth and cusp.

| Tooth | Cusp | No. of Pits/ No. of teeth | No. of Scratches/ No. of teeth |
|---|---|---|---|
| Mand RM1 | mesial-lingual | 0/0 | 0/0 |
| | mesial-buccal | 5/1 | 11/1 |
| | distal-lingual | 0/0 | 0/0 |
| | distal-buccal | 0/0 | 0/0 |
| Mand RM2 | mesial-lingual | 27/4 | 32/4 |
| | mesial-buccal | 10/2 | 19/2 |
| | distal-lingual | 19/2 | 24/2 |
| | distal-buccal | 2/1 | 5/1 |
| Mand RM3 | mesial-lingual | 11/2 | 3/2 |
| | mesial-buccal | 3/1 | 7/1 |
| | distal-lingual | 13/2 | 23/2 |
| | distal-buccal | 12/1 | 18/1 |
| Mand LM1 | mesial-lingual | 14/1 | 0/1 |
| | mesial-buccal | 7/2 | 14/2 |
| | distal-lingual | 0/0 | 0/0 |
| | distal-buccal | 11/1 | 14/1 |
| Mand LM2 | mesial-lingual | 14/3 | 22/3 |
| | mesial-buccal | 16/2 | 26/2 |
| | distal-lingual | 25/2 | 31/2 |
| | distal-buccal | 8/3 | 8/3 |
| Mand LM3 | mesial-lingual | 11/2 | 22/2 |
| | mesial-buccal | 43/3 | 71/3 |
| | distal-lingual | 27/2 | 37/2 |
| | distal-buccal | 35/3 | 52/3 |

Key: Max = maxillary, Mand = mandibular, R = right, L = left

Table 1 (continued)

| Tooth | Property | Mean | Std Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Max RM1 | Pit Length | 5111.92 | 5180.35 | 482.86 | 17010.22 |
| | Pit Width | 2574.18 | 2266.14 | 211.31 | 8062.30 |
| | Scratch Length | 14697.28 | 5151.27 | .00 | 22408.79 |
| | Scratch Width | 1187.55 | 457.78 | .00 | 1917.39 |
| Max RM2 | Pit Length | 2399.95 | 1588.552 | 242.04 | 4176.64 |
| | Pit Width | 1225.52 | 702.03 | 147.07 | 2052.52 |
| | Scratch Length | 8963.19 | 5228.60 | .00 | 13760.22 |
| | Scratch Width | 869.34 | 760.94 | .00 | 1604.57 |
| Max RM3 | Pit Length | 1232.64 | 1210.68 | 119.84 | 3063.35 |
| | Pit Width | 651.98 | 571.66 | 63.45 | 1316.44 |
| | Scratch Length | 9114.64 | 9863.90 | .00 | 22524.24 |
| | Scratch Width | 759.88 | 700.71 | .00 | 1427.59 |
| Max LM1 | Pit Length | 4160.01 | 3920.31 | 1524.00 | 14871.31 |
| | Pit Width | 2022.48 | 1823.98 | 830.01 | 7067.45 |
| | Scratch Length | 18014.11 | 6381.32 | 11346.11 | 30710.18 |
| | Scratch Width | 1755.77 | 941.07 | 1200.17 | 4313.91 |
| Max LM2 | Pit Length | 2781.94 | 2072.02 | 345.58 | 7100.08 |
| | Pit Width | 1433.62 | 924.60 | 183.04 | 3251.44 |
| | Scratch Length | 11515.15 | 7945.31 | 68.24 | 28126.02 |
| | Scratch Width | 1215.69 | 662.13 | .00 | 2537.15 |
| Max LM3 | Pit Length | 2916.31 | 2282.85 | 1559.80 | 6331.82 |
| | Pit Width | 1795.56 | 1071.14 | 1017.37 | 3379.96 |
| | Scratch Length | 17527.94 | 2223.25 | 14677.70 | 20092.69 |
| | Scratch Width | 983.89 | 629.25 | 112.95 | 1569.50 |

Table 2: Descriptive statistics per tooth.

| Tooth | Property | Mean | Std Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Mand RM1 | Pit Length | 1272.15 | – | 1272.15 | 1272.15 |
| | Pit Width | 964.04 | – | 964.04 | 964.04 |
| | Scratch Length | 23197.54 | – | 23197.54 | 23197.54 |
| | Scratch Width | 912.06 | – | 912.06 | 912.06 |
| Mand RM2 | Pit Length | 3219.18 | 2035.56 | 998.96 | 7559.54 |
| | Pit Width | 1504.44 | 673.20 | 807.79 | 3057.30 |
| | Scratch Length | 13324.04 | 7135.03 | 1349.61 | 20982.18 |
| | Scratch Width | 1462.80 | 323.33 | 985.90 | 2040.70 |
| Mand RM3 | Pit Length | 2460.64 | 1844.72 | 420.53 | 5791.54 |
| | Pit Width | 1351.32 | 711.07 | 250.07 | 2414.73 |
| | Scratch Length | 18057.12 | 11009.89 | 331.64 | 33111.37 |
| | Scratch Width | 1620.51 | 903.42 | 51.97 | 2529.94 |
| Mand LM1 | Pit Length | 2132.68 | 1540.37 | 282.16 | 3780.92 |
| | Pit Width | 1212.49 | 711.35 | 182.75 | 1784.57 |
| | Scratch Length | 11726.11 | 8424.93 | .00 | 20070.00 |
| | Scratch Width | 1125.68 | 755.71 | .00 | 1579.33 |
| Mand LM2 | Pit Length | 4140.59 | 4209.28 | 1136.21 | 14848.52 |
| | Pit Width | 1845.58 | 1080.51 | 844.30 | 4217.52 |
| | Scratch Length | 11394.93 | 7754.88 | .00 | 28772.41 |
| | Scratch Width | 1189.42 | 660.38 | .00 | 2391.99 |
| Mand LM3 | Pit Length | 2774.33 | 1452.21 | 1257.23 | 5847.98 |
| | Pit Width | 1488.40 | 525.75 | 683.91 | 2432.07 |
| | Scratch Length | 14557.02 | 5698.19 | 5847.00 | 23821.76 |
| | Scratch Width | 1524.71 | 510.75 | 817.25 | 2432.07 |

Key: Max = maxillary, Mand = mandibular, R = right, L = left

Table 2 (continued)

| Cusp | Property | Mean | Std Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Maxillary distal-buccal cusp | Pit Length | 2130.55 | 1202.68 | 119.84 | 4405.09 |
| | Pit Width | 1244.99 | 532.018 | 63.45 | 2052.52 |
| | Scratch Length | 14148.73 | 6100.42 | .00 | 23981.89 |
| | Scratch Width | 1152.03 | 509.95 | .00 | 1859.06 |
| Maxillary distal-lingual cusp | Pit Length | 2379.51 | 1130.33 | 136.72 | 4327.87 |
| | Pit Width | 1245.93 | 579.54 | 91.87 | 2136.95 |
| | Scratch Length | 12608.53 | 6871.59 | .00 | 20448.37 |
| | Scratch Width | 1251.54 | 623.09 | .00 | 1917.39 |
| Maxillary mesial-buccal cusp | Pit Length | 3423.37 | 4275.47 | 345.58 | 17010.22 |
| | Pit Width | 1340.88 | 795.40 | 183.04 | 3704.78 |
| | Scratch Length | 14524.30 | 6950.07 | 405.19 | 28126.02 |
| | Scratch Width | 1229.05 | 563.64 | 99.76 | 2127.84 |
| Maxillary mesial-lingual cusp | Pit Length | 6188.91 | 5023.66 | 242.04 | 16327.88 |
| | Pit Width | 3352.66 | 2553.47 | 147.07 | 8062.30 |
| | Scratch Length | 13631.33 | 7930.37 | .00 | 30710.18 |
| | Scratch Width | 1223.49 | 984.35 | .00 | 4313.91 |
| Mandibular distal-buccal cusp | Pit Length | 4960.01 | 4185.23 | 1670.42 | 14848.52 |
| | Pit Width | 2071.53 | 979.81 | 983.00 | 4217.52 |
| | Scratch Length | 10641.35 | 5955.34 | .00 | 20078.86 |
| | Scratch Width | 1335.65 | 682.33 | .00 | 2432.07 |
| Mandibular distal-lingual cusp | Pit Length | 3575.76 | 1225.25 | 2392.41 | 5791.54 |
| | Pit Width | 1789.48 | 531.83 | 1106.96 | 2710.26 |
| | Scratch Length | 18462.73 | 6733.38 | 10397.78 | 28772.41 |
| | Scratch Width | 1938.31 | 402.07 | 1321.19 | 2529.94 |

Table 3: Descriptive statistics per molar cusp.

| Cusp | Property | Mean | Std Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Mandibular mesial-buccal cusp | Pit Length | 1752.35 | 555.25 | 998.96 | 2925.43 |
| | Pit Width | 1145.20 | 230.99 | 807.79 | 1554.68 |
| | Scratch Length | 16760.81 | 4731.13 | 9027.46 | 23197.54 |
| | Scratch Width | 1298.29 | 195.74 | 912.06 | 1579.33 |
| Mandibular mesial-lingual cusp | Pit Length | 2564.69 | 2178.05 | 282.16 | 7559.54 |
| | Pit Width | 1271.14 | 810.67 | 182.75 | 3057.30 |
| | Scratch Length | 10429.74 | 9879.68 | .00 | 33111.37 |
| | Scratch Width | 1114.30 | 739.93 | .00 | 2361.85 |

Table 3 (continued)

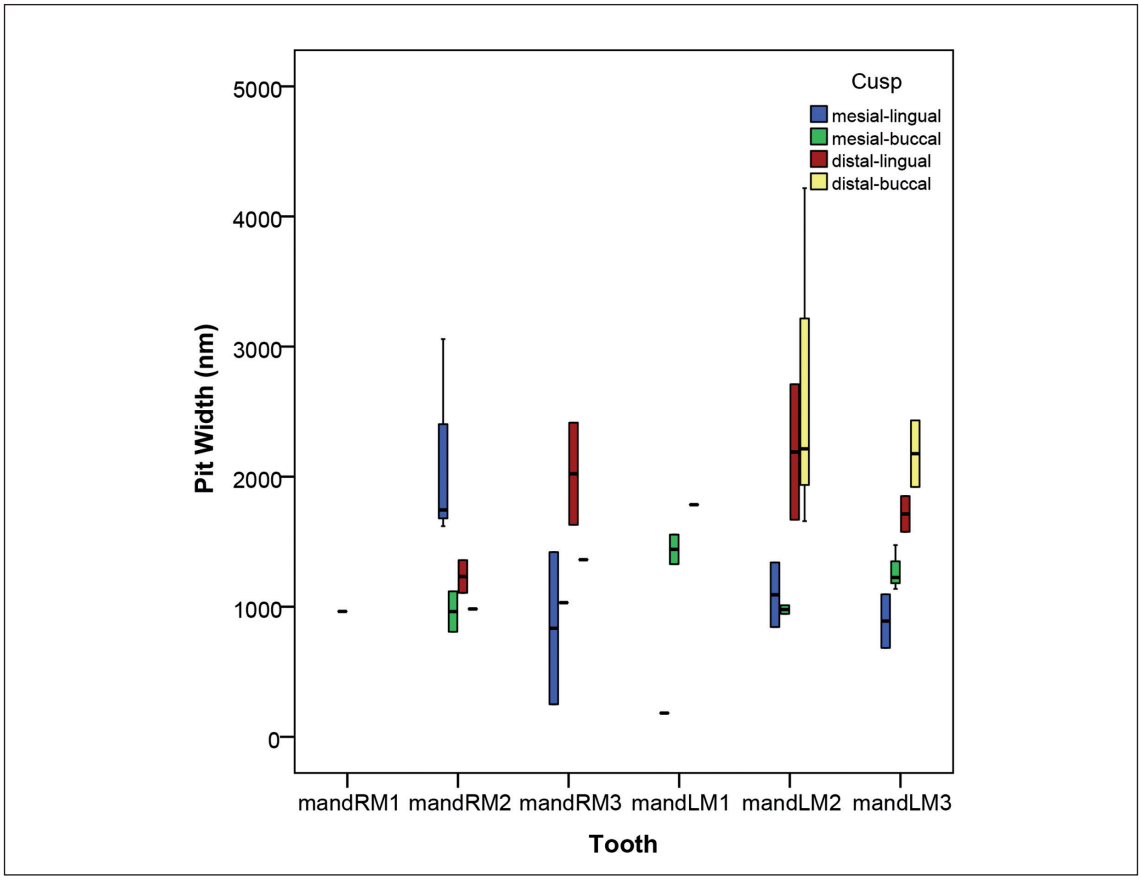



Fig. 3: Pit width per tooth and cusp (mandibular teeth).

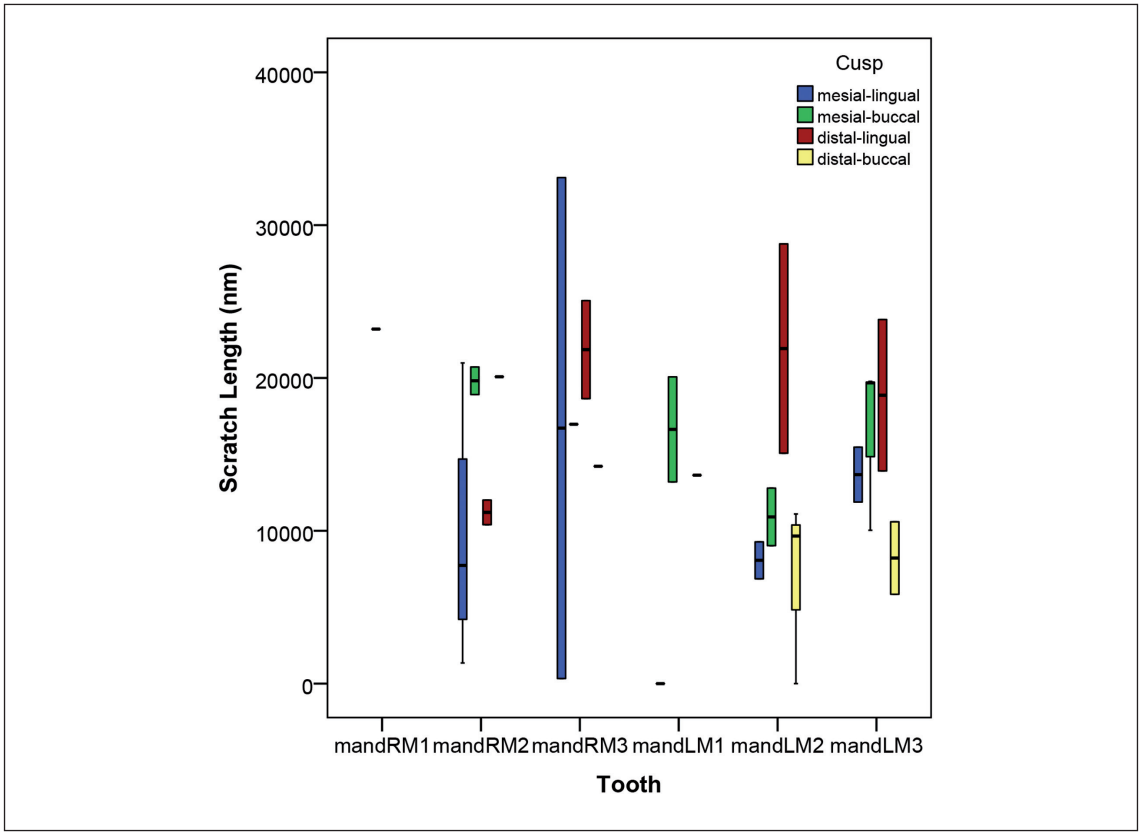



Fig. 4: Scratch width per tooth and cusp (mandibular teeth).

lingual cusp (pit width: p-value = 0.004), as well as the mesial-lingual versus distal-buccal cusp (pit width: p-value = 0.009; scratch length: p-value = 0.017; scratch width: p-value = 0.004).

The statistical tests used in this study identified limited statistically significant inter-cusp and inter-tooth variability in dental microwear patterns. This finding suggests that in dental remains where crushing/grinding facets are no longer present due to dental macrowear, we could examine any one of the molars present in the sample and the perimetrically preserved enamel rim of any one of the cusps in order to draw conclusions on dental microwear and associated dietary and extra-masticatory patterns. However, an inherent bias in statistical analysis is that with small sample sizes (such as the one in the current study), it is very hard to obtain statistically significant results even when a significant effect is present. The values presented in the tables above suggest a certain degree of inter-tooth and inter-cusp variability in the number of pits and scratches, as well as variability in the dimensions of these features, despite the results of the statistical tests. More research is required with larger and more diverse samples before we can draw meaningful conclusions and our preliminary results highlight the need for such initiatives.

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## Notes

[1] Daegling – Grine 1999; El Zaatari 2008; Lawrence 2019; Mainland 2003; Organ et al. 2005; Silcox – Teaford 2002; Teaford et al. 2001; Ungar et al. 1995.

[2] Maas 1991.

[3] Gordon 1982.

[4] Strait 1993; Teaford 1985; Teaford – Runestad 1992.

[5] MacFadden et al. 1999; Solounias – Moelleken 1994; Teaford – Walker 1984.

[6] Scott et al. 2006; Teaford – Walker 1984.

[7] DeMiguel et al. 2013; El Zaatari et al. 2005; Grine et al. 2012; Hopley et al. 2006; Merceron et al. 2005; Nystrom et al. 2004; Ungar 1996.

[8] Grine et al. 2006; Margvelashvili et al. 2016; Scott et al. 2005; Teaford et al. 2002; Xing et al. 2017.

[9] Bullington 1991; El Zaatari 2008; Krueger – Ungar 2010; Ma – Teaford 2010; Mahoney 2006a, 2006b; Organ et al. 2005; Schmidt 2010.

[10] Aliaga-Martínez et al. 2017; Scott et al. 2006, 2012; Ungar 2011; Ungar et al. 2003.

[11] Larsen 2015.

[12] El Zaatari 2008; Horwath et al. 2014; Mahoney 2006a, 2006b; Mahoney 2007; Organ et al. 2005

[13] Gordon 1982; Mahoney 2006a.

[14] Andreiomenou 1994; Sabetai 1995, 1996, 2012; Nikita et al. 2019; Vlachogianni 1997, 1998, 2003, 2012a; 2012b; 2013; Vlachogianni et al. 2008.

[15] Mainland 1994; Solounias – Semprebon 2002.

[16] Teaford – Oyen 1989.

[17] Merceron et al. 2004; Semprebon et al. 2004.

[18] Scott et al. 2008.

[19] Fraser et al. 2009; Lawrence 2019; Theodor – Furr 2008.

[20] Grine 1986.

[21] Grine 1986; Mainland 2003; Merceron et al. 2004.

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Fig. 1–4: by authors. – Tab. 1–3: by authors.

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# SESSION 7

## Economy of cult: investment, religious and ritual consumption, economics of death

# Keynote

# Economies of Religion: Symbolic, Communicative and Spatial Terms of Religious Production and Consumption

**Jörg Rüpke**

**Abstract**

In the case of contemporary religion, attempts to analyse the financing of religious institutions and the 'economy of religion' in terms of *homo economicus* and rational choice theory have repeatedly been addressed and criticised. As regards antiquity, the major focus of analogous studies has been the economic nexus implied by sacrificial consumption, or, to a smaller extent. On exotic requisites for more elaborate rituals such as spectacles. This keynote lecture briefly reviews these issues (section 1), but takes a fundamentally different approach, starting from the issues of religious agency, lived ancient religion and the urban setting of much of what we can represent as religion in the ancient world. I argue that ancient religion involves three different sorts of 'economy' that are incompatible with the notion of 'balance sheet' and cannot be represented meaningfully in monetary terms, namely the symbolic or political economy of religion, the economy of religious communication and the economy of space.

Of the three substantive sections, the first argues that religious practices – that is, cult formally addressed to divine beings – were given a crucial role in establishing specifically public roles and created cultural capital that could readily be transformed into political authority. The argument of the second section is that the very logic of communication with non-human addressees stimulated massive investment into media that both increased the efficacy of religious communication and produced religious goods that subsequently became available for consumption or reuse by others. Finally, given the density and diversity of ancient cities, space was a scarce resource that prompted different types of religious use, for example in increasing (and sometimes reducing) competition in different types of sacralisation and the use of space over time. The lecture will mostly rely on examples taken from the city of Rome, but will attempt more general conclusions.

## 1 Economics of Religion: Methodological Options

When Burkhard Gladigow presented the results of a Tübingen research group working on 'economics of religion' (Religionsökonomie) at the biennial national conference of the German Association for the Study of Religion at Bremen in 1994,[1] he was reacting to the recent rise of economic theories of religion developed by American sociologists, in particular Rodney Stark, William Bainbridge and Laurence R. Iannaccone,[2] which

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had already attracted critical discussion in the USA, for instance in an issue of "Social Compass" in 1992.[3] The main methodological innovation of this approach was the application of rational choice theory to religious commitment and the development of religious groups under the conditions of a hypothetical 'religious market' determined to maximize their own profit, each agent determines their investment (i.e. religious commitment) in the light of the immediate social rewards to be expected and the recompense promised for perceived deprivations, ranging all the way from lack of political and economic power to the fact of mortality. It was indeed its apparent ability to explain seemingly irrational behaviour with reference to goods not otherwise seen as relevant in economic theory that gave this approach its appeal. However, given the problems involved in transferring the theoretical model of totally rational economic actors to actual behaviour, it now seems obvious that the temporary success of the approach was due primarily to the prestige of the economic model itself.[4]

As far as German "Religionswissenschaft" is concerned, the idea of "Religionsökonomie" was immediately expanded to combine the application of behavioural theories developed in the discipline of economics *to* religion with the study of religions as factors *in* the economy and economic aspects *of* religious actions, including the financing of religion. Thus, traditions of research going back to Adam Smith and Max Weber were linked to then topical concerns about the financing of the major confessions and the question of church taxes as an annex tax to income taxes raised by a German State in the process of integrating the de-Christianized former GDR.[5] The concept of "Religionswissenschaft", understood as a discipline aiming to trace the history of religions in the plural, together with their textual productions, material expressions and institutional forms in different societies and at different periods, as well as the nature of religion *as such* (an aim much criticised and refined in recent discussion), demanded nothing less.

It was in that context that I myself embarked on an analysis of the financing and economic behaviour of Roman priests.[6] The starting points of such a project were a substantive conception of economy as the field of production, exchange, and consumption, and a substantive conception of religion, identified as those activities related to communication with actors considered in a loose sense as transcendent.[7] Any division of labour that has a place for religious specialists and organizations must involve the concomitant transfer of material resources, since both the infrastructure (e.g. sanctuaries) and the regular performance of a cult need to be kept up over the long term. At any rate in antiquity, direct financing via contributions such as pastoral perquisites, collections, fees or cost-sharing seems to have been the exception; occasional but generous contributions from patrons more important. The ownership or leasing of land by temples guaranteed long-term stability and was widespread in Mediterranean antiquity and far beyond. Over the short term, of course, pilgrimage centres or individuals offering specialist religious services (healers, soothsayers, magicians, makers of devotional objects) had to make a living, but even so the conditions of an economic market, such as complete product information, price-transparency, and price elasticity of demand, are

hardly present. It is thus obvious that factors such as redistribution and the different types of reciprocal exchange familiar since the work of Karl Polanyi need to be taken into account.[8]

The insights thus gained can be illustrated by a quick look at the economic aspects of sacrifice.[9] Pigs and sheep were the main private sacrificial victims. Public sacrifice however was dominated by cattle, which were substantially more expensive but of course provided more meat. As for age, the victims in private contexts were usually young animals: they were not too expensive, but could still feed a small group. There is a world of difference between having to buy a choice, fat, adult pig for sacrifice, or a small sucking-pig. The *sacra publica* provided a model, representing an 'ideal' ritual order, but it was not necessary to copy them in every detail. This is quite clear from Cato's account in his *De agricultura* of the *suovetaurilia,* i.e. the parading and sacrifice of pig, sheep and bull, to be performed at a farm, in the course of which he substitutes young animals for adult ones – in a text that advertises the investment of capital in agriculture.

Animals had to be bred, raised, bought and transported to the place where the sacrifice was going to take place. This presupposes an entire industry. The sacrificial rules had to be co-ordinated over the "longue durée" with the basics of stock-rearing. If the stock-rearing economy proves unable to provide the animals required for sacrifice, traditions break down. Thus, store animals were eaten relatively, but not extremely, young.[10] In the case of pigs and cattle, the ratio weight-gain/feed-costs reached an optimum of between 12 and 16 months. If the animal is kept alive longer, the ratio progressively decreases. The sacrificial rules were therefore likely to call for animals of this optimum age. Since it is omnivorous, the pig was a very attractive animal for meat-production alone. The case is more complex with cattle, which in antiquity produced meat, milk, hides and labour. In general, males were fattened and killed as steers (i.e. castrated in the age of two to four months), unless they were intended for farm-work as oxen; females were only killed around the age of ten years, once they became too old to carry calves to term. There was thus a very high proportion of suckler-cows to breeding-bulls in a herd, around 70 cows to 2 bulls. Both males and females could be used as work animals, the males of course being castrated; they were slaughtered when they became too old to work (9–10 years old). Under these conditions, the ox was understandably the main parade sacrificial animal, and pregnant cows common; rules that call specifically for bull-sacrifice, however, were bothersome, since bulls are hard to handle and might have to be kept in the herd longer than their value for breeding strictly warranted.[11]

Analysis of archaeo-zoological finds, to which ever more attention is paid these days, confirms these general conclusions. In Greece, emphasis was laid on the production of (sheeps-)milk and wool, for clothing. That corresponds to the majority of Greek sacrificial rules that we know of, or at least does not contradict them: sheep were the standard sacrificial victims. Overall, the consumption of meat was low; in the case of Greece, it is calculated on the basis of the taphonomic evidence to have been less than one kilogramm per person per year. If the amount of meat envisaged by the Athenian

calendar of official public sacrifices is divided by the number of persons theoretically entitled to partake in the meal, we get a consumption of roughly two kilogramms per participant per year, which is quite a lot for antiquity. Athens must have been one of the few places where more animals were sacrificed than were bred in the surrounding countryside. Such quantities imply the relatively large-scale import of ungulates for sacrifice. In Rome, by contrast, the finds in the Area Sacra of Sant'Omobono included a large quantity of pig bones. The Athenian pattern of increased meat consumption seems to apply to Rome as it expanded to become a great power. On the other hand, as later Roman sources confirm, the cultural dominance of sheep in Greece gives way in Rome and west-central Italy to that of pig. This is however not the case either in the old Greek areas of southern Italy, where sheep maintained its dominance, nor in northern Italy, where both cattle and sheep remained important. The dominance of pork, just raised for the purpose of eating, rather than of beef eaten at the end of the life of an animal working or even producing milk and offspring, might been an indicator of the comparative wealth of urban regions as well as central Italy as a whole.[12]

However, granted the importance of attending to the economic effects and long-term sustainability of certain religious practices, and their responsiveness to environmental and economic change, this is not what I intend to discuss here. Instead, I propose to follow the lead of the German historian of religion, Anne Koch, in her recent introduction to "Religionsökonomie"[13] and add yet another strand to the collage of approaches that she describes. As we all know, a number of social or anthropological theories that focus on culture rather than economy make use of economic metaphors. Bourdieu's concept of 'capital' is perhaps the best known example. In the final book of "The Wealth of Nations", of course, Adam Smith had already discussed under the rubric of 'political economy' the role of sectarian religion for immigrants to early-modern English cities, the significance of religious institutions for moral education, and the economic behaviour that ensues from this. However, as Smith pointed out, such effects are not one-directional but also condition clerical behaviour and outlook. Religious action is thus a factor in the institutional framework of a market economy; but it is at the same time a product in the market of respect and prestige. For this reason, in what follows I focus on Bourdieu's notion of 'symbolic economy', picking up his reflections on different types of capital other than purely economic. More concretely, I argue that in antiquity religious practices – that is communication formally addressed to divine beings – played a crucial role in establishing specifically public roles, creating a form of capital that could easily be transformed into political authority. The notion of the 'political economy of religion' will be used in this narrow sense. Likewise, my second and the third 'economies' are viewed as modes of production, exchange and consumption in specific fields, each looked at from a different analytical perspective. The 'economy of religious communication' deals with the logic of communication with non-human addressees. The attempt to gain relevance in such communication stimulated massive investment into media that increased the efficacy of religious communication and produced religious

goods that, in the long run, became available in turn for consumption by others. Thirdly, given the population density and diversity of ancient cities, space was a scarce resource that prompted different types of religious use, for example in increasing (and sometimes reducing) competition in various forms of sacralisation, and the use of space over time. This is the 'spatial economy', only very marginally related to the property market, that I discuss briefly at the end of the paper.

## 2 Political Economy of Religion

Sometimes rituals in or at a tomb might be witnessed by just a few people, in other cases by many, extending well beyond the group of primary participants. Processions might attract the attention of large numbers. Durable media such as *stelai* or entire buildings made it possible to extend the 'attention-period' far beyond the occasion of the ritual activity itself, thus providing an opportunity for agents both in the immediate vicinity and even far off to compete for distinction on their own account. Sacralising a location might form a focus for religious activity: the tomb served as a medium for the family to communicate with its deceased members, thus providing a location, images, and narratives that others too could adopt as a collective identity, and so integrating themselves into the wider family, and perhaps thereby foregoing other possible identities. Other cult locations might perform similar functions. They too encouraged members of other houses and families, perhaps even newcomers, to participate in religious activities, and often without identifying a particular divine addressee.

If religious communication provided an opportunity to reinforce or create collective familial identities that might ultimately extend to larger associations of families, i.e. clans, for which we should use the Roman and Latin concept of *gentes,*[14] the same applies to territorially defined associations. In the case of central Italy, these groups were probably the *curiae,* which we should perhaps understand as extended neighbourhoods,[15] but also 'hills' (*montes*), 'tribes' (*tribus*) and quarters (*vici*) at Rome, which correspond to the phratries and *genê* in Athens.[16]

If under the heading of political economy of religion we now turn to the state and the city, the first thing to note is that the idea of 'state' at least is highly problematic at least for the Roman Republican period, if not beyond.[17] Great clans defined the political fate and the cohesion of Rome well into the medieval Papal era, whether in confronting one another or competing for positions, even to the extent of installing small children into high office, or in their readiness to tolerate and support centralised administration. The readiness of such clans to cooperate in particular instances varied dramatically, as did the degree to which social imaginaries were able to develop into collective identities enjoying a degree of institutionalisation. In fact, the term we should keep constantly in mind in the case of the Roman Republic is 'precarious statehood'.[18] The development of a strongly-marked, shared, imperialist orientation towards the outside world, and

the conception of a broadly-based common interest, ethos, and division of power, both of which emerged among the elite in the second half of the fourth century BC,[19] were constantly in conflict with efforts to anchor within the institutional fabric the factional interests of increasingly vocal special groups, such as landowners, veterans, the landless, and others, combined with ever more pronounced concentrations of power in the hands of individuals.

From day to day, the common cause found visible expression in the magistrates, distinguished by the broad purple stripe on the tunic and in most cases elected for only one year. It was these men, the *praetores, consules, aediles,* whose titles were etymologised to mean 'those who walk in front', 'counsellors' and 'builders', who, along with their personal assistants and slaves, in principle saw to such official business as there was. Their presence was felt not as 'departmental heads' in an administration, but rather in dealings with the plenary assembly of hereditary or promoted nobility (in other words, the Senate) and the various types of popular assemblies, and of course as military commanders. Religious activities, in the form of praying aloud, leading processions, or presenting gifts to a deity, were occasional parts of their roles and could also take their own supplementary forms.[20] Magistrates also took part in rituals that took place outside Rome, such as the *feriae Latinae* on the Mons Albanus, and occasional rituals at Lavinium,[21] and might enter into religious communication with inhabitants of more remote parts, which was a practical impossibility for other city-dwellers. In either case, these occasions involved various forms of indirect communication, for example via communiqués, inscriptions and poetic representation.[22] Here, we may see attempts being made to exploit the advantages of secrecy, so well set out by Georg Simmel more than a century ago.[23]

These persons also built on their religious activities within their house or clan to create greater opportunities for direct encounters with the populace. Thus, to stay at Rome, lavish games, grand occasions of animal sacrifice, or simply *viscerationes,* i.e. the large-scale distribution of meat out of the surplus stock of this land-owning elite, were an important element in the construction of a *res publica* that, as regards the free citizenry, represented less a form of political communication and co-deliberation than a forum for the staging of asymmetrical exchange. The same is true of demonstrations of the elite's power of disposition over building-materials such as stone, clay and timber, and the employment of free labour for the construction of temples and other religious infrastructure. Such asymmetrical exchange assured the maintenance of inequalities, obligations, and the recognition of shared values over the long term. In increasing numbers competing intellectuals fundamentally criticised these religious strategies, criticising sacrifice and replacing it by discourse and knowledge,[24] a good the prize of which and the scarcity of which was deliberately driven up.

We may now turn to the special group of the priestly college of *pontifices.* These men, whose title was etymologised as 'bridge-builders', appear to have dealt mainly with problems involving the validity of norms across clan or family boundaries, above

all claims that had been raised concerning issues involving religious action. Even if claims formulated in religious terms were not a separate category, they were raised with particular urgency. It may have been inevitable that the arbitration committee itself, i.e. the senators as representatives of all the clans, also used religious communication, and was a participant in the ritual that constituted the most elaborate of all mechanisms for resolving inter-clan problems, namely the plebiscite, the vote of all the people. It has been surmised that the bridge that the pontiffs were supposed to have built was the gangway, called *pons,* leading to the poll. The name might have arisen because it was here that their function became most visible. If true, this might explain the pontiffs' later function as experts in, even inventors (or translators) of, what was emphatically non-religious law (*ius*), as well as their assumption of a supervisory legal role over important categories of religious activity, and the associated functions of religious actors. These individuals thus contributed to the definition of a specific sphere of action known as *publicum,* distinguishable from *privatum* and *sacrum.*[25]

The major players who decided to invest in temple-construction quite consciously left behind far more visible traces than those resulting from discussion of ritual rules. This more concrete opportunity for obtaining distinction by means of religious activity became even more important at Rome from the end of the fourth century BC. The complexity of the religious communication that might arise in this connection extends far beyond the choice of a particular divine addressee. Even in the case of the great Capitoline temple of Jupiter, there were clear references to Juno, his consort, and more or less ingenious tales to explain them.[26] However that may be, the architecture itself was a more visible and effective factor. Collaborating with the architects, those who commissioned temples could express and communicate their desires regarding external size and shape, and internal design in terms of spatial effects and decoration, as well as the image of the god, its size and positioning in the inner room, the *cella.*[27] This is especially evident in the choice of unusual forms, such as the famous round temple to Fortuna dedicated by Q. Lutatius Catulus after the battle of Vercellae in 101 BC.

Leading members of the clans in Rome had increasingly found that, in organising games for the gods, they had also discovered a medium of communication with the citizenry. In the fourth century BC, the 'circus games' comprising aristocratic chariot races became associated with stage-farces and, in the final third of the third century, comedies and tragedies in the Greek style. As well as broad themes of Greek city life, the subject matter included Roman history and pan-Mediterranean mythic history. The institution itself served to profile not so much the actors, who were kept as far as possible concealed behind masks and socially segregated, as for the patrons and benefactors; anyone who had taken on himself to defray the cost of putting on games was taken up and advanced socially. The heightened expectations of the gods thus expressed – the gods after all were conceptualised as the primary recipients of these performances and honoured by their quality and quantity – were an aspect of electioneering highly prized by political players at the end of the Republic.

In the Greek cities with their restricted citizenries, permanent theatres had commonly been constructed for shared celebration and reflection since the fifth century BC. Beginning with Syracuse, the governments of Italian cities founded on the Greek model also decided in favour of such structures in the following centuries, initially in Sicily, but later also in for example Metapontum and Locroi Epizephyrii, in the second century in Campania, and at the end of that century also in Nuceria and Pietrabbondante, and perhaps in Lanuvium too.[28] The architectural element was of course also part of the gift to gods and humans. The initiating elite did not have complete control over the dynamics resulting from the ritual institution and the architectural space. Already in the first century BC, actors such as Decimus Laberius could become highly paid solo performers, while charioteers in the Imperial age were celebrated like pop stars. Aphorisms (*sententiae*) extracted from the mimes of the former slave Publilius Syrus marked the everyday moral awareness of several generations, while the fan clubs of the four chariot teams marked the divisions between political positions of city-dwellers in Late Antiquity. Spectacle thus afforded some of the most significant developments in Rome's religious history. That the political elite was prepared to bear the enormous costs shows how seriously they took this form of direct communication in a city that was increasingly becoming a metropolis. Although building temples remained a common option, financing games became ever more important.[29] By contrast with a temple, the racetrack and the theatre offered fine opportunities for calling attention to oneself, and winning popular favour by staging spectacles that were worth seeing.

Members of the elite used the possibilities of religious communication for various purposes. For the political players such a 'transcending' reference was ideally suited for creating a communicative space beyond the *gens,* combining an emphasis on shared interests with the exploitation of religious activity as a field for competition and distinction. This flexibility helped ritual activity and religious architecture achieve a high degree of dynamism: ever new possibilities of religious communication were invented, or existing Mediterranean-world traditions appropriated and altered in order to manage the problems thrown up by Rome's imperial expansion, by the remorseless growth of the urban space, and by increasing social differentiation and competition. It was not only the significance of religious practices that increased with the growing complexity of the institutions required to administer the 'common cause', but also the pressure to develop rules and fix practises. Throughout the 2nd and 1st centuries BC the strategy of tacit modification lost its former flexibility. It may have been this situation that triggered a new reflexivity, altering the notion of 'religion', or perhaps even creating it for the first time. Varro, Cicero, Lucretius offer ample evidence for that.

## 3 Economy of Religious Communication

In studying the ancient Mediterranean world, I have suggested that we should theorise religion as communication with special agents (sometimes also objects) – frequently conceptualised as god or gods, but in the period under consideration also as ancestors or demons – that are accorded agency in a not unquestionably plausible way. Communication with or concerning such divine agents might reinforce or reduce human agency, create or modify social relationships, alter power relationships.[30] Thus religious agency is to be understood as a) the agency attributed to such non-human or rather supra-human agents, and b) the agency of human instigators of such communication. We have just seen how political actors could translate religious initiative or conspicuous religious roles into political prestige and power. Our next task is to focus even more on communication.

Religious communication aims at attracting divine attention. The material presence of media acts as stimuli for the gods, but at the same time opens up the dyadic relation (i.e. the human-divine communication) to secondary addressees, audiences and witnesses, connoisseurs and tourists. Thus, spoken prayers and written curses, family sacrifices and public processions constitute very different publics,[31] while material remains may continue to stimulate responses even beyond the act of communication itself. Let me offer a few concrete examples.[32]

The practice of depositing clay heads in sanctuaries was already popular at the end of the fifth century BC. Coroplasts were able to cater to the new demand by means of a new technology, namely the mass production of images by using either a single or a double matrix. Throughout central Italy, especially at the bigger cult locations, people could thus be offered a supply of heads or – surely cheaper – half-heads[33] that they could use for religious communication. The objects themselves suggested the uses to which they should be put, many of them being provided with stands at their base, by means of which they could be stood securely on podia or benches, in chests or showcases, even on the ground if that was appropriate. The half-heads, on the other hand, had fittings at the back, which allowed them to be hung on walls, thus assuring long-term visibility. The images were not painted, and almost always lacked inscriptions: lack of purchasing power was combined with low literacy. The message conveyed to gods and humans by donating such items was surely a simple one: the architecture and decoration may be splendid, and we know all about the people who paid for this shrine, and their position as members of the economic, military, political elite – and now, to top it all, but we too "are also here". These objects make our communication relevant, visible and lasting.

I turn now from religious practices in spaces accessible to the public to the domestic sphere and switch to the first and later centuries AD. For many in the great Imperial age cities and metropoleis, the street was a kind of 'house' comprising different rooms, and indeed constituted the primary living space. It were only the few owners or tenants of houses, who were able actively to choose the architectural features and furniture of

their homes, thus creating a sort of religious 'infrastructure' or even atmosphere that could also be opened to and used by visitors in a multitude of ways. Lighting played a large role here, and not just with reference to the spaces to be illuminated and used; for there was also the question of which spatial elements, say mural decoration or items of furniture, should be moved into the light. Lamps themselves were instruments of religious communication of the first order.

The same applies to another, vital religious apparatus, namely the altar. The slender, decorative, often richly decorated, Italic altar, and perhaps its portable and collapsible equivalent in bronze, also had its place in the garden.[34] It was used as an unmistakable sign of communication with a presence that was not otherwise immediately obvious to the eye, whether of 'gods' or the 'dead'. Its use was unthinkable without a flame or a libation. Yet the altar was not merely a piece of apparatus to be used, but was itself an enduring act of religious communication, inasmuch as its decoration often depicted ritual procedures and the instruments and materials required. It could be activated still further with a minimum of effort, by placing a lamp or flowers in front of it, or uttering some words, or singing a song. Other common options included the offering of cakes of various kinds, with a variety of different tastes and smells.

Practices used in houses (or in the street) might also be used in institutional spaces designed for religious communication, such as temple-grounds and temples. If graffiti were welcome in the home, as an emphatic reaction on the part of invited guests, this minimal but durable form of linguistic communication may also have played a role within the precincts of temples. That was demonstrably the case at Dura-Europos on the Euphrates at the eastern extremity of the Roman Empire. There, in the temples and assembly buildings of Jews as well as worshippers of Christ and Mithras, people endeavoured to place their requests to be remembered or blessed as closely as possible to the focus of religious communication, close to the cult image, on mural paintings, or in corridors; in doing so they also of course appropriated the great two- or three-dimensional signifiers of religious communication installed by others. Altars, both great and small, and increasingly lamps as offerings continued to play a large role in the Imperial age, sometimes at the expense of the practice of depositing objects. Such objects could keep the memory of religious practices alive at least to some extent and themselves attract interpretation, and so inviting new religious acts with new motivations.

The attribution of meaning as well as the imagination of effects does not come ex nihilo, but draws on previous experiences, shared meanings and imaginations, and shared strategies of interpretation.[35] Even if such evocations are in principle limitless, the range of interpretations is usually relatively restricted, although individual creativity is always possible.[36] There is no zero point in an encounter between a user and a sign. To articulate such an encounter or, more precisely, the experience evoked by a sign, is already to participate in a language and the shared meaning it encapsulates.[37] To say this, however, is not to advocate a culturalist approach. Linguistic research has demonstrated how quickly language may change and emphasised inter-personal and inter-group differ-

ences. The variety of meanings that can be conveyed, which of course are often purely implicit or oblique, as well as meanings communicated in form of narratives or images, go far beyond the clear-cut dichotomies favoured by structuralist interpretation or the systematisations attempted by indigenous or academic 'intellectuals'.

## 4 Spatial Economy

Let me stick with and deepen the notion of space. In using the term spatial economy, I am thinking of urban space, for the ancient Mediterranean urban world was as much conditioned by the density of its interactions as by a discourse about the unique quality of urban space. Here, however, I only have time to focus on Rome, while maintaining that what I have to say holds good elsewhere.

I have already mentioned temples several times. They are eye-catching, often expensive, occasionally overwhelming, elements of the built environment, fully dedicated to religious use – without excluding other usages, banking for instance.[38] Lists of temples feature prominently in ancient descriptions of Rome as well as in modern histories of ancient "religion". They are taken to be the physical form of the 'pantheon' of the city, thus defining its 'religion'. Naturally, as ancient observers stressed, this has an economic dimension. The role of temples in the *Res gestae divi Augusti* is telling in this regard. They figure prominently in the summary at the end, being listed first among the new *opera* (August. *gest.* 35 app.2). In the following sub-section, the restoration of 82 temples, *aedes sacrae,* is mentioned immediately after that of the Capitol (35.3). The very last word of the Latin text sums up Augustus' immense expenditure on spectacles, donations, and subsidies as simply impossible to totalise, it is just *innumerabilis,* in the Greek, *apeiron plêthos* (35.4). In the text proper further details are given, locations (19) or the extraordinary expenses for those that were built on private property, which Augustus had to acquire for the very purpose (21). The value of the objects displayed in these and elsewhere is given as 100 million sesterces (ibid.). All in all, his is the perspective of an accountable administrator, of the initiator of architectural projects, intended not only for a Roman, but an Empire-wide, audience. At the same time, such details are above all part of a symbolic economy, highlighted now by a player whose stage is the world, at least the bilingual world of Latin and Greek. You should know what you cannot see, the Monumentum Ancyranum e.g. tells the reader: the instigator behind a restoration, the real donator behind the name nicely displayed on the building, the value of what you cannot test in a market. The text is very precise to stress where Augustus was behind a donation or building 'in his one name' or without having mentioned his name by the time (e.g. 19–20). Political and spatial economy of religion seem intimately linked.

But what about the perspective of the users of these buildings, those praying, visiting, waiting around, admiring or cursing? Fortunately, we have a contemporary witness, a

text, which may not be representative but nevertheless presents a very different view, one that we can infer was shared at least in some respects by many others – otherwise it would not have been so successful. I refer to Ovid's *Fasti.*

In generic terms, Ovid's *Libri fastorum* is a commentary on the calendar,[39] and in other hands it might well have been just as bureaucratic as the *Res gestae,* with lists and more lists. However, his text presents people going to places and gods coming to places: *eunt, itur,* 'one goes', the imperative *i* (1.249), 'go!', joined by *venire* etc. are frequent. Despite the length of many entries, the text offers no descriptions of temple architecture. Occasionally, the interior of a temple is mentioned as the setting of ritual action (e.g. 1.587). Sometimes the access route, an ascent for instance, is briefly described (1.79, 638). But the viewer is no *flaneur,* nor is this an ancient Baedeker. It is ritual agents who move. The very first description is a model in many respects (1 January, 1.63–88). People move properly dressed (*uestibus intactis*), decked in festive colors (*concolor*). Optical effects are more important than architectural features, here the flickering of the flames and their reflections in the temple's gilding (1.77 f.). I should however stress that the visual is not actually dominant. Religious events were truly multi-sensorial. This is again clear from the very first ritual that Ovid narrates, pointing to smell as well as sound (e.g. *odoratis ignibus … sonet spica,* 1.74 f.). Ovid is less interested in buildings, objects and routes than in integrating interior spaces and open places in dynamic motion. Even statues or images figure very rarely.

Ovid's *libri fastorum* help us to see that spatial economy is far more than real estate, or building- and maintenance-costs. In fact it was not a monetary economy at all. Changes in prices are neither praised nor criticized, luxury is part of the contemporary way of life as much as simplicity was before. The old homespun religion performed with Sabine herbs for instance (1.341–44) is recorded but neither praised nor condemned. By and large, Ovid's accent is on the ephemeral. His interest in space is in lived and embodied space, peopled by ordinary participants, occasionally religious specialists, and – in a different way – gods. This space cannot not adequately be captured by maps, GIS data, or digital reconstructions, and for that reason I have said nothing about them here, despite their usefulness in many other contexts.

Why do I call this an 'economy' at all? Is it not simply about the visual, about perspectives, perhaps performance, too? No, an economy of religious space is about the production, consumption and ex-"change" of space. Religious space is not simply given and revealed in epiphanies. It is produced, sometimes with an intention to keep it permanently sacralised, not least for the reasons I have discussed under the heading of political economy. More often, it is produced *ad hoc,* ephemeral religious space identified by traces of oil, wax or bones or irretrievable. In ephemerally sacralised space, production and consumption of space are closely related. Permanent religious space is consumed, too, by visiting, enjoying, by usage, which causes wear and modification: There is an exchange, the space is accepted and affirmed by modifying it, by depositing one's head or celebrating one's memorial party. Occasionally, price lists are displayed,

but they do not list the most important economic factors, the values attached to such 'lived', enacted as much as imagined spaces, namely the attraction and receiving of the attention of divine agents for successful communication. I am talking economies of religion, after all.

## 5 Conclusion

I have argued that ancient religion involves three different sorts of 'economy' that are incompatible with the notion of 'balance sheet' and cannot be represented meaningfully in monetary terms, namely the symbolic or political economy of religion, the economy of religious communication and the economy of religious space. Religious practices, I have shown firstly, were given a crucial role in establishing specifically public roles and created cultural capital that could readily be transformed into political authority. Secondly, I pointed out that the very logic of communication with non-human addressees stimulated massive investment into media that both increased the efficacy of religious communication and produced religious goods that subsequently became available for consumption or reuse by others. Thirdly, I have proposed to look for production and consumption of space beyond the real estate market.

These three perspectives by no means exhaust the phenomenon of religion, however delimited. Given the objectives of this volume, my aim is simply to make archaeologists aware of the very different logics that may lead to the production and consumption, sometimes even the exchange, of those objects and constellations that form part of the archaeological 'record', and consequently require contextualisations appropriate to those differences. The historian of religion is forced by the notion of economy to give much more attention to the symmetries and asymmetries of exchange, to costs and scarcities of productiion and consumption, and the political, communicative and spatial context of religious action.

## Notes

[1] Gladigow 1995a. I am grateful to Richard Gordon, Elisabeth Begemann and Asuman Lätzer-Lasar for their many comments and improvements, above all the former's thorough revision of language (and argument). In keeping with the general character of this chapter, my annotations are reduced. I thank the organisers of the Congress for the warm welcome and the excellent organisation. A full version is published in Mythos 16 (2022), https://journals.openedition.org/mythos/.

[2] E.g. Iannaccone 1998, Stark u. Bainbridge 1987, Iannaccone 1992.

[3] Critique: Robertson 1992; see also Bruce 1993.

[4] Thus Rüpke 2008; in more detail Rüpke 2007a.

[5] E.g. Lienemann 1989.

[6] Rüpke 1995b.
[7] See Rüpke 2015.
[8] Polanyi 1968.
[9] The following is taken from Rüpke 2007b, 152–153.
[10] For Greece, cf. especially Jameson 1988.
[11] Varro *RR* 2.5.12 notes the rule of having two bulls for 70 suckler-cows.
[12] See Nimtz 1925; King 1999, 169–173 and 192–193, and now Ikeguchi 2017. I am grateful to Richard Gordon for the references.
[13] Koch 2014.
[14] For a full account of the research Smith 2006.
[15] See Smith 2005,78–80 with reference to the Latin background.
[16] Sourvinou-Inwood 2011, 340–353.
[17] The following is based on Rüpke 2018, ch. 5, with further bibliographical references.
[18] Walter 2014, 105.
[19] Hölkeskamp 2011.
[20] See Scheid 2001.
[21] Pina Polo 2011, 104–108.
[22] See e.g. Propertius 4.8.
[23] Simmel 1907.
[24] Ullucci 2012.
[25] In general Mitchell 1984; Schiavone 2012, 56–78; bridge: e.g. Fest. 452.13–22 L.
[26] Plin. *HN*. 36.43.
[27] See e.g. Davies 2012.
[28] Sear 2006, 48–52. For Greece: Kotlinska-Toma 2015.
[29] Orlin 1997.
[30] Rüpke 2015.
[31] For the dimensions of the concept 'public' in a history of religion perspective, see Gladigow 1995b; Rüpke 1995a, 605–628; Fine 2010; Mullaney, Vanhaelen u. Ward 2010; and Wolson u. Yachnin 2010.
[32] The following case studies are parts of my arguments in Rüpke 2018.
[33] See e.g. Turfa 2006, 102, fig. VI.13.
[34] Dräger 1994.
[35] For the latter see Fish 1995.
[36] Joas 1996.
[37] See Jung 2005.
[38] The temple of Saturnus on the Forum Romanum hosted the *aerarium.*
[39] Rüpke 1994.

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# Religious Investment and Ritual Consumption in Peloponnesian Sanctuaries

**Panel 7.1**

**Organized by**

**Stefan Feuser**

# The Heraion of Argos in Comparison to the Temple of Epikourios Apollo at Bassae[1]

**Demetrios Ath. Kousoulas**

This paper concerns the comparison of the Argive Heraion and the temple of Epikourios Apollo at Bassae, regarding the architecture and sculptural decoration as well as a preliminary discussion on the expenses. It is about two important monuments of the Peloponnese, which are contemporary in date.

## Introduction – Historical Frame

The late 5th century BC is an historical period that suffered political, financial and sociological aspects from the Peloponnesian War and led to the following decline of Athens.[2] Despite this historical situation, artistic creation did not stop in Athens nor in other cities-states, as archaeological research has already proved. Was it out of the deep respect to the gods? Or does it show an attempt to show off wealth? John Salmon states that the outbreak of the Peloponnesian War suspended building work at many sites.[3]

## The Temple of Epikourios Apollo

In the region of Phigaleia, near the borders of Messenia, the temple of Epikourios Apollo was built during the Great Plague that occurred in Athens in 429 BC.[4] Greek periegetes Pausanias considered this temple as one of the most splendid throughout Greece: "*ναῶν δὲ ὅσοι Πελοποννησίοις εἰσί, μετά γε τὸν ἐν Τεγέᾳ προτιμῷτο οὗτος ἂν τοῦ λίθου τε ἐς κάλλος καὶ τῆς ἁρμονίας ἕνεκα*".[5] The temple of Epikourios Apollo was made of porous stone, whereas marble was used for the decoration. Its proportions are Archaistic (6 × 15).[6]

Concerning the temple, a series of innovations reveal its specific character. The deep pronaos is considered innovative in comparison to contemporary monuments.[7] The wide cella has a Π-shaped inner colonnade, which consists of Ionic semicolumns that are recognized as an Atticizing element. Another important feature within the cella is the use of Corinthian capitals. In the sculptural decoration, the existence of an Ionic frieze is a particularity of the monument. The small room to the south is considered as an *adyton*.[8]

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## Heraion of Argos

According to Greek mythology, Hera was the patron deity of Argos.[9] The first temple dedicated to her was erected on the southern slopes of Aetovouno hill in the Geometric period and was probably made of wood. The geometric temple was built on the upper terrace of the sanctuary;[10] part of the south stylobates and a retaining wall have been preserved from this period. The five stoai excavated at the site are probably dated to the second half of the 7th century BC.

The Geometric temple of Hera was destroyed during a fire in 423 BC, after the godess' priestess Chryseis fell asleep: "*καὶ ὁ νεὼς τῆς Ἥρας τοῦ αὐτοῦ θέρους ἐν Ἄργει κατεκαύθη, Χρυσίδος τῆς ἱερείας λύχνον τινὰ θείσης ἡμμένον πρὸς τὰ στέμματα καὶ ἐπικαταδαρθούσης, ὥστε ἔλαθεν ἀφθέντα πάντα καὶ καταφλεχθέντα*".[11] The testimony of Thucydides provides a *terminus post quem* of 423 BC for the erection of the Classical temple, which is thus almost contemporary to the temple of Epikourios Apollo.

Eupolemos from Argos was the architect of the Classical Heraion;[12] the dimensions of the stylobates are 17.30 × 16.90 m. The temple is reconstructed as having 6 columns on the narrow side and twelve along its long sides. So, the longitudinal axis is a bit narrower in comparison to the general rule for Classical temples (normally 13 columns in length).

The architectural details as well as the ornamentation reveal the intense influence of the Attic artistic tradition. Scholars have identified a series of Atticisms in the decoration.[13] Within the cella, the Ionic cyma recalls the decoration of the Erechtheion.[14] Roux concludes that Attic craftsmen worked on the Heraion.[15] The sima of the Heraion (figs. 1–6), made of Attic marble, recalls Attic monuments, according to Pfaff, namely in the form of its lion-heads and decoration.[16] The palmette akroteria belong to the complex type with spiral shoots, which is also known from the Parthenon.[17]

However, Pfaff also recognized a series of elements that seem to prove the Peloponnesian origins of the Heraion.[18] A typical example is the access ramp at the front of the temple, which is unusual in Attic monuments, as well as the design of the krepidoma, with steps of graduated height. At Attic temples, the steps are of equal height. A third Peloponnesian element is the differentiation among the mouldings, in comparison to Attic examples.

## The Costs

As far as the costs of both temples are concerned, few has been written till now. Due to the lack of primary sources, the discussion can be only theoretical. The factors that played an important role in the costs of both cases are the size, the materials used, the transfer of the stone and marble blocks, the decoration, as well as the wages of the workers and artists that were employed. As far as the size is concerned, the Heraion is



Fig. 1: Konstantinos Vousouras (sculptor) explains the ways that marble was processed in ancient quarries.



Fig. 2: The first stage after selecting and transferring the appropriate piece of marble is to sketch the motif on its smooth surface.



Fig. 3: The motif is ready to be carved.



Fig. 4: The sculptor works out the motif using a chisel.



Fig. 5: The sculptor uses different angles of his body.



Fig. 6: After finishing the work, he cuts off the slab from the raw part of the marble block.

wider than the temple of Apollo (dimensions of the pteron: 39 × 20 m and 39.87 × 16.13 m respectively). For both buildings, local stones were used, which means that the building material should not be transferred over a long distance.[19] Moreover, as the limestone of Bassae is a harder material than the porous one used in the case of Argos, it is obvious that more working days were demanded. Pfaff also states that a softer, cheaper, and porous stone was used for the foundations of the temple in order to reduce the cost.[20] Despite the Heraion being slightly (3.87 m) wider, it consists of materials that can be carved more easily, and so the cost of the buildings themselves should be approximately the same.

The temple of Epikourios Apollo had elaborate sculptural decoration. In this case, it is probable that Athenian artists worked here. The quality of the work as well as the number and size of the sculptural fragments and the capitals preserved indicate a high cost for the decoration of the temple. On the other hand, the sculptural decoration of the Argive temple is preserved in a poor condition and thus, it cannot be compared in quality and size to the previous temple. Preliminarily, one could say that the temple of Epikourios Apollo had higher costs than required for the Heraion. Further research would enlighten the matter.

## Conclusions

Despite the fact that both temples have almost the same size, the costs in the case of Apollo's temple appear to be higher. This is not only due to its material, but also because of the quality and techniques used for its decoration.

## Notes

[1] For the discussion, I am grateful Mr. Panayiotis Psychas (teacher of a high school and climber), Mr. Konstantinos Vousouras (sculptor), and Christos Pitteros (archaeologist, 4th Ephorate of Antiquities). For the permission of publishing the photos and the help, I would like to thank Mrs. Dora Antonopoulou, Director of the Professional School in Epidauros and the pupils of the Department of stone- and marble-carving. The paper is dedicated with respect to the memory of excavation draughtswoman Maria G. Bavella (†2017).

[2] See Powell 1980, 87–114.

[3] Salmon 2002, 195.

[4] Paus. 8.41.8. However, Cooper (1996, 4) suggests that the epiclesis derives from the Arcadian military force of the epikouroi, who served in Athens during this period.

[5] Paus. 8.41.8.

[6] Arapogianni 2007, 47; Gruben 2001, 128 f. The number of columns, the proportion of length to width and the external dimensions have been, according to Gruben, influenced from the temple of Apollo in Delphi.

[7] Arapogianni 2007, 41; Nielsen 2017, 7.

[8] Nielsen 2017, 7 f.

[9] Paus. 2.15.5: λέγεται δὲ καὶ ὧδε λόγος: *Φορωνέα ἐν τῇ γῇ ταύτῃ γενέσθαι πρῶτον, Ἴναχον δὲ οὐκ ἄνδρα ἀλλὰ τὸν ποταμὸν πατέρα εἶναι Φορωνεῖ: τοῦτον δὲ Ποσειδῶνι καὶ Ἥρᾳ δικάσαι περὶ τῆς χώρας, σὺν δὲ αὐτῷ Κηφισόν τε καὶ Ἀστερίωνα [καὶ τὸν Ἴναχον] ποταμόν: κρινάντων δὲ Ἥρας εἶναι τὴν γῆν, οὕτω σφίσιν ἀφανίσαι τὸ ὕδωρ Ποσειδῶν.*

[10] Strøm 1998, 37–126.

[11] Thuk. 4.133.2; Pfaff 2003, 191.

[12] Paus. 2.17.3: *ἀρχιτέκτονα μὲν δὴ γενέσθαι τοῦ ναοῦ λέγουσιν Εὐπόλεμον Ἀργεῖον.*

[13] Schuchhardt 1927, 147–155; Pfaff 2003, 21 no. 90.

[14] Pfaff 2003, 171 no. 17.

[15] Roux 1961, 58; Pfaff 2003, 23 no. 119; 195.

[16] Pfaff 2003, 181.

[17] Pfaff 2003, 141–143.

[18] Pfaff 2003, 71. 195 f.

[19] For the cost of transport in Antiquity, see Burford 1969, 184–191; Pfaff 2003, 27 f. no. 3.

[20] Pfaff 2003, 27 f.

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# Doric Temples in Southern Arcadia – Who Built Them and Why?

**András Patay-Horváth***

Greek temples were neither indispensable nor really necessary for the cult of the gods. Although they are clear manifestations of Greek architecture and religion (most of them can be regarded as monumental votive offerings or gifts to the gods[1]), their construction was not primarily a religious, or a purely artistic phenomenon. Temple constructions were communal projects *par excellence;* given the large scale of material and human resources involved and also the considerable time needed to complete them, they depended on various political and socio-economic factors. Their analysis cannot, therefore, be reduced to the architectural and cultic perspective but must include the consideration of historical and economic aspects as well.

However, which community commissioned or built a certain temple, why the decision was made to construct one, and how it was financed has not usually been investigated in detail, unless ancient sources provided some explicit information for these questions. Even if there is no surviving written evidence about the commissioning community or the occasion of the temple's building, it was not realized that it is still possible to attempt an answer to these basic questions. In most cases, the size, materials, and decoration of the buildings are clearly discernible and provide a basis for calculating the approximate costs of the construction.[2] Based on this economic evidence and on the location and chronology of the building, one can tentatively reconstruct the historical circumstances of a temple building in certain cases.

This method was applied to a few outstanding monuments, namely the temple of Zeus at Olympia and the temple of Apollo Epikourios at Bassae; I have argued in detail that the historical circumstances were quite different from those mentioned by our written sources.[3] The temple of Zeus at Olympia was almost certainly erected by the victorious Greeks with the booty taken from the Persians at Plataea and the temple of Apollo Epikourios by the *neodamodeis* settled by Sparta on the border of Elis after the peace of Nikias. Later on, Xenophon certainly acted in a similar way, when he was settled by Sparta at Skillous and built a temple for Artemis there (Xen. *Anab.* 5.3.4–7). Victorious Eleans conquering Triphylia can be supposed to have built the temples at Makiston and Prasidaki during the first half of the fifth century BC (Hdt. 4.148). Smaller temples like the temple of Demeter at Lepreon and the metroon in Olympia equally can be supposed to have resulted from military conflicts.

Military conflicts resulting in substantial territorial changes seem to have been the main driving force and the financial basis for building peripteral temples in Triphylia. The general lack of historical narratives makes it ultimately impossible to prove this impression beyond doubt. However, I think it is significant that if there is some evidence, it seems to fit into this explanation very well, irrespective of the widely varying size, date

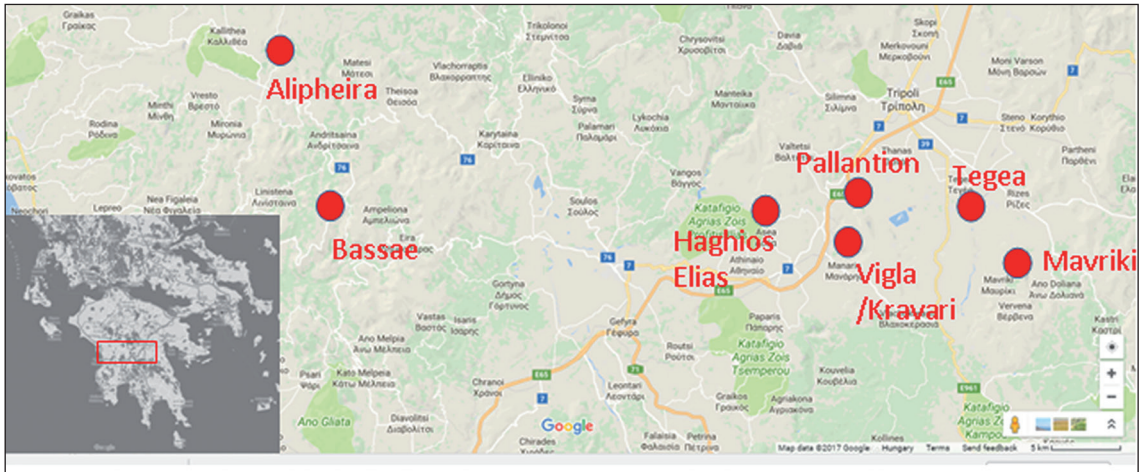
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and geographical setting of the temples involved; there is certainly no positive evidence pointing to some different, peaceful context. Admittedly, it was not always and not only military victories that motivated Greek temple building and there were certainly other financial resources as well. Nevertheless, I think it is worth investigating the remaining temples of southern Arcadia in a similar way. The temples considered here (fig. 1) are Doric ones (not necessarily peripteral), and are made of stone (at least in part), in most cases of local Dholiana marble.

There are a surprisingly large number of them in this region and it is only recently that they received appropriate attention.[4] Architectural investigations clarified their date and they were also considered by historians, mainly as an indicator of economic strength and to express the strong identity of local communities barely known from contemporary literary or epigraphic record.[5]

The only one for which we have some written evidence is Tegea. The military success of Tegea against Sparta was surely exaggerated by the local informants of Herodotus, who described the spolia displayed around the temple, but it is quite impossible that the entire story would be fictive.[6] Lacedaemonians surely tried for a longer period of time to conquer at least some parts of the fertile Tegean plain without any success; there must have been some spectacular Tegean victory even if it did not affect dramatically the entire Lacedaemonian army. Whether the building of the Archaic temple in the late 7th century was connected somehow to this process is not certain, but this is usually assumed and seems to be inevitable. The large, ambitious temple could perhaps be interpreted as a prospective challenge to Sparta, as Østby did, assuming that the temple building preceeded the military conflict. Yet, for practical reasons it is much more likely the other way round: temples tended to be erected as victory monuments after profitable wars, and in this particular case one can easily point out a territory, the conquest of which was celebrated by the temple building.[7] The same certainly holds true for its successor in the 4th century. When the Archaic temple was destroyed by fire in 395/394, the rebuilding could not be started immediately, but only after a successful war and consequent territorial gain of Tegea at the expense of Sparta.[8]

To the south of Tegea, high up in the mountains, at ca. 1,500 m above sea level, there is a small temple at Mavriki or Psilikorphi.[9] It is the earliest temple built entirely from the marble of the nearby quarries at Dholiana and it is occasionally (but most probably not correctly) identified with the temple of Artemis Knakeatis mentioned by Pausanias (8.53.11). Its date has been disputed, but the most recent architectural study by E. Østby has conclusively shown that it belongs to the middle decades of the 6th century, most probably antedating 550 BC.[10] It is usually regarded as a temple built by Tegea, but as Herodotus clearly attests, Tegea did not gain anything in this period. Rather, it was rather Sparta that succeeded in overcoming its old enemy and therefore it makes much more sense to attribute this building to the victorious Spartans than to the defeated Tegeans.




| Location | Deity | Stylobate dimensions | Date B.C. | Colonnade |
|---|---|---|---|---|
| Tegea | Athena Alea | (10 x 37,50) | ca. 600 | Peristyle? |
| Mavriki /Psili Korphi | Artemis (Knakeatis?) | 6,63 x 13,92 | 560-550 | Tetrastyl, prostyle |
| Vigla / Kravari | Athena Soteira / Poseidon (Paus. 8.44.4) | 10,49 x 23,26 | 530-520 | 6 x 13; marble roof |
| Haghios Elias | Pan (?) | 12,04 x 29,51 | 490-475 | 6 x 14 |
| Pallantion C | Katharoi theoi (Paus. 8.44.6) | 11,27 x 25,33 | ca. 500 | Peristyle unfinished |
| Alipheira | Athena | 10,65 x 29,58 | 490-480 | 6 x 15 |

Fig. 1: Doric temples in southern Arkadia.

Actually, Herodotus (1.68) does not speak about a single overwhelming Spartan victory over Tegea, but implies a series of encounters in which the Lacedaemonians regularly defeated their Tegean opponents. He does not specify the consequences of these victories, but since the original goal of the war was the conquest of Tegea, one is most probably not mistaken in supposing that eventually, at least some parts of Tegean territory were occupied and received settlers from Lacedaemon.[11] Thus, it would be suprising to find only the small temple at Mavriki to commemorate this process. Indeed, there is a whole series of Doric capitals from Tegean territory, which attest to other building activities during the second half of the 6th century and might be interpreted in this way.[12] The temple at Vigla most probably belongs to the same context as well: the votive finds found in the sanctuary itself were uniformly of Laconian workmanship,[13] and thus it is quite probable that it was frequented by worshippers coming from or at least sympathetic with Laconia. As Vigla is on the border of Asea, it is generally assumed that it was an Asean building. But this is not necessarily the case, since Pausanias' text (8.44.4) is not explicit about this and even if it were, it is obviously not reflecting the situation at the time of the temple's building. Moreover, the temple seems to have undergone some restoration/renovation during the 5th century BC, but the sanctuary went apparently out of use after the 4th century. This situation would be quite hard to understand if the temple was actually built by the polis of Asea, which seems to have flourished during and after the 4th century BC.[14] Pallantion is definitely closer to Vigla, so it could equally be attributed to this polis, but the Vigla pass seems to have connected Asea to Tegea and not to Pallantion, which was accessed via the lower pass to the north at Kalogeriko.[15] Given the date of the temple around 530 BC, it is very unlikely that Tegea had some important victory (yielding significant booty or territory) to celebrate. Since the temple is located on the fringes of Tegean territory, one can reasonably suppose that this temple was, similarly to the one at Mavriki, also built by Lacedaemonians who settled here after their victories around the middle of the 6th century.

For the interpretation of the remaining temples in southern Arkadia there is absolutely no written evidence to rely on. As an example, Alipheira, which is on the border between Arkadia and Triphylia, is not mentioned anywhere before the 4th century. However, a relatively large and unusual Doric peripteral temple was built here on the acropolis shortly after 500 BC.[16] And this building has a striking counterpart that is roughly contemporary, which could qualify as a twin-brother: temple C in Pallantion. On the acropolis of Pallantion there was a whole series of small temple buildings (none of them Doric, nor peripteral), apparently all built during the first half of the 6th century.[17] Temple C is, however, an unfinished one (the foundations for a peripteros were already added to the earlier building), and this must be due to some specific reason. The usual explanation as rivalry or competition are hardly convincing in this case, because of the large distance between the two buildings. A mere coincidence is equally unlikely. It is much more probable that after abandoning the building project in Pallantion,

the people commissioning/building the temple restarted a similar project at a place far away from the unfinished temple.[18] They were most probably exiles, with the cause of their migration being some internal strife. The quickly completed building project in the new locality certainly indicates some surplus or resources, which could point to an aristocratic group expelled from their home town.

Finally, there is an astonishing Doric temple close to the summit of the Mountain Aghios Elias, located ca. 1,100 m above sea level. It was the largest Archaic temple in Arkadia made entirely of stone and has therefore attracted much attention recently.[19] It was constructed approximately at the same time as the temple at Alipheira and the unfinished Temple C at Pallantion, shortly after 500 BC or during the first decades of the 5th century.[20] It is usually assumed that the temple at Aghios Elias was built by Asea, but I think it is significant that the most recent excavators concluded that, given its size, location, and the enormous costs implied, it is quite impossible to suppose that it was erected by Asea alone. The same authors also suggested that it was a federal sanctuary built by the neighboring communities of southern Mainalia.[21] However, this is hardly more convincing either, since there is absolutely no evidence for such a local grouping or interstate organization (e.g. confederation or amphiktyony) of them. Instead of assuming some kind of federation of these small states, it is legitimate to suppose that a more important *polis* was involved and Tegea is a very good candidate for this, not only because of its close proximity, but also because of the date of the temple. During the first decades of the 5th century, Tegea seems to have recovered from the Spartan attacks and was certainly aspiring for a regional leadership; relying obviously on some allies in neighboring Arkadia, it even challenged Spartan supremacy (Hdt. 9.35).[22]

As strongly suggested by the dimensions and some special architectural features (like the fourteen columns and the krepis with four steps), the temple on Aghios Elias was conceived as a reply to the earlier building at Vigla and was meant to outdo it.[23] This is quite understandable if the temple actually commemorated a victory that Tegea and Asea achieved over their enemies, the Lacedaemonians and Pallantians, who constructed the Vigla temple about one generation earlier.

Provided that the above considerations are not entirely mistaken, one can reconstruct the historical situation leading to the building of these temples in the following way. The temples at Mavriki and Vigla most probably celebrated local victories achieved by the Lacedaemonians over Tegea, which occurred shortly after the decisive turning point of Spartan-Tegean relations, as described in detail by Herodotus. Pallantion, presumably an ally of Sparta, also constructed several temples on its acropolis during the first half of the 6th century. These buildings were certainly erected to represent the identity and independence of Pallantion, but I think this propaganda was primarily directed against Tegea and not against some kind of Lacedaemonian expansion. During the period when these temples were constructed at Pallantion, Tegea was able to resist Spartan attacks; therefore it is likely to have been dangerous for Pallantion as well, which can be supposed to have sought and received some support from Sparta against Tegea. After all,

both Pallantion and Sparta were interested in acquiring some fertile lands of Tegea and thus they were naturally allies.

Afterwards, around 500 BC, the military and political situation changed and Tegea, relying on Asea as an ally, succeeded in overcoming its opponents in the region. The temple on Aghios Elias was built to celebrate a victory most probably over Pallantion, where the pro-Spartan citizens were expelled and built a new temple at Alipheira resembling their old unfinished one at home.

To sum up: Temple building could be seen as an ideal means for strengthening the cohesion of a community, but this is not documented in any case. I suggest instead that military success yielded territorial gain, and that conquests can explain temple-building activities in a much more plausible way. In general, it was not some small Arkadian communities resisting Spartan aggression who built the strikingly elaborate and large Doric temples, but first the victorious Tegeans and afterwards the Spartans penetrating the southern parts of Arkadia at the expense of their Tegean enemies. Only these two large poleis could afford to build representative temples and their competition was the main driving force behind the building projects. This reconstruction certainly fits the chronology of the temple buildings very well, since they were erected in periods when the struggle between Tegea and Sparta was most fierce and building activities ceased as long as Tegea remained a faithful ally or subject of Sparta.

## Notes

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[1] Most recently: Wilson Jones 2015; cf. also Burkert 1988 and 1996; Fehr 1996.

[2] As already observed, "it was upon the size that the cost would largely depend." (Coulton 1977, 74). Building costs for certain temples are preserved or can be calculated approximately. See e.g. Burford 1969 and Prignitz 2014 (Epidauros); Stanier 1953 (Parthenon); Martin 1972; De Angelis 2003, 163–169 (Poseidonia, Selinus and Akragas); and Patay-Horváth 2014 (Olympia).

[3] Patay-Horváth 2015 (for Olympia); Patay-Horváth forthcoming (for Bassae).

[4] Holmberg 1941; Rhomaios 1952 and 1957; Østby 1991; Winter 1991 and 2005. It is worth pointing out that some of these temples are poorly preserved and even some basic features are subject to unexpected revisions. E.g. Rhomaios' view on the amphiprostyle ground plan of Mavriki was generally accepted until Østby 1991, 310 pointed out that there is no evidence for this. Østby 1991, 354–360 Fig. 195 proposed that the temple at Aghios Elias had 14 columns on its flank, but corrected this himself (Forsén et al. 1999, 172 f.) and returned only a few years later to the number of 13 proposed long ago by Holmberg.

[5] "The large number of Archaic temples found in Arkadia attests to the existence of a wide range of well-defined local communities which had developed to such a degree of communal organisation that the construction of a temple was possible and to such a degree of individuality that it was also desirable, in order to assert the local identity in the face of outsiders; the temples themselves may even have served to further enhance local distinctness." (Nielsen 2002, 184). Østby 2005, 501 is more cautious: "These Arcadian temples, which cluster particularly in the half century from about 530 to 480, must reflect a period of eco-

nomical and artistic flowering whose historical background escapes us." Iozzo 1991 and Voyatzis 2000 are discussed at the end of this paper.

[6] Herodotus 1.66. Cf. e.g. Welwei 2004, 93–95. It is often assumed (e.g. Cartledge 2002, 118) that this "Battle of the Fetters" took place during the first half of the 6th century, but as Wickert 1961, 9 already pointed out long ago, Herodotus does not imply a date, and the text rather suggests that it took place considerably earlier. Later sources (like Paus. 3.7.3; 8.5.9) ascribe the first disastrous defeat of the Spartans to Charillos, who is alleged to have been taken as prisoner as well.

[7] As usually assumed on the basis of Paus. 8.45.1, Karyai and Oion were most probably Tegean before the mid-6th century, when these were incorporated into Lacedaemon. (Callmer 1943, 61 f.; Nielsen 2002, 96 f.) These mountain regions, together with Phylake in between them, might well have been the territories annexed by Tegea before building the temple around 600 BC. The undated Tegean victory, when a snowfall came to the aid of the Arkadians (Paus. 8.53.10) can perhaps be connected to this.

[8] For the date and its uncertainty, see Østby 2014, 341–346.

[9] Rhomaios 1952; Jost 1985, 159–161.

[10] Østby 1991, 320–323.

[11] The traditional view that the war resulted in a treaty between Sparta and Tegea, which eventually became the foundation of the so-called Peloponnesian League, was challenged with convincing arguments in my view by Cawkwell 1993, 368–370. Cf. also Nielsen 2002, 188–191. Oion and Karyai certainly were conquered (and because of its location, Phylake presumably as well), but some parts of the Tegean plain could equally be occupied.

[12] Østby 1991, 305 f. figs. 176. 4–9.

[13] Jost 1985, 196.

[14] Jost 1985, 197.

[15] Forsén 2003 63–65 with figs. 39. 70. 71.

[16] Nielsen 2004, 509 f.

[17] For a summary, see Nielsen 2004, 526, for a discussion of the temples Østby 1991.

[18] Østby 1991, 380 f. lists the similarities in detail, Østby 2005, 501 summarizes them and suggests that "the interrupted project at Pallantion was consciously followed up here" (i.e. Alipheira), but does not specify how and why this happened.

[19] Most recently: Forsén 2008.

[20] For the date, see Østby 1991, 360 f.; Forsén et al. 1999, 176 f.

[21] Forsén et al. 1999, 186.

[22] Callmer 1943, 78–87; Wolff 2012, 28–42.

[23] Østby 2005, 500.

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# Wiederverwendete Statuen auf der Skene des Theaters im Apollon- und Asklepiosheiligtum zu Epidauros. Überlegungen zur wirtschaftlichen Situation des Asklepieions in Kaiserzeit

**Stylianos E. Katakis**

Das berühmte frühhellenistische Theater im Apollon- und Asklepiosheiligtum in Epidauros war reich mit Skulpturen ausgestattet, die 137 Jahre nach ihrer Entdeckung noch immer unpubliziert sind.[1]

Im Bereich des Skenegebäudes wurden die folgenden Skulpturen – alle ohne Kopf – gefunden, die heute im Museum von Epidauros aufbewahrt werden:

1. Torso einer überlebensgroßen Asklepiosstatue, Inv. 18, aus der Mitte des 1. Jhs. n. Chr. (Abb. 1);[2]
2. lebensgroße, Statue einer Peplophoros, Inv. 19, aus den Jahren um 400 v. Chr.;[3]
3. Mädchenstatuette, Inv. 12, aus spätklassisch-frühhellenistischer Zeit;
4. Mädchenstatuette, Inv. 11, aus späthellenistischer Zeit;[4]
5. Jünglingsstatuette, Inv. 4, aus spätklassisch-frühhellenistischer Zeit.

Die Asklepiosstatue (1) und die Peplophoros (2) wurden zwischen der Orchestra und dem östlichen Teil des Skenegebäudes gefunden, die Mädchenstatuette (3) im Bereich außerhalb des östlichen Teils der Skene; die Statuetten 4 und 5 kamen hingegen im südwestlichen Raum des Gebäudes ans Licht. Hinzu kommen zwei Basen in den beiden Paraskenien, von denen die östliche einer Statue der Livia zuzuweisen ist, welche die Epidaurier in der Zeit des Augustus aufgestellt hatten (IG IV² 594).

Der antike Aufstellungsort ist nur im Falle der Asklepiosstatue (1) weitgehend gesichert; Asklepios muss am Ende der östlichen Stützmauer der Cavea aufgestellt gewesen sein, wie auch die sehr gute Bearbeitung der Rückseite erkennen lässt. Die Peplophoros und die drei übrigen Statuetten standen offenbar in Zusammenhang mit dem Skenegebäude. Offensichtlich gehörten sie nicht zur ursprünglichen frühhellenistischen Skene, auch nicht zu ihrer begrenzten Umgestaltung wohl im 2. Jahrhundert v. Chr.[5] Bekannt ist ferner, dass die Skene in der Kaiserzeit keine Umbauten erfuhr, wie es bei dem zeitgleichen, kleineren Theater in der Stadt Epidauros der Fall war.[6] Einer römischen Bauphase im Theater des Asklepieion ist die Reparatur einiger Mauern mit Ziegeln und Mörtel zuzuweisen; der Grundriss des Skenegebäudes wurde dabei jedoch nicht verändert.[7]

Es ist jedoch davon auszugehen, dass in römischer Zeit, sehr wahrscheinlich um die Mitte des 1. Jh. n. Chr., in die das späteste Werk (die Statue des Asklepios) datiert wird, oder im 2./3. Viertel des 2. Jhs. n. Chr., in welches die zweite ausgedehnte Bauphase im Heiligtum fällt, beschlossen wurde, die Skene des Theaters mit Skulpturen auszustatten. Ehrenstatuen waren bereits in augusteischer Zeit aufgestellt worden, wie die Inschrift für die Statue der Livia bezeugt. Versetzt wurden damals ältere Werke aus dem Heilig-

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Abb. 1: Torso aus dem Theater im Asklepiosheiligtum in Epidauros.

tum, die Peplophoros, die nun eine Gottheit darstellte, wie Epione oder Hygieia, und die drei Statuetten, die vor allem zu kindlichen Figuren von Gläubigen oder zu Kindern gehörten, die von ihren Eltern mit Standbildern geehrt wurden.[8]

Die Wiederverwendung der Skulpturen aus dem Theater bildet einen weiteren Hinweis auf die offensichtlich schlechte wirtschaftliche Lage des Heiligtums in römischer Zeit. Die zahlreichen Weih- und Ehreninschriften, die im Heiligtum gefunden wurden, nennen nur die Stadt der Epidaurier als Stifter, ohne die Herkunft der Gelder anzugeben. Nur auf drei Inschriften aus der Zeit der Severer und Gordians (IG IV² 610. 612. 613) wird ausdrücklich berichtet, dass die Stadt die Weihung unter Verwendung der Kasse, die die *Hieromnemones* führten, oder *der Gelder des Gottes* ausführte. Es scheint also, dass sich in der 1. Hälfte des 3. Jhs die Position der Priester gefestigt hatte und sie auf der Erwähnung der Herkunft der Gelder für die Weihungen bestanden.

Obwohl die Beziehung des Asklepieions zu Rom an den Anfang des 3. Jhs. v. Chr., auf die Zeit der größten Blüte des Heiligtums, zurückgeht, als der Kult des Heilgottes aus Epidauros in Rom angesiedelt wurde, sorgten die späteren Kaiser nicht für das Mutterheiligtum in Epidauros. Es war also üblich, ältere Statuen, Statuenbasen und auch Architekturteile in späterer Zeit aus finanziellen Gründen an anderer Stelle wiederzuverwenden. Die Untersuchung der wirtschaftlichen Situation in den großen griechischen Heiligtümern während der Kaiserzeit hat erst jetzt ihren Anfang genommen, und es sind wichtige Anhaltspunkte zum Leben und zur Gesellschaft zu erwarten.

## Anmerkungen

[1] Kavvadias 1881 & 1882. Die ausführliche Publikation der Skulpturen wird in den Athenischen Mitteilungen des DAI erscheinen.

[2] Katakis 2002, 5 f. Nr. 1 Taf. 1–3.

[3] Bieber 1928, 37 Taf. V, 2; Bieber 1934, 33. 49. 59 Taf. 18, 1.

[4] Horn 1931, 84 Taf. 31, 2.

[5] v. Gerkan – Müller-Wiener 1961, 80 f.; Isler 2017, 273.

[6] Petrounakos 2015, 76–78.

[7] v. Gerkan – Müller-Wiener 1961, 81–83; Isler 2017, 273.

[8] Vgl. z.B. IG IV², 232, auf der Exedra bei der Tholos: von Thüngen 85–87 Nr. 48 Taf. 34. 35.

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Abb. 1: © Archäologische Gesellschaft zu Athen (I. Patrikianos).

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# Financial Resources and Management in the Sanctuaries in Greece (FiReMa)

**Panel 7.4**

**Organized by**

**Annalisa Lo Monaco**

# ‘Economics’ and ‘the Economics of Cult’: Can a Marriage be Arranged?

**John Davies**

For many years now, some economic historians of Classical antiquity have been invoking modern economic theory in order to replace the simplistic Finley-Polanyi picture by more complex and realistic models. New Institutional Economics has provided one influential model, best illustrated by A. Bresson.[1] Study of investment and risk has revealed the extent and limits of innovation, and studies of estate management led by D. Rathbone[2] and C. Chandezon[3] have explored ‘rationality’. This paper explores a fourth form, the economics of sanctuaries, cults, festivals, and ancient religion. Though a well-established study for the modern world,[4] few Classical historians have explored it.[5] Yet, cultic activity is central to all ancient life, is well documented, and can be satisfactorily analysed in terms of behavioural economics[6] without accepting the reality of the divinities that are invoked.

Two examples from Classical Athens are initially quoted that show sanctuaries as agents accessing resources and delivering tangible products (capital and nutrition). Intangible products are more difficult, but a study of the marketing of salvation by the medieval Catholic Church,[7] confirms its practicability. The paper then reviews and illustrates other sanctuary-managed intangible products and services such as personal status (through the manumission of slaves), personal prestige,[8] or guidance about the future (through oracles and omen-interpreters). Other facets of Greek religion such as healing cults, tomb cults, mystery cults, processions, and ritualised written curses are also reviewed: dedications require a particularly complex analysis. Aspects of sanctuary behaviour that may be identified as fully ‘rational’ are contributions to social stability, responses to implicit markets, and roles in capital accumulation and lending.

The paper then returns to Ekelund et al. 1996 in order to examine their analysis of the medieval Catholic Church as an economic firm.[9] It proves to be a model example of the applicability of modern analytic concepts to pre-modern cult. Individual temples and sanctuaries can be seen as being mostly U-form organisations, but some very large temples in Greece, Egypt, Anatolia, and Babylonia are best seen as being, like city-states and monarchies, largely M-form, functioning as managers, controllers, investors, and beneficiaries. Various case-studies will illustrate the approach and its analytical value.

## Notes

[1] Bresson 2016.

[2] Rathbone 1991.

[3] Chandezon 2011.

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[4] Iannacone 1998; McCleary 2011.

[5] Dignas 2002; Davies 2001; Davies 2018.

[6] Thaler 2000; Thaler 2015; more broadly Lewis 2018.

[7] Ekelund et al. 1996.

[8] By instituting festivals such as the Olympic Games that allow the display of athletic or artistic prowess: Davies 2007.

[9] Ekelund et al. 1996.

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# Financing Temple Building at Delphi in the 6th Century BC

**Peter Londey**

The 6th century BC was a period of radical transformation at Delphi. The 7th century temple of Apollo, about which little is known, was built in the midst of the inhabited area of Delphi. Early in the 6th century, houses neighbouring the temple were demolished and for the first time the sanctuary was separated from the town by a *peribolos* wall.[1] Later in the century, after the old temple apparently burnt down,[2] a grandiose remodelling of the site was undertaken, so that when the new temple was completed near the end of the century it sat atop a massive dual terrace, buttressed by a polygonal wall.[3]

Delphi had attracted visitors from far afield for a long time, yet the 6th century transformation of the site itself was something new and different. Traditional explanations have centred on the supposed 1st Sacred War of around 590 and the takeover of Delphi by the Amphiktyony, hitherto based at Anthela.[4] This does not hold water. I have argued elsewhere that we should follow Noel Robertson's view that the 1st Sacred War is a fiction dreamt up in the 4th century, and that in any case, it would not provide an explanation for the arrival of Amphiktyony.[5] And while it is easy to ascribe the separation of sanctuary from town to the influence of the outside body, it is just as tempting to see native Delphian ambitions as the cause.

Scholars have tended to see the Delphians as untutored backwoodsmen, beside the supposed sophistication of the Amphiktyons.[6] Yet with the benefit of regular contact with visitors, there were probably those at Delphi who understood the opportunities perfectly well, but believed the physical presentation of the sanctuary needed to match its increasing fame to capitalise on them. That was made difficult by the sloping nature of the site, hence the need for expensive remodelling.

There was a danger of over-reaching, and very possibly not all Delphians shared the confidence of their more entrepreneurial brethren. The conflict between these groups may, indeed, be visible to us in the Homeric Hymn to Apollo. The Hymn has been traditionally dated by its supposed reference (lines 540–544) to the 1st Sacred War.[7] Once we abandon that, we are left with a poem dated somewhere in the 6th century, which fails even to hint at the existence of the Amphiktyony (or, for that matter, the Pythian priestess). There are two passages which might be read as responses to critics of Delphian ambition. At lines 287–295, Apollo himself lays out his temple with the promise that his *perikalles* temple and its oracle will attract crowds of people and sacrificial animals from far and wide. Even more explicitly, when the Cretan sailors he has recruited as priests query their economic prospects at Delphi, the god's response is that the tribes of men will bring them an endless supply of animals for sacrifice (lines 525–537): not a bad economic prospectus for those who wanted to remodel the site.

Nevertheless, ambitions may have outrun resources. This might explain the long delay between the destruction of the old temple, supposedly in 546, and completion of the new one with the help of the Athenian Alkmeonidai around 510.[8] Even in the

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4th century, building the new temple took 40 years, with a ten-year interruption for war, and financial problems were solved with Phokian reparations after 346. Herodotus tells us that the 6th century temple cost 300 talents[9]: the Amphiktyony asked the Delphians to raise a quarter of this amount, and to do so they had to go as far afield as Egypt.

Not much weight can be placed on Herodotus' account, but I would suggest (and will argue in more detail elsewhere) that when the Delphians ran into trouble with their grandiose project they voluntarily invited the Amphiktyony to share the responsibility. The Amphiktyony itself may well have been transformed and extended to include states in southern Greece which could provide help with both financing the works and finding skilled workmen to carry them out. Thus, the problem of financing the 6th century temple building, while growing out of purely local ambitions, may in the end have helped catapult Delphi even further into the international sphere.

## Notes

[1] Jacquemin 1999, 247; Luce 2008, 67–72.

[2] The date of 548, provided by Paus. 10,5,13, cannot be considered reliable.

[3] Courby 1927, 166. 170–171; Scott 2010, 56–59.

[4] Summary of modern views in Londey 2015, 226–229. 232–233; to which add Luce 2008, 104–115.

[5] Robertson 1978; Londey 2015.

[6] e.g., recently, Scott 2014, 70. 94.

[7] e.g. Janko 1982, 127–129. 132.

[8] Hdt. 5, 62.

[9] Hdt. 2, 180, though the figure seems very high and its source a mystery.

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# The Treasures of Athena: Hoarding Processes in the Sanctuaries of Athens and Argos

**Rita Sassu**

The Greek sanctuary was a complex, multi-layered system, whose impact on ancient Hellenic economics was indeed vast. Since it influenced the entire management of public funds, it thus became an essential element for the polis' financial life.

In fact, Greek sacred areas hoarded huge amounts of money and valuable objects that were preserved inside temples in order to physically hoard the circulating gold, silver and copper. This was done to establish a permanent deposit belonging to the gods and, to a certain degree, to the whole urban community.

As for Athens, the *tamiai* entitled to manage the *chremata* of Athena on the Acropolis are attested epigraphically starting from 550 BC, as stated in the inscription that registers their responsibility in collecting the funds and dedicating them in the *temenos*.[1]

From 434 BC to 300/299 BC the treasurers of the Athenian Acropolis annually listed the contents hosted in the Acropolis' temples by drawing up texts known as 'inventory lists', whose relevance is twofold. Firstly, they clearly show that Athenians considered the resources kept on the Acropolis to be an important financial resource of their empire. These could be used both for sacred needs and civic ones, such as the construction of public structures,[2] or the expenses connected to the Peloponnesian war. Moreover, the inventories of the Parthenon mention the presence, inside the edifice, of the assets of Athena, but also of other deities: Artemis, Apollo, Demeter and Kore, Zeus, Asclepius, Aphrodite, Dionysus, Hephaistos and the Dioskouroi.

The presence of various gods in the Parthenon's inventories could derive from the transfer of the treasures pertaining to the main sanctuaries of Attica to the Acropolis sanctuary, thus suggesting the progression towards a more centralized economic system. Indirect proof of such a transfer can be identified in the Kallias decrees inscription (fig. 1),[3] which establishes the creation of the treasure of the 'Other Gods' (i.e. other than Athena) by removing their funds from the *hieropoioi* of the Attic sanctuaries who hitherto had managed them.[4] The operation is clearly connected to the distinction between regional sanctuaries that implemented forms of continuous economic levy and consequent deposit in the *temenos* (whose treasures were moved to the Acropolis of Athens), and other sacred areas with minor revenues, more specifically connected to local situations.

Therefore, in the 5th century BC, an overall re-organisation of the system of levy, management, and control of the sacred resources took place in Athens. This was marked by an increasing concentration of the funds available for collective use, whose progressive definition can be reconstructed through the epigraphic documentation.

The centralization of resources within the Acropolis was part of a structured and organized plan, whose goal was to create a public treasure to be used to for the expenses

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Fig. 1: Kallias Decrees (IG I³ 52), Paris, Louvre Museum.

that, for the first time, a metropolis like Athens needed to cover, with its complex political system and military requirements.

The same process likely took place, on a smaller scale, also in other regions of the Hellenic world. As an example, it is possible to consider the case of Argos. The presence of the treasure of Hera (worshipped in her extra-urban sanctuary) is documented in the treasure of Athena (within the urban *temenos*), inter alia, by the epigraph of the *Aliaia.* This epigraph decrees that the money belonging to the treasure of Hera should be removed from the temple of Athena to finance the Corinthian war.

In Argos, the usage of sacred resources for public expenses is clearly documented by epigraphic sources. An inscription[5] from the sanctuary of Athena, dating back to 575–550 BC, explicitly declares that the *chremata* belong to the goddess and that no one is allowed to use them outside the sanctuary. The only exception is for the public magistrates, which means that divine properties are ultimately conceived of as a State treasure. The so-called 'small palace inscription'[6], from the mid-5th century, deals with the usage of Athena's *chremata* by the *Bola,* and forbids anyone from accusing the public magistrates for their usage of the divine funds. The public magistrates are authorised

to make use of the *hiera chremata,* if needed, by taking them from the *tamiai* in charge of their management.

Hence, the sacred treasure lies between divine and human possession, and the whole sanctuary is characterized by a religious nature, as well as a civic dimension.

The situation pertaining to the mentioned sanctuaries that emerges from the texts clearly indicates that the main sacred area of the *polis* often preserved a huge amount of hoarded assets and acted as the chief economic reserve to cover consistent public expenses, in addition to religious ones. It often made money available by melting down precious objects.

Besides, it indicates that the establishment of more complex forms of government and the administration of the State entailed the creation of a multi-level network of sanctuaries. This resulted in the establishment of a centralised organisation of public wealth, having its centre in the sanctuary.

## Notes

[1] IG I³ 510.

[2] For example, the walls connecting the city to the harbour.

[3] IG I³ 52.

[4] A,ll.18–19.

[5] SEG XI 314.

[6] IG IV 554.

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Fig. 1: from <https://www.louvre.fr/en/oeuvre-notices/decree-kallias> (13. 02. 2019).

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# Economical Officials and Management of Attic Sanctuaries in Classical Athens

**Valentina Mussa**

During the classical period in Athens, a high level of administrative complexity characterized the management of religious affairs and enabled the Athenian State to carry out a systematic account of its sacred wealth. Such an administrative system was built on the basis of a complex hierarchy of economical officers. In fact, from the last third of the 5th century BC, the number of administrative offices increased due to a gradual policy of centralization in the administration of the properties of Attic sanctuaries adopted by the *polis.*[1] The two central boards of Treasurers on the Acropolis collaborated with a network of administrators of local shrines who were charged with different and extensive tasks.[2] Additionally, a certain fragmentation and overlap between various fields of competence led some financial bodies to intermingle their specific functions. The financial management system of the main sanctuaries of Demeter and Kore in Attica clearly proves this.

Since the 7th century BC the *polis* exercised administrative supervision over the ancient sanctuary of the Eleusinian goddesses located in the Attic deme of Eleusis, the Eleusinion in the city of Athens, as well as the shrine of Demeter in Phalerus.[3] During the 5th century BC the Athenian State adopted a form of unique and direct control over the finances of these three sanctuaries. The ancient *genoi* of the *Eumolpidai* and the *Kerykes* – from whom the priests and sacred officials of the cult were chosen – were in charge of the organization of rituals and religious affairs. As a result, the deme of Eleusis no longer had any direct jurisdiction over the sanctuaries.[4] Moreover, a civic board of *hieropoioi* was responsible for both religious and financial functions, and acted in close cooperation with the two *genoi.*[5] Together they ensured that the *polis* directed the local management of the three Eleusinian sanctuaries. Around 460 BC a reform of the status of the *hieropoioi* occurred, when a very important part of the fortune of Demeter, the proceeds from the *aparchai,* started to be stored on the Acropolis.[6] From now on, the *hieropoioi* had to administer the treasuries of Demeter and Kore on the Acropolis, the very core of the management of sacred finances. This strategy allowed the Athenian State to dispose directly and rapidly with a consistent part of the fortunes of Demeter.

In the last decades of the 5th century BC, the new college of *epistatai* was created, which was in charge of the complete financial management of the sanctuaries of the Two Goddesses. This was a new step in the centralization process. The *epistatai* assumed and developed the financial prerogatives that formerly belonged to the *hieropoioi,* who still existed but their tasks were now confined to basic day-to-day financial operations. The administration of the three Eleusinian sanctuaries rested upon a hierarchical structure. At the head of this system, the *epistatai* worked in close coordination with the Athe-

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nian *Boule* and the *logistai* in order to manage and oversee the finances of Demeter. In this capacity, they issued inventories and accounts of sacred properties and assured the collection and repayment of debts to the Goddesses.[7]

The policy of intensification of control over the administration of the Eleusinian sanctuaries continued during the 4th century BC. At the beginning of the period the fortunes of Demeter and Kore possibly passed under the exclusive supervision of the Treasurers of the Other Gods, based on the Acropolis. In order to have total and prompt access to the fortunes of Demeter, the *polis* once again limited the prerogatives of one of its local colleges, the *epistatai.* By the mid-4th century BC in fact, this board would work exclusively in close cooperation with the *treasurers* on the Acropolis and with the newly created *treasurers* of the Two Goddesses.[8] The Eleusinian case offers a good insight into the ways in which the Athenian State operated at an institutional level, namely by reforming former officers or creating new magistracies. This was done in order to make the financial management of the fortunes of Attic sanctuaries ever more efficient.

## Notes

[1] Samons 2000, 31–40. On civic magistrates charged with sacred administration, Aristot. Pol. 6, 1322B, 1–20.

[2] Chankowski 2008, 135–140.

[3] Binder 1998, 131–139.

[4] Clinton 1974; Clinton 2005, 8.

[5] IEleusis 13 (IG I³ 5) l. 2: τὸς hιερϙποιὸς Ἐλευσινίϙν. IEleusis 28 (IG I³ 78a) l. 8–12; 17–18.

[6] IEleusis 19c (IG I³ 6) l. 32–38: ἀργυρίο] τõ ἐμ πόλει· τὸ δὲ ἀρ[γυρίον τὸ]ς hιεροποιὸς τ[ὸ] το[ῖν Θεοῖν ἐ][μ] πόλ̣ει ταμιεύεσθ[αι ..].

[7] Cavanaugh 1980 gives a detailed analysis of the inscriptions IEleusis 30 (IG I³ 32), IEleusis 52 (IG I³ 386–387), and of the role and functions of the *epistatai* of Eleusis. The board is in fact characterized over time by several fluctuations in the number of its members and in the duration of its office.

[8] After a gap in the epigraphical documentation between the last years of the 5th century and the mid-4th century, the *epistatai* appear in Eleusinian accounts and inventories exclusively associated with other economic officials, such as in IEleusis 144 (IG II² 204); IEleusis 158 (IG II² 1544; IEleusis 177 (IG II² 1672).

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# Sacred Goods and Local Conflicts in Hellenistic Macedonia

**Manuela Mari**

The Greek adjective *hieros* was often employed to describe territories, lands, buildings, objects, revenues, or money considered as belonging to one or more deities. Modern scholars debate whether the communities of men which actually controlled these properties were, in legal terms, true 'co-owners' or simple 'managers' of them. In any case, ancient Greek states definitely used to lay their hands, whenever the need arose, on sacred funds and revenues, which they perceived as their own and were usually managed through civic magistrates. Such behavior was widespread and perceived as normal, at least until it was limited to local sanctuaries that lay within the territory of a *polis* or of a regional *koinon.* It is therefore difficult to establish whether the "sacred" goods or revenues (*hierà*) were *distinguished* in legal terms from the "communal" ones (*koinà, demosia*), or if they were considered as a *subspecies* of them. Many epigraphic and literary sources apparently support the former interpretation, but we should accept that there is no single explanation that is valid for all historical contexts and regions of the ancient Greek world.

In Hellenistic Macedonia, royal arbitrations in conflicts arising from the administration of sacred goods are well attested, and involve cities or *koinà,* as well as sanctuaries. The Antigonid kings did not adopt a standard position when they were involved in such conflicts; each case was judged on its own, and the same quarrel could be settled in opposite ways by different kings. This is clearly shown by the rich set of documents from Labraunda, in Caria, informing us about the controversies between the priest of Zeus and the "league" of the *Chrysaoreis* on the one hand, and the city of Mylasa on the other.[1] In this case, Antigonus Doson supported the rights of the *Chrysaoreis* and the priest of Zeus against Mylasa, while Philip V sided with the city. In other cases, the same Philip V defended the financial autonomy of the sanctuaries against the rapacity of secular authorities: he granted the *ateleia* to the sacred lands of the sanctuary of Abai, in Phokis,[2] and he wrote a *diagramma* in order to protect the goods of Serapis in Thessalonike.[3] His father Demetrius similarly wrote letters to the *epistates* of Beroea Harpalos, disposing that the revenues of Herakles *Kynagidas* appropriated by the city should be returned to the god.[4]

Both the letters of Demetrius to Beroea and Philip's *diagramma* on the sanctuary of Serapis concern well-known wealthy sanctuaries of Macedonia proper; both are useful to the general discussion regarding the 'osmosis' between public and sacred finances in Greek cities. At the same time, the documents from Beroea and Thessalonike inform us about some peculiar developments in the relationship between the king and cities in Hellenistic Macedonia. They also show the legislative overlap between the king's legislative role and the civic autonomy.

A substantial peculiarity of Antigonid Macedonia, when compared with other Hellenistic kingdoms, also emerges. The Seleucid kingdom, at least under Antiochus III,

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had a "minister of sacred affairs" at the central level as well as powerful local 'supervisors' of the administration of the most important and wealthy sanctuaries. Also in the Attalid kingdom, a "supervisor of the sacred revenues" is attested, at least after 188 BC, although modern scholars debate the extent of his powers. In Macedonia, the available evidence does not allow us to assume any similar centralization of the control of sacred revenues. Here, apparently, local magistrates were sufficient to ensure the king's voice was heard at the local level.

## Notes

[1] Crampa 1969, 27–41 no. 5.

[2] Prignitz 2014, 141–143.

[3] Hatzopoulos 1996, no. 15.

[4] EKM I, 3.

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# Fundraising Systems and Management of the Revenues in Sacred Spaces: the Case of the *Asklepieìon* of Kos

**Elisabetta Interdonato**

The author recently conducted intensive research[1] on the entire documentation of the *Asklepieìon* of Kos, which has permitted us to comprehend the fundraising systems and the management of the revenues of the sanctuary. These aspects previously have been ignored.

Although the documents refer to a coherent fundraising system starting from the 3rd century BC, a sacred law on the protection of the *alsòs,* dating to the second half of the 4th century BC, states that anyone disrespecting the prohibition of cutting sacred trees must pay a fine of 1,000 drachmas.[2]

For the 3rd century BC, the oldest document is a decree on the sale of a priesthood dating back to 295–280 BC.[3] It specifies that this kind of revenue was to be used for the construction of the *archeìa,* probably to be identified as some archives linked to the sanctuary itself.[4]

A very informative document is the *diagrafà,* which concerns the creation of a *thesauròs* in the temple and the foundation of the penteteric *Asklepieìa.* An entrance fee also was due to the sanctuary.[5] The same text mentions the revenues deriving from the sale of the wood and probably from renting lands, as well as the practice of paying a specific sum of money with each animal offer.[6] The amount required varied according to the victim, as clarified by a text of the 1st century BC.[7]

Further sources of revenues derived from the sale of the flocks of the god,[8] and from the sometimes onerous fines imposed on anyone accused of irregular behavior.[9]

An additional source of income was represented by donations, both from the euergetism of the Hellenistic sovereigns (first the Ptolemies and later the Attalids),[10] and from generous private citizens.

Concerning the first group, even if there is not any explicit evidence of the amounts given, it is meaningful to note that the royal financial donation concerned the architecture of the sanctuary and the ritual activity itself. An inscription testifies to the latter focus and states that the donation by a Ptolemy (II or III) was allocated for the sacrifices.[11]

As for the second group of donators (private citizens), they could have donated through legacies,[12] occasional payments, or votive offerings by individuals,[13] as well as through collective donations for the penteteric festivals. The latter is attested by some lists of subscription,[14] dating from 242 BC at least to the end of the 2nd century BC.

Since the middle of the 3rd century BC, the storage place of almost all the revenues seems to be the main *thesaurus,*[15] created at that time. This can be recognized in the partially hypogean structure inside the cella of temple B. It is also possible that the Asklepieìon was provided with smaller structures allocated to the storage of daily offers by

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Fig. 1: Asklepieìon of Kos, temple B, *thesaurus.*

individuals, that are attested elsewhere by the archaeological documentation.[16] These would house "any other offer paid to the god" that the *tamìai* were charged to regularly put in the *thesaurus.*[17]

All the wealth collected here was directed to the organization of the *Asklepieìa,*[18] perhaps with some contributions by the different magistrates.

Around the middle of the 2nd century BC, a change is recorded:[19] the half of the content of the *thesauròs* belonging to the god was entrusted to the *damosìa tràpeza.* Asklepios probably had an account here (at least for a certain period), as is known in Kos in connection to the worship of Aphrodite in the *démos* of Halasarna,[20] and for Aphrodite *Pandémos* and *Pontìa* in the harbor district of the city.[21] A later text from the *Asklepieìon*[22] refers to a *tràpeza toù theoù,* not to be identified with the former mentioned *damosìa trapeza,* but rather as a specific financial institution of the sanctuary. This is similar to the ones attested since the classical age in several sacred spaces,[23] whose main functions were: the deposit of money and treasuries (public or private ones),[24] lower interest rate lending activities,[25] exchanging money for the pilgrims, transactions with private or public banks, and occasional coin issues (for great events).[26]

According to Bogaert, the "bank" of the *Asklepieìon* took care of exchanging money for the pilgrims and of payments. Furthermore, Flavius Josephus records that Cleopatra III stocked a large part of her wealth in 102 BC in Kos, and that the Jewish communities of Asia Minor had deposited 800 talents here, fearing an attack by Mithridates.[27]

## Notes

[1] Interdonato 2013.
[2] IG XII, 4,1, 283.
[3] Parker – Obbink 2001a, no. 3; IG XII, 4,1, 296.
[4] IG XII, 4,1, 84 (1st c. BC) and 85 (1st c. BC–1st c. AD); IG XII, 4,1, 342 (2nd half of the 2nd c. BC); Parker – Obbink 2000.
[5] IG XII, 4,1, 71, ll.10–11.
[6] Herzog 1928, no.14, ll.27–30; IG XII, 4,1, 71.
[7] IG XII, 4,1, 294–295; Parker – Obbink 2001a, no. 4.
[8] IG XII, 4,1, 311 a–c, ll.10–11 (170–150 BC).
[9] Parker – Obbink 2001a, no. 4; IG XII, 1, 294–295.
[10] Interdonato 2013, 37–57; 184–189.
[11] IG XII, 4,1, 31, l.6.
[12] IG XII, 4,1, 352 (2nd half of the 1st c. AD).
[13] IG XII 4,1, 120 (3rd c. BC: Le Guen 2001, no. 43); IG XII, 4,1, 81 (1st half of the 2nd c. BC: Parker – Obbink 2001b, no. 3).
[14] IG XII, 4,1, 70 (242 BC; Hallof – Hallof – Habicht 1998, no. 24). – Hallof – Hallof – Habicht 1998, no. 25 (end of the 3rd c. BC); IG XII, 4,2, 427 (250–150 BC), 435 (post 200 BC), 444 (150–100 BC).
[15] IG XII, 4,1, 71, ll.23 and 28.
[16] See Kaminski 1991 and Knoepfler 1998.
[17] IG XII, 4,1, 71, l.27.
[18] IG XII, 4,1, 71, ll.19–21; IG XII, 4,1, 286, ll.4–5.
[19] IG XII, 4,1, 342.
[20] SEG 1344.
[21] Parker – Obbink 2000.
[22] IG XII, 4,1, 294–295 (1st c. BC).
[23] Bogaert 1968, 279.
[24] Bogaert 1968, 282–283.
[25] Bogaert 1968, 290.
[26] Bogaert 1968, 295–298.
[27] Ios.ant.Iud. 13, 13,1, 349–350; Ios.ant.Iud. 14, 7,2, 113. Unfortunately, in none of these cases does the historian specify the exact location of these deposits.

## Image credits

Fig. 1: by author.

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# Sanctuaries and Banking Activities: Changes from the Hellenistic World to Roman Influences

**Véronique Chankowski**

Unlike Eastern temples, Greek sanctuaries were not centers of production, but centers of financial activities. As the ancient Greek economy was based on private property, gods were owners, as were citizens too, but their heritage was entirely managed by the city. The city treated the property of the gods as public goods: by contract, it delegated the responsibility of exploiting the goods to individuals. This translated into sales of priesthoods, but also to the rentals of lands, houses, and shops that were the property of gods, as well as to bank lending activities.

However, in Roman times, the overall picture that emerged from the Roman vision of the Greek world was that of disorder and corruption.[1] As a matter of fact, the crisis caused by Mithridates and Sulla's destructions deeply impoverished and weakened economies, but on different scales in Greece and in Asia Minor. But did Roman order gradually replace Oriental disorder?

In Ephesus, in the middle of the 1st century AD, the proconsul of Asia, Paullus Fabius Persicus, prescribed a number of rules for the financial organization of the shrine of Ephesus.[2] These were done in order to fight corruption and to reorganize the finances of the city. In modern terms, this consisted of earmarking revenues in public accounting. What is emphasized in the edict is the especially Greek way of administration of a sacred chest: borrowing funds, the financial interaction between the sacred chest and the public finances, and the auctioning of priesthoods.

Almost at the same time (22 AD) in Rhodes, the community of Lindos organized a public subscription,[3] known as a *parakatathèkè*. This is a reserve from which the Lindians could draw throughout the year to carry out the expenses necessary for the activities in the sanctuary. Afterwards, they would reconstitute the reserve by repayment, without forcing the magistrate to emergency euergetism. This is the very Greek system, based on the close interaction between the sacred chest and the public chest (see for instance the same system on Delos).

Such a situation is exactly what the edict of Paullus Fabius Persicus would not have permitted. It is characteristic that such transfers of funds are called "debt" in the edict of the proconsul to Ephesus.[4]

Contrary to the Greek habit, the imperial power intended to limit as much as possible, not exactly the recourse of the city to credit, but rather the interaction between the sacred and the public funds. Of course, money lending in Greek sanctuaries did not disappear with the construction of the imperial power in the East. Therefore, the edict intended to prevent the mortgage of public or sacred incomes over several years. By doing so, it attempted to end something that looked like the construction of a system

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of deficit, namely an economic and financial system based on credit and involving both the city and the sanctuary.

Other texts show to what degree the Roman power was preoccupied by this question of credit and debt in Greek sanctuaries. The custom of the Roman imperial power was usually to allocate funds to a specific destination and to ensure the strict application of these assignments through legal penalties against offenders.[5] Expenditure was strictly directed by the Roman imperial power and no change was allowed in the destination of the sacred funds, since the necessities of imperial worship and contests had to be ensured. All additional expenditure must be based on the euergetism of magistrates (the *munera*). The so-called corruption of the Greek magistrates was often, in fact, the habit of using sacred or public money to finance some activities that should have been, from a Roman perspective, financed by the euergetism of the magistrate: buildings, restorations, embassies. On the contrary, the Greek system was much more flexible. The *diataxis* was the way in which the cities organized the distribution of income to precise destinations. This *diataxis* was under the control of civic administration, the *ekklesia,* and the *boulè;* this situation made it possible to readjust the expenditures as necessary.

Roman temples had income devoted to cult activities and private deposits but they were neither centers of credit, nor places for lending money. The Roman power had a different conception of temple funds and of their financial organization; in terms of Greek finances, it expressed this through ideological phrases which referred to corruption, disorder, and negligence. In the modern conception of public accounts, Roman power dealt with asymmetric fungibility in public accounting and it imposed strict spending control in a budget by destination. On the contrary, the Greek system was based on debt, and used the temple funds as a reserve of credit to circulate money. In the Roman system, the financial activity of the sacred chests was marginalized. This role was taken over by *negotiatores, argentarii,* and notables. There is no doubt that this system also ensured part of its growth. But it was certainly less democratic than the Greek conception of the circulation of funds.

The archaeological view of the Roman period in the East offers a picture of prosperity, but also a misleading impression of continuity. New buildings were continuously financed in Greek sanctuaries either by private funds, public money, or imperial donations. However, at the turn of the Hellenistic and imperial eras, the changes were dramatic in terms of economic performance.

## Notes

[1] For instance Cic. Att. 6, 2, 4–5 and Plin.epist. 10, 18, 3.

[2] Wankel 1979, 91–121 no. 17–19.

[3] Blinkenberg 1941, 773–789 no. 419.

[4] Wankel 1979, 91–121 no. 17 l. 49.

[5] For instance Dig. 50, 8, 1, Ulpian.

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# The Economic Side of Greek Festivals: Some Examples from Roman Greece (Extended Abstract)*

**Francesco Camia**

In the Greek *polis,* religion represented an important part of civic finances, and public revenues were usually destined to at least partially cover expenses pertaining to the cultic sphere. In the civic budget reserved for religion, a special place was given to the costs connected with the organization of festivals.[2] Indeed, festivals implied several expenses for: the celebration of sacrifices, processions and banquets, the provision of sacred equipment, the construction or restoration of buildings and displays used for athletic and theatrical events, the remuneration of attendants and artists, and for the provision of prizes for victors in the *agones.* My paper tries to answer the question of how these costs were covered by the local communities, focusing on the *poleis* of Roman Greece.

It must be noted that in the most fortunate cases a festival might even cover the costs by itself. This seems to have been the case for the mysteries of the Great Gods in Messenia, if one credits a passage in the so-called 'sacred law' of Andania. This mentions that the Messenian authorities expected the revenues of the festival to be enough not only to reimburse the city for the initial 'investment' but also to give a surplus.[3] Indeed festivals, which were often accompanied by fairs and markets, represented a potential source of revenues for the organizing *polis,* which could collect taxes, duties, leases, and fines.[4] In many cases, however, the revenues from the festival were not sufficient to cover all the expenses connected with its celebration.

Despite the general scarcity of explicit references in the epigraphic evidence,[5] the use of public funds in Greek cities to finance festivals is mentioned significantly in the literary sources. In a well-known passage, Plutarch states that the Athenians spent more on their tragedies than in defending their independence against the barbarian.[6] Recent studies have demonstrated that such statements are certainly exaggerated.[7] However, that public funds usually were allocated to finance festivals and *agones* is also indirectly confirmed through the specification "at his own expense" (ἐκ τῶν ἰδίων) that occurs in many inscriptions in order to underline the generosity of an *agonothetes.* This means that public money was usually expected to fund that type of activity. Furthermore, it is worth noting that in many cases, inscriptions testify to the use of so-called sacred funds (*hiera chremata*) to finance festivals. Cities resorted to such funds especially for expenses linked to cultic activities.[8]

In many cases, however, cities had to resort to the generosity of their citizens or of well-to-do foreigners. Several inscriptions testify to the liberality of the holders of the *agonothesia,* an office consisting of an onerous liturgy. In the 2nd century BC the Athenian *agonothetes* Miltiades of Marathon, was praised for assuming many expenses con-

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nected with the celebration of the *Panathenaia.*[9] Numerous other epigraphic examples could be mentioned.[10]

In conclusion, it can be said that the financing of festivals in Roman Greece accurately reflects the combined public and private nature of civic finances. These were secured by public funding in the form of taxes, revenues from state and sacred properties, public loans and subscriptions, as well as by the revenues of agonistic foundations administered by civic officials, together with private munificence. The latter could consist of formal or customary financial services by the office-holders (especially the *agonothetai*) involved in the organization of such celebrations, known as liturgies (Gr. λειτουργίαι, Lat. *munera*) and *summae honorariae* (the latter only in Roman status communities). These services could also consist of supplementary benefactions performed by the same public officials or by well-to-do individuals. Judging from the epigraphic evidence it would seem that the notables' generosity made up the lion's share in the balance between public and private funding, however spontaneous this may have been. It is essential to remember, though, that by their very nature, acts of euergetism are more likely to appear in inscriptions than other more ordinary forms of funding.

## Notes

* For a developed and detailed version of this paper see Camia 2020.

[2] See Aristoph. Plut. 1162–1163.

[3] IG V 1, 1390, ll. 53 ff.

[4] See D. Chr. Or. 35, 16.

[5] e.g. for the period in question, see the 2nd century BC Athenian honorary decree IG II² 968 for an *agonothetes* of the *Panathenaia,* which refers to public funds allocated for this festival (ll. 42–43).

[6] Plut. Mor. 349a.

[7] Pritchard 2012.

[8] See a few examples from Boiotia: IFC 1971, no. 22 (ca. 80–50 BC), A, ll. 20–24 (*Basileia*); Knoepfler 1988 (ca. 100 AD), 266 (*Pamboiota*); Brélaz et al. 2007 (late 2nd century BC), 275–276 (*Delia*).

[9] IG II² 968.

[10] e.g. IG IV 602 (AD 116–117) and 606 (1st century AD) from Argos; I.Thesp 374 (1st–2nd century AD) from Thespies; IG IX 2, 90 (1st century BC–1st century AD) from Hyampolis.

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# Frauen und die Finanzierung griechischer Heiligtümer

**Sven Th. Schipporeit**

Frauen treten ab spätklassischer Zeit verstärkt als Stifterinnen in Heiligtümern, insbesondere weiblicher Gottheiten, auf. Es sind oft bescheidene Heiligtümer, die Artemis, Demeter und Kore, den Nymphen und anderen Göttinnen gewidmet waren, in deren Kult häufig Frauen die maßgebliche Rolle spielten und Männer nur sekundären Einfluss hatten. Im Kult der Demeter Thesmophoros war ihnen die Partizipation sogar weitestgehend verwehrt. Vor dem Hintergrund des rechtlich, politisch und finanziell eingeschränkten Handlungsraumes, den die patriarchalische Gesellschaftsordnung in griechischen Poleis Frauen bot, stellt sich die Frage, wie der Betrieb dieser ‚kleinen' Heiligtümer aufrecht erhalten wurde.[1]

Zum einen griff die Polis bei größeren Vorhaben direkt in die finanziellen Belange dieser Kulte ein: In Tanagra wurde im 3. Jahrhundert v. Chr. eine Kommission eingerichtet, um den Wiederaufbau des Heiligtums der Demeter und Kore an einem neuen Standort zu organisieren. Die Kosten wurden grundsätzlich von der Stadt getragen, aber auch die Frauen der Stadt wurden zu einer Spende aufgerufen; der jeweilige individuelle Beitrag durfte aber die Höhe von 5 Drachmen nicht übersteigen. Es fanden sich 92 Frauen, die mit Beträgen von 1, 2 oder 5 Drachmen insgesamt 473 Drachmen aufbrachten.[2]

Zum anderen organisierte die Polis den Verkauf von Priesterämtern; eine Praxis, die in erster Linie für Kleinasien und die vorgelagerten Inseln, insbesondere für Kos überliefert ist.[3] Mit dem Erlös aus diesen Versteigerungen konnte allerdings nur in größeren Abständen ein Teil des Finanzbedarfes der Heiligtümer gedeckt werden. So wurden um 200 v. Chr. in Kos die Reglements für den Verkauf des lebenslangen Priesteramtes der Aphrodite Pandamos[4] von einer Kommission festgelegt. Diese beinhalteten nicht nur die Anforderungen an die Priesterin und die Kaufkonditionen, sondern definierten auch Art, Umfang und Verteilung der Einkünfte aus Opfer- und Strafgebühren zwischen den Vertragspartnern. Die Käuferin wurde zudem mit dem Wiederaufbau ihres von einem Erdbeben beschädigten Heiligtums der Aphrodite Pandamos und Pontia beauftragt. Inwieweit sie in die Pflicht genommen wurde, notfalls den Finanzierungsbedarf aus eigenem Vermögen zu decken, ist nicht überliefert. Sie konnte jedenfalls wie die Priesterin der Demeter in Kos, Lykaonis, einen Spendenaufruf an die Frauen der Stadt richten. Die nach ihr benannte *epídosis* für den Peribolos des Demeter-Heiligtums und weitere Anschaffungen wurde gleichfalls um 200 v. Chr. auf einer Stele veröffentlicht.[5] Auf ihr finden sich die Stifterinnen ihrem zivilrechtlichen Status entsprechend gelistet, dem in abgestufter Höhe jeweils ein Spendenbetrag zugewiesen wurde. Bürgerinnen standen mit einem Beitrag von 20 oder 30 Drachmen, Nothai mit 10 oder 20 Drachmen und Metoikoi mit 10, 15 oder 20 Drachmen ein. Am Ende standen 685 Drachmen zu Buche.

Ausschlaggebend für die Festlegung der Beträge, die den Verzicht auf höhere Spenden beinhaltete, waren nicht die ökonomischen Ressourcen der Frauen. Das entscheidende Motiv war, die Stifterinnen als Gruppe in möglichst großer Homogenität nach

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außen auftreten zu lassen. Auf diese Weise spiegelte sich in der *epídosis* das Bild der sozialen und religiösen Ordnung der demokratisch verfassten Polis wider, die von drei rechtlich definierten Gruppen von Bürgerinnen gemeinsam getragen wurde.

Neben punktuell anfallenden Investitionen fielen auch laufende Kosten für den Betrieb der Heiligtümer an. Zu einem gewissen Teil ließen sich diese über die Opfergebühren decken. Der frühhellenistische Dichter Herondas beschreibt im vierten Mimiambus, wie Kynno und Phile in einem Asklepieion nicht nur ein Tier opfern, sondern auch eine Votivtafel aufstellen und Geld spenden. Auch bei den von Frauen zu Tausenden in Heiligtümer weiblicher Gottheiten gestifteten kleinfigurigen Tonstatuetten wird man annehmen können, dass diese fortlaufend Beiträge in Obolen- bis Drachmengröße einbrachten.[6]

So bescheiden sich die über *epídoseis,* Opfer und Votive erzielten Summen oft ausgeben mögen, so manifestierte sich ihnen der stete Beitrag der Frauen zum Kult, die sich kein Priesteramt leisten konnten. Die treibende Kraft war nicht Konkurrenz, sondern Partizipation.

## Anmerkungen

[1] s. zuletzt Horster – Klöckner 2013 mit Lit.

[2] s. SEG 43, 212 A. 47, 512. 54, 509. 63, 1840.

[3] s. Berti – Katò 2017.

[4] IG XII 4, 1, 302; ferner SEG 63, 656. 660. 1844.

[5] IG XII 4, 1, 301.

[6] Zu Herondas, den Pinakes und den Votiven s. Schipporeit 2014.

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# Sanctuaries and Goods Markets[1]

**Annalisa Lo Monaco**

The sale of goods within sacred areas is a topic that has received increasing attention in the last twenty years[2]. The main goods sold at wholesale are primarily livestock, while at retail one can sell foodstuffs of various kinds (cereals, legumes, fish[3]), wine, clothing, precious metal objects (gold and silver). Among the goods on sale at retail level, a distinction must be made between artefacts specifically related to the cult of the divinity worshipped at the sanctuary, such as clay and bronze votives or incense[4], or objects specific to a given sanctuary (such as the heavy boots worn by the Trophonion of Lebadeia, indispensable for consulting the oracle[5]), or perishable goods, primarily foodstuffs for the subsistence of pilgrims. Objects that had nothing to do with the feast or with the deity worshipped there (e.g. gold and silver in Tithorea) could also be sold on the occasion of the feasts, subject to specific regulations by the administrative bodies (boulé, demos or collegial bodies). It is clear, therefore, that panegyreis became the best possible occasion for spreading the circulation of goods and products, both on a local scale and on a larger scale[6]. A few years ago, Christophe Chandezon spoke of the 'economic irrigation of the Greek countryside'[7]. In almost all cases, our documentation associates the markets within the sacred areas with the holding of agons, which, with their capacity to attract unusual masses of worshippers, were also an extraordinary occasion for the sale of handcrafts and consumer goods. The case of the slave trade[8], which by its very nature had a continuous turnover and was not limited to the specific occasions of the panegyreis, as well as sacred prostitution, seems to me to be distinct.

In my paper, I will try to show the specific nature of the markets in question, starting from the spaces deputed to agoraic activity (usually mobile structures, stalls and counters made of ephemeral material) and moving on to the details of sales. An exceptional case is that of Olympia, where barley and cereals, dried fruit (lentils and beans), ground or grated ingredients and wine were sold in measuring cups[9]. The consumption of bread and its derivatives and fish is also attested, sold probably by small traders who used bronze measuring units[10].

In an attempt to give a general picture, I would say that foodstuffs were sold at a short distance from their places of production: this was a trade on a local or, at most, intra-regional scale of products put on the local market in larger quantities during the great festive gatherings. On a different scale, a similar argument applies to meat for sacrifice, coming from regional districts, which it would not make sense to put on the market at a great distance from the centres of breeding and production. On the other hand, trade in refined goods and handicraft production must have been handled on a perhaps extra-regional scale.

The production and sale of votive offerings for immediate dedication within the sanctuary in question deserves a separate discourse, as their sale may have been permanent within the sacred areas and not limited to the days of panegyris and agones.

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In fact, archaeological excavations have now clarified that in some sanctuaries workshops were active precisely for the production of votive offerings on site (Olympia[11], sanctuary of Poseidon at Akovitika[12] (Messenia), Nemea[13], Amyklaion[14]).

## Notes

[1] A longer version of this article in Italian has meanwhile been published in a Supplement of the Annuario of the Scuola Archeologica Italiana di Atene e delle Missioni Italiane in Oriente (SAIA), in a volume edited by me that collects some of the essays from this session: Lo Monaco 2020.

[2] Specific studies: de Ligt, de Neeve 1988; de Ligt 1993, p. 66; Chandezon 2000; Moretti, Fincker, Chankowski 2012, 225–246. The topic is treated also within more general analyses in Davies 2007; Bresson 2007–2008, p. 21; Chankowski 2008.

[3] Roesch 1974.

[4] IEph VII 2, n. 4102.

[5] Paus. IX 39, 8.

[6] Some of these markets have a non-local dimension. Cf. the exemption from port and customs duties in Elea, Oinoanda and Sparta (de Ligt 1993, 65–66).

[7] Chandezon 2000, p. 93.

[8] For slaves at the sanctuary of Apollo at Actium (200 b.C.) see LSCG Suppl. 45; de Ligt 1993, p. 65.

[9] Hamdorf 1981; Schilbach 1999.

[10] Hitzl 1996, 102–104.

[11] Zimmer 1990, 21–24, 39–50, 98 ss.; Moustaka 1999.

[12] P. Themelis, in AAA 2, 1969, 352–357; Zimmer 1990, p. 21.

[13] Miller 1990, 46–47, 146–147 e fig. 106 a p. 149; Zimmer 1990, 50–57.

[14] See the ongoing *Amyklaion Project* from 2005, now directed by S. Vlitzos (see his paper in this volume).

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# Metal Workshops, Production and Infrastructure of the Sanctuary: The Case of the Spartan Amyklaion

**Stavros Vlizos**

The low hill, today called "Ayia Kyriaki", where the fertile sacred place of Apollo Amyklaios is located, lies about 5 km south of Sparta, almost in the middle of the Eurotas valley, at a point from where all the natural borders of Laconia can be controlled.[1] The following paper will focus on recent evidence, by which the activity of a metal workshop in the northern half of the sanctuary can be detected (fig. 1).[2]

In the Amyklaion, as in other sanctuaries, for example in Athens, Isthmia or Olympia, as well as in public areas of various Greek cities, working metal workshops in the Late Geometric and Archaic periods are attested by smelting furnaces, foundry pits, tools, slag, missing casts, semifinished products, etc.[3] Unlike sanctuaries of a certain size, which had fixed workshops, it can be assumed that at the Amyklaion, due to the structure of the area and the lack of space, an ephemeral workplace was established.[4] These are simple depressions in the natural rock, which could be dismantled and filled in again without difficulty. It can be assumed that at the Amyklaion too, as in Olympia,



Fig. 1: Metalworking facilities in the northern half of Amyklaion.

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one person was responsible for the artistic design and another for the technical preparations and coordination of the work processes: i.e. an artist and a casting master.[5] One of these artists was certainly Bathykles, who was allowed to consecrate four statues in the sanctuary because of his successful Thronos: the Charites and an Artemis Leukophryene, which he most likely made himself. Furthermore, also Kallon of Aigina made a bronze tripod for the sanctuary.

According to recent studies, the raw material probably came from the mines on the east coast of Laconia.[6]

These workshops, together with the numerous metal votive offerings from the 8th century on and the decoration of the Thronos of bronze plates, attest to the new prosperity at the Amyklaion and Sparta, as well as the trade exchange with other places. This increase of votive offerings can be attributed on the one hand to a significant increase in the population and the greater availability of metal. On the other hand, it is a change in attitude toward the community and the common sanctuary. According to S. Hodkinson, the Spartans had also directly assumed the responsibility of art production by the end of the 6th century, and thus dictated the function of the sanctuary also in an economic sense.[7] Thus, the new find, together with the other new discoveries, fills the gaps of the picture of the amyklaion both in terms of its appearance and in terms of its function. In the context of the discussion on the austerity of Lacedaimonia, Sparta and the Amyklaion can thereby make a clear contribution to interpreting this phenomenon in the context of local circumstances.[8]

## Notes

[1] Vlizos 2017, 72.

[2] Vlizos 2017.

[3] Cf. Heilmeyer 1969; Mattusch 1977, 340–379; Rostoker – Gebhard 1980, 350. 361. For a general interpretation see Heilmeyer 1981, 440–453; Zimmer 1990, 17–54.

[4] Cf. ThesCRA IV (2005) 22 s.v. Ergasterion (U. Sinn), and Rostoker – Gebhard 1980, 361.

[5] Cf. Heilmeyer 1969; Zimmer 1983, 57–80.

[6] Grigorakakis 2014.

[7] Hodkinson 1998, 55.

[8] Cf. Cartledge 2002, 94; Ulf 2009, 231–234.

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Fig. 1: Copyrights Amykles Research Project.

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# Funerary Economy

## Panel 7.5

# The Value of Making and the Materiality of Funerary Monuments in Archaic Greece[1]

**Corinna Reinhardt**

The process of making transforms raw material into an artefact. Normally, this aspect remains secondary to its messages and functions. But could this making also be part of the intended reception of the object, especially in terms of its appearance and presence? Was there a special meaning and value based on the creation of a material[2] artefact – and if so, why? These questions are addressed in what follows with regard to funerary monuments in Archaic Greece (mainly from Attica).

Making is the meaningful relation between the maker and the artefact made.[3] However, it is not only the finished work that bears witness to this, but also the inscriptions on it. One example is the so-called signatures of artists, as documented on the 6th century grave stele of Archias and his sister from Kalyvia in Attica.[4]

> τόδ' Ἀρχίο 'στι σẽμα : κἀ-
> δελφẽς φίλες : / Εὐκο-
> σμίδες : δὲ τοῦτ' ἐποί-
> εσεν καλόν : / στέλε-
> ν : δ' ἐπ' αὐτõι : θẽκε Φ-
> αίδιμοσοφός.
>
> This is the *sêma* of Archias and his dear sister / and Eukosmides made this fine *sêma,* and / the wise Phaidimos set up a *stêlê* on it.[5]

The known artist, Phaidimos,[6] is called *sophos*[7] and he set up the stele on the grave. The attribute *sophos* recalls the 6th century dedication of Mikkiades and Archermos at Delos, who made their votive for Apollo *with skills* (σο[φ]ίεισιν).[8] The use of *sophos* bears witness to the value of making.

The example of the artist in the epigram for Archias is one of many signatures on sculptural works in Archaic times; this is the case for funerary as well as votive monuments.[9] In total, Archaic grave monuments in Attica preserve 19 signatures.[10] There are many convincing reasons why the sculptors (or commissioners) could have decided to place the name on the monument. For one, 'signing' an artefact could be seen as an expression of the pride of the artist and an opportunity to advertise their own craftsmanship.[11] Others have emphasized the interrelation between craftsman and commissioner. The signatures of famous artists could have been important for displaying the social status of the commissioner by showing the economic value of the monument.[12] Both aspects are important, but we should not forget another aspect: they explicitly communicate the making of the monument to the viewer. The 'thing-ness' of the monu-

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ment becomes part of its reception; by reading the inscription but also by viewing, the signature is always conspicuous and is mostly set apart from the grave inscription. The epigram of Archias is an exception,[13] because it includes the artist's name in the verse to which it is visibly connected (fig. 1). In other examples, the writers[14] used different visual modes to separate the signature and the inscription, and in these the signature appears more autonomous. The grave monument of the Samian Leanax[15] (fig. 2) exemplifies the visual effect of this separation. The letters of the epigram are in two lines, with uniform sizes and spaces that take up the whole width of the base; however,

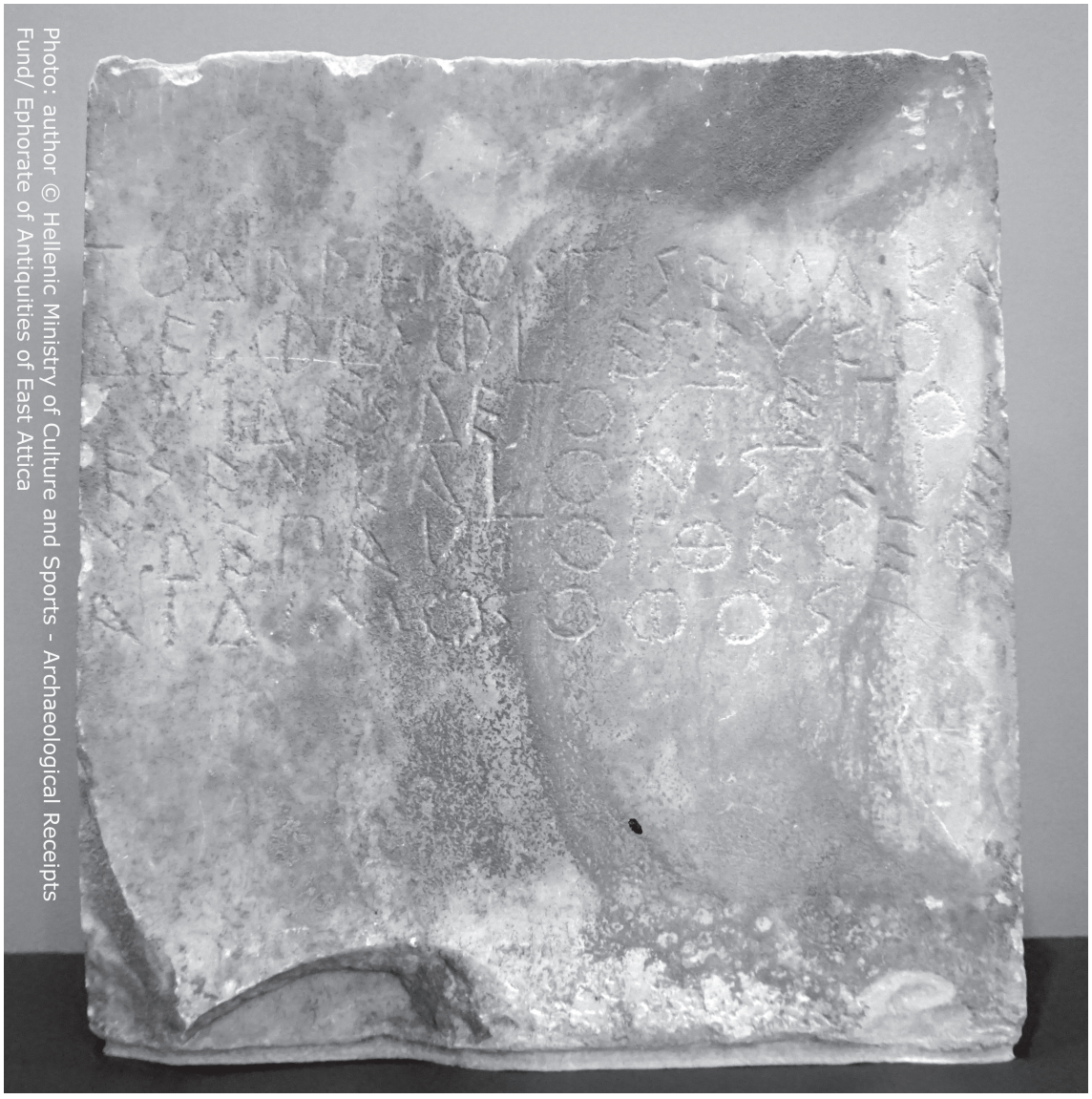

Photo: author © Hellenic Ministry of Culture and Sports - Archaeological Receipts Fund/ Ephorate of Antiquities of East Attica

Fig. 1: Lower part of the grave stele for Archias and his sister from Kalyvia/Attica: Brauron, Archaeological Museum BE 838, around 540 BC.

the signature is written in a significantly larger script and with more irregular spaces between its letters. The first larger space is placed between the words Φίλεργος and ἐποίησεν. In the word ἐποίησεν, the spaces between the letters are enlarged from left to right. Other examples have the artist's signature separated from the main text by using different letter sizes,[16] by using a space between them,[17] starting a new line,[18] or by placing the signature on another part of the monument.[19] Although a few examples do emphasize the artist in relation to the grave inscription (as in the case of Leanax), the visual separation makes it clear that the viewer should see the making as an individual part of the monument.[20]

However, in the epigram for Archias we find a second 'maker': Eukosmides, who made this *sêma* fine or beautiful. The chosen word for his part is ποεῖν, which we find usually in signatures.[21] It must not be the case that Eukosmides is another artist who worked with Phaidimos, as Löschhorn has suggested.[22] Hallof and Kansteiner convincingly explained ποεῖν as referring to the installation of the grave.[23] There are, moreover, other examples for the use of ποιεῖν in Archaic grave inscriptions beside the signatures.[24] As the grave inscription of –erylides tells,[25] his children made (ἐποίεσαν) the *sêma.* Most likely they commissioned it. Although we cannot be sure about Eukosmides' role in the grave of Archias, he and Phaidimos represent a good example of the dualism involved in making a grave monument. Making includes both the role of the commissioners as well as the artist. In addition to ποεῖν, the writers used a variety of words to refer to the production or installation. This includes the making of the artists and the 'making' of the commissioners. They set up, erected or worked the *sêma* for the deceased – using the verbs τιθέναι,[26] ἱστάναι,[27] or ἐργάζεσθαι.[28] A further example comes from the epigram for Praxiteles from Troizen.[29] This gives a detailed description of the work, mentioning the erection of the tumulus (here called *sêma*) by using the term χεῖν:[30]




Fig. 2: Base of the grave statue for the Samian Leanax from Athens: Athens, Museum of the Kerameikos M 662, ca. 525–500 BC.

Πραξιτέλει τόδε μνᾶμα ϝίσον ποίϝεσε θανό[ντι· | τ]οῦτο δ' ἑταῖροι
σᾶμα χέαν, βαρ̣έα στενάχοντες, | ϝέργον ἀντ' ἀγ[α]θῶν, κἐπάμερον
ἐξετέλεσ(σ)α[ν].

Vison made this memorial for Praxiteles who died,
and his companions heaped up this mound, with heavy groaning,
for his good deeds. And they finished it in one day.[31]

Of course, these verbs refer to the commissioners in a figurative sense. Nevertheless, the writers obviously placed special emphasis on the description of making and erecting the man-made and materially present *sêma.* This information is crucial because it refers to its artificial character, and not directly to the deceased. Also, the deictic form of the inscriptions and the tense of the verbs underline the reference to the material *sêma.* The inscriptions often mention τόδε σῆμα – *this (is the) sêma* – to give a direct nod to the monument. As Bakker argued, the use of the aorist in verbs of erecting not only refers to an action in the past but signifies that the past action *has produced* the *sêma.* He speaks therefore of a "monumental aorist".[32]

Thus, the signatures and grave inscriptions both focus on the physical presence of the monument. But why? An answer could come from those grave inscriptions in which the presence of the *sêma* serves as a starting point for the actions of the viewer. For example, the epigram for Thrason[33] invites the viewer to stop when he sees the *sêma* and to mourn. Others, such as the epigram for Stesias,[34] speak of the *sêma* explicitly as something to behold. The connection between the material sign of the deceased and the enduring remembrance becomes obvious.

What about the visual appearance of the grave monuments? Does it maintain the same focus on the man-made and material *sêma*? If we consider this question with Attic grave monuments in mind, their elaborate substructures are of interest.[35] They are characterized in a range of ways. Firstly, by their general design: besides the simple block base,[36] multi-stepped bases[37] are used more often. The base of the monument for a kore from Vourva in Attica[38] (fig. 3) shows the original condition of four steps (the lower three are made of limestone, the upper of marble) and it preserves a hole for the plinth of a statue. The upper step also preserves a fragmentary inscription,[39] informing the reader that this *sêma* was for a deceased female and was beautiful to look at. In the last two lines, the work of the artist is mentioned – the same Phaidimos who worked the *sêma* for Archias. The steps of the base are carefully stratified above each other. Others have focused on the fact that this method puts the statues on a higher level, so that height was an element for competition between the monuments.[40] This is surely also true for the fewer grave monuments which include a pillar or a column as a support for the statue,[41] as we know from many dedications in Attica and elsewhere.[42] But these substructures all have in common that they remind the viewer of architecture, since the blocks are arranged as if for a building, while the pillars and columns are regular


Photo: National Archaeological Museum, Athens (photographer Socratis Mavrommatis) © Hellenic Ministry of Culture and Sports - Archaeological Receipts Fund/ National Archaeological Museum, Athens

Fig. 3: Base of a grave kore from Vourva/Attica: Athens, National Archaeological Museum 81, around 550/540 BC.

elements of architecture. This carries a specific semantic value: architecture means material stability and durability based on stone. The *sêma* is the *permanent* physical marker for the deceased. The chosen design of the substructures supports this interpretation.

The inscriptions also visually emphasize the bases. Although the combination of base and inscription is common from the 5th century BC onwards and is already found in the 6th century, there was also the option to place inscriptions directly on the statues.[43] However, this is nowhere attested for Attic grave monuments, with their elaborate substructures.[44] The combination of inscriptions and bases gives attention to the base, but also to the formal arrangement of the inscriptions, which underlines the structure. Their

layout does not generally show a fixed form in the 6th century.[45] But on Archaic bases the inscriptions show a great regularity: they are written in straight lines, while their orientation follows the part bearing bears the inscriptions. Horizontal lines are used on rectangular bases, sometimes supported by incised lines.[46] However, if the space they wanted to write on is high and rectangular, the inscription is turned around. This type of orientation is typical for Archaic column-supports, which have inscriptions written in the flutes or for pillar monuments if the shaft bears the inscription. Thus, the formal arrangement of the inscription correlates with the formal structure of the base. The inscription uses the entire width of the block. Thus, the ornamental character of the inscription not only decorates the bases, but also helps to visualize its architectonic structure.

A third aspect is colour and its relation to the material. The grave statues were richly coloured, as we know from colour traces such as that of the Phrasikleia.[47] The stone is thereby transformed completely into a lifelike figure, negating the stone of which it is made. On the stelai, the background of the figure and images in the predella area also were coloured, in addition to the figures itself.[48] For the inscriptions on the bases, the picture is different:[49] in contrast to the red colour in the inscribed letters,[50] no additional background colour is preserved.[51] Therefore, the viewer could see the marble in this part of the monument, when confronted with the red text on a light marble. This could be proven by the non-marble blocks, which are covered with light stucco to appear similar to marble.[52]

Thus, the architectural appearance, the layout of the inscriptions, and the 'colours' of the substructures support the two characteristic aspects of the monument: material stability and durability.

The making of the grave monument and its visualized materiality are closely linked with each other. Visual markers focusing on stone and architecture, as well as the content of the grave inscriptions try to emphasize the status of the *sêma* as a man-made and permanent sign of the deceased.

## Notes

[1] My thoughts on this topic derive from my participation in the sub-project A10 of the Collaborative Research Centre 933 'Material Text Cultures' at the University of Heidelberg, which is funded by the DFG. For a more detailed study, see Reinhardt (forthcoming).

[2] For the concept of 'materiality' see e.g. Meskell 2005; Knappett 2012. For a critical view, see Ingold 2007.

[3] For an anthropological view, see Ingold 2013.

[4] Brauron, Arch. Mus. Inv. BE 838, around 540 BC: IG I³ 1265; CEG I 26; DNO I 360; Peek 1942, 85–87 nr. 140 pl. 3, 2; Jeffery 1961, 74. 78 nr. 31 pl. 4; Jeffery 1962, 139 f. nr. 48 pl. 38c; Richter 1961, 25 nr. 35; 157 f. (M. Guarducci) fig. 202; Ecker 1990, 144–149.

[5] Translation: Casey 2004, 84 fn. 33.

[6] Three preserved signatures: DNO I 358–360.

[7] Löschhorn suggested – in order to explain the single Σ in the middle of Φαίδιμοσοφός – to read 'Φαίδιμος σοφό'; σοφό would be σοφώ and written retrograde in the last line. The dual form would refer to Phaidimos and Eukosmides and mean that both are commissioners and artists: Löschhorn 2007, 272–274 n. 16. However, his explanation that the writer wrote σοφό retrograde by mistake after having written αίδιμο in the same line from left to right is not convincing, and not only because the precondition of using a template with three lines could not be confirmed. In my opinion, retrograde writing in Archaic inscriptions (when used only at the end of an inscription and combined with writing from left to right) is a visual marker to show that it belongs to the end of the previous line, and is used when only a few letters were missing after having reached the end of the line (cf. IG I³ 1251; IG I² 1227; IG I³ 1276).

[8] Athens, Nat. Mus. 21α: I Délos 9; A. Moustaka, in: Despinēs – Kaltsas 2014, 41–43 fig. 70. 71; cf. Kansteiner et al. 2007, 1–4 nr. 1 (K. Hallof et al.) and DNO I 197 for the discussion of who made and who dedicated the votive (cf. Löschhorn 2007, 272–274 fn. 16 for IG I³ 1265). On the *sophiai* of artists: Hurwit 2015, 148–150. Cf. IG I² 522 (CEG I 291).

[9] Keesling noticed 71 signatures on votive monuments from the Athenian acropolis in the 6th and 5th century BC: Keesling 2003, 33 f. 208 f. App. 2. Hochscheid stated the difference between the more frequent records between 525–475 BC and the less frequent records in the later 5th century (Hochscheid 2015, 186 with table 4.1). For signatures in general, see Viviers 2006; Muller-Dufeu 2011, 110–117; DNO I–IV; Hurwit 2015.

[10] IG I³ 1196; 1208; 1211; 1214; 1218; 1218bis; 1222; 1229; 1229bis; 1232; 1251; 1256; 1261; 1265; 1269; 1344; 1365; 1380; SEG 42, 45. Uncertain: IG I³ 1242 (cf. fn. 24).

[11] Viviers 2006, 149 f.; DNO I, XXXI; Hurwit 2015, 147–151.

[12] Muller-Dufeu 2011, 117; DNO I, XXXI; Hurwit 2015, 151 f.

[13] Another case is IG I³ 1251 (CEG I 18).

[14] Normally in the Archaic period, both inscriptions were engraved by the same person: cf. Raubitschek 1949, 436; Viviers 1992, 44–51. There are only a few exceptions.

[15] Athens, Mus. of the Kerameikos M 662; ca. 525–500 BC: Knigge 1969, 79–86 pl. 36; 37,1; Kissas 2000, 61 f. A28; IG I³ 1365 (CEG I 52; DNO I 378).

[16] Cf. the grave monument of Antidotos, worked by Kallonides: Kissas 2000, 63 f. A30 fig. 41; IG I³ 1232; DNO I 411. Καλλονίδες ἐποίε | ho Δεινίο occupies more space than the grave inscription, which mentions only the name of Antidotos. But the latter is written in a larger size.

[17] With a line spacing: IG I³ 1344 (DNO I 375; Kissas 2000, 70 f. A41 fig. 48. 49). Distance of one flute on the column: IG I³ 1269 (CEG I 36; DNO I 350; Kissas 2000, 79 A47; Raubitschek 1939, fig. 17).

[18] IG I³ 1229 (CEG I 54; DNO I 377; Kissas 2000, 253 C12 fig. 339). The identification of IG I³ 1242 (DNO I 372; Kissas 2000, 46 A12 fig. 14. 15) as signature is uncertain (see n. 24); the starting of a new line could be an argument, but not a very striking one.

[19] IG I³ 1261 (DNO I 348; Kissas 2000, 47 A14); IG I³ 1208 (DNO I 347; Kissas 2000, 51 A18 fig. 23–26); IG I³ 1211 (DNO I 349; Kissas 2000, 51–54 A19 fig. 27); IG I³ 1256 (DNO I 374; Richter 1961, 47 nr. 67; 170 [M. Guarducci] fig. 156); IG I³ 1229bis (Willemsen 1970, 36–38 pl. 15,2); SEG 42, 45 (Thomas 1988 with fig. XX). Cf. also IG I³ 1214 (DNO I 368; Kissas 2000, 71–73 A42) which shows both on the same side of the block, but in different parts which are separated by a painted figure.

[20] Raubitschek noticed the same for the 6th and 5th century BC dedications from the Athenian acropolis: Raubitschek 1949, 435 f.

[21] Muller-Dufeu 2011, 234–236.

[22] See fn. 7.

[23] DNO I p. 267 nr. 360 (K. Hallof – S. Kansteiner).

[24] Cf. outside Attica, the monument of Menekrates at Corfu: CEG I 143; Ecker 1990, 88–110; the monument of Praxiteles at Troizen: see below; an inscription from the Throni plateau near Methana (using σᾶμα ποιϝέσανς towards καταέθεκε (…) μνᾶμα): CEG I 137; von Premerstein 1909; Häusle 1980, 2 f.; the monument of Idameneus from Camirus/Rhodos: IG XII 1, 737; Friedländer – Hoffleit 1948, 36 f. nr. 33; Gallavotti 1975/1976, 73–76. A grave monument from the Demos Aigilia in Attica (IG I³ 1242; CEG I 31) informs the reader (after the praise of the deceased): [..]ιστέμον τόδ' ἐπόε ηιποσ̣τ̣[ρ]||[άτ]ο σε̃μα. Is this [Ep]istemon a commissioner or an artist? Or is Hippostratos the artist? For possibilities interpreting this text, see DNO I 372 (K. Hallof).

[25] IG I³ 1226 (CEG I 61). For the base (Athens, Mus. of the Kerameikos, nr. unknown): Kissas 2000, 64 A31.

[26] E.g. IG I³ 1198; IG I³ 1206; IG I³ 1211; IG I³ 1257; IG I³ 1266; IG I³ 1276.

[27] E.g. IG I³ 1196; IG I³ 1197; IG I³ 1279; IG XII 8, 398; CEG I 167. For ἱστάναι in grave inscriptions, cf. Ecker 1990, 132 f. with fn. 362; Peek 1955, 40–47.

[28] Most for the artist's work: IG I³ 1251 (CEG I 18) (integrated in the epigram). For other examples see DNO I, XXX with fn. 131, cf. Muller-Dufeu 2011, 236. But in the epigram for Damotimos from Troizen the verb is used for the mother who commissioned the *sêma:* IG IV 801; CEG I 138; Friedländer – Hoffleit 1948, 34 nr. 30; Peek 1955, 56 nr. 216; Bowie 2010, 357 f.

[29] Troizen in situ?, ca. 500 BC?: IG IV 800; CEG I 139; Friedländer – Hoffleit 1948, 33 f. nr. 29; Ecker 1990, 120–131; Bruss 2005, 33.

[30] E.g. Hom. Il. 24, 799. For an Attic inscription, see IG I³ 1205 (CEG I 38).

[31] Translation: Bruss 2005, 33.

[32] Bakker 2016, 203 f. For the difference to the imperfect, which is sometimes chosen for the signature and refers to the act located in the past without special reference to the present, see Bakker 2007, 114–116.

[33] Athens, Epigraphic Mus. 10639, 540/530 BC?: IG I³ 1204; CEG I 28; Kissas 2000, 59 A24 fig. 37.

[34] Base, around 525–500 BC?, now lost: IG I³ 1215 (CEG I 46).

[35] See Kissas 2000, 37–80. 247–258 (catalogue). For a more detailed discussion of what follows, see Reinhardt (forthcoming).

[36] For examples: Kissas 2000, 37–42 A1–A7.

[37] See Kissas 2000, 42–69 A8–A39.

[38] Athens, Nat. Mus. 81, around 550/540 BC, cf. Kissas 2000, 46 f. A13 fig. 16. 17; P. Karanastasē, in: Despinēs – Kaltsas 2014, 43–46 fig. 72–77 with bibliography.

[39] IG I³ 1251 (CEG I 18; DNO I 359).

[40] E.g. Kissas 2000, 15. 21; Donos 2008, 28 f.

[41] Kissas 2000, 70–80 A41–A48.

[42] Raubitschek 1949, 3–60. 211–336; Jacob-Felsch 1969, 33–43; Kissas 2000, 108–246 B35–B222; Donos 2008.

[43] For writing on statues, see Hurwit 2015, 114; Dietrich 2017, 302–309.

[44] Hurwit 2015, 114 with fn. 37; Dietrich 2017, 310 f. For the statuary dedications in Attica there are two exceptions from Sounion: Athens, Nat. Mus. 3449, 3450 (A. Moustaka, in Despinēs – Kaltsas 2014, 197 f. fig. 648 = IG I³ 1024B; 198 f. fig. 649 = IG I³ 1024A).

[45] Cf. Jeffery 1961.

[46] Kissas 2000, 39 f. A4 fig. 7 (IG I³ 1200); 54 f. A20 fig. 30 (IG I³ 1240); 59 A24 fig. 37 (IG I³ 1204); 70 A40 (IG I³ 1262); 70 f. A41 fig. 48 (IG I³ 1344); 249 C3 fig. 336 (IG I³ 1202).

[47] Athens, Nat. Mus. 4889, around 540 BC; cf. N. Kaltsas, in Despinēs – Kaltsas 2014, 46–51 fig. 78–89 with bibliography. For the reconstruction see Brinkmann et al. 2010; Schmaltz 2016; Kantarelou et al. 2016.

[48] Cf. e.g. the marble stele of a hoplite in New York, Met. Mus. of Art 38.11.13, around 520 BC: Richter 1961, 32 f. nr. 45 fig. 126. 128; Brinkmann 2003, cat. 312 fig. 312.6.

[49] For inscriptions on stelai we have no information about the background, since no colours are preserved. It is likely that, as on the bases, it was not coloured, because in the predella not everything was coloured as well (cf. the example in fn. 48).

[50] E.g. IG I³ 1203 (Kissas 2000, 250 C7; Jeffery 1962, 121 nr. 10); IG I³ 1205 (Kissas 2000, 56 f. A22; Jeffery 1962, 121 nr. 12); IG I³ 1213 (Kissas 2000, 48–50 A16); IG I³ 1240 (Kissas 2000, 54 f. A20; Jeffery 1962, 143 f. nr. 57); IG I³ 1256 (Kissas 2000, 256 C17; Jeffery 1962, 141 nr. 52); IG I³ 1357 (Kissas 2000, 62 f. A29). For coloured letters of Archaic dedications, see Day 2010, 49.

[51] This seems not to be the case for bases with reliefs: e.g. the ball-player base (Athens, Nat. Mus. 3476, around 510 BC, N. Kaltsas, in Despinēs – Kaltsas 2014, 455–460 cat. I.1.393 fig. 1265–1270) with traces of blue and red. Brinkmann suggested an imitation of toreutic work because of traces of metal foil: Brinkmann 2003, cat. 164.

[52] See the examples: Kissas 2000, 39 f. A4; 40 f. A5; 42 f. A8 (cf. Jeffery 1962, 116 nr. 1); 56 f. A22; 64 A31; 65 A33; 250 C7.

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# Funerary Painting and Architecture in Daunia between the 4th and 3rd Century BC. Models and Cultural Influences

**Andrea Celestino Montanaro**

During the 4th century BC, Daunian aristocracies reach their apex established by the large funerary assemblages but, above all, by the large funerary structures, which arise in this period. These were exemplary expressions of the need of ruling families to emphasize their prestige by constructing monumental houses of the dead: the semi-chamber and the chamber tombs. Their type changed over time and in different centers as a result of various architectural models and the geological nature of the site itself. At Canosa, *Herdonia* and Ascoli Satriano, the structures were excavated out of the natural rocky or tuff bank; those at Salapia, Arpi and *Tiati* were constructed with square blocks of limestone. In these tombs we can see a particular use of decorative, pictorial and sculptural elements: their use was principally ornamental, but also functional in terms of a more complex language that the whole composition was intended to express. With respect to the entire architectural project, the figured scenes always are painted outside the depositional compartment. These figured subjects can be painted or sculpted upon the entrance, both the primary or the secondary facade, as well as the vestibule. The first adoption of narrative themes or symbolic subjects are inside the funerary chamber, intended exclusively for the deceased, and these continue outside or in places accessible and visible to everyone during the funerary ceremonies.[1]

An important spatial conquest in the articulation of the chamber tombs in Canosa is the adoption of the covered vestibule, with a clear definition of distinct spaces: the room-vestibulum and the real burial chamber. To this type belongs the most ancient complexes, among which the "Ipogeo Monterisi" (second half of the 4th century BC) stands out. The main chamber is covered by a double-sloping roof with a central beam, while the walls are marked by pillars resting on plinths and surmounted by capitals.[2] The "Ipogeo Barbarossa" has a Greek cross plan with a rectangular central room, from which one could access to two smaller lateral rooms and to a wider rectangular room. The central room has a flat and painted roof with red and blue bands, and two painted windows flank the entrance door to the end room. The latter had concave walls and a double-sloping roof decorated with two painted blue and red bands. The architecture reflects two different types: on one side, the main compartment with the concave walls has a type of plan already known in the most ancient tombs of Canosa; on the other hand, the complex organization of spaces and the existence of two rooms excavated outside the dromos lead back to long-used types of hypogea.[3]

The most recent tombs (e.g. at Varrese, Lagrasta, Scocchera) show a more complex plan: the later rooms progressively enlarge the original structure and are placed on the sides of the dromos, and the plastered facades are characterized by elevations with

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semi-columns decorated with Ionic capitals. As regards the "Ipogeo Varrese", the attention paid to the axial chamber (intended for a highly prestigious individual) is clear in the structure of the façade, which was realized with squared blocks. At a later time, the need arose to organize the funerary space differently, by adding new rooms for the other members of the *gens.* In addition to having architectural features inside, a monumental façade emphatically frames the outside of these rooms. The tomb is the perfect characterization of a behavioural *exemplum:* the connection between the hypogeum's plan and the representative areas around the monument demonstrate the relationship between its functional aspects and the monumentalization of the external spaces. The functional connection is given by the pillar that rises from the vestibulum and connects to the porticoed space after it rises above the hypogeum. This highlights the sacredness of the place and the sense of the ceremonies linked to the cult of the ancestors. This feature is very prominent in the history of Canosa's funerary architecture, and is clearly Hellenic in style. It illustrates the style and ambition of an architectural status focused on the pillar-sema and on the porticoed space (fig. 1).[4]

On the basis of these sacred-institutional examples, one also can re-evaluate the double order of the prospect of the Ipogeo Lagrasta II. Such an approach could bring to light elements that are perfectly homogeneous to what was described in Varrese.

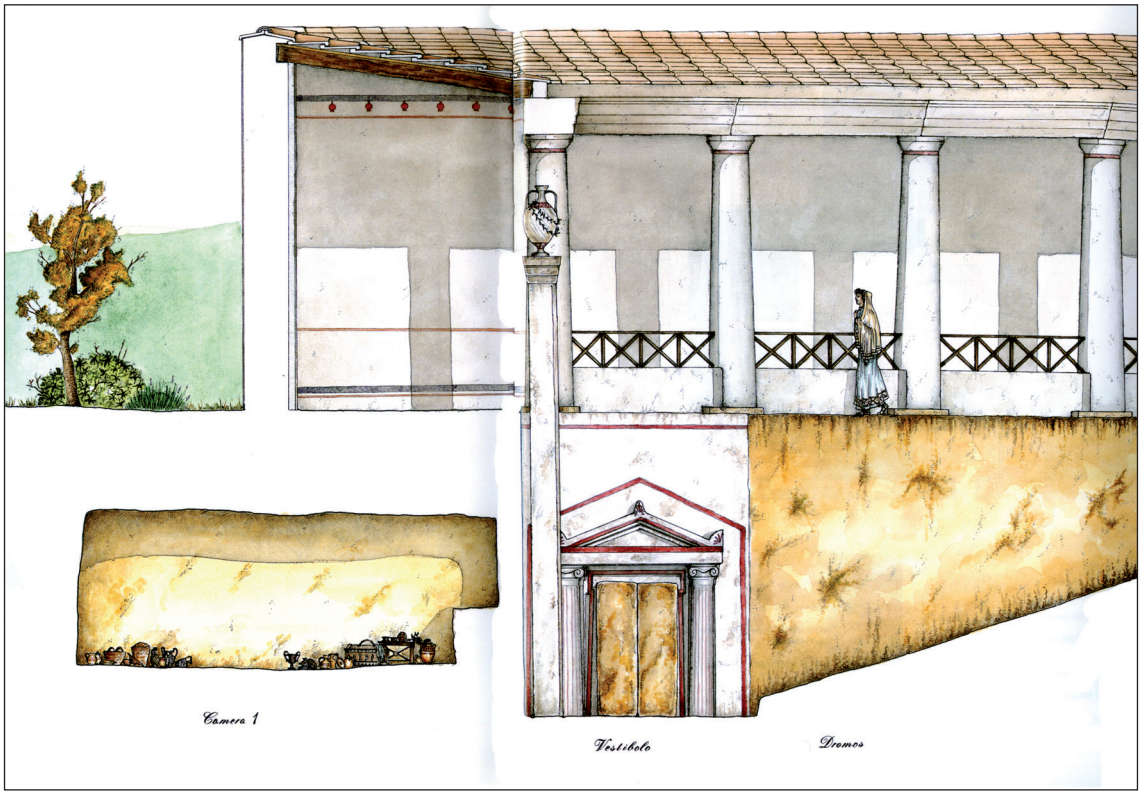



Fig. 1: Canosa di Puglia. The Ipogeo Varrese: reconstruction of the east side.

The double order in the facade of the hypogeum consists of a lower Doric element and an upper Ionic element. This combination leads us to consider the external architectural alignment to the tomb, which was articulated like an Ionic colonnade, as a reality linked to use of the monumentalized external floors. There are strong analogies with the funerary monuments from Taranto, namely with the adoption of a naiskos with a tetrastyle prospectus like a *sema*.[5] In fact, similar discoveries were made at the "Tomba degli Ori" and in the "contrada San Paolo", which contained the architectural elements of a naiskos.[6]

The Ipogeo Lagrasta I (late 4th–1st century BC) is one of the most important tombs for its monumental architecture, which comprises nine burial rooms. Pillars, semi-columns and a Doric-type architrave frame the entrance door to the main chamber; the frame itself preserves traces of red and white plaster. The interior rooms are characterized by painted architectural decoration, and the ceilings simulated a roof of wooden beams. The main chamber showed an articulated pictorial wall partition on the end wall with four Ionic half-columns plastered with the toothed trabeation; two false windows were painted with closed shutters and studs that were filled with fantastic animals, sirens or harpies. This complex partition recalls decorative schemes more used in the Macedonian and Alexandrian world of the last 4th–3rd century BC (fig. 2). Very interesting is the frieze with figured scenes of historical type, with combat, duels, and funerary games painted on a blue background no longer visible. These elements reveal a deep Campanian-Roman influence. Macedonian influence is very clear in the monumental facades (Lagrasta II), which imitate the great royal tombs, such as the tomb of Leucadià, with its architectural scheme dated to 300 BC.[7]

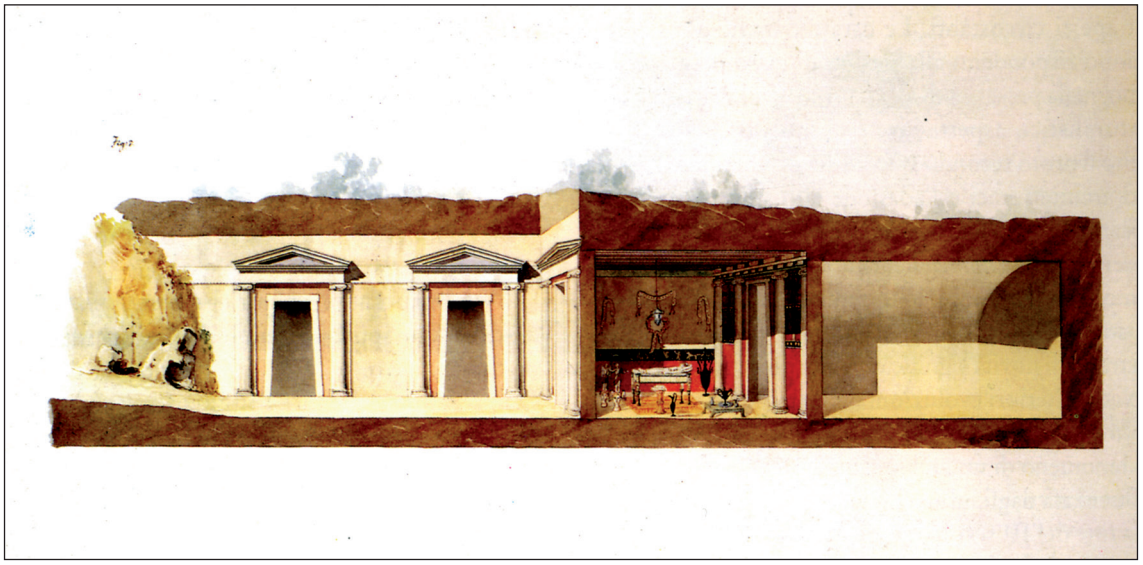


Fig. 2: Canosa di Puglia. The Ipogeo Lagrasta I. Reconstruction of the external and internal perspective from a watercolour.

The burial chambers were a territory of unclear boundaries: the figured representations, the psychopompic abilities of Hermes, the high visibility of the women in procession, as well as the participants in the funerary rituals, all were intentionally positioned in the antechamber, highlighting the cross-cultural association with death and the Underworld. In the "Ipogeo del Cerbero", the vestibulum space is the ideal setting for praising the deceased, by exalting their fame and public *virtus,* and in this sense we must consider the frieze depicting a "*deductio ad Inferos*". In the centre, the figures of *Hermes Psychopompos* and *Cerberus* dominate the scene. To the left of Hermes is the deceased wearing a cloak and followed by a warrior armed with spear and shield holding a horse by the bridle. Another horse closes the composition on the right, while two draped female figures are part of the iconographic repertoire of the lamenters (fig. 3).[8] The emphasis on the guiding motifs comes from the depiction of infernal figures, such as *Cerberus,* as well as deities who historicize the event of death, like *Hermes Psycho-*



Fig. 3: Canosa di Puglia. The Ipogeo del Cerbero: painted frieze representing a "deductio ad Inferos".

*pompos.* The painted friezes of the "Ipogeo del Cerbero" and the "Ipogeo Scocchera B" (dating to the first half of the 3rd century BC) are deeply intertwined in terms of their iconographic schemes, the narrative dialectics of the solemn procession, and for sharing the "institutional" components of the procession. The paintings have a central position, as they are located in a passage way in the outer space of the vestibulum: this position promoted the observation of the paintings. The will to convey messages to those among the living is very clear, that they should be guardians over the houses and property of the dead. The scenes have the function of ferrying the dead and at the same time reflect the social unit of the family group and the civic group, not dissolved by the event of death. The deceased is exalted to the status of a hero, who had reached the milestone of full youth. This was a necessary requirement for his participation in war and the culmination of vitality, but also for the genealogical link between the living and the deceased. Such a genealogical chain was destined not to be interrupted, in the mythological-ideal frame that marked the passage from one level of life to another. The characters of the painted scenes, therefore, are proto-typical heroes; the paradigmatic nature of the figures depict the destiny of death reserved to heroes (fig. 4).[9]



Fig. 4: Canosa di Puglia. The Ipogeo Scocchera B: painted frieze representing a "deductio ad Inferos".

The "Ipogeo Sant'Aloia" (late 3rd century BC) has a Latin cross plan with a dromos and a vestibulum, onto which two rooms with double sloping roof opened. A little pediment carried a scene of an anguiform subject, and the acroteria had a painted scene that represented a funerary procession accompanying the deceased in the Underworld: a horse and a cavalryman came in front of two women. The female figures, obtained with the use of brown contour lines on the light background, are very similar to those depicted on the painted tomb from Isernia. The pictorial scheme follows the same compositional rhythm of the Ipogeo del Cerbero: a cavalryman, a horse, and two female figures closing the scene. The placement of the figures at the extreme border of the scene would seem necessary: the intrinsic polarity of women gives physicality to this limit, indicating the threshold between life and death.[10]

In the other cities of Daunia, the documentation offered by funerary architecture is different from that of Canosa, and often varies within the same locality. The first funerary monument is the "Tomba dei Cavalieri" at Arpi. This semi-chamber tomb was built in tuff blocks and has yielded the oldest example of figured wall-painting in Daunia (early 4th century BC). It also reveals a great deal about the artistic influences of the period. The pictorial scheme shows the theme of a funerary procession, which offers some ideas for reconstructing the customs of the emerging classes on the occasion of funerary ceremonies. They are articulated ceremonies that provided, together with the presence of lamenters, offers to the deceased, music, dances and games to celebrate him, as well as political and economic power of his family. Horsemen and chariots drawn by pack animals also took part in the procession (fig. 5). The adoption of narrative subjects in the funerary scenes (e.g. two warriors on horseback, a racing chariot), makes this tomb rare in comparison with other known examples from Apulia. Additionally, the choice of subjects and pictorial scheme is very similar to the repertoire of Campanian and Paestan paintings. The figure of the female deceased supports this. She is accompanied by a young girl, is upon a chariot led by an attendant, and is dressed with tall headgear, ringed earrings, fibulae on the chest, and long embroidered gloves. This detail immediately recalls the basic scheme of the female figure on the most ancient Daunian stelai.[11]

Similar painted fragments for architecture and subjects come from other burials of Arpi, found near looted chamber-tombs. These belong to two different complexes or to different parts of the same one.[12] Some chamber tombs from Arpi also recall plans and constructions to Campanian examples, such as the "Tomba del vaso dei Niobidi" (built in limestone blocks). This tomb comprised a rectangular room preceded by a dromos with a little pediment on the door and had a double-sloping roof.[13] Similar examples are found in recent excavations (2005 and 2008): the first is the "Tomba del Finanziere", built in limestone blocks and with a pseudo-vaulted roof, dated to the first decades of the 4th century BC, that has yielded also a chariot, whose architectonic structure reveals close comparisons with Campanian examples. The second is the "Tomba delle Onde marine" with a painted frieze in the vestibulum representing running waves as in tombs



Fig. 5: Foggia. Museo Civico Archeologico. Painted friezes from the "Tomba dei Cavalieri" of Arpi: pair of cavalrymen.

from Etrutria (Blera, Cerveteri, Populonia) and Campania (Cuma, Nola, Capua, Sarno), dated around to 340-300 BC.[14] To the same typology of Tomba del vaso dei Niobidi belong "Tomba del Trono" and "Tomba dei Vetri", composed of a double-sloping roof with a little pediment and decoration in the tympanum. The first has a painted offering scene of a female figure seated on a richly decorated throne flanked by two standing women: the one on the left wears a blue chiton. In the right corner there is a high tronco-conical cist with golden-yellow decorations, a subject reminiscent of the female domestic world. The second has a painted scene in the tympanum representing a great female head with blue wings, probably a Gorgon's head.[15]

The "Tomba degli Ori" from *Teanum Apulum* (3rd century BC) is in close relationship with the funerary monuments of Arpi and Salapia. The architectonic structure consists of a chamber with a rectangular plan that was built against the surrounding walls, and has converging walls built in regular stone blocks with connecting "diatones" between the two walls. The ownership of the funerary structure by a rich family of the local aristocracy is supported by the monumentality of the tomb itself, as well as by the presence of prestigious objects, such as the pair of gold crowns of Tarentine production.[16] The recent discovery (2012) of a new monumental tomb of the same typology (the "Tomba dei Capitelli ionici"), dated to the 2nd half of the 4th century BC, sheds new light on the deep cultural relationships existing between this area and Campania. The access consists of a long dromos (about 11 m) composed of tuff steps, while the monumental façade is painted with a red band along the sides and above the door. The tomb is entirely made of tuff blocks and has a rectangular plan of great dimensions (ca. 5,00 × 2,55 m). The burial room has two central pillars with Ionic-Tuscan capitals topped by transversal "diatones" that supported the weight of the converging side walls. At the top of the room (ca. 3,00 m) is a central *columen* composed of tuff blocks places longitudinally (fig. 6). For the architecture and paintings, this funerary structure strongly recalls the burials of Cumae and Capua. The tomb has also yielded a fine figural painted decoration, among which the remains of the front door's decoration of the deceased in profile stands out. In terms of the iconographic scheme, the subject and some particulars of the figure, such as the colour of the complexion, the short hair (of cap type), the engraving of the eyes, and the white tunic are all very close in style to the figures represented in tombs of Cumae and Capua. Traces of painted decoration are also inside the room: on the wall of the room's long side there are red and blue bands underneath a cloaked figure and a wounded landed figure. Notable among the objects of the funerary assemblage is a chalcedony scaraboid with the engraving of a prancing griffin, probably imported from Taranto.[17]

From an architectural point of view, the "Ipogeo della Nike" shows an association between the barrel covering of the room and the double-sloping entrance, while the facade consists of an Italic-indigenous tympanum. The tomb includes: a dromos, a small vestibule, a façade in a votive shrine shape with a steep pediment and two low semi-columns, a Doric door closed with long blocks, and a rectangular funeral chamber carefully



Fig. 6: Tiati – Teanum Apulum (San Paolo di Civitate). The Tomba dei Capitelli ionici: reconstruction of the structure.

built of tuff blocks and covered by a barrel vault. This last feature associates this with the group of tombs of "Macedonian type", already represented by the "Ipogeo della Medusa" and the "Ipogeo delle Anfore" and by other minor examples.[18] The slopings are decorated with floral motifs; the "tempera" technique of the tympanum's painting shows a figured scene placed on a pink background. The scene depicts a victorious eques (a warrior on horseback), armed with long spear, circular shield, and a cap-helmet of Italic type, who is crowned by a flying Nike. Below, his adversary has a helmet and shield and has fallen in front of his horse (fig. 7). Themes like eques and victorious warriors are in other funerary paintings in Apulia (Arpi, Egnazia), Campania (Capua, Nola), and Lucania (Paestum) where the theme of the "return of the warrior" prevails in male tombs. The victorious eques crowned and made a hero by Nike can be interpreted as the founder of the tomb who had fought in one of the great battles of the period and conquered the *virtus*. These figures find close iconographic and technical-pictorial comparisons with the polychrome vases of the first Hellenism – the volute kraters with tempera paintings – produced at Canosa and Arpi. The battle scenes painted "raw" onto a pink background reflect historical events and are to be interpreted as an expression of evident historicizing tendencies in wall and vase painting since the age of Alexander the Great.[19]

Among the tombs with barrel vaults, the "Ipogeo della Medusa" (mid-3rd–2nd century BC) stands out because it includes examples of different pictorial and architectural experiences: the architectonic approach reveals close affinities with northern Greek



Fig. 7: Arpi: The Ipogeo della Nike. Painted frieze depicting a flying Nike crowning a victorious eques.

solutions. The painted and architectural decoration refers to the southern Russian and Thracian world, culturally influenced by the Macedonian area. The Thracian influence is very clear in the architectural decoration of the façade that recalls the tomb of Sveshtari, which has a carved frieze of *bucrani* and *paterae* in the vestibulum. A painted version of this is known in an aristocratic tomb from Monte Sannace in central Apulia. The structural and decorative parts are combined in a language that, with an evident Greek matrix (the barrel vault), combines typical elements of Hellenized Italic cultures (the figured capitals). In its design the tomb reflects a definite model: the architecture as well as the architectural and painted decorations show a remarkable coherence in their entirety. The Greek model, even in the variant with chambers arranged along its width, is fairly faithfully kept within the rooms themselves.[20]

On the contrary, the façade, visible at the time of the funerary ceremony, constitutes a real break with the Greek tradition with its free-standing tetrastyle colonnade and the architectural elements used (pediment with Medusa, figured capitals) (fig. 8). There was a rectangular vestibule with a flat beamed roof, while the painted decoration of the walls is characterized by areas with large bands (light, red, light, white stucco frame with Doric kyma), above which ran a painted frieze. A fragment of architrave on the



Fig. 8: Arpi. The Ipogeo della Medusa: facade of the tomb.

right wall of the vestibulum kept the lower edge of a scene depicting a "*deductio ad Inferos*": it is possible to see the legs of two characters (one figure is nude, the other wears fringes and can be identified with *Hermes Psychopompos*) and panther legs. This is surely just the remnant of a more complex scene that, as in the tomb of Philip II in Vergina, spread on the entire architrave above the entrance. The infernal scene can be connected to the same painted friezes in the "Ipogeo del Cerbero" and the "Ipogeo Sant'Aloia" at Canosa. These offer ideas for reflecting on the commonality of the subjects and for the pictorial rendering with an evident attempt to create spatial depth by placing the figures on different planes. The hypothesis about the large diffusion of one or more similar cartons not only in Daunia but also in Lucania (Paestum) and Samnium (Isernia) is very probable.[21]

On the opposite wall of the vestibulum is a fine painted *pinax* limited with black lines on the red background. A togate character (whose scheme recalls the magistrate of the eponymous Paestan tomb), is preceded by a groom with a Phrygian cap and a large circular shield. A Greek inscription above the main figure gives the signature of *Artos,* probably the painter of the picture. The arrangement of the painted frieze on the door follows a design that evokes examples from northern Greece (the tomb of Philip II). Its position outside of the rooms is explained by the reason that these funerary structures

were visible and could only be visited inside at the time of the funerary ceremony. The most relevant data is represented by the signature affixed by the painter: "*Artos pinave*". This is a unique case in the Apulian world, in which the artist distinguishes himself from other Italiote painters (such as *Asteas* and *Python*), by adding the verb explaining the activity to his name. The pinax dates to the 2nd century BC, which is the phase of the reutilization of the hypogeum in the post-Hannibalic age. This date allows us to understand more about the complex organization of craftsmen, some of which were so famous at that time that they felt it necessary to sign their own signature.[22]

The central room inside the tomb shows a highly refined decorative program. On the architrave is a vegetal frieze with motifs of yellow sunflowers and flowers placed on a blue background; this method reveals a mature experience in the use of colour and an understanding of chiaroscuro effects. In a true symphony of blue and red, the stucco-notched frame beneath the frieze marked, through its imitation of marble, the richness and fineness of the room, which shows itself as the form of the banquet hall. The vegetal frieze finds comparisons with the similar one on the upper fascia of the façade in Leukadia's tomb, with that painted in the vestibulum of the Kazanlak's tomb, dated between the end of the 4th and the beginning of the 3rd century BC, but also with those from the great tombs of Monte Sannace and Egnazia.[23]

## Notes

[1] For Daunian aristocracies: De Juliis 1992a; De Juliis 1992b, 136–141; Mazzei 1995; Steingräber 2000; Mazzei 2000, 172–177; Corrente 2004; Steingräber 2008; Corrente 2012; Mazzei 2015a.

[2] For the chamber tombs in Canosa: Mazzei 1992a, 163–175; Corrente 2006, 280–283; Mazzei 2015a, 58–62. 65 f. with references.

[3] For the Ipogeo Barbarossa: Mazzei 1992b, 197–202; Mazzei 2015a, 69 f.

[4] For the Ipogeo Varrese: Andreassi 1992, 238–239; Corrente 2004, 53 f. 100 f.; Corrente 2006, 283 f.; Mazzei 2015a, 58 f. with bibliography.

[5] For the Ipogeo Lagrasta II: Cassano 1992, 219 f.; Corrente 2006, 284 f.; Mazzei 2015a, 58–62. 66 f.

[6] For the other naiskoi in Canosa: Corrente 2006, 285 f.

[7] For the Ipogeo Lagrasta I: Cassano 1992, 210–212. 221–224; Cassano 1996, 156 f.; Mazzei 2015a, 58–62. 66 f.

[8] For the "Ipogeo del Cerbero": De Juliis 1984, 25–27; De Juliis 1992e, 348 f.; Mazzei 1995, 205 f.; Steingräber 2008, 206; Corrente 2015, 459 f.

[9] For the "Ipogeo Scocchera B" and the painted friezes representing the "*Deductio ad Inferos*": De Juliis 1992c, 231–237; Mazzei 1995, 205 f.; Corrente 2015a, 459 f.

[10] For the Ipogeo Sant'Aloia: De Juliis 1992d, 346 f.; Mazzei 1995, 205–207; Steingräber 2008, 206 f.; Mazzei 2015a, 67 f. 111 with bibliography. For the meaning of the women, see Corrente 2015a, 459–462.

[11] For the Tomba dei Cavalieri: De Juliis 1984, 27–30; De Juliis 1988, 623 f.; De Juliis 1996, 294–296; Mazzei 2015a, 62. 112; Russo 2015, 69–72.

[12] For the other paintings from chamber tombs: Mazzei 1996, 151–154; Mazzei 2015a, 112.
[13] For the "Tomba del Vaso dei Niobidi": De Juliis 1992a; Mazzei 2015a, 62.
[14] For the chamber tombs with pseudo-vaulted roof at Arpi: Corrente 2010, 40–42; Pacilio – Montanaro 2013, 187–189; Corrente 2015c, 160–161.
[15] For del Trono: Mazzei 1992d, 237 f.; Mazzei 2015a, 112. For "Tomba dei Vetri": Munzi et al. 2020, 400–401. For tombs with a double-slooping roof in Daunia: Mazzei 1995, 174 f.; Munzi et al. 2020, 399–401.
[16] For the Tomba degli Ori: Mazzei – Lippolis 1984, 189–196; Lippolis 2000, 35–45; Mazzei 2006, 89 f.; Pacilio – Montanaro 2013, 186–189; Mazzei 2015a, 62 f.
[17] For the Tomba dei Capitelli ionici: Pacilio – Montanaro 2013, 169–221; Montanaro – Pacilio 2014, 73–124.
[18] About the chamber tombs with barrel vault: Mazzei 1995, 171–173; Mazzei 2015a, 64 f. with bibliography.
[19] For the Ipogeo della Nike: Mazzei 2005, 153–158; Pontrandolfo 2008, 177 f.; Steingräber 2008, 184–189; Corrente 2015b, 61. For Campanian influence: Benassai 2001.
[20] For the Ipogeo della Medusa: Mazzei 1995, 94–106. 171–173; Mazzei 2004, 243–262; Mazzei 2015a, 22–26. 34–36. 106 f.; Mazzei 2015b, 63–68.
[21] For the scene of "*Deductio ad Inferos*": Mazzei 1995, 112, 205–208; Lippolis 1995, 315–332; Mazzei 2015a, 29 f. 111.
[22] For the pinax: De Simone 1995, 211 f.; Mazzei 1995, 112. 208–210; Mazzei 2015a, 30 f. 107. 111.
[23] For the vegetal frieze: Mazzei 1995, 197–204; Mazzei 1998, 69–94; Mazzei 2000, 172–177; Steingräber 2000; Brekoulaki 2001; Mazzei 2002, 67–77; Pontrandolfo 2008, 171–178; Steingräber 2008, 188 f. 191 f.; Mazzei 2015a, 26–33. 106–110.

## Image Credits

Fig. 1: after Corrente 2004, 108 f. – Fig. 2: after Cassano 1996, 130. – Fig. 3: after De Juliis 1988 fig. 612. – Fig. 4: photo by the author. – Fig. 5: after De Juliis 1988 figs. 604. 608. – Fig. 6: after Montanaro et al. 2015. – Fig. 7: after Mazzei 2015a, 6. – Fig. 8: after Mazzei 1995, figs. 46. 65. 66. 130.

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# The Power of Hands: Decoding non-verbal Knowledge Transfer on Roman Provincial Tombstones

**Tatiana Ivleva**

The aim of this paper is to discuss the transfer of the gestural language within the funerary art from two western provinces of the Roman Empire, Noricum and Pannonia. Contemporary scholarship often has seen these gestures on Norican and Pannonian tombstones as signs of Roman citizenship, intellectual superiority, or social status, and often accredits them with being attention-getting. The present paper suggests, in contrast, that some gestures may not have been Roman in nature but a consequence of previously-established un-Roman gestures coming from the Near East, which were appropriated into the local set of values and norms.

The survey of gestural language on various tombstones from across the Roman world has revealed that particular gestures are essentially absent from Britain, Gaul, and Germany but are extremely common in Noricum and Pannonia with some presence in Roman Dacia. Around 500 tombstones have been recorded from Noricum and Pannonia, which exhibit the various gestures and combinations of them. The following hand gestures and gestural combinations of lower arm have been detected: extended index and middle fingers of either right or left hand; extended index and middle right hand fingers touching a scroll; extended index finger; extended pinkie with or without a ring; 'horns-of-the-bull' gesture; benedictio latina.

In general, both the right and left hands on the funerary monuments in Noricum and Pannonia were held in a variety of gestural combinations; portraits of individuals suggest that they could mix and match gestures that they thought were appropriate (fig. 1). A vital and overlooked aspect in this sense is the necessity to depict a particular gesture on a rather expensive monument to emphasize its importance. Images were carefully carved and fingers were carefully arranged in specific ways. This indicates that these gestures were more than conventions and there was a deliberate choice made by the customers ordering the tombstones to have their hands depicted in specific gestures.

It is notable that similar hand gestures and combinations occur massively in the Near East. Correlating gestures and gestural combinations are seen in the funerary art of Syria, particularly in the city of Palmyra. There the individuals were portrayed holding their right and left hands on the funerary monuments in similar gestural combinations.[1] The connection between Syria and Pannonia lies in the presence of the Syrian soldiers and their family members at a few Roman military forts along the Danube corridor. Some scholars intriguingly call this community either a 'Syrian colony on Danube' or a truly 'Syrian enclave'.[2] It is possible that the gestural language on Norican-Pannonian tombstones had its origins in Syrian funerary art, but it is unlikely that the messages expressed through the gestures had anything to do with being Syrian or Palmyreni. This

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Fig. 1: Funerary monument from Sirmium (modern Sremska Mitrovica, Serbia) depicting a family of three, with both the man and woman holding their right hands in the gesture of an extended index and middle finger, and their left hand in the 'horns-of-the-bull' gesture.

Syrian gestural funeral language may have emerged in Noricum and Pannonia as a new regional cultural form embedded with socially constructed meanings specific to these two provinces.

One also needs to keep in mind that in the Roman West, hands and various gestures feature prominently in public and private art, as well as in material culture. For instance, the index and middle finger extended gesture is analogous to the copper alloy votive hands devoted to the god Sabazios, a Thraco-Phyrigian deity. Bronze hands were also used as cult offerings across the Roman northwest in the cultic symbiosis of the Northern Syrian storm god Dolichenus with the Roman god Jupiter: bronze hands were made in a palm-out gesture. In the material culture of the western Roman provinces, the right hand features prominently on objects of material culture. For instance, there are hairpins made in copper alloy and bone that have heads in the shape of a right hand with the thumb and index finger bent to hold a spherical object (fig. 2).[3]




Fig. 2: Cast copper alloy hair pin in the form of a hand with fingers holding a circular object (now lost), late first – early second century AD. Found near Horncastle, East Lindsey, Lincolnshire, UK.

Therefore, the depiction of the human hand or making a decorative object in a form of a hand in the provinces were undoubtedly dynamic representations imbued with multiple meanings, which served as a powerful means of symbolic communication. These gestures were not passive things to be looked at or consumed as attention-grabbing conventions. Each culture or tribal entity seems to have deliberately used the gestural language in art and material culture media to project and emphasize aspects of their socio-cultural systems that were unique to them.

## Notes

[1] Heyn 2010.

[2] Fitz 1972, 128–197; Spaul 2000, 413.

[3] Eckardt 2014.

## Image Credits

Fig. 1: Photo by the author. – Fig. 2: Portable Antiquities Scheme, no SWYOR-22AFF2, under CC BY-SA 4.0

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# SESSION 8

## The role of the city in the ancient economy: urban infrastructure, relations between town and country

# The Storage in Urban Economy: Rome and Its Ports

**Panel 8.1**

**Organized by**

**Evelyne Bukowiecki – Milena Mimmo**

# The Storage in Urban Economy: Rome and its Ports. An Introduction

**Evelyne Bukowiecki – Milena Mimmo**

Negli ultimi anni, molti studi sono stati dedicati ai magazzini del mondo antico, aggiornando notevolemente le conoscenze rispetto alla pubblicazione pilota di G. Rickman del 1971.[1] Recentemente, un'attenzione particolare è stata riservata anche alla ricostruzione delle interconnessioni tra strutture di stoccaggio ed economia urbana.

I magazzini di ogni città svolsero un ruolo cardine nelle dinamiche di approvvigionamento urbano, ricevendo e conservando merci in quantità variabili e per periodi più o meno lunghi, in funzione di un'ampia serie di fattori variabili (dalla stagionalità dei traffici alle singole dinamiche aministrative e gestionali, dal tipo di merce conservata alla logistica di utilizzo degli impianti di stoccaggio, ecc.). Un'organizzatissima rete d'infrastrutture interagivano tra loro nella catena di operazioni fondamentali al rifornimento.

La città di Roma rappresenta il caso più emblematico della sfida all'approvvigionamento urbano. Con oltre 1,000,000 di abitanti, l'*Urbs* doveva garantire l'arrivo, la scorta in quantità adeguate e la buona conservazione di tutte quelle merci necessarie al funzionamento di una metropoli: dai beni essenziali per l'alimentazione (e non solo) come il *frumentum,* l'olio, i legumi, il vino e il sale, ai beni preziosi come i tessuti e i papiri e officinali come le spezie; ma anche le *candelae,* i foraggi per gli animali, la legna e i materiali da costruzone. Merci che giungevano in città da lunghissime distanze, sulle direttrici commerciali mediterranee e sottoforma di tassa dalle Province, o con tragitti a corto raggio grazie al rifornimento locale. Grazie ai numerosi studi dedicati all'argomento, conosciamo la portata di questi rifornimenti. È stato calcolato che la città di Roma consumasse annualmente 350,000 tonnellate di cereali, 225,000 quintali di olio, 1,170,000–1,460,000 ettolitri di vino.[2]

Diverse fonti informano che tutte queste merci, e molte altre ancora, erano contenute nei magazzini di Roma e dei suoi porti. Esse giungevano in città sotto il controllo dello Stato o in libero commrcio, allo scopo di soddisfare le esigenza della popolazione, da un lato, e le esigenze del mercato, dall'altro.

L'estensione e la distribuzione strategica delle aree di stoccaggio urbane, l'alta specilizzazione architettonica, le dimensioni monumentali dei magazzini di Roma, Ostia e Portus e l'impegno costruttivo del grande porto marittimo alla foce del Tevere, evidenziano chiarmanete la programmaticità e l'attenzone riservata ai luoghi e agli edifici d'immagazzinamento. Di tutto questo articolato sistema, grazie alle ricerche in corso, è oggi possibile vedere da vicino gli aspetti più concreti e seguire il percorso delle merci attraverso la catena di infrastrutture a supporto del rifornimento urbano: al momento dell'arrivo nei porti di Ostia e Portus, nella sosta all'interno dei magazzini di Roma e nella fase di redistribuzione urbana.[3]

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[1] Rickman 1971. Il progetto ANR-Entrepôts et lieux de stockage du monde greco-romain, CNRS-CCJ-ÉFR-ÉFA-IRAA (2011–2017), diretto da C. Virlouvet (ÉFR), è stato dedicato allo studio delle strutture di stoccaggio nell'area mediterranea creando una rete internazionale tra le ricerche in corso. Oltre ai numerosi incontri scientifici e alle pubblicazioni, il progetto comprende una bancadati on-line sulle strutture di stoccaggio del Mediterraneo (http://www.entrepots-anr.efa.gr/).

[2] Virlouvet 2000; Panella 2012; Tchernia 2000.

[3] Bukowiecki forthcoming; Marin – Virlouvet 2016; Guaglianone 2018.

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# Rome. The Urban Warehouses and the Storage Topography

**Milena Mimmo**

L'insieme dei dati disponibili per conoscere i magazzini dell'Urbs è ricavabile da una serie varia e numerosa di fonti, che comprende: attestazioni epigrafiche e letterarie, strutture ancora conservate in città o documentate negli archivi, edifici rappresentati nelle formae urbane.[1] All'interno della città sono così registrabili circa 200 magazzini, in funzione nel periodo compreso tra il II secolo a.C. e il III d.C. Dei circa 150 magazzini antichi dei quali è nota la collocazione topografica, l'80% era posizionato lungo la riva tiberina urbana. A fronte della grande considerazione riservata alla XIII regio, da sempre considerata come il vero distretto commerciale urbano, negli studi è stato sottostimato il ruolo di stoccaggio attribuibile alla riva destra, dove, nella sola area fluviale immediatamente a valle dell'isola Tiberina, si registrano una sessantina di magazzini. Sono queste due aree a ricevere e a smistare la maggior parte delle merci destinate alla città. Dotate all'incirca della stessa superficie di stoccaggio, i due centri ebbero un ruolo e uno sviluppo molto diverso, con l'entrata in funzione del distretto transtiberino solamente nel corso del II secolo d.C., diversi secoli dopo rispetto all'Emporium.[2]

Riguardo alla funzione delle strutture di stoccaggio antiche, le ultime ricerche ammettono una serie di attività più ampie rispetto allo stoccaggio esclusivo, comprendendovi anche la vendita e la possibile lavorazione delle merci.[3] Da questo punto di vista, il 78% dei magazzini di Roma risulta dedito ad attività mista; era invece destinato a uno stoccaggio esclusivo solo il 22% dei magazzini, quasi tutti dislocati in prossimità del fiume.

Per far fronte all'evidente scarsezza di fonti scritte riguardo al tipo di merci stoccate in ciascun magazzino, si deve accogliere con fiducia la possibilità di ricavare dati utili anche dall'analisi strutturale e planimetrica degli edifici, poiché alcune caratteristiche tecniche sono espressamente rivolte alla funzione di stoccaggio. Nei magazzini urbani erano stoccati contemporaneamente vari tipi di prodotti: negli Horrea Lolliana, la varietà planimetrica dei vani di stoccaggio, può riflettere la varietà dei tipi di merci custodite e negli Horrea Galbana le fonti attestano questa varietà.[4] Inoltre, la locazione dei magazzini, comportando la presenza di diversi affittuari, determinò quasi sicuramente il coesistere di diverse tipologie di merci all'interno di uno stesso edificio. Alcuni impianti del nome «parlante», indicano chiaramente il tipo di merce custodito: Horrea Piperataria, Candelaria, Graminaria, Chartaria e così anche le cellae vinariae o olearie e le salinae.[5] Le stoffe, in età imperiale, erano immagazzinate negli Horrea Agrippiana e nei Volusiana.[6] Le iscrizioni nominano dei negozianti di marmo presso gli Horrea Galbana, negli Horrea Caesaris e nei Petroniana.[7] I grandi cortili dei magazzini fluviali e alcuni tipi specifici di edifici (magazzini a cortile senza vani di stoccaggio e magazzini a vani affiancati, particolarmente sviluppati nel senso della lunghezza) sembrano i più adatti per stoccare i materiali da costruzione (legname, mattoni, materiale di cava, sabbie).[8] Le fonti scritte permettono di mettere in correlazione il frumento e gli Horrea Sempronia;[9]

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gli scavi archeologici ne hanno attestato lo stoccaggio nel riallestimento di età imperiale di una navata della Porticus Aemilia[10] e importanti indizi permettono di ipotizzarlo anche nell'area transtiberina.[11]

Per quanto riguarda le capacità di stoccaggio e il tentativo di giungere a una stima delle capacità urbane, una serie di numerose variabili rende il calcolo molto approssimativo. In generale è possibile constatare che la rete dei magazzini urbani fosse sufficiente solo per pochi mesi rispetto alle esigenze di una popolazione così numerosa, imponendo un ritmo serrato ai rifornimenti provenienti dai centri di Ostia e Portus.

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[4] *Porphirio* ad loc.: *Sulpiciis horreis: Sulpicii Galbae horrea dicit, hodieque autem Galbae horrea vino et oleo et similibus aliis referta sunt.*

[5] Si vedano le voci: «*cella*» (per le *cellae vinariae* e *olearie*) e «*horrea*» nel database <http://www.entrepots-anr.efa.gr/> e in LTUR 1. 2; «*portus vinarius*», «*portus olearius*», «*salinae*» in LTUR 4.

[6] CIL VI, 9972; CIL VI, 9973.

[7] CIL VI, 33886; *Dig.* 20.4.21.1; IGUR 2.413.

[8] M. Mimmo 2017, 63–77.

[9] *Festo,* p. 392 L.

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[11] Cfr nota 2.

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# The Numidian Country and its Commercial and Economic Opening on the Mediterranean Basin and its Southern Prolongation

**Panel 8.8**

**Organized by**

**Khaoula Bennour**

# ‘Garamantian Chariots’? Economic Relations between the North African Local Populations in the Context of the Numidian Confederation[1]

**Estefanía A. Benito Lázaro**

The Numidian kingdom or state was one of the most important autochthonous entities (confederation) of northern Africa which stablished relations with Mediterranean forces such as the Carthaginians and Greeks and, particularly, later, with Romans. At the climax of its power, hegemonial bonds would have allowed it to control a large number of minor tribal groups and organisations along its southern prolongation.[2] These features make this context one of the most interesting fields of study, since it presents great possibilities concerning all types of contacts and exchanges between different ‘worlds’ at the southern limits of the known reality, dominated by the largest desert on Earth.

In terms of economic and commercial relations, we firstly consider some literary references from the Roman period, which inform us about the process of obtaining,

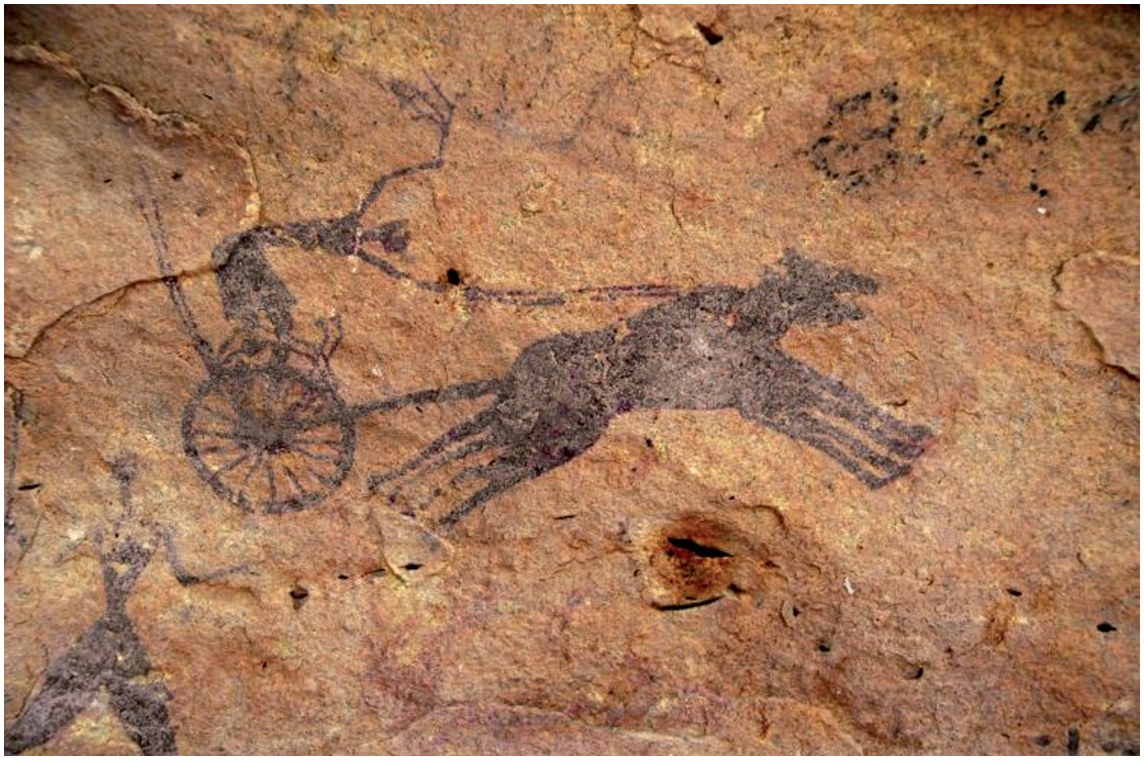


Fig. 1: Detail of painted rock art on a rock shelter wall showing a charioteer driving a biga, bent forward in the process of whipping the horses. A short inscription in Libyan or Tifinagh script can be seen at the top-right of the image, in black, presumably not of the same date as the chariot. Emi ‘n’ Eher, Wadi Aramat, Tassili n’Ajjer, Libya.

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Fig. 2: Terracotta statuette of a horseman riding a dromedary, with two amphorae tied to his saddle. From Hadrumetum (Sousse), II–III centuries AD. Bardo Museum, Tunis, Tunisia. I 64.

manufacturing, and the commercialisation of the so-called 'Gaetulian purple'. This was made from a characteristic type of murex from the Atlantic coast (Plin. nat. 5.12, 6.201). The epithet hints at the supposed participation in this activity by the Gaetulians, which were a diffused group, perhaps even a kind of supra-tribal organisation. This term may also be a generically flexible name applied to multiple groups south of ancient *Mauretania* and Numidia. Moreover, in these same passages, it is possible to find references to the forest zones south of modern Morocco and Algeria, at the feet of the Atlas Mountains, where some special types of wood (citrus-wood) might have been extracted, along with elephant ivory. The region of Fezzan, in modern Libya and directly in the Sahara Desert, is usually seen as the main centre of the Garamantes. Their economic activities appear in Roman literature especially in connection with the commerce of 'stones', maybe garnets, carbuncles or carnelians, famous in Antiquity. According to these texts, the Garamantes played some role in this commerce, perhaps as centralisers and redistributors. However, the texts also relate these stones with the intervention of other neighbouring, more oriental or meridional groups, such as the Nasamons or the Ethiopians (Plin. nat. 5.34; Sil. Ital. 15.676).

However, the most striking reference, which has stimulated a great amount of debate in research about the Garamantes, is found some centuries before, in Herodotus. He mentioned this population, recording their habit of chasing Ethiopian *Troglodytae* on chariots of four horses (Hdt. 2.34). From this passage, some scholars saw proof of the Garamantes as the initiators of the traffic of black slaves in the Sahara. This phenomenon is well attested in the Middle Ages, but, just as with the trade of gold (with a sole reference, for Punic times: Hdt. 4.196), is not supportable with any conclusive evidence for Antiquity.[3] The mention of these 'Garamantian chariots' in the sources also encouraged the enthusiasm of some researchers after the first discovery of the great Saharan rock art ensembles, some of which belonged roughly to the area controlled by the Garamantians. In fact, chariots are common in all North African rock art, and helped to formulate the idea of a trans-Saharan caravan 'route' that extended far back in time; these artistic manifestations would be found at stopping posts along this route.[4] Nonetheless, these representations are diverse and manifest multiple variations and techniques, generally depicting bigae and more rarely quadrigae. These correspond more precisely to a typology of prestige[5] and parade, and of aristocratic context, far from commercial aspects. Although some cases may be especially suggestive, we must also consider the large and complex (and strongly regionalised), chronology of these ensembles, which can be ascribed only to more recent times when camelids and Libyan-Berber script appear in the engravings and paintings.

Furthermore, the material culture of the Garamantes has also yielded valuable data for the knowledge of the commercial aspects of this world of contacts between the Sahara and the Mediterranean Sea. This is particularly thanks to research conducted at the city considered to be the historical capital of the group, Garama (modern Germa, Lybia), and especially on its necropoleis. These scientific works, which began in the 1930s and

have continued ever since, have identified many Roman objects.[6] These finds testified to a circulation of products, accompanied, as always, by people, animals and ideas, which, although not fluid, nor intense or comparable with other zones of the Roman orbit, doubtlessly took place.[7]

## Notes

[1] I would like to warmly thank the organisers of this XIXth edition of the Congress for accepting my participation, as well as the person responsible for this panel about the Numidian country, Khaoula Bennour, for her kindness, attention and professionalism; thanks are also due to Fabiola Salcedo, my thesis advisor, for her continuous stimulation and encouragement.

[2] *Vid.* Mattingly 1995, 19.

[3] Desanges 2003, 53 f.

[4] *Vid.* Mattingly 2017, 22–24 with footnotes; fig. 1, 6.

[5] Camps 1982, 16–18.

[6] *Vid.* for example, Ruprechstberger 1989, 56 and abb. 92 for the parallel between some fragments of a fish-vase found in Garama and the magnificent fish-vase of Trier.

[7] *Vid.* synthesis of the main trade commodities of the pre-Islamic era between Rome, the Garamantes and the sub-Saharan zone in Mattingly 2017, 26 f. tab. 1, 1.

## Image Credits

Fig. 1: photo: The Trustees of the British Museum. – Fig. 2: photo: by the author 2017.

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# The Numidian Country and Its Commercial and Economic Opening on the Mediterranean Basin and Its Southern Prolongation

**Khaoula Bennour**

**Abstract**

Our study focuses on the commercial networks linking the Numidian country to the Mediterranean world and to the nomadic, semi-nomadic and sedentary tribes of the Saharan and sub-Saharan regions. Numidia inherited a network covering the whole of the Mediterranean basin, connecting the port areas to the interior of the Numidian lands and even to the sub-Saharan regions. Indeed, the evolution of urban structures in Numidia was accompanied by a significant economic boom that seems to be increasing in the 2nd century BC, especially with the decline of Carthage. It is the Numidian monarchy that benefited greatly by this, and it developed networks of trade with the regions of the Mediterranean basin that were in the Punic sphere, especially after the control of the main commercial ports of the regions of the Syrtes and the Sahel.[1] Thus, Numidian kingdoms were inserted into the commercial networks of the Phoenician-Punic world, as well as those of the Greeks and Romans. These networks could be direct or via Carthage. Numerous questions remain as to the nature of agricultural or artisanal production, to the modalities of trade, and the organization of markets in urban and rural areas in Numidia. However, the interest of Numidian power in international trade does not undermine the importance of interregional trade and pre-Saharan or Saharan caravan trade.[2] Trade networks have played an important role in forging links and socio-economic exchanges between the Mediterranean and sub-Saharan areas. The "tariff of Zarai", although it goes back to Roman times, informs us about the presence of several circuits of exchange of pastoral, nomadic and semi-nomadic products of the Numidian-Mauritanian region. Given the geographical position that contributed to the isolation of the North African world with its southern natural prolongation, this did not prevent the Libyan-Numidian, Carthaginian, Greek and especially Roman populations from building bridges and contacts with the various tribes of nomadic, semi-nomadic and sedentary peoples of the Saharan and sub-Saharan regions. These included the Muslims, the Garamantes, the Gules and the Ethiopians, who certainly contributed in one way or another to the shaping of Libyco-Numidia.[3]

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## Garamantes, the Model of a Libyan Kingdom and a Hub of Commercial Activities

The city of Germa or Garama, the current Jarma, was the ancient capital of Garamante. It is located in the southern area of modern Libya, about 160 km southwest of Sabha in the valley of Wadi el Agial.[4] Archaeological studies in the Fezzan region reveal the coexistence of sedentary tribes next to the Confederation of Garam, people on the move.[5] The Garamantes appear as sedentary people, although they willingly follow a semi-nomadic lifestyle.[6] Thus, the kingdom of Garamantia was a powerful center of commercial activity in the Sahara, and their territories centered on the oasis belts of the Fezzan region.[7] The Garamantes were already advanced farmers, long before contact with the Greco-Roman world; they practiced irrigation in an arid region using underground aquifers that constitute their main water resources.[8] This foggara irrigation system consisted of underground irrigation canals several kilometers in length, which facilitated extensive cultivation in the lower areas of the oasis valley.[9] The 600 fagāgīr identified so far in the Fezzan facilitated in particular the periodic presence of men and animals involved in long-distance trade.[10] Thus, the development of agricultural products such as cereals, vines, olives and dates, together with the introduction of horses, camels and wheeled means of transport[11] created a great network of commercial exchange. This network extended to the north to the Mediterranean, to the east to Egypt, and to the south to sub-Saharan Africa.[12] Documents from the Roman fort of Bu Njem repeatedly allude to Garamantians reported by patrols or outposts on desert tracks.[13] Indeed, archaeological findings indicate that the Germa capital managed to control the caravan trade routes of the central Sahara.[14] The city seems to have had a number of towers as well as a market used as a transit point for caravans and horses.[15] The study of the archaeological material from Germa reveals an abundance of amphorae for wine or olive oil, fine glass, and imported ceramics from the Roman world. Imports dated from the Roman period seem to testify to a wider distribution of products in society compared to later eras.[16] Indeed, most of the Garamantian traffickers controlled and regulated one of the main Saharan regions routes between sub-Saharan Africa to the cities of the Libyan coast (Sabratha, Oea and Lepcis Magna), and to the south of Tunisia to places such as Gigthis.[17] The island of Djerba, south of Tunisia, which was clearly part of the Numidian Kingdom of the Massyles after the fall of Carthage, was connected by a bridge to the mainland; it becomes another strategic terminus of long-distance land routes. Finally, according to some historiographical accounts, we found that the Garamantes forged links with Carthage and the Numidians. According to Lucan and Silius Italicus, contingents from the southern tribes, including the Garamantes, fought alongside the Numidians or Carthaginians at different times.[18] Silius Italicus also relates the romantic story of Asbyte, daughter of a Garamantian chief, and Iarbas, one of the men of the Carthaginian general Hannibal.[19] At the archaeological level we have some amphoras

and sigilli with Punic graffiti from the necropolis of Saniat Ben Howedi and a bilingual Libyco-Punic inscription found in Taglit.[20]

## The Mode of Contact between the Mediterranean and sub-Saharan Africa

In reality, the mode of contact between Black Africa and the Mediterranean world in Antiquity was known only from the Greco-Roman world. Historiographic texts are difficult to interpret, especially at the ethnic level; archeology provides some fragmentary information, which necessarily goes back to Roman times.[21] The ancient authors, including Ptolemy, classify Saharan populations under different ethnic names: Leuco-Ethiopians, Getulian, Melano-Getulian, Getulian-Daratites […]. We also mention the "intermediate populations" of tribes like the *Nigritae* and *Pharusii* that ancient sources sometimes rank among Ethiopians.[22] Strabo does not manage to set a limit between the settlement area of the Libyans and that of the Ethiopians.[23] However, it is known that different black or mixed populations occupied the eastern Sahara region, from Fezzan, from Kaouar and Chad to the west, to the Nile Valley to the east. The Ethiopians thus populated, at least partially, the south of Morocco on the banks of the Draa,[24] southern Algeria near the river Nigris, the current Wadi Djedi,[25] as well as the oases of southern Tunisia and Fezzan.[26]

Maritime contact between North Africa and the Ethiopians took place mainly in the 4th century BC.[27] Trips were conducted by Carthaginian sailors such as Hannon[28] and especially by Greek navigators: the journey of Pseudo-Scylax,[29] the sailors of Nechao,[30] and the Greek sailor Euthymenes from Marseilles,[31] all of whom skirted the Atlantic coast. According to a text attributed to Pseudo-Scylax, the neighbors of the Ethiopians settled in the west, who lived on the island of Cerné (on the southern coast of Morocco) bartered with the Phoenicians.[32]

By land, the Classical sources record some expeditions across the Sahara. Athenian stories mention a Carthaginian named Magon who managed to cross the desert (the "land without water") three times.[33] Herodotus recounts the journey of the five young Nasamons who crossed the desert.[34] According to the testimonies of Herodotus, the oases of Fezzan were a junction point between two caravan routes: one coming from the Nile via Augila, and the other coming from the Mediterranean coast.[35] Ptolemy also said that there were two routes from Lepcis Magna to Garama: one requiring 30 days of walking, and the other only 20 days.[36] Finally, with regard to the trans-Saharan contacts between North Africa and West Africa, these have been debated and discussed for a long time, because of the lack of archaeological evidence. The contact between North African regions and West Africa is clearly visible in Byzantine and Arab times thanks to the discovery of gold coins belonging to West African ores.[37] Archaeological excavations in the Kissi Sea region of northeastern Burkina Faso have revealed a large number

of foreign and imported materials in sepulchral contexts. These objects are potentially dated from the 1st century BC to the 9th century AD.[38] These archaeological discoveries highlight the extent of trade between North Africa and the Niger River in West Africa since the Roman period. It also seems that copper and lead objects were imported from Spain, the United Kingdom, Sardinia, and some parts of the eastern Mediterranean to Carthage and then incorporated into the trans-Saharan trade.[39]

## The Rise of Agrarian Production in Numidian Countries

The Numidian kings sought to develop agricultural production especially in the Tellian region, since the intensive farms ensured a considerable productivity of cereals.[40] One example of this is the city of Mactar, which seems to have had considerable agricultural development.[41] Archaeological discoveries at various Numidian sites also reveal the presence of Punic amphorae from Carthaginian territories dated mainly from the end of the 3rd–early 2nd century BC.[42] At the city of Althiburos, archaeological excavations carried out by a Tunisian-Spanish team has confirmed the presence of trade relations with the predominant Punic world as well the Italic area.[43] The study of ceramics testifies that trade with Carthage and the Punic centers of the Tunisian coast began around 700 BC and reached its peak towards the 3rd–2nd century BC. Punic amphorae become particularly frequent, and after the destruction of Carthage they come mainly from the region of the Sahel or Tripolitania. It is from the 4th century BC that Greek amphorae are the dominant category at Althiburos. As for the Italian amphorae: Dressel 1, in their different variants, and Lamboglia 2 amphorae are attested from the middle of the 2nd century BC.[44] Indeed, the east of the Numidian country seems to have had direct relations with the Punic metropolis. There is a large number of amphorae and a monetary evidence from Carthage to Cirta, Tiddis, Collo, and *Bulla Regia.*[45]

However, according to V. Bridoux, most Numidian cities did not systematically maintain direct trade with Carthage. It was the fall of Carthage that allowed the various circuits from the Sahel, as well as those from the Greek and Italic world to take its place.[46] Commercial products from the Sahel are imported in amphorae (Ramon 7.5.1.1, 7.5.2.2, 7.6.1.1, 7.6.2.1) to Mactar, *Bulla Regia,* and Hippo Regius.[47] Andalusians, Iol, Siga, Gunugu and Igilgili, also have imported amphorae from Tripolitania (datable between the 2nd and 1st century BC) for transporting olive oil.[48] It is assumed that the possession of Emporia Little and Great Sirte enabled the kingdom of Massyle to inherit much of the maritime power of Carthage, and the Punic coastal cities became Numidian ports. Archaeological excavations undertaken on the island of Djerba revealed that imports of Italic productions, Greco-Italic amphorae, and Campanian Type A and B ceramics grew considerably from the 2nd century BC. The geopolitical changes taking place in the Tripolitan region at this time seem to change the import networks and revive the communications towards the Numidian country.[49] However, Carthaginian goods do not

seem to have had the same privileged status as those in the western parts of the country. It seems that trade is rather active with the Balearic Islands, namely with Ibiza.[50] Turning towards the Oran region west of As, ceramics of Iberian origin, such as urns, oinochoés, ampuritan gris and kalathos, are attested in the coastal installations: Andalusian, Portus Magnus, Hippo Regius, Siga, Chullu, Iol and Tipasa. These ceramics are datable between the 3rd and 1st century BC.[51] According to Classical sources, there was a direct sea route linking the Numidian cities Siga and Iol to the Punic Cartagena "New Carthage", located in the southeast of the Iberian Peninsula.[52] Indeed, in the year 206, the king of the Masaessyles, Syphax, received Scipio and Hasdrubal the Carthaginian at his capital Siga; Scipio headed to Siga from Cartagena.[53] The monetary evidence found at Iol confirms that the city was open to an international trade network linking it to Carthage, the Moorish Kingdom, Ibiza, the Balearic Islands and southern Iberia.[54] Indeed, Numidian commercial networks go beyond its immediate or near neighbors. Bulla Regia reports the presence of amphorae attributed to the 2nd century BC from the Greek world, the Ionian area, and Pergamon.[55] Rhodian amphorae are also known in Cirta and Tiddis, which were used to transport Rhodian wine. They date from the last quarter of the 3rd century and from the first half of the 2nd century BC. Note also the presence of red figure Attic ceramics, such as askoi, skyphoi, and guttus, attested in Tipasa, Gouraya, and Andalusians, which are datable from the 5th–4th century BC. As for the Campanian ceramics, they are attested at Tipasa, Gouraya, to the Andalusians, and Collo, and are datable between 190–100 BC.

The important role at the commercial level played by the capital of the Massyles, Cirta, is shown by the presence of Greek merchants, as well as the Italian merchants known at the court of King Massinissa.[56] Epigraphic sources refer in particular to an Athenian merchant who boasts of being the friend of King Massinissa who also erected a statue in Delos.[57] The mention of various types of artisans is well documented by the inscriptions from a sanctuary at Cirta. This presence testifies to the nature of some craft activities that linked the markets of cities to the countryside.[58] Finally, Rome inherited a vast commercial network previously owned by the great Carthaginian Empire. Trade relations were developed between the Numidians and Rome. As early as the first half of the 2nd century BC, Italic products such as "black glaze" and Dressel I-type amphorae are documented in Numidia. In the year 123 BC, Rome managed to extend its hegemony over the Balearic Islands and Italian merchants took over the commercial circuit connecting these islands to the western and center areas of Numidia.[59] We can conclude that the Italian merchants played an important role in reinforcing trade and commercial circuits between Numidian cities and Rome. One example of this is the circuit that connected Rome to Chemtou for the export of marble in the 2nd century BC.[60] In the northwest of Tunisia, the city of Thabraca could have played a role in concentrating goods both for import and export. The study by Mr. Longerstay suggests that in Roman times, a "marble road" left Chemtou through the massive Khroumirie and led to Thabraca to supply the Roman world's need for marble. It is likely that this city had other roads that served

the large inland cities such as *Bulla Regia, Sicca Veneria* and Carthage. It is likely that a draft of these pathways already existed in the 1st century BC, as we find the marble of Numidia in Rome at that time.[61] However, it should be noted that other imported products, such as goldsmiths originating from the city of Carthage, are attested in different Numidian regions. For glass paste objects they seem to be imported from Ibiza. Two masks made of glass paste are known from Tipasa and Gouraya. In addition, three vials of glass come from Gouraya, only one at Collo, at Jijel, and at Tipasa, which is datable from the 2nd–1st century BC. The necropolis of Rachgoun has some copies of jewelry whose origin is in the Middle East. We note in particular the presence of silver pendants in a plastron form dated to the 7th–6th centuries BC known in Carthage and Tharros in Spain. Another type of pendant, the "discoid" form, which has a suspender suspension, was very common in Carthage in the 7th–6th centuries BC. The ankh-shaped earrings encountered at Rachgoun are also attested in Carthage.[62] At the burials of Lindlès in Andalusian we have bush-shaped pendants similar to those known in Carthage, Sardinia, Tharros, Motya, Palermo, Sicily, Cyprus and Rhodes, datable to the 6th century BC. The necropoleis of Gouraya and Tipasa contained a pendant in the shape of a bell adornment current in Carthage and Utica. Curly rings and rings kitten with their beetles are known from Rachgoun, Gouraya, Tipasa, and Jijel. This type of ring, with a fixed or moving kitten enshrining a beetle are a feature of the Phoenician-Punic origin of jewelry and they are widely attested in Carthage and Utica.[63] However, in some Numidian necropolises goldsmiths are almost absent. We have the example of the Thigibba Bure necropolis, which has produced a single silver ring and a few rings made of glass paste. On the other hand, the presence of jewels is a characteristic of certain Numidian sites and at the same time jewels, such as amulet cases, are absent from Carthage. This calls for the presence of local workshops and regional or local production.

## Conclusion

The economic boom experienced by the Tellian, Sahelian and Syretic regions between the 2nd and 1st centuries BC contributed to the development of internal and external trade networks in the Numidian countries. After the annexation of a large part of the Carthaginian territory, which benefited the kingdom of Massyles, the Numidian kings sought to develop privileged relations with the regions of the eastern coasts, in this case at Byzacium and Syrtes. Numidian royalty inherited a network that traversed the entire Mediterranean basin, thus linking the port areas to the interior of the Numidian lands and even to the sub-Saharan regions.

The Numidian kingdoms were inserted into the trading networks of the Phoenician-Punic, Greek, and Roman worlds. These networks could be direct or via Carthage. The west and center of Numidia seem to have had a privileged trade relationship with Iberia and the Balearic Islands because of their proximity, the current, and appropriate winds.

Carthaginian products remained in circulation throughout the Mediterranean basin before coming under Roman control.[64]

Finally, we can conclude that the policy undertaken by the Numidian kings for the purpose of agricultural and commercial development succeeded on the whole and contributed largely to the flourishing of the Numidian cities.[65]

## Notes

[1] Bisi 1983, 3–13; Bondi 2001, 369–400.

[2] Gsell 1920, 138–141.

[3] Desanges 1975, 407.

[4] Ayoub 1967a; Daniels 1970–1971, 261–285; Liverani 2000, 31; Id. 2005, 70–72.

[5] Daniels 1968, 113–194; Mattingly 2014.

[6] Mattingly 2001, 235–278.

[7] Mattingly 2003; Id. 2007, Id. 2010.

[8] Daniels 1989, 51.

[9] Van Der Veen 1992, 7–39; Mattingly 2003, 235–278.

[10] Wilson – Mattingly 2003.

[11] Camps 1968, 7–11.

[12] Mattingly et al. 2003, 346–362.

[13] Marichal 1992, 110–114.

[14] Mattingly et al. 1997, 13.

[15] Ayoub 1967, 213–219; Edwards et al. 1999, 113–119; Di Lernia et al. 2001, 29–48; Castelli – Liverani 2005, 85–94.

[16] Mattingly 2001, 54.

[17] Crawley Quinn 2009.

[18] Lucain, 4, 677–683; Silius Italicus, 2, 56–57; 2, 82–83; 3, 287–293; 5, 185; 9, 220; 15, 672.

[19] Silius Italicus, 2, 82–83.

[20] Ruprechtsberger 1997, 36–74.

[21] Desanges 1975, 391–414.

[22] Ptolémée, Géogr. IV, 6, 5.

[23] Strabon, XVII, 3, 23.

[24] Strabon, II, 3, 4; Id., XVII, 3, 5.

[25] Ptolémée, IV, 6, 5, p. 743.

[26] Ptolémée, IV, 7, 10, p. 785; IV, 3, 6, p. 642; Snowden 1970, 364; Desanges 1975, 393.

[27] Gsell 1927, 293–304; Hunwick 1992, 5–38.

[28] Cintas 1954, 92, n°5; Germain 1957, 205–248.

[29] Peretti 1961, 5–43.

[30] Hérodote, IV, 42; Strabon, II, 3, 4–5.

[31] Pedech 1955, 318–332.

[32] G.G.M. p. 90; Zadi 1996, 73.
[33] Athénée, Deipn., II, 44d.
[34] Hérodote, II, 32–33.
[35] Hérodote, IV, 183.
[36] Ptolémée, I, 10, 2.
[37] Gondonneau – Guerra 1999; Gondonneau 2000.
[38] Fenn et al. 2009.
[39] Magnavi et al. 2002.
[40] Strabon, Géographie, VIII, 833; Derudas 1990, 214.
[41] Strabon, Géographie, VIII, 833; Derudas 1990, 214.
[42] Bridoux 2014, 184–186.
[43] Kallala – Sanmarti 2008, 87.
[44] Kallala – Sanmarti 2008, 87 f.
[45] Bridoux 2014, 198.
[46] FGRH, III: 187, no7 ; IG, II 968; Strabon, 17.3.13; Diodore de Sicile, 34–35.5.
[47] Bourgeois 1982, 32–36 fig. 6; Morel 1968, 79 fig. 37; Broise – Thebert 1993, 196 f. fig. 202; Bridoux 2014, 186 fig. 10, 4.
[48] Gsell 1903, 31, fig. 18; Astruc 1937, 207. 210 pl. 1; Vuillemot 1965, 343. 350. 383. 385; Benseddik – Potter 1993, 293.
[49] Di Vita 1982, 516; Fentress et al. 2009, 75 f. 83.
[50] Bridoux 2014, 200.
[51] Gsell 1903, 45, fig. 26 ; Vuillemot 1965, 187. 237 f. 254–256. 258. 334. 341. 359–361. 363 f. 366. 372. 418. 422–424 ; Morel 1962–1965, 124 f.; Vuillemot 1971, 69–71.
[52] Strabon 3.4.2; Pline, HN, 3, 5.19.
[53] Tite-Live, Histoire Romaine, 28, 17.
[54] Alexandropoulos 2000, 326.
[55] Broise – Thebert 1993, 145 f. 192. 195 fig. 170.
[56] Gauthier 1988, 61–69.
[57] IG XI, 1116, 1115; Baslez 1981.
[58] Berthier – Charlier 1955.
[59] Bridoux 2014, 197.
[60] Gaggiotti 1988, 201–204.
[61] Longerstay 1987–1989, 146.
[62] Alquier 1930, 14.
[63] Quillard 1973, 108.
[64] Bridoux 2006a; Id., 2014.
[65] Mattingly 1995, 138.

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# The Aesthetics of Urban Production and Trade

**Panel 8.10**

**Organized by**

**Annette Haug – Johannes Lipps**

# The Aesthetics of Urban Production and Trade. Introduction

**Annette Haug**

Investigating the aesthetics of urban production and trade brings together three areas of research, which are often analysed separately: 1) urbanity, 2) economic production and consumption, and 3) aesthetics.

The ties between these categories take various forms in different historic contexts. In early modern times, it was the growing importance of consumption that had consequences for aesthetics and urbanity.[1] From the 15th century onwards, ever larger parts of society were able to afford goods, and the quantity and quality of the goods a household possessed steadily increased. This process becomes particularly tangible in the late 19th century when the broader population became interested in quality goods. One could call this a veritable "consumer revolution".[2] Markets responded to this new need by providing affordable objects and offering them in new 'temples' of mass consumption. This most recent history of consumption provides us with two quasi self-evident insights:

- Production and consumption are dependent upon the economic possibilities of societies.
- Consumption has an immense social relevance.

Starting from these insights, we will discuss the following three aspects: 1) the assessment of the social relevance of consumption, 2) the aesthetics of consumption and 3) the aesthetics of consumer spaces.

The **social relevance of consumption** has been assessed very differently throughout history. *Consumption-critics* state that human desire is dependent upon what the market offers. In the act of consumption, people thus become passive agents.[3] *Consumption-proponents,* by contrast, underline the fact that consumption is the realization of an (individual or group-specific) desire. The symbolic potential of goods allows for their use as a means of social distinction.[4] In the moment of choice, which is inherent to consumption, lies a basic formative principle of sociality and identity: "Identities are affirmed and contested through specific acts of consumption".[5] Consumption becomes a means of self-distinction and self-expression, which creates social belonging and social differences.[6] "No longer is position ascribed by birth: rather people are able to choose various types of identity through the goods they consume".[7] These discourses provide us with two further insights:

- Forms of consumption have the potential to create (contested) identities.
- Via consumption, materialities (goods, architecture) become a medium for the expression of social values and attitudes and the construction of identities.

The prominent social relevance of consumption leads to the **aestheticization of the consumed goods.** In line with Adorno, Gernot Böhme states that objects do not only possess a use value (Gebrauchswert) and an exchange value (Tauschwert) but also re-

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ceive an aesthetic value (Inszenierungswert).[8] Aesthetics becomes a value in its own right, not only for art objects but also for everyday objects.[9] The aestheticization of material objects is thus at the center of a wide-ranging aestheticization of everyday life.[10] The stage for this process is the contemporary city.

This **aestheticization** thus also directly affects the **design of urban spaces.**[11] Houses and house interiors become a medium for self-representation, while public architecture turns into a subject of political discourse.[12] With regard to spaces of production, trade and consumption, strategies of aestheticization and semanticization play a specific role. The aesthetic design of economic spaces provides a "multi-sensorial stimulation that caters to consumer imagination and creation of cultural meanings".[13] Consequently, it allows for an enhanced aesthetic experience of the process of consumption itself,[14] and thus fuels the desire for the offered goods.[15] To conclude, economic spaces become aesthetic spaces for several reasons:

- Economic spaces are part of a more general tendency towards the aestheticization of the "Lebenswelt", urban spaces included.
- Aesthetics communicates the social value of production, trade and consumption; economic activities receive a valuable architectonic surrounding.
- The aesthetic design of economic spaces enhances the consumption of the produced, traded and consumed products. Shopping spaces are specifically designed to make people spend their money.
- The atmosphere of the economic setting provides a frame for the perception and esteem of products. Thus shopping spaces are designed as affective spaces. The design of shopping spaces affects their perception (by the evocation of specific atmospheres) and the ways the consumer behaves.

The preceding discussion of the interrelation between consumption, aesthetics, and urban spaces builds on our present day situation. The following contributions, however, will discuss their interdependency in Classical Antiquity – a premodern, pre-capitalist context. According to our hypothesis, the process of an aestheticization of material objects and urban spaces becomes particularly tangible when the production and consumption of goods receive new significance. This may have been the case in late Republican and Imperial times when new object categories appeared, and new building-types were implemented in Roman cities. Therefore, it may be no coincidence that most of the following contributions refer to this chronological timeframe, spanning a geographical area that reaches from Delos via Campania to Rome itself.

## Notes

[1] Trentmann 2017; Jäckel 2006, esp. 121 f.; Luxury consumption has been identified as a driving force behind the rise of capitalism, see Sombart 1996, esp. 137 f.; Schrage 2009, 91–93. 119. 141–196.
[2] McCracken 1990, 3.
[3] Explicitly Baudrillard 1970. With regard to a different philosophical background, Simmel [1900] 2016, 568 also develops the idea of a passive consumer: "Wie wir einerseits die Sklaven des Produktionsprozesses geworden sind, so andrerseits die Sklaven der Produkte: d.h., was uns die Natur vermöge der Technik von außen liefert, ist durch tausend Gewöhnungen, tausend Zerstreuungen, tausend Bedürfnisse äußerlicher Art über das Sich-Selbst-Gehören, über die geistige Zentripetalität des Lebens Herr geworden."
[4] See Veblen 1971; Bourdieu 1997.
[5] Jackson – Thrift 1995, 227; see Friedman – Friedman 1980, 23; Venkatesh – Meamber 2008, 50 f.; Schrage 2009, 118–132.
[6] See Ullrich 2016 refers to the 'creative consumer'.
[7] Knox – Pinch 2006, 54–56.
[8] Böhme 2016, 27; building on Baudrillard 1970; Featherstone 2007, esp. 14 f.
[9] Lash – Urry 1994, 15; Welsch 1996, 4.
[10] Featherstone 1991; Schulze 1992.
[11] Welsch 1996, esp. 2 f.
[12] Schulze 1992, esp. 52 f.
[13] Venkatesh – Meamber 2008, 47.
[14] Aesthetics, therefore, has a stabilizing effect on social orders, see Everts et al. 2011, 327 with reference to Nigel Thrift. They claim that social and economic orders – such as capitalism – are sustained through "the engineering of affect, such as through the purposeful design of cityscapes that elicit playful consumerism and oust (unwanted) political activism".
[15] Knox – Pinch 2006, esp. 56; Schrage 2009, esp. 151.

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# Aesthetics as Approval of Urban Trade? The Porch and Its Variations on the Main Façade of the Roman Macella

**Armando Cristilli**

In her survey Cl. de Ruyt[1] pointed out that the colonnade/porch on the macellum main façade were external elements which did not emphasize their buildings, but rather disguised them. However, this original observation does not seem to be still completely valid.

The macellum is a commercial space and a functional medium of the Roman urban life model. Of course, the city influenced the development of the market building, thus the analysis of each one requires to refer to its urban and territorial context. But also, the macella are often integrated into pre-existing not-rationally urban planning.[2] The macellum location in the city network is very important for the turnout of foodstuffs buyers and sellers: in fact, the building is located to meet the needs for its full operation. The 126 macella are always located in the heart of the town or in a high density housing area[3] and open on a main street or a wide road, in relation to the forum or the most important streets: but, the most of these spots is occupied by public and/or residential buildings. In this respect, it should be remembered that this building is conceived as an interior space arranged around a courtyard, where the shops of macellarii, the porches protecting the buyers from sunlight and rain, the decorations and the shrine are located (the external tabernae did not sell meat and fish[4]). So, whether functional and aesthetic are focused inside, the outside becomes the link to communicate between macella and the urban landscape, the hotspot where the building realised its integration. This space is occupied by the porches on the fronts, serving as a functional and social purpose and allowing to be essential to insert the macella into the architectural landscape of their cities: that could have been the purpose of decorating the outside of these buildings.

The porch imitates as much as possible the style and uses the same materials of the porticoes/colonnades around and sometimes different columns in size and design and steps on the street marked the main entrances (fig. 1): all these are a strategic choice to aestheticise and to mark the presence of the macellum, offering a variety of architectural solutions dependent on the city cultural background at the construction date.

The porch on front is a colonnade, covered or uncovered, whose stylobate coincides with the sidewalk at the edge of the square or along the street. The idea of a macellum porch like a link between trade space and urban space is confirmed because their marked main entrance and because its design introduced aesthetics that made it new into the urban landscape: it is the synthesis between food trade and citizens. And this feature is surely the more relevant if we consider the macellum as an enclosed interior space per definition.

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Fig. 1: Pompeii macellum porch.

Interesting data have emerged from macella of Minturnae, Paestum, Regina (?), Ostia, Dougga and Puteoli on the role of the porch on main front. The Gerasa, Pompeii and Perge case studies are examples of macella inserted in an urban restyling project, not as a strangeness in a previously constructed context. The main façades of the Philippi, Pompeii, Timgad (Sertius' Market) and Cuicul macella were underlined by porches publicizing the citizen patronage, too.

The final step is surely the front porch of the Cyrene market[5] on the Valley Street, in which a propylaeum topped by bronze equestrian group representing Septimius Severus and his family was inserted in 195–198 AD, becoming a point showing the loyalty to the Imperial family.

In conclusion, the analysis of the samples highlighted that the beginning idea of a porch disguising the market core is misguided: the structure was not designed as a masking rather then it was conceived as the sign of the entrance for those approaching the macellum from the main street or the forum. I definitely think that this feature confirms even more the approval of the structure in its urban landscape. The reassertion of the centrality of the role of the macellum front porch would not entail the complete abandonment the opinion of Cl. de Ruyt: in fact, we admit that the initial forced inser-

tion of the new building in the cultural background and in the traditional architectural landscape needed a disguising structure to make soft its approval. But it is undeniable that the structure quickly turned into an opportunity for the macellum to establish itself through its aesthetics and function.

## Notes

[1] de Ruyt 1983.

[2] Only the British macella are inserted in no traumatic way in the cities plans, because expected from the beginning.

[3] de Ruyt 1983, 284–289.

[4] de Ruyt 1983, 118. 145 f. 153.

[5] Cristilli 2015, 76.

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Fig. 1: by the author.

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# The Aesthetics of Branding in Late Hellenistic Delos

**Mantha Zarmakoupi**

This paper addresses the aesthetics of branding in late Hellenistic Delos by focusing on the ways, in which the ambitious Italian merchant community employed religious practices as a means to promote their economic interests and assert their corporate identity, and how in doing so shaped the city's urban form.

The booming of religious associations in the Hellenistic period was propelled by the movement of populations and the ensuing new co-existences within poleis. The cultic communities of the religious associations became a means for the social integration of non-citizens in the cosmopolitan atmosphere of the Hellenistic port cities. They offered a way into society through religious and social interaction. Even if the great majority of these associations were unrelated to commercial interests, it is clear that through networks built on interpersonal bonds that crossed the range of ethnic, geographical, occupational and cultic connections, they offered mercantile communities a means to establish themselves socially in the communities, in which they were active and further their economic interests.

Delos has yielded rich epigraphic evidence of different associations and groups that issued inscriptions from the third century BC to the second century AD, while most inscriptions date from the heyday of the free port from 167/166 to 88 BC.[1] While research has focused on the epigraphic evidence from public squares,[2] sanctuaries[3] and private clubhouses,[4] the role that domestic cults played in the emporium of Delos has not been addressed. The evidence for cult practices, in particular of the cult of Lares Compitales,[5] shows that merchants employed the cult as a means to assert their corporate identity.[6] In addition, recent research has indicated that the cult of Lares Compitales was intertwined with economic activities in the domestic sphere.[7]

The cult of the Lares Compitales exemplifies the ways, in which religious practices were employed by the predominant mercantile community on the island of Delos as a means of branding in the early Roman period. Italians closely intertwined their economic activities with the veneration of the cult; thus, employing the cult's religious network as an agent for the branding of their corporate identity in the context of the dynamic urban economy of the island in this period. While the monument of the Lares Compitales in the Agora of Hermaistai or Competaliastai marked the presence of the Italian community at the heart of the Delian emporium the paintings of the Lares Compitales at the entrance of the Italian houses, which housed the economic activities of the Italian community, linked this economic activity with the locus of the Delian emporium, where the monument of the Lares Compitales stood and where the veneration of these deities as well as the games in their honor took place once a year. In establishing this link, the Italian community made a strong statement in both the sprawling urban economy of the island and at the core of the wholesale trade of the emporium of Delos.

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## Notes

[1] Bruneau 1970, 585–638.

[2] Hasenohr 2000; Hasenohr 2001.

[3] Roussel 1987, 253–255; Bruneau 1970, 464 f. 471 f.; Baslez 1977, 197–203. 249–268; Will 1985.

[4] Trümper 2002; Trümper 2006; Trümper 2008; Trümper 2011.

[5] Hasenohr 2003, 194–211. 219–223; Hasenohr 2007; Flower 2017, 175–191.

[6] Zarmakoupi 2015.

[7] Zarmakoupi 2015 and 2022.

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# Wall Decoration in Roman Commercial Space

**M. Taylor Lauritsen**

Over the course of the last 30 or 40 years, studies examining the Roman economy have shifted from a reliance primarily on textual sources towards a more materially-integrative approach, with the result that quantitative archaeological data now play a central role in analyses focusing on various aspects of the economic system. This paper applies some similarly quantitative techniques to a related (if slightly tangential) topic: painted wall decoration in Roman commercial space.

Roman cities were awash with commercial activity. Hawkers and peddlers wandered the streets selling their wares, merchants set up temporary stalls along sidewalks and in the porticos of public buildings, and goods were sold from central markets, as well as shops and workshops lining urban thoroughfares. Pompeii, the focus of this study, provides material evidence for these activities, most notably in the form of over 600 purpose-built *tabernae* that have been preserved throughout the city. An analysis of the painted decoration in and around shops containing bar counters reveals that the owners of properties used exclusively for retail activities employed various forms of painted decoration in an effort to encourage patronage and, presumably, to enhance the status of their establishments (fig. 1).[1]




Fig. 1: Distribution of bar counters in Pompeii (n = 153).

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In general, the façades of bars in Pompeii were painted utilising a regular decorative scheme, in which large, monochrome blocks of colour were positioned in horizontal bands. Various colours were employed, but the most common arrangement consisted of a high, red dado topped with a white upper zone. An examination of interior decorative programmes reveals that a similar design was often present. Of the 113 bars in which painted wall plaster was recorded, 65 utilised the white-over-red pattern in the bar-room, while in an additional 26 remains only of the red dado were preserved.[2] The continuity between façade and interior decoration worked in conjunction with the wide "*taberna*" doorway to establish a formal link between the bar's internal space and the street, a set up that was, no doubt, quite useful when trying to encourage pedestrians to stop for a bite to eat or a drink.

But a standardised colour scheme was not the only decorative technique used by the operators of retail properties to encourage trade. Figural images also appeared on the façades of Pompeian bars and shops, typically on the lighter, upper section of the wall. In terms of content, these images can be broken down into three thematic categories: merchandise, animals and deities.[3] It has been argued that images included in the first category served as rudimentary forms of advertisement,[4] but the depictions of animals and deities likely functioned in a similar way. Paintings of animals – such as the elephant applied to the exterior of the Hospitium di Sittius (VI.1.44) – provided the property with a definitive identity, which might also serve as a useful shorthand for word-of-mouth advertising (e.g. "let's meet at The Elephant for a cup of wine").[5] Images of gods or goddesses perhaps worked in a similar fashion, while also indicating that the establishment and its patrons were under the protection of a divine benefactor.[6] Not surprisingly, deities associated with commerce and good fortune dominate this category of images. Mercury was by far the most popular figure, representing more than one-quarter of all façade deities (n = 127), followed by Minerva (8%), Venus Pompeiana (7%), and Fortuna (6%).

The prevalence of these divinities in commercial settings serves to emphasise the close relationship between artistic content and spatial context in Pompeii. If wall paintings inside the *domus* are best known for depictions of complicated mythological scenes, commercial decoration adopts the opposite approach. Employing a set of comparatively simplistic images with a limited cast of characters, the meanings of façade paintings were quickly and easily understood by their viewership.[7] This distinction is reflected in the results of J. Hodske's 2007 survey of mythological imagery in Pompeian houses. He identified 101 individual figures in 2nd, 3rd and 4th style painting programmes; in total, these deities, demigods and humans made 983 appearances on house walls.[8] What is striking about Hodske's data, however, is the virtual absence of the deities most popular in façade painting. While Hodske's top five figures make more than 40 appearances each, Mercury is depicted only four times and Minerva only twice; Venus Pompeiana is nowhere to be found.[9]

These are admittedly preliminary results, and the complicated and incomplete nature of the datasets employed necessitates further analysis of the available evidence. Examinations of other forms of media utilised inside bars, such as paintings found on bar counters and around lararia, are necessary before conclusive distinctions between Pompeian "commercial" and "non-commercial" art can be drawn. But, with those caveats clearly stated, the results presented here suggest that a quantitative approach to the study of *taberna* decoration does offer some promise.

## Notes

[1] The use of bar counters as a proxy for retail activity is an approach first developed by S. Ellis (2004, 373) in the mid-2000s.

[2] Data from Kieberg 2014, Tabelle IV 6 d.

[3] For the purposes of this paper, I exclude a fourth group, *lararium* paintings, because they have a specific religious function.

[4] Fröhlich 1991, 64.

[5] The elephant decorating the façade of the Hospitium di Sittius was accompanied by two dipinti: one indicating the property was for let (CIL IV 807), the other noting that it was called "The Elephant," and had been restored by its owner, Sittius (CIL IV 806).

[6] J. Clarke (2003, 457) has suggested that paintings of deities linked to commerce and good fortune were appropriate for the decoration of shops and workshops because they delivered a message that prospective patrons were expecting: that the "proper" gods were being celebrated and propitiated.

[7] More than three-quarters of figural images applied to Pompeian façades hail from bars, shops or workshops.

[8] Hodske 2007, Tabelle 3: Verteilung der Bildthemen nach Mythen und Stilen.

[9] It is worth pointing out that these deities do sometimes appear in domestic *lararium* paintings (e.g. V.4.3; VII.4.20), however, which emphasises further their "functional" character.

## Image Credits

Fig. 1: Basemap courtesy Pompeii Bibliography and Mapping Project.

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# Murecine (Pompeii): Architecture, Décor and Aesthetics of a *statio negotiatorum* from the Early Imperial Period

**Simona Perna**

The building known as Edificio A dei Triclinii or Hospitium Sulpicii was discovered at about 600 meters south of Pompeii's Stabian Gate in modern Murecine (o Moregine),[1] an area once corresponding to the lagoon harbour on the Sarno River mouth.[2] It was excavated for the first time in 1959 during the construction of the Napoli-Salerno motorway between Castellammare and Angri and again from 1999 to 2000 on the occasion of the expansion of the motorway. The two-storey Julio-Claudian building (now reburied) comprised a porticus triplex with some seven triclinia (only A-B-C fully explored) lavishly decorated with marble and superb IV-Style frescoes (AD 62–68) opening on a viridarium with a euripus; a huge kitchen; a bath complex under construction; a dock onto the river with stunning visual perspectives over the riverine landscape and *Stabiae*'s bay (fig. 1). Textual evidence there retrieved revealed that from at least AD 62 the Sulpicii, wealthy bankers and traders originally from *Puteoli* involved in financial business throughout the Mediterranean, were the owners.[3] Moreover, it emerged that in AD 79 the building was undergoing renovation with the addition of the bath complex to be decorated with imported 'Greco Scritto' marble (some 160 ready-to-use slabs were stacked in the kitchen). Since its discovery, scholars have variously interpreted the building's function, chronology and its fresco cycles (representing Apollo and the Muses, Apollo and Dionysus, Helen and the Dioscuri) coming to divergent,

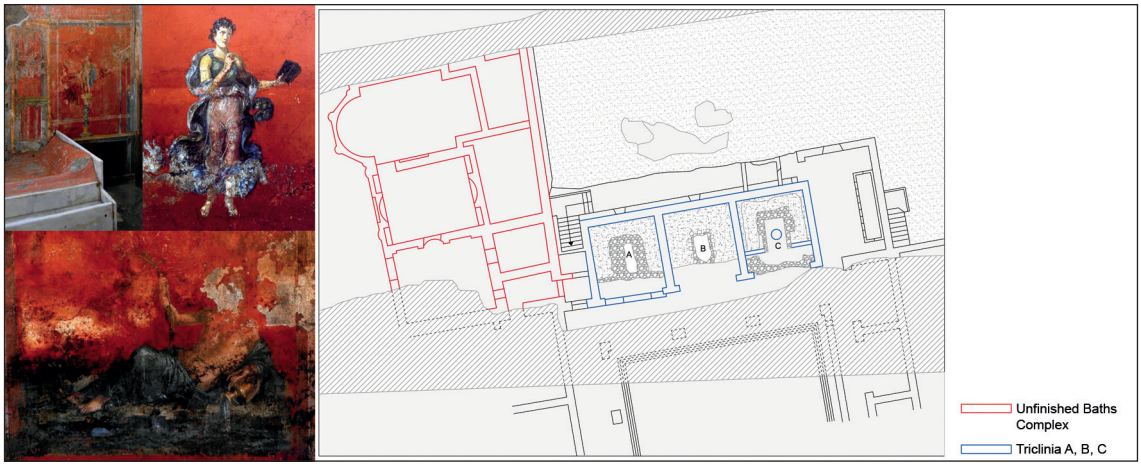



Fig. 1: Left: details of one of the triclinia ('C') and painted decoration: a Muse (triclinium 'A') and the personification of the Sarno river (triclinium 'C'); right: plan of the excavated portion of the Murecine complex.

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often mutually exclusive conclusions.[4] The layout and location exclude the hypothesis of a private building: this finely-decorated complex, unparalleled within its urbanscape, certainly was a high standard public structure at the core of an intense production and distribution network between the river, Pompeii and its neighbouring sites (the *pagus maritimus*). The evidence provided by the excavated portion alone strongly points in the direction of a "5-star" *hospitium* or *statio negotiatorum* for a high-ranking clientele, such as commercial agents.[5] The several facilities, waterworks and fine decoration contributed to the general aesthetic design, which ought to be proportional to function and clientele (fig. 2). Reference to the economic role and significance of the building in the trading business within the riverine landscape can be found in the choice of the painted imagery, which had a deep semiotic value: the personification of the Sarno River as a symbol of wealth; Mercury, the patron of commerce; the Dioscuri, the protectors of sailing and sailors, but also symbols of the *equites* and Augustales;[6] Apollo and the Muses to emphasise the fineness of the setting; Dionysius and the Maenads, symbolic allusions to the role of wine as central to business interaction and conviviality but also to the region's prosperous trade. The presence of a suburban sanctuary dedicated to Dionysus on the opposite river bank, in modern Sant'Abbondio, further testifies to the local cult and the importance of wine and viticulture. The frescoes were made by the renowned Vettii workshop known from many Pompeian public buildings and private elite houses.[7] The site, with its views, architecture and décor, which would have stimulated visitors' sensorial perceptions, must have represented an ideal stage to shape, induce and encourage social and business-oriented interaction. Recently excavated urban and suburban production and trade sites across the ager Vesuvianus in fact show that, despite the devastating AD 62 earthquake, the local economy, particularly wine production, thrived with an unprecedented vigour.[8] It can be thus plausibly argued that the building's significant decorative programme, substantiated by the choice of the finest painters first and costly imported 'Greco Scritto' marble (quite a novelty in the early Flavian period) to further aestheticize it, was driven by its wealthy owners' will to affirm and re-launch the building's prestige in a booming economic climate.

## Notes

[1] De Simone – Nappo 2000.

[2] Scarano Ussani 2005.

[3] Camodeca 2005.

[4] Torelli 2005; Mastroroberto 2003; Nappo 2008.

[5] Ruiz de Arbulo-Bayona 2017.

[6] Torelli – Marroni 2016.

[7] Esposito 2017.

[8] Guzzo – Guidobaldi 2008.

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Fig. 1: Left: after De Simone – Nappo 2000, 37 figs. 84. 192 with modifications; right: after De Simone – Nappo 2000, 35 fig. 1 with modifications.

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# Trading between Judicial, Political, Religious and Social Requirements. Mercantile Aspects linked to the Forum Romanum

**Jessica Bartz**

Public spaces did not function as static areas, but as dynamically changed, heterogeneously animated and multisensory experienced spaces with an amount of different functions, which led to a heavy functional concurrence. Therefore, flexible constructions organised and structured such areas and supported specific needs. Because of this, the aesthetic perception of spaces like the Forum Romanum continuously differed.

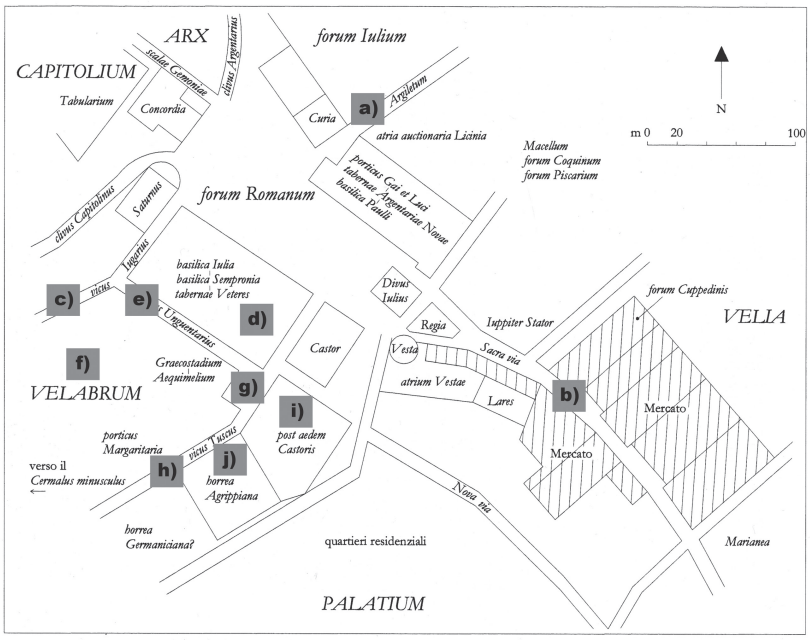
This paper focusses on the economic aspects of the Forum Romanum, in which or close by trading and commercial structures belonged to the visual experience, but were always competed by the divergent functions.[1] During the Republican period, economic functions were partly displaced to alternative areas, focused on precious objects, or transferred to the inner parts of monumental buildings. The ancient sources did not describe pragmatic reasons but they mentioned e.g. annoying by-products of commercial activities, like dirt and smell, which was not appropriate for the aesthetic perception of this outstanding urban space.

The Forum Romanum was a vivid square with activities of all parts of the daily Roman life: continuously court hearings, political speeches, elections and assemblies took place, despite the splendid religious, triumphal and funeral processions. Some aspects of the forum's various functions can be connected to the commercial factor. However, the scientific research has mainly focused on the political and representative functions. That is why it seems quite unclear to what extent commercial activities were part of the daily life on the Forum Romanum and how this has influenced the aesthetic perception of this square.

According to ancient sources the Roman forum had mercantile rooms since the reign of the Etruscan kings.[2] As it is described during the Republican period the forum was surrounded by numerous atrium houses, often preceded by shops, the so-called *tabernae* (fig. 1).[3] But already at the end of the 4th century BC the attested butchers were gradually displaced by the *argentarii*[4], explained by the demand of the dignity of the square.[5] However, at the beginning of the 2nd century BC, the forum did not seem to have been a place of pleasant stay.[6] This may have been one of the reasons why the Forum Romanum was redefined by large-scale construction projects: four large basilicas were erected on the former atrium houses,[7] partly including the old *tabernae,* which were mainly used for financial purposes.[8]

That trade existed very close to the forum, is often shown on the basis of the podium of the Temple of the Dioscuri, where *tabernae* were constructed inside its podium.[9] But it is not clear whether those rooms have been used commercially[10] or only for the purpose of the temple, which functioned as a kind of strong room for the properties of

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a) Argiletum: *bookseller**

b) via Sacra: aurifex, auri acceptor, aurivestrix, bub(u)larius, cabator, caelator, coronarius, flaturarius, gemmarius, margaritarius, mellarius, negotiator, pigmentarius, tibiarius, unguentarius, vascularius

c) vicus Iugarius: purpurarius

d) basilica Iulia: nummularius

e) vicus Unguentarius: *unguentarius**

f) Velabrum: argentarius, aurarius, capsarius, lector, margaritarius, negotiator penoris et vinorum, vinarius, *miller**, *butcher**

g) statue of Vortumnus: faber argentarius

h) vicus Tuscus: vestiarius (tenuarius), purpuarius

i) post aedem Castoris: argentarius, sagarius, *bookseller**, *shoemaker**, *prostitution**

j) horrea Agrippiana: vestiarius

The letters highlighted in grey are additions by the author of the abstract.

*professions in italic are known from literary sources.

Fig. 1: Roman professions and their topographical context.

Roman citizens.[11] Other sources mentioning businesses or shops have to be located in the vicinity, like *post aedem Castoris.*[12]

In general, the accessing roads around the forum are lined with numerous local traders (fig. 1)[13]: E.g. regarding to the area behind the Basilica Julia and the Temple of the Dioscuri a high density of inscriptions of the textile or purple production sector has survived;[14] along the *via Sacra* numerous individuals were involved in gold or metal craftsmanship.[15] But the exact meaning of the epigraphically mentioned professions remains unclear, as those workers could have produced, sold and/or stored their products there. Therefore, is not possible to decide who or which kind of profession needs to be connected with the architectures along those roads, like e.g. the *horrea,*[16] and how their activities have been perceived from the Forum Romanum.

Only one kind of traders could have been seen directly on the forum, which generally served as a place for spectacles.[17] For public games temporary grandstands have been used since the 2nd century BC,[18] which raised up to the amphitheatre-like building of Caesar in 46 BC.[19] Analogous to the wall painting of house I, 3, 23 in Pompeii with the city's amphitheatre and small market stands in front of it, one could imagine mobile traders at the Forum Romanum during such events, even if they – because of their temporality – did not manifest themselves in archaeological records.

Focusing on the visual perception of mercantile functions a shift of this daily life aspect can nevertheless be observed. During the early and middle Republican period, the different *tabernae* could certainly have been seen, the access roads, such as the *via*

*Sacra,* were also visible from the forum. This changed radically during the late Republican and Imperial period. The *tabernae* were demolished or integrated into the basilicas, temporary events were moved to permanent buildings, why the assumed mobile traders vanished, and the end of the accessing roads to the forum were occupied by the honorary monuments of the Imperial family, such as the Parthian Arch or the Porticus of Gai et Luci. A visual perception of economic functions was successively closed off.

The Forum Romanum never seemed to have been a trading centre[20], even if several trading activities must be located in the vicinity. No temporary or periodical markets are attested, there are no traces on the pavement that would indicate market stalls, even the epigraphical and literary sources only allow the conclusion that various goods have been available mainly along the accessing roads. The forum itself was deliberately freed from mercantile functions, despite its importance for the financial sector of the city.

## Notes

[1] This essay focusses primarily on the question of possible traders or trading structures directly cognisable on the Roman forum which is important for an understanding of aesthetic perception of the square. Areas, such as the Macellum Magnum, the forum Piscarium/Piscatorium, the forum Coquinum (?), the forum Cuppedinis, as well as a detailed discussion of the stored and/or sold goods in the various warehouses (horrea Agrippiana, horrea on the *via Sacra,* horrea Piperataria/horrea Vespasiani) nearby the Forum Romanum, however, had to be left out. For the most outstanding summary of all economic buildings around the Forum Romanum see Papi 2002.

[2] Cf. Dionys. 3, 67, 4; Liv. 1, 35, 10; Plin. nat. 7, 182.

[3] The so-called *tabernae Lanianae* on the north side have been used by butchers. Cf. Liv. 3, 48, 5 (ca. 449 BC); Varro frg. Non. 853 L (ca. 310 BC). For the *tabernae Veteres* and *Novae* see Cic. ac. 2, 70, 2; Liv. 26, 27, 1–4; Liv. 44, 16, 10; Varro ling. 6, 59. In the vicinity of the Forum Romanum other sellers of goods could be assumed until the 2nd century BC, cf. Ter. Eun. 255–259. But it is not clear, whether they used *tabernae* directed to the forum's square or must be located elsewhere nearby. Cf. also Val. Max. 9, 7, 4. Furthermore, see Holleran 2012, 105 f.; Muth 2018; Nawracala 2011, 86–89; Papi 1999a–e.

[4] Cf. Liv. 9, 40, 16 (ca. 305 BC); Liv. 26, 11, 7 (ca. 211 BC); Ulp. Dig. 18, 1, 32. Furthermore Papi 2002, 45.

[5] Varro ling. 6, 91; Vitr. 5, 1, 1–2.

[6] An episode from a comedy of Plautus mentiones the disturbing smell from the close fish-market and that strange people were loitering around, cf. Plaut. Curc. 470–485 (ca. 193 BC). For prostitution nearby the forum see Plaut. Truc. 66.

[7] Cato bought two houses with four *tabernae* (Liv. 39, 44, 7). In 169 BC Ti. Sempronius Gracchus overbuilt the house of Scipio Africanus, including its *tabernae* (Liv. 44, 16, 10). See further Bartz 2018a–b; Bartz – Horacek 2018a–b; Holleran 2012, 106; Steinmann 2011, 90–96; Welin 1953, 111–120.

[8] For the shops of the *argentarii* within the basilica Fulvia cf. Liv. 40, 51. Monetary aspects have been a central aspect of the forum also during the Imperial period. Some inscriptions mention *nummularii,* who

worked within the basilica Iulia. Cf. CIL VI 9709; CIL VI 9711; CIL VI 9712 (?). Another *nummularius* or a different profession is attested in CIL VI 32296.

[9] Probably since the Augustan phase several *tabernae* have integrated into the podium. See Köb 2000, 54 f.; Nilson et al. 2008, 53–58; Poulsen 1992, 56 f. 110 f. Cf. also App. BC 1, 54; Catull. 37, 1–2.

[10] During current excavations, a dentist's surgery or a barber's shop might be attested in one room. Cf. Fejerskov et al. 2012; Nielsen 1993, 244 f. For all other rooms no functional indications have been found – except that they had a complicated locking system and were frequently visited, as the traces on the stepping stones illustrate.

[11] Several professions closely connected to the temple and its primary functions are attested epigraphically: CIL VI 2202; CIL VI 2203; CIL VI 8688; CIL VI 8689. Divergent professions, which might indicate used offices within the *tabernae* are missing.

[12] Cf. Plin. nat. 10, 121; Sen. dial. 2, 13, 4. Several professions are attested "*post aedem Castoris*": CIL VI 363; CIL VI 9177; CIL VI 9872. Even prostitution is attested in the vicinity of the temple, cf. Catull. 37, 1–5. See also Papi 2002, 47.

[13] The following inscriptions and ancient sources were used to create the overview of the professions and their topographical context: a) Cic. Phil. 2, 21 (tabernae librariae); b) AE 1971, 43; AE 1991, 106; AE 1991, 287; CIL I 3005 = AE 1971, 41; CIL I 3021; CIL I 3058; CIL VI 1974; CIL VI 5287 (unknown profession); CIL VI 9207; CIL VI 9212; CIL VI 9214; CIL VI 9221; CIL VI 9239; CIL VI 9283; CIL VI 9418; CIL VI 9419; CIL VI 9434; CIL VI 9435; CIL VI 9545; CIL VI 9546; CIL VI 9547; CIL VI 9548; CIL VI 9549; CIL VI 9662; CIL VI 9795; CIL VI 9935; CIL VI 37824; CIL X 6492; c) AE 1923, 59; d) CIL VI 9709; CIL VI 9711; CIL VI 9712 (probably referring to the Basilica Julia); e) Hor. sat. 2, 260–230; f) AE 1907, 129; AE 1946, 128; CIL VI 9184; CIL VI 9671; CIL VI 9993; CIL VI 33933 (insecure profession); CIL VI 37803 (second part with insecure profession); g) CIL VI 9393 (first part with insecure profession); h) CIL VI 9976; CIL VI 33923; CIL VI 37826; CIL XIV 2433; i) CIL VI 363 = CIL VI 10042 (uncertain addition); CIL VI 9177; CIL VI 9872; j) CIL VI 9972; CIL VI 10026 (unknown profession); CIL XIV 3958. Insecure topographical attribution: CIL VI 298 (maybe Basilica Julia); CIL VI 9178 (ab sex areis?); CIL VI 9848; CIL VI 37804 (found next to the Temple of Romulus). The Latin names of the professions are not translated, because the meaning of the specific terms is arguable to translate without interpretation.

[14] See also note 13 and cf. Holleran 2012, 57; Papi 2002, 48–50.

[15] Cf. note 13. See Holleran 2012, 56 f.; Palombi 1990, 66.

[16] On the basis of precious types of goods one could state that a permanent, stabile construction – at least for storing – must be assumed. Moreover, if someone decides to record the locality of his or her profession in an inscription, a permanent and not changing activity there might be convincingly.

[17] Vitr. 5, 1, 2.

[18] Aemilius Paulus set up benches on the forum during his triumphal procession in 167 BC. Cf. Plut. Aem. 32. Around 120 BC, when wooden grandstands were erected at the forum by magistrates for rent, C. Gracchus complained about hierarchisation and commercialisation of sitting and watching those games. He decided that the grandstands should be demolished so that everyone could attend the games equally. Cf. Plut. C. Gracchus 12, 3–4.

[19] Cf. Cass. Dio 43, 22, 3. See also Welch 2007, 38–71.

[20] In contrast to Boss 2011, 85; Kreuz 2014.

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Fig. 1: Papi 2002, 46 fig. 1.

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# Rural Pompeii: Vineyards and Leisure

**Pia Kastenmeier**

From at least the beginning of the 1st century BC until the catastrophe of AD 79, the hinterland of Pompeii was covered by a dense network of small and medium-sized *villae rusticae.* Mainly, grapes were grown here and processed into wine on the spot.[1] Many property owners within the city seem also to have adopted this branch of production: since the detailed studies by Wilhemina Jashemski between the 1960s and 1980s, it is generally accepted by scholars that viticulture and market gardening were part of the intra-moenia economy of Pompeii.[2] Nevertheless, so far no detailed studies exist which would contextualise the inner-city commercial plantings with the other intra-moenia economic activities of Pompeii, or relate them to the extra-moenia agricultural production.

The vineyards and market gardens are, with few exceptions, located in the eastern part of Pompeii and thanks to the excavations by Jashemski we have a very precise idea of their appearance in AD 79.[3] In many of them, minor architectural structures associated with the agricultural plots suggest that wine was not only grown on these properties but also consumed there. In particular, masonry triclinia have been found in about the half of the vineyards and market gardens so far excavated.[4] These are common features at Pompeii, in the public, private and commercial sectors, and are commonly interpreted as equipment for more luxurious (outdoor) banqueting.[5] Accordingly, vineyards and market gardens equipped with masonry triclinia are part of the food and drink outlets distributed all over the city.[6] However, no detailed studies on these economic spaces exist.[7]

The so-called "Inn of the gladiators" (I 20, 1–3) may show as an example the overall concept presented to the potential clientele of the open-air taverns:[8] Wall decor plays a minor role, statuettes and images may adorn open-air *lararia* and a statue of a Gladiator and Priapos appears close to the masonry triclinium. Thus, the open-air taverns are effectively dominated by the colours of nature, the plantings and vines with their tendrils hanging down from the pergola shading the masonry triclinia.[9] Everything seems rural and rustic (fig. 1).

Together with this, the characteristics of the amphitheatre district in which the open-air taverns are situated, should be noted. The area between the Sarnus and the Nucerian Gates has a very different urban morphology, different views and different amenities, compared with the city quarters close to the Vesuvian, the Stabian or the Herculaneum Gate. There are few large dwellings and fewer shops and workshops.[10] The streets are unpaved and could be blocked to traffic.[11] The street frontages are characterised by high enclosure-walls very different from the typical Pompeian street facades.[12] There are several large trees on private and on public ground.[13] In consequence, in AD 79 the amphitheatre district – and there is some evidence for the existence of more large outdoor areas to the North of Via dell'Abbondanza[14] – seems the reflection of a (not well studied)

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Fig. 1: Pompeii, replanted vineyard II 5, 1–4, seen from the Vicolo dell'Anfiteatro. On the left of the picture, in the shadow, the remains of a masonry triclinium. The small door to the right of it is leading to a *cella vinaria.*

process that made of Pompeii a "greener city", with plenty of landscape and rural fabric inside the city walls.

One objective of my research is therefore to investigate in more detail the chronology of the open-air taverns. At present both the factors behind the change and the timing of this conversion of the former small plots for housing into larger areas dedicated to urban agriculture and into open-air taverns are far from clear.[15]

The above observations prompt the following key questions to be addressed by future research: How should banqueting in open-air taverns in the amphitheatre district be interpreted in the context of the *convivium*- and the food and drink retail culture of Pompeii? Are the open-air taverns in fact something in between, or something rather different? Considering their particular environment, climatic seasonality is obviously an important issue, but seasonal changes in social behaviour should also be considered.[16]

## Notes

[1] Cf. Vogel et al. 2016 with former bibliography.
[2] Jashemski 1979; Jashemski 1993; cf. the many photographs taken during the excavations, accessible on <http://www.pompeiiinpictures.org/> (18. 01. 2021). For example: viticulture and market gardening are mentioned, but only very briefly, in the recent book on the Economy of Pompeii, cf. Flohr – Wilson 2016, 14.
[3] Cf. the maps in Monteix 2016, 218 fig. 7.2; Poehler 2017a (N. B.: vineyard and market garden III 7, 6.7 is missing on this map).
[4] Masonry triclinia had been found in 5 of the 10 vineyards and in 12 of the 26 market gardens. The vineyards and gardens without triclinia maybe weren't indeed commercial garden restaurants but simply cultivated areas or they were equipped with ephemeral constructions in wood, not preserved, as suggested by find-spots, cf. the one in vineyard I 20, 5 [Jashemski 1993, 68; photographs cf. <http://www.pompeiiinpictures.org/R1/1%2020%2005%20p2.htm> (18. 01. 2021)].
[5] Cf. Soprano 1950; Calabrò 2021; Costa 2021; Dunkelbarger 2021; for their interpretation in inns and *cauponae* cf. for example Neudecker 2012, 104.
[6] On bars and restaurants at Pompeii cf. Kieburg 2014; Ruiz de Arbulo – Gris 2017; Ellis 2018, all with former bibliography; for their distribution over the city cf. Monteix 2016, 218 fig. 7.2.
[7] Cf. definition "economic spaces" infra Haug.
[8] Maiuri 1959, 83–87; Nappo 1988; Istituto della Enciclopedia Italiana (ed.), PPM II (Roma 1990), 1060–1070.
[9] A suitable literary transposition is the poem "Copa" contained in the Appendix Vergiliana, cf. Jashemski 1979, 172–178.
[10] Viitanen et al. 2013, fig. 2 (doorways). 4 (houses); Monteix 2016, 218 fig. 7.2; Poehler 2017a.
[11] Poehler 2017b, 181 fig. 3.1 (street surfaces). 6.7 (blocked streets).
[12] Helg 2018, 96–117.
[13] Maiuri 1939, 194 f. (plane trees in the Palestra Grande); Jashemski 1993, 21–105. 246 f. for the single find spots in Regio I and II; Ciarallo 2009.
[14] Cf. Anniboletti et al. 2009.
[15] On the so called "case a schiera" and the reorganisation of the Amphitheatre district from circa 70 BC onwards cf. among others: Maiuri 1939, 214; Hoffmann 1979, 111–114; Nappo 1988; Guzzo 2007, 136–144. 177–179; Anniboletti et al. 2009, 7–10; Venner 2020.
[16] On seasonality and urban economy cf. Hawkins 2016, 32–65.

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Fig. 1: by the author.

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# Productive Facilities of Roman Villas in Italy Revaluated by Refined Architecture and Decoration

**Michael Feige**

Installations for the processing of wine and olive oil were an essential part of Roman villas in Italy and left a clear mark on their remains in the form of extensive pressing and storage areas. In general, these facilities are characterized by functional designs, furnishings and logistically appropriate layouts that aimed at an effective organization of the productive processes.[1]

However, several facilities stand out from the normal installations due to their extravagant furnishings, unusual layouts and elaborate architectural framings. The productive installations here seem to have been revalued and elevated into the sphere of leisure and representation of the villa owner. On closer inspection, the heterogeneous character of the materials, architectural forms and décor elements used in the furnishing of single sites reveal very different motives and intentions behind the enhancements.[2]

A prominent case study is the recently excavated winery of the large imperial "Villa Magna" (fig. 1).[3] The extensive facility was paved with *opus spicatum* made of marble and consisted of a treading platform and *cella vinaria* with numerous *dolia,* as well as

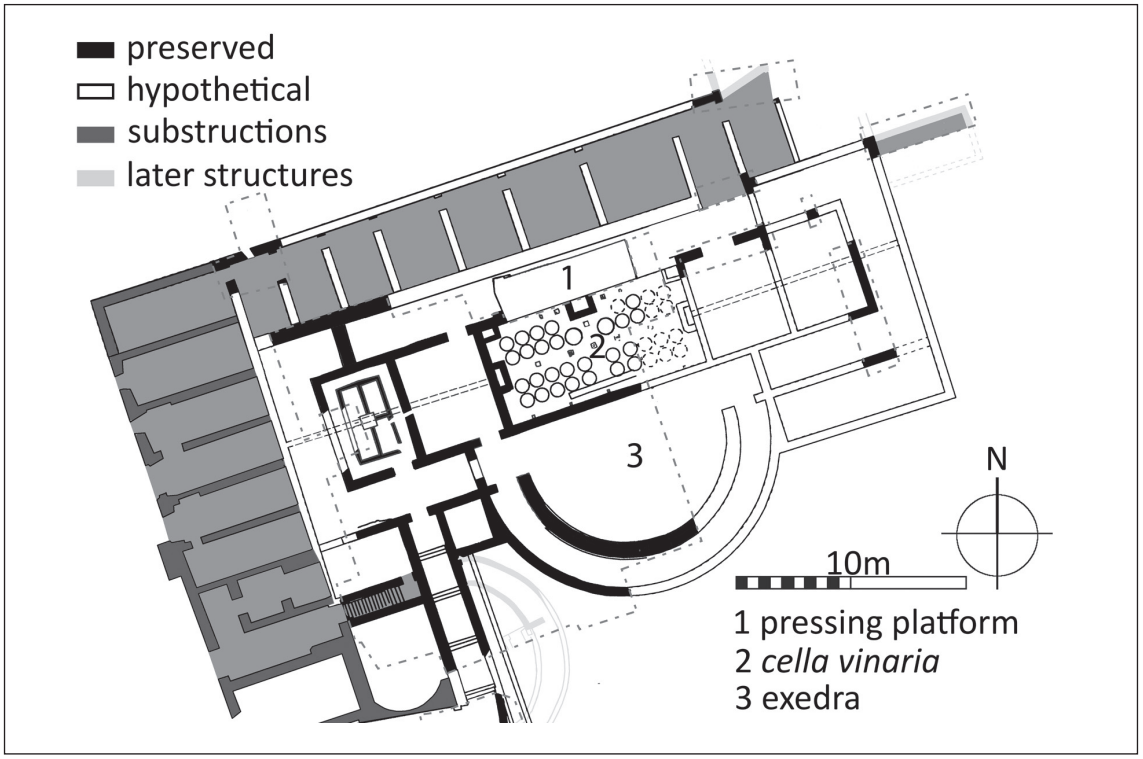



Fig. 1: Anagni, Winery complex of the Villa Magna.

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five vats that were arranged symmetrically in the room. In combination with a semicircular exedra to its south, the production area developed a unique layout reminiscent of a Roman theater. Based on a series of letters from the young M. Aurelius to Fronto,[4] Elisabeth Fentress convincingly explains the complex as a stage for the Emperor's representation and his ceremonial duties in connection with various official sacrifices during the vintage season.[5]

Other archaeological finds, such as Dionysian wall paintings and small altars in pressing rooms of farms around Pompeii.[6] show that not only the highest aristocratic elite, but a wide range of social actors were authors and recipients of this materialistic and idealistic revaluation of productive spaces. In contrast to the very artificial and inefficient arrangement of the Villa Magna site, these facilities show the typical structure of regular market-oriented wineries and provide insight into the economic worries and the piety of the more ordinary rural population.

While elaborate furnishings often express the need to stage productive processes, some sites also reveal the attempt to conceal them behind representative façades. This seems to be the case at an octagonal building excavated at Asinello.[7] It houses a complete and functional pressing installation and four storage rooms arranged to fit a building layout, which was in itself not particularly suitable for the purpose. The interest of the owner here was to create an externally appealing, and for its time, modern, building on his property, while maintaining the functionality of the facility.

These various solutions in dealing with the external perception of the productive facilities indicate a very lively and real discourse that took place between the villa owners concerning the economic efficiency of their estates – a discourse that is reflected also in the ironic dialogue about the "proper villa" in Varro's books on agriculture[8], and which was crucial for the Roman self-image.

## Notes

[1] M. Feige, Die Landwirtschaftsanlagen römischer *villae rusticae* in Mittelitalien vom 2. Jh. v. Chr. bis 2. Jh. n. Chr. (in preparation).

[2] Fundamental and valuable research with a compilation of ancient written records relating to the link between agricultural facilities and the self-image, prestige and entertainment of the Roman aristocratic elite in: Purcell 1995; Fentress et al. 2016, 196–228 (with previous literature).

[3] Fentress et al. 2016, 89–123.

[4] Front. ep. IV, 4–6.

[5] Fentress et al. 2016, 204–208.

[6] A collection of the known sites in: Baratta 2005, 120–122. See also the pressing room of the Villa of N. Popidius Narcissus Major in Scafati: De' Spagnolis 2002, 40–58.

[7] Broise – Jolivet 2000.

[8] Varro rust. 3, 2.

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# Emulation is the Leitmotif. Conspicuous Consumption in the Casa della Fontana Piccola

**Wolfgang Filser**

The "Theory of the Leisure Class" has at its core a socioeconomic model stemming from Veblen's more scientific writings.[1] He understood that the propensity for emulation has a central role in an economically developed society; more than his famous concept of conspicuous consumption, *emulation* of the habits of the rich is keeping the wheel of wasting of resources spinning and stabilizes social inequality. Emulation, however, does not require the wasting of great material values. The only thing that counts is that usually those who emulate – by wasting time and money – threaten their social position and enhance the status of those emulated. In fact, emulation of the richer ones is not a choice in certain societies, it is rather a general condition.

In my contribution I tried to apply Veblen's system to the Casa della Fontana Piccola.[2] After 62 AD its pseudo-peristyle garden was embellished with paintings and a tiny fountain along the model of porticoed gardens in bigger Pompeian houses and suburban villas.[3] The walls of the southern and western side were painted with landscape sceneries between Doric columns, which parallel the colonnade that frames the garden to the east. Centrally placed was the fountain (fig. 1), adorned with mosaics and statuettes dating from different epochs.[4] On the left side of the basin a sitting bronze fisherman was placed, on the right one an archaistic marble kore; in the centre of the basin stood an eros serving as waterspout; a second fisherman, a sleeping boy in marble, was lying in front of the first one. The emblemata of the fountain are surrounded by rows of different seashells and the curved back wall of the basin is covered with pumice. These materials were used to imitate grottos and caves.[5] Thus, the visitor of the house was reminded of sculptural installations in artificial grottos as they were common in aristocratic villas.[6]

However, this is not the only level of referentiality of the fountain. Its grotto-iconography is closely linked to the frescoes adorning the walls of the garden. Notably the panorama on the southern wall has been treated by many scholars as the depiction of a villa maritima.[7] To the left appears a stretch of land with several buildings, some colonnaded, some multistoried. Those in the foreground are lifted up on rectangular substructures (the basis villae) with stairways leading to the rocky shore. To the right a spacious harbour is depicted separated from the open sea by a long mole supporting a curved portico and a series of islets with towers and another portico. On these structures and in front of the villae several figures are shown standing and moving around, one is sitting on the rocky shore with a fishing rod. It is this last figure, which tightly connects the painting and the sculptural fountain. The fisherman sitting on the rim of the fountain belongs to the same range of motifs. His rocky base in turn is of the kind

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Fig. 1: Pompeii, Casa della Fontana Piccola, garden.

as those (reconstructed ones) of the life-size bronzes[8] from the garden of the Villa dei Papiri and of some high-quality bronzetti[9] from its atrium.

With the aid of different visual tactics the houses and gardens of the super-rich are emulated. This becomes still clearer when one observes the entire wall surrounding the garden with the large panels between the painted columns. Obviously these scenes should be understood as pieces of landscape appearing in panorama windows as described by Pliny.[10] In other words, the modest peristyle with its decoration is an emulative prospectus on what actually existed behind its western wall: the villae maritimae on the shoreline of the Gulf.[11] Of course the material level, on which such villas were emulated in town houses, was a low one. However, this was done with attention to detail in the garden of the Casa della Fontana Piccola. It is not a thoughtless layout, as has been suggested,[12] presupposing a breakup of aesthetic value and content: as the small garden only imitates the grandiose art and architecture of villas the small scale sculptures are not works of art in their own right, they do not fit together artistically and there is no aesthetic concept underlying the whole. Such assessments tend towards a general verdict of Hellenistic-Roman near-to-life illusionism as a kind of naive puppet theatre. Indeed, certain gardens like the one of the relatively wealthy Casa di Octavius Quartio with its tiny euripus and small scale sculptures or still more the petty hortus

of the Casa di Lucretius Fronto with its miniaturist figurines may remind the modern viewer of bourgeois garden gnomes.[13] But as one should be cautious when judging content without paying attention to style or vice versa, we should refrain from a humoristic interpretation; what is staged here by modest but efficient means is always the grandeur of the superrich. Indeed, there seems to be a certain inescapability of emulating the rich: If you wanted a garden within your small domus it was at the price of being constantly reminded of how a real garden in a real house – a house on the sea – looked like. It would be very interesting to know how the owners of such houses in Pompeii thought about this: if at all they thought about it, if there were different ways of thinking about the subordinate relation of their homes to those of the wealthy, if they sensed a certain subjugation because they could not help but parrot the ideals of the elite. The inventories of houses and villas may be very similar[14] but there is one important difference: of course, with size also action is reduced.[15] This applies not only to the sculpture but to the whole garden of the Casa della Fontana Piccola, which had not been calculated for being entered but for being seen from the surrounding triclinia and the atrium. Such horti are themselves designed in the first place as images hinting at much more spacious gardens with porticos on all sides.[16]

At this point one might combine Veblen's and Böhme's theories. What style and content have to achieve is what Gernot Böhme calls the "Inszenierungswert" of a certain commodity.[17] Accordingly, the quality of the garden's furnishings is not measured by expense or superficial refinements but by the persuasiveness of its image system as a whole. This image system stands for a certain lifestyle, which the owner of the Casa della Fontana Piccola had to adopt in order to succeed. It dominated his existence – whether he wished so or not.[18]

## Notes

[1] On Veblen see Filser 2017, 33–54 with further reading.

[2] On the Casa della Fontana Piccola see Fröhlich 1996. On decorations of Roman houses and gardens see Jashemski 1979; Jashemski 1993; Wallace-Hadrill 1994; Zanker 1979; Zanker 1995; Bergmann 2008; Haug 2020.

[3] Fröhlich 1996, 82–97.

[4] Fröhlich 1969, 82 f. 98–102; Mattusch 2008, 86. 194; Bergmann 2008.

[5] Sear 1977.

[6] Sear 1977, 27–30; Rakob 1964; Zanker 1979, 502 f. instead highlights the connection with monumental fountains in public parks.

[7] For example Lafon 2001, 5 pl. III; Hinterhöller-Klein 2015, 408 f. 413, pls. 69. 70; Cf. Zanker 1979, 506–508.

[8] Guidobaldi 2008, 23 fig. 108; 205 fig. 80.

[9] Guidobaldi 2008, 210 fig. 90.

[10] Cf. Fröhlich 1996, 95 f.; Förtsch 1993, 24 f.; Hinterhöller-Klein 408 f.; for some remarks on the concept of panoramatic seeing habit in antiquity see Filser 2020.
[11] Cf. Fröhlich 1996, 95 f. 116. Such a villa maritima par excellence is being investigated by the Winckelmann-Institut at the Cape of Sorrento since 2014. It extends on the whole tip of the cape. On three artificial terraces, built upon enormous vaulted cisterns, is to be located the main part of the villa with the fundus and large buildings overlooking the cape. On an island in front of the cape is preserved the pars maritima, which is surrounded by an elaborate private harbor. See Filser et al. 2017; Filser et al. 2021. For regularly updated research results visit: www.fastionline.org/excavation/micro_view.php?item_key=fst_cd&fst_cd=AIAC_3796.
[12] Fröhlich 1996, 102; Cf. Zanker 1979, 466. 494–496. 512.
[13] Zanker 1979, 470–481. 496–498; Zanker 1995, 150–162.
[14] Cf. Rakob 1964, 182; Zanker 1979, 466.
[15] Since September 2021 investigations of the so-called Villa della Rampa near Sperlonga have commenced under direction of Christoph Klose, Paolo Vitti and myself. Through the villa-space lead a public road (todays Via Flacca, in Roman times a branch of the Via Appia). This implies that "normal people" crossed the core of the huge estate (probably the main residential part of the so-called Villa di Tiberius with its famous grotto on the other side of the cape), but probably could not enter its terraces. In other words, "living genre figures" such as those that appear on the villa paintings were actually present in the villa of Sperlonga.
[16] Cf. Zanker 1979, 492; Bergmann 2002, 96–120.
[17] Böhme 2016, 71–74.
[18] Zanker 1979, 520. asserted that the imitation of the wealthy made the late Pompeians feel "happier" while he nonetheless acknowledged a general "Imitationszwang" since the 1st century BC (p. 466). Consequently he concluded (pp. 521–523) that this illusionary happiness resulted from the base background of the libertini as opposed to the refined old aristocracy.

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Fig. 1: photo by Anna Bechtle.

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# The Aesthetics of Urban Production and Trade: A Short Summary*

**Johannes Lipps**

The aesthetics of economic spaces is currently attracting a great deal of attention. In an attempt to close lucrative deals, for years large commercial enterprises have been conceptualizing new ways of making their products look more appealing, in order to convince as many buyers as possible to purchase them. The strategies they used speak to the human senses. Sellers have thought of every detail from the architecture, to the right background music, to the scents wafting through the air. The consumers' habits are analyzed together with sociologists, psychologists and recently even neuroscientists, in order to guestimate how well products will sell on the market, even before they have been developed. By now malls have evolved into a sort of theme park, attracting even more customers.[1] But the consumers are more than just manipulated, uncreative buyers and users, as is often postulated by consumption critics. They adapt to products in a creative manner by using them to fit their needs and by doing this even establish their identity and connect to other people. Places and products of consumption therefore function as indicators of social life, which are of immense importance to the constitution, preservation and evolution of communities.[2]

As suggested by the opening theory of this section, this is not a modern day phenomenon. In fact, similar tendencies of a calculated aestheticization of urban economic spaces can be traced back to Antiquity. As part of a both social and economical influenced practice, characteristic form and structure models were developed, which connected products to associated architecture. These not only fulfilled functional needs but were also genuinely artistic in their own right and took on the shape of specific types of spaces.

The goal of this section was therefore to try to trace the aesthetics of ancient economical spaces. Naturally, it was not possible to systematically analyze the topic just based on short papers. But the speakers were still able to outline the potential of their analyses on ancient economic spaces. Overall three points were especially highlighted:

## Staging the Economic Spaces within Urban Settings

Multiple contributions were able to show that and, with which strategies, economic spaces were staged within an ancient urban environment and were made to stand out compared to their surrounding area. Armando Cristilli demonstrated that the macellum was not an exclusively introverted building. Instead its front facade enticed walkers-by through the use of elaborate materials, colors and large-scale architecture. The sellers on Delos and in Pompeii designed iconographic trademarks advertising their shops and

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products. Mantha Zarmakoupi noticed that the Italics on Delos made reference to their economic activities through the display of the lares compitales at the entrances of their houses. Taylor Lauritsen discovered that images of merchandise, animals or deities had been painted on the outer walls of Pompeian tabernae, which gave the property a definitive identity due to their high recognition factor.

## Rich Atmospheres for Large Money Transactions

Just as in modern times, in Antiquity aesthetically ennobled spaces were created for the execution of large money transactions. Simona Perna showed this phenomenon based on a building lavishly decorated with marble and paintings, which is located about 600 meters south of Pompeii in modern day Murecine. One of the main characteristics of the complex is a porticus triplex with some seven triclinia. It lies grandly high above the Bay of Naples at the mouth of the river Sarno. She interprets this luxurious building as being a statio negotiatorum, so an aesthetically pleasing local for business transactions. An especially blatant case of creating an 'honorable' atmosphere is the Forum Romanum in Rome, which was the central theme of Jessica Bartz's paper. Of course the reasons for its aestheticization are manifold. But it is clear that all 'dirty' industries were banned from this visually noble place, with only money changers being tolerated to stay.

## Aestheticization and Consumption of Production Spaces

Both Pia Kastenmeier and Michael Feige pointed out that spaces of production were aestheticized and that there were different aims associated with this. Pia Kastenmeier analyzed the outer triclinia in inner-city Pompeian wine gardens close to the amphitheater and argued that their aesthetic appeal was in part due to the connection between spaces of production and consumption. Michael Feige's research was of a similar nature. He explicitly turned his attention to oil and wine presses on the Italian peninsula and in doing so identified numerous examples of production sites being revalued and elevated into the sphere of leisure and representation of the villa owner through means of different forms of ennobling e.g. in terms of the building materials.

Even though these points were only based on case studies, it is already possible to clearly discern different ranges of the aestheticization of ancient economic spaces. A multitude of questions can be developed from this: How are economic spaces staged within urban settings? Are there specific forms of 'economic' design/décor? What might have been the purpose of decorating these buildings? In what way do people and architecture affect each other in economic contexts? How are economic spaces perceived? Do written or visual sources reflect on the aesthetic qualities of economic buildings?

An appealing task for the future could therefore be to systematically approach the collection of individual phenomena started in this section, in order to answer the overall questions on the emergence, development and motives behind the aestheticization of ancient economic spaces.

## Notes

* This contribution was produced under the Thematic Area T3 'Urbane Verdichtung' (urban densification) within the profile area "Challenges" of the JGU Mainz, and in line with my work on the sub-project A2 in SFB 1391, "Andere Ästhetik" (other aesthetics).

[1] z.B. Hellmann – Zurstiege 2008; Lindemann 2015; Drügh 2015.

[2] Hohnsträter 2016.

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# Cities, Microregions and Economy in an Interdisciplinary Perspective. Three Case Studies from Hellenistic-Roman Asia Minor

**Panel 8.11**

**Organized by**

**Daniel Knitter – Bernhard Ludwig – Ulrich Mania – Felix Pirson**

# Organisation of Labour, Subsistence and Material Production in a Model of Urban Pull Dynamics. The Case of Sagalassos and Environs from Achaemenid to Middle Byzantine Times

**Dries Daems – Sam Cleymans – Maarten Loopmans**

This paper presents an overview of long term patterns of organisation of labour, subsistence and material culture production at Sagalassos (southwest Anatolia) from Achaemenid to Middle Byzantine times (5th century BC–13th century AD), as part of a model of urban pull dynamics. Urban scaling research has shown that socio-economic growth is generated in urban systems through increased population density, spatial proximity and heterogeneity of interaction.[1] Economies of scale in infrastructure allow growing cities to operate more efficiently, while also providing increasing returns to scale in social dynamics. Combined, these processes may generate the development of an urban hub pulling in people, energy and resources from a wider catchment.

In the specific case of Sagalassos, the oldest material culture that can be linked to the genesis of a (village) community at the site has been dated to the late 5th century BC.[2] The first attestations of urban development can be traced back to the 2nd century BC, with the construction of a first public square, followed by a series of associated monumental buildings.[3] At this time, material production processes markedly intensified, transforming from a locally-oriented productive landscape centred on least effort raw material economies, to a more specialised productive landscape oriented towards the wider microregion.[4] The urbanisation of Sagalassos was associated with the development of a political territory, as well as the emergence of economic networks that connected Sagalassos to the wider region, testified by extended pottery distribution patterns, however, the primary catchment remained important for basic resource procurement and subsistence strategies. In Roman imperial times, the development of a specialised line of pottery production called Sagalassos Red Slip Ware,[5] indicated further production specialisation and intensification, driven by interaction spill-overs and economies of scale generated by the construction of a potter's quarter in the eastern part of town. Specialisation of artisanal production increased in the early Byzantine period, mirrored by diversification and specialisation in subsistence strategies throughout the territory of Sagalassos.[6] Some works that are currently in progress have shown that this prolonged intensification of production and subsistence processes, starting already in early Hellenistic times, coincided with a marked increase of human impact onto the surrounding territory of Sagalassos.

The 7th century AD can be considered as a schism in the history of Sagalassos. In this century, Sagalassos acquired a distinctively less urban character, an earthquake destroyed most of the public infrastructure and Arabs started to raid the Anatolian inland. At this point, the process of specialisation and production intensification came to an

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end, as Sagalassos de-agglomerated into a series of hamlets surrounding a *kastron.*[7] This fortified centre retained certain political, military and religious functions, but the extent of its territorial reach remains uncertain. As Sagalassos, according to middle Byzantine sources, is the closest bishopric and/or *kastron* within the region coinciding with the previous Roman imperial territory, it is safe to assume that it at least could still rely on its primary catchment area. This development can again be traced in material culture as local production of pottery ceased and was replaced almost exclusively by imported ceramics.

It can be suggested that the prolonged specialisation and intensification of production processes and subsistence strategies from early Hellenistic to early Byzantine times was made possible by the urban pull generated by Sagalassos, operating as an important system hub within the wider (micro)region. These urban pull dynamics allowed human impact on the landscape to be offset against energy and resources derived from the wider area. Once this urban pull ceased in the 7th century AD, and Sagalassos returned to a social organisation characterised by a village economy, the human impact of the settlement returned to the levels prior to the first urbanisation phase. This suggests that on the long term, a village organisation can be considered a 'natural' level of social organisation that is most ideally adapted to circumstances within the local environment. The urban phase of Sagalassos can then be considered an 'exceptional' phase within this long term perspective, made possible by the establishment of a regional system which redirected political, economic and social flows of energy and resources from a wider environment onto this system hub.

## Notes

[1] Bettencourt et al. 2007.

[2] Daems – Poblome 2017.

[3] Poblome – Taloen 2016.

[4] Daems – Poblome 2016.

[5] Poblome 1999.

[6] Kaptijn et al. 2013.

[7] Poblome et al. 2017.

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# Pergamon: Patterns of Diversification in the Pottery Production of Pergamon and its Microregion*

**Philip Bes – Anneke Keweloh-Kaletta**

**Abstract**

This abstract highlights the production of red slip tablewares in Roman-period Pitane (modern Çandarlı), located some 30 kilometres from Pergamon as the crow flies. Two aspects are emphasised: first, questions and observations from which the evidence for pottery production, specifically slipped tablewares, in the region may be approached. Second, these are compared both to current knowledge of production sites within the Pergamon region, and data obtained through recent archaeometrical analyses.

Pitane is known for the production of red slip tablewares during ca. the first three centuries AD since Loeschke's excavation in 1911.[1] Thus, Pitane became the first archaeologically attested production site of Roman-period red slip tablewares in the eastern Mediterranean. Çandarlı Ware[2] was long regarded as a distinct product that dominated the Aegean market especially during the second and third centuries AD. Progressing research prompted a re-evaluation: Çandarlı ware is not necessarily always and everywhere distinguishable from products manufactured in Pergamon itself and within the Pergamon region proper,[3] which leads to the question of nomenclature. Because of observations within the last years as well as archaeometrical analyses, researchers in Pergamon now favour the umbrella term Eastern Sigillata C, echoing Kenyon's opinion.[4] This also reflects a broader development. At least as far as the major manufacturers of red slip tablewares are concerned, a model of regional production is emerging: a number of nucleated workshops within a relatively limited geographical zone that manufactured similar products, and which in certain respects dominated the production and distribution infrastructure.[5] The original meaning and content of a term as 'Eastern Sigillata X' are thus being renewed with new knowledge. The use of Eastern Sigillata C and Late Roman C for red slip tablewares produced within the Pergamon region therefore seems almost obvious.

This brings us to regional production organisation and the morphological repertoire shared between two or more distinct workshops. The study of red slip tablewares is moving away from what for long were considered (relatively) well defined classes that originated from a particular site or region. This framework has grown fluid with the identification of new classes across the former Roman Empire, in some cases even the very places of production.[6] What these regionally grouped production centres from our perspective have in common, is a (partly) shared morphological repertoire, yet each with distinct features (morphologically, decoratively). Naturally this reflects our perception: we observe (or create) similarities between products from workshops A and B.

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These observations nevertheless imply a set of ideas and knowledge that was shared. One aspect how this might have worked is that the inspiration was (partly) provided by those behind setting up a workshop in the first place.[7] Yet the role of the individual potter should not be downplayed: each brought along a unique set of motoric and mental skills, a dimension echoed in a mid-3rd century AD contract from Oxyrhynchos (P. Oxy. LVIII, 3942).[8] Elements of this contract – e.g. the contract's limited duration – potentially suggest a scenario of itinerant potters, which in turn opens up the possibility of thinking why different workshops produced a (partly) similar repertoire. The final point concerns the role, hierarchy and output of workshops within the model of regional production. Did one workshop led the way, providing inspiration to others? This seems to apply on a general level: Eastern Sigillata A travelled to Italy as a product and as a concept, where it was absorbed and transformed, and in turn offered inspiration to existing workshops, or prompted the emergence of new ones.[9] Distributional evidence – geographic, diachronic, quantitative – implies that manufacturers of various sizes existed. The Late Roman C workshops at Phokaia, for example, catered for the lion's share of production and distribution, whilst Gryneion and Pitane likely catered for more regionalised markets.[10]

A closer look is required at the current knowledge of both larger and smaller production sites within the Pergamon region. The potters' quarter excavated in the Ketios Valley is surrounded by confusion concerning its period of activity, and its morphological output.[11] One contribution,[12] which considers Pitane as an export-focused offshoot, fails to consider the interaction between different production sites. Both sites were contemporaneous and shared a morphological repertoire, with a hybridisation of Hellenistic 'Pergamene' features and adopted 'Roman' features.[13] Due to the publication status of the Ketios Valley and the lack of kiln sites in Pitane, a comparison of the internal workshop organisation is not possible. Also, the fabric of both is macroscopically undistinguishable, which points to (a) similar clay source(s) and/or clay preparation, only to be differentiated through analyses: "Evidently Pergamene potters did not only use the same clay sources throughout time, but also relatively identical mixtures regarding temper. Clay recipes seems to be used from generation to generation of potters"[14]. Small(er)-scale producers are probably represented by a kiln excavated in 1913,[15] and one excavated in the 'potter's villa' at Niyazi Tepe.[16] Both are Hellenistic in date. Recent surveys and archaeometrical analyses produced evidence (wasters, slag) for production in Elaia from late Hellenistic times onwards.[17] Also, production of 'Çandarlı-like' pottery has been attested at Gryneion. This survey also produced evidence for Late Roman C production in Phokaia as well as in Myrina, Elaia, Gryneion, Kyme and Çandarlı.[18] Archaeometrical analyses of Late Roman C from across the Mediterranean all fit the Phokaia group, whereas Late Roman C produced in Gryneion has only been attested in Ephesos and Priene.[19] Once again this supports a model in which one producer catered for a larger market, whilst various smaller-scale producers supplied local markets. As Late Roman C manufactured at Pitane has not been attested

outside the Pergamon region, it can be concluded – with some reservation – that Late Roman Pitane evolved into a smaller-scale producer, whereas Phokaia led the production and distribution of Late Roman C. This may indicate diachronic shifts in the workings and fortunes of larger- and smaller-scale regional production centres.

From the above, the following questions emerge that hopefully we will be able to investigate in the near future to understand Pitane's role within this regional framework: How was the supply of the necessary raw materials (i.e. mostly clay, water and fuel) organised, and what impact did this have on the landscape? What was the morphological repertoire made in each of these workshops, and to what extent did it relate to neighbouring workshops? Which was Pitane's contribution to the market for red slip tablewares both during the principate as well as during late antiquity?

## Notes

* This extended abstract was written and submitted in 2018. In 2019–2021 three fieldwork campaigns have taken place at Çandarlı within the scope of the TransPergMikro Project (funded by the DFG): an intensive field survey in 2019–2020, and all collected artefacts that relate to local pottery manufacture were studied in 2021. The results are currently being prepared for final publication.

[1] Loeschke 1912. – Hereto recently: Domżalski 2014.

[2] Hayes 1972, 316–322; Hayes 1985, 71–78.

[3] Japp 2009; Japp – Mommsen 2009; Japp – Schneider 2009; Japp 2013.

[4] Engels et al. 2012; Crowfoot et al. 1957, 281–284.

[5] The recent example of Late Roman D is a case in point: Poblome – Firat 2011.

[6] e.g. Sagalassos: Poblome 1999.

[7] Poblome – Brulet 2005.

[8] Cockle 1981.

[9] Wallace-Hadrill 2008, 416–421.

[10] Empereur – Picon 1986; Mayet – Picon 1986.

[11] According to Erdemgil (Erdemgil 1980; Erdemgil – Ozenir 1982) production took place from the 3rd century BC till the 4th century AD and partially till the 6th century AD. Bounegru (Bounegru 2003) on the contrary postulates two phases of production and places the first phase between the mid-3rd and the end of the 1st century BC, and the second phase, after an interruption during which the area was used as a necropolis, between the 4th and the 1st half of the 6th century AD. This phasing does not suit the published chronological distribution of diagnostic and datable Eastern Sigillata C fragments published by Poblome, Erdemgil and Bounegru in 2001 (Poblome et al. 2001). According to this study, sigillata production in the Ketios Valley took place between 150 BC and 150 AD with a peak between 50 BC and 75 AD.

[12] Poblome et al. 2001.

[13] Japp 2013, 171; Engels et al. 2015.

[14] Japp 2013, 167.

[15] Hepding 1952; Schäfer 1968, 26 f.

[16] Karagöz et al. 1986, 106–108.

[17] Pirson et al. 2015, 38.

[18] The presence of Late Roman C in Çandarlı has been proven once again within the "Kane Regional Harbour Survey" in 2015 (Laufer 2016, 182–184).

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# Sagalassos: The Ancient Economy in Dialogue with Social-ecological Systems: *à quoi ça sert?**

**Jeroen Poblome**

Classical Archaeology has a rich history in urban studies. Ancient historians like this theme too. One or other has to do with the recent past, in which modern European state formation was in need for a socio-political rationale and a cultural soul. The ruling/intellectual elites looked towards the classical past for exalted trajectories, combining the classical Greek 'democratic' urban past with the 'orderly' Roman approach with cities sustaining the message of empire as exemplary inspiration. More or less hand in hand the discipline of archaeology was asserting itself, with the study of the Graeco-Roman past dominating the early agenda of the discipline. Many large-scale excavations in famous ancient towns were launched.

In the meantime, archaeology has gone global, luckily, and so did the European nations. The domain of classical archaeology has lost its dominance and also its innocence, in the sense that it too needed to develop its conceptual agenda. The latter has worked quite well as far as social and cultural themes and topics are concerned. The economic framework, in which ancient cities were situated, has fared not so well. Although many aspects of ancient towns are very revealing on aspects of economic practices, the debate has crystallised on idealised concepts and modes of production/consumption. Implicit links between evolution and progress are noticeable as is the implicit acceptance of the not very deeply considered principles of the neo-classical/liberal economy. The alternative are studies which remain descriptive and processual. In general, such research, especially in an ancient urban context, focuses mostly on the issue of allocation of wealth – one of the two overarching questions in economics – and follows the central paradigm of the discipline of economics, considering the economy as an equilibrium system, moving from equilibrium point to equilibrium point over time, propelled along by shocks from technology, politics, changes in consumer tastes and other, mostly so-called external factors. Following the dominant neo-classical line(s) of thought, rational self-interest operated in competitive markets driving the economy to its optimal point, with authorities protecting the equilibrium. Although this paradigm brought about very influential ideas in economic analysis, basically the theory should be characterised as idealised, untested by data and often observably not in congruence with what is happening in the real world. From an archaeological point of view, these views are also a-historical, with a poor understanding on the 'natural' state of pre-money economies, for instance.

The second overarching question in economics is related to the issue of wealth creation. Not only is wealth creation a process, which can be followed in time, creating intrinsic historical research potential, but it is also associated with a logic of growth.

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Conceptually, this theme is less dependent on conditions of equilibrium. On the contrary, wealth creation and growth imply system change and dynamism, differentiation, selection and amplification, innovation, trial and error, new designs and problem-solving capacities.

Building on the strengths of its interdisciplinary track record, the Sagalassos Archaeological Research Project of the University of Leuven is advocating for wider consideration of the conceptual agenda of social-ecological systems in order to (re-)open debates on the role of towns in past economic constellations. Mainly the conceptualisation of social metabolism, mapping the entire flow of materials and processes required to sustain human activities, should help to place the role of energy more central in our discussions. Preliminary results indicate that the phenomenon of urbanism in Roman imperial Asia Minor is path dependent on evolutions in Hellenistic times, and that in both periods it remains a simple fact that the majority of the population was and remained rural, not urban. In general, the goal of the rural population was to optimise the net primary productivity of the system as a whole, rather than the commercialisation of a given crop. Ancient agrarian regimes could experience growth, induced by productive specialisation, urbanisation and colonisation of new territory, but ancient agrarian growth was discontinuous as in not reaching metabolic change and not necessarily resulting in growth of income per head. Against this background, a case can be made for aggregate and per capita growth in urban Roman imperial Sagalassos (SW Turkey). Energy availability in the contemporary social-ecological system was limited, however, and data modelling made clear that energy needs were exponentially higher in domestic contexts, compared to the combined energy costs of facilities such as bath buildings and banausic occupations. Recent work on agricultural carrying capacities in the study region of Sagalassos pointed to the functioning of a similar structural brake on societal and economic development in the region.

These observations go a long way to explaining why the urban phenomenon is there in ancient Pisidia, how it functioned, but that its attestation was quite limited in time considered from a truly long-term perspective and basically limited in its potential for wealth creation and growth. So, although the Pisidian landscapes are rich in mineral and natural resources, the flows of energy represent limits on the generation of wealth in the long-term. The wider region of ancient Sagalassos, in more ways than one, is partialised by the mountainous landscape and represents a locked potential for growth and wealth generation. Although this sounds negative, it also implies that the structural nature of this condition can at times function as an element of resilience, for instance in late antiquity, when scaling back from a market-dependent system of Roman imperial times provided an alternative development basis by converting to patterns mostly dependent on local and regional exchange.

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# The Necropolis as a Reflection of the City? The Economy of Death and Burial in Ephesos

**Martin Steskal**

This paper discussed the economy of death and burial in Ephesos from a diachronic perspective. The core questions were: Is the economic power of the city of the living reflected in the city of the dead? Are there direct correlations or is the picture that we obtain filtered or idealized? This talk also addressed the economic factor death with regard to the activity of building firms and developers on burial land: What kind of businesses were conducted and run in the area of the dead and how could the city profit? Finally, it was discussed how the ownership and passing on of burial places was organized.

Three aspects turned out to be of particular importance: the financing of mortuary practice and cult, the grave as real estate and income opportunities in the funerary system. Addressing these topics we talked about people that left their traces. And even though material culture and written sources are not restricted to a specific group, it showed again that we know only very little about the lower social strata.

Concerning the organization of mortuary practice and cult specific uncertainties needed to be considered, like no descendants, financial difficulties or the lack of interest of the descendants. These uncertainties could be counteracted in different ways: One could order in his will that the manumission of slaves would oblige them to show up at the burial place for offerings on a regular basis. One could offer rewards like food, oil or wine in order to have a minimum of public at one's grave. Those who could afford it left in their will capital sums of money or property, the interest from which was to be expended on the offerings at the tomb like flowers, incense and wine or ceremonial meals. The beneficiaries of such donations were frequently clubs or associations (so called *collegia*) who were supposed to be more reliable and more durable than single persons. The system of these foundations functioned smoothly in a positive economic environment that got increasingly worse starting with the 3rd century AD. With the loss of confidence in the value retention of the money in the foundation, such investments were no longer attractive.

The grave or plots of burial land turned out to be a regular trading good following market principles. Whoever was in search of a burial place had a couple of options: If he or she already owned an appropriate property or was member of a club or an association, it was a rather easy task. The clubhouses were designed to sell parts of the burial places. So they were not only attractive to the members of these clubs but also for people from outside. If this was not the preferred option, one needed to acquire a piece of land. It was probably cheaper, however, to buy into an already existing burial structure that was available on the free market. There are several indications that in the course of the selling process estate agents were active. A uniform architectural layout of tombs in the Roman imperial era that can be found in many places in Asia Minor and

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also in Ephesos with walls that were constructed in a single bond like row or terraced houses indicate that building firms or developers were operating in the necropoleis. They built burial houses on a large scale and then sold them.

Income opportunities in the funerary system were manifold. Particularly the businesses of the entrepreneur firms were proverbial and a stereotype for a huge and fast profit. They ran their business with a concession that they purchased by auction with the big advantage that once you had this concession you had a monopoly position in your municipality. What were the actual income opportunities: First selective major events and second continuous and rather stable income through a high number of regular funerals. In both cases the entrepreneur carefully arranged the organization of elaborate processions. The income opportunities were good, however, also the expenses should not be underrated, particularly the material and labor costs. Therefore, the entrepreneur needed a very efficient and inexpensive apparatus of human services, mostly slaves. The entrepreneur firms disappear in the 3rd century AD as the number of slaves available got lower and lower. This goes again hand in hand with an increasingly worse economic environment starting from the 3rd century AD and a new tendency to perform more modest funerals in the early Christian communities.

So, there are a couple of aspects that show a certain economization of death. In this respect the necropolis is a reflection of the city. There was money to be made and money to be spent. For certain periods it was a rather stable industry giving income to a variety of professions: the ones I mentioned and a lot that were not the topic of this talk like stonemasons, flower sellers, professional mourners, musicians, funeral orators, the big business of the provision of sacrificial animals, and so on. The mere quantity of legal regulations concerning the topic of funerals shows how important this topic was in the real life of Roman society. Without doubt there are many aspects in the Roman funerary system that our present system is referring to.

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# Pergamon: Layers of Interrelation between Economy and Urban Physiognomy (Extended abstract for publication)

**Ulrich Mania – Felix Pirson**

The excavations at Pergamon in western Anatolia have been among the flagship-projects of German Classical Archaeology abroad for 140 years. Together with 'Bauforschung', epigraphy, and – more recently – a broad spectrum of sciences and geosciences, many aspects of ancient urban culture particularly of the Hellenistic and the Roman period have been studied in detail. Therefore, Pergamon offers a very promising data-set for current approaches to the ancient city. Among these approaches, the analysis and interpretation of specific urban physiognomies is still an emerging field. From an archaeological perspective, various elements of urban life such as topography and the natural environment, built spaces, objects and images as well as performative processes have to be taken into account. Furthermore, the physiognomies shall not be misunderstood as static labels, which cities once received and perpetuated in an unchanged manner. Similar to urban identities – to which the physiognomies contributed – they are dynamic settings, which underwent transformations over time and need to be analysed diachronically. In this respect, Pergamon offers the rare chance of sufficiently preserved urban fabric both from the Hellenistic and the Roman period.

Which factors contributed to ancient urban physiognomies? In a great number of studies, which have been published in the field of 'Stadtforschung' (urban studies) since the 1970ies, the interpretations of architectural spaces and images are generally on a socio-political, ideological, religious or aesthetic level. The recognition and inclusion of the economy as an essential factor for the development of urban physiognomies is therefore still underdeveloped. The same goes for ecology in the sense of complex human-environment interactions, which played a major role in the formation, use and reception of cities as elements of microregions.

In order to meet theses desiderata, an intensified incorporation of economy and ecology in the analysis and interpretation of ancient urban contexts is needed.

It is the aim of this abstract to highlight some aspects of future research at Pergamon focusing on layers of interrelation between economy and urban physiognomy. In this context the number of potential consumers, producers and workforce on the one hand and of inhabitants of urban spaces on the other is crucial. Therefore the better understanding of the Pergamon's demography and its transformation between the Hellenistic period and the Roman imperial age forms a major aim. Settlement archaeology can provide new clues for the extension of the Roman settlement and – at least partly – for its structure, which is the basis for new estimates of population numbers. The same is valid for a more detailed knowledge of the settlement structure and its density within the microregion. Palaeoanthropological research at Pergamon and in the microregion

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promises new insides in the dynamic development of the population and factors such as migration, which were potentially relevant in this context.

While several survey projects between 2006 and 2017 in the western upper Kaikos-valley and the Kane-Peninsula yielded important new information, a convincing diachronic reconstruction of the settlement structure of the entire microregion in relation to the use of resources still needs more archaeological and geographical survey data, which have to be interpreted in the framework of a joint approach. This remains a major desideratum.

The relation between urban physiognomies and the economy goes beyond an estimation of wealth that could be invested in public and private architecture, images or performative processes. Production, trade and consumption themselves contributed in the form of built spaces, objects and actors to the urban appearance and atmospheres. However, a systematic analysis and interpretation of economic spaces and topography of Pergamon is still missing, although the necessary data is fully accessible. Such an approach could be combined and confronted with the economic topographies of neighbouring cities such as Elaia or Pitane, which had specific functions for production and distribution within the micro-region.

A particularly promising field for future studies on the mutual relations between urban physiognomy and economy is the building industry and its transformation between the Hellenistic period and the Roman imperial age. In both periods the city saw large building programmes. In this context, the manifold relations between the resources of the microregion and the construction activities shall be studied. A central question is how the ecology of the micro-region was influenced by the doubling of Pergamon in its size from the late 1st century AD onwards and an accompanying building programme of imperial dimension.

A methodological framework is needed, which allows the interpretations of very different data sets ranging from visual, spatial and technological analysis of objects and images to scientific approaches towards landscapes and resources. The study of architecture and urban design has to be related to approaches towards material culture and landscapes presented by Phillip Bes and Anneke Keweloh-Kalotta or Daniel Knitter and Bernhard Ludwig in the AIAC Panel 8.11.

In this context, the concept of social ecology offers an effective tool for investigating the dynamic relationships between society and nature, which are described as material and energetic exchange. In order to include more traditional research on ‘Stadtkultur’ in a systematic manner, it needs specific further development. On such a methodological basis, a broad spectrum of potential research topics on the interaction of societies with their natural environment emerges. This interaction can be studied on a socio-political, an economic, symbolic-religious or aesthetic level, which represents a particular interdisciplinary challenge.

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# Central Places and Un-Central Landscapes: Political Economies and Natural Resources in the Longue Durée

**Panel 8.13**

**Organized by**

**Giorgos Papantoniou – Athanasios Vionis**

# Central Place Theory Reloaded and Revised: Landscape Archaeology and Political Economy

**Athanasios K. Vionis – Giorgos Papantoniou**

This paper rethinks Central Place Theory and re-evaluates it in light of contemporary developments in settlement archaeology, methods and archaeological thought by bringing together 'central places' and 'un-central landscapes'. It focuses diachronically upon the complex relation between town and country, as shaped by political economies and the availability of natural resources.

Micro-environments with natural boundaries (e.g. rivers, mountains, woods) and desirable resources (e.g. water, arable land, minerals) sustained nucleated communities and remained occupied for almost every period. On the other hand, 'central persons' may be as important as 'central places' and this is where the concept of political economy evolves. As T. Earle has eloquently argued on several occasions, all economic theories should recognise that, to whatever degree realised, power strategies were built on economic and ideological control over resources.

Landscape archaeology is an area of study that overcomes the conventional boundaries between disciplines such as anthropology, history and geography. It provides a fresh perspective and a powerful investigative tool to address research questions related to the conscious and the unconscious shaping of the land and the processes of organising space, involving interaction between the physical environment and human presence. Temporality, spatiality, materiality and site-based analysis are all encompassed in the concept of landscapes, and therefore through its study much can be said about human responses to the changing conditions of life in the longue durée.

This panel welcomed paper proposals addressing 'central places' and/or 'un-central landscapes' from a political economy or/and a natural resources perspective. Moving away from model-bounded approaches, Central Place Theory was used more flexibly to include all the places that may have functioned as places of economic or ideological centrality (even in a local context) in the past, including urban centres, agro-towns, countryside settlements, as well as burial and ritual *topoi.* The diversity of the different disciplinary perspectives and approaches, combined with dialogues, enriches our task of multiple interpretations, and should be seen as a healthy pluralism.

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# Shifting Centres: Site Location and Resource Procurement on the North Coast of Cyprus over the Longue Durée of the Prehistoric Bronze Age

**Jennifer M. Webb**

This paper[1] examines the relationship between site location, resource procurement and political economy in the context of three localised centres of settlement – at Vasilia, Vounous and Lapithos. These centres succeeded each other in the narrow, naturally bounded north coastal strip of Cyprus during the approximately 750 years of the Early and Middle Bronze Age (ca. 2450–1700 BCE). Space enters into economic relationships through the usually uneven distribution of natural resources and the distance separating economic activities;[2] both are critical to understanding the north coast of Cyprus.

Cyprus is home to abundant copper sulphide ores and was linked into the international metals trade in the first phase of the Early Bronze Age and again in the Middle Bronze Age. In both cases, this was conducted largely, if not exclusively, via outlets on the north coast, which lie close to the south coast of Anatolia and contemporary shipping lanes. However, the coast is ca. 35 to 40 km distant from the nearest ore bodies in the foothills of the Troodos Mountains. In order to overcome internal distance deterrents and thus to exploit geostrategic advantages for external trade, sites on the north coast used the following mechanisms: a favourable natural environment (rainfall, soils, harbours), technological advantage, and probably coercion (physical and ideological). In addition, they were able to achieve high levels of centrality within communication and transport networks with fluctuating levels of integration and hierarchy.

In an extremely hierarchical network, a handful of nodes will have far higher levels of centrality than other nodes, resulting in high centralisation indices. This was probably the case during the earliest phase of the Early Bronze Age in Cyprus, when fine ware pottery was distributed from one or several northern production centres and high material culture similarity indices are visible across much of the island. The loss of an external market in ca. 2200 BCE led to the demise of this network and the emergence of Vounous as a singular settlement with a highly idiosyncratic material culture, few traces of which are evident elsewhere even within its micro-region.

In the Middle Bronze Age, the re-engagement of the north coast in external trade led to the re-establishment of a political economy, this time at Lapithos. This centre also depended on a secure supply of local copper, but now within a significantly smaller procurement network, largely confined to the northern Troodos and Central Lowlands. While this network appears to have been less hierarchical, some nodes had higher levels of centrality than others and Lapithos was able to establish economic, cultural and ideological pre-eminence. This pre-eminence, however, must always have been fragile. If the law of decreasing interaction with distance applies to all forms of communication, connectivity mechanisms would always have been critical. These may have been enhanced

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by 'intervening opportunities' (Stouffer 1940) offered by nodal points, like Deneia and Ayia Paraskevi, as well as a high degree of mobility, autonomy and collaboration, possibly underpinned by the coercive monitoring of key routes.

Given the (dis)location of ore deposits, agricultural soils, population centres and natural harbours in Cyprus, the spatial (distance) dimension involved in off-island commodity flows was always critical. If Lapithos received copper from extraction points in the northeast and northwest Troodos as well as through maritime trade (along with tin and precious metals), such a convergence of supply qualifies it as a central node within a complex communication and transport network, and likely as a centre of metal production and distribution. The large number of weapons found in tombs at Lapithos further suggests a community conscious of its economically privileged position and the need to defend it. In addition to the geostrategic importance of the north coast, communities here could have developed a strong comparative advantage over the longue durée in seafaring, metallurgy, organisational expertise, and possibly also in military prowess.

The ultimate demise of this evolutionary trajectory at the close of the Middle Bronze Age appears to reflect shifts in market demand in the wider eastern Mediterranean, emphasising the critical importance of off-island and inter-regional connectivity to the economic success of these settlements. The emergence of new markets better served by settlements on the east and south coasts in ca. 1700 BCE ultimately led to the rise of complex urban polities at Enkomi and elsewhere in the Late Bronze Age. This phenomenon, however, is best understood as a relocation and reorganisation of systems and structures (coastal outlet, specialised production, distance procurement network), together with accumulated social and institutional knowledge, which existed on the north coast in the Middle Bronze Age and likely already in the Early Bronze Age.

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[1] Published in Webb 2019.

[2] Beckman 1999, 1.

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# Central Places and Liminal Landscape in the Territory of Populonia

**Giorgia Maria Francesca Di Paola**

This paper[1] aims to outline some of the most important phases of Populonia's urban development starting from its foundation,[2] with particular reference to the results of archaeological surveys carried out by the University of Siena since the 1980s. My new data on the urbanization of Populonia are one of the most significant results of my PhD research project, which focused on the development of Populonia's frontier and territory with respect to the neighboring Etruscan centers of Volterra to the north, and Vetulonia and Roselle to the south.[3] To pursue this goal, I reconstructed both the organization of the settlements and the management system of resources applied by Populonia over the longue durée, moving from the late Bronze – early Iron Age to the Hellenistic period. In this paper, I concentrate on the period between the 6th century BCE to the 3rd century BCE, before Populonia was incorporated into the Roman Empire. The approach of landscape archaeology has allowed us to reconstruct the Etruscan city's organization of settlements as well as its management of resources. In addition, this investigative tool has proven the most effective method to detect places of economic or ideological centrality and specific liminal landscapes in the territory of Populonia. Despite several anomalies in the urban development process and unconventional choices in the control of Populonia's territory,[4] our research leads us to suggest that the Etruscan city's acropolis seems to have played the role of central place starting right from the establishment of the city. A hierarchical settlement system, based on a network of sites and the foundation of new population centers, was promoted starting from the end of the 9th–the beginning of the 8th century BCE. Once the city ended its development process, especially in the Hellenistic period, policies such as the hierarchical settlement system in the *chora* and supply basin exploitation were mainly implemented through the foundation of hilltop fortresses both on the mainland and on the Island of Elba.[5] The central place was again concentrated on Populonia's acropolis, which, endowed with an upper wall,[6] became the main focus of the fortified settlements and the stronghold of the defense against Roman imperialism. Within some of the new results coming from my PhD research we have to consider the feature of the hilltop's fortress system[7] and the detection of a "liminal landscape"[8] in the northeastern stretch of the territory between Populonia and Volterra. This particular part of the landscape was a sacred district[9] with a strong peripheral character and possibly had close connections to the central place thanks to the significant availability of natural resources.

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## Notes

[1] For a full version of this paper, see Di Paola 2018, 1–16.

[2] Bartoloni 1991, 1–37; Acconcia et al. 2004–2005, 57–87.

[3] Di Paola 2015.

[4] Milletti 2015, 59–96.

[5] Cambi et al. 2015, 73–91.

[6] Mascione – Salerno 2013, 411–427.

[7] Cambi – Di Paola 2013, 190–209.

[8] Holm et al. 2009, 5–9.

[9] Esposito 2005, 224–232; Manacorda 2008, 305–328; Di Paola – Vanni 2016, 93–104.

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# Royal Foundations and the Economy of Hellenistic Asia Minor (3rd–2nd centuries BCE). The Case of Alexandria Troas

**Kyriakos Kyrousis**

The foundation of new communities throughout the Near East during the 3rd and 2nd centuries BCE by royal initiative is one of the most remarkable policies distinguishing the Hellenistic kingdoms from their predecessors. Most notably, it seems that *synoicism* – the practice of conglomerating smaller communities into larger urban centres – had served as one of the chief methods of facing Athenian and Spartan imperialism in the past. However, in this arising system of competing kingdoms, new *poleis* formed the backbone of the kingdoms' development.[1] In this light, research on the subject has emphasised the political and military importance of the phenomenon and approaches are needed to open up other sides and effects of these urbanisation projects, such as the economic aspect.

In this direction, this paper is an effort to gain some insight into the economic impact of royal foundations and aims to present the progress of my research on the following question: how did new settlements in Asia Minor influence the cross-regional trade networks through which people travelled and conducted trade?

Naturally, because evidence is very unevenly distributed both in terms of chronology and geography, the core of my approach is constituted of case studies. Here I present the case of Alexandria Troas, a *polis* founded by Antigonos Monophthalmos on the western coast of the Troad between 314 and 306 BCE, through the *synoicism* of four cities: Neandria, Kolonai, Skepsis, and Kebren. This new foundation had advantages that that no other *polis* in the region had: the *polis* was protected by imposing fortifications that made it the second greatest urban enclosure in Asia Minor after Ephesos, and it boasted a population of possibly 35,000 inhabitants by the 2nd century BCE. It possessed a large territory with good agricultural prospects for the cultivation of cereals, vines and olive trees, as well as some tradition in pastoralism. Moreover, it had access to the saltpans of Tragasai (after 188 BCE) and possibly to the granite quarries of the Çigri Dag. Finally, Alexandria Troas had a large port that was created presumably at the very beginnings of the city, though only Augustan remains could be found during the excavations, indicating a full reconstruction of the port.[2]

The factor that lead to the commercial centrality of this *polis* is the port's geographical position in relation to the special climatological conditions of the region of the Dardanelles. These are created by the intense northwest/northeast winds and the parallel currents that made the navigation of the Hellespont impossible for the ships of the period during the seafaring season. Thus, like the *demos* of Tenedos according to Aristotle, a great part of the *demos* of Alexandria Troas would be employed in the *πορθμικόν*, the business of ferrying merchants beyond the Dardanelles when the weather allowed

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it. So the *polis* would eventually become the main stop for all vessels and merchants that wanted to pass into the Black Sea and would provide services such as storage, accommodation, repairs or even transport by land if the winds would not subside. In this capacity, Alexandria would also serve as a ferrying point from Asia Minor to Europe and back.[3]

The evidence that points to this outcome is manifold: first, the city absorbed sooner or later all its regional competitors in this business. This included Larisa and Hamaxitos, two coastal cities of the Troad towards the south (around 188 BCE), and even Tenedos itself during the Augustan period. Secondly, numismatics bare evidence of how the city in the earliest stage of its existence adopted the Persian standard for their silver coinage in order to facilitate exchange in its markets by merchants and actors from both the Propontis, Asia Minor, and the region around it. This particular weight standard was popular after 350 BCE.[4] This coinage was combined with copious amounts of bronze coinage, which shows the flourishing activity in the city's market place. The city's bronze coinage mainly circulated in the Troad, but a few finds are known from excavations and hoards abroad, such as at Thasos, Maroneia, Smyrna and Pergamon. This evidence also hints at merchants and other travellers constantly passing through the city and keeping change so they can use it in another visit. Thirdly, the extensive silver coinage cut in the name of Antiochos Hierax by Alexandria Troas, indicate the city's use as one of the main logistic centres of the prince's realm. Lastly, the vast wealth and widespread connections of the elite citizens, which are evident in the epigraphic record, can be definitely seen as connected to the position of Alexandria as the dominant way station on the commerce route to and from the Propontis and the Black Sea.

Neandria and Kolonai were two very modest *poleis* and depended on the commercial networks of Mytilene and Tenedos during the archaic and classical period. However, their union gave birth to a wealthy commercial power that equalled and surpassed its competitors.

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[1] Boehm 2018, 15–18.

[2] Feuser 2009.

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# "Un-Central" arid Landscapes of NE-Africa and W-Asia – Landscape Archaeology as a Tool for Economic History

**Anna-Katharina Rieger**

Arid regions of the Old World Dry Belt are normally seen as marginal and of little interest in ecological, economic, and societal regards. Archaeology, but also geography and sociology, are disciplines perpetuating such views, based on 'derivates' of Central Place Theory.[1] Since this influential theory was developed on the evidence of Medieval city-based economies in central Europe, its application to other times and regions has inhibited the development of socio-economic research with data-based and non-biased approaches that acknowledge specific historical and local conditions.[2]

In the archaeology of arid regions, which in general are and were not densely populated, the focus on central places is on the one hand methodologically the easiest due to little quantities of material culture, and the difficulties of finding the scattered evidence. On the other hand this focus extremely limits our understanding of such areas and their role in larger (economic) networks.

The paper presents a comparative interpretation of two datasets from different arid regions in the eastern Mediterranean in Greco-Roman times through the lens of "central places and un-central landscapes". The case study of the eastern Marmarica (NW-Egypt) is based on landscape-archaeological survey and excavation data taken from analyses of life-strategies and economic potentials in the region.[3] The example of Hauran (southern Syria, northern Jordan) reviews published data from the perspective of religious institutions and their relation to the landscape and resources.[4] Approaches from landscape archaeology and social network analysis, combined with the "small world phenomenon",[5] help overcome a dichotomous view on cores and "their" areas, and understand settlement patterns and economic practices in a nuanced way.

In both regions the scarce and highly variable resource of water determines life strategies and social organization throughout history. Starting from observations on the water management and water availability, the case studies demonstrate how a shift in perspective away from looking for centers, but for areas and interrelations improves or even changes our understanding of people's socio-economic and socio-cultural strategies. In Hauran the high number of settlements of various sizes (1st to 5th century CE) seems to call for central places and small satellite-like villages. However, the analysis of the complex interrelations through a network of natural and artificial "lines of water" (wadis, channels, deviations, aqueducts) reveals that there is not a hierarchical organization at work, but a highly heterarchical one according to the resource distribution. Interdependencies between the settlements and their socio-religious framing become much clearer if we follow the area-wide water network and do not put individual places in the foreground.

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In the Marmarica, focus laid on agro-economic potentials through water harvesting methods and on the interrelations between catchment areas of numerous parallel wadis, the settlements, the pottery production sites, and the route network. Together, these offered insights into the surplus economy of the arid environment (2nd century BCE to 5th century CE). Beside the climatic conditions, morphology and topography influence the spatial distribution of settlements, their economic potential, and the interrelations. Unlike one would expect, people lower down the course of the intermittend rivers depended on those further up the course, but also vice versa. Flood prevention is the clue for a mutual dependency.

We cannot deny the existence of central places, such as Paraitonion in the Marmarica, or Bostra in the Hauran. However, the search for qualitatively and spatially defined relationships between settlements, as well as the analysis of the resource management in two arid regions in Greco-Roman times shed light on their socio-economic organization. To take this "un-central" perspective on arid landscapes allows us to overcome the hierarchical dichotomy of central places, embedded in a hinterland, that dominates our historical narratives. Supported by methodologies of landscape archaeology and social network theories, this "un-central viewpoint" reveals the complex economic and social history of marginal, "un-central" regions. As such, it indicates sensitive regions for long-term changes in the Mediterranean.

## Notes

[1] Christaller 1933.

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# Timacum Minus in Moesia Superior – Centrality and Urbanism at a Roman Mining Settlement

**Lina Diers**

When Walter Christaller first introduced his 'central place theory', he stated that centrality patterns were logical and organic and, thus, immanent to principles of settlement development. Accordingly, a central place for Christaller was a town. He even went as far as stating that the main 'profession' of a town was merely to be central to its environment.[1] Since the 1930s, however, common consensus has shifted to believe that central place theory is not as static as suggested and does not solely relate to urban settlements.[2] Yet, to build critically on these ideas derived from central place theory, interpretations need to be able to differentiate urban from non-urban sites. In Roman archaeology, however, the outline of urban criteria is no easy task. Problematically, the Roman town has not only been viewed as a manifestation of Roman imperialism and the implementation of power and political strategies in the provinces, it has also been perceived as both the primordial and constant of Roman culture. Throughout the Roman Empire a Roman town has been identified as such if it was officially installed as a manifestation of Roman ideological and imperial power in the provinces and resembled Rome in terms of its architectural markers, which conveyed the meaning of this manifestation.[3] Although the debate of the past two decades has long acknowledged that Empire-wide patterns of idealistic implementations of urbanism are a myth,[4] the theoretical vacuum of Roman urbanism has not yet been successfully filled; traditional approaches to urban character in the provinces' settlements remain predominant today.[5] These approaches primarily focus on the official status of settlements as coloniae or municipia, which relates to their independent administration, and on their monumentality both in size and architectural equipment, which relates to urbanization and urbanization rates. The criteria a Roman town needed to fulfil to be perceived as a Roman town has been more contingent upon ideological perceptions of urbanism, politics, and culture than upon local and regional circumstances for its development.[6]

In Roman urbanism, centrality is one of the basic conditions for towns. According to the economic function of towns as consumers and/or market vessels and the principles of territorial administration Roman towns somehow always were central places. The mining settlement of Timacum Minus (fig. 1: no. 5) in Moesia Superior is a vibrant example of how to go beyond this basic notion, as it displays different levels of centrality.[7] First, the settlement was geographically central. Timacum Minus lay just amidst the Timok Valley, the Timok Valley road, and at the spot where the various Timok tributaries coalesced.[8] Thus, Timacum Minus may be viewed as the prime example for the 'law of location', if one might paraphrase Christaller's intention to search for logical patterns in site and settlement location.[9] The settlement of Timacum Minus developed at its specific site because this site had a central location, where – given the local and

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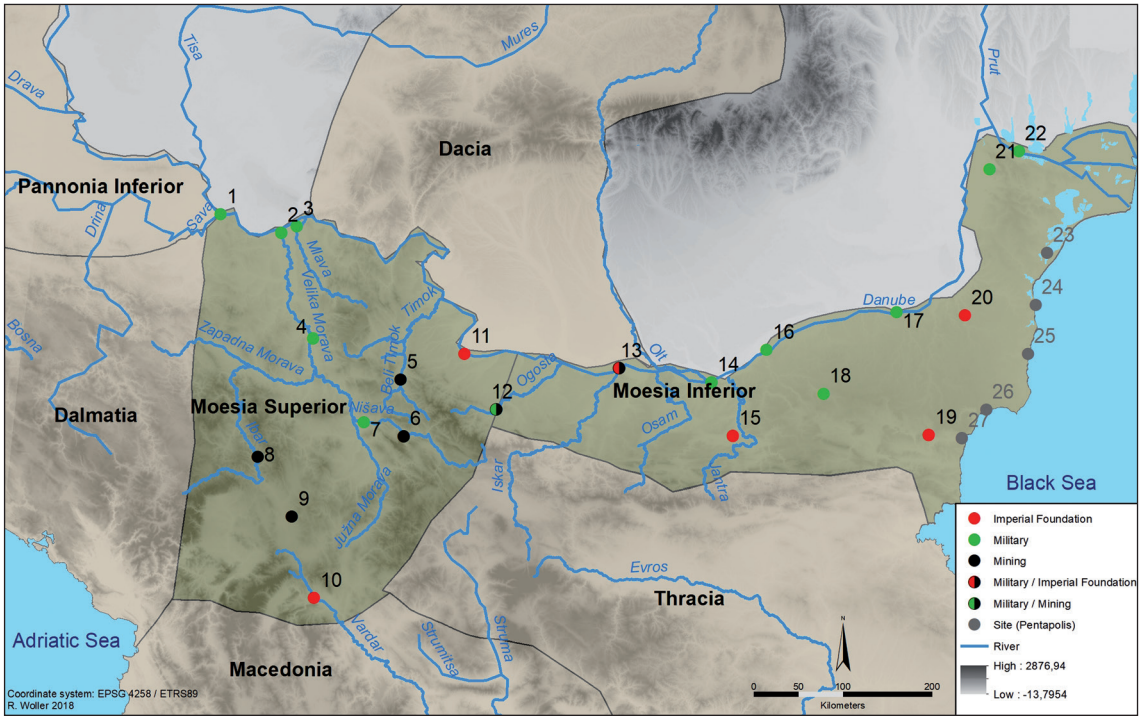



Fig. 1: Overview of urban settlements in Moesia (Superior, Inferior) based on the development factors of mining, military presence, and imperial foundation.

regional circumstances during the Roman Principate – a settlement had to emerge. Despite the locational centrality, the settlement also displays a second, much more crucial form of centrality – a hierarchical centrality. The natural resources offered by the Timok Valley and its surroundings, together with the large-scale mining industry, which was installed on the basis of a fiscal mining district in the 2nd century AD, turned Timacum Minus into a regional center.[10] The organizational primacy of the site clearly made it hierarchically central. Timacum Minus did not have official administrative status and is, thus, normally left out of discussions of urbanism in Moesia. The central location and the mining characteristics of the site, however, turned it into an economically and socially attractive settlement spot. Given the local and regional circumstances, these clearly also turned it into an urban settlement.[11]

When working on urban settlement in the Roman Empire, the most significant aspects to consider are systems of attractions and the dynamics of settlement. The ideology of urban form, which has long been questioned but is still used as a condition of Roman urbanism, does not fit the reality of settlement in Moesia. Urbanism studies should primarily understand agglomeration. I argue that focusing on development factors for a settlement (e.g. mining; fig. 1) instead of using its administrative status or monumentality as the main trait of an urban site facilitates the characterization of Roman urbanism and its development on local and regional levels. The centrality pat-

terns and mechanisms resulting from these development factors, which go beyond the notion that settlements were central to their hinterland, further help to understand not only the initial agglomeration but also the development of agglomeration. The principle of 'centralities', which I introduced in this paper using the urban mining settlement of Timacum Minus as a case study, clearly shows that to properly assess urbanity and urbanization in Moesia, the status of a site takes a back seat in favor of the decisive factors that made it become a site. Christaller explicitly stated that he did not intend to introduce a new definition of 'the urban' with his central place theory as this would lead to "considerable confusion".[12] I, however, argue that using centrality as a criterion for urbanity and a condition for urbanization dissolves confusion about urbanism in Moesia rather than creates it.

## Notes

[1] Christaller 1968, 21. 23. 25. A full version of this article including details concerning the geography, history, and archaeology of Timacum Minus can be found in Diers 2018c.

[2] e.g. in Martinez Jiménez – Tejerizo Garcia 2015, 81–103.

[3] On these perceptions: Laurence 1997, 1–20.

[4] Alcock 2000, 221–226.

[5] This can e.g. be seen in Panzram 2011, 275–296 and Zanker 2000, 25–41.

[6] This is also discussed in Diers 2018a, 47–58; Diers 2018c; 2019, 175–186.

[7] For an introduction to the site characteristics and history of Timacum Minus: Petrović 1995a; Petković 2005; Diers 2018b, 58–81; Diers 2018c; 2019, 175–186, including further detailed references.

[8] On the Timok valley road: Petrović et al. 2014, 97–142.

[9] Christaller 1968, 13.

[10] Petrović 1995b, 195–202.

[11] Diers 2018b, 58–81.

[12] Christaller 1968, 25.

## Image Credits

Fig. 1: © Raffaela Woller, Lina Diers.

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# From Contrary to Complementary Models: Central Places and Gateways in the Southeastern Provence (Arles and Marseille)[1]

**Gregor Utz**

The concepts of gateways and central places, formerly opposing approaches to spatial planning, can be merged into a powerful tool for archaeologists, by defining the terms as a "relative concentration of interactions".[2] Thus, we can use markers that were compiled for both concepts to understand the dynamics of the evolution of cities and settlements in a long-term perspective.

The two cities of Marseille and Arles in the southeastern Provence offer a worthwhile case study. Located within a range of about 90 km of each other, the development of both cities was closely connected and dynamic throughout the whole Greco-Roman era. This study focuses on aspects of trade and administration, encompassing three major points of interest: the natural environment and transport geography (accessibility, width and variety of the service area, connectivity), natural and political factors regarding the urban port development (sedimentation, inundation, waterfront, storage facilities, politically motivated stimuli), and the role of supply and exchange of long distance and local/regional products (by quantified ceramic ensembles from the port area).[3]

Arles certainly was the main gateway for the Rhône corridor during Roman times. The river constituted a fast trade route, while keeping the transport costs low and the distance between cities along the Rhône high. The role of Marseille, however, was not a minor and competitive one, as an established narrative regarding the aftermath of the civil war among Caesar and Pompey leads us to believe.[4] Instead, it was a complementary part of the supra-regional trade network of Arles. But, together with its tiny service area it was also an independent consumer city that imported products from the Mediterranean market and produced fine and coarse wares to meet the demand of the city itself. All the evidence points towards a complex interaction of partly overlapping, partly differing trading connections of both port cities. Arles was orientated on inland trade, and as an *annona*-port it was also supplied with products from the Mediterranean; Marseille, instead, had its main focus on sea trade and acted more as a hub for traders performing cabotage and tramping along the Tyrrhenian, Ligurian, and southern Gallic coastline.

The decisive difference to Marseille was the locational advantage of Arles in the midst of an area adjoined by several cultural landscapes. Thus, it was the political decision of the Roman government to support Arles as a port city (e.g. by means of the construction of the *fossae Marianae*) that outweighed the environmental danger of the frequent inundations. As a consequence, Marseille lost its predominance and was now one important transshipment port of the prevailing gateway at Arles. In this regard, Marseille complemented the supply of Arles and the whole Rhône corridor, but was also a static gateway

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for its own service area. The dynamic of the gateway Arles integrated the static centrality of Marseille.

## Notes

[1] The complete article of this extended abstract is part of the special issue "Central Places and Un-Central Landscapes: Political Economies and Natural Resources in the Longue Durée", published in the open access journal Land: Utz 2018.

[2] For the theoretical framework on systems of market exchange, see Smith 1976; for the concept of the so-called gateway cities and its application to North-American colonization, see e.g. Burghardt 1971; for the reflection of W. Christaller's centrality in a general way as a relative concentration of interaction, see Nakoinz 2012, 219.

[3] As main analyses one could name Heijmans 2004 and Long 2009 for Arles, Hesnard 1999 and Bonifay et al. 1998 for Marseille.

[4] Busquet – Pernoud 1949, 87–95 describe the economical role of Marseille in imperial times as commerce in slow-motion (commerce au ralenti); Loseby 1992, 179–183 stresses the ongoing competition between the two cities after the punishment of Marseille resulting in the loss of its status as the main gateway in the area.

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# Understanding the Central Place Functions of Roman Forts through Landscapes

**Eli J. S. Weaverdyck**

## Introduction

This paper is an investigation of the central place functions of Roman auxiliary forts, using the Lower Rhine frontier as a case study.[1] Specifically, it seeks evidence for market functions in the spatial distribution of the rural settlements that surround them. It is less concerned with the retail marketing of urban goods and services that Christaller was concerned with when he formulated Central Place Theory, and more with the question of whether these numerous, small forts functioned as market places for the sale and exchange of rural produce.[2] This question has important consequences for our understanding of the economic impact of the Roman army.

In the first and early second centuries CE, the Roman Empire lined the Rhine and the Danube with large, legionary fortresses and numerous smaller, auxiliary forts. In comparison to the Mediterranean basin, much of this area had hitherto been sparsely populated and little-urbanized, so this fortified frontier zone caused a rather sudden jump in the population of many of these areas. What's more, the new immigrants were generally consumers rather than producers of food. Documentary and archaeological evidence demonstrate that these forts and fortresses, along with the civilian settlements that grew up beside them, were densely populated, socially diverse places with access to long-distance exchange networks, coined money, and manufactured goods. In these ways they resemble the towns of the Mediterranean basin.[3]

The Roman town was both a node in long-distance exchange networks and a central place in local exchange networks. Archaeological and historical evidence shows that forts were certainly tied into long-distance networks, but their role in local exchange is less clear. While they concentrated wealth and contained many consumers, a significant portion of their subsistence needs were organized through centrally directed networks and there could be significant social and cultural divides between the inhabitants of the forts and the countryside.

In many cases it has been observed that the presence of the fortified frontier coincides with evidence for increased production in the countryside and so, it is concluded, the army must have stimulated the economy.[4] This is certainly true in a general way, but it is important to ask how this surplus actually got to the consumers in the army bases because this has important social consequences for the population of the region as a whole.[5] If military demands were being met primarily from large scale producers, this would have increased economic inequality; if it were being met by people who could combine the surplus of many small scale producers, the ones bulking the cargo would have captured a significant share of any profits to be made. If the small-scale

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producers were selling their goods directly in the forts, on the other hand, they would have maintained their independence and retained the profits.

If forts did perform market functions, there is good reason to think that they might have been particularly attractive to small-scale producers. First, forts were often closely spaced, providing multiple marketing opportunities and enhancing the bargaining power of the producer. Second, the soldiers' ration consisted mostly of grain, which was supplied by the unit, but there was a market for supplements like fruits, vegetables, and eggs, as demonstrated by the Vindolanda tablets.[6] Paul Erdkamp has argued that, because of the relatively high labor and low capital inputs, small-scale producers are less disadvantaged in market gardening than in grain production, which requires investments in storage to make it profitable. It may not be a coincidence, then, that whenever ancient literary sources depict peasants engaged in marketing, they are selling vegetables.[7]

This type of economic strategy can be detected through location analysis of rural settlements and their relationship to central places. Because transportation costs are relatively high, market gardening should be concentrated close to market centers, as predicted by Von Thünen.[8] Grain production, on the other hand, has lower transportation costs because it can be stored and transported in fewer trips, so it is less sensitive to the location of the market. Livestock has even lower transportation costs. Von Thünen described the impact of a single market on the economic geography of its hinterland. It is likely, however, that access to multiple market centers was advantageous, so proximity to all central places in the landscape will be measured using a Market Potential variable (see below).

A larger problem in implementing Von Thünen's model that is especially acute when dealing with ancient small-scale agriculture, is that producers did not live on an undifferentiated plane. Small-holders in antiquity usually relied on their own production for a large portion of their subsistence needs. The ability to sell a surplus would have been less important than the ability to produce enough to survive, so it would be unrealistic to expect the density of settlements in the Lower Rhine to simply decline with distance to markets without taking into account the productive capacity of the landscape. In order to identify the central place functions of forts, one must examine proximity to forts while controlling as many of the other factors that influenced rural settlement location as possible. In this case, a palaeogeographic reconstruction of the landscape represents those other factors.

## Method

The method I developed to test the central place functions of auxiliary forts has two steps. First, I examine the territories within the immediate vicinity of settlements to inductively determine which environmental factors influenced settlement location.

I examine two sizes of territories: one with a 500 m radius, which has been identified as meaningful based on cluster analysis by Philip Verhagen and his team and which is a reasonable estimate for the maximum size of a small holding; the second has a radius of 1.5 km, which Michael Chisholm identified as the distance beyond which intensive labor inputs in fields becomes less likely.[9] I compare these territories to the territories around every inhabitable point in the study area. I measure the percentage of the territory covered by different environmental variables, then I use the Kolmogorov-Smirnov test to identify the variables whose abundance in settlement territories differs significantly from their abundance in the territories around all habitable locations, as well as Vargha and Delaney's A statistic to measure the size and direction of the difference.[10]

In the second stage of analysis I use logistic regression analysis to compare settlement territories to territories around non-sites, places where people could have settled, but did not. These are random points distributed so as to avoid overlap with settlements. This means that each chronological period has its own set of non-sites. The independent variables in the logistic regression analysis are principle components that combine the influential variables identified in the first step. This provides a baseline model that distinguishes settlements from non-sites purely on the basis of settlement territories. The model's accuracy is assessed using the Root Mean Square Error (RMSE). I then calculate a second model using as independent variables the same principal components as well as a Market Potential (MP) variable. If the second model's RMSE is lower than the baseline model, I conclude that market potential had an important influence on rural settlement patterns. I also take into account the sign of the MP variable coefficient and its significance in the logistic regression model.

The market potential (MP) variable is the key to understanding the role of forts. It not only allows one to take into account multiple market centers, it also allows one to test whether auxiliary forts should be included as market centers. Market Potential is a quantitative representation of marketing opportunities from a given location within a market system. Each market place is given a weight according to its purchasing power, population, or, in cases such as this where purchasing power and population are unknowable, estimated relative importance. The weight is then divided by the marketplace's distance from the location in question. Distance is calculated in terms of pedestrian travel time.[11] These quotients are calculated for all centers in a market system and summed to arrive at a single value for market potential.

I constructed two different market potential variables corresponding to different hypothesized relationships between auxiliary forts and the rural population. In both MP variables, cities were given the greatest weight of 25, civil settlements were given a weight of 5, and cult sites were given a weight of 1. In the MP variable corresponding to the hypothesis that auxiliary forts acted as markets similar to small towns, the forts were given a weight of 5. In the MP variable corresponding to the hypothesis that they were isolated from the countryside, they were given a weight of 0. A legion was stationed in the area twice. The Augustan period fortress was only briefly occupied and

it was given a weight of 25 in the military and civilian MP variable. The Flavian period fortress was occupied longer and it was surrounded by a massive *canabae.* Together, the fortress and *canabae* are over twice the size of the nearby city. However, both were occupied for only half of the period in which they fall, so I gave the *canabae* a weight of 37.5 and the fortress a weight of 12.5 so that, in the military and civilian MP variable, they add up to 50. All of the weights are cumulative, so if a site contains both a fort and a civil settlement, the weight is 10 in the civilian and military MP variable.

One pitfall is that the model's results depend as much on the locations of non-sites as on settlements, so the multivariate stage of analysis is repeated five times with different sets of non-sites to identify spurious results. If one of the MP variables consistently improves model performance more than the other, and if the influence of that variable is statistically significant, that provides strong support for the hypothesis that that MP variable is a better approximation of the ancient marketing system than the other. By comparing multiple models that use the same production variables I can test for the influence of proximity to central places while accounting for the other factors influencing settlement location.

## Data

The archaeological dataset was compiled as part of the project "Finding the Limits of the Limes", led by Philip Verhagen with Mark Groenhuijzen and Jamie Joyce, who have graciously shared it with me.[12] By using aoristic analysis and Monte Carlo simulation, they were able to assign a large number of rural settlements to specific time periods (table 1). The C and E in the table refer to central and eastern zones of the study area (see below). The environmental data come from a palaeogeographic reconstruction made by Mark Groenhuijzen following the method laid out by Marieke Van Dinter (fig. 1).[13]

Both univariate and multivariate analysis measure the influence of natural and social environmental factors on a group of settlements. If some settlements were responding to radically different environmental constraints than others, these could cancel each other out and become invisible in the analysis. Therefore, these constraints were homogenized as much as possible by subdividing the study area into zones. Philip Verhagen and his team conducted a cluster analysis of landscapes within 20 km of settlements that identified three broad regions: western, central, and eastern.[14] The western zone is unsuitable for this analysis because of the large areas of peat and the strong influence of fluvial action on the archaeological record. The eastern zone contains large areas of sandy soil interspersed with levees while in the central zone the levees are surrounded by floodplains and peat land. Because no settlements in the eastern or central zone are found on peatland, I excluded peat from the habitable zone that forms the basis of comparison for the settlements.

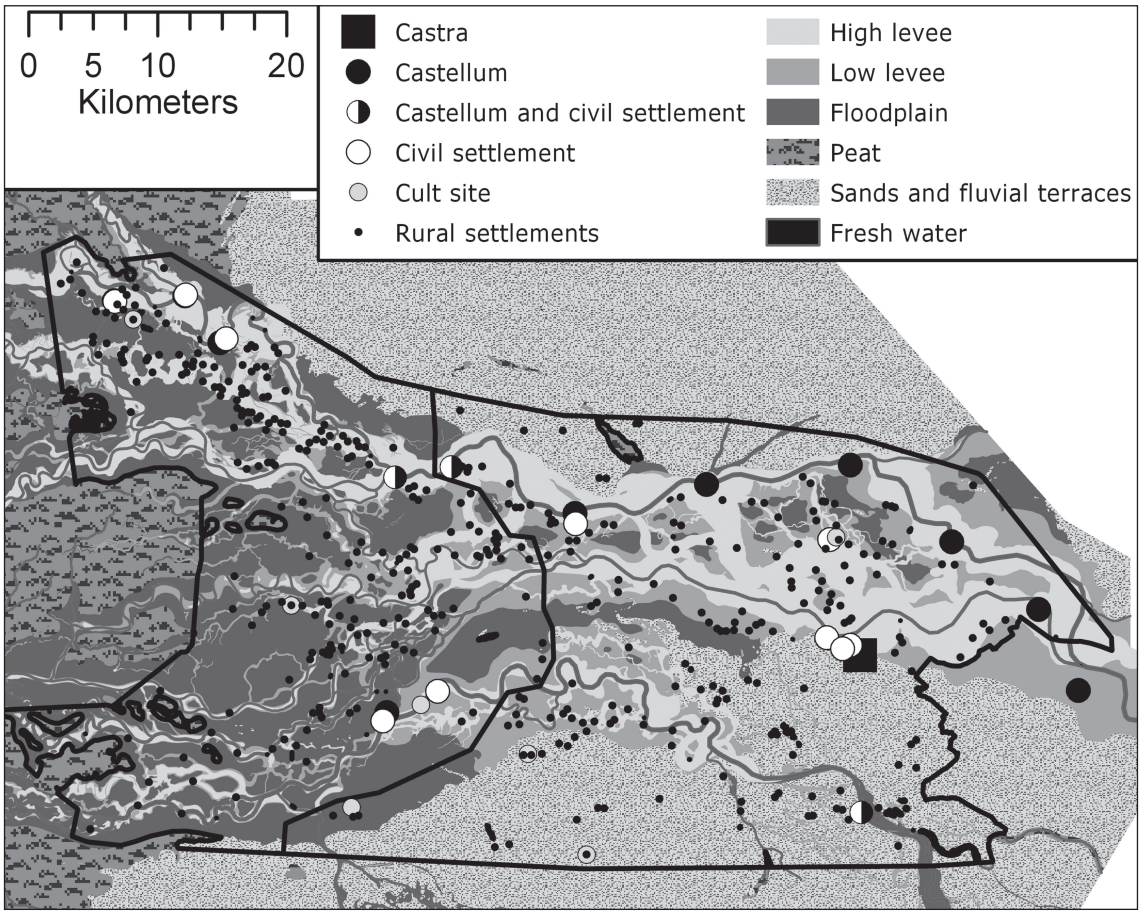



Fig. 1: The central and eastern zones of the study area with Middle Roman A period sites and palaeogeography.

| Period | Date range | Sites | | Rural settlements | |
|---|---|---|---|---|---|
| Late Iron Age | 250–12 BCE | C: 141 | E: 126 | C: 137 | E: 123 |
| Early Roman A | 12 BCE–25 CE | C: 138 | E: 111 | C: 131 | E: 97 |
| Early Roman B | 25–70 CE | C: 163 | E: 130 | C: 153 | E: 116 |
| Middle Roman A | 70–150 CE | C: 233 | E: 197 | C: 222 | E: 177 |
| Middle Roman B | 150–270 CE | C: 248 | E: 224 | C: 237 | E: 208 |
| Late Roman A | 270–350 CE | C: 158 | E: 128 | C: 153 | E: 118 |
| Late Roman B | 350–450 CE | C: 176 | E: 144 | C: 170 | E: 133 |

Table 1: Sites and rural settlements by chronological period in the central (C) and eastern (E) zones.

## Results

Univariate analysis of the influence of land forms on settlement patterns revealed relatively stable trends over time (fig. 2). Levees were always favored. In the central zone, this came at the expense of floodplains, and in the eastern zone, it came at the expense of sands and fluvial terraces.

The baseline logistic regression models were only moderately successful at distinguishing settlements from non-sites on the basis of the landforms in their territories (fig. 3). Nevertheless, some diachronic trends emerge. RMSEs fall in the eastern zone between the Late Iron Age and the Early Roman A period. In both zones, they rise until the Mid-Roman periods before falling in in the Late Roman A and beginning to rise again in the Late Roman B. This is the same trend as observed in settlement numbers, suggesting that as population increased, settlement extended into more marginal areas that resemble non-sites in their territory profiles. Alternatively, factors other than the landforms present in settlement territories could have been influencing settlement location.

The addition of an MP variable only ever improves model performance slightly, but there are times when the improvement is significant and one MP variable consistently improves model performance (table 2). In the Early Roman B period, roughly 25–70 CE, the civilian MP variable consistently performs best with 1,500 m territories in the central zone, but the coefficient is negative. It seems that settlements are avoiding central places, but perhaps avoiding forts less. In the eastern zone, the civilian MP variable performs best again, but coefficients are positive.

In the period between 70 CE and the mid-second century (middle Roman A), the civilian MP variable consistently performs best in the eastern zone with positive coefficients, and it performs best in the central zone with negative coefficients, mostly with 1,500 m territories.

The middle Roman B period is confusing because the improvements in the eastern zone are greater here than any other period or place, but which MP variable generates the best improvement is not totally consistent.

The results from the period following the collapse in the mid-third century are generally insignificant and inconsistent, but there are more significant results in the recovery period running from the mid-fourth to mid-fifth century. Here again we see significant improvements from the addition of MP variables in the eastern zone, but inconsistency in which MP variable most improves model performance. In the central zone, the civilian and military MP variable almost always performs best, but again the coefficients are negative.

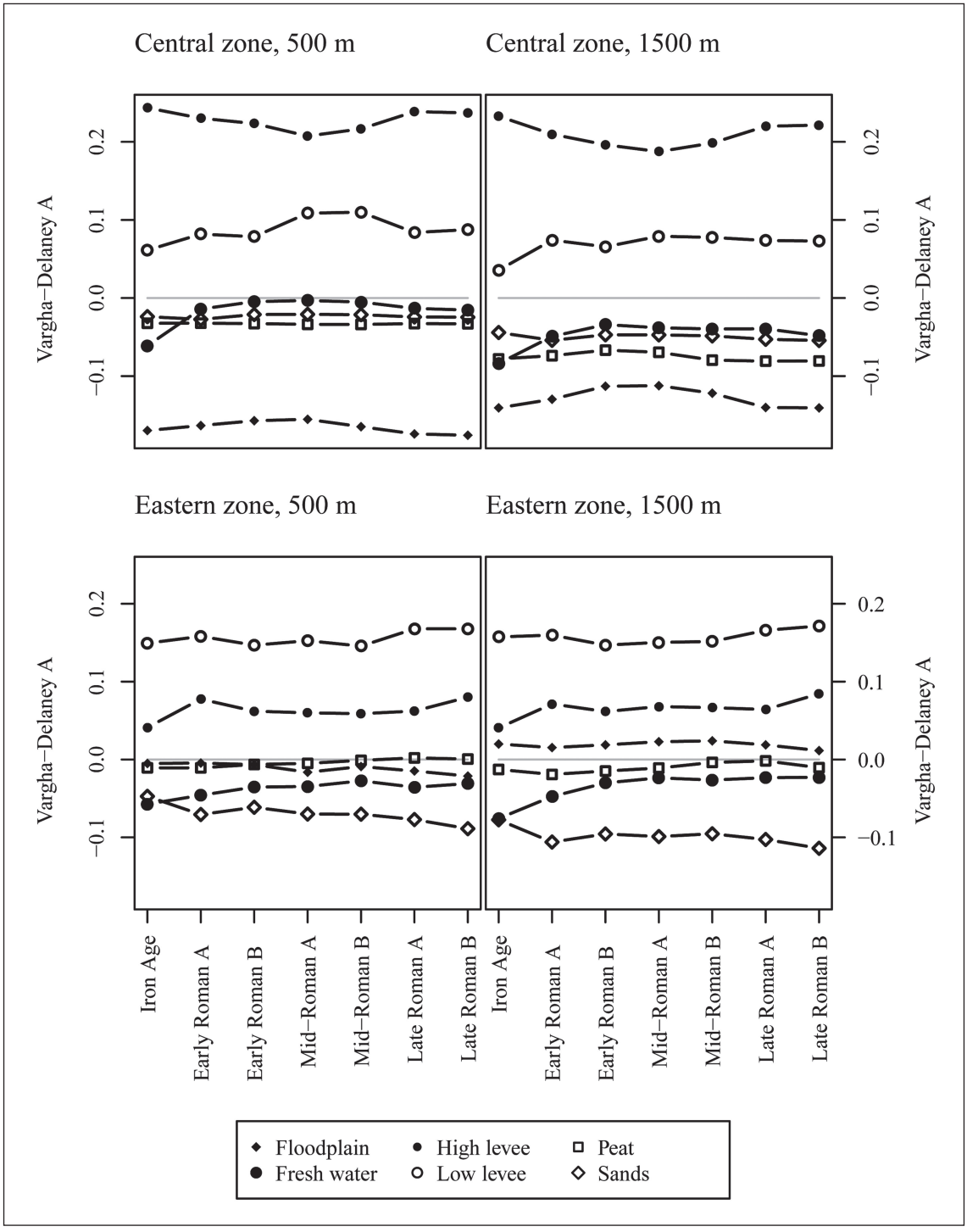



Fig. 2: Vargha-Delaney A statistics showing the difference between settlement territories and the entire habitable zone in the prevalence of each landform. 0.5 has been subtracted from each statistic to make the results more readily interpretable.

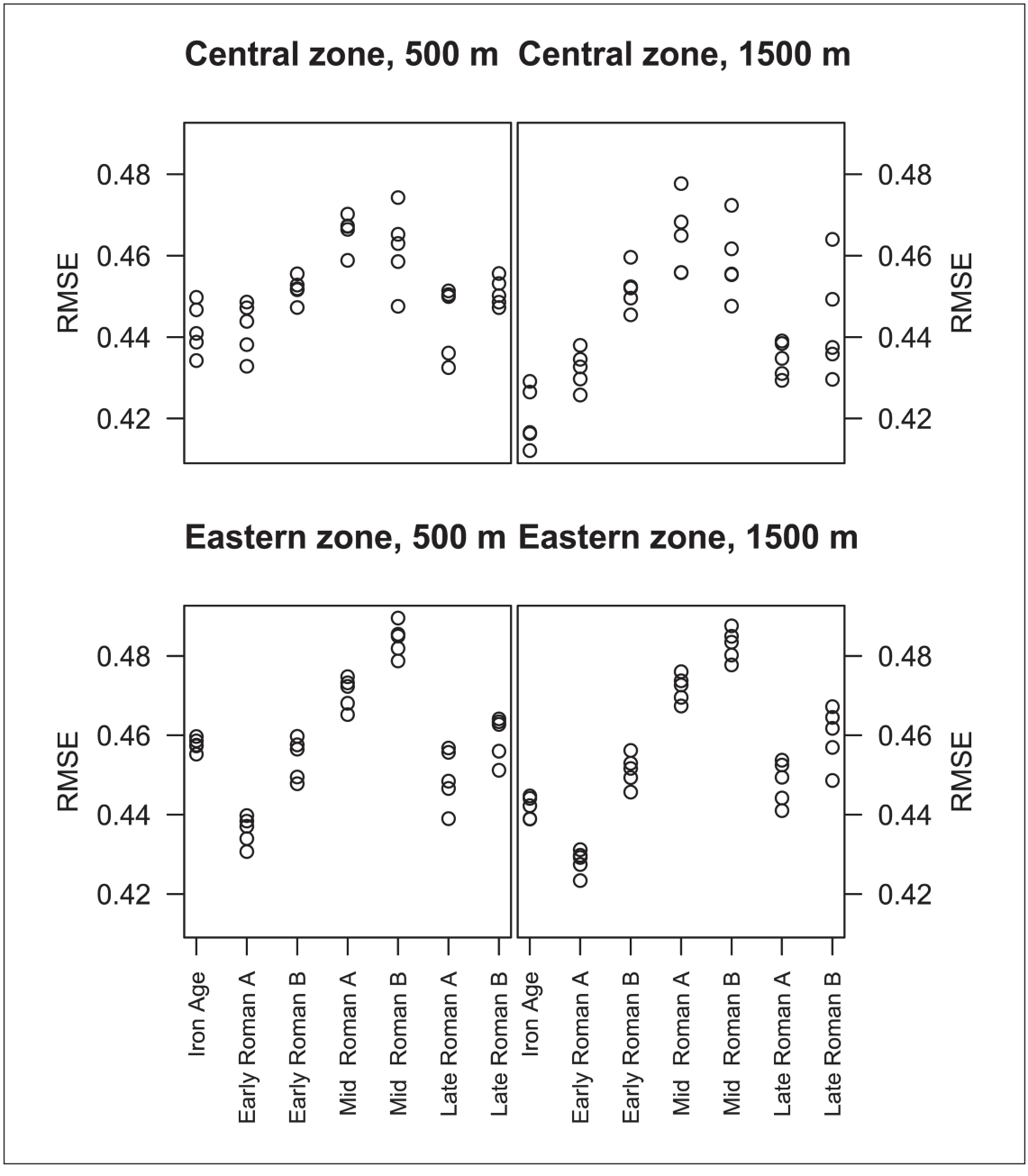



Fig. 3: RMSEs of baseline logistic regression models.

| | consistent, significant improvement | | | |
|---|---|---|---|---|
| Period | Central zone | | Eastern zone | |
| | 500 m | 1,500 m | 500 m | 1,500 m |
| Late Late Iron Age | none significant | none significant | consistent Civ (4, +) | consistent Civ (3, +) |
| Early Roman A | inconsistent, none significant | inconsistent, none significant | consistent Civ (2, +) | consistent Civ (1, +) |
| Early Roman B | inconsistent, Civ (1, –) | consistent Civ (3, –) | consistent Civ (1, +) | consistent Civ (2, +) |
| Middle Roman A | inconsistent, none significant | consistent Civ (0, –) | consistent Civ (3, +) | consistent Civ (3, +) |
| Middle Roman B | inconsistent, none significant | inconsistent, none significant | inconsistent, Civ (3, +) | inconsistent, Civ (3, +) |
| Late Roman A | inconsistent, none significant | inconsistent, none significant | inconsistent, Civ (1, +), Civ & Mil (1, +) | inconsistent, Civ (1, +), Civ & Mil (1, +) |
| Late Roman B | consistent Civ & Mil (2, –) | inconsistent, Civ (1, –), Civ & Mil (3, –) | inconsistent, Civ (2, +), Civ & Mil (3, +) | inconsistent, Civ (2, +), Civ & Mil (3, +) |

Table 2: Summary of model improvement through the addition of MP variables to the baseline logistic regression model. Each cell contains four pieces of information: whether or not one variable consistently improved model performance more than the other; which variable most improved model performance; the number of times out of five separate runs that the variable was statistically significant in the logistic regression model; and the sign of the coefficient.

## Discussion

In the eastern zone, the civilian MP variable performs best with positive coefficients in the Early Roman B and Middle Roman A periods; in later periods, both MP variables significantly improve model performance. Therefore, we can conclude that rural settlements are sensitive to the proximity of central places, but there is no strong evidence to suggest that those central places included forts.

In the central zone, the picture is more complicated because the coefficients are so often negative. Visualizing the two market potential variables side-by-side provides some clarity. Figure 4 depicts the central zone in the early Roman B period, showing settlements and the set of non-sites for which the civilian MP variable most improved performance. On the left side, these overlie the civilian MP variable. Five zones of high market potential are visible and these are generally filled with non-sites; high market potential values are associated almost exclusively with non-sites in this model. On the right, which shows the civilian and military MP variable, a sixth zone of high market potential has been added in the northwest around the fort at De Meern. This area is filled with settlements. In this case, high MP values are associated with both settlements and non-sites, so the model is less able to distinguish between them. From this it looks like the fort at De Meern was attracting settlement in a way that civilian settlements, even those around other forts, were not.

With this one exception, it seems that forts did not produce marketing opportunities that were seized by small-scale producers in such a way as to affect the pattern of rural settlement. One should not exclude the possibility of small producers selling livestock directly at the forts, but this analysis supports the idea that military demand was primarily met by large-scale producers who could gather and store grain for infrequent

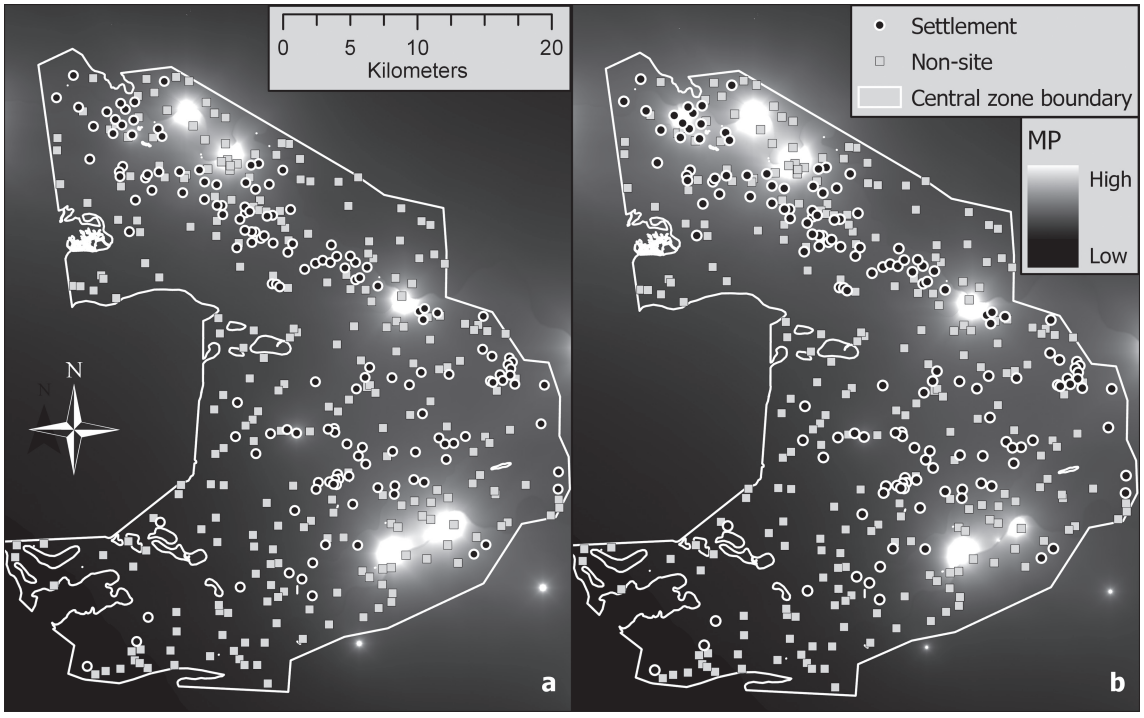



Fig. 4: Comparison of civilian and civilian and military MP variables in the early Roman B period.

transportation, or middlemen, perhaps based in the city of Ulpia Noviomagus, which does seem to have attracted rural settlement in the eastern zone.

## Conclusion

The archaeological evidence for increases in wealth and consumption in frontier zones following the Roman occupation suggests that the military presence did stimulate the economy. More was produced and exchanged than before. This analysis of rural settlement patterns, however, adds nuance to that general conclusion. The results presented here suggest that most auxiliary forts were not functioning as market places in a way that enticed people to farm the land in their vicinity. Despite their wealth and non-agricultural population, they did not perform this central place function.

As explained above, had they been market places, the frontier could have formed a landscape of opportunity for small-scale producers. Because they were not market places, it seems more likely that the economic stimulus provided by the military was channeled through cities and towns, places where cargos could be combined by middlemen for efficient distribution to the forts. Some producers might have sold directly to auxiliary forts, but either they did so without minimizing transportation costs – suggesting the sale of livestock or grain – or there were so few who did minimize transportation costs to these places that they left no impact on the overall settlement pattern.

As with any individual technique, the process of comparative modeling does not produce all of the answers, but it is helpful in understanding the relationships between larger population centers and the countryside as well as suggesting ways that goods did or did not circulate in the area.

## Notes

[1] This is a lightly edited version of the presentation delivered at the 19th International Congress of Classical Archaeology. It summarizes research that is more fully published elsewhere: Weaverdyck 2019. I am grateful to the organizers of the session "Central places and un-central landscapes," Giorgos Papantoniou and Thanasis Vionis, for allowing me to present my work.

[2] Christaller 1966.

[3] Sommer 1988; Allison 2013.

[4] Cherry 2007.

[5] Maaike Groot 2016 has examined this question using faunal remains.

[6] Whittaker 2002; Evers 2011.

[7] Erdkamp 2005.

[8] von Thünen 1966.

[9] Chisholm 1979; Verhagen et al. 2016.

[10] Vargha – Delaney 2000.
[11] Travel time was estimated using Groenhuijzen's procedure, which assigns a coefficient to each landform reflecting how difficult it is to traverse (Groenhuijzen – Verhagen 2017).
[12] Verhagen et al. 2016.
[13] van Dinter 2013.
[14] Verhagen et al. 2016.

## Image Credits

Fig. 1: Weaverdyck 2019, fig. 1. – Fig. 2: Weaverdyck 2019, fig. 2. – Fig. 3: Weaverdyck 2019, fig. 3. – Fig. 3: Weaverdyck 2019, fig. 4. – Table 1: Weaverdyck 2019, tab. 1. – Table 2: Original.

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# The River as an Economic Asset: Settlement and Society in the Xeros Valley in Cyprus

**Giorgos Papantoniou – Athanasios K. Vionis**

Settled and Sacred Landscapes of Cyprus (or SeSaLaC) is a systematic archaeological survey project of the University of Cyprus in the Xeros River Valley in the Larnaca district (fig. 1). The project aims to identify, map, and interpret traces of pre-modern human activity in the valley in order to examine the interaction of secular and religious space with the natural environment. In many respects, the microenvironment of the survey area, defined by a continuous series of hills, crossed by the River Xeros, and located within the 'landward buffer' of the south coast of Cyprus, provides an ideal laboratory for examining phenomena of centrality, settlement hierarchy, and political economy in the longue durée.

Our project manifests how surface survey and landscape archaeology can provide a fresh perspective and a powerful investigative tool to address research questions related

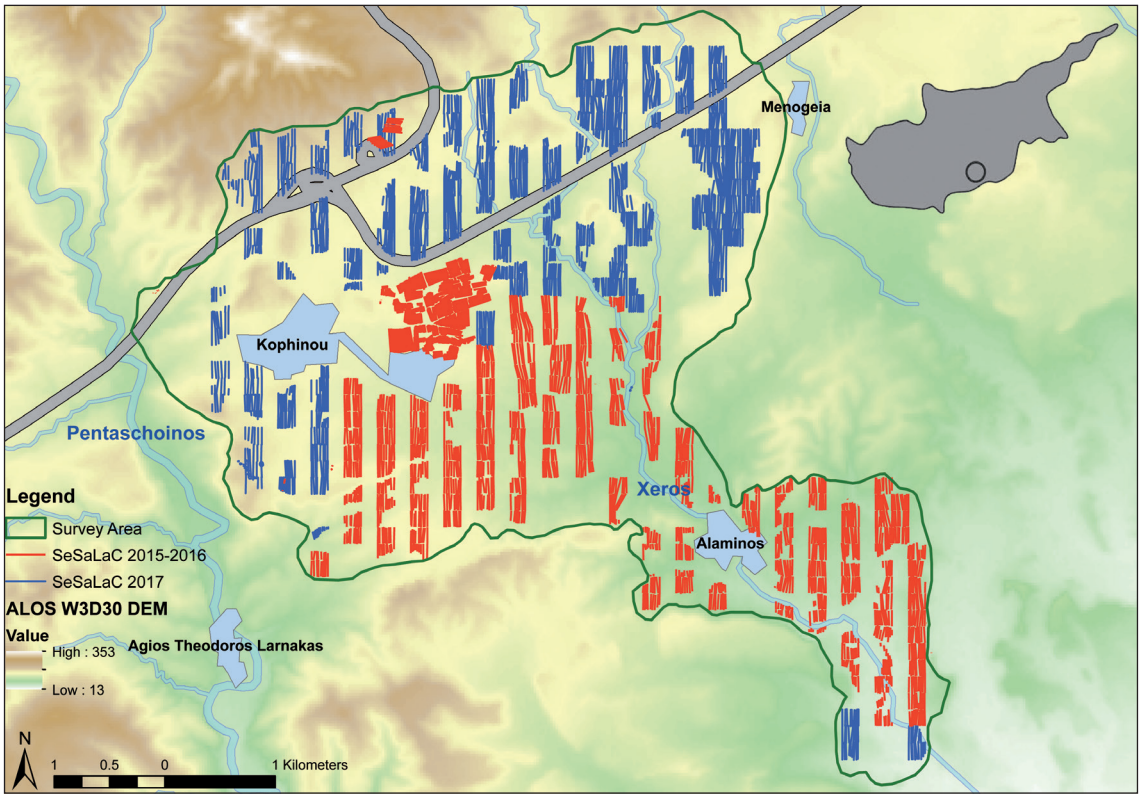



Fig. 1: SeSaLaC surface survey area with transects (zones of squares: 150 × 150 m) investigated in 2015–2016 and 2017. ALOS DEM are in meters. Digital data courtesy of the Geological Survey Department, Republic of Cyprus.

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to the conscious and the unconscious shaping of the land, as well as to the processes of organizing space, which involves the interaction between the physical environment and human presence. The centrality of a place can be seen as the result of inter-reliant socio-political processes relating to the natural environment on different spatial scales, ranging from the local to the supra-regional. The consideration of political geography and political economies play a significant role in any discussion concerning the development of settlement patterns.

Waterways had a prominent role in shaping the settlement landscape of southeastern Cyprus diachronically. Examining the Xeros Valley from the perspective of political economy and natural resources, we show how an 'un-central landscape' may have functioned as a place of economic and ideological centrality. The Xeros River clearly acted as an economic asset in making this 'un-central' landscape central. Water procurement and management seem to have determined the clear tendency for settlement along the main Xeros River and the small valleys formed by its streams from prehistory to Late Antiquity. Yet, these settlements always kept a safe distance from the water to avoid the risk of flooding.

The river creates a fertile valley along its way, where people in the past, and until recently, likely used a canalization system to water their orchards. Preliminary Geographic Information Systems (GIS) mapping of agricultural soils and settlement activity has shown that the main antique settlement in Kofinou lay in the middle of less fertile soils. This should probably be seen as a very wise choice on behalf of the valley's inhabitants, making use of less productive areas for their settlement's built space, as well as for less demanding cultivations, such as vegetable gardens and olive groves or as pasture land.

Our team aims to investigate how climate change adaptation and tectonic activity may have altered the course and flow of the river, and how these may have affected settlement choice and hierarchy diachronically. Future research should also integrate survey data with geological investigation, considering that some rivers along the southeast coast may relate with a system of identified anchorages that were used in conjunction with overland portages for transporting timber, copper and other goods downstream to the coast for processing and cabotage. The integration of zooarchaeology, archaeobotany and ethnoarchaeology in Cyprus has recently shown not only the adaptation of sheep and goat management to differences in local vegetation and landscape, but also that other elements in the landscape, such as wells, springs, rivers, pools of fresh water, and safe access points to the sea were integral parts of herd management.

Water and rivers are understood to have specific powers and agencies related both to life and destruction. Management of riverine water, such as in the cases of Ottoman watermills both in the Xeros and the nearby Pentaschoinos valleys for example, should be scaled at the level of its associated communities and environments. Rivers, incorporated into social and ecological developments, were particularly vibrant elements in periods of economic crisis, stability and growth.

## Image Credits

Fig. 1: Map by Charalambos Paraskeva.

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# City and Territory in Ancient Sicily

**Panel 8.16**

**Organized by**

**Erich Kistler**

# Self-sufficiency and Integration in Wider Production/ Exchange Networks at Entella (Sicily) and in its Territory: Continuity and Transformations from the Archaic to the Byzantine Age

**Alessandro Corretti – Antonino Facella – Chiara Michelini – Alfonsa Serra – Maria Adelaide Vaggioli**

Thanks to 35 years of systematic research at Entella (Contessa Entellina, province of PA, Italy), the SAET Laboratory of the Scuola Normale Superiore (Pisa) can now manage complex data from both excavations in the town and surveys in the surrounding territory, in inland western Sicily.

Since 1983, the Scuola Normale has been carrying out systematic excavations at Entella, a settlement occupied from the Bronze Age to the early Imperial Age, and again in the Middle Ages.[1]

In the surrounding area, a systematic intensive archaeological research (the 'Contessa Entellina Survey') was carried out by the Scuola Normale Superiore in the municipal territory of Contessa Entellina, between 1998 and 2004 (fig. 1). The surveyed area is




Fig. 1: The Contessa Entellina Survey. The administrative boundary of the Comune of Contessa Entellina (yellow).

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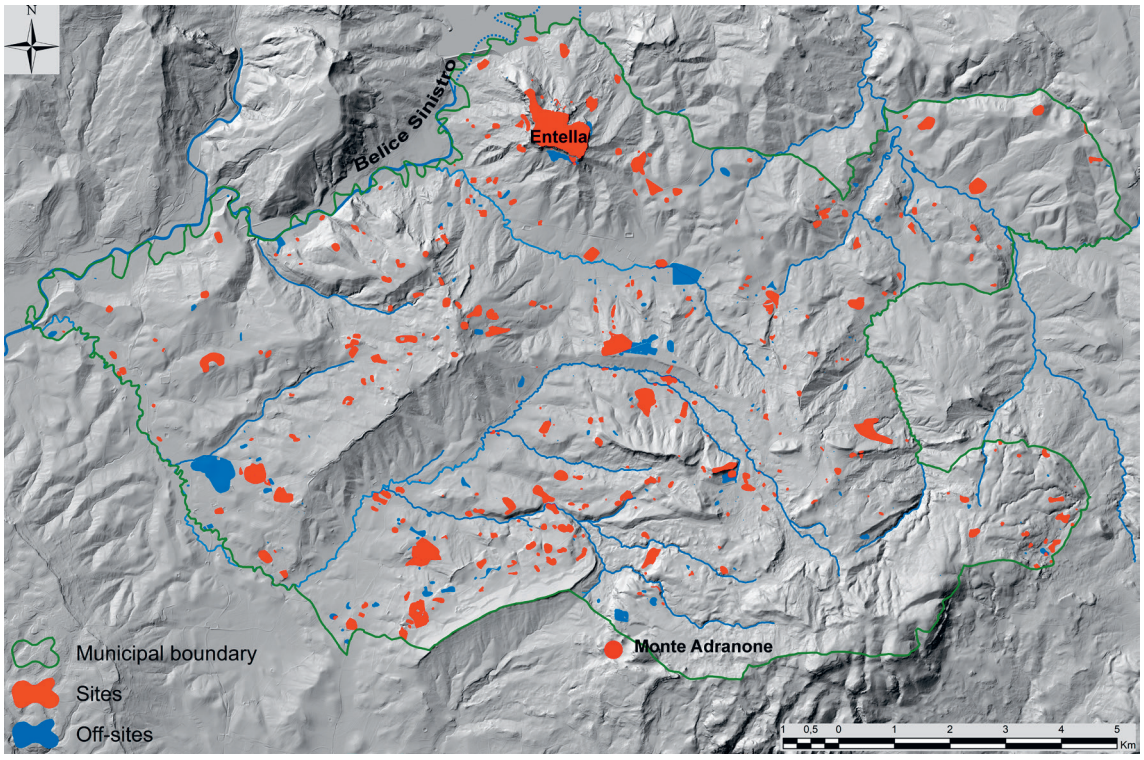



Fig. 2: The Contessa Entellina Survey. Sites (red) and off-sites (pale blue).

136,4 square km; a total of 285 sites, and 152 off-site finds have been identified (fig. 2). Full publication of the results has been published in 2021.[2]

Cereal cultivation, breeding (sheep and cattle), olive growing and viticulture, together with timber and firewood from the mountains in the southeastern corner represent the typical produce. This is true in modern times, and we may assume that it was the same in the past, with different ratios throughout the centuries. In addition, quarrying of clay and gypsum provided good raw material for ceramic production and for building in Antiquity and the Middle Ages.[3] The Belice River and a dense road network favoured local connections and transport facilities to the southern coast and to North Africa.

Within a comprehensive analysis of import/export, we will focus on transport amphorae as markers of commercial trends throughout the centuries. We will also start our investigation from the beginning of the evolution of the main settlement (Entella) into a proper town.[4]

Through the 7th century BC a progressive structuring of settlements took place. Two larger hill sites (Entella and Calatamauro) controlled the other settlements at lower altitudes (fig. 3a).

In the 6th century BC Entella evolved into a real urban centre, with city walls and important public buildings. A good 82 sites are spread around the territory (fig. 3b); the

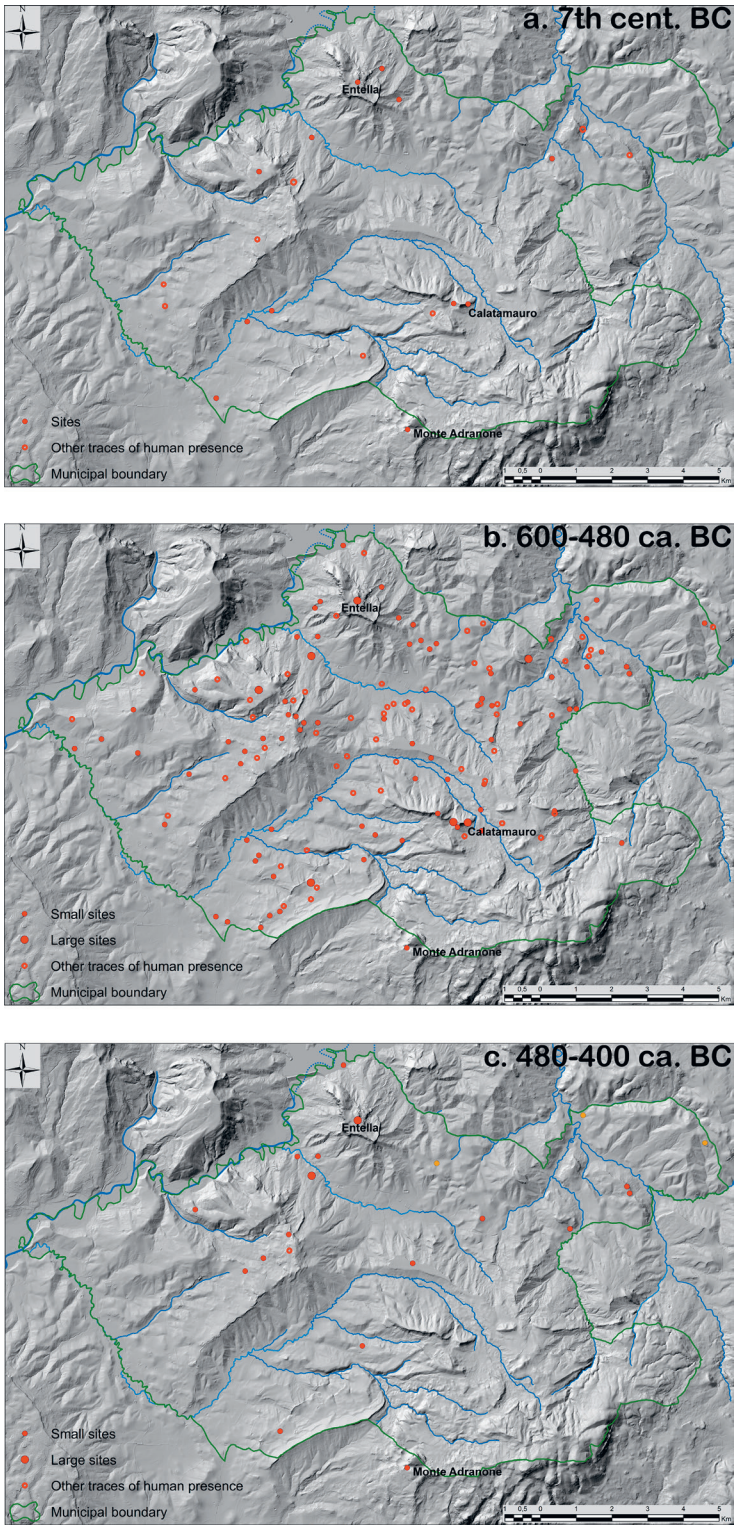



Fig. 3: The Contessa Entellina Survey. Archaic and early Classical settlement.

settlement is also functionally structured, with ceramic production centres around the town.

The first recognisable imports, probably from Selinous, around the end of the 7th century BC, consist of rare B1 cups from Entella and one other site.

Imports increase throughout the 6th century BC and consist of a few fine wares and a dozen amphorae, mainly Corinthian A and western Greek, suggesting commercial relations both with Selinous to the south and Himera to the north[5]. Kilns located around Entella[6] supply almost all of the ceramic needs both of the town and of the territory with high quality ware, imitating Greek shapes too.[7]

After the first decades of the 5th century BC, a dramatic decline occurs in the number and extension of settlements, as well as in the rest of western Sicily. This crisis is generally connected with the aftermath of the battle at Himera in 480 BC. Only 16 sites survive (fig. 3c), including Entella but not Calatamauro. Ceramics clearly dating to the second half of the 5th century BC are few and consist mainly of black-glazed pottery and three western Greek amphorae. Also at Entella ceramics from the second half of the 5th century are rare.

From the end of the 5th to the last quarter of the 4th century BC an upturn in the number of sites (30) can be seen.[8]

Material evidence for the first three quarters of the 4th century BC is evanescent with regard both to quantity and to chronological reliability of ceramics as a whole (fig. 4a): as for commercial vessels, 22 amphorae fragments come from 17 sites, and consist mainly of 'greco-occidentali recenti' (MGS II) and a few Corinthian B amphorae. The Punic amphorae, belonging to types that evolved throughout the 4th century BC, are even fewer.

As for the MGS II amphorae, the recent analysis of a misfired rim fragment from Entella[9] strongly supports the hypothesis of a local production of MGS II amphorae for local and regional transport and trade. Clay analyses merely prompt us not to exclude a local origin of this container, due to the presence of the same clay layers ('Formazione di Terravecchia') over a wide area in western Sicily.[10]

An impressive *floruit* of rural settlements (fig. 4b), together with a considerable growth of the town itself, marks the final period of Carthaginian *eparchia,* from the time of Timoleon to the beginning of the first Romano-Punic War.

As a whole, ceramic assemblages strongly correspond to the Sicilian Hellenistic *koinè.*

Punic amphorae (86 fragments) come from 28 sites and 2 off-site finds;[11] amphorae of Greek tradition ('a quarto di cerchio', 'a echino', MGS III and MGS IV: 127 fragments) from 36 sites and 1 off-site find; ancient Greco-Italic amphorae (132 fragments) from 36 sites and 3 off-site finds. As a whole, there is a 1:3 ratio between Punic amphorae on the one hand (86), and Greek tradition amphorae or ancient Greco-Italic amphorae on the other (259). This ratio should not be intended as an expression of the success of the two trade circuits, but rather as the different volume of local consumption of specific foodstuffs. This figure is biased by a single site ('148-Piano Cavaliere'),[12] from where

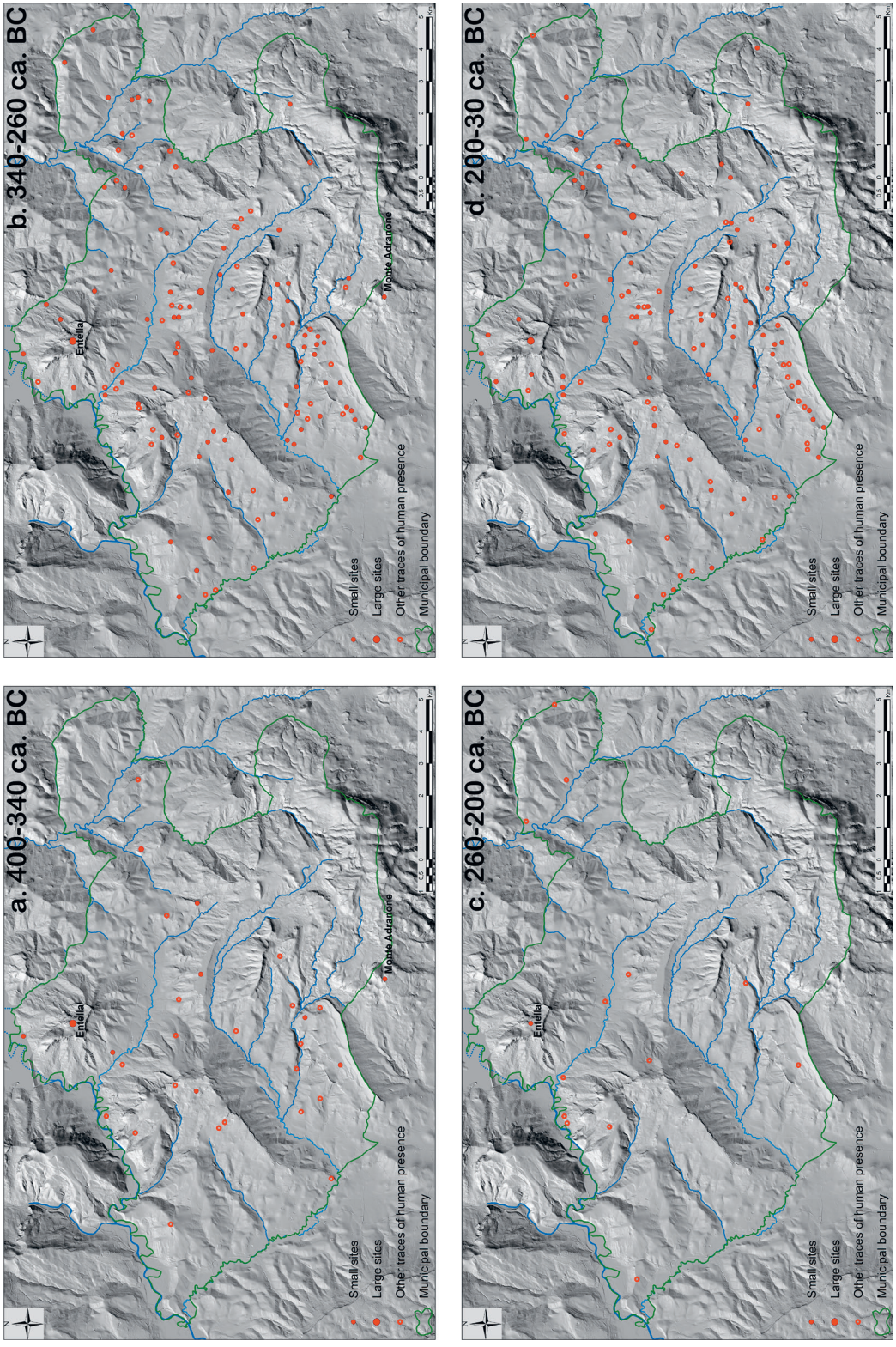



Fig. 4: The Contessa Entellina Survey. Late Classical, early Hellenistic and late Hellenistic settlement.

almost half of all the amphorae of this phase come. A deeper insight into the function of this site is obviously needed. Again, possible local containers are found side-by-side with others vessels whose fabrics suggest a Poseidonian/Velian or northeastern Sicilian – southern Calabrian provenance.[13]

Considering the content of the amphorae, nothing can be added to the current hypotheses pointing primarily to wine, olive-oil, fish and fish sauces. Wine is the most probable content of MGS II – MGS III – MGS IV amphorae, partly of possible local provenance as suggested by fabric analyses.[14] On the other hand, amphorae from southern Campania could testify to a persistent link of Entella with the motherland of the Campanian mercenaries who had settled at Entella at the turn of the 5th century BC.[15]

The central decades of the 3rd century BC witness another dramatic crisis of the settlements both in the town of Entella and in its territory (fig. 4c). Epigraphic documents record a forced abandonment of Entella and its territory, with the town and the countryside remaining empty and uncultivated for several years or decades. The offer of cereals and seeds from several communities to the Entellinians, as recorded in the A1 Entella decree,[16] testifies to the deep crisis in local agriculture caused by the deportation. Between the second half of the 3rd century and the early 2nd century BC only 9 Greco-Italic amphorae come from 8 sites. These amphorae fragments are the main clue to dating the few sites of this phase.

After the resettlement at Entella, a transition occurred from mere self-sufficiency to an intensive production of cereals, strongly encouraged by Rome. From the end of the 3rd and for the whole of the 2nd century BC, the settlement grows further (fig. 4d). Entella is once more the main political and administrative centre, but its inhabitants progressively move from the town on the plateau surrounded by steep cliffs to the sites in the surrounding plains, within easy reach of roads and water streams.

Ceramic evidence from the town and from the countryside shows a change in the provenance of the amphorae.[17] While local products disappear, and transport amphorae in local fabrics are no longer found, a massive import of wine takes place from the Gulf of Naples and from Tyrrhenian Italy, carried in Greco-Italic and Dressel 1 amphorae. There are 325 fragments of them from 81 sites; much lower in number are the Punic (27 fragments from 10 sites) and Rhodian (8 fragments from 7 sites) amphorae. Other ceramics (table- and kitchenware) show a similar trend, with imports from Campania and the Punic world. As a whole, several sites are larger and yield a more complex ceramic assemblage including e.g. Megarian bowls.[18]

A general view of the trend of the presence of the different amphora types throughout the different Archaic, Classical and Hellenistic phases of the rural Entella settlement is shown in this graph (fig. 5).

In the following centuries[19] (late 1st century BC–1st century AD; fig. 6a) the territory yielded 30 Dressel 2–4 amphorae, mainly from the Tyrrhenian area (the same is true for a part of the internal Red Slip Ware, kitchenware and Italic Sigillata, from Puteoli and Etruria). A Sicilian amphora of 'Gallic' type, and a Lamboglia 2 from the Adriatic

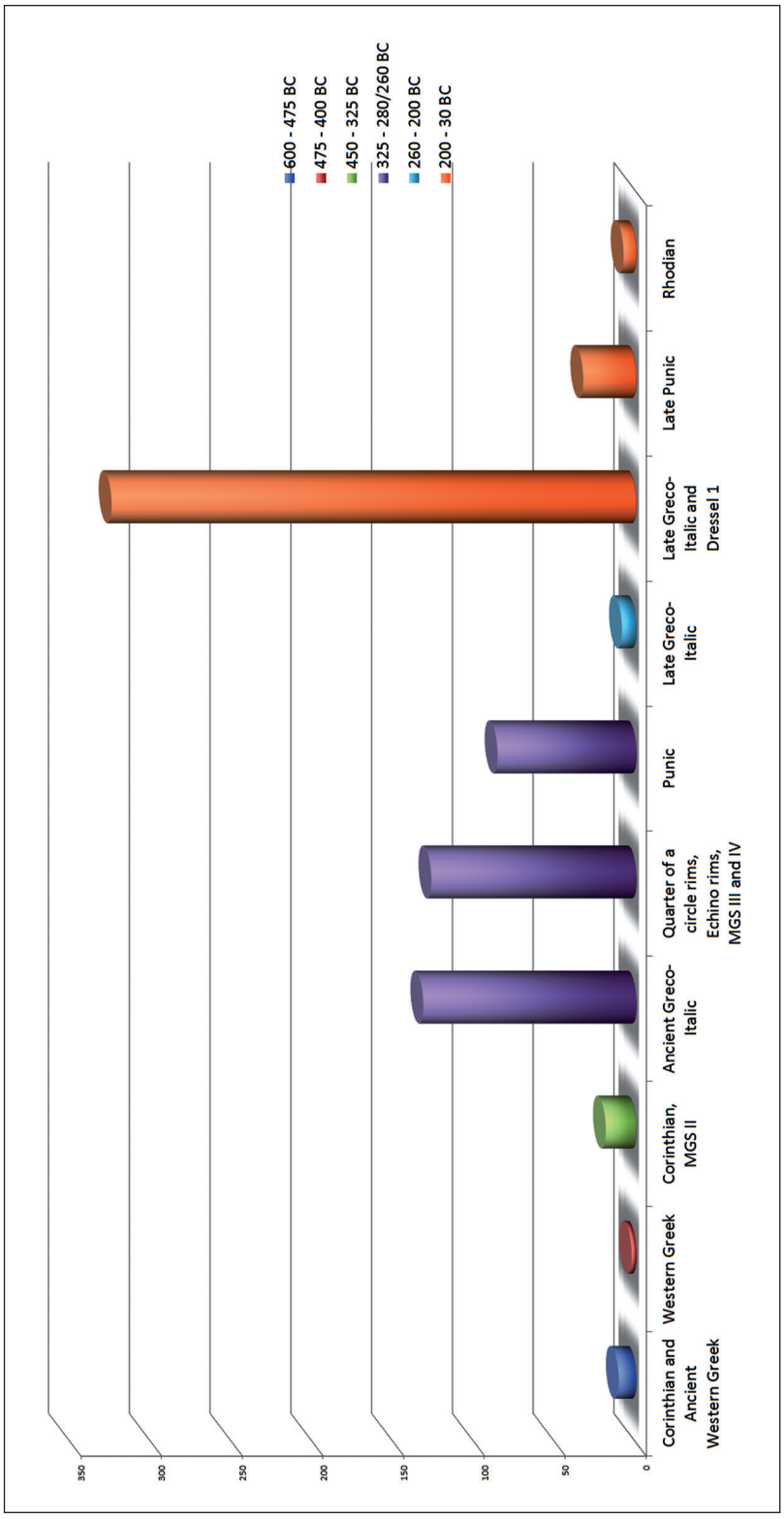



Fig. 5: The Contessa Entellina Survey. Archaic to late Hellenistic amphorae trend.

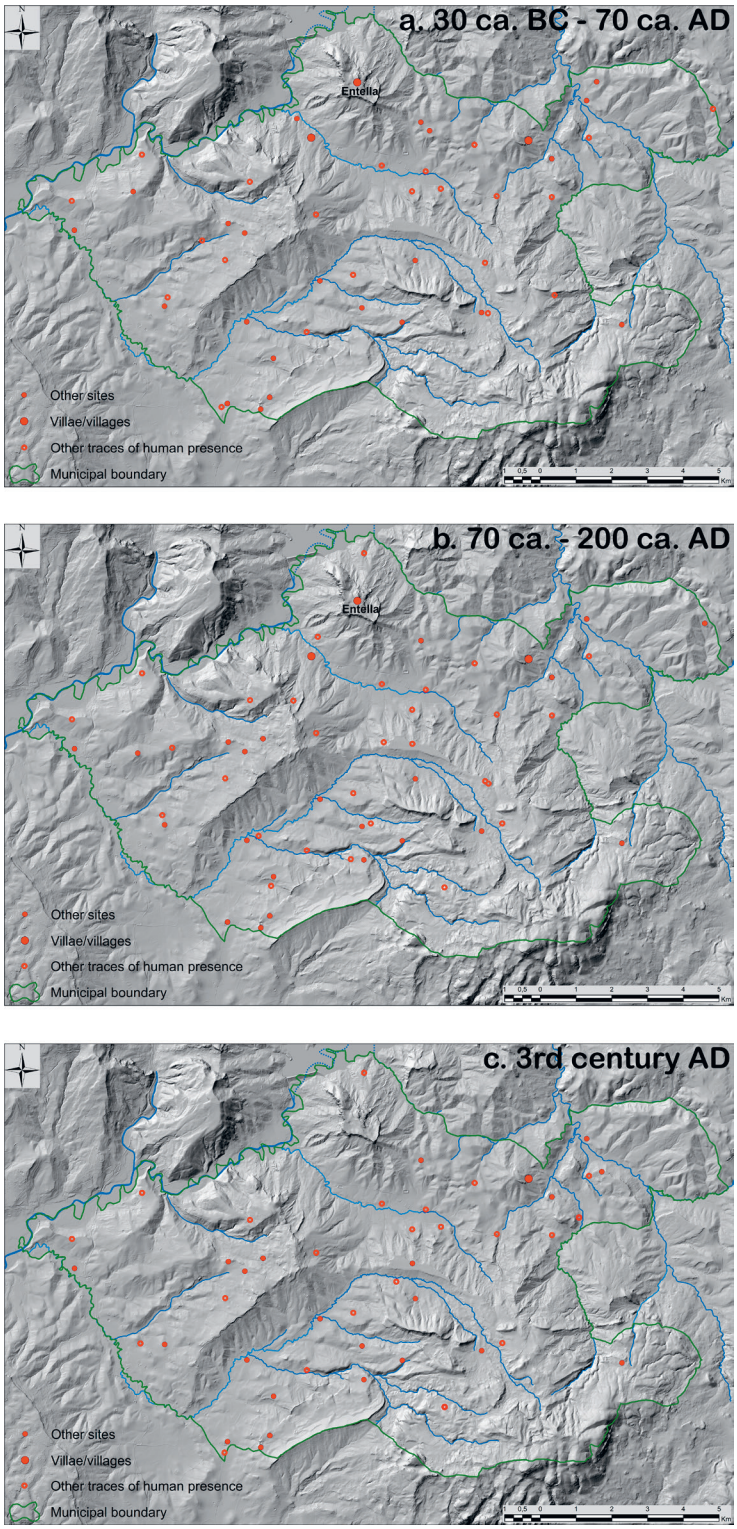



Fig. 6: The Contessa Entellina Survey. Roman early and mid-Imperial settlement (red).

area complete the list of amphorae of this period. These imports hint at a local wine requirement only partially satisfied by local production and integrated by imports, that are in any case less marked than in the late Republican phase. A small number (15 frg.) of Dressel 21/22, some of which are of regional production, testify to the importing of fish or fish sauces from the regional coastal area.[20]

The same data and proportions are true for the town of Entella, where a decreasing population continues to live throughout the whole of the 1st century AD.

Entella is abandoned in the first decades of the 2nd century AD, but this has no perceptible consequences on the import/export balance in the short/medium run.

In the last decades of the 1st, but mainly in the 2nd century AD (fig. 6b) there is the first appearance of African amphorae (6 items), probably containing olive-oil, wine and *salsamenta.* They testify to a trade with Tripolitania and some areas of Tunisia; their small number hints at an almost complete self-sufficiency of this territory, as suggested by the disappearance of imports from other areas (e.g. the Tyrrhenian area), formerly attested.

The number of African amphorae increases at the end of the 2nd and mostly throughout the 3rd century AD (fig. 6c), with 20 items from Tunisia (wine, olive-oil and *salsamenta*) and 2 from Tripolitania (olive-oil). An isolated exemplar of Kapitän 2 attests to the import of Aegean wine, while there is no trace of imports from Iberia or Gallia, as is usually seen in inner Sicily.[21]

An appraisal of the evolution of the volume of trade of regional wine in the investigated area, as witnessed by amphorae of S. Alessio/Benghazi MR1/Agora M524 type, is hindered by the small dimension of the fragments found, among which only 2 rims can be dated to the end of the 1st–early 3rd century AD. The other 16 fragments, consisting mostly in 'a fiore' handles, can only be dated to the 1st–4th century AD.[22]

From the end of the 1st to the 3rd century AD, imports from North Africa, in particular from the Carthaginian region and the Hammamet Gulf, are of considerable volume and precocious with regard to table- and kitchenware, while significantly smaller in volume with regard to items carried in amphorae (fig. 8).[23] This difference hints at a partial self-sufficiency of our territory, where a good deal of olive and wine cultivations still survived.[24]

Regarding Late Antiquity,[25] more than 90% of the identifiable amphorae come from Africa, while only a few are of eastern Mediterranean (LRA 1 and 2), Italian (Keay 52) and Sicilian ("Sicilian type" amphorae) provenance. As well as in the early and middle Imperial age, there is no evidence of local production of transport amphorae within the investigated area.

As well as in the 2nd and 3rd century AD, throughout the 4th century AD (fig. 7a) amphorae are rare, testifying therefore to a local olive-oil and wine production that provided a partial self-sufficiency. Only 30 amphorae can be dated to the 4th century AD, not counting a few amphorae roughly datable to the 3rd–4th century AD. Among 4th century AD containers, Africana III B amphorae are well attested (over 20 ex.).

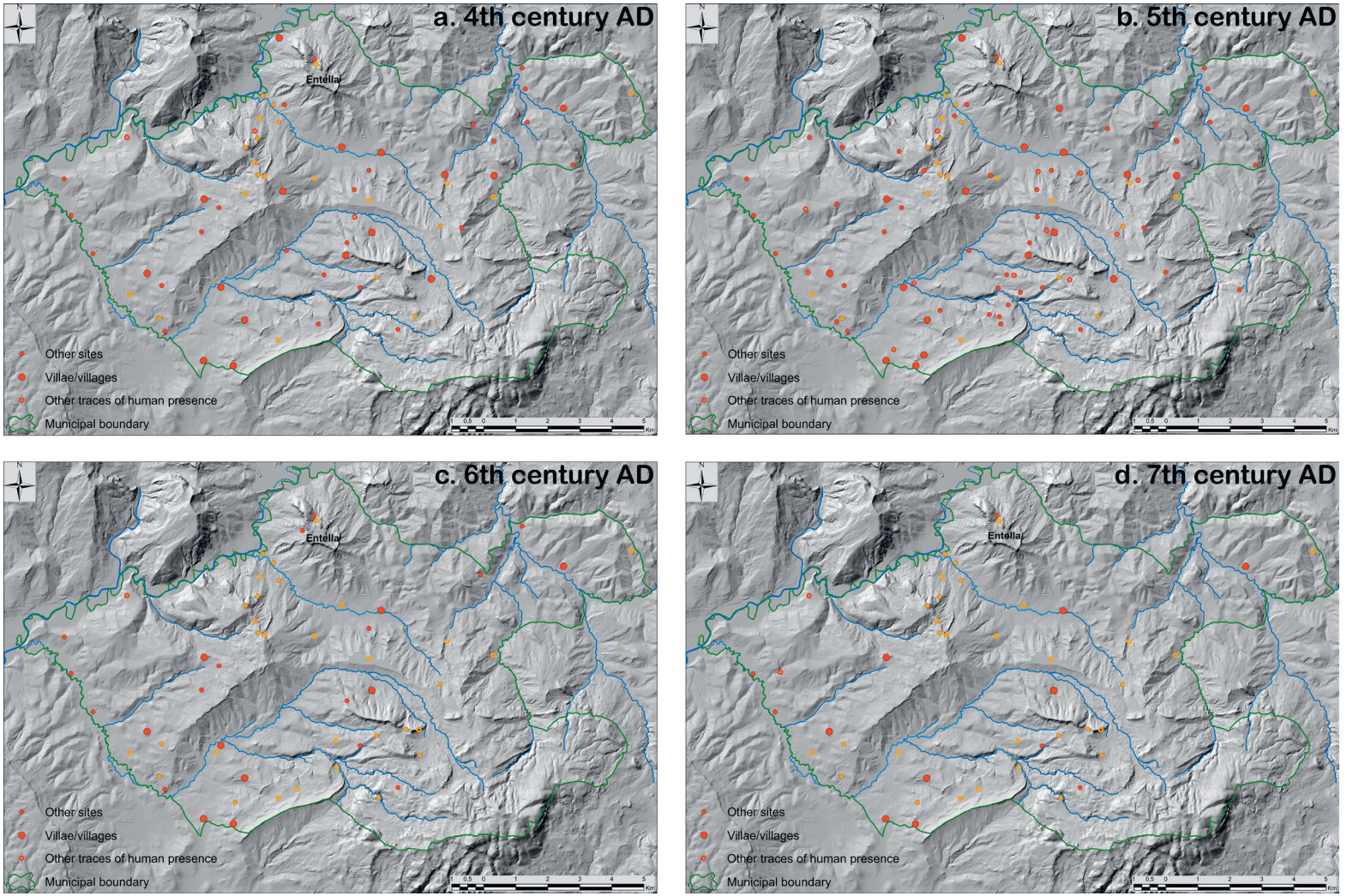



Fig. 7: The Contessa Entellina Survey. Late Antique settlement. The findings from the sites and off-sites in yellow in the map allow only a general chronology 4th–7th cent. AD.

From the first decades of the 5th century AD (fig. 7b) the picture changes dramatically (fig. 8). All over the investigated area, amphorae are abundant and widespread. They consist mostly of Africana III C and *spatheion* 1 (200 items, roughly in a 1:6 proportion), and Keay 35 A and B (the latter attested in 50 exemplars) types, followed by Keay 57, *spatheion* 2A, and other isolated types.

This extraordinary increase is mostly due to African amphorae, containing *salsamenta,* wine and, to a smaller extent, olive-oil. Wine and olive-oil are foodstuffs that the Entellan country could surely yield. The impressive number of 5th century AD imports in the investigated area, therefore, suggests a clear tendency towards a wheat monoculture aimed at export (primarily towards Rome and to the *suburbium*), that probably led to a drop in local olive-oil and wine production, no longer sufficient for the local population.[26]

Fourth and 5th century AD artefacts, in the investigated area, testify to a market open to imported products, and a strong level of integration in an interregional exchange network. In particular, most of the goods (over 90% of transport amphorae) and vessels (fine-ware, lamps, coarse pottery) come from Africa. The majority of African items could reach Sicily as part of cargoes in ships sailing back to Africa from Rome; but in southwestern Sicily we can add another supplying form (in particular in the 5th century AD), through local navigation from current northern Tunisia to the southwestern coast of the island, as demonstrated by M. Bonifay: a circular trade probably linked to the African demand of peculiar Sicilian goods (sulphur from Agrigentum mines?).[27]

There is no need to imagine direct contacts between the Entella region and North Africa: African goods probably reached one of the main harbors of southern Sicily and were re-distributed, via coastal navigation, to minor ports, from which they continued up river-valleys and penetrated inland areas.

*Saltus* and *silvae* exploitation was probably a constant in the economy of the Entella region throughout the centuries. As for the late Imperial age, it reveals a picture of a rather diversified and dynamic economy, and therefore presumably more adaptable to short- and long-term crises and changes.

At present, we lack clues to identify changes in the 6th and 7th centuries AD. There is still a fairly good level of integration in the Mediterranean exchange network.[28] Imports from Africa continue up to the end of the 7th century AD, even though we witness a progressive drop, maybe owing to a population decrease, and/or to a reduced and/or socially diversified availability of those goods. The transport amphorae of the 6th and 7th century AD consist mainly of Keay 62 and Keay 61 amphorae, besides most of the Keay 64 and other isolated amphorae types.

At the end of the 5th century AD, a sudden fall in the number of rural sites is detectable in the Entella region (fig. 7b–d). The available data strongly suggest that this dramatic fall was the outcome of systemic transformations of land tenure and exploitation, in the region. This crisis may be connected with the possible development of a tendency towards grain monoculture, detected in our region, as we have seen (but also in other

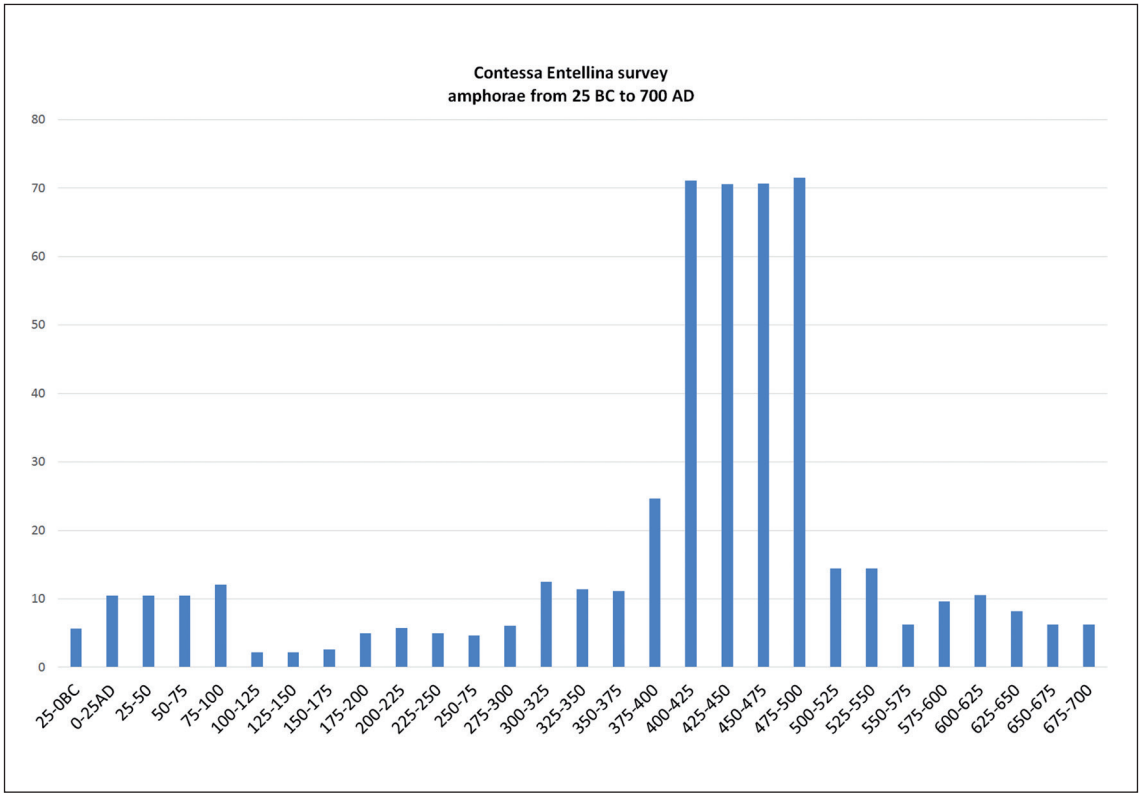



Fig. 8: The Contessa Entellina Survey. Early Imperial to late Roman amphorae trend.

districts of inland Sicily), in the 5th century AD, and to the economic changes affecting the Mediterranean area after the Vandal conquest of Africa (439) and the final interruption of the *annona* from North Africa (455).[29]

However, any attempt to explain the drastic settlement changes between the 5th and the 6th century AD solely within the framework of grain production, runs the risk of underestimating the complexity of the late antique Sicilian economy, where monoculture tendencies appear to be counterbalanced by crop diversification in private consumption-oriented agricultural production and by a deep-rooted presence of specialized productions.[30]

Between the late 5th and 7th century AD the small number of oriental amphorae from the investigated area suggests that the latter reached our territory not directly from the east, but through Africa.[31] Also the trade with eastern Sicily and southern Italy is definitely smaller than that with North Africa[32]. Only the Arab conquest of the latter (698: the fall of Carthage) will cause a drastic drop in exchanges between the two shores of the Sicilian Channel.

## Notes

[1] For a comprehensive bibliography of the research at Entella, see Gulletta 2001. Further, updated literature is in Michelini 2021b, 230–237.

[2] Entella II 2021.

[3] On ceramic production at Entella from the archaic age to the Middle Ages, and on gypsum quarrying in antiquity on the Entella plateau, Corretti et al. 2017, 67–68, with former bibl.

[4] On the archaic and early Classical age: Serra 2021.

[5] The import of transport amphorae witnesses to a local economy partly open to external trade, and no more self-sufficient and autarchic: for Sicily as a whole Albanese Procelli 2003, 48, 176; Serra in Facella et al. 2019, 239.

[6] Guglielmino 2000.

[7] Montana et al. 2017, with former bibl.

[8] On late classical, early and late Hellenistic ages: Michelini 2021a.

[9] Corretti in Corretti et al. 2017, 79–82.

[10] Montana 2011, 48–49.

[11] From the end of the 4th cent. and for the first 30 years of the 3rd cent. BC, the *emporia* of Panormos and Solous play a relevant role in the increasing circulation of Punic amphorae (probably containing fish) and in the flourishing trade between the Tyrrhenian basin and the Carthaginian *eparchia:* Bechtold 2015a, 68–71; Ead. 2015b, 96–99.

[12] Michelini 2021b, 563–589.

[13] On the distribution of Velian and Paestan amphorae in western Sicily: Bechtold 2013, 68–80.

[14] Corretti – Capelli 2003; Corretti et al. 2014.

[15] On the role played by Italic mercenaries – settled at Entella, and in Sicily as a whole – as a Hellenizing factor, and as carriers of artistic influence and trade contacts with the Italian Peninsula within Tyrrhenian mobility, esp. by the end of the 5th cent. BC: Ampolo 2001b, p. XIII; De Vido 2007, 306 and notes, with former bibl.; de Cesare 2006, 434–437, with former bibl.; Michelini in Facella et al. 2019, 241, 247.

[16] On cereals at Entella in Hellenistic times Ampolo 2001a; Ampolo 2001b for a general review of the Entella decrees.

[17] Corretti et al. 2014, 524–526.

[18] Michelini 2021a, 77–79.

[19] On early and middle Imperial age Vaggioli 2021.

[20] At least some of the Dressel 21/22 amphorae show fabrics apparently similar to those produced in the Alcamo kilns (Giorgetti – González Muro 2011).

[21] According to present evidence, Sicilian trade with Gallia and Iberia is rather small in volume, and limited to port cities: Wilson 1990, 253, 275; Malfitana – Franco 2012, 187–191.

[22] On wine production in Roman Sicily: Wilson 1990, 191–192; Wilson 1993, 289–290.

[23] On the partial autonomy of ceramics trade compared to foodstuff trade: Panella 1986, 445.

[24] Sicilian productions of wine and olive oil (the latter only for local needs and not for export: Wilson 1993, 290; Malfitana et al. 2013, 423) able to satisfy local consumption are attested in this period also in other districts of western Sicily, e.g. in the territories of Segesta (Molinari – Neri 2004, 112–114; Cambi

2005, 630–631), Agrigentum (Rizzo et al. 2014, 218), Selinous (Lentini 2010, 211–212), Baucina (Bordonaro 2011, 92), Alesa (Burgio 2008, 251).

[25] On Late Antiquity (4th–7th cent. AD), see Facella 2021.

[26] See Facella 2014, 5–6. A similar picture is witnessed in the Agrigentum (Rizzo et al. 2014a, 218), Segesta (Molinari 2002, 334; Molinari – Neri 2004, 117–122; Cambi 2005, 632–633), Trapani (Filippi 2003, 502) and Selinous (Lentini 2010, 211–212) regions. For Italy in general, see Vera 1997/1998, 54–55.

[27] Malfitana – Bonifay 2016, in part. 376–381, 409–410. 415–416. 423, 442.

[28] Similarly to the picture that emerges in the Segesta region (Molinari 2002, 334) and, in general, in inland Sicily (Vaccaro 2013, 281).

[29] See Facella 2021, 186–193 for a more detailed analysis.

[30] See Belvedere 2004, 4 and note 31; Rizzo 2010, 290; Molinari 2013, 102. On a clear tendency towards polyculture among ecclesiastical tenants in Gregory the Great's Sicily, see Vera 2006, 449–450. For a brief overview of the economy of rural Sicily in the 7th cent. AD, see Cacciaguerra et al. 2015.

[31] Cfr. Caminneci 2010, 7 and Facella et al. 2014b, 543, both with bibl., and, more in general, McCormick 2001, 107–108.

[32] Facella et al. 2014a, 534.

## Image Credits

Fig. 1: Laboratorio di Storia, Archeologia, Epigrafia, Tradizione dell'antico (SAET), Scuola Normale Superiore (SNS), based on Google Earth image. – Fig. 2–8: SAET, SNS.

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# Roman Shops and Workshops

## Panel 8.17

# Economy and Trade on Monte Iato (Sicily) in the Roman Period – the Example of the Tavern

**Eva Riediker-Liechti**

## Introduction

The settlement of Ietas is located approximately 30 km southwest of Palermo, in the interior of Sicily. It lies on a hill plateau overlooking the passes to the north and the valley of the river Belice, the ancient connection to the south coast of Sicily. The site has been inhabited since the Archaic period until its destruction by Frederick II in 1246 AD. In this paper, however, the focus is on the early Roman Imperial period. At that time, according to Pliny the Elder,[1] Ietas was a *civitas stipendiara* (i.e. a tributary town).

The building analysed in this study (fig. 1) is located south of the Roman city's forum. The Institute of Archaeology of the University of Zurich has excavated the site between 1992 and 2007.

It is a long rectangular building with a dimension of 4,10 by 21,00 metres, and comprises two rooms. The excavations revealed numerous fragments of eating, drinking and cooking vessels as well as a masonry counter, various animal bones, and a baking oven (fig. 2). Therefore, the building can be interpreted as a tavern selling simple meals and wine (Latin: *popina*). Room A can be understood as the taproom, which was equipped with an area for the customers (the part with the paved floor), and has a working space for the staff behind the counter. In contrast, room B was presumably used for food preparation or for storage. This is implied by the butchery marks on the animal bones found in this area as well as by the rotary quern located in the western part of room B.

The examined findings come from a massive destruction layer present inside both rooms of the tavern. The building collapsed probably as a consequence of an earth-



Fig. 1: Ietas (Monte Iato, Sicily), ground plan of the tavern.

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Fig. 2: Baking oven and remains of the counter, from the west.

quake that happened around 50 AD and affected several parts of the Roman city.[2] The respective damages have been attested in a number of Roman contexts on the Monte Iato. This closed context permits the reconstruction of the tavern's inventory and in part of its facilities.

Pottery forms the majority of the findings[3] (72,8%, 1,190 minimum number of individuals). It can be divided into tableware and common ware (20,8% and 52,0% of the findings, respectively). In addition, the inventory was mainly composed of objects made of iron (9,5%), glass (2,0%) and bronze (3,5%), as well as oil lamps (7,0%) and coins (2,4%).

## Food and Beverages on Sale

Several categories of the findings can indicate the range of food and drinks that were sold in the tavern of Ietas.

First of all, the *popina* was furnished with an oven made of tiles, which was adjacent to the counter. It is a horseshoe-shaped baking oven, which was used to bake bread or possibly pastry. It was presumably equipped with a tapering clay tube that served as a chimney.[4] Compared to baking ovens in Pompeii, the oven in Ietas was quite small (baking space only 0,65 by 0,70 m) and not as massively built.[5]

Secondly, the analysis of the animal bones showed that beef, pork, mutton/chevon and venison were on the menu.[6] Pigs were prevalent with 39,1%, whereas cattle were represented by 29,6% of the total quantity. Deer constitute 18,7%, while sheep/goats occur more rarely (10,8%). According to the representation and distribution of the skeletal parts of the animals (mainly upper limbs, which are rich in meat, and cranial fragments), the meat was served as roast, stew or barbecued. Pig's head and sheep's head was presumably offered additionally. Moreover, pork and venison were possibly available in the form of ham.

On top of this, the finding of 6 shells indicates the consumption of seafood.

Among the pottery there were several amphorae (fig. 3). 23 specimens belong to the form Dressel 2–4 and contained wine.[7] Part of this wine was from the Tyrrhenian coastal region (10 specimens), whereas some of the Dressel 2–4 amphorae were produced in *Hispania Baetica* or *Hispania Tarraconensis* (6 and 2 examples respectively). Fish sauce was imported from the Iberian Peninsula, confirmed by 5 examples of Dressel 7–11 amphorae.[8] Pickled fish, mainly tuna, was brought in at least 17 amphorae of the form Dressel 21–22 (type Botte 1 b) from other cities in western Sicily (Alcamo Marina and Solunto have been suggested as production sites), or rarely from Calabria or Campania (2 examples of the type Botte 2 or 3).[9]

As far as other food is concerned, we may gain an idea from the Imperial edicts dating to the 1st century AD regarding the ban of certain comestibles in taverns. These sources mention for example, pastry,[10] vegetables in general,[11] peas, beans[12] and warm water.[13]

Furthermore, the *dolia,* that were part of the masonry counter,[14] should also be considered. As these vessels were too porous to hold liquids and no traces of pitch have yet

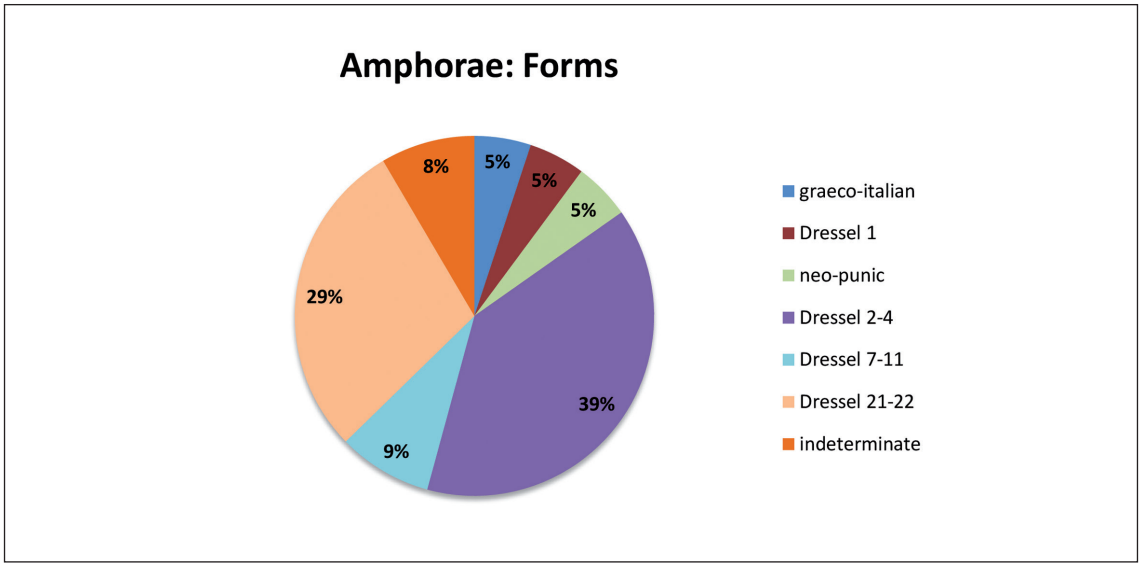



Fig. 3: Frequency of the amphorae forms from the *popina.*

been discovered on any *dolia* in Pompeii or elsewhere, they must have contained solid food, such as grain, nuts, dried or smoked fruit or vegetables.[15] This is also confirmed by carbonised remains from several taverns of Herculaneum that were found still inside the inset *dolia.*[16] Therefore, such comestible goods are likely to have been served in the *popina* of Ietas.

## Taverns in Pompeii Compared to the Tavern of Letas

In order to find out if the tavern on the Monte Iato was a standard Roman bar, I chose to compare the tavern in Ietas with several examples in Pompeii: until today, there are only two securely identified examples from Roman Sicily (Agrigentum and Calacte).[17] Even though taverns are attested in several regions of the Roman Empire (e.g. Italy, Iberia, Gaul, Africa, and the eastern provinces),[18] Pompeii is an appropriate site for analysing inns, as there are various examples and the premises can be studied in the context of their town planning. Moreover, Pompeii and Ietas are both dated to the 1st century AD, which is why the taverns' inventory should be comparable.

An L-shaped masonry counter like the one in Ietas is very common in Pompeii, where 72% of the counters show this form.[19] In most cases the tavern counters are aligned in such a way that they block part of the entrance. Thus, they were clearly visible from the street and the guests did not have to enter the tavern to be served. The counter in Ietas, however, is located inside the building next to the door, probably because the entrance was too narrow (width: 1,22 m) and had to remain unobstructed.

About half of the Pompeian counters were embellished on the surface with reused marble fragments embedded in mortar.[20] In Ietas, however, the counter top was decorated with terracotta slabs. The sides of the counter were presumably plastered and painted, which is attested by the coloured plaster fragments that were found in the destruction debris next to it.[21] Comparably, similar decoration of counters was found in Pompeii. Yet, these paintings were often figured. In contrast, in Pompeii, terracotta slabs or tiles have only rarely been used for the facing of counter tops.

Pompeian taverns are usually furnished with stone thresholds with a distinctive groove across much of their frontage.[22] This allowed for the installation of wooden shutters at the close of business. The *popina* in Ietas, on the contrary, was provided with a threshold that consists of *opus spicatum* in the northern part and of trampled earth in the southern part, respectively.

Evidence for wooden shelves or racks in the form of nails with broad nail heads, which was found in the tavern on Monte Iato, also is attested in some cases in Pompeii. Such nails (diameters between 1,0 and 5,5 cm, mostly between 2,0 and 3,0 cm) were probably used for the construction of wooden furniture, which has not survived.

In most of the taverns in Pompeii, wall paintings have been preserved. As the stucco fragments from the destruction layer show, the walls of both rooms of the tavern on

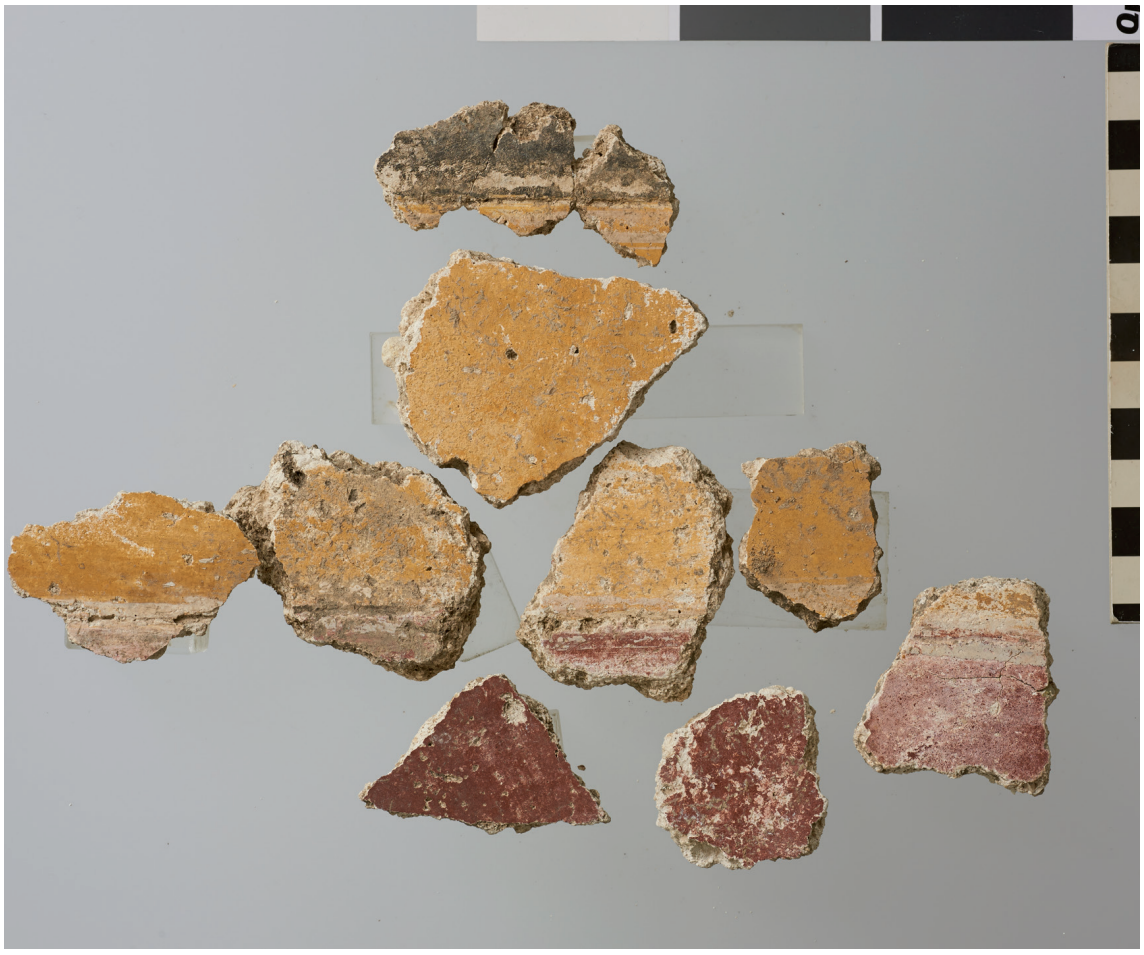


Fig. 4: Painted stucco fragments from the destruction layer.

Monte Iato were at least partly plastered and painted (fig. 4). The preserved colours are largely red, but there are traces also of yellow and black. As no figural motifs are recognizable, a geometrical design seems to be most likely.

In Pompeii, a *lararium* seems to have been part of the usual facilities of a tavern. In Ietas, in contrast, no structural remains were found that would indicate such a shrine. Nevertheless, there were single findings from the *popina,* like certain lamp forms (stand lamps and wheel-turned lamps with several nozzles), and *thymiateria,* which are normally interpreted as belonging to cultic contexts.[23] These could suggest that a *lararium* nevertheless existed in the tavern in Ietas.

The Pompeian bars usually comprised two or several rooms. In addition to the taproom, there typically was a dining room. As I already mentioned, however, room B of the tavern in Ietas presumably had a different function.

Regarding the range of findings, in addition to those objects that are to be expected in a tavern – like tableware, amphorae, cooking vessels, coins, oil lamps and animal

bones – one can observe tools (e.g. two sickles, a saw and a chisel), jewellery (e.g. belt buckles) and toilet implements (e.g. strigils and mirrors) both in Pompeii and on Monte Iato. Possibly, these items belonged to the staff or the guests of the tavern.[24]

In summary, it can be stated that there are common features among the taverns in Pompeii and the bar in Ietas, but also several differences.

## Significance of the Tavern in the Urban Context

The prominent location of the *popina* of Ietas, situated close to the edge of the forum of the town, is very conspicuous. Though the tavern is not situated directly at the forum square, which is located on a higher level, it is positioned immediately to the west of a ramp that leads to the forum. The excavation in 2017 revealed that the ramp was not the main access to the forum from the south (as was believed until recently), but rather that the tavern was located on a small open square, therefore presumably in a residential area of the town.[25] The ramp was apparently not part of the original plan of the forum (which dates to the Hellenistic period), but was built at the same time as the tavern that gave direct access to it. Since it was provided with a direct link to the forum, the *popina* must have been fairly important for the residents of Ietas. Moreover, the tavern's immediate vicinity to the *oikos* temple, located on the higher level of the forum directly to the north, further emphasises its significance within the city plan.

This location is particularly interesting as it stands in contrast to the presumption of many scholars up until recently, namely that there were no taverns located near civically important areas of a Roman city, such as the forum. This theory originated in the descriptions of taverns and bars by Roman authors, which are mostly in a pejorative context. The clients of these establishments are characterized as belonging to the lowest stratum of society, and their behaviour depicted as immoral or even illegal. Juvenal, for instance, mentions cutthroats, sailors, thieves, runaway slaves and the like.[26] They are furthermore contrasted with the honourable members of the nobility for whom it was improper to be seen in such a place.

Remarkably though, the analysis of the distribution of taverns and bars in Pompeii by Steven Ellis has showed that five taverns were once located close to one of the main entrances of the forum and another eight were situated nearby, within one block of a primary entrance.[27] This distribution reveals that the location of a bar is not determined by a "moral geography" but rather by a demand of the majority of the inhabitants of a town. The services of taverns – offering food and drink – were indispensable for many of the residents of a Roman city. The majority of people were members of the lower class and lived in rented flats where they had no dining rooms, kitchens or sometimes not even basic facilities for cooking.[28]

The results from Ietas point in the same direction. In this town, however, we have no evidence for tenements at present. At any rate, it should be taken into consideration

that the written sources may not apply to a town in the interior of Sicily and that the everyday life here might have been quite different from the one in Rome.

Other commercial zones on the forum of Ietas, besides the *popina,* are the forum square itself and the porticoes that surrounded the forum on the west, north and east sides, which could have been used for temporary commercial purposes. Moreover, another important commercial zone was located behind the east portico, where a row of shops[29] has been discovered.

## Trade

Commercial questions regarding the imported goods found in the tavern of Ietas have already been presented elsewhere.[30] In summary, it can be said that several categories of goods were imported to Ietas for use in the *popina.* From Central Italy, *terra sigillata* vessels, wine amphorae and single examples of thin-walled ware were brought in, whereas the Campanian orange ware vessels and one amphora came from southern Italy. On the Italian Peninsula in general, the examples of Pompeian red ware, the mould-made Roman Imperial lamps, and probably some specimen of common ware were produced. Amphorae containing fish sauce and wine, respectively, as well as one example of thin-walled ware, originated from the Iberian Peninsula. Furthermore, one specimen of Eastern Sigillata A and a few single bottom sherds of amphorae[31] even point to trading connections with the eastern Mediterranean and northern Africa. The remainder of the tavern's inventory was produced in other cities in Sicily (very likely the rest of the thin-walled ware, most of the Dressel 21–22 amphorae, and Sicilian wheel-turned lamps) or in Ietas itself.

## Summary

As a summary, it can be observed that a rather wide range of food and drinks were available in the tavern of Ietas. The building and its furnishings show many similarities to bars in Pompeii, but differences can be detected as well. Moreover, the tavern occupied an outstanding location within the city plan of Ietas, whereas the analysis of the imports revealed several trading connections. Undoubtedly, the examined tavern was an important part of the economy of Ietas and of the everyday lives of its residents.

## Notes

[1] Plin. nat. 3, 91.
[2] Some parts of the building were already constructed in the Hellenistic period, when the agora (or forum) was built. However, it was only used as a tavern from middle Augustan period onwards. This is indicated by several categories of findings, which can be dated accordingly.
[3] In total, the destruction layer contained 1,635 objects.
[4] Cat. no. 1645. This object was discovered in room A, in the western part of the area with the paved floor, in the destruction debris.
[5] Monteix 2013, 19–22.
[6] My sincere thanks to Jasmin Zellweger (former student of IPNA Basel), who analysed the animal bones.
[7] Bertoldi 2012, 26. 32. 76. 85. 93. 99–101. 111. 149. 188.
[8] Bertoldi 2012, 28 f. 46–49.
[9] Botte 2009, 5–7. 160. 171.
[10] Suet. Tib. 34.
[11] Suet. Nero 16.
[12] Cass. Dio 62, 14, 2.
[13] Cass. Dio 60, 6, 7.
[14] Fragments of at least three such vessels were found in the destruction debris behind the counter. They were originally built into it.
[15] Mac Mahon 2005, 78–82. Moreover, the shape of these vessels was unsuitable for cleaning.
[16] Maiuri 1958, 402. 434.
[17] Ellis (Ellis 2018, 16–18) additionally lists a tavern in Morgantina and Selinunte. These buildings however are not furnished with a counter, which is why I do not interpret them as taverns.
[18] Ellis 2018, 15–18.
[19] Ellis 2018, 51.
[20] Fant – Attanasio 2009, 1.
[21] The fragments from this area were mainly red with one exception, which was yellow.
[22] Ellis 2018, 38–40.
[23] DNP XII (2002) 522 s.v. Thymiaterion (R. Hurschmann).
[24] When reconstructing inventories of Pompeian taverns, one has to bear in mind that many excavations at this site have been conducted decades or even centuries ago and thus, not by modern standards. For that reason some findings were not retained and/or not even (fully) recorded.
[25] Mohr et al. 2018, 89–92.
[26] Iuv. 8, 171–176.
[27] Ellis 2004, 376 f.
[28] In Pompeii, 42% of the households were rentable, whereas in Herculaneum rentable households amounted to 53% (Pirson 1999, 162).
[29] Isler – Spatafora 2004, 15.
[30] Riediker-Liechti 2018, 413–419; Riediker-Liechti 2016, 11 f.; Riediker-Liechti 2015, 48.
[31] Possibly 2 fragments of Dressel 5 and 2 fragments of Tripolitana I amphorae (Bertoldi 2012, 139. 190).

## Image Credits

Fig. 1: Ground plan: Ietas excavation project, Zurich. – Fig. 2: Photo: Ietas excavation project, Zurich. – Fig. 3: Diagram: Eva Riediker-Liechti. – Fig. 4: Photo: Eva Riediker-Liechti.

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# The Singularity of Rome. The Sumptuary City

**Jordi Pérez González**

## Rome's Commercial Topography. The Firsts Markets in Rome: The Republican Market of the 3rd Century BC and the Market of *M. Fulvius Nobilior*

We do not know the exact date of construction of the first market in Rome, but literary sources do mention that it was already functioning during the 3rd century BC. We know from Varro that it was built around the same time as the stairs of the Penates Temple,[1] and it is more than likely that both were part of the same construction program. Livy situates this market northeast of the Via Sacra, between the *Argiletum* and the *Carinae.* The same author alludes to the fire of 210 BC, which destroyed a *macellum* or *forum piscarium* with a new one rebuilt the next year.[2] This episode provides an *ante quem* date for the physical existence of the structure. The mentioned market is placed in the same space, between the *Septem tabernae,* located next to the *Lautumiae* and the *Atrium Regium.* Therefore, the *macellum* of the 3rd century BC was east of the Forum, flanked by a series of private rooms and preceded by the stores along the Via Sacra. This *macellum,* as most of those studied by Cl. De Ruyt, has the particularity of being very close to the administrative center of the city, next to the Forum. It could have been attached to it or separated by a street, a series of stores, administrative premises, or a building. It is also likely that one of its entrances was in the same direction as the Forum.[3]

This market had to be already functioning in the second half of the 3rd century BC. At this time, the area north and east of the Roman Forum was filled with big houses and stores, which together with the *macellum,* the *Septem tabernae,* and the *Atrium Regium* were reformed during the following years. This resulted in the addition of new buildings, while the area south of the same region was left untouched until a later remodeling.[4]

Livy relates the construction of the new *Basilica Fulvia-Aemilia* with the construction of the new *macellum* of 179 BC by *M. Fulvius Nobilior.*[5] This commercial complex was further away from the Forum than the previous market, filling an area more to the northwest with respect to the other, leaving room for the *Basilica Fulvia-Aemilia,*[6] and was located below the emplacement of the later *Templum Pacis.*[7]

This market, in the very center of the Urbs, worked until the first half of the 1st century AD. Thus, it was contemporary with the former Republican *macellum* during the latter's last years, and with the new *macellum Liviae* of the Imperial era. It would be eventually replaced by the construction of the *Templum Pacis,* built between 71–75 AD, under the rule of Vespasian. It could be possible that the fire that burned through the city in the year 64 AD, during Nero's rule, affected the structure of this *macellum.*[8] This episode has been viewed by some as an opportunity to move the food-related businesses away from the historical and administrative center of the city.

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## The Markets of the Imperial Era: The *Macellum Liviae* and the *macellum Magnum* or *Augusti*

A direct consequence of the increase in population during the reign of Augustus was the urban expansion of Rome, with new buildings, both private and public,[9] being built, as well as entire new neighborhoods. In this context, a market was built on the Esquiline Hill, which would be popularly known as the *Macellum Liviae.*[10]

Likewise, Emperor Nero ordered the construction of the *macellum Magnum* or *Augusti* in 59 AD near the Caelian Hill.[11]

There is clearly a decentralization process taking place in terms of the food markets from the center of Rome with respect to the Republican markets. This is also seen in other lesser sites, such as the *forum piscarium, forum cuppedinis, forum coquinum,* or even the *forum boarium* and the *holitorium,* which seem to move to other areas of the capital. The urban landscape was ever changing during this early Imperial age. This process seems to be promoted by the Imperial administration, which in its intent of embellishing and modernizing the political center of the capital, moved these commercial complexes to other parts of the city from their original location.

The market was not engulfed by the increasing monumentality of the neighboring *Domus Aurea,* and it remained in its original location until the 4th century AD.

## The Via Sacra. Sumptuary Rome

Taverns were the central axis of the Imperial capital's artisan and retail activity. These locales moved around the city as part of its urbanistic and architectonic evolution, and also as a result of their moving away from their original emplacements in the city-center to the periphery. This latter movement was also related to the establishment of these stores in the new commercial centers of the time. We must not forget that next to the structure of these new buildings, there is evidence for the existence of rooms, probably used for retail purposes. This concentration of commerce would attract other merchants, who would place their businesses in the available locales closest to these buildings.

In parallel, we see how the movement of the commercial locales from the progressively more monumentalized center to a further away area, did not stop commercial activity from continuing to spread throughout most of the city. In this way, tied to the economic boom of the early Imperial age, there was an unprecedented commercial growth within the city, with Rome becoming a sort of 'Grand Bazaar'.[12]

The accumulation of locales with a similar commercial activity stimulated the appearance of specialized avenues and/or neighborhoods. This resulted in some streets being referred to on the basis of the commercial activity that occurred there.[13] Some examples of this are the *vicus Materiarius, vicus Frumentarius, vicus Turarius, vicus Mundiciei, vicus Sandaliarius,* etc.[14]

The center of Rome went from housing the food and animal markets during the Republican era, to accumulating a high number of sumptuary stores during Imperial times. Evidence of this comes from the inscriptions of the artisans and merchants, who stated the placement of their workshop/store in the center of Rome, especially in the case of the *margaritarii,*[15] the *aurifices,*[16] the *vestiarii,*[17] and the *purpurarii,*[18] among others.[19]

Analyzing the inscriptions found in the Roman Empire that mention characters related to the trade of luxury goods, allows us to remark two main points. First, Rome was singular as a center of attraction for the sumptuary trade with respect to the other Italic regions and Roman provinces[20] (fig. 1); secondly, there was the notable interest of the urban elites for jewels, fabrics, and ointments.

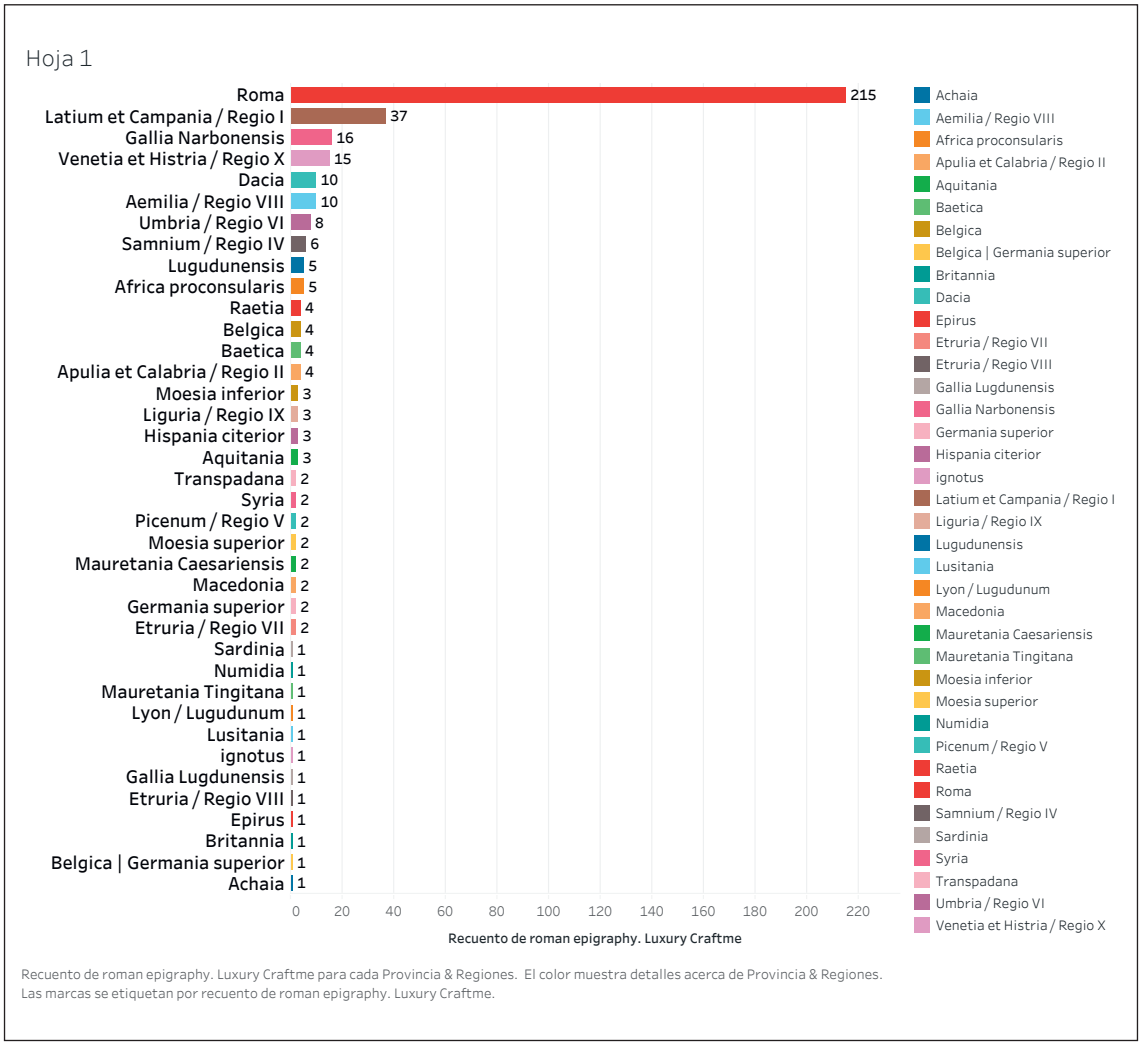



Fig. 1: Graph showing the number of inscriptions found both in Rome and outside the capital (regions and provinces) that mention merchants dedicated to luxury commerce.

In this respect, around 90% of the merchants in these inscriptions devoted themselves to the making and selling of gemstones, pearls, precious metals, dresses, silk, purple, and ointments (fig. 2). The capital had a higher number of professionals dedicated to making and selling jewels and other objects made of precious metals such as gold and silver (fig. 3).

Those artisans and merchants that could acquire a tavern/workshop in the very center of the capital preferred to place their businesses as close as possible to the center. The most coveted area of the center was the *vicus Tuscus,* the *vicus Iugarius,* and the area of the *Velabrum.*[21] In order to determine the multiple dispositions of the rooms where these artisans and merchants where located, J.-P. Morel defined some neighborhoods as "*quartiers situés, précisément, à la périphérie immédiate du centre*".[22] Coarelli had already

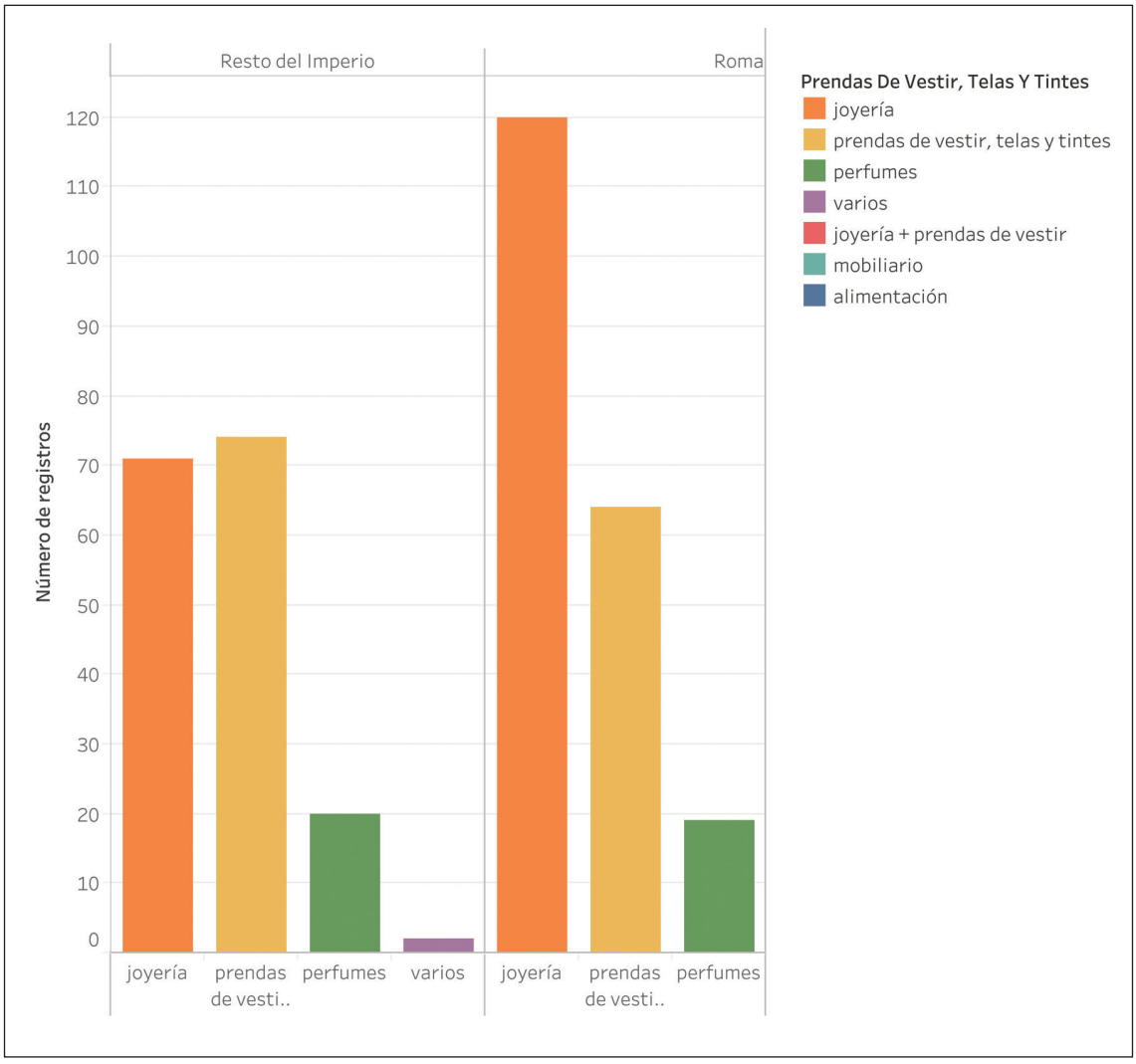



Fig. 2: Types of sumptuary commerce in Rome and the rest of the Empire.

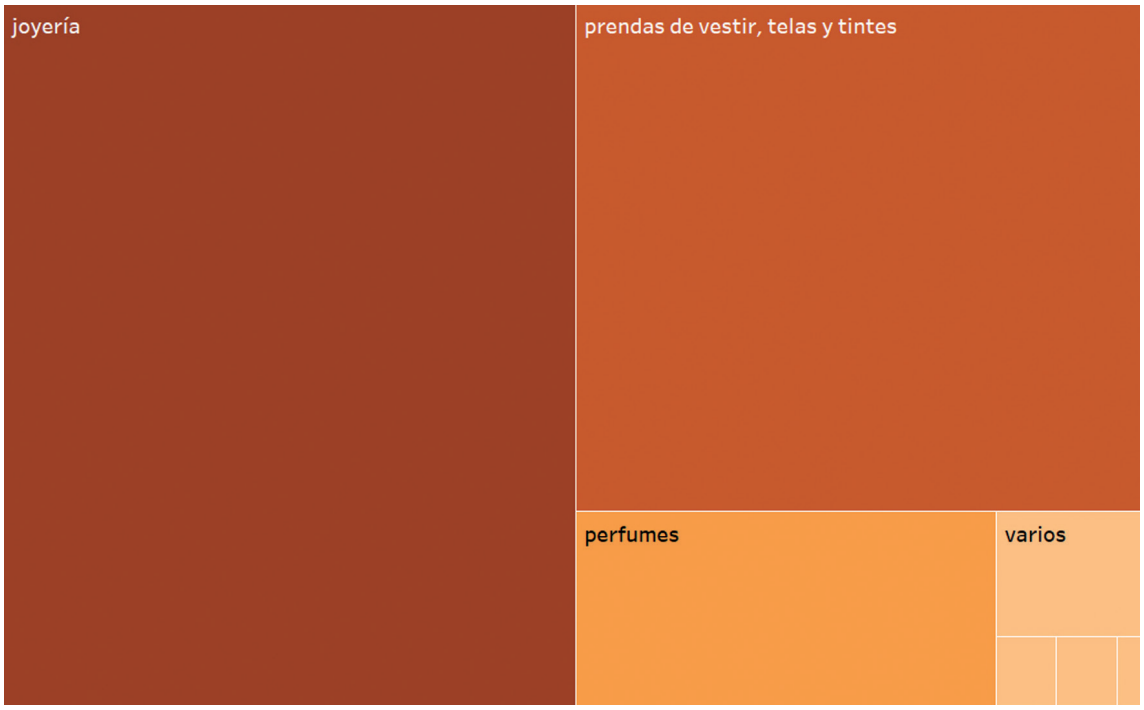



Fig. 3: Types of sumptuary commerce according to the study of the Latin epigraphy in the Roman Empire.

defended the articulating role of the *vicus Iugarius* and the *vicus Tuscus* in the area, the point of union of the *regiones* VIII–XI, which saw a constant transit of people and merchandise between the Roman Forum, the *Forum Holitorium,* and the *Forum Boarium.* Its proximity to the prestigious Via Sacra made the two streets coveted by the most ambitious merchants.[23] Since the end of the Republican era onward, these streets were notable for their high concentration of sumptuary establishments.[24]

Just as it nowadays, the location of a store was and is one of the determinant factors of its commercial success. If today, the *Upper 5th Avenue* (NY-USA), *Causeway Bay* (HK-China), or the *Avenue des Champs-Élysées* (PAR-France) are the streets with the highest rents in the world, in the Roman Empire no street could compete in importance with the Via Sacra.[25]

The improvement of the monumental character of the political and administrative center of Rome resulted in food-selling businesses being moved out to other parts of the city. These were subsequently replaced by other businesses that specialized in luxury goods. This symbiosis between the center of Rome and businesses that specialized in selling the most exotic goods, which came from all parts of the known world, caused the Via Sacra to be known for several centuries for its sumptuary nature. In this way, to the Roman people of the 2nd century AD, the commercial nature of the avenue was clearly defined by the kind of commerce located there. As a result, they forgot that the

same street (and the neighboring ones) has been home to lower-rank commerce three centuries before.

In this respect, we have to wonder whether the acknowledgement of this kind of street is due to their location within the urban topography, or to the commerce located there. On our side, and after analyzing these kinds of avenues in two time periods that are so distant and different, we believe that it is the commerce that determined the nature of the avenue, and not the other way around. Consequently, it is the accumulation of commerce considered to be at a luxury-level that determines the street's function as sumptuary within the urban landscape. The movement of this commerce to another place will result in this new area being considered the place of reference for the trade of this kind of goods.

## Notes

[1] Varro. *Hum.Rer.* 121.

[2] Liv. 11, 16; 27. 1–4. For the first *macellum* in Roma: De Ruyt 1983, 158–160. García Morcillo 2005, 195. See also, Pisoni Sartorio 1996, 202–204.

[3] Cf. *Bulla Regia, Thurburdo Maius, Djemila y Philippes, Belo Claudia, Alba Fucens, Sepino, Timgad, Thibilis,* and *Aquincum* in De Ruyt 1983, 328.

[4] De Ruyt 1983, 246 f.

[5] Liv. 40. 51, 4–6.

[6] Varro. *Ling. Lat.* 5.147. Cf. Coarelli 1985, 151; De Ruyt 1983, 160 f.

[7] Carettoni 1948, 111–128.

[8] De Ruyt 1983, 163; García Morcillo 2005, 195. Last mention of republican *macellum* (179 B.C.) Hor. *Serm.* 2, 3.

[9] De Ruyt 1983,163. 329. Cf. Suet. *Aug.* 28 on the reconstruction and modernization of Rome.

[10] Morel 1987, 137.

[11] Dio Casio. 61, 18, 3. Mentioned in the *Notitia urbis Romae,* where the location of this building is located between the *Templum Divi Claudi* and the *Lupanares,* cf. Valentini – Zucchetti 1940, 92 f.

[12] Marc. *Epig.* 7. 61.

[13] Morel 1987, 143.

[14] Aguilera Martín 2002, 116 f.; Goodman 2016, 320 f.; Droß-Krüpe 2016, 346 f.

[15] Sevillano López – Soutar Moroni 2012; Pérez González 2014a, 267–282; Pérez González; 2014b, 1413–1415; Pérez González 2017b, 251–279; Schneider 2018.

[16] Di Giacomo 2010; Di Giacomo 2012; Di Giacomo 2016; Pérez González 2017d, 37–70; Pérez González 2018, 5–16.

[17] Pérez González 2017e, 149–194.

[18] Pérez González 2017e, 149–194. For the *unguentarii:* Pérez González 2017c, 82–110.

[19] Papi 2002, 50 f.; Holleran 2012, 55–57; Monteix 2012, 333–352; Laurence – Newsome 2012; Courrier 2014, 202–252; Wilson – Flohr 2016; Pérez González 2017a, 143–175.

[20] The Dataset is distributed under the terms of a Creative Commons Attribution-Share Alike 4.0 International Licence. The source code of the model is licensed under a GNU General Public Licence; both can be downloaded from <https://github.com/JordiPerezGonzalez/Roman-Epigraphy.-Rome-vs-Empire.git> (accessed 14 October 2018). The Figures 1–3 use this Dataset. A dynamic visualization of the dataset, in Tableau public: <https://public.tableau.com/profile/jordi2068#!/vizhome/luxusall05allg/Dashboard1>

[21] Coarelli 1980, 405 f. (2008 edition). Cf. *LTUR,* s.v. *vicus Tuscus,* 195–197; s.v. *vicus Iugarius,* 169 f.

[22] Morel 1987, 139 f.

[23] Baratta 2007.

[24] CIL XIV, 2433 = ILS 7597 = Franchetti 11 = AE 2001, 110 = SupplIt Imagines – Latium 1, 237 = EDCS-05800400 = EDR153123: *L(ucio) Plutio L(uci) l(iberto) Eroti / purpurario de vico Tusco / Plutia L(uci) l(iberta) Auge / fecit sibi et / Veturiae CC(aiorum) l(ibertae) Atticae.*

[25] Pérez González 2017a, 143–175.

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# Roman Water Management and Infrastructure

**Panel 8.18**

# L'importanza delle infrastrutture idriche a Roma: analisi tecnico-strutturale di un tratto di *Aqua Claudia* e *Anio Novus* e delle sue opere manutentive e di consolidamento antiche

**Leonardo Radicioni**

All'inizio del I secolo d.C., dato che l'acqua fornita dai sette acquedotti già esistenti non era più sufficiente al fabbisogno di una città in rapida espansione come Roma, l'imperatore Caligola nel 38 d.C. iniziò la costruzione di due nuove acquedotti, opera portata poi a compimento da Claudio nel 52;[1] questi furono denominati *Aqua Claudia* e *Anio Novus*.

I due acquedotti percorrono rispettivamente circa 60 e 80 km, dall'alta valle dell'Aniene fino in città e l'ultimo tratto di 9 chilometri del loro percorso, che va circa dalle piscine limarie all'altezza del VII miglio della Via Latina, presso Capannelle, fino al castello terminale, lo percorrono in due spechi sovrapposti sulla famosa lunga serie di arcate in opera quadrata che attraversa la Campagna Romana.

Se ne presenta qui una porzione particolarmente rappresentativa, ovvero quella compresa tra Via Frascati e Porta Furba, la quale mostra che a rendere questi acquedotti un organismo complesso è, più che la costruzione originaria, tutta la serie di interventi di manutenzione o riparazione succedutisi nei secoli, che ne hanno ampiamente modificato forma, dimensioni, e soprattutto statica e funzionamento strutturale.

Lungo tutti i nove chilometri di arcuazioni si riscontrano molte variazioni e soluzioni costruttive, e un ancor più grande numero di tipologie di interventi successivi, che si sono resi indispensabili per supplire a problematiche di varia natura, sicuramente manifestate dalla struttura nel corso dei secoli.

Iniziando dalle soluzioni costruttive, quella che colpisce in modo più evidente al primo sguardo è la differenza di materiali usati per la struttura in blocchi. Per la maggior parte dei piloni e archi conservati, infatti, si riscontra un uso prevalente di peperino, ma a volte si trovano pochi filari di blocchi in tufo marrone perlopiù localizzati alla base del pilone o all'imposta delle arcate (fig. 1); in alcuni casi l'intero pilone fino alla cornice d'imposta dell'arco è realizzato in tufo marrone.

Il panorama degli interventi che sono andati a modificare e coadiuvare la struttura originaria dell'acquedotto è ancora più ampio. Questi sono realizzati tutti in opera laterizia e si possono raggruppare in quattro grandi categorie: restringimento o chiusura completa della luce dei fornici, ispessimento della sezione dei piloni, ispessimento dell'intero acquedotto, e, infine, risarcimento di blocchi con muratura laterizia. In alcuni casi queste soluzioni sono combinate nell'ambito di un breve tratto e risultano utilizzate nel corso dei secoli per sopperire a sopraggiunti problemi o veri e propri errori di progettazione delle arcuazioni. La loro ricorrenza è molto varia: interi tratti sembrano non aver mai avuto bisogno di interventi, altri sono stati ampiamente modificati; in un tratto ristretto si possono poi osservare differenti tipologie di interventi l'una vicina all'altra.

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Fig. 1: Esempio di piloni composti da materiale misto, nel tratto presso Via del Quadraro.

In questo panorama il tratto di *Aqua Claudia* e *Anio Novus* in oggetto è quello che presenta il maggior numero di interventi realizzati nel corso di secoli, concentrati in un tratto relativamente ridotto, lungo circa m 160, rispetto all'intero sistema di arcuazioni, e di entità e impegno notevole. Questo era composto originariamente da sedici piloni in blocchi di tufo, di cui solo i sei verso monte sono oggi ancora conservati,[2] mentre gli altri furono asportati, probabilmente nel Rinascimento, per farne materiale da costruzione; la loro esistenza è oggi testimoniata dalle impronte dei blocchi rimaste impresse nel conglomerato cementizio delle successive tamponature (fig. 2).

I piloni sono larghi in media m 3,30, mentre la lunghezza è variabile; quelli superstiti e visibili sono lunghi in media m 3,60, mentre quelli scomparsi, le cui lunghezze sono state desunte dai vuoti, sono in media di m 3,85, con il più lungo di ben m 4.

Anche le distanze che intercorrono fra i piloni cambiano sensibilmente fra i fornici I e III e dal fornice VII in poi. Infatti, se la distanza fra i primi due è di m 5,25, per il tratto successivo a quello completamente inglobato nelle murature di supporto si possono osservare intercolumni[3] molto più ampi, che vanno dai m 6,40 ai m 6,70.

Le fondazioni dei piloni di questo tratto non sono mai state indagate, ma in altri casi in cui sono state osservate presentavano caratteristiche piuttosto ricorrenti,[4] consistenti in uno o più filari di blocchi di tufo o peperino aggettanti dal filo del pilone dai m 0,15 ai m 0,40 circa, poggianti sulla fondazione vera e propria di conglomerato cementizio, an-



Fig. 2: Prospetti O (superiore) ed E (inferiore) del tratto di *Aqua Claudia* e *Anio Novus* presso Porta Furba.

ch'essa aggettante,[5] con *caementa* di scapoli di selce e tufo. Gettata in cavo libero, aveva una profondità di almeno m 2. I blocchi dei piloni venivano posti su questa piattaforma di testa e di taglio, ma senza una scansione regolare.

Il materiale utilizzato qui a Porta Furba, fatta eccezione per le cornici all'imposta delle arcate e le lastre di fondo dello speco della *Claudia,* è unicamente un tufo marrone-rossiccio, probabilmente tufo dell'Aniene (fig. 3).[6]

All'imposta degli arconi, dunque, dai piloni aggettano cornici in peperino alte m 0,50 circa; in questo caso il materiale più resistente fu senza dubbio preferito rispetto al semplice tufo dell'Aniene per una zona sottoposta a forze importanti.

La serie di arcate è realizzata con singola ghiera in blocchi; la loro dimensione si adatta al variare dello spazio che intercorre fra i piloni. Gli archi non si impostano a filo coi piloni sottostanti: su ogni lato è infatti presente una risega di m 0,30 circa, pertanto le luci degli archi sono più grandi rispetto agli intercolumni, e potevano arrivare anche a circa m 7,30.

Diversamente rispetto ai piloni su cui si impostano, le arcate sono profonde solo m 2,65 circa,[7] e direttamente sul loro estradosso poggiano le lastre di fondo, un poco aggettanti, dello speco della *Claudia,* anch'esse in peperino come le cornici dei piloni ed alte ugualmente m 0,50 (fig. 3).

L'arcata III ha dimensioni minori rispetto alla precedente e la quota dell'intradosso è più bassa di m 0,30; questo comporta una decisa inclinazione del fondo del primo speco, anomalia visibile anche ad occhio nudo su entrambi i lati dell'acquedotto (fig. 4); oltre questo punto la quota rimane stabile, come si nota all'altezza del fornice VII, superato il quale purtroppo non si conserva più la struttura originaria in blocchi.

La struttura originaria appena descritta venne interessata da importanti modifiche strutturali probabilmente già dopo meno di un secolo. Il primo intervento riscontrabile è la realizzazione di sottarchi a doppia ghiera in laterizio su due ordini; questi, restringendo la luce del fornice di circa la metà, allargavano con i loro piloni la sezione dei sostegni originari supportandone la capacità di resistenza. Questa soluzione fu adottata per quasi tutte le arcate del tratto, e nella maggioranza dei casi costituisce l'unica testimonianza residua dell'infrastruttura, essendo stati completamente asportati i piloni in blocchi. Solo nei fornici II e III la fisionomia degli interventi di consolidamento è sostituita da tamponature piene dell'intero spazio tra i piloni (fig. 4). In quelli visibili osserviamo archi con doppia ghiera in laterizio non aderenti all'intradosso dell'arco in blocchi; lo spazio intermedio è tamponato con muratura sempre in cortina laterizia.

Visibili in più punti, sono i cagnoli in travertino utilizzati per l'appoggio della centina delle archeggiature in muratura e lasciati in situ per la manutenzione.

Gli archi in muratura dell'ordine inferiore, sono quasi tutti nascosti dai muri che inglobarono l'intera struttura in ultima fase.

Probabilmente questo impegnativo intervento non bastò a risolvere i problemi della struttura, poiché in seguito si decise di tamponare completamente la luce dei fornici



Fig. 3: Differenti tipi di tufo impiegati nel tratto di Porta Furba, e cortina laterizia in facciavista sul lato della muratura di ispessimento tarda.

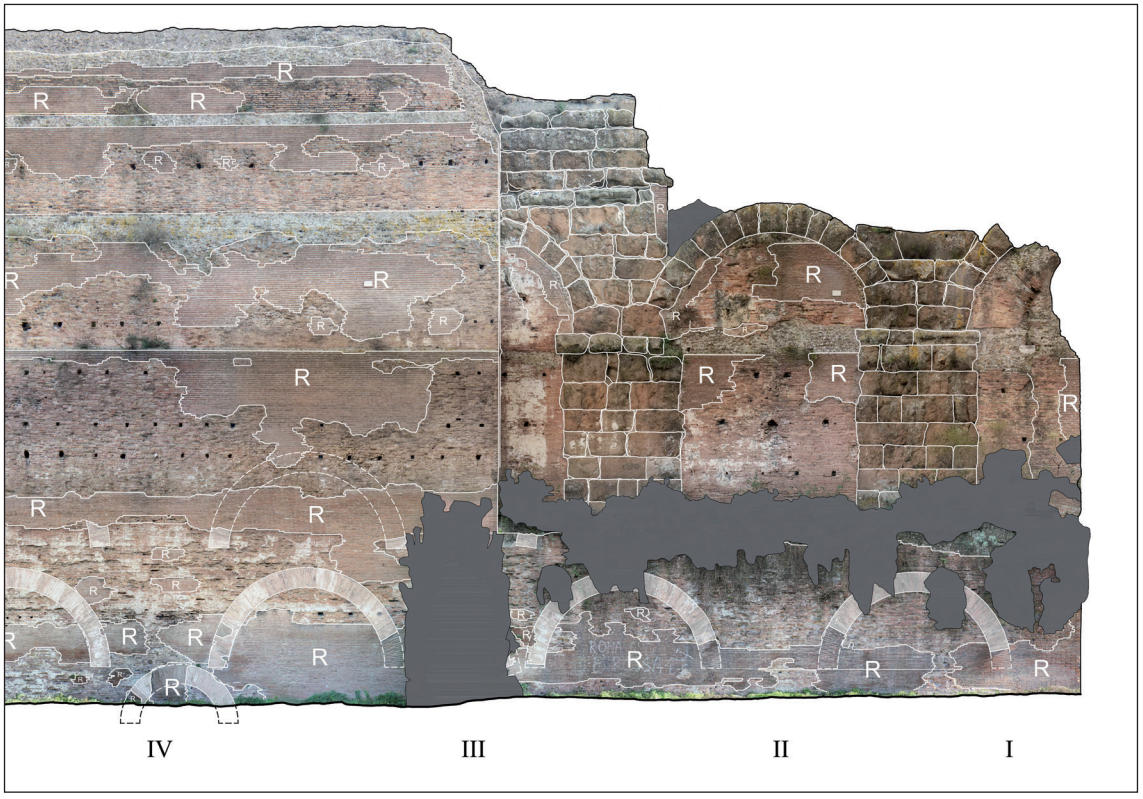



Fig. 4: Particolare del prospetto O: tamponature piene dei fornici II e III e inclinazione della porzione superstite di speco fra questi due.

con solide murature in laterizio. Alcuni passaggi furono lasciati aperti, sicuramente per motivi di percorribilità fra un lato e l'altro dell'acquedotto.

Se gli interventi visti finora sono riscontrabili in vari punti delle arcuazioni dell'*Aqua Claudia,* l'ultimo intervento interessò esclusivamente il tratto qui preso in esame. L'intera struttura venne inglobata fra due potenti muri continui in laterizio, che la ispessirono in modo sostanziale; in base alle modalità di appoggio alla struttura primaria, lo spessore di queste murature può variare dai m 1,30 ai m 1,70 circa. Il loro stato di conservazione si presenta in maniera molto diversa fra i due lati, e lo sviluppo in elevato raggiungeva la quota degli spechi, in corrispondenza dei quali queste strutture avevano una risega di circa m 0,90–1, come dimostrato da un breve tratto conservato sul lato E. Un solo passaggio consentiva il collegamento tra i due versanti dell'acquedotto in corrispondenza del tratto centrale (fornice IX, fig. 5). Contemporaneamente venne chiuso un possibile precedente passaggio nel fornice XVI.

Per meglio distribuire il peso decisamente notevole di queste murature, le cui fondazioni non sono mai state indagate, ma che si possono verosimilmente immaginare come fondazioni continue data la loro tipologia, vennero inseriti al loro interno una serie di archi di scarico posti in corrispondenza dei piloni retrostanti, funzionali quindi a con-

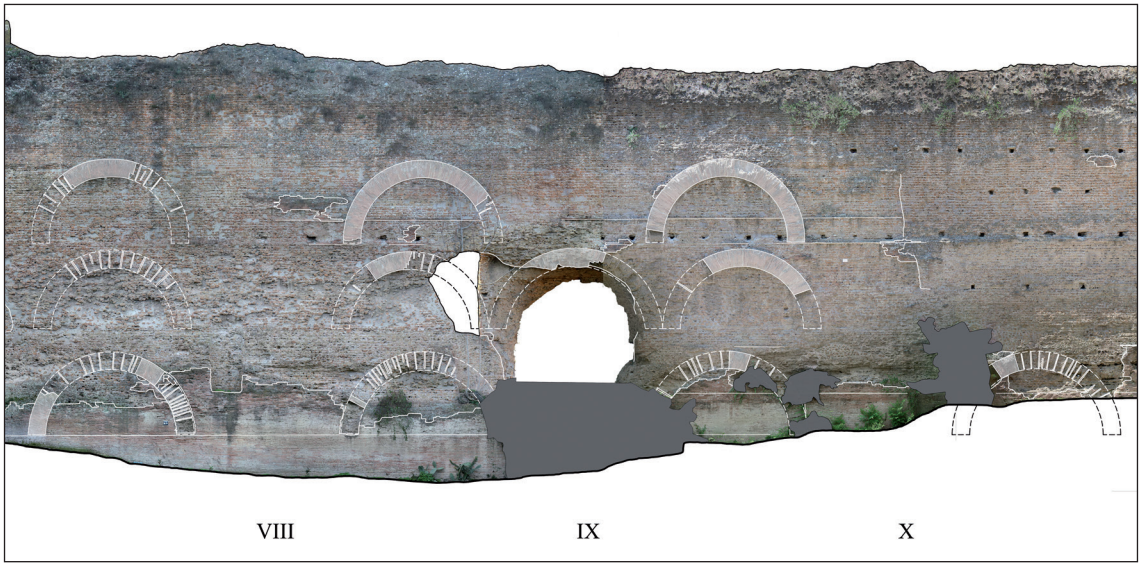



Fig. 5: Particolare del prospetto E in corrispondenza dell'attraversamento centrale nel fornice IX: passaggio da tre ad un solo ordine di archi di scarico.

vogliare il peso dei muri di consolidamento alla base degli archi di rinforzo tamponati. Questi archi di scarico sono tutti in bipedali e posti su tre ordini su ciascun lato, fino all'apertura compresa nel fornice IX, oltre il quale gli archi di scarico si distribuiscono su un solo ordine, quello più basso, fino alla fine del tratto (fig. 5).

Alcune differenze si possono comunque osservare fra i due lati dell'acquedotto. Il muro occidentale, in pessimo stato di conservazione fin dall'età post antica a causa delle operazioni di smontaggio dei blocchi della struttura originaria per il recupero di materiale da costruzione, si conserva in altezza solo in parte, e proprio per questo motivo il terzo ordine di archi non è conservato in nessun punto. Archi di scarico più piccoli, sempre in bipedali, all'altezza dei fornici III, IV e XVI, segnano probabilmente il passaggio di canali sotterranei.

Il lato E, invece, è per lo più ben conservato per tutta la lunghezza del tratto. Purtroppo sono poche le parti superstiti della cortina originaria e delle ghiere relative agli archi di scarico: i restauri eseguiti con scarsissima cura negli anni '60 e '70 hanno ulteriormente complicato la lettura della struttura, e in certi punti non è neanche possibile seguire interamente il nucleo dell'arco nel conglomerato cementizio.

L'asportazione di molti dei piloni in blocchi ci permette eccezionalmente di vedere in più punti, in sezione, tutte le strutture che si sono aggiunte all'originario acquedotto. In una sorta di stratigrafia orizzontale possiamo così notare come l'ammorsatura dei muri continui di contraffortamento agli interventi precedenti sia stata ottenuta sia scalpellando la superficie della cortina sottostante, sia creando profonde cavità funzionali alla coesione tra le due strutture (fig. 6). Diversi ricorsi in bipedali sono presenti su entrambi i lati e presentano la medesima scansione. Le differenti misure nella distanza fra i ricor-




Fig. 6: Sezione N fra i fornici VII e VIII.

si di bipedali su entrambi i lati sono dovute alla divisione in cantieri e alle diverse maestranze che hanno realizzato l'opera. Probabili giunti di cantiere, infatti, si riscontrano su ciascun lato: sul lato O se ne trova uno fra i fornici VI e VII che va ad interessare anche un arco di scarico; sul lato E si notano possibili diversi giunti nel conglomerato: il primo, in corrispondenza dei fornici XIII e XIV, oltre alla traccia ben visibile nel conglomerato provoca uno sfalsamento di quasi cm 5 nel quarto ricorso da terra in bipedali, ed anche nelle serie di fori da ponte. Un secondo probabile giunto si vede nella parte centrale del tratto, proprio dove gli ordini di archi di scarico passano da tre a uno, ed è anche il punto dove il quinto ricorso in bipedali termina bruscamente. Altri due possibili giunti potrebbero trovarsi nella parte più a monte, ma i pesanti restauri non permettono una loro sicura identificazione.

In un'epoca sicuramente tarda, parte del muro di ispessimento O subisce una modifica sostanziale; nel settore a monte, fra i fornici III e VI, per una lunghezza di m 33, sulla metà superiore di questo si imposta un nuovo muro che si differenzia dal precedente per la presenza di molti fori da ponte su più filari e soprattutto per l'assenza delle teorie di archi di scarico (fig. 7). Nella cortina di questa nuova muratura, di qualità sicuramente più scadente rispetto al muro su cui poggia, non si trova traccia della continuazione degli archi di scarico di cui pur si conservano le partenze poco più in basso del punto di giunzione; punto che, probabilmente regolarizzando un possibile crollo, si presenta con

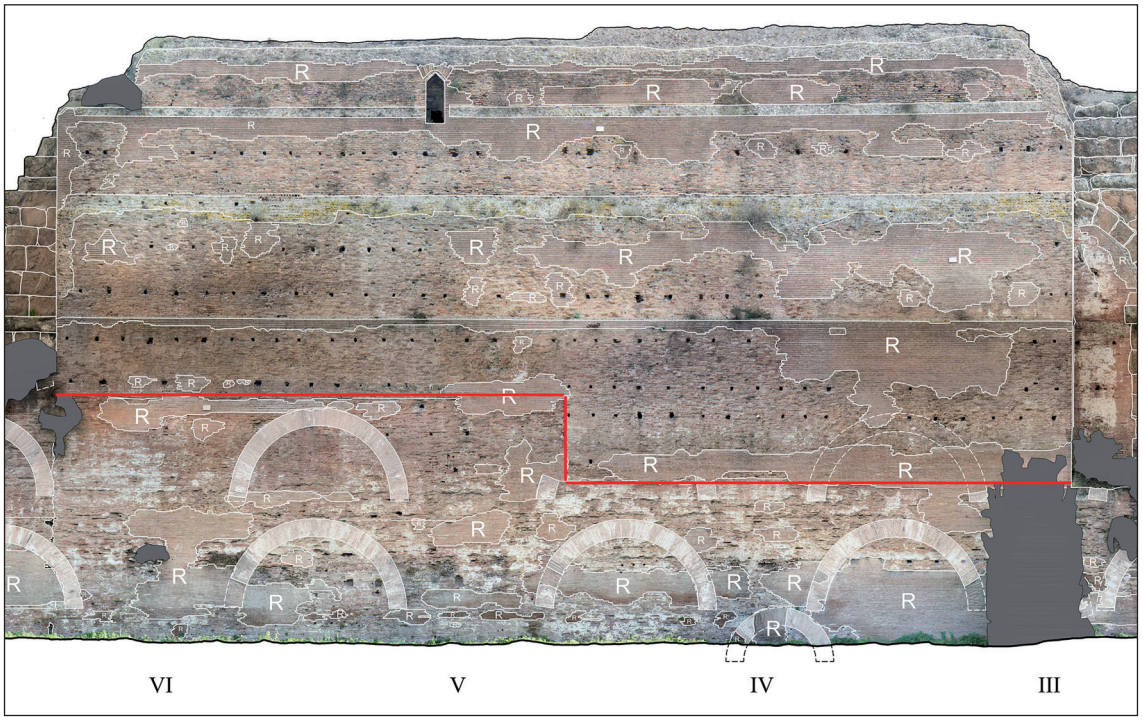



Fig. 7: Particolare del prospetto O: muratura di ispessimento tarda con evidenziazione del punto di giunzione.

due piani orizzontali a due quote diverse, raccordati da un giunto verticale al centro. Inoltre, come si può vedere nel fornice III (Fig. 3), si appoggia soltanto alle murature laterizie retrostanti, e non si ammorsa quindi come già evidenziato per il muro precedente. A differenza poi dell'intervento di ispessimento di epoca precedente, che sul lato E presenta una sola risega all'altezza della base del primo speco, questo è strutturato con tre riseghe: all'imposta degli arconi, alla base del primo speco, e infine alla base del secondo speco. La presenza di cortina laterizia in facciavista anche sui due lati di questa muratura tarda, per tutta l'altezza per cui è conservata, ci testimonia che al momento della sua realizzazione buona parte del precedente muro di ispessimento O doveva essere crollata o comunque non più presente (fig. 3).

Il ripristino tardo della muratura di ispessimento presenta inoltre altre due particolarità.

La prima è una serie di tre specchiature triangolari in opera reticolata, oggi coperte inconcepibilmente con cortina laterizia dai restauri moderni, ma testimoniate e descritte da Ashby[8] (fig. 8): misuravano alla base m 2,20 e m 1,60 per lato. Non sono gli unici esempi sulle strutture dell'acquedotto, poiché è presente anche un'altra specchiatura simile, di dimensioni minori, inserita nella cortina laterizia della tamponatura di un fornice conservato nell'area del Parco di Tor Fiscale all'altezza di Via di Torre Branca.[9]



Fig. 8: Restauro moderno che oblitera la specchiatura in opera reticolata rilevata da Ashby.

La seconda è un'apertura a cappuccina munita di archetto di scarico, delle dimensioni di m 1,35 × 0,65 circa, che attraversa questo muro collegandosi allo speco della *Claudia.* Potrebbe trattarsi del passaggio lasciato aperto nella muratura di epoca tarda per raggiungere una possibile apertura fra i blocchi dello speco, come se ne trovano nel tratto di acquedotto conservato nell'area della Banca d'Italia.[10] Trattasi presumibilmente di sfiatatoi per l'areazione e la manutenzione del condotto.

Sommando tutti gli interventi visti finora, il tratto di acquedotto in oggetto, alto circa m 20 dal piano di spiccato fino alla sommità dello speco dell'*Anio Novus,* lungo circa m 160 e largo alla base dei piloni circa m 3,30, fu progressivamente consolidato fino al raddoppiamento del suo spessore (m 6 circa). Esso fu trasformato in un'unica struttura piena, innervata all'interno dall'originario sistema di piloni e arcate in opera quadrata, che divenne così l'ossatura di un nuovo organismo strutturale, fino alla sua dismissione e infine demolizione in epoca medievale e rinascimentale per il recupero dei blocchi di tufo. In conclusione, le cause delle ingenti modifiche strutturali subite da questo tratto di acquedotto sono probabilmente da ricondurre sia a problemi intrinseci della struttura originaria che a fenomeni esterni.

Il primo elemento da sottolineare è il materiale usato: facente parte della categoria dei tufi lionati, era sicuramente più economico del peperino anche solo per la vicinanza delle cave, essendo di estrazione locale, ma anche meno resistente, poiché più soggetto a fenomeni di termoclastismo e disfacimento. Già la Van Deman riguardo questo tema ipotizzava una probabile «truffa» sull'uso di materiali più economici rispetto a quelli previsti.[11] Non potremo mai sapere se i piloni scomparsi fossero realizzati in tufo lionato, ma ipotizzando che si trattasse di piloni analoghi a quelli conservati, potrebbe essere interessante rintracciare lungo l'intero acquedotto le opere di rinforzo associate a questo tipo di materiale e valutarne l'entità, per verificare se la necessità di un frequente ricorso a interventi di sostegno sia da attribuire al materiale scadente e meno resistente, e paragonarle alla frequenza ed entità degli interventi riscontrate nei tratti realizzati in peperino.

Inoltre, come visto, la luce delle arcate aumenta da monte verso valle. In generale queste dimensioni sono maggiori rispetto a quelle riscontrate in altri tratti, come quello compreso nella Banca d'Italia, dove per piloni di m 4 di lunghezza, perciò in media più grandi rispetto a quelli qui presi in esame, la distanza è di soli m 5,60;[12] o, ad esempio, rispetto alle misure medie riportate dalla Van Deman per gli intercolumni dell'intero acquedotto, indicate tra m 5,25 e m 5,70.[13] Se è vero che le dimensioni degli intercolumni in questa porzione d'acquedotto, seppur maggiori rispetto alla media, non sono di certo sconosciute all'architettura romana, questa circostanza e la scarsa qualità del materiale impiegato potrebbero aver costituito delle concause che spiegherebbero la necessità dei potenti interventi di consolidamento in questo tratto.

Se le sottarcature e le tamponature dovevano verosimilmente rispondere a problemi intrinseci alla costruzione originaria, l'inspessimento potrebbe essere stato invece concepito per prevenire o risolvere dissesti determinati da fenomeni esterni, cercando di

evitare possibili oscillazioni trasversali quali quelle determinate da un evento sismico. Lo stesso crollo di almeno parte del muro di ispessimento ovest può essere stato determinato da meccanismi di rottura a flessione sul piano orizzontale, avvenuti per le sollecitazioni trasversali derivanti da un qualche sisma proveniente da est. Il risultato di un tale danno dovette consistere in una serie di crolli con profilo parabolico, che si potrebbe in parte identificare con il particolare andamento della giunzione che la muratura di epoca tarda crea impostandosi sulla precedente.

Una datazione al V secolo, quindi, ben si adatterebbe a questa struttura e concorderebbe con le notizie dei diversi terremoti che hanno interessato Roma in quel periodo.

## Note

[1] Frontin. Aq. 13.

[2] Al fine di facilitare la comprensione della descrizione, i fornici di questo tratto di acquedotto sono stati numerati con numeri romani da I a XVII, procedendo da monte verso valle; «monte» e «valle» sono da intendersi rispetto al verso di scorrimento dell'acqua nello speco, dunque dalle sorgenti verso Roma.

[3] Nel tratto dei piloni asportati si è misurata la larghezza massima delle tamponature dei fornici.

[4] Mancioli – Pisani Sartorio 2001, 171. 218; Van Deman 1934, 239.

[5] Van Deman 1934, 257: La Van Deman riporta che le fondazioni sono comunque di dimensioni insufficienti.

[6] Lugli 1957, 309–311; Van Deman 1934, 258; Mancioli – Pisani Sartorio 2001, 172.

[7] Van Deman 1934, 257.

[8] Ashby 1991, 274 fig. 60.

[9] Ashby 1991, 274; Mancioli – Pisani Sartorio 2001, 41 fig. 16.

[10] Mancioli – Pisani Sartorio 2001, 173 s. fig. 8.

[11] Van Deman 1934, 237.

[12] Mancioli – Pisani Sartorio 2001, 171.

[13] Van Deman 1934, 257.

## Indice delle figure

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# The Role of Water in the Functioning of Roman Entertainment Buildings

**Paolo Storchi – Ilaria Trivelloni**

A topographical analysis concerning the position of buildings for public spectacles has shown that a substantial number of them was built near water features, such as rivers or the sea. In several cases, the distance was approximately one hundred meters, or even less. Hence, the presence of running water must be considered as a determining factor for Roman architects in the choice of a site for a building dedicated to entertainment.

When thinking about water in connection with buildings for a *spectacula,* the first thing that comes to mind is the ancient *naumachia.* Therefore, we may suppose that one of the reasons why these buildings are often erected close to rivers is that the watercourse may be used to fill the structure with water in an easy, cheap and fast way for this type of games.

In spite of what has been argued by modern scholarship,[1] *naumachiae* were not common in the Roman world. Priority must have been given to many other water-connected needs, rather than to the representation of naval battles.

In the past, it has been argued, for example, that the amphitheatres of Cyzicus and Pergamon may have been used for *naumachiae.* According to the scholars who studied these buildings, the arena might have been flooded using the river running below them.[2] However, as H. Dodge wrote: "No commentator gives any idea how this might have been achieved!".[3] Both structures are built following the steep slopes of a valley to support the *cavea,* which is the main reason why these amphitheatres were built over a river: the same also happened at Saintes (Mediolanum Santonum) and Italica.[4]

At El Jem, it was assumed that *naumachiae* were performed in this amphitheatre because the arena is partially covered with mortar. Gadrat, as early as 1909, understood that it was just an embellishment for the arena:[5] it is not hydraulic mortar, but the preparation for wall paintings. Gadrat's argument was ignored until 2015, when Montali confirmed his hypothesis.[6]

In the city of Nysa, a river flows through the centre of a building used for entertainment purposes, which has the appearance of a hybrid between an amphitheatre and a stadium.[7] In this case as well, the river must have functioned as a big sewer, and was not used to flood the arena. Due to the size of the building, it would have taken several weeks to fill the arena and let it dry at the end of the performance.

In the case studies presented so far, there is a clear and direct relation between entertainment buildings for leisure and watercourses, but watercourses are not connected to water games at all. Should we agree with those who argued that *naumachiae* never happened?

We know from ancient literature that *naumachiae* were staged in the Colosseum. Suetonius, Cassius Dio and Martial wrote that performances involving the use of water

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had been offered during the 100-days of games for its inauguration.[8] These shows were staged inside the amphitheatre and there is no reason to believe the sources to be unfounded: fragments of hydraulic mortar have been identified on some occasions on the arena walls.[9] Nevertheless, it is true that, apart from the inaugural games, these spectacles are never mentioned. Probably, as Coleman[10] wrote, when the Colosseum was inaugurated, the basements had not completely been excavated, and in such a simple structure it was possible to arrange *naumachiae* and *shows* with Tritons and Nereids. So, *naumachiae* were actually staged in the Colosseum, but when the structure of the arena was much simpler. It is essential to bear in mind an often-neglected point: this amphitheatre had been built over the lake of Nero's *Domus Aurea.* This was not a malarial swamp; it was a splendid lake, a place of "Otium" and consequently was already equipped with a complex system for the supply of water and for its outflow into the Tiber. An exceptional situation from several different points of view.

These examples confirm that there often is a close connection between buildings for public entertainment and water features. Water, however, almost never had an active function, as it was mostly used for cleaning and, sometimes, to keep the drainage system clean and efficient. Moreover, these structures had several other water-connected needs, related to the games and with the people involved; an article concerned with these matters is forthcoming.

## Notes

[1] e.g. Rea 1988, 36 f.

[2] Golvin 1988, 202 f.

[3] Dodge 2009, 36.

[4] Golvin 1988, 124. 200.

[5] Gadrat 1909, 107–111.

[6] Montali 2015, 495 f.

[7] Strabo XIV, I, 43.

[8] Suet. *Tit.,* 7,3.; Dion. Cass. 66, 25; Mart. *Spect., passim.*

[9] Coleman 1993, no. 50. 58.

[10] Coleman 1993, 59 f.

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# Economy of Judaea-Palestine

**Panel 8.19**

# The Production and Iconography of Luxury Tableware in Roman Jerusalem

**Renate Rosenthal-Heginbottom**

The conquest and destruction of Jewish Jerusalem in 70 AD at the hands of the Romans resulted in the presence of the Tenth Legion in the city for more than 200 years. It was only transferred to Aila on the Gulf of Eilat/Aqaba towards the end of the 3rd century. In terms of material culture, the requirements of the Roman military and administration led to a profound change in the repertoire of ceramic tableware, ritual vessels, and construction accessories. The local manufacture of clay vessels, roof-tiles, bricks and pipes took place at an industrial site located 2 km to the west of the city on the road from Jerusalem to Emmaus-Nicopolis. The choice of the site was determined by the existence of Jewish kiln works in operation from the middle of the 2nd century BC onwards. About 3 km further to the west, the Romans established a colony at Biblical Moza, with the Arabic Qalunyia preserving the Latin term colonia.[1] The kiln site received its necessary raw material from this area. Petrographic analyses indicated the extensive use of the clay and marls of the Moza soil in the workshops, which the Roman military operated.

In the local manufacture of tableware, outstanding examples are chalices and cups[2] that copy forms and decoration common on Italian-type sigillata and metal vessels. The fragment of a drinking vessel (fig. 1) depicts a male youth carrying an amphora on his shoulder.[3] Holding one handle with his left hand, he pours water or wine into a vessel set on a table or altar. In his right hand he holds a wand, possibly a thyrsus. The figure is identified as part of a libation ritual[4] and cultic scene,[5] but is more likely to represent a member of Dionysos' retinue (e.g. a young satyr).[6] Figured mould-made handle shafts and application-decorated escutcheons are characteristic of closed vessels,[7] which most likely derive from Campanian bronze wine jugs and table amphorae found at Pompeii[8] and elsewhere. A few vessels with barbotine decoration were also produced at the Jerusalem kiln site, although the technique does not seem to have been popular.[9] Jugs, beakers, and bowls were decorated with ivy tendrils of leaves and corymbs, made in a free style with undulating stalks and leaves, clusters of berries, and rows of dots filling the surface; some vessels also have rouletting.

Of particular interest is a complete vessel adorned with images of Hermes and other figures, objects, and animals that are all applied in application technique.[10] On the basis of visual inspection it was manufactured in the legionary kiln works and is to be attributed to the wide-spread category of kraters for sacrificial libation, probably of wine mixed with water, performed in a nearby Mithraeum[11] or Serapeum.[12] The four serpents, drinking out of little wells, are part of the pictorial language on ritual vessels related to the veneration of terrestrial deities, especially Mithras. The cults of Mithras and Serapis were popular with the Roman military.

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Fig. 1: Fragment of a mould-made drinking vessel.

In conclusion, it can be said that the local production of ceramic tableware underwent changes with the arrival of the Romans. These are characterised by innovations in the repertoire of shapes (drinking vessels, decorated clay jugs and bowls), surface treatment, as well as decorative techniques and designs (mould-made and application-decorated pottery). It was made for use by the Roman military and administrative personnel stationed in Jerusalem after 70 AD. Elsewhere in the Roman world, such vessels occur at both civilian and military sites from Augustan times onwards. In Jerusalem, consumers relied on tableware and utilitarian pottery of local manufacture. Apart from a fair amount of ESA tableware, some Pompeian Red Ware, a few lamps and transport amphoras, no imports were recorded, with red-gloss tableware copied extensively.[13]

## Notes

[1] Tsafrir et al. 1994, 105

[2] Magness 2005, 70–72; Rosenthal-Heginbottom 2017, 23–26.

[3] Hershkovitz 2005, 294 figs. 11, 8. 14; Rosenthal-Heginbottom 2017, 25 fig. 3.

[4] Hershkovitz 2005, 294.

[5] Magness 2005, 72, n. 20.

[6] Rosenthal-Heginbottom 2017, 25. For comparison, see Oliver 1977, 116 f. no. 76.

[7] Magness 78–79; Rosenthal-Heginbottom 2017, 26–30.

[8] Tassinari 1993, *passim.*

[9] Magness 2005, 75–77; Rosenthal-Heginbottom 2017, 31 f.

[10] Magness 2003; Rosenthal-Heginbottom 2015, 611 f. The vessel and fragments of a second krater were unearthed by C. Clermont-Ganneau in 1874 in a rock-cut chamber close to the northern *decumanus* in Jerusalem. Another fragment came to light in the Upper City of Jerusalem, Rosenthal-Heginbottom 2015, fig. 1b.

[11] Magness 2003.

[12] Gibson 2011, 29, n. 36.

[13] Magness 2005, 69–74. The evidence from the legionary kiln works indicates the dominance of locally manufactured red-gloss tableware, while the habitation debris retrieved from the Roman dump on the eastern *cardo* contained ESA tableware and Pompeian Red Ware pans/dishes and lids, Rosenthal-Heginbottom 2017, 23; 2019, 7–11. 16–18.47–48. To date, Western relief-decorated tableware is rare, for South Gaulish sigillata see Rosenthal-Heginbottom 2017, 30 f. fig. 12; Wild 2017.

## Image Credit

Fig. 1: Courtesy of Israel Antiquities Authority; Photo Clara Amit.

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# Social Groups as Economic Actors

**Panel 8.20**

# The Business of Bodies: Calculating Return on Investment for Pimps in the Roman World

**Robert P. Stephan – Charles B. Hintz**

## Introduction

Our current understanding of the prostitution industry in the ancient Roman world suggests it occupied a contradictory position within broader culture. It was socially, politically, and religiously stigmatized, yet ubiquitous throughout the empire and a common part of daily life for the lower social classes. While the driving force behind the demand for prostitution services may be straightforward, it is less clear why someone would participate in its purveyance considering the social costs. An attractive return on investment may seem like an obvious solution, yet despite a recent focus on the economic aspects of the prostitution industry,[1] scholars have yet to develop a model that would quantify such financial benefits.[2] This paper develops an economic model for owning and running a *Lupanar*-style brothel, quantifying the potential financial return on investment. These returns are then compared to the money lending interest rates to determine whether brothel ownership would have been an attractive endeavor for an ancient Roman investor.

## Social Status in the Sex Industry

Much of the scholarship on the ancient Roman prostitution industry has focused on the social status of the pimps, prostitutes, and courtesans.[3] Individuals engaged in these trades were categorized as *infames,* ranking among the lower rungs of Roman social class, status, and reputation. As part of this group, pimps and prostitutes were legally prohibited from many aspects of Roman society.[4] They were broadly barred from public office, had limited access to the private law system, and were banned or segregated from most cult activity.[5] The low-standing legal status of pimps and prostitutes in ancient Rome is echoed in their portrayal by historians, poets, and playwrights.[6] Cicero, for example, continually characterizes Catiline's followers as prostitutes, adulterers, robbers, assassins and various other undesirables.[7] Regardless of the veracity of this claim, these associations support what their legal status suggests – pimps and prostitutes were not thought highly of in ancient Roman society.

Ballio's portrayal in Plautus' *Pseudolus* supports this villainous depiction.[8] He is cruel and rapacious in his treatment of women, and avaricious in his desire for financial gain. As Dennis Feeney describes him, he is a "a hyperpimp of phenomenal outrageousness and zest."[9] In one of his many diatribes against his workers, Ballio questions his motives

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for entering the business in the first place, "I'm a fool to keep you and was a fool to buy, with never any one of 'em having any notion of doing anything right, with no possibility of getting anything out of 'em,...Why do I furnish you with clothes, jewels, and the things you need? Or what have I to show for any work of yours today except a loss?"[10] Although Ballio is a caricature of a Roman pimp, he exemplifies the qualities most commonly associated with those in the profession. And while it is possible to dismiss this as rhetorical questioning, his concerns raise a serious point: was working in the ancient Roman prostitution industry worth the trouble and stigmatization?

## Modern Economic Analysis and the Ancient Economy

The economic model presented here is a simplification of the dynamic, multivariable reality of a Roman brothel during the late Republic and early Empire. By sacrificing some level of detail and nuance, the model is designed to highlight the major logical relationships between the variables that drive the performance of the business. Specific variables can roughly be grouped into three categories: one-time investment costs, recurring operating costs, and revenue.

Modern financial theory argues that returns on investment should be examined by identifying the relevant cash flows invested in a new business; the incremental cash flows that are expected to be generated is a direct consequence of the decision to invest in that activity. A potential investment requires the initial outlay of funds for equipment, for securing leases, for obtaining new employees, and for working capital. Once initiated, the project will generate additional revenues over time and incur operating expenses, including taxes. At the end of the project's economic life, what remains of the initially invested assets are liquidated and returned to the owner.[11]

While modern financial management terminology was not used in antiquity, Romans engaged in business management were financially sophisticated. Loans, maritime investments, trade finance, agricultural investments, and commercial investments are well documented. Different interest rates were charged to different groups of borrowers suggesting that investors understood the link between the risk of a particular investment and the necessary return needed to justify this risk, and therefore were conversant regarding the time value of money.[12] Papyrological records from Roman Egypt show that investors diligently tracked revenues, expenses, and margins and appeared to aggressively pursue ever greater monetary returns.[13] Thus, it can be assumed that a potential Roman investor in a five room brothel would consider the price of the initial investment, the revenue generated from the project, and the endpoint liquidation of the business – just as modern finance demands.

## Quantifying Costs and Revenue for a Roman Brothel

To establish a brothel, a proprietor would have to obtain a lease for the building, identify a manager to oversee the business, hire or purchase the client-facing staff of the business, and engage a support staff to provide security, food, and beverages for guests. In addition, a cash business such as a brothel would require that the business maintain inventories of food, beverages, and other supplies as well as cash on hand (i.e. working capital) to pay day-to-day expenses.

Archaeological and literary evidence suggests that prostitution was housed in a wide variety of physical locations within the cities of Roman Italy. As a result of this diversity in physical location, it is difficult to draw clear lines about what constitutes a physical brothel and what does not.[14] For the purposes of this study, we will consider a building similar to that of the *Lupanar* of Pompeii. Located on the corner of a highly trafficked intersection near the town's forum, the *Lupanar* covered approximately 58 $m^2$ and contained five rooms[15] plus a latrine.[16] The identification of the building as a brothel was made based on the presence of masonry beds in each room, erotic frescoes located above the entranceway to each chamber, and graffiti describing various information related to sexual activity. While the *Lupanar* was likely only one of many brothels at Pompeii, it still stands as our best-preserved example of a purpose-built brothel.

There are few historical records regarding lease rates.[17] To determine an approximate lease rate, this analysis builds on Allen's estimates of the percentage of household income allocated towards lodging. Allen's work on living expenses in the ancient Mediterranean suggests that a basket of consumer goods during the early Principate cost 163.9 grams of silver per year.[18] Further, he concluded that rent within the city would cost an additional 10% or 16.4 grams of silver per year. If converted to residential use, the five rooms in the first floor of the *Lupanar* could hold two families of three. Therefore, as a residence, this location could be rented for 101.5 grams of silver per year or approximately As 484.[19] However, as a commercial space at a prominent intersection the building would have greater value. For the purposes of this analysis we assume a commercial rental rate three times that of a residential location, or As 1,452 per year.

Staffing for the new business would require a staff of seven: a free man or free woman to manage the operation, report on performance, solicit business, and if necessary provide security; five slaves to serve as prostitutes;[20] and a slave to provide support to the workers, clean the premises, obtain and deliver food and drinks to clients, and provide security if necessary.[21] For the analysis of the *Lupanar,* the assumed purchase price of the female slaves was As 4,000 each, based on Scheidel's[22] and Jongman's estimates of slave prices for unskilled workers in the early Roman empire.[23] Working capital for the new business is estimated to equal one month of operating expenses, or As 1,184.

In addition to these startup costs, five major recurring expenses are associated with the operation of the brothel. Rent, calculated using the consumption basket method

detailed above, would continue to be paid on an annual basis (As 1,452).[24] The staff also needed payment and upkeep. In this analysis, the manager of the enterprise would be paid two times the cost of Allen's Mediterranean cost-of-living basket, or As 1,561 per year. The annual cost of living for each the slave is estimated to be 150% of Allen's Mediterranean cost-of-living basket, or As 1,171 per year, totaling As 7,026 for all six slaves. These above-subsistence estimates allow for workers to remain physically healthy and attractive to clientele and provide an umbrella to cover detailed expenses that do not receive line items in the model.

While Pompeii's *Lupanar* lacks a kitchen, it is reasonable to assume that food and drink would have been available to interested clients. To account for this, the staff-support slave stipulated above would also serve as a food runner for the guests, taking orders and filling them at a nearby inn, bar, or restaurant. Thus, there is no initial outlay for cooking equipment or food, but there is a recurring cost. We assume that one in five guests[25] would have taken advantage of this service, ordering bread and wine. Based on our best price data,[26] this would total As 4,171 per year.

Taxation of prostitution was instituted by the emperor Claudius in 40 CE, taxing[27] prostitutes at the rate of one act of intercourse.[28] Scholars have debated whether this referred to the cost of one act per day or per month,[29] and this analysis assumes a daily tax. Based on the frequency of client interactions and the cost per transaction detailed below, this tax would have cost the purveyor As 3,750 per year.[30]

Annual revenues for a new establishment are based on the number of prostitutes employed, the number of days worked per year, the number of clients serviced per day

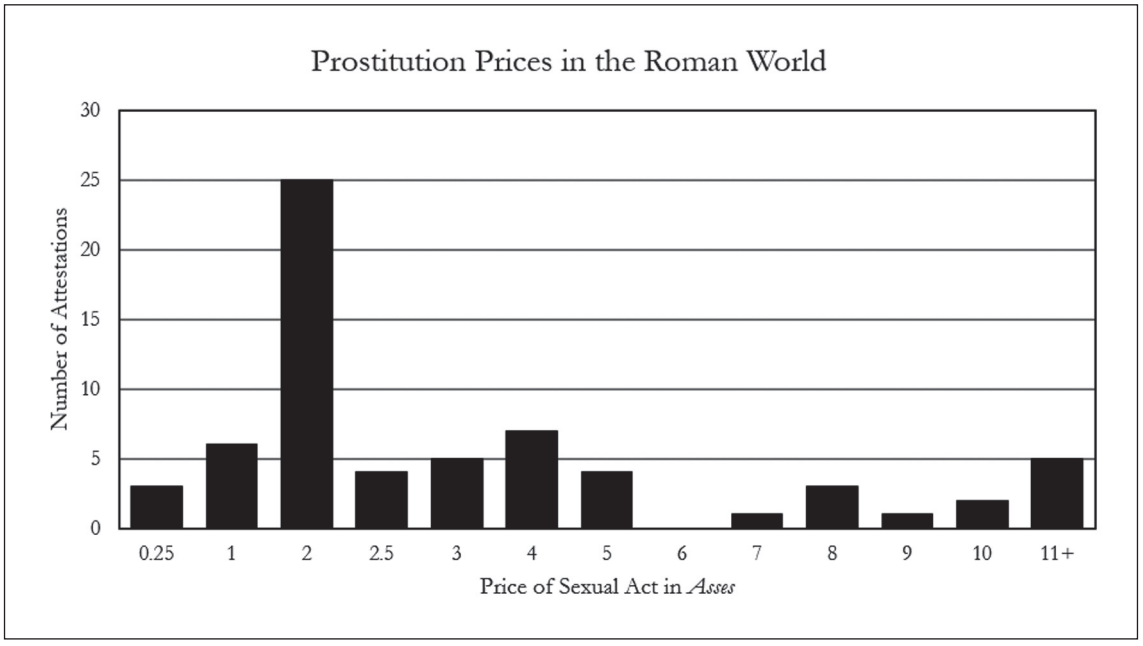



Fig. 1: Prostitution prices in the Roman world.[34]

per prostitute, and the price charged for each sexual encounter. Based on the number of rooms in the *Lupanar,* this project assumes five prostitutes working the brothel. Data on the number of clients serviced per day in the Roman world does not exist. Based on historical and ethnographic comparative data, McGinn estimates that brothel workers would have serviced between five and twenty customers per day.[31] For the purposes of this analysis, we assume five client transactions per day. Based on comparative data for a free laborer in the ancient world,[32] this analysis assumes each prostitute worked 25 days per month, 12 months per year.

Graffiti from Pompeii and literary references provide a more sizeable body of evidence for the price of prostitution. For the 66 examples of price data provided by McGinn, the mean cost of a sexual transaction with a prostitute is As 4, and the median and mode are As 2.[33] This project assumes an average price of As 2.5 per transaction for each of the five prostitutes working five interactions per day, 25 days per month, 12 months per year. For a workforce of five prostitutes, this results in revenue of As 18,750 per year.

To this total, we add in revenue from the sale of food and drink. Prices for wine and bread are based from Allen's Mediterranean cost-of-living basket,[35] and are marked

| **Initial Costs** | | **Operating Costs** | | **Revenue** | | **Net Income** | |
|---|---|---|---|---|---|---|---|
| Rent | 1,452 | Rent | 1,452 | Workers per day | 5 | Annual Revenue | 24,382 |
| Number of Slaves | 6 | Number of Slaves | 6 | Working days per month | 25 | Annual Costs | 17,960 |
| Cost per Slave | 4,000 | Upkeep per Slave | 1,171 | Working months per year | 12 | **NET INCOME** | **6,422** |
| Total Slave Cost | 24,000 | Total Slave Upkeep | 7,026 | Clients per day | 5 | | |
| Working Capital | 1,184 | Manager's Wages | 1,561 | Revenue per client interaction | 2.5 | | |
| **INITIAL COSTS** | **26,636** | Food and Drink | 4,171 | Revenue from Sex Sale | 18,750 | | |
| | | Taxation | 3,750 | Revenue from Food and Drink | 5,631 | | |
| | | **ANNUAL COSTS** | **17,961** | **ANNUAL REVENUE** | **24,382** | | |

Fig. 2: Estimates for annual costs and revenue (in *asses*) of a Lupanar-style brothel.

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Net Income** | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 |
| **Investment** | (26,636) | | | | | | | | | 1,184 |
| **Cash Flow** | (20,214) | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 6,422 | 7,606 |
| **Cumulative Earnings** | (20,214) | (13,792) | (7,370) | (948) | 5,474 | 11,896 | 18,318 | 24,740 | 31,162 | 37,584 |
| **Internal Rate of Return** | 28.7% | | | | | | | | | |
| **Payback Years** | 4.15 years | | | | | | | | | |

Fig. 3: Estimated annual net income and cash flows (in *asses*) of Lupanar-style brothel.

up by a 35% profit margin. We assume that only one client in five requested food and drink. Based on these calculations, annual food and drink revenue total As 5,631. After combining this food and drink revenue with that from prostitution transactions, annual revenue totals As 24,382. When measured against the recurring operating costs of As 17,961, this revenue produces an annual net income of As 6,422.

## Calculating Estimated Returns

To determine the financial performance of an investment, a modern financial analysis would project this net income into the future over the assumed life of the project, a termination date for the project is set, and a liquidation value is estimated. In the case of the *Lupanar,* we assume a 10-year life span, that the workers are manumitted at the end of the project, and that only the working capital is returned to the investor. An internal rate of return calculation will provide a discounted cash flow return which provides insight into the relative economic attractiveness of the brothel.

This analysis shows that based on the assumptions used in this model, an investment in this brothel could generate an estimated internal rate of return of 28.7 percent. Moreover, its initial investment would be paid back to investors in the form of cash flow over 4.15 years.

## Alternative Investment Options

Was 28 percent an acceptable rate of return? There is little evidence detailing the actual returns on investment which were available in the Roman world. It is possible, however, to use interest rates as comparative data points to measure the relative attractiveness of a given venture.[36] Certainly, a Roman investor had the option of making loans in lieu of investing in a brothel. We know that the maximum interest rate allowed to be charged by a Roman citizen was 12%,[37] and this rate was frequently too high to attract borrowers.[38] Maloney argues that interest rates on typical low-risk loans ranged from 4% to 8% during this period.[39] A 28% return on investment – a rate that is over twice the usury limit – would therefore appear to be attractive relative to typical returns gained from direct lending.

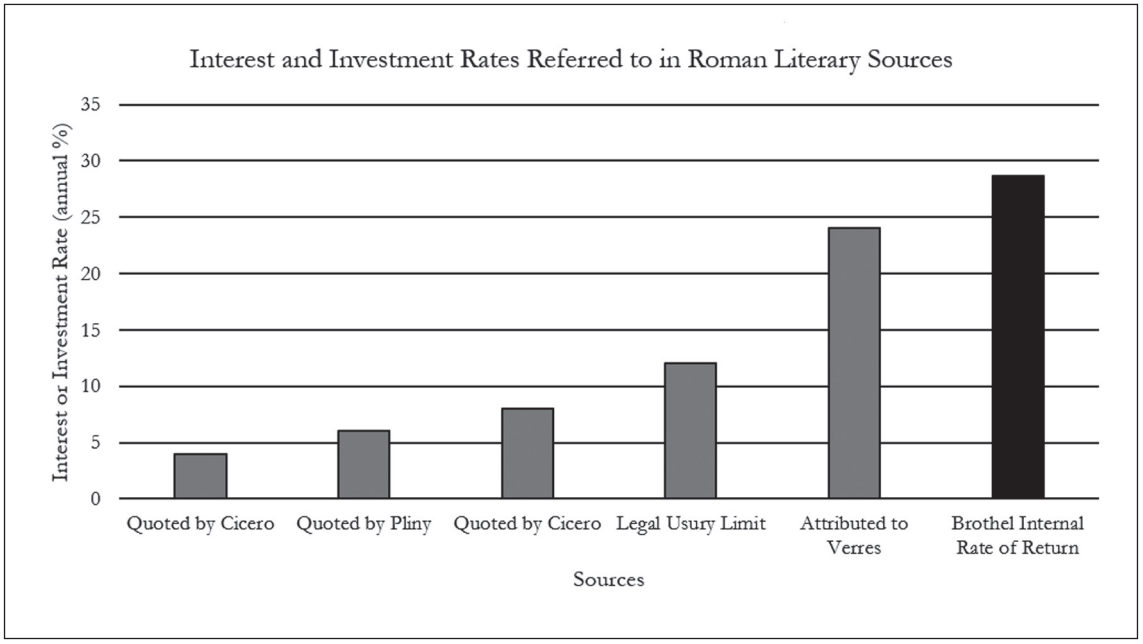



Fig. 4: Interest and investment rates referred to in Roman literary sources.[40]

## Conclusions

Roman society accepted prostitution as a legal business run by social outcasts. This analysis illustrates that prostitution and specifically running a modest sized brothel was a highly profitable business. This may explain the apparently ubiquitous nature of prostitution within Roman cities and the willingness of investors to take part in such a stigmatized industry. The profitability of a brothel is sufficiently strong to support a relatively comfortable standard of living for both its workers and its manager at well over "survival" levels.

There are a number of assumptions built into this model that need further refinement. There are few data available on commercial rental prices, alternative returns on investment, and slave motivation in the personal service business. The numbers in this analysis have been estimated from archaeological and documentary evidence, but it is important to remember that these are only estimates. Future research may improve our understanding of any or all of these variables, and it is perfectly reasonable that other scholars may support different estimates for these categories of data. The model does, however, make explicit the assumptions about critical variables and suggests the way in which these variables interacted. In doing so, it allows us to test how changes in a given variable affect the bottom-line return for the investor and assess the reasonableness of our estimates. Within this model, Ballio certainly seems to be well compensated for all his troubles.

## Notes

[1] Cohen 2006; Flemming 1999; McGinn 2004.

[2] McGinn 2011, 649 highlights the initial types of expenditures but does not quantify costs.

[3] McGinn 1998, 21–69; Edwards 1997; McGinn 2011.

[4] Edwards 1997.

[5] McGinn 1998, 21–69.

[6] Rauh 2011; McCoy 2006.

[7] Rauh (2011, 200) calls attention to Cicero, In Catilinam 2.7; In Catilinam 4.17.

[8] Plautus, Pseudolus; Stewart 2008.

[9] Feeney 2010, 282.

[10] Plautus, Pseudolus, 1.2; Nixon translation 163–167.

[11] Ross et al. 1995, 229–260.

[12] Cohen 1997, 111–189; Temin 2006, 143–146; Temin 2013.

[13] Bogaert 2000; Bogaert 2001; Temin 2013, 157–190.

[14] Foxhall 2013, 104–106; McGinn 2004, 78–111. 267–290; McGinn 2011, 649.

[15] The *Lupanar* also contained a second story. It is still debated as to whether this second story was part of the brothel since it had a separate entrance and lacked the masonry beds of the floor level. For the purposes of this study, it is considered separate and distinct from the brothel.

[16] McGinn 2004, 232–239.

[17] Plutarch (Life of Sulla, 1.2) provides our cheapest lease price of HS 2,000 per year, approximately double the annual pay of a legionary in the Roman army. See Frier 1980, 35 for a detailed discussion of lease rates.

[18] Allen 2009, Table 16.2.

[19] All monetary values in this analysis are provided in *asses* (AS) since this best fits the cost of individual sexual transactions and since a single denomination allows for greater commensurability. During this period, 1 denarius would roughly equal 4 sesterces (HS), and each sestertius would roughly equal 4 asses (As).

[20] McGinn 2004, 37–40; McGinn 2011, 652.

[21] Based on our assumption of one prostitute for each of the *Lupanar*'s five bedrooms.

[22] Scheidel 2005, 7.

[23] Jongman 2007, 602.

[24] Frier 1980, 32–37.

[25] The method for calculating the total number of clients is detailed below in the discussion of revenue.

[26] Prices for bread and wine are derived from Allen 2009's analysis on consumption baskets and living expenses. See also McGinn 2004, 47.

[27] McGinn 1998, 248–287 for a detailed overview of Caligula's tax.

[28] Suetonius, Caligula, 40; McGinn 1998, 249.

[29] McGinn 1998, 264–268. Although most scholars favor the monthly tax, this analysis assumes a tax at the rate of one sexual act per day.

[30] See revenue analysis below for a discussion on the number of client interactions per year.

[31] McGinn 2004, 47–49.

[32] Roughly in line with Allen's (2009, 337) estimate of 250 working days per year for a free laborer.
[33] McGinn (2004, 42) provides an overview of the prices and original data references.
[34] Data from McGinn 2004, 42.
[35] Allen 2009, 336 tab. 16.2; McGinn 2004, 47.
[36] Temin 2004; Temin 2013, 137–162.
[37] Maloney 1971, 91 referring to Cicero, Epistulae ad Atticum 5.21; Plutarch, Life of Lucullus, 20.35; Appian, De bello Mithridatico 62, 63, 83.
[38] Pliny, Epistulae 7.62, 7.63.
[39] Maloney 1971, 88–95.
[40] Data from Maloney 1971, 91–92; Cicero's 4% and 8% rate from Epistulae ad Atticum 4.15; Pliny's 6% rate from Epistulae 7.18; 12% legal limit from Cicero, Epistulae ad Atticum 5.21; 24% rate attributed to Verres in Cicero, Actio in Verrem 2.3.71.

## Image Credits

Fig. 1: Data from McGinn 2004, 42; graph by Stephan and Hintz 2018. – Fig. 2: Stephan and Hintz 2018. – Fig. 3: Stephan and Hintz 2018. – Fig. 4: Data from Maloney 1971, 91–92; Cicero's 4% and 8% rate from Epistulae ad Atticum 4.15; Pliny's 6% rate from Epistulae 7.18; 12% legal limit from Cicero, Epistulae ad Atticum 5.21; 24% rate attributed to Verres in Cicero, Actio in Verrem 2.3.71; graph by Stephan and Hintz 2018

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# The Cost of Gladiatorial Events in the Black Sea

**Marius Cristian Streinu**

Gladiatorial shows were complex events, requiring elaborate preparations and costs that could bankrupt the publishers.[1] A good example, in this case, is Caesar, exaggerated so much in the organization of the shows that he accumulated huge debts.[2]

No documents are preserved that relate to the cost of organizing *philotimia* in the Roman Pontic provinces, Moesia Inferior, Thrace, Bithynia et Pontus, and Cappadocia. The inscriptions that do tell us about the gladiator fights do not specify any amount of money invested, but describe the event, noting that the performances were magnificent. This leads us to think that they required significant budgets. Such an event consists of a series of organizational aspects, each demanding substantial expenses and raising the cost of *philotimia* to considerable sums, being comparable to a fortune.[3]

In order to arrange a spectacle of gladiators, the organizer had to pass through certain stages. The first concern of an organizer was the acquisition of the μονομάχοι. In the second half of the 2nd century AD, the lowest contract of a gladiator for participation in fights was between 1,000 and 3,000 sesterces. At the same time, a 1st Class gladiator who participated in a show, whose budget ranged between 30,000 and 60,000 sesterces, could not be contracted with more than 5,000 sesterces. However, the price could increase to 15,000 sesterces if the show had a budget of 200,000 sesterces or more.[4]

There are instances in which the organizer of *philotimia,* in this case the great priests of the Imperial cult, pontarchs (magistrate and leader of the Pontic community, the Federation of Greek cities on the west coast of the Black Sea) and *philotimoi,* hired a φαμιλία μονομάχων from a *lanista.* The high priest of the Imperial cult, Marcus Antonius Rufus, pontarch in Neocaesarea[5] in Bithynia et Pontus did the same thing. During the exercise of the priesthood, some had a φαμιλία, which they later sold to their successors in office.[6] The cost of owning and maintaining a φαμιλία μονομάχων, including accommodation, food, auxiliary staff and many other needs of the gladiators, must have been quite large. On the other hand, renting one would have required much lower costs.

Not all priests, especially those of small communities, could afford to rent a φαμιλία of gladiators and they certainly could not keep one during their term in the priesthood.[7] In this case, the organizer uses the services of independent gladiators who went to fight wherever needed, such as the gladiator Flammeatis,[8] a *retiarius* born in Pergamon who died in Philippopolis and Phylokynegos,[9] or another *retiarius,* a native of Macedonia who died in Claudiopolis.

No *philotimia* could consist only of gladiator fights. An equally important element in the economy of such an event was the hunting of wild animals, *venationes,* as well as the fights staged between animals and the display of exotic beasts. If the procurement of gladiators was affordable, especially if the pecuniary aspect of the *philotimoi* was not a problem, purchasing animals was a major problem. It required considerable effort, not necessarily financially, but depended on the relations to buy or capture the animals.

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The more exotic and rare the animals were, the more prestigious the event became and raised the status of its organizer; this also exponentially increased the costs.[10]

Well known are the letters of Caelius Rufus to Cicero, *proconsul* of Cilicia, who asked for help in capturing panthers.[11] While the writings of Cicero indicate that those who captured wild animals in Cilicia specialized in such endeavours, two inscriptions discovered in Montana, in Moesia Inferior, tell us that this task fell to the soldiers stationed there.[12] The famous edict of Diocletian set the price of lions and leopards brought for the arena from Libya between 75,000 and 150,000 sesterces.[13] However, we must take into account the costs of both the capture and transport of the animal, as well as its storage and maintenance in specially arranged spaces (*vivarium*) until the moment of entry into the arena. Altogether, this involved a high financial cost that was not feasible for everyone.[14] In fact, an unpleasant aspect of the capture and trade of wild animals for their display in the arena is that it led to faunal imbalances in certain geographical areas. During Emperor Augustus' reign, lions in the Atlas Mountains and the panthers of Asia Minor disappeared altogether; four centuries later the hippopotami of Nubia, the Mesopotamian lions, the tigers of Hyrcania, and the elephants of North Africa disappeared completely and forever from these territories.[15]

Apart from these aspects, a *philotimos* had to add to the general expenses also the charges entailed by hiring a referee (*summa rudis*) and an assistant (*secunda rudis*), the distribution of food[16] and prizes during breaks between battles (*sparsio missilium*),[17] setting up an amphitheatre or another place to host such an event, as well as an auxiliary staff. Last but not least was the Imperial tax for *munera,* which was between 25 and 33% of the amount paid for organizing the event.[18]

It seems that a defining element in the cost of organizing such an event was the competitiveness, the need to surpass and having no comparison.[19] With this ambition, the costs also increased. But what the *philotimos* – whether it was a priest, a high priest of the Imperial cult, a pontarch, or just a private person – really desired was to increase his status in the local political scene. This ambition caused the prices for contracting gladiators to explode. Up to the 2nd century AD the cost of organizing a *philotimia* was ruinous, but a *senatus consultum* dating from the days of Marcus Aurelius and Commodus, 177 AD (more precisely, *S. C. de pretiis gladiatorum minuendis vel de sumptibus ludorum gladiatoriorum minuendis, lex gladiatoria, Aes Italicense, Lex Italicensis,* also known as *Aes Italicense*), regulated the costs of organizing *munera* in the Empire.[20] This document divides the gladiators into *classes* and gives the maximum costs that could be paid for a gladiator. The document aimed to relax the financial strain on the priests of the imperial cult who had the obligation to organize *munera* during the exercise of the office.[21] This *senatus consultum* abolished the tax on *munera,* which brought an income to the empire's treasury of between 60 and 120 million *sesterces* per year.[22]

*Fiscus non sibi sed qui lanienae aliorum praetexeretur tertia vel quarta parte ad licentiam foedae rapinae invi-*

*tatus. Itaque fiscum removerunt a tota harena. Quid enim Marci Antonini et Luci Commodi cavendum fisco cum hare-*
*na? Omnis pecunia horum principum <p>ura est, null [a] cruoris humani adsper-gine contaminata, nullis sordibus foedi quae {s}-*
*stus inquinata, et quae tam sanct{a}e paratur quam insumitur. Itaque facessat sive illut ducentiens annum seu trecenties*
*est.*[23]

This document determined that an independent gladiator cannot be paid more than 12,000 sesterces.

*- - - s[il]iberatus discri- men instauraverit, aestimatio eius posthac HS XII non excedat.*[24]

In addition, the acquisition of death sentences to be executed in the arena could be carried out by the Roman authorities with a maximum of 6 *aureus* – equivalent to 600 *sesterces,* while from a *lanista* this could not be purchased for more than 2,000 *sesterces.*[25]

*Ad Gallias sed et <t>rin<quo>s qui in civitatibus splendidissimarum Galliarum veteri more et sacro ritu expectantur ne ampliore pretio lanistae praebeant quam binis milibus, cum maximi pr[in]cipes oratione sua praedixerint fore ut damnatum a<d> gladium procurator eorum non plure quam sex aureis lanistis pra[ebea]t vacat.*[26]

This *senatus consultum* is an exceptional document helping us to get an idea of the expenses incurred by an organizer of the *munera* in the Pontic Roman provinces. The document regulates the minimum and maximum costs a *philotimos* had to make to or for a gladiator depending on the budget of the show, both for the performances themselves and the payment. The minimum amount, according to *Aes Italicense,* for the organization of *munera* was a maximum 30,000 sesterces and was called *assiforana* (the one at which an entry fee was charged).[27] It is still unclear how the tickets were distributed, but the entry was most likely done with the sponsor's agreement.[28] In his speech in defence of Murena, Cicero suggests that it has become a habit for the elite to control access to games by sharing tickets with clients.[29] In fact, Murena is accused of distributing tickets at random and not only to friends and associates, to boast that he can provide such places: of course, his purpose was political.[30]

According to the *Aes Italicense, munera* can be classified into five categories:

- 1st Category, known as *munera assiforana* (small-scale, local entrepreneurial spectacles for profit), < 30,000 *sesterces;*
- 2nd Category: shows whose cost ranges between 30,000 and 60,000 *sesterces;*
- 3rd Category: shows whose cost ranges between 60,000 and 100,000 *sesterces;*
- 4th Category: shows whose cost ranges between 100,000 and 150,000 *sesterces;*

- 5th Category: shows whose cost ranges between 150,000 and 200,000 *sesterces* and more.

The *Aes Italicense* notes that in each of these categories of performances, no less than half of the gladiators should have never fought in inexperienced pairs, known as *gregari.* They were paid between 1,000 *sesterces* (least experienced) and 2,000 *sesterces* (most experienced).[31]

As for the sums allocated to gladiators, this depended on the category they were part of and according to the category of the show, and was divided into four categories:

- 1st Category: 5,000 *sesterces* for the first class, 4,000 *sesterces* for the second class and 3,000 *sesterces* for the third class;
- 2nd Category: 8,000 *sesterces* for the first class, 6,000 *sesterces* for the second class and 5,000 *sesterces* for the third class;
- 3rd Category: 12,000 *sesterces* for the first class, 10,000 *sesterces* for the second class, 8,000 *sesterces* for the third class, 6,000 *sesterces* for the fourth class, and 5,000 *sesterces* for the fifth class;
- 4th Category: 15,000 *sesterces* for the first class, 12,000 *sesterces* for the second class, 9,000 *sesterces* for the third class, 7,000 *sesterces* for the fourth class, and 6,000 *sesterces* for the fifth class.

To advance a hypothesis about the average cost of a *philotimia* in the Roman provinces of the Pontic region, we must take into account the fact that a *munerarius* or, in our case, an ἀρχιερεὺς δι' ὅπλων, φιλότειμος δι' ὅπλων, or a pontarch had to have a fortune exceeding 400,000 *sesterces,* as the Senate decided by a decree adopted during the reign of Emperor Tiberius.[32] This being established by law, we can assume that any of the *philotimia* organizers in the Roman Pontic provinces, whether public or private persons, had a wealth of at least 400,000 *sesterces.* Going further and analysing the costs attributed to each category of performances we notice that the first category would be the cheapest.

Bomgardner has calculated the cost of organizing gladiator fights in this category, assuming that such an event would have been attended by 12 gladiators, two from each class, and half of them were part of the *gregarii;* the total expenditure would range between 30,000 to 36,000 *sesterces.*[33] His calculations are ideal and do not cover all the expenses for a *philotimos,* who needed to pay a substantial amount for the wild animals that most likely were included in all spectacles of this kind.

In the Roman Pontic provinces, the inscriptions do not mention any event that would have lasted less than two days: two days at Nicopolis ad Istrum[34] and Serdica,[35] three days at Claudiopolis,[36] and six days at Tomis.[37] Therefore, we will attempt to estimate the cost of a *philotimia* here, which would have taken place over two days.

In the province of Thrace, at Philippopolis, a *token* that was used as an entry ticket to a gladiator fight was discovered.[38] This small lead object indicates the existence of a local *munera assiforana,* an entrepreneurial spectacle for profit, which cannot exceed 30,000 *sesterces.* Such objects are scarce finds because after the performances ended, they were most likely collected and melted to be reuse for other purposes.

At Claudiopolis, in Bithynia et Pontus, the priest Secundus organized a philotimia of three days, which was attended by 12 gladiators. Strictly speaking, it is a small number of fighters involved in a *philotimia* extended over so many days. But, due to the large number of victories attributed to each gladiator (35, 58, 65 and so on), we can only believe that the fights between these gladiators were a *simulacrum* and that they had fought on all three days. We will assume that the six pairs of gladiators were enough for two days of spectacles, and we take into consideration Bomgardner's calculations and the simulation status of the show.

The price paid by *philotimos* for purchasing wild animals for a *venatio* is hard to establish for the space we refer to, because there is no text detailing the amount paid for animals in this part of the Empire. However, we can compare it with epigraphic sources found in other provinces of the Empire. The price edict of Emperor Diocletian, dated in 301 AD, mentioned that a first class African lion costs a maximum of 600,000 *sesterces,* while a first class African lioness costs 400,000 *sesterces;* ordinary lions cost 125,000 to 150,000 *sesterces,* lionesses cost 100,000 to 125,000 *sesterces,* leopards cost 75,000 to 100,000 *sesterces,* and bears cost 20,000 to 25,000 *sesterces.* Costs for herbivores included ostriches (5,000 *sesterces*), wild boars (4,000 to 6,000 *sesterces*), deer (2,000 to 3,000 *sesterces*), and wild asses (5,000 *sesterces*).[39] On the Magerius mosaic from Smirat in Tunisia, Magerius himself is shown spending a total of 4,000 *denarii* (equivalent to 16,000 *sesterces*) for four leopards.[40] On the other hand, in the provinces with military cantoning units, as is the case in Montana, in Moesia Inferior, two inscriptions have been discovered that describe soldiers dealing with animal captures, at the cohors *I Cilicum* and *legio XI Claudia.* They are called *venatores immunes,* and it is most likely that the animals purchased from them were at much lower prices than if the organizer called for a specialized team to capture them. They may have even been free, depending of the position or the office the organizer had in the province or in the wider Empire.[41] From the reliefs discovered in this region we notice that wild animals in these provinces were used in the arena – bears, deer/stags, lions, panthers – but also domestic animals such as bulls and horses. So, we can assume that the two days of the show included the display in the arena of some exotic animals, perhaps four panthers, which would have cost the organizer 16,000 sesterces. It is a possibility that the bears, stags, and other wild animals that were native to the territories of the Roman Pontic provinces could have been procured at affordable prices, or for free, but we do not know for sure. The relief depicting *venationes* and *damnatio ad bestias* discovered in Serdica displays eight bears and three deer or stags.[42] There could have been more, but the relief is broken on the top. For our assumption, we will take into consideration a smaller number of animals than those displayed on the Serdica relief. Two bears and two deer or stags would cost 44,000 *sesterces.* The necessity of keeping and feeding the animals, of at least one referee, musicians, *damnati ad bestias* (who were available at the price of 600 *sesterces* per person) prizes, and other matters related to the organization of such an event could raise the cost of a two-day *philotimia* to more than 90,000/96,000 *sesterces.*

As a final remark, it is almost impossible at this point to find out the exact cost of organizing *philotimia* and any estimation is difficult due to the lack of written information about the sums involved, as is the case in other parts of the empire. However, considering the two laws, the *Aes Italicense* and Diocletian's Edict on maximal prices, and the corroboration of archaeological evidence, we believe an estimate can be made. Starting from the descriptions of fights and *venationes* from reliefs and inscriptions from the Pontic provinces, a two-day event that included both gladiators and wild animals would fall within the third category, with the cost ranging between 60,000 and 100,000 *sesterces*. On the other hand, the *token* discovered at Philippopolis indicates that *munera assiforana* were organized in the Pontic area, indicating that we can identify another category of spectacles that cannot exceed the amount of 30,000 *sesterces.*

## Notes

[1] Futrell 2006, 14.

[2] Appian II, 13; Futrell 2006, 15.

[3] Futrell 2006, 14–18.

[4] Carter 1999, 108, 133; Carter 2004, 61; Nossov 2009, 131; Uzunaslan 2010, 129–130 f.

[5] Robert 1940, 128–129 f. no. 75; Carter 1999, 194, no. 182.

[6] Carter 1999, 225.

[7] Carter 1999, 228; Carter 2004, 43–44.

[8] IGBulg III, 1018.

[9] Mann 2011, no. 161.

[10] Carter 1999, 232–233.

[11] Cicero *Epist. ad Famil.,* 2; Futrell 2006, 17 f.

[12] Velcov, Alexandrov 1988, 272–275.

[13] Carter 1999, 233.

[14] Carter 1999, 233; Nossov 2009, 140.

[15] Nossov 2009, 140; Bernet 2014, 250.

[16] Futrell 2006, 111.

[17] Such a moment occurred at the inauguration of the Colosseum amphitheater, described by Cassius Dio (LXVI, 25).

[18] Carter 1999, 223; Bomgardner 2000, 209; Mann 2011, 72–73.

[19] Carter 1999, 234.

[20] Oliver, Palmer 1955, 330–334; Bomgardner 2000, 208–210; Pantoja, Garrido 2009, 46–48 no. 3.

[21] Carter 1999, 222.

[22] Carter 1999, 223; Mann 2011, 273.

[23] *Aes Italicense,* lines 5–9, *apud* Oliver – Palmer 1955.

[24] *Aes Italicense,* lines 62–63, *apud* Oliver – Palmer 1955.

[25] Carter 2009, 232; Bomgardner 2000, 210.

[26] *Aes Italicense,* lines 56–58, *apud* Oliver – Palmer 1955.
[27] Oliver, Palmer 1955, 341; Bomgardner 2000, 208.
[28] Holleran 2003, 50.
[29] Cicero *For Murena,* 35; Holleran 2003, 50.
[30] Cicero *For Murena,* 35.
[31] *Aes Italicense,* lines 29–37, *apud* Oliver, Palmer 1955; Kyle 1998, 84; Bomgardner 2000, 208.
[32] Bomgardner 2000, 208–209; Nossov 2009, 132.
[33] Bomgardner 2000, 230.
[34] IGBulg II, 660.
[35] IGBulg IV, 1918.
[36] SEG 39, 1339.
[37] ISM II, 96 (62).
[38] Vagalinski 2009, 208, no. 134.
[39] SEG 14, 386; CIL III, Suppl. 2, 1925, PP, col. I; Bingen 1954, 349–352; Bomgardner 2000, 211.
[40] Bomgardner 2000, 211.
[41] Velcov, Alexandrov 1988, 272–275.
[42] IGBulg IV, 1921.

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# Transformation of Rural Landscapes in the Roman and Late Antique West

**Panel 8.22**

# La transformación del paisaje Giribaile-*Baessuci,* en el entorno de Cástulo (Jaén, España)

**Luis María Gutiérrez Soler – María Alejo Armijo – Francisco Pérez Alba**

Desde principios de la década de los años 1990 el territorio que se extiende en el sector oriental de Sierra Morena, la cadena montañosa que cierra por el norte el valle del Guadalquivir recorriendo la región de Andalucía (España) con orientación noreste-suroeste, constituye el fundamento de nuestra investigación (fig. 1). Esta se centra, principalmente, en el análisis arqueológico del proceso histórico de la Cultura Ibérica, incluyendo el impacto de la romanización, sin renunciar a una aproximación más general que considera el territorio como estructura física y política humanizada que sirve de soporte a un paisaje cultural con una profundidad histórica significativa que se remonta, al menos, hasta la prehistoria reciente.[1]

El proceso de ocupación del territorio entre el siglo IV a.C. y la etapa altoimperial romana y la experimentación con estrategias de prospección arqueológica intensiva son las dos claves que forman el cuerpo de este trabajo. El desarrollo de una metodología de campo fundamentada en protocolos de trabajo en prospección basados en muestreos de sitio protocolizados y estandarizados[2] permite ofrecer argumentos válidos, aunque no definitivos (ante la falta de una evidencia epigráfica), para plantear la posible locali-




Fig. 1: Localización geográfica del proyecto.

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zación del *Municipium Flavium Baesuccitanorum* en el paraje de Santagón (Vilches), en las proximidades del Cerrilllo del Cuco (sitio catalogado con el código 01230940007),[3] actuando como el centro de vertebración de un nuevo modelo de poblamiento basado en la explotación de los recursos metálicos del entorno, entre los que destacaba la plata por su alto valor estratégico, frente a una etapa anterior en la que el *oppidum* de Giribaile había centralizado una concepción distinta de entender la ocupación del territorio a lo largo de los siglos IV y III a.C.[4]

El presente estudio responde a un modo de trabajo que atiende a un cruce continuo de escalas y comprende desde la georreferenciación precisa de un ítem concreto a la valoración global de un territorio y tiene en cuenta la complementariedad y la diversidad de recursos económicos y la progresiva especialización minera que se manifiesta desde los primeros momentos de ocupación de la etapa romana. Si bien el horizonte histórico de inicio de nuestro estudio se centra en el análisis de la secuencia en el desarrollo tardío del Hierro II y en los modos y procesos de hibridación relacionados con el juego de intereses políticos y sociales que se establecen en el territorio desde el siglo IV a.C., la perspectiva de estudio siempre ha intentado afrontar el análisis de este entorno natu-

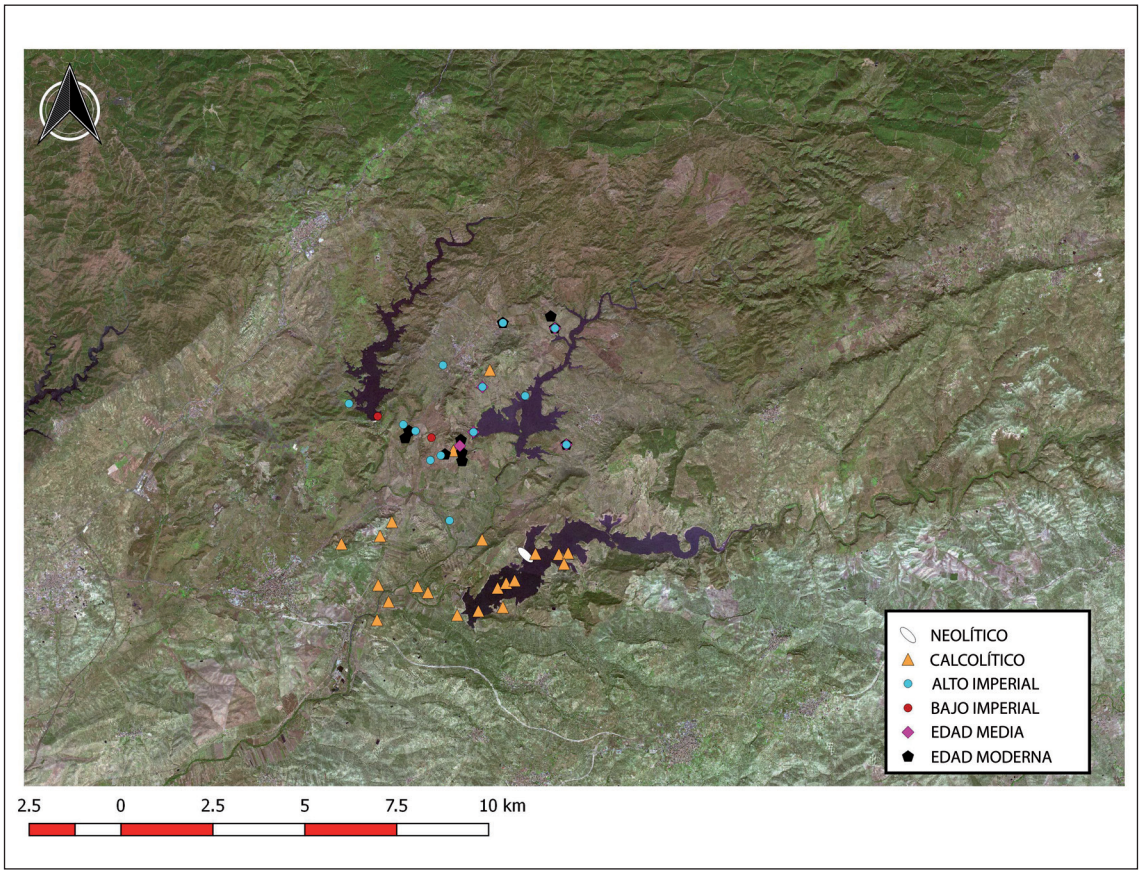



Fig. 2: Sitios arqueológicos pertenecientes a distintos periodos históricos.

ral antropizado como un paisaje cultural complejo (fig. 2) en el que se han sucedido una continuidad de aprovechamientos y usos del suelo que tienen que ver con el desarrollo de sociedades que comparten y que se ven condicionadas por acciones anteriores que han ido modificando progresivamente un mismo marco soporte.

## Metodología de actuación y definición del objetivo histórico

El objeto de la presente prospección ha sido establecer un reconocimiento arqueológico preciso en parte de un paisaje complejo que concentra evidencias culturales de periodos muy diversos, desde la prehistoria hasta el presente. La perspectiva concreta de nuestro proyecto de investigación centra el interés en la interpretación de la dinámica de cambio y la transformación de los modos de gestión y ocupación del antiguo territorio de Giribaile hasta alcanzar el periodo de pleno dominio romano, mostrando distintas formas de ocupación que se vinculan directamente a la implantación de diferentes sistemas de poder.

Desde una perspectiva metodológica, las características del medio natural, en un ambiente en el que predomina el piedemonte de sierra, proporciona unas condiciones interesantes para el desarrollo de estrategias de prospección intensiva en terrenos cultivados en contacto con extensas dehesas que ofrecen condiciones de registro distintas a las que resultan habituales en la Campiña de Jaén,[5] principal escenario de la prospección arqueológica extensiva que ha caracterizado la mayor parte de la trayectoria de investigación en las últimas cuatro décadas.

Así las cosas, el principal objetivo consistió en la selección del territorio que debía ser prospectado tomando como referente la localización de la zona arqueológica de Giribaile al sur, que ya contaba con varias campañas de investigación desde que se inició la obra de construcción del embalse, y Palazuelos (sitio catalogado con el código 01230210003),[6] al norte, que tradicionalmente se identifica con el *Pozo Baebelo,* del que Aníbal obtenía 300 libras de plata diariamente.[7]

El área de prospección se ha desarrollado casi en su totalidad dentro de los límites del actual término municipal de Vilches y abarca un territorio extenso de más de 63 km² (fig. 3). Comprende actuaciones de prospección que parten de la documentación oficial proporcionada por el catálogo de sitios incluidos en la base de datos del Patrimonio Inmueble de Andalucía y de las referencias de yacimientos conocidos por tradición popular. El método habitual ha consistido en el desarrollo de un muestreo estratificado sistemático, principalmente en aquellos sitios que proporcionaban registros materiales adscritos al periodo romano altoimperial. Los muestreos se han llevado a cabo a partir del seguimiento de trazados lineales,[8] definiendo pasillos de 1 m de ancho en el que se han posicionado los hallazgos más significativos asignando coordenadas georreferenciadas precisas obtenidas mediante receptores GPS monofrecencia (fig. 4). Esta información se complementó con la ejecución de áreas de prospección selectiva en al-

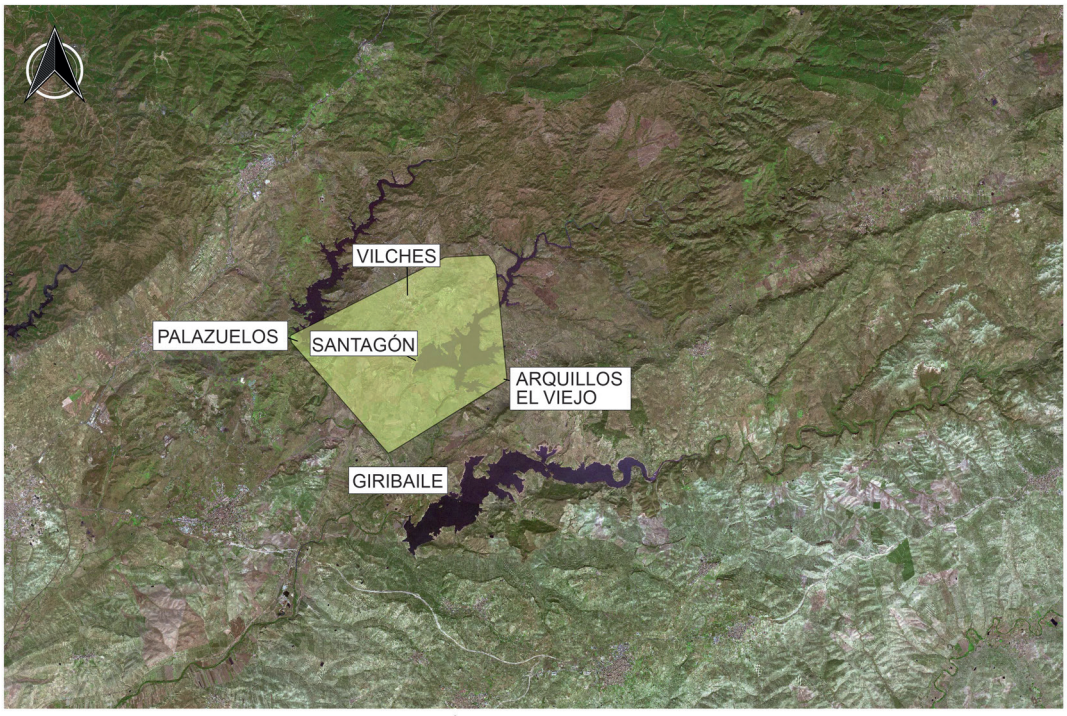



Fig. 3: Área de prospección incluida en el proyecto.

gunos de los espacios vacíos de documentación arqueológica en el territorio, con la intención de contrastar la validez de la valoración inicial. El territorio investigado no se corresponde exactamente con los límites del territorio jurídico del municipio romano ni de otra construcción política reconocible, pero sirve, en todo caso, como una ventana abierta que permite definir tendencias generales sobre los patrones de ocupación para la etapa romana, especialmente la altoimperial, y también para el horizonte de época ibérica.




Fig. 4: Metodología de prospección arqueológica intensiva.

## El territorio de Giribaile

Giribaile, todavía consignado como un *oppidum ignotum* y situado junto al Camino de Aníbal, se trata de una fundación de principios del siglo IV a.C. que formó parte del pago de Cástulo,[9] aunque la entidad de la ciudad (con un recinto fortificado próximo a las 15 ha) y su localización intermedia en un triángulo con vértices en Cástulo, *Baecula* y el distrito minero en el que se ubica la mina de Palazuelos, ocupando una meseta destacada en la margen derecha del Guadalimar desde la que se domina un amplio territorio de explotación económica que incluye minerales abundantes y ricas tierras de vega, permiten plantear el valor de los intereses geopolíticos cartagineses en la zona.

Las campañas de prospección llevadas a cabo a principios de la década de los años 1990 en su territorio de explotación inmediato permitieron documentar un numeroso conjunto de asentamientos establecidos en el fondo del valle (fig. 5), fijando una imagen clara sobre la entidad del territorio de explotación económica asociado al cultivo de las mejores tierras regadas por el río Guadalimar.[10] Los recientes trabajos de revisión de la línea de embalse del pantano han permitido documentar algunas nuevas factorías en la margen derecha del río Guadalén, ampliando los límites del territorio de explotación agrícola, y valorar más rigurosamente el tamaño y la complejidad funcional de algunas de estas unidades de producción instaladas en el valle (fig. 6).

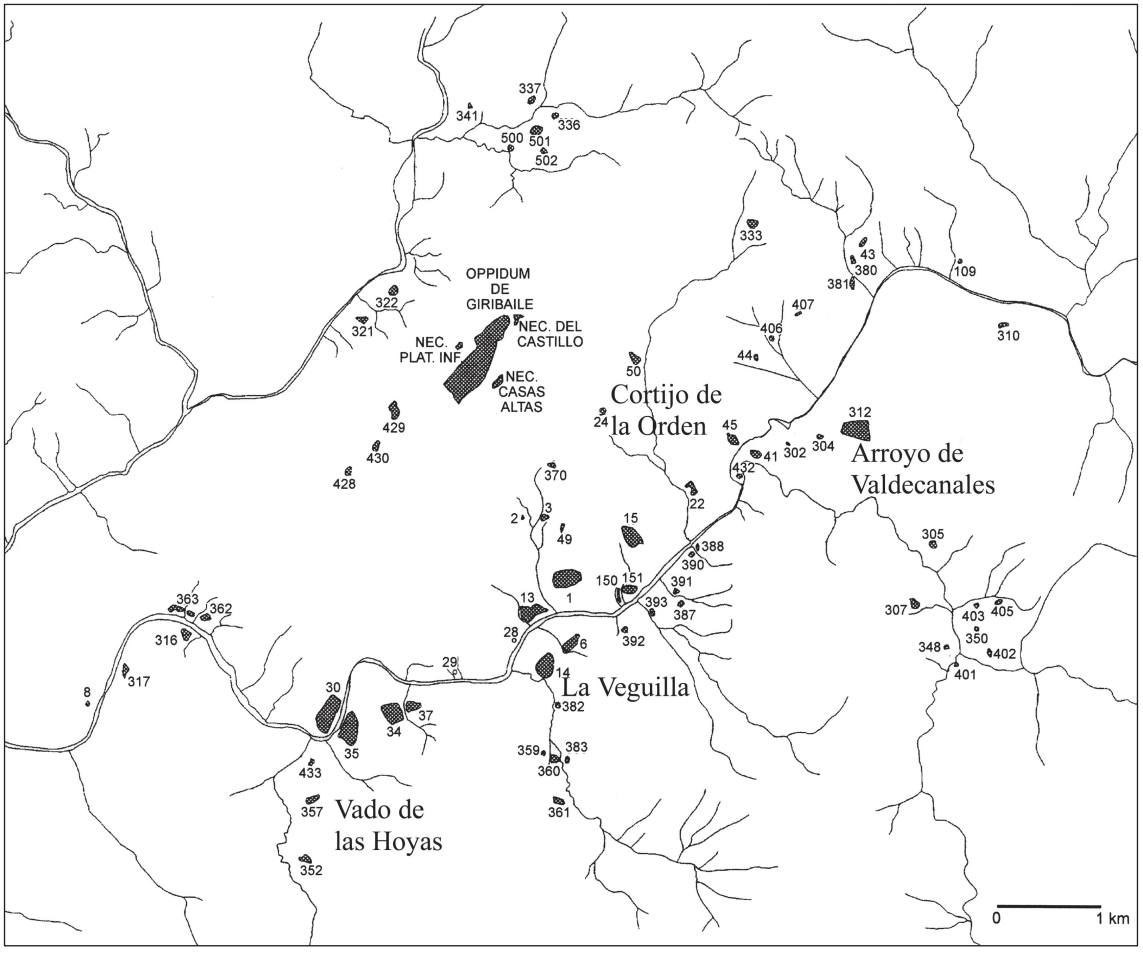



Fig. 5: Territorio de explotación inmediato de Giribaile para el horizonte perteneciente a la Cultura Ibérica.

La localización de estos asentamientos ha sido resultado de los nuevos objetivos del proyecto que extendía su escala de actuación, alcanzando la zona de abastecimiento de minerales en el ámbito de la sierra, conectando Giribaile con la mina de Palazuelos.[11] Este esquema de trabajo tenía un interés principal en dotar de contenido histórico la propuesta de patrón de poblamiento longitudinal que se adjudica a la construcción del territorio político de Cástulo, alejándonos del valle, el cual marca una linealidad asociada a la vía, para adentrarnos en la sierra y avanzar en la concreción arqueológica de la continuidad y/o discontinuidad de los registros de cultura material que pudieran estar presentes en los terrenos que conforman este sector del piedemonte de Sierra Morena.

La hipótesis de partida del modelo teórico no era tanto descubrir la presencia de grandes centros de población, que consideramos ya agotada, como determinar la existencia de otra tipología de sitios arqueológicos conectados a la dinámica de poblamiento perteneciente a los siglos IV y III a.C. Esta estrategia buscaba enriquecer el conoci-




Fig. 6: Sitio 45 del territorio de Giribaile. Análisis kernel de la concentración de fragmentos cerámicos identificados en superficie.

miento de la Cultura Ibérica, superando la estricta lectura restringida de una tipología conformada exclusivamente por las funciones preasignadas como *oppida,* torres y asentamientos de vocación agraria en llano y presenta un marcado carácter experimental definido desde la metodología de prospección arqueológica intensiva conectada al desarrollo de objetivos de investigación concretos y a un marco conceptual desarrollado en el ámbito de la implantación de los sistemas de poder de tipo aristocrático. Todo ello, sin olvidar planteamientos diacrónicos, no menos importantes, que tratan de establecer la dinámica de la evolución del territorio desde los tiempos de la Cultura Ibérica hasta la etapa de ocupación romana. La construcción de este territorio político tuvo, sin duda, una importancia capital en el desarrollo de los acontecimientos políticos a finales del siglo III a.C. en el alto Guadalquivir, sin poder descartar definitivamente una posible identificación entre *Orongis* y Giribaile.[12]

### *Municipium Flavium Baesuccitanorum*

La existencia de este municipio romano viene constatada epigráficamente en dos inscripciones funerarias, en las que los *cives Baesuccitani* e *incolae* erigen estatuas a un rico y destacado personaje, añadiendo este honor tanto a los decretados por la curia local como por otras ciudades. Para L. A. Domingo formaron parte de un conjunto de pedestales sobre los que debieron erigirse, al menos, tres estatuas en honor de *C. Sempronio Celeris f. Celer.*[13]

Los autores encargados de la redacción del corpus de inscripciones latinas de Andalucía redefinen los límites teóricos de este municipio,[14] desconocido desde la tradición literaria, respecto a la anterior propuesta de E. Hübner, ajustándose, en parte, a los límites tradicionales del término municipal de Vilches, incluyendo el curso del río Guarrizas, con una clara referencia a la mina de Palazuelos y la Venta de Arquillos el Viejo, que habría que identificar, tal vez, con una *mansio.* Esta demarcación territorial podría concretarse como una gran ventana que atraviesa el territorio extendiéndose desde Sierra Morena, al norte, hasta alcanzar la gran vía de comunicación que abría el curso del río Guadalimar, al sur, a lo largo de la cual corría de forma paralela el antiguo Camino de Aníbal.

Las inscripciones sepulcrales tienen un carácter honorífico y ambas proceden del paraje de La Torrecilla, supuestamente ubicado al norte del actual término municipal de Vilches, en la zona del Arroyo del Rey. La primera (*CIL* II 3251) correspondería a un bloque de mármol blanco con vetas rosadas con unas dimensiones de 84 × 54 × 49 cm, mientras que de la segunda (*CIL* II 3252), una basa de estatua, tan sólo conocemos que era tan grande que fue necesario partirla en dos para poder transportarla.

Las circunstancias que rodean la historia de estos descubrimientos aportan pocos datos para aclarar su procedencia. El estudio de Abascal y Gimeno muestra las vicisitudes por las que atravesó la primera de las inscripciones citada, que fue perdida y encontrada varias veces, hasta en tres ocasiones, antes de quedar expuesta definitivamente en el Museo de La Carolina.[15] La fuente de origen de la información tiene que ver con el interés de Aureliano Fernández-Guerra por averiguar el lugar exacto del hallazgo del pedestal cuando pasó por La Carolina el 24 de marzo de 1860. A la segunda de las inscripciones también se le atribuye la misma procedencia, aunque en esta ocasión la referencia, mucho más antigua, pertenece a Francisco Rus Puerta, cuyas obras fueron escritas en la primera mitad del siglo XVII.

La poca concreción espacial hace extremadamente complicado establecer una localización topográfica segura, del lugar exacto en el que se produjeron los hallazgos, más allá de convenir que fue en un paraje al norte del término municipal de Vilches, aunque, aparentemente el lugar actual de La Torrecilla, en esta localidad, que hemos visitado en alguna ocasión y en el que no hemos logrado realizar hallazgos significativos, no se correspondería al que se hace mención;[16] por otra parte, por Arroyo del Rey se conoce un tributario por la margen derecha del río Despeñaperros, unos 20 km al norte de La Ca-

rolina, que nace en la vertiente sur de Sierra Morena y sigue un trazado predominantemente este-oeste, próximo a la aldea de Miranda del Rey, para desembocar en el curso principal, muy próximo al trazado actual de la autovía A-4. Este dato no sería necesariamente contradictorio con el que proporciona E. Hübner de que fue llevada "*… según dicen del arroyo del Rey, en la Torrecilla, al norte y a muy corta distancia de Vilches*",[17] teniendo en cuenta los límites históricos de este municipio, muy extenso en origen, al que progresivamente se fue segregando parte de su territorio para la instalación de nuevas poblaciones.

La supuesta proximidad del lugar de hallazgo de las inscripciones respecto al núcleo urbano de Vilches sería el único criterio válido para la polémica y creemos que desacertada localización del municipio romano bajo el casco urbano de la población actual, que, de forma generalizada, se sitúa en Vilches y, más concretamente, en el Castillo del Cerro de la Virgen (sitio catalogado con el código 01230940003 en la base de datos del Patrimonio Inmueble de Andalucía).[18] Sin embargo, recientes trabajos de prospección asociados al análisis arqueológico del territorio de Giribaile han permitido identificar los restos extensos de un área de población romana en el paraje denominado Santagón, localizado a 3,5 km al suroeste de Vilches.

Este yacimiento ya había sido parcialmente caracterizado a partir de trabajos de prospección superficial[19] ejecutados como parte del proyecto de investigación del territorio de Giribaile en 2014, pero ha sido recientemente, en el verano de 2017, cuando se ha podido recorrer íntegramente, como consecuencia de la retirada de las aguas del pantano de Guadalén, debido a un intenso proceso de sequía que ha dejado al descubierto construcciones pertenecientes a una arquitectura monumental de aparente carácter público. Actualmente, el área que conserva restos de zócalos de muros de construcciones se estima en un tamaño próximo a las 6 ha, además de presentar grandes alineaciones de muros en los que se disponen, repetitivamente, los umbrales de acceso a distintas casas (fig. 7). La entidad de los restos conservados, la estructura de una planta preestablecida y el aparente carácter monumental que se reconoce en un sector de la ciudad resultan argumentos interesantes para poder plantear aquí la hipótesis de localización de la fundación romana del *Municipium Flavium Baesuccitanorum,* frente a la propuesta tradicional basada, exclusivamente, en la información que proporcionan dos inscripciones correspondientes a hallazgos antiguos y descontextualizados que, por otra parte, podrían estar asociadas a un monumento funerario localizado en un punto especialmente significativo de la vía de acceso a la *Baetica* próximo al *saltus castulonensis,* teniendo en cuenta, además, que los pedestales de las estatuas fueron erigidos por miembros de antiguas comunidades oretanas situadas tanto al norte como al sur de Sierra Morena.



Fig. 7: Yacimiento arqueológico de Santagón. Alineaciones de muros en los que se abren los umbrales de las casas y bloques con grapas pertenecientes a espacios de representación.

## Conclusiones

La aplicación y desarrollo de una estrategia de prospección arqueológica intensiva ha servido para valorar nuevos datos de cultura material que podrían relacionarse con la identificación de un posible núcleo urbano, organizado a partir de patrones urbanísticos regulares y dotado de una arquitectura pública monumental que, quizás, tenga relación con *Baessuci,* el municipio de época Flavia de ubicación incierta. Los trabajos de prospección, al mismo tiempo, han permitido ampliar el conocimiento de la etapa correspondiente al periodo de ocupación de Giribaile, permitiendo ampliar el territorio de explotación agrícola hasta los terrenos de vega de la margen derecha del Guadalén.

El objetivo último de este trabajo plantea un estudio arqueológico acerca de un problema histórico, reivindicando la calidad de los registros de superficie. Este modo de actuar, basado en el desarrollo de prospecciones intensivas sistemáticas regionales, si bien requiere de un gran esfuerzo de campo en la inspección de los terrenos superficiales, garantiza una buena resolución espacial de los datos y permite comparaciones estadísticas fiables que fundamenten la interpretación.

## Notas

[1] Nocete et al. 1986; Pérez Bareas et al. 1992.
[2] Gutiérrez 2010a.
[3] <https://www.iaph.es/patrimonio-inmueble-andalucia/resumen.do?id=i5453&ids=230940007> (18th December 2019).
[4] Gutiérrez 2002.
[5] Serrano et al. 1988.
[6] <https://www.iaph.es/patrimonio-inmueble-andalucia/resumen.do?id=i14071> (18th December 2019).
[7] Plin. Nat. 3, 96–97.
[8] Gutiérrez 2014.
[9] Gutiérrez et al. 2015.
[10] Gutiérrez 1998.
[11] Gutiérrez 2010b.
[12] Ruiz et al. 2015.
[13] Domingo 2008, 180.
[14] González Román – Mangas 1989, 83 s.
[15] Abascal – Gimeno 2000, 148 s.
[16] González Román – Mangas 1989, 88.
[17] Domingo Puertas, 2008, 176.
[18] <https://www.iaph.es/patrimonio-inmueble-andalucia/resumen.do?id=i3727&ids=230940003>(18th December 2019).
[19] Gutiérrez et al. 2016.

## Índice de figuras

Todas las imágenes del autor.

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# Late Antique and Medieval Landscape in the Guadiana Valley. The Roman Villa of 'La Dehesa de la Cocosa' (Badajoz, Spain)

**Isabel Sánchez Ramos – Fernando Valdés Fernández – Felix Teichner**

## Introduction

The geographical framework of this study corresponds to the middle valley of the river Guadiana together with the stream Hinojales, in the province of Badajoz (Extremadura, Spain), characterized for benefiting the development of farming activities.[1] The main aim is to make progress in the research on the outcome of the Roman villa of La Dehesa de la Cocosa – that is situated since the 1st century until the 7th century (fig. 1), and its role in the management of the territory following the consolidation of the bishop's sees in the 6th century and, later on, throughout the structuring of al-Andalus.[2] Ultimately,

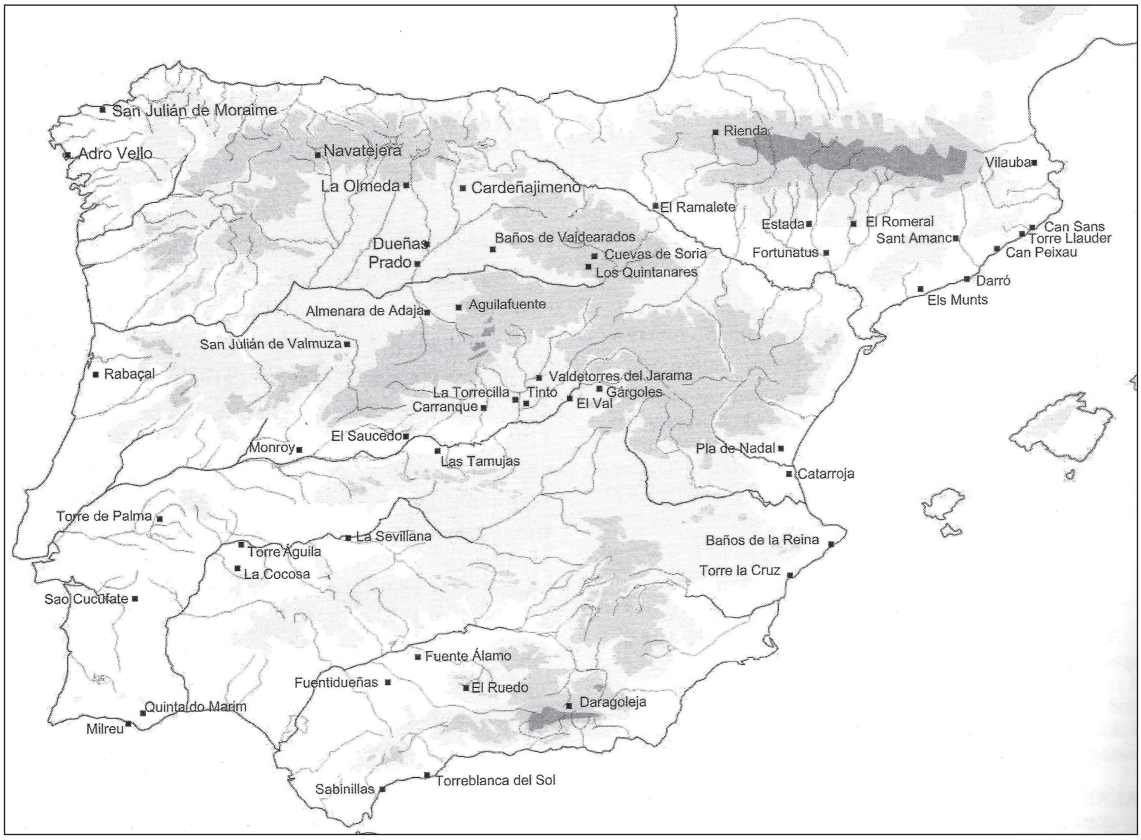



Fig. 1: Location of the main Roman and late Roman villae in the Iberian Peninsula cited in the text.

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the purpose is to know the evolution of this bordering Lusitanian landscape and its patrimonial heritage, as well as to contribute to advance in the architectonical knowledge of the land-use planning in such a hierarchically organized space, of both cultural exchange and connection. The Roman villa of La Dehesa de la Cocosa was discovered during the development of the agricultural works in the property of Mr. Luis Mendoza Botello. In the last decades of the 20th century, it has been a partial subject matter by other researchers[3] and institutions such as the Archaeology Institute of Merida[4] (IAM-CSIC). The first excavations were done in 1945 by the archaeologist José de Calasanz Serrá Ráfols (fig. 2). Subsequently, other excavations were conducted where the three documented Christian mausoleums appeared and about which we will discuss later, even if the extension of the settlement has not yet been fully delimited.

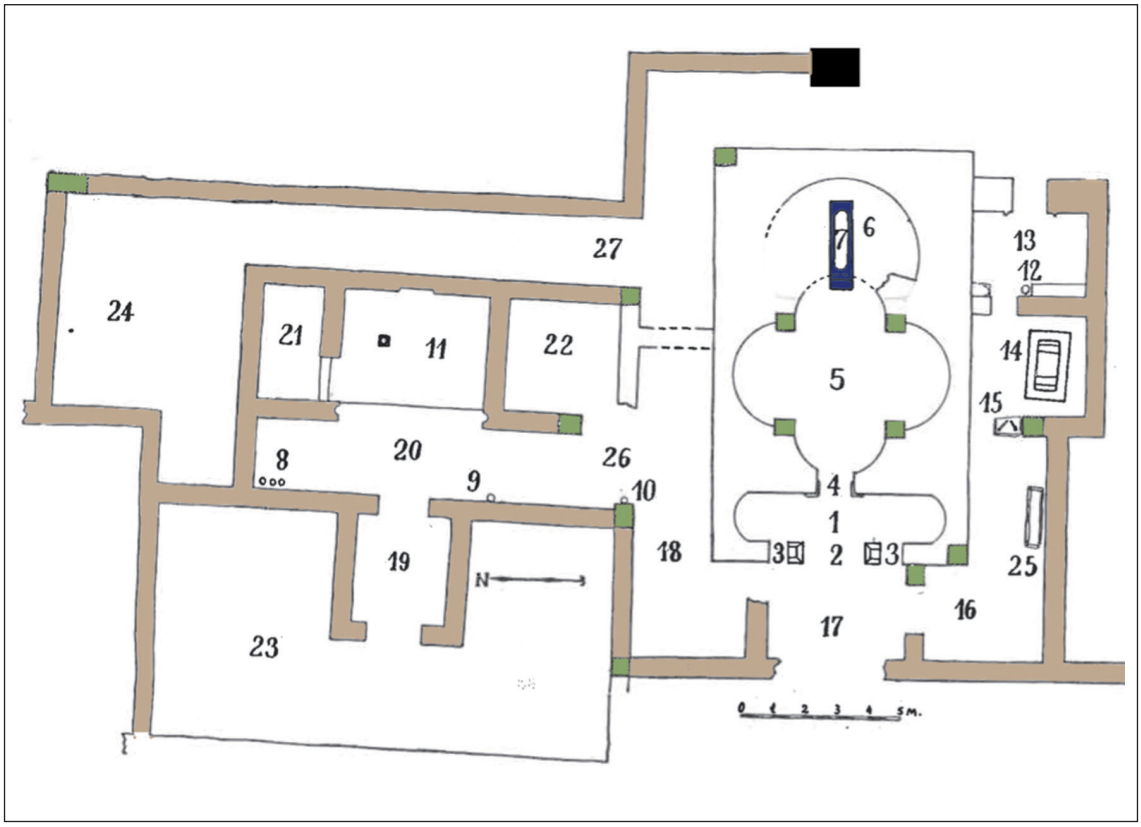



Fig. 2: Plant of the Roman villa of la dehesa de la Cocosa after the first excavations conducted in the 20th century.

## Goals and Methodological Approach

Firstly, a topographic analysis of La Cocosa will be done through different documentation methodology strategies (which are non-invasive) that guarantee a minimum impact on the archeological site. Secondly, we intend to reconstruct the succession of cultural landscapes, as a sum of natural and anthropic environments, created in the outlying rural areas of the middle valley of the river Guadiana by the new civil and religious powers, from the construction of the Visigoth Kingdom, with capital in Toledo, to the Umayyad Emirate of Cordova later on. This site is a preferential case for our goals, being it an exceptional complex to develop a non-invasive archaeological methodology. These goals are the following: 1) To carry out the three most useful geophysical prospection in a complimentary way (with magentometry, ERT/resistivity and GPR/ with ground-penetrating radar[5]) in order to evaluate the surface and the extension of the Roman latifundium on the basis of the existence of possible underlying structures; 2) to obtain an orthophotography and a DGM (digital terrain model) from a drone with traditional and thermal sensors[6]; 3) to propose a modern digital documentation and a 3D restitution from the topographic survey of the currently visible structures, which were excavated by Serrá Ráfols between 1945 and 1947; 4) to establish the chain of changes undergone by the villa since the 5th century onwards, from the chronological and functional point of view, and try to know the relationship among the three funerary and sacred structures of the site's Christianization; 5) to explore the transformations of the Christian complex throughout the Islamization period, in order to assess its impact and try to reconstruct the relationships between the ancient villa and the new civil power settled in the recently founded city of Badajoz. In this sense, we intend to study the 'journey of the materials': the sacking and spoliation process of constructive and sculptural material of the villa led and controlled by the local elites, and its reuse for the new constructions of the city; and 6) lastly, to insert the site of la Cocosa within the landscape of the middle valley of the river Guadiana throughout the Late Antiquity and the Middle Ages.

## The Roman Villa and the Late Antique Transformations

The villa was an agricultural and farming holding in the 1st century, which was intended for the production and storage of agricultural products, as evidenced by the found wheat mills and oil press. It has a *pars urbana,* a residential area constructed around a peristyle with a *balneum* and other representation rooms, which reached their splendor in the 4th century, just like other Hispanic and Lusitanian villas, such as La Atalaya, Bótoa, Torre Águila, El Pesquero, La Vega and Panes Perdidos.[7] The villa's production and storage activities were likewise maintained,[8] this is, the use of *torcularia* for oil production has been evidenced to exist during the Late Antiquity, as is the case in the villas

of Torre Águila, Milreu and Sao Cucufate located in Portugal.[9] Nonetheless, it is the transformations and occupations detected in the villa since the end of the 4th century what constitutes our main topic of interest. Probably having already lost its residential function, the presence of three new buildings has been object of speculation in recent historiography as to whether they might be churches or just mausoleums.[10] Two of them are located in the *pars urbana* of the ancient villa and may be identifiable in the maps of Serrá Ráfols.[11] However, the third one, which is undoubtedly Christian, appeared in a different area in the course of a minor excavation, located some 250 meters to the southeast of the main complex. Given that the topographic relationship of the three mentioned late antique structures is unknown, we intend to use the orthography to create a new topography for its visualization. Logically, this work involves explaining the nature of this reoccupation and its evolution, in funerary, sacred and/or residential site, as well as its likely private nature at first, and possibly public afterwards, if we manage to confirm that it was used as a rural *parochia,* and ultimately an 'exclusive' quarry of materials.

The first building (building one) is situated between the peristyle of the *uilla* and the *balneum.* It has a square ground plan (6.5 m × 6,6 m) and a double apse with a burial located in the southern apse (fig. 3). Since the approach by Pere de Palol of it being a



Fig. 3: The first building located between the peristyle of the *uilla* and the *balneum* that held a double apse.

church has been dismissed, it shall be identified as a mausoleum, either pagan or Christian, and assume that the northern apse, whose function is unknown, is a posterior adding. A second mausoleum (building 2) is situated next to the northeastern corner of the peristyle. It is a rectangular nave (4.7 m × 5.5 m) with the northern end also apse-shaded. The third private mausoleum (building 3) is situated at around 250 m from the *pars urbana,* and has been dated, as have the other two, between the late 4th century and the middle of the 5th century.[12] It is a rectangular-shaped ground plan construction, of greater dimensions than the others (13 × 8 m) with two apse-shaped premises in the interior, preceded by a transversal lobby to the west. This access leads to a quadrilobed chamber and further, in the eastern part, a crypt (which is partially destroyed) with a privileged burial in a plain white marble sarcophagus, with an east-west orientation. This chamber might have been covered by a central dome richly decorated with a mosaic, given the amount of glass tiles recovered from the levels of destruction. As we will later discuss, we believe that the pilasters spoiled for their use in the first residence of the Islamic governor of Badajoz in the 9th century belonged to this building, namely to the central space. Our hypothesis is that it was an intentional spoliation carried out to legitimate the new civil power. The construction quickly reminds of the central-ground plan building of Centelles (Tarragona) in Tarragona, which has also been object of review and controversial interpretations in recent research.[13]

As many other 4th century structures identified in the reoccupation phases of some Hispanic villas, including but not limited to Milreu, Estoi, Las Vegas de Pedraza (Segovia), San Miguel de Odrinhas (Sintra, Portugal) or La Alberca (Murcia),[14] these very constructions shall be identified with non-church mausoleums, and it is rarely possible to even define its religious affiliation, except for the case of Las Vegas de Pueblanueva (Talavera), a Christian burial confirmed by the recovered marble sarcophagus.[15] However, some of these mausoleums have been transformed into churches from the 6th century.[16] As a matter of fact, in La Cocosa, in an even later phase, the third mentioned building was included in a wider architectonical complex, from which several premises attached to the central space are noteworthy, such as the baptism pool of rectangular ground plan with descent and ascent stairs in the ends. It can date from the 6th and 7th centuries due to its typology and the presence of an altar table and liturgical objects (fig. 4). We




Fig. 4: Bronze paten handle with Christian inscription and cross: Ex of(ficina) Aseeli uter(e) felix in Deo (HAE 475).

do not know the whole structure of the ecclesiastic complex, or its relationship with the peasant housing units established between the peristyle and the third mausoleum used as a church. However, the available literature triggers the idea of the existence of a rural settlement that may be defined as a late antique *uicus* formed around a religious building (building 3, which used to be a mausoleum and was transformed into a church with a baptistery), which might have been used as a rural parish.[17] Therefore, this settlement model reflects a shift in the economic and social system of the territory at the end of the Late Antiquity.

## The Foundation of Badajoz and the New Territorial Organization in the Ninth Century

Another vital factor to take into account when studying the remains of La Cocosa is the final occupation date and its possible continuity until a quite posterior period to that of the Arab conquest in 711. None of the archaeological digits carefully noted by J. de C. Serrá Ráfols allows considering, *a priori,* that this was the case. Despite this, we now know that the Islamization process took place quite slowly and that the cultural change took time to appear in its material aspects. We also know, thanks to the documentary evidence, that the local oligarchies agreed to their redemption before the Arab conquerors and soon converted to Islam, specially forced by tax reasons, keeping a noticeable level of autonomy.[18] It was only when the Umayyad monarchs of Cordova initiated the application of a centralist policy based on the Abbasi model in Iraq, which breached the pacts following the invasion and reduced the self-governance of the local aristocracy, that problems started: a series of rebellions and riots that took place in the eastern region from the reign of the Emir al-Hakam I (796–822) until 875, moment in which the Muslim indigenous leader Abd al-Rahman ibn Marwan al-Yilliqi founded *Batalyaws.* We should ask ourselves where theses oligarchies lived from the moment of the conquest until, at least, the foundation of the first fully Islamic enclave.[19]

The excavation works that took place in the old Military Hospital of Badajoz, which today hosts the Library of Extremadura, in the late 90's of the 20th century, revealed the remains of an architectonical site consisting of a residential area, a reception hall and a small mosque, all of it structured around a low garden. It is a castle, which most likely served as the residence of the city founder. The official area of this complex, with three occupation phases (before the 11th century, 11th and 12th centuries) was partially destroyed by the apse of the cathedral of Badajoz, constructed shortly after 1230, when the city was conquered by the king Alfonso IX of Leon (1171–1230).

It was only possible to study the apse of the reception hall. It has an east-west orientation and the eastern side, limited by a low quadrangular garden, is 10.64 m long. The floors in the hall were made of pebbles, covered by a layer of stucco painted in red. It was possible to recover a considerable part of the plinth with white stucco and geo-

metrical lattices, also in red. The most interesting aspect from the construction point of view is the *in situ* emergence of three quadrangular granite bases, placed equidistantly. A fallen, almost complete masonry block covered with the same white plaster and decorated with the same red-painted lacework strips was excavated at the bottom of the most southern one. The bases were apparently used as a support to the three plinths (just one was preserved) on which each squared pillar was placed, whose location accounts for their use as elements to rest the supports of a big hole with two compartments separated by a mullion. Except for their difference in use, its organization seems similar to the one visible in the access to the cistern stairs of the Alcazaba of Merida.[20] What is most striking is the similarity in size of the bases in the hall and the two late antique marble pillars, which are preserved in the Archaeological Museum of Badajoz, and whose general origin was situated in this Alcazaba (fig. 5). Several crosses were craved in the side of these pillars. However, the ones situated in one of them, apparently the frontal one, were carefully chipped out at some point. Those in the opposite side and other smaller ones in the other two remained intact. We do not know the appearance of the mullion, but its base was also rectangular.

From our point of view, the similarities between the dimensions of the bases of these pillars and those of the granite bases discovered in the apse of the Badajoz Palace's hall indicate that this was their original placement, over brick plinths, in a highly visible and deliberate way. This is, like *spolia.* This was confirmed by the position of the chipped-out crosses, whose cavity, once they were erased, remained clear. The two pillars situated in the compartment of the hall's apse were, undoubtedly, those found in the Provincial Archaeological Museum of Badajoz (Inv. No.: 900 and 901). Given the position of the intact crosses and the spaces left by the chipping-out process, we must assume that they were attached, as doorposts, to those walls.[21] Finally, it is noteworthy that their bases have the same width that the support of the dome of the *martyrium* of La Cocosa. If, as we believe, the pillars with crosses, together with another extensive lot of sculptural pieces, went from La Cocosa to the castle of the Alcazaba of Badajoz, it is obvious that they were a part of an important and representative enough building to be used in the reception hall's apse of the residence of Abd al-Rahman Ibn Marwan, the founder of the city (fig. 6). Hence, not only was the legitimacy of the pre-Islamic territorial powers (the Goth Lusitanian oligarchy) evidenced, but also its continuity.

It is likely, from our point of view, even if the complex requires – as stated before – a more extensive and thorough research, that the villa of La Cocosa was not abandoned at the time or shortly after the Arab conquest, but that it was used until much later. It is the foundation of the *Batalyaws* castle (880–890) what establishes the approximate moment of its definite abandonment. In that moment, part of the complex might have been dismantled to move its sculptural elements to the new seat of the territorial authority.



Fig. 5: Late antique sculpted pilasters reused in the 9th century residence of the governor of *Batalyaws*.

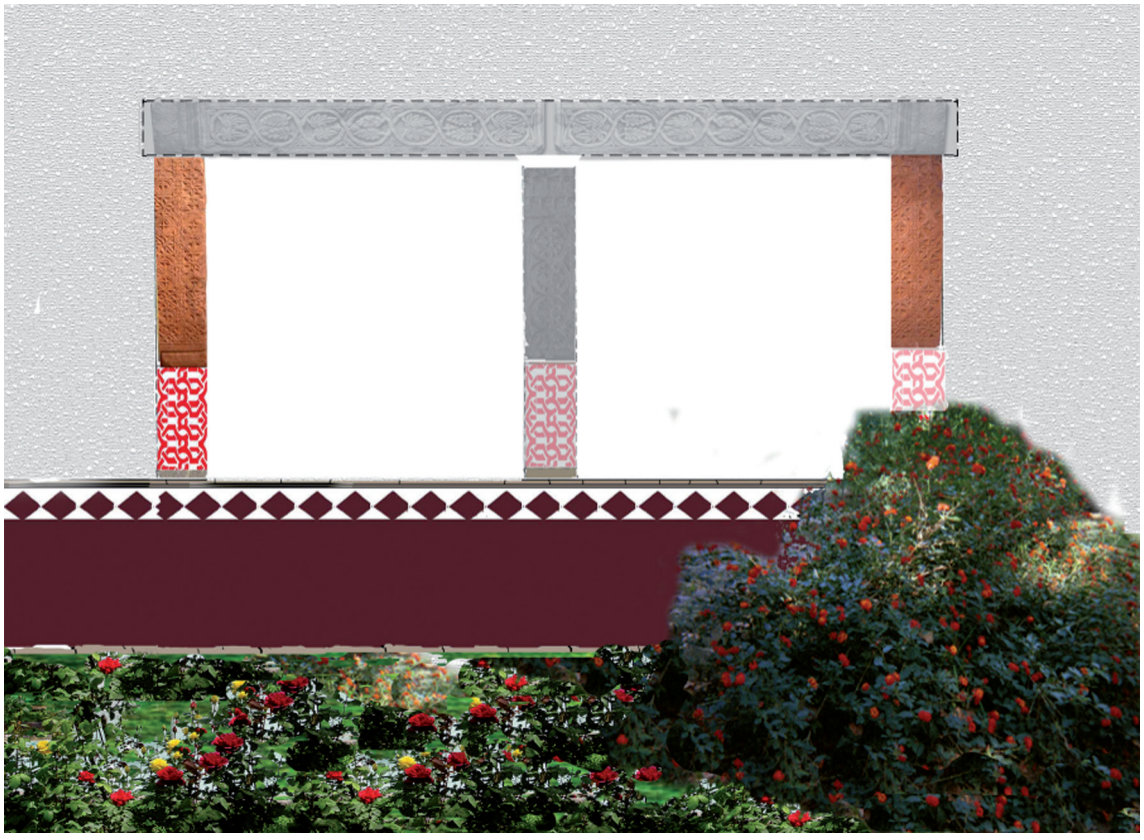


Fig. 6: The architectonical restitution of the reception hall of the Alcazaba's foundational residence faced to the garden courtyard, proposed by F. Valdés.

## Conclusions

The future perspectives of this project will also involve addressing various aspects of the transformation of the landscape beyond the town and the emergence of new rural settlements in the territory, including in its rebuilding knowledge of the geomorphological environment, resources (mining, agriculture and livestock[22]) and infrastructures (communication routes, irrigated systems) as key elements for their interpretation. From the methodological point of view, the most immediate future expectations of the project should be a modern documentation of the site and its landscape/topography involving the use of SfM (Structure from Motion), and of mappable information processing systems, such as Laser Scan, Drone, GPS and Total Station. With them, it will be possible to create a plan that will show the spatial articulation of the complex and about which we will obtain a 3D survey that will render the space articulation of the complex more understandable in its different chronological phases. Secondly, the stratigraphic reading of the walls, which will facilitate the distinction of various constructive moments and definition of their technical characteristics, will also be essential to establish their

constructive–destructive–constructive sequence. Finally, the non-invasive geophysical prospection in cooperation with the team of the University of Marburg, applied before on other sites of the Iberian Peninsula, including, but not limited to Italica, Monte Bernorio, La Olmeda, Regina, Tiermes or Sasamon, will give a radiography of the architectural elements/ground-plan-parts that are still unknown/unsecure[23]. The application of these new technologies should help to understand and confirm the important perspective (in the sense of a case study) about the continuities and changes in *Lusitania* in the transition period between the Late Antiquity and *al-Andalus,* and the behavior/reaction of local aristocracy/elites.

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## Summary

This paper aims to present the study in progress about the evolution of the territory of the middle valley of the Guadiana between Late Antiquity and the Middle Ages periods (4th–10th centuries), to understand the articulation and management of this geographical border area in administrative, economic, social and ideological terms. One of the main goals is to know the impact of both Christianization and Islamization phenomena in the structuring of the new rural settlements in this bordering area between Lusitania and Baetica after the fall of the Roman Empire system, as well as the structural characterization of the cultural landscape in which the transformation of the Hispanic Roman *villae* is inserted.

## Notes

[1] Gorges – Rico 1999, 157–195.

[2] A recent study addressing to the same phenomenon but in the framework of the Roman *villae* of *Baetica,* in Sánchez and Morín 2018, 575–612.

[3] Cerrillo 1983, 87–101; Arce 2006, 13.

[4] Mateos 2003, 21–24; Cordero 2013; Teichner – Dürr, 2020.

[5] Teichner et al 2016b and Teichner et al. 2021, 5–25.

[6] Salzmann 2016.

[7] The architectural renovation of the Roman *villa* also involved an ornamentation of the spaces with mural painting, stucco, sculptures, marble, mosaic pavements, etc., among which stands out the polychrome mosaic of the *balneum*'s *frigidarium* representing Triton. These constructions are rooms that were organized around a peristyle, among which stand out the *stibadia* linked to the banquet and representation rooms of the owners, which are documented in La Cocosa (Serra i Rafols 1952), and other Roman *villae* such as Torre Águila (Rodríguez 1997, 697–712), Monroy (Cerrillo 2006, 200) and Santiago. Regarding to the architectural conservation, most of the documented structures correspond to the foundations of the walls (masonry and mud walls), and to the aforementioned mosaic pavement, and other *opus signinum* floors. Recently summing up: Teichner 2018.

[8] Serra i Rafols 1952, 46.

[9] Teichner 2008; *Idem.* 2018.

[10] Other mausoleums were built during the mid-4th and the 5th centuries in the Roman *villae* of El Carrascal (García Bellido 1965, 83–86), El Pesquero (Rubio 1991, 436), São Cucufate (Alarcão et al. 1990), Milreu (Teichner 2008, 509) and Pisões.

[11] Teichner 2018.

[12] Serra Rafols 1949, 105–116.

[13] Arbeiter 2002, 1–9; Puche – Lopez 2017, 169–182.

[14] The archaeological evidence of La Cocosa indicates that the ancient Roman villa lost its function as a prestigious residential place throughout the 5th century, as well as the late transformation of the settlement into a *vicus* surrounding the church built on the third mausoleum. A similar case is documented in the large Roman villa of Torre de Palma in Portugal (Maloney – Hale 1996, 293).

[15] Chavarría 2018, 106.

[16] Chavarría 2007, 215.

[17] There are also late productive spaces and the conversion of the Roman *oecus* in stockyard has been documented (Aguilar 1991, 264–279).

[18] Hernández, 1967, 37–123.

[19] Valdés 1999, 281.

[20] Valdés 1995, 295.

[21] Valdés 2018, 241–251.

[22] Cordero 2013, 80.

[23] Teichner et al. 2016a, 161–170; Teichner et al. 2020a and 2020b; Teichner et al. 2021.

## Image Credits

Fig. 1: Chavarría 2006, 18, fig. 1. – Fig. 2: Serra Rafols 1952, fig. 11. – Fig. 3: © F. Sánchez. – Fig. 4: © F. Valdés. – Fig. 5: © F. Valdés. – Fig. 6: © F. Valdés.

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# Sacred Landscapes in the Hinterland of Toledo (Spain) during the Late Antiquity (6th–7th Century). The Case Study of Los Hitos

**Isabel Sánchez Ramos – Jorge Morín de Pablos**

## Introduction. Location and Historical Context

With a strategic geographic location closed to the main Roman roads in the middle of the Iberian Peninsula, Toledo was the Visigoth capital from Theudas in 546 to the collapse of the Kingdom in the early 8th century. Evidence of power urban architecture is slim, and most of the well-known structures linked to new local elites, i.e. the monasteries and burial memorials such as Los Hitos, are in the hinterland of Toledo.[1] This work presents new approaches to the archeological research related to the local Visigothic elites as the key to understand the landscapes's transformation during the 5th century

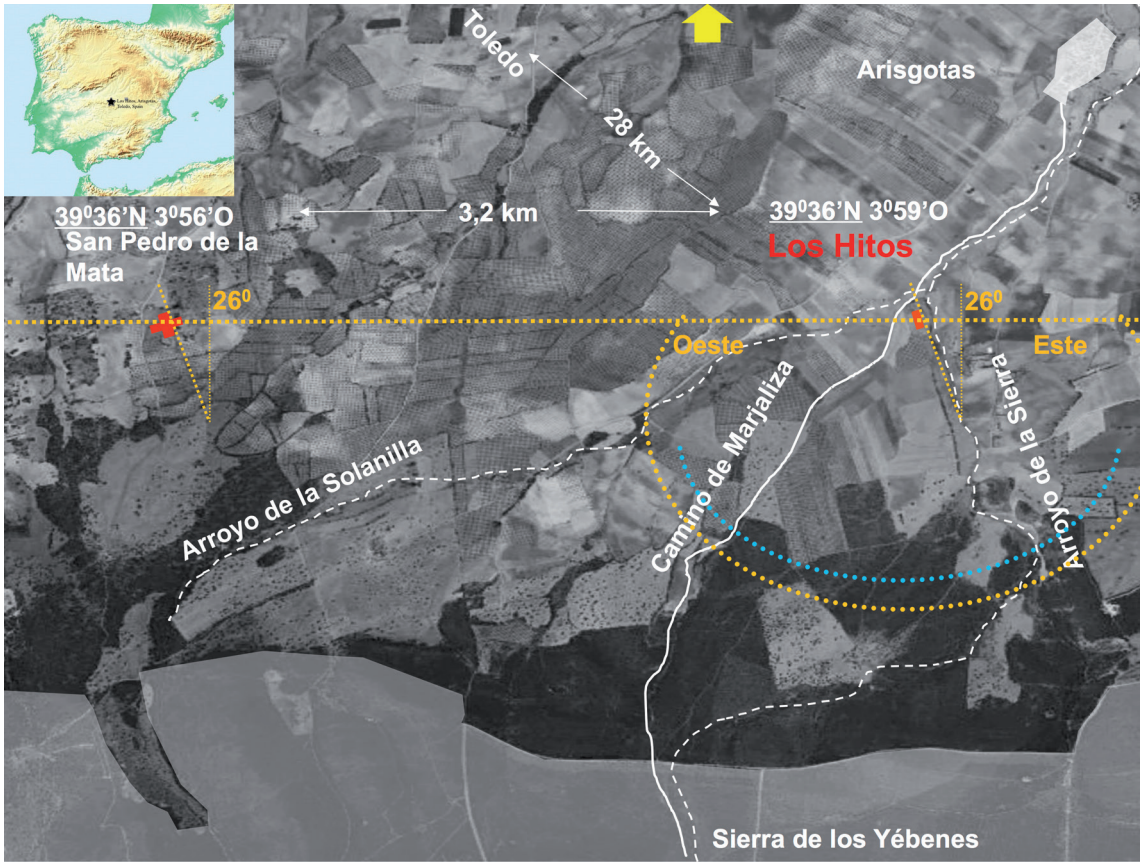



Fig. 1: Location of the archaeological site of Los Hitos in the territory of Toledo (Arisgotas, Orgaz, Toledo, Spain).

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and 7th century.[2] As far as we know, it is highly likely that Los Hitos was the burial place or mausoleum for a member of the high nobility of Toledo and his family on a latifundium that could also have held an important religious centre.[3] The archaeological site of Los Hitos (Arisgotas, Orgaz, Spain) is located in a geographical area called Matabueyes where the Arisgotas and Sierra Gorda streams converge. This place stays in the foothills of the Yébenes Mountains in the Sisla region (Montes de Toledo) (fig. 1).

According to written sources such as Ptolemy's Geographia, Orgaz may have belonged to the ancient Carpetanian Barnacis on the opposite side of the River Tagus in the pre-Roman period. From the Roman period, the Via Flaminia traversed this region, connecting Toletum with Consabrum, Murum, and Laminiun, and from there, with Emerita Augusta and Colonia Patricia Corduba. In addition, other secondary roads from Toledo to Los Yébenes, Toledo to Córdoba, and Orgaz to Mora also ran through this area.[4] The most significant finds from this site are the six Roman granite and marble altars of either a funerary or votive character, connected to an unknown ancient temple or sanctuary, and a funerary monument. The piece discovered in the fields of St Barbara (Arisgotas) has been reused as a pedestal for a Christian altar. Most significant was the discovery of a funerary mausoleum with a crypt so-called El Torrejón on the road to Manzaneque that was integrated on a rural necropolis in the late Roman period.

The location of Los Hitos near the Roman road that connects Toledo with Córdoba would be the perfect setting for a residential compound for the aristocracy. The etymology of the place (Los Yébenes) enables us to propose that this compound could be identified with the monastery Deibensis uillula founded for virgins by Bishop Ildefonsus of Toledo, in a family-owned property. As C. Martin and J. Arce indicated, the diminutive form used by the chronicler (uillula) does not mean a small uilla, but instead refers precisely to the centre of a large territory owned by nobility and is also a synonym for a villa owned by a lord. In this context, the uillula Deibensis is comparable with the uillulae cited in other texts of the time, such as Gérticos, the uillula where the Visigoth King Recesvinto died, or Aquis, the uillula where King Wamba established a short-term Episcopal see.[5] Written sources also provide more useful information about the religious complexes around the countryside of Toledo. There were also several monasteries under the patronage of St Cosmas and Damian, known as Agali or Agaliense, St Felix quae est in Tatanesio, Saint Michael, Holy Cross, Saint Vincent, and Saint Eulalia of Mérida. Actually, the coenobium Cabensis whose location is unknown had been one of the most famous monasteries founded in this territory.[6] Given the archeological, textual and epigraphical references, other paradigmatic monuments in the territory of Toledo are St Maria Melque, St Pedro de la Mata and Guarrazar.[7] The site of Melque is a unique building that represents one of the best early medieval ecclesiastic complexes studied in Spain, especially those conducted by L. Caballero since 1980.[8]

## Background, New Fieldwork and the Methodological Approach

The first excavations in the late antique rural complex of Los Hitos were carried out by L. J. Balmaseda between 1975 and 1982 revealed a large building (20 m long × 7 m wide) built in ashlars and stone masonry. The building is divided into three areas: the central area being larger than the lateral areas (12 m long), with buttresses and external supports that would presume a certain height or the existence of an elevated floor. The main tomb faces east and is in line with one of the doorways. In the annex to this main space, a lengthy inscription was found which has been interpreted as monastic in character, given that the final verses allude to the construction of the church by an unknown figure (fig. 4).

This archaeological site is currently the subject of a multidisciplinary project conducted using several approaches and a variety of methodological resources within the excavation in order to identify new potential structures located underground. One of our methodological priorities is to apply the building archeology approach and remote sensing technologies (photogrammetry and drone) within the excavation, and field equipment for registering archaeological records in order to understand the topography and chronologies. In 2014, fieldworks was concentrated in cleaning and making the archeological site suitable for visitors, creating a new topographical survey by aerial photography (fig. 2), and a 3-D recreation of the partially excavated complex. The images obtained using the drone equipped with an infrared photographic camera have been used to propose a representation of the complex extension (fig. 3).

New finds have resulted from the 2016 excavation such us the discovery of a large portico on the north side of the rectangular floor plan already documented. A large number of tombs both inside, and several outside of the same building have been documented. The remains are currently under anthropological study to determine factors such as the sex, age, diseases, diet, and family ties. The excavation has also confirmed the existence of a large architectural complex on a small hillside flanked by two streams, which extends beyond the mausoleum documented by L. J. Balmaseda. The ortophotograph revealed that the field is situated on the top of a small bedrock formation from the Pleistocene sedimentation of the Sierra and the Arisgotas streams. Moreover, the late antique complex is lined by a fence that surrounds its entire perimeter and seems to have its main entrance to the south, with secondary accesses, that have already been documented, to the east between the pavillion-mausoleum and the church.[9] The archaeological records have proved that the main building was conceived as a pavillion or a prestigious rural residence, within a greater compound of buildings that would have had some religious importance. This would also explain the presence of the metric funerary inscription and the pagan altar reused as a Christian altar that is preserved in the parish church in Arisgotas. The presence of supports or butrisses in order to elevate the height of the building overlooking a vaulted archway, or the construction of an upper floor is also very significant. Examples of this equal architectural pattern have been preserved



Fig. 2: The first ortophotograph of the architectonical complex took in 2014.

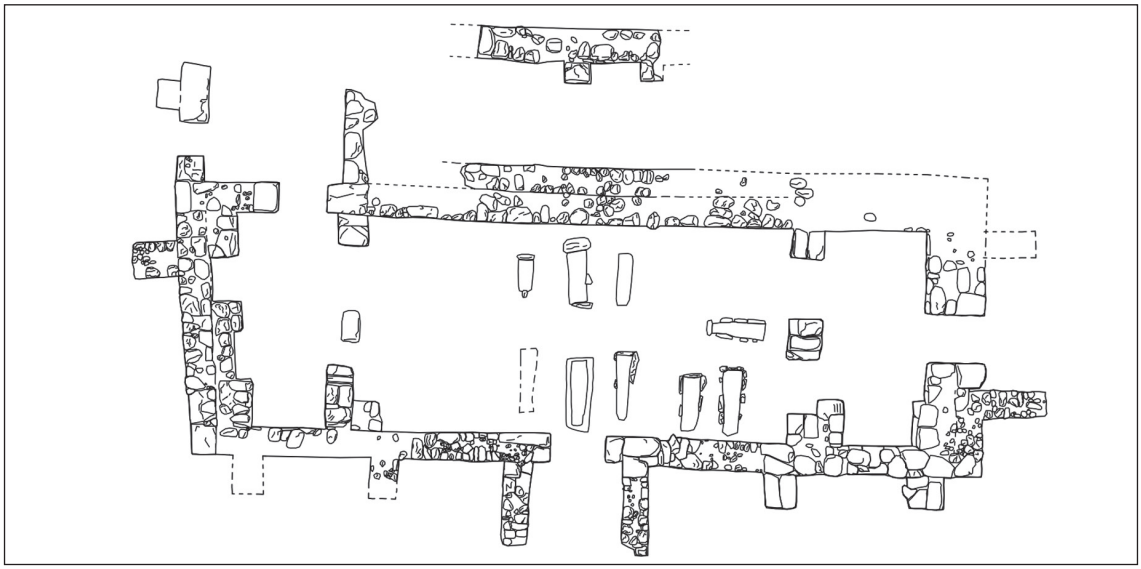


Fig. 3: Plant proposed of the main building of Los Hitos after the 2014 first aerial photograph.



Fig. 4: The 7th century inscription documented by L. Balmaseda during the excavation of the mausoleum: HEp 11, 2001, 577 (<http://http://eda-bea.es>).

in differenct urban and rural places such as Toledo and Valencia (Pla de Nadal) in the 7th century, but also as far away and influencing the Asturian power architecture since the 8th century onwards.[10] Actually, the layout of Los Hitos has been overlapped to the St Maria del Naranco palace's floor plan. Results have showed a precise match in measurements and composition in both buildings. Los Hitos differs because it is built outside the model floor plan, whereas St Maria del Naranco is inside (fig. 5). A similar phenomenon between St Maria de Melque and St Comba de Bande churches was documented and described by L. Arias Páramo.[11] These buildings share the same cultural DNA belongind to the early medieval architectonical arquetypes.

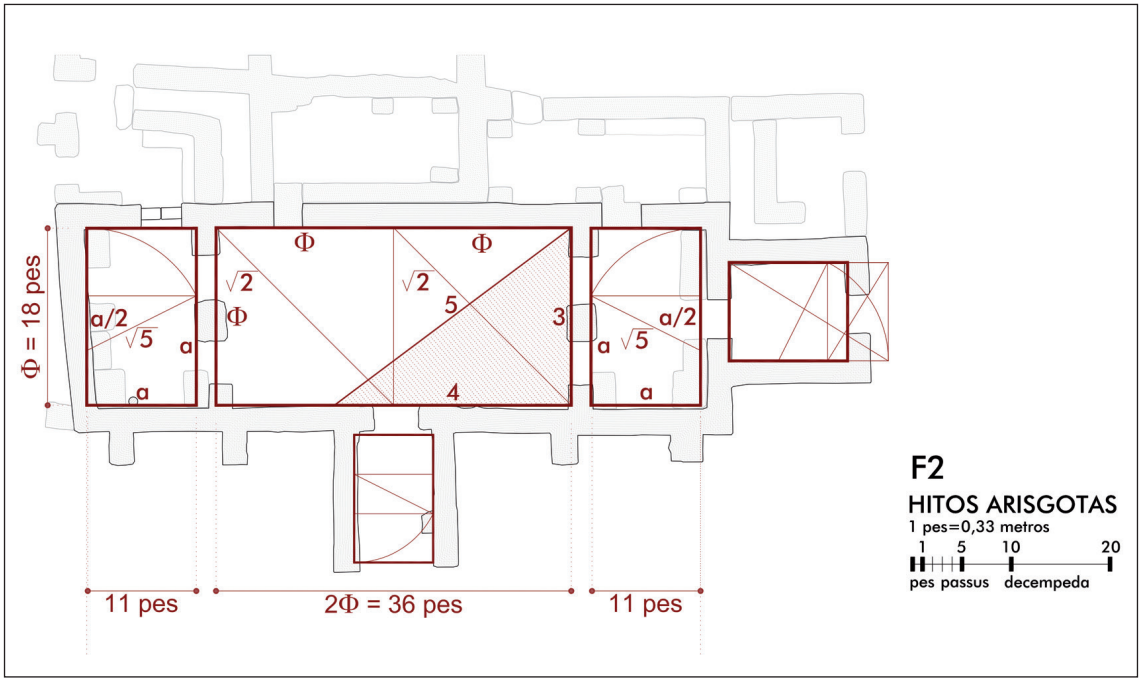



Fig. 5: A numeric study showing the Carolingian feet as the main unit of measurement, and the the floor plan restitution proposed. Design confirms that architecture basic composition used classical complex systems to organize forms.

## Discussion of the Privileged Funerary Space

The funerary space is laid out in two rows clearly organized around an alabaster sarcogaphus oriented east-west that is located in the middle of the rectangular floor plan of the building. This is the main grave that coincides with the principal entrance throught the east portico. However, it should not be ruled out that this entrance might have been sealed off at the time the space was used as necropolis. And, the north portico that was added during the transformation documented in the 2016 excavation houses three tombs too (fig. 6). Thus, the privilege burial must have belonged to a distinguished member of the Visigoth elite who planned it within the framework of a Christian architectural project with the characteristics described. There are also upwards of 40 burials: 24 graves stand inside the building with east-west orientation, and 16 tombs are documented outside. Some of the tombs placed in the central spacare double, and even there are some structures that had been reused in differente times; for intence, up to eight burials have been recovered from one grave. As it is said before, the preserved conditions of the human bones are poorly and an anthropological study is developing. Given the presence of both child and adult remains of both sexes, we should speculate that the building was used for a family group, which would justify the transformation of the pavillion into a mausoleum. The principal funeral structures are stone



Fig. 6: Burials documented inside the mausoleum during the 2016 excavation.

boxes with a rectangular floor and plaster of mortar, covered by large slabs of slate. All of the tombs were sealed with a homogenous *opus signinum* floor. The surrounding *opus signinum* pavement covering the burials is perfectly integrated into the coating of the building, and their physical connection between both indicates that they were built at the same time.[12]

The fragments of common ceramics, some pendants, a belt buckle and the four-petal cloisonné rivets, which was found in the tomb of a young girl in the north portico, suggest the building dates around the 7th century. The most relevant elements that support the 7th century chronology too, are the funerary inscription, the architectonical stone decoration, and the overseas trade pottery. Some *spatheia,* a kind of small amphorae, imported from the north of Africa in the 7th century are also recovered in an abandonment level between the church and the pantheon. These artefacts also demonstrate the existence of commercial exchanges between Byzantine Africa and the Visigoth cities located int the central Iberian Peninsula (fig. 7). These types of elements appeared for example in Reccopolis (Guadalajara) and Gózquez de Arriba (Madrid), demonstrate the

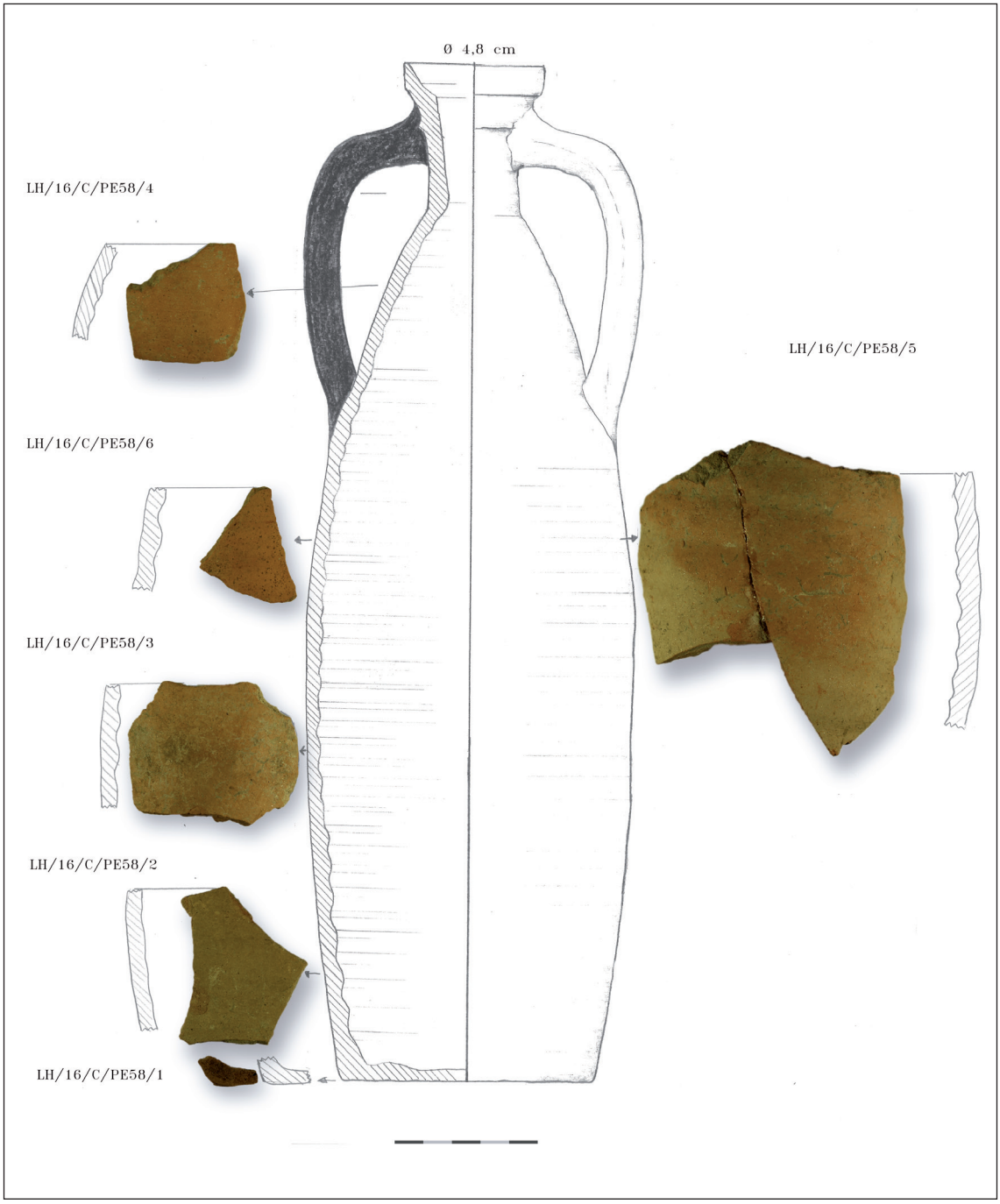



Fig. 7: Fragments of one of the small African amphorae (*spatheia*) dated in the 7th century.

continuity of the commercial routes from the Mediterranean during the pre-Ummayad, to supply the demands of the elite on inland settlements, beyond their usual recognition in the port cities such as Tarragona, Valencia and Cartagena.[13]

One of the archeological problems resolved by the 2016 excavation was confirming that the privileged burial space took advantage of an existing structure, originally planned to be a residence or pavillion, and later turned it into a mausoleum. The original building had its main entrance situated in the portico of the east façade that was either closed by a wall at the time the first funerary installation happened with an alabaster sarcophagus. The second phase of the spatial and functional transformation of the latifundium also involved the construction of a church in the southern side of the mausoleum. Both buildings are connected througt an open corridor below which one canalisation was established. In addition, other buildings similar to the church that would have formed part of a greater civilian compound defined by an enclosure are still under excavation.

## Conclusions

Moving towards an interpretation, until excavations in the area of the church will be finished, and the whole of the late antique complexe will be explored, it is pretty difficult to pronounce about the typology and destination of the funerary building and the church recently documented. It could be a private funerary church since there is not an access from the west side, and any baptistery has been found yet. The C14 carbon results are expected from the human samples, and the constructive coating analysis of the walls and the pavement are in progress too. The appereance of a *titutlus sepulcralis* that commemorates the burial of a landowner in a sacred place proves highly significant after this church has been documented (fig. 8). By written sources, the well-known practice of residences-turned-churches in the rural landscape, or perhaps privileged churches used as burial spaces, confirm the transformation of former estates of the secular aristocracy into the foundations for both parish and monasteries during the 7$^{th}$ century (keeping save the local economic). Then, buildings in the territory of Toledo as Los Hitos and St Maria de Melque, they were not only simple funerary monuments, and they illustrate the enormous social and economic power of the late antique owners of the Visigothic Capital.[14] An interpretation of the floor plan of Los Hitos enables us to confirm that it is a building dated in the early medieval period whose morphology, construction, measurements, composition, function, symbolism, and heritage, are the classical paradigmatic archetype for civilian architecture. It shares similar features with other prestigious residential constructions that have been documented in the late antique Iberian Peninsula and characterized by a tripartite floor plan, the appearance of buttresses and the existence of an elevated representative chamber[15] (e.g. Reccopolis, Falperra, Barcino, Minateda, Pla de Nadal and the so-called 'building A' of Morerías in



Fig. 8: The ortophotograh took at the end of the 2016 excavation.

Mérida). Then, this pattern was very likely adapted to different contexts even by the Asturian architecture from the 8th century.

## Acknowledgment

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## Summary

This paper presents the current state of the fieldwork carried out during the last years in a large late antique funerary building located in Los Hitos (Orgaz, Toledo, Spain). The site of Los Hitos is an important rural and sacred complex related to the local elites of the Visigoth capital of Toledo. The Regnum Gothorum in the Iberian Peninsula was consolidated in the middle of the second half of the 6th century. A perfectly designed ambitious cultural and legislative program was implemented in order to reach the new unification of ancient Roman Hispania. Archaeological and documental records reveal the monumentalization process of Toledo and its territory throughout the 7th century. The material evidence documents the collapse of the ancient territorial model of the Roman Empire, based on large Roman *villae,* and its substitution by a genuine Visigoth model in which monastic and sacred complexes e.g. Los Hitos, Melque and Guarrazar, linked to the elites of Toledo acquired a marked preference. Architecture was especially influenced by this, and consequently transformed into the clearest image of the court and the religious elites, which explains its subsequent influence on the development of art in the Asturian Kingdom.


## Notes

[1] Castellanos – Martín 2005, 10.

[2] Sánchez 2013, 160; Sánchez – Shapland 2015.

[3] Barroso et al. 2015, 47.

[4] Carrasco 2012, 156.

[5] Martin 2003, 32–40.

[6] Balmaseda 2007, 208.

[7] Velázquez – Balmaseda 2005, 137–149; Balmaseda 2007, 208; Eger 2010, 565.

[8] Caballero 2007; Barroso et al. 2011, 57–63.

[9] AA.VV. 2012.

[10] Arbeiter 2000, 251–253.

[11] Arias 2012, 383–385.

[12] Several samples of the construction mortar used in the walls and vaulting in Asturian architecture have been analyzed from the oldest constructions built of Santa Cristina de Lena, Valdedios, and the C14 results suggest a timeframe situated between the mid-7th century to mid-8th century (Rojo 2015).

[13] Bonifay – Bernal 2008, 112.

[14] Chavarría 2007, 127–146.

[15] Escrivá et al. 2015, 40.

## Image Credits

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## Abbreviations

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# *Durocortorum* and the Remi's Territory: Dynamics and Evolution of the Economic Relationships between a Roman Provincial Capital City and its Territory

**Marion Dessaint**

In the last fifteen years, the numerous commercial excavations in Champagne-Ardenne have brought new insights into land use in the Remi's territory and its central civitas, the capital of *Gallia Belgica: Durocortorum* (Reims). Today, a comprehensive survey of rural settlements in the area, mainly carried out as part of a PhD project on the Remi's territory between the 3rd century BC and 6th century AD, provides further details on the human and economic relations between town and country. In addition to the spatial approach, faunal and carpological studies of rural settlements allow us to make assumptions about the economic dynamics that spurred both *Durocortorum* and the Remi area. What kind of connections may exist between the provincial capital and the Remi's territory? Can we determine whether products from the Reims area were destined for the city and/or vice versa? Is there a link between the spatial organisation of the territory and the economic relations in the urban/rural system?

## The Remi's Territory: Background and Data

The Remi territory extends over the present-day departments of Ardennes, Aisne and Marne in northeastern France (Fig. 1). The first evidence of the presence of the Remi tribe in this area dates back to the mid-2nd century BC. At this time, their territory is organised around seven *oppida,* i.e. fortified settlements.[1] In the 1st century BC, the Remi began to coexist with the Romans, a people who already had some relations with them, especially through trade. The *oppidum* of Reims also dates from this period. Part of its enclosure was discovered in the early 1990s by Agnès Balmelle.[2] After the Gallic Wars and the later organisation of the Roman Empire, Reims became the capital of *Gallia Belgica* and took the name *Durocortorum.* The city was rebuilt according to typical Roman architecture and organised according to a grid pattern.[3] In Late Antiquity, *Gallia Belgica* was divided into two parts and Reims became the capital of the previous province, which was therefore called *Belgica Secunda.* From the Middle Ages onwards (5th century AD), Germanic tribes and "foederati" eventually settled in this latter province, in particular the Franks, who began to administer the province.[4]

In this area, an inventory of all sites discovered either by commercial and archaeological research, or by unexpected finds, allows the study of more than 4000 sites, of which 626 are rural settlements (Fig. 1). The sites studied are presented in two main types of documentation. First, the "Carte Archéologique", literally an archaeological map of Gaul, covering 3302 sites and listing and locating ancient discoveries, unexpected

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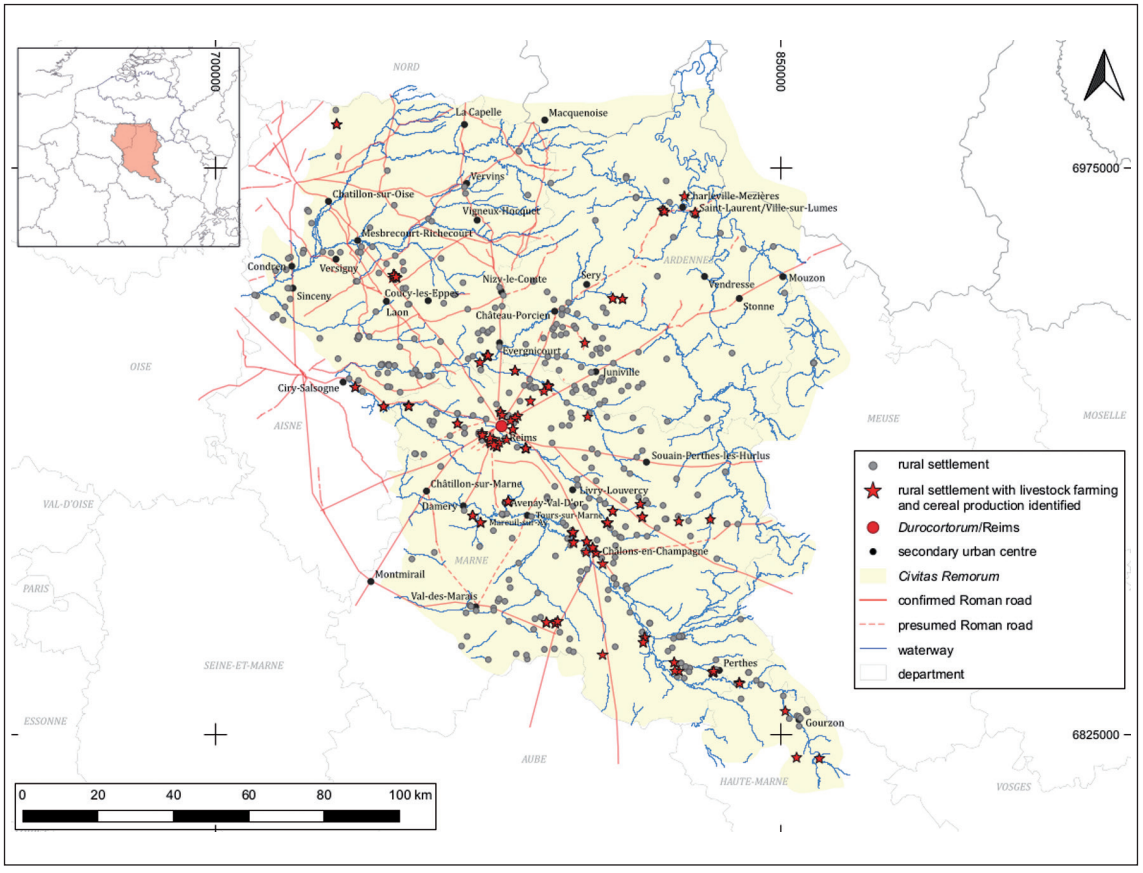



Fig. 1: Rural settlements excavations on the Remi's territory between the c. 3rd B.C. and the c. 6th A.D. (GIS: M. Dessaint).

finds, and most results of aerial archaeology and ground surveys. Second, commercial excavation reports and academic research that provide more detailed information, such as debated dating and specialised studies. There are currently 749 excavations listed in the corresponding database. Moreover, these two documentations are very different but still compatible: the information from the "Carte Archéologique" is not exhaustive but provides details on areas not very well described by commercial excavations, while the information from excavation reports provides precise data on dating, type of site and archaeological material (Dessaint, 2019). Nevertheless, only the rural settlements for which meaningful information is available are considered in this study (Fig. 1). In order to analyse the relations between Reims and its territory, this article presents, on the one hand, carpological studies from storage structure and, on the other hand, zooarchaeological studies on food habits and livestock breeding.

In the Remi area, the activities of the existing rural settlements are mainly concentrated in the production of cereals and livestock; the attached maps show the predominant distribution of species in each location[5].

## The Development of Agropastoral Practices in Reims and Its Environs between the La Tène Period and the Beginning of the Early Middle Ages

### La Tène Period

Carpological investigations have shown that hulled barley was the main cereal in the Remi area from the Early Iron Age to the Late Iron Age (Fig. 2). This result confirms the initial observations of V. Zech-Matterne, not only for the Remi area, but also for a large part of the northeast of Gaul.[6] Moreover, the production of hulled barley in the Reims area is the same as in the rest of the Remi's territory and it does not seem that the Reims hinterland has a production reserved only for the capital. Nevertheless, the lack of data does not allow us to draw conclusions about consumption patterns within the city, even if it is generally known that bread wheat production was developed in northern Gaul at the end of the La Tène period.[7] Therefore, the data collected for the Remi area in general show a clear difference with the results obtained in the north of Gaul, particularly in Île-de-France.

Zooarchaeological data give us information about the dietary habits during the La Tène period. Thus, since the Early Iron Age, the keeping of caprine animal, mostly sheep, dominated the Remi territory. From the Middle Iron Age and even more so in the Late Iron Age, cattle were the most common animal species, ahead of caprine animal (Fig. 2). The latter were more often used for wool production than for meat production, and even some ancient authors, such as Strabo, mentioned the production of clothing from Belgian livestock exported to Rome.[8] They also pointed out the importance of livestock in the Belgian cities. The zooarcheological data studied in the Remi territory and around Reims seem to confirmed this specialization in the production of caprine animal, while cattle are less represented. The latter were certainly used mainly for their strength in field work and other products such as milk. Finally, as far as the city of Reims is concerned, there is not much more information on the consumption habits of the inhabitants for this period, which explains why it is impossible to compare the city with all the observations made on the Remi territory and the surrounding countryside.

### Roman Period

Much more data is available for this period, especially on consumption habits in the capital of the Roman province: archaeological artefacts and bioarchaeological data found in Reims are documented in a review by Pierre Mathelart, Véronique Zech-Matterne, Ginette Auxiette and Alessio Bandelli.[9]

In the 1st century BC there was a diversification of cereals with the beginning of the cultivation of einkorn wheat at two sites near Charleville-Mezières. In the following centuries, new cereal species appeared such as spelt and gradually, in the 3rd century AD, bread wheat (Fig. 3). Nevertheless, hulled barley is the most common cereal until the beginning of the 3rd century AD. The map of the rural settlements show that this

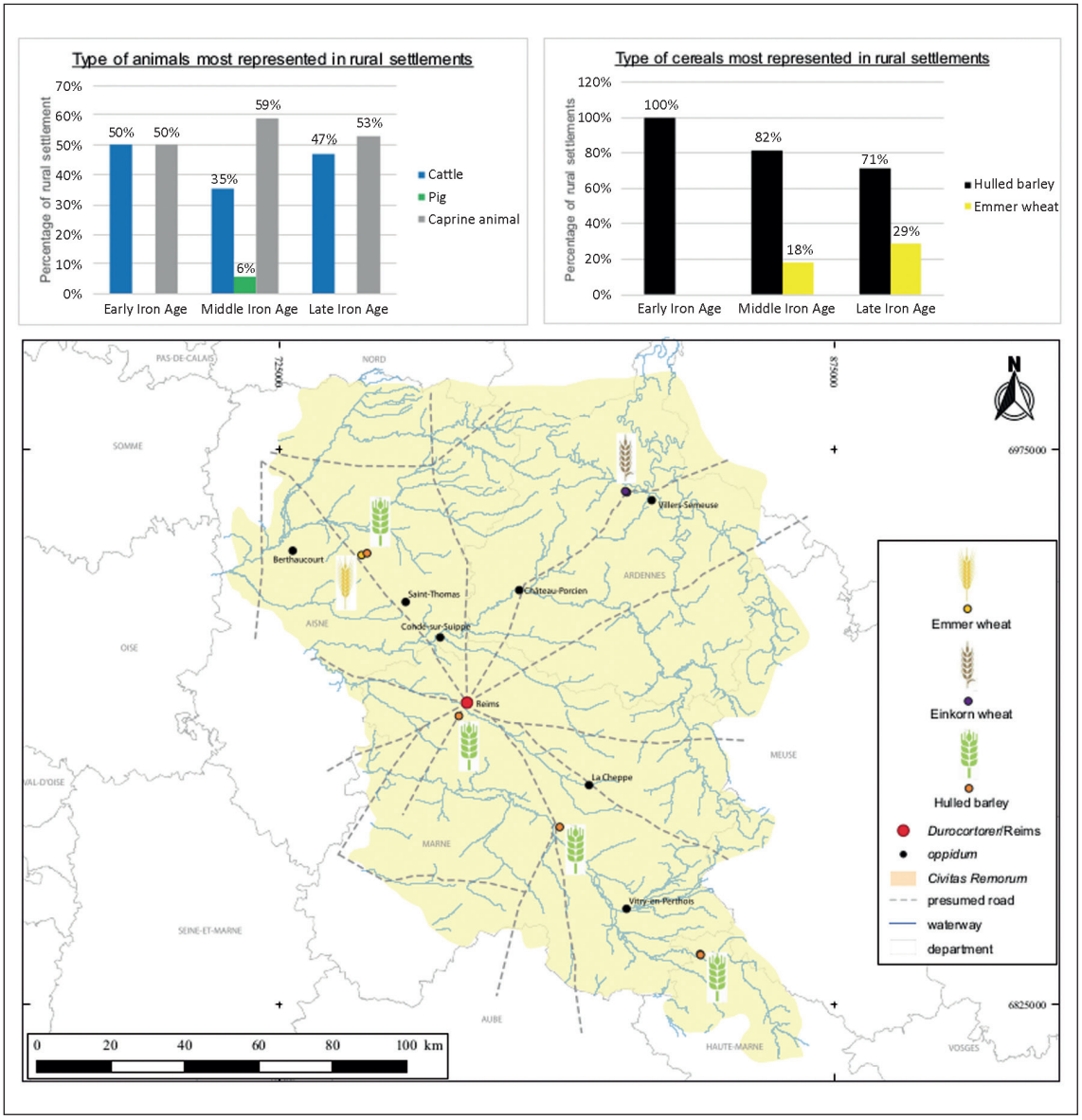



Fig. 2: Changes in cereal and meat productions during the La Tène period and cereal producers' spatial distribution in rural settlements during the Late Iron Age (GIS and CAD: M. Dessaint).

crop was very specific to the "plaine crayeuse" (chalk plain), while the northern part of the Remi area has a greater diversity of species (Fig. 3). The nature of the soils may have an influence on this distribution: for example, the soils in the Marne department are better suited to the cultivation of hulled barley. Moreover, the topography of this area (plain) is more suitable for agricultural and pastoral activities than the Ardennes with its hilly and wooded landscape.

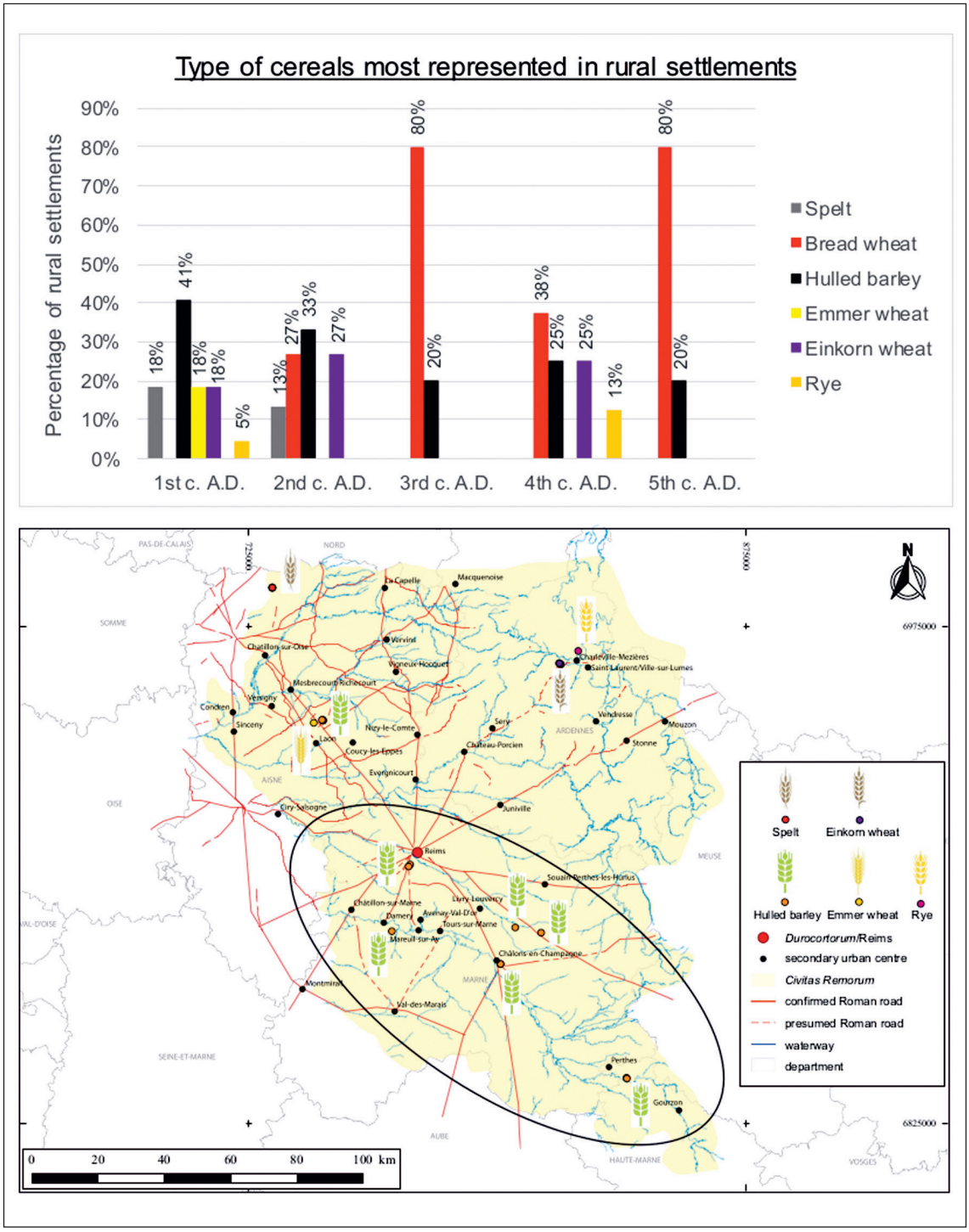



Fig. 3: Most represented cereal type in rural settlements during the Roman Period and spatial distribution of cereal producers in rural settlements during the c. 1st A.D. (GIS and CAD: M. Dessaint).

However, within the capital and in the north-east of Gaul, the situation is different. Indeed, excavations within the city have uncovered stocks of bread wheat and burnt breads, probably imported by river or land routes.[10] Bread suggests the presence of bread wheat crops, which are not observed in the studied area, neither in the rural settlements around Reims nor in the Remi area. In northeastern Gaul, bread wheat (spelt) is also widely cultivated, perhaps to feed the Roman Limes.[11]

In the 1st century BC, there was a diversification of species that led to an overproduction of cattle and caprine animals at the expense of pig production (Fig. 4). While cattle were generally selected for their strength and secondary products, sheep were probably used for wool production. In addition, there are remains of pigs throughout the period. Studies of slaughter ages show that very young animals, or even piglets, were consumed. So it seems that pigs were bred to produce good quality meat for consumption. In Reims, pigs were more present from the 2nd and 3rd centuries AD and were associated with city dwellers, as they were mainly found in the wealthy neighbourhoods of the capital.[12] Therefore, we can establish a link between Reims and its hinterland, considering that the latter could have produced pork meat to supply the capital.

During the High Roman Empire, more precisely in the 1st and 2nd centuries AD, a third type of production existed in the countryside of Reims: seven sites revealed planting pit in the vicinity of the city. They have been interpreted like orchards.[13] Nevertheless, it is still impossible to precise the real nature of this structures. Indeed, they did not reaveal carpological remains. Their form could correspond to planting pits for orchard or vines. In the city of Reims, many varieties of fruit have been found during excavations (such as

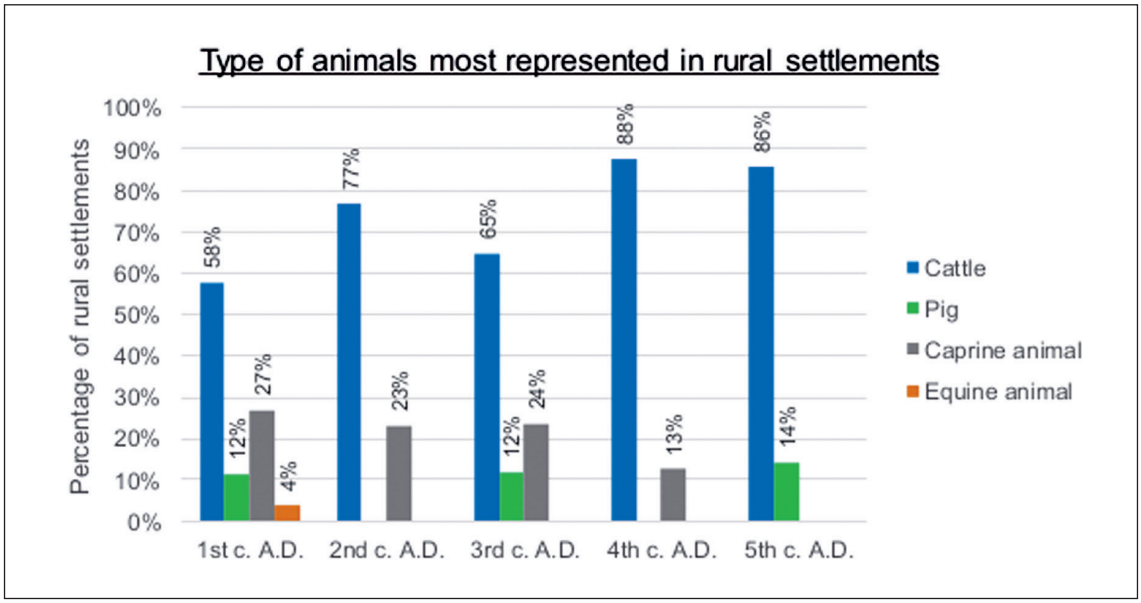



Fig. 4: Most represented type of animal in rural settlements during the Roman Period (CAD: M. Dessaint).

melon, peach or even fig), but they were certainly imported and not grown on the Remi territory. Several varieties such as plum, medlar and blackberry were also identified and could have come from a regional production.[14] No planting pit was found anywhere in the Remi area, so, even if it is impossible to precise the nature of this production, we can assume that it could be a specificity of the production system near Reims.

Finally, during the High Roman Empire we observe a diversification of the species cultivated, both in cereals, with bread wheat, and in animals. Links can be done between the production in the hinterland of Reims and the habits consumption inside the capital.

At the beginning of Late Antiquity, more precisely at the end of the 3rd century AD, the data show a real evolution through a change in agropastoral practises. From the 3rd century AD, the production of hulled barley declined and was replaced by bread wheat, which dominated the *plaine crayeuse,* in particular the valleys of the Marne and the Aisne (Fig. 5). These results are more in line with those found in Reims at this time and during the High Roman Empire. It is quite possible that the localities around Reims adapted their productions to the demand for bread wheat. The late arrival of this cereal

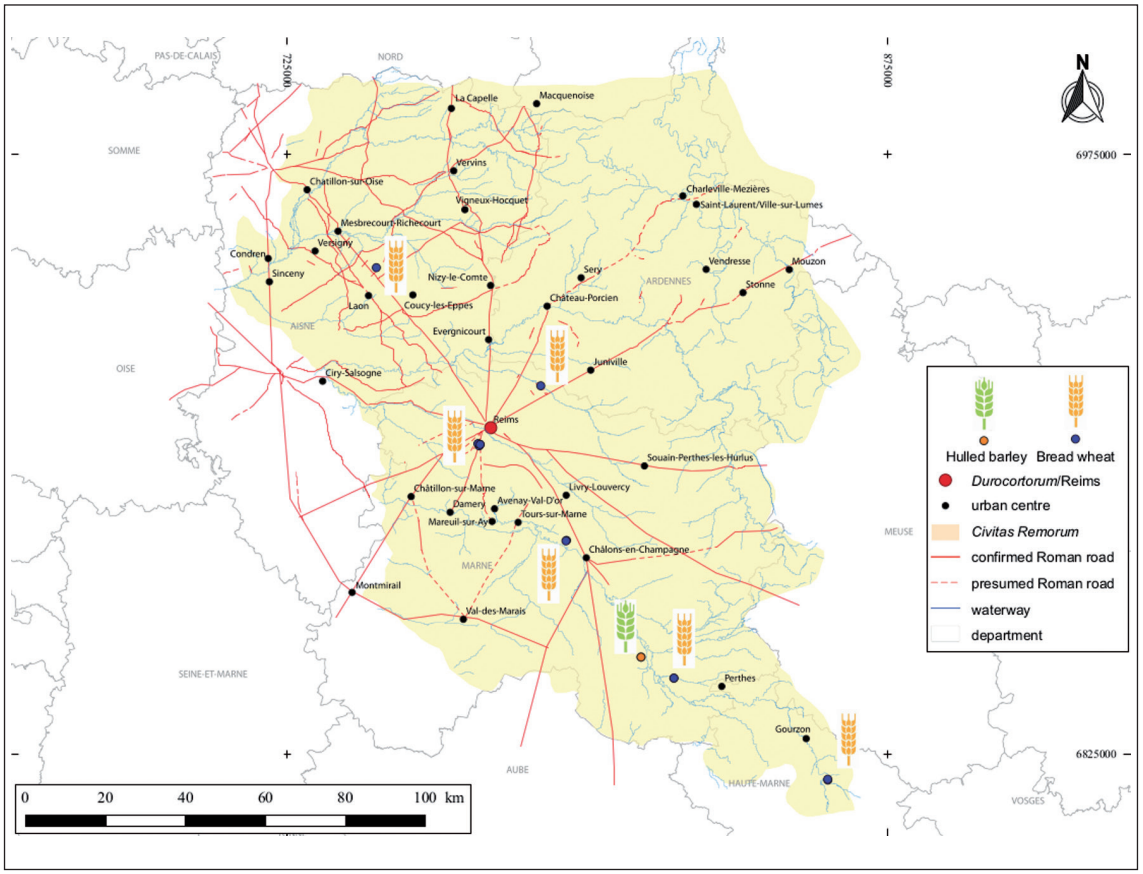



Fig. 5: Cereal producers' distribution in rural settlements during the c. 3rd A.D. (GIS: M. Dessaint).

on the Remi's territory and around the capital could be explained by the nature of the soils, which were not initially favourable for the development of bread wheat, unlike hulled barley. In a review, experts assumed that the presence of bread wheat around the capital was possible thanks to the supply of manure and azote soil conditioner from the latrines city.[15]

The zooarchaeological data have not changed much: cattle and caprine animal are still strongly represented, while pigs are found only in the outskirts of Reims. The latter were probably produced for export to the city, proving the close ties between Reims and its surrounding countryside.

For the High Middle Ages, changes in agropastoral practices can be detected, especially in grain production with the end of bread wheat cultivation. In fact, we have information on only two sites and both indicate the cultivation of a new cereal, oats, with no sign of the continuation of hulled barley or wheat production. Animal production shows the end of caprine animal farming in the 5th century AD, and by the 6th century AD only cattle were being raised. These results show a real change in agropastoral practices. However, since there are no finds from this period, no conclusions can be drawn about the production in this area and the agropastoral practices.

A comparison of carpological and zooarchaeological data from rural settlements of the Remi territory and excavations within the city sheds light on some aspects of the existing relations between the capital of a Roman province and its surrounding countryside. Moreover, it is necessary to carry out a spatial analysis of the distribution of rural settlements in this territory. The comparison with the capital allows to understand the influence of the provincial capital on the foundation of rural settlements, which were main actors in the economic relations with *Durocortorum.*

## Rural Settlements: Form, Structures and Spatial Distribution during the Roman Period

As we can see from the spatial distribution of the rural settlements, the sites are located near the main water or land routes (Fig. 6). This mention underlines the importance of the rivers Marne and Meuse for the supply management. Indeed, part of the rural settlements are located along these two main valleys and the other part is mainly located near a secondary waterway or land route leading to a main road. In the plain of Reims, most of the rural settlements are located less than 1 km from a main road or a navigable waterway. In addition, numerous amphorae were found in these rural settlements, particularly amphorae carrying wine from Italy (Dressel 1), oil from *Hispania Baetica* (Dressel 20), and amphorae from the province of Narbonne (Fig. 6). These artefacts indicate long-distance trade and probably supplies from Reims itself. It is therefore possible that a part of the production of these rural settlements was exported to the capital or to other urban centres.

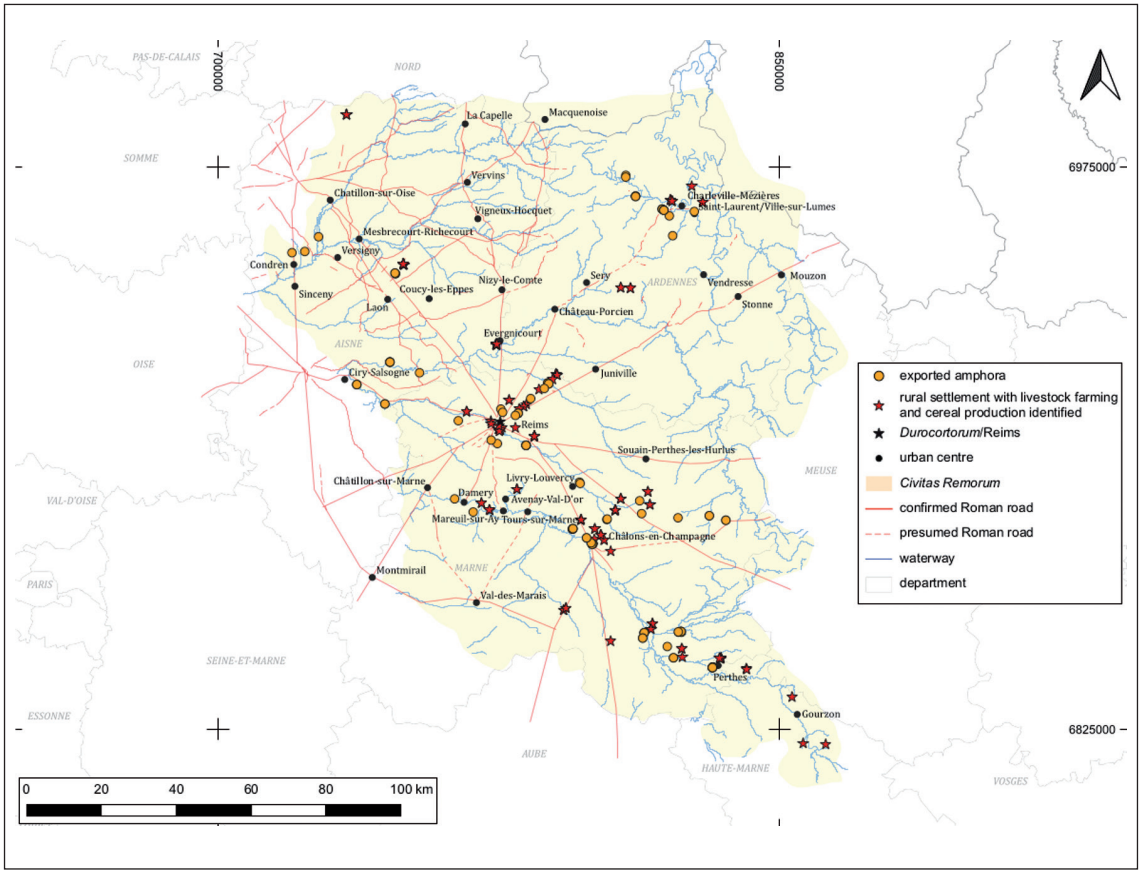



Fig. 6: Rural settlements' distribution including livestock farming and cereal production locations for the Roman Period (GIS and CAD: M. Dessaint).

We may also point out the distribution of the sites around Reims. From the Middle Iron Age onwards, the number of rural settlements within 5 km of the city increased steadily (Fig. 7). Of course, this distribution is distorted due to the location of the excavations. However, it shows the development of the city and the need for food, which was met by importing products from the countryside surrounding Reims.[16] In Charleville-Mezières, we can observe the same distribution from the end of the La Tène period. Indeed, from the Late Iron Age onwards, we can assume that many rural settlements were built on the outskirts of Reims to supply the city with cereals and livestock. This "nourishing belt" around Reims was present until the end of the Roman period, supplying the capital as well as other important towns such as Charleville-Mézières.

However, the question arises as to the methods of storing these foods, especially cereals. In the vicinity of Reims there are a large number of rural settlements devoted to agricultural activity, but in comparison with the rest of the Remi area they are all of modest size. This is true for most sites within 10 km of the Roman capital.[17] They were organised around a courtyard and did not have comfortable structures such as baths.

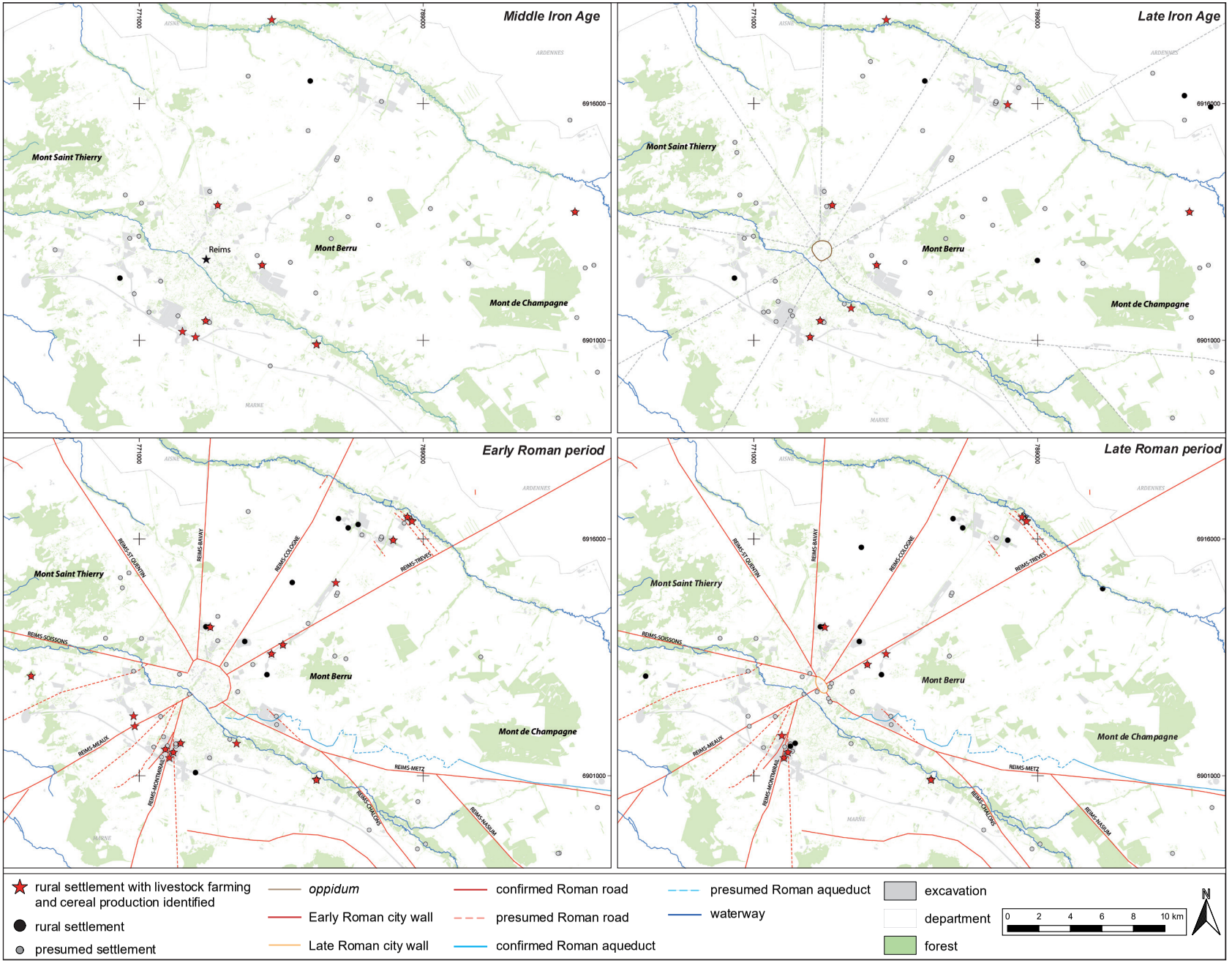



Fig. 7: Changes in rural settlements' distribution around Reims between the Middle Iron Age and the Late Antiquity (GIS and CAD: M. Dessaint)

Moreover, in the vicinity of Reims, only few sites could be considered as *villa.* For example, we can mention the rural settlement found at Bétheny "sous les Vignes"[18] or that of Cernay-lès-Reims "Les Petits Didris".[19] This organisation has also been observed around other capitals of Gaul, such as Metz in the northeast or even Nîmes in southern France, whose excavations in the near vicinity have revealed mainly modest rural settlements.[20] Large rural settlements *villae* can only be observed in a distant area, far from the capital and could indicate that the suburban area of Reims was controlled by the city, with a specific organisation.

Modest rural settlements have mainly small storage structures such as cellars and granaries. These observations raise the question of how produce could have been stored in the Reims area, given the size and number of storage structures per site. In Reims, a *horreum* was excavated on the Maucroix street. It was a linear structure built first on posts, then on stone foundations, and has been interpreted as a massive food storage site, but without any indication of its nature. It is believed that food from the capital and rural settlements was collected here. Archaeologists point out that this *horreum* was located less than 500 m from the city wall and close to a road that led directly out of the capital.[21] Moreover, in the same excavation, but also in other excavations in Reims, grinding tools such as "Pompeii" type grinding wheels were found.[22] This type of tool testifies to grain processing within the Roman capital and the "Pompeii types" in particular indicate an application beyond domestic use.

The sites only with planting pits also illustrate the relationship between Reims and its surrounding countryside, as they are all located within 15 km of Reims (Fig. 8). Furthermore, they are all located near main roads, communication with the local capital was facilitated. Their geographical distribution could indicate a possible link with the market of Reims.

Reims maintained special relations with the territory of the Remi, and especially with the adjacent country. This relationship developed over time: at the end of the La Tène period, rural settlements multiplied around Reims, then, in the Roman period, a "nourishing belt" emerged that remained until the end of Late Antiquity. In the Remi area, the location of the settlements seems to be directly linked to supply and export. Since Roman times, proximity to the main roads was one of the decisive criteria for the choice of location. The development of production in this area highlights the specific characteristics of the Remi area and the links between rural and urban centers. Indeed, it seems that some local productions (e.g. hulled barley) were not necessarily destined only for urban consumption and that, from Late Antiquity onwards, surrounding production may have been absorbed and processed by urban markets to be exported or consumed locally. The presence of planting pits in the vicinity of Reims attests to both the export and consumption of fresh produce from the city's hinterland.

Specific meat and grain productions illustrate exchanges between rural areas and the provincial capital, as well as economic relations with areas outside Remi territory. Differences in production in more or less distant rural settlements testify to a specific

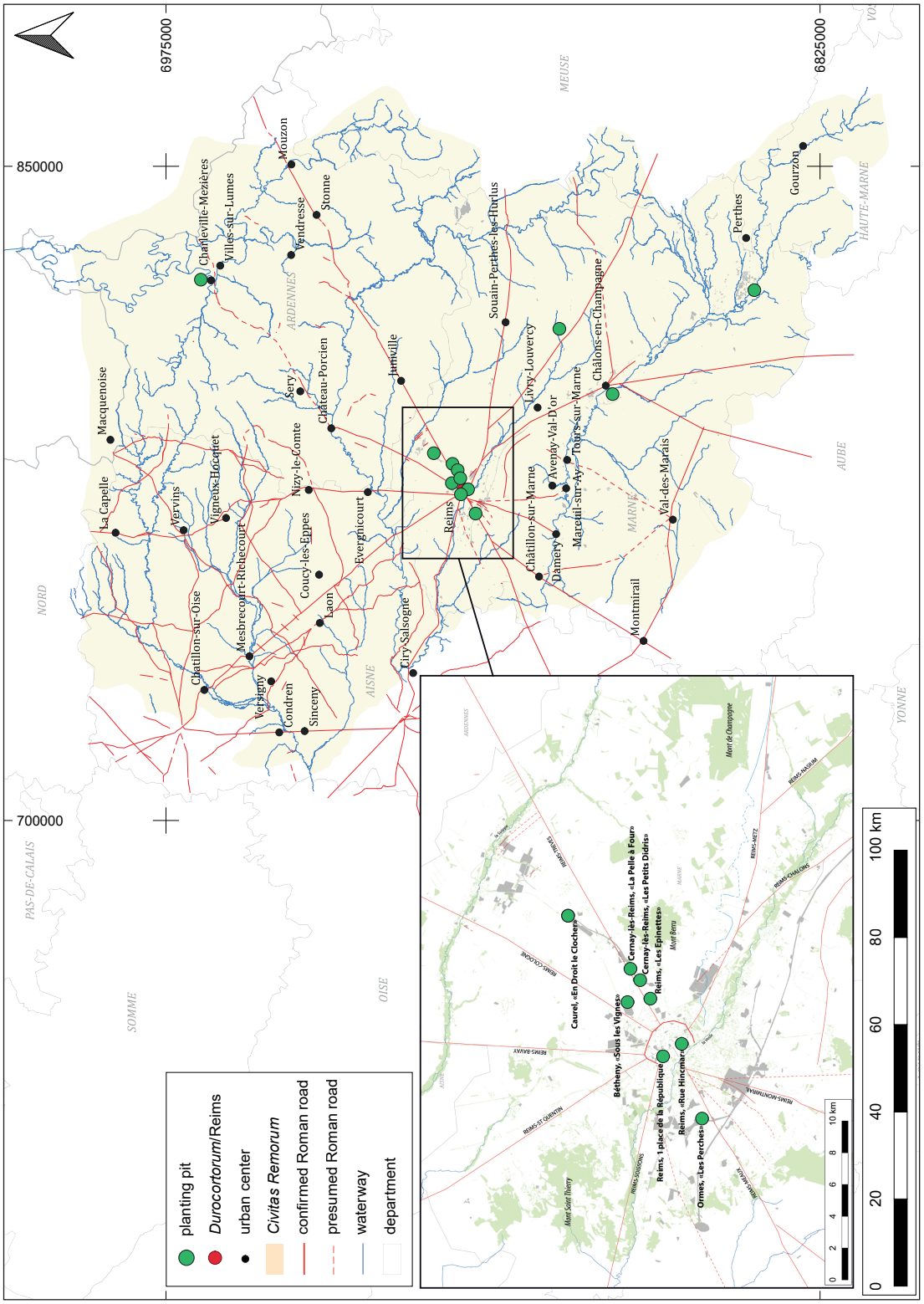



Fig. 8: Orchards location in the Remi's territory and Reims outskirts (GIS and CAD: M. Dessaint)

economic organisation between a capital and its neighbouring area. Nevertheless, it is still difficult to understand where these products ultimately went: were they destined for export or for local consumption? Grains could be easily stored and exported, while meat was more difficult to preserve. A specific study of product quantities might give us some more clarity on this question. For now, the proximity between rural settlements and main roads might suggest that surplus production could be exported.

## Notes

[1] Lambot – Casagrande 1996, 16.
[2] Neiss et al. 2015, 167.
[3] Neiss et al. 2015, 173.
[4] Desportes 1983.
[5] The classification of animal and cereal species has been carried out in number of remains.
[6] Zech-Matterne 2014.
[7] Zech-Matterne 2014.
[8] González Villaescusa 2010.
[9] Mathelart et al. 2014.
[10] Sindonino 2016; Zech-Matterne 2014, 37.
[11] Zech-Matterne 2014, 37.
[12] Toulemonde et al. 2017; Auxiette 2010.
[13] Bündgen 2019; Koehler 2033.
[14] Zech-Matterne 2016, 649.
[15] Toulemonde et al. 2017, 95.
[16] Achard-Corompt et al. 2017, 523.
[17] Achard-Corompt et al. 2017, 523.
[18] Rabasté 2008.
[19] Koehler 2004.
[20] Reddé et al. 2018, 540; Pomarèdes et al. 2012, 307.
[21] Rollet 2011.
[22] Rollet 2011.

## Image Credits

Fig. 1–8: by author

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# Rural Buildings and Villas in Italy

**Panel 8.23**

# Preliminary Remarks on the Economic Development of the Villa Metro Anagnina

**Martin Tombrägel – Michael Feige – Paul P. Pasieka**

The so-called Villa Metro Anagnina is a recently discovered villa rustica in the south-eastern Suburbium of Rome. The excavation project was established in 2010 and so far, has clarified some basic questions concerning the construction sequences of the building complex.[1] The following paper contains some preliminary remarks regarding the economic development of the villa from the middle Republican to the early Imperial era.

According to the current state of research, the architectural history of the Villa Metro Anagnina can be divided into three main phases. The villa was founded in the 3rd century BC as a courtyard building of ashlar masonry (fig. 1) (Phase 1A).[2] During the 2nd century BC a lateral building was added to the west and the main farmhouse was enlarged (Phase 1B). The use of the opus caementicium technique with reticulate wall-facing completely transformed the villa-complex during the second building phase




Fig. 1: Villa Metro Anagnina, plan.

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(1st century BC) (Phase 2).[3] In this period, the villa served as a typical high-level productive estate with an atrium, a garden terrace, and some smaller courtyards. Following a catastrophic destruction, the villa was rebuilt in the second half of the 1st century AD (Phase 3) and transformed several times during the Imperial era. It was ultimately abandoned in the early 3rd century AD.[4] The villa's economic development cannot be reconstructed in all details at present, however, some preliminary data is available. While agricultural activities characterized the estate in the 3rd century BC, its successor in the 1st century BC changed its economic function by implementing a productive facility.

## Middle-Republican Farm (Phase 1)

During the middle Republican period (Phase 1) the Villa Metro Anagnina site featured two separate buildings, the main building (ca. 860 m²) to the east, and a lateral building to the west (ca. 660 m²) (fig. 1). Although the structures of this construction phase are for the most part preserved to the foundation-level and were only partially excavated, it is possible to establish a sound picture of its layout. The combination of the architectural and the archaeological record shows that large-scale rural production was the purpose of the building complex.

### Main Building

In Phase 1, four large, rectangular rooms, aligned approximately along a north-south axis formed the northern part of the main building (Rooms V–VII.XI–XIII, fig. 1). In their original state, the three eastern rooms (V–VII) were of uniform dimensions of 5.55 m by 11.40 m, while the western room (XI/XII/XIII) measured just 5.10 m by 11.40 m. Due to their uniformity and layout, the three units to the east can be interpreted as covered storerooms for agricultural production. Additional results from the excavation support this interpretation: Rooms XII and VII contained the remnants of reused dolia belonging to Phase 1, which were abandoned at the beginning or during Phase 2 and filled with debris. The dolium in room XII is almost entirely preserved (US 261), while only the bottom part of the vessel in the north-west corner of Room VII could be retrieved (US 259). Although no further remains or traces of dolia were found in situ, numerous fragments appeared in the backfilling layers of the later constructions, suggesting large storage facilities during Phase 1.

## Lateral Building

The layout of the lateral building cannot yet be reconstructed precisely. However, it may have featured a courtyard to the south and a sequence of differently sized rooms on its northern side. The eastern part contained the remains of a screed floor (room LIV), which covered an embedded dolium (US 1016) (fig. 2). In addition, excavation discovered the negative imprint of a further vessel under the floor of the later room LVI (US 885). The scattered location of these dolia makes it likely that large storage areas occupied the north-eastern part of the lateral building. Based on the preserved structures, a second area of such storage rooms can be assumed in the northwest corner of the building (Room LVIII–LIX). Therefore, despite the limited amount of information, both the main and the lateral building can be highlighted as extensive agricultural facilities.

## Products

With respect to the goods stored and processed in these facilities, only hypotheses can be proposed, since the structural layout of the rooms themselves does not allow for definite conclusions. Often falsely referred to as granaries, these rectangular warehouses represent a multifunctional design that could be used to store a wide variety of goods.[5] The remains of the dolia may point to a purpose in the context of the production of wine or olive oil.[6] Unfortunately, there are no finds or structural remains at present that point to the existence of pressing installations in the villa.[7] However, dolia were also used for the storage of other agricultural products, such as legumes.[8] Therefore, the storage facilities most likely were not used for one single product, but for commodities

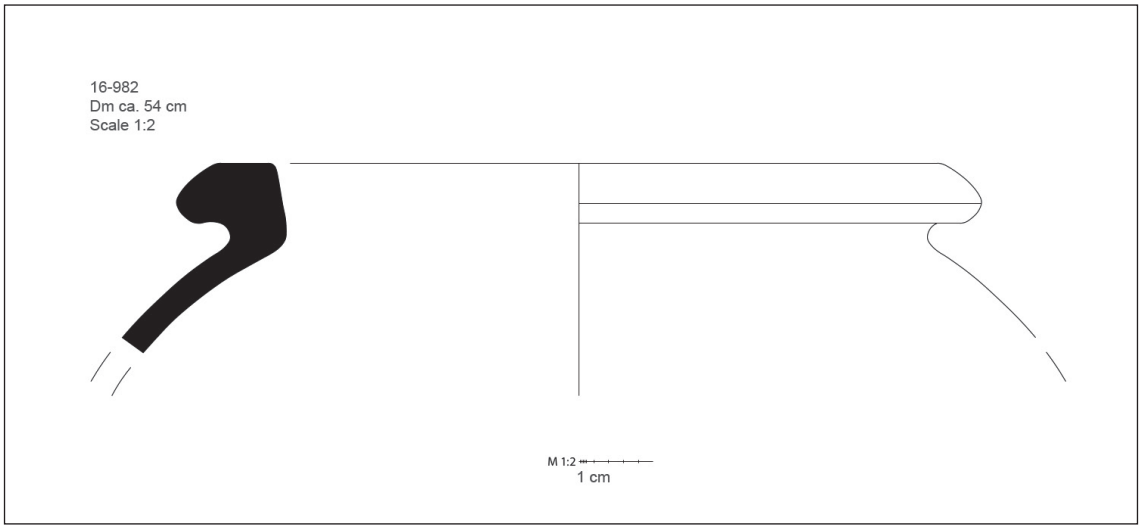



Fig. 2: Villa Metro Anagnina, Room LIV, *dolium* 16-982.

of various agricultural activities.[9] This assumption is supported by the large number of economically used rooms within the complex. Based on the current state of research, Phase 1 of the villa can be interpreted as an agricultural business, aimed at achieving maximum profit through the cultivation and processing of cash crops.[10]

## The Period 1 Complex and the Productive Farms and Villas of the 3rd and 2nd Century BCE

Due to its date in the 3rd century BC and the large-scale preservation, the oldest remains of the Villa Metro Anagnina site occupy a special position in the archaeological record of the Roman hinterland and Latium. Among the farms and villas of the corresponding time horizon there are currently no direct comparisons that show similar extensive or systematically designed economic areas. The second phase of the Auditorium-villa (5th to 4th century BC), like the early Villa Metro Anagnina, consisted of two separate buildings.[11] The main building in the north was arranged around a central courtyard which contained a press facility. However, there are no areas specifically reserved and systematically designed for agricultural production. The same applies to several small courtyard farms of the 4th and 3rd centuries BC unearthed in Lazio and the surroundings of Rome (e.g. the Villa of Via Gabina 11).[12] It is only from the 2nd century BC onward that more and more Roman villas use specialized types of rooms for economic purposes.[13]

Due to the lack of excavated villa sites from the middle Republic, it is currently difficult to reconstruct the corresponding process of architectural adaptation. It surely led to different solutions in the various Italian landscapes, due to the specific geographic or climatic conditions in each region.[14] In Latium the productive facilities were predominantly arranged as self-contained areas in the northern parts of the rural estates (pars rustica) (fig. 3).[15] Extensive production facilities in the form of large press rooms and open storage yards also equipped the small villas and farms in the area around the Bay of Naples. Yet, in contrast to the villas of Latium, these facilities did not form a separate unit, but occupied the central position within the buildings (fig. 4).[16] These regionally developed building concepts existed parallel to each other during the late Republican and early Imperial times. The layout of the middle Republican Villa Metro Anagnina is one of the earliest examples of the specialized and self-contained economic area which became an integral part of the productive villas in Latium during the following two centuries. Therefore, the villa can be seen as part of an early architectural experimental stage that sought solutions for the needs of intensive agricultural activities, which were developed subsequently to the colonization of the Apennine Peninsula and the first two Punic Wars.[17]

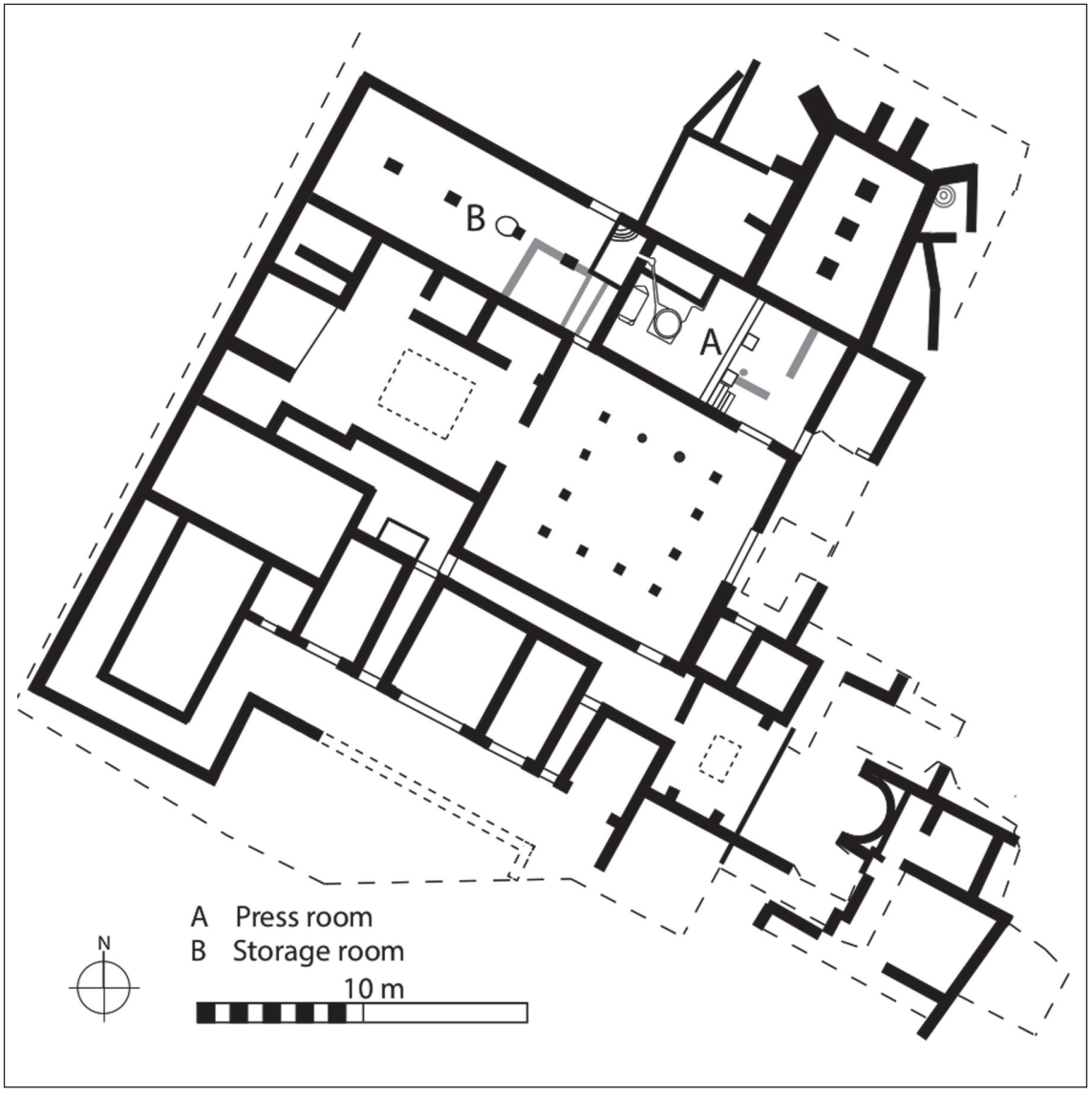



Fig. 3: Villa di Castel di Guido, plan.

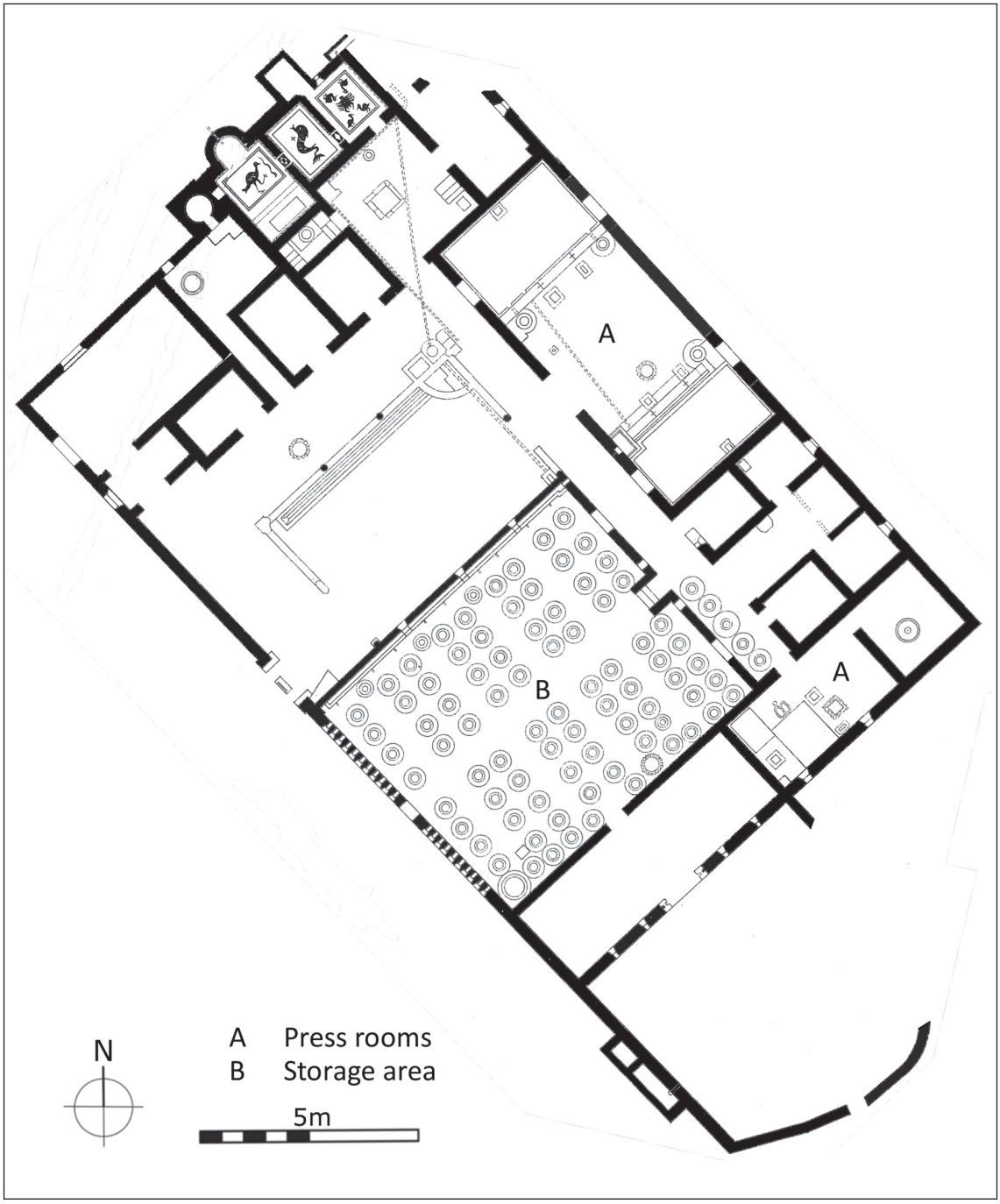



Fig. 4: Villa di Pisanella.

### Late-Republican Workshop (Phase 2)

The transition from the first to the second phase brought a significant change in the architectural design of the villa (fig. 1). The new complex of Phase 2 followed the orientation of the Phase 1 main building, and the new building seems to have reused the earlier foundations in its construction. However, the lateral building was abandoned completely, and new structures occupied its position. The resulting complex incorporated the customary parts of a typical villa rustica of its time by combining an atrium (VIII) and a garden-peristyle (CII) with several inner courtyards (XXXIII + XXXIV).[18] Although the new villa covered an area of approximately 6500 m² and included luxurious compartments, it remained a large-scale productive facility. Its function seems to have shifted from an agricultural facility towards a water-consuming manufacturing workshop, although, it must be stated, that due to its poor preservation, the exact economic functionality remains difficult to determine.

The catastrophic event that destroyed the Late Republican Villa (Phase 2), was responsible for the extraction of the workshop equipment, leaving behind only negative impressions of the removed elements. Nevertheless, the archaeological record shows




Fig. 5: Villa Metro Anagnina, installations, Phase 2.



Fig. 6: Villa Metro Anagnina, Room XXI, impression of tub US 1274.

clearly that several rooms in the central part of the building complex contained groups of basins and recessed vessels of different dimensions (fig. 5). Although the containers themselves are poorly preserved, it seems probable that they were connected to a fulling facility.[19] The arrangement of the installations from room XXI and LII show a close resemblance with *fullonicae* from Pompeii and Ostia.[20] Along the northern and eastern walls in room XXI different types of vessels were detectable (fig. 6). Room LII featured a characteristic row of concrete basins with surface areas ranging from ca. 2.5 m² up to ca. 6.7 m² (fig. 5).[21] Although the exact nature of the of water-consuming activity remains unclear, from the 1st century BC onwards the villa was no longer used as purely agricultural facility.

Another important observation regarding the transformation of the water management system supports this line of argument. The middle Republican construction phases collected and stored ground- and rainwater in an underground cuniculus-system (fig. 1); the newly erected building complex witnessed the installation of a large above-ground reservoir, which supplied the villa with water from the south.[22] The installation of this new reservoir likely took advantage of the Roman aqueducts which passed the villa at a short distance to the south and the east.[23] As a result, the villa now had sufficient water resources available not only for its usual needs but also to operate water-demanding workshop facilities.

## Amphorae – Markers for a Changing Functionality?

The amphora finds from the excavation underline the developments observed in the architectural remains. They can shed light onto the economic development of the villa from a more macroscopic point of view. It is possible to divide the amphorae found at the Villa Metro Anagnina into three groups based on their context, chronology, and typology: a Republican, an early Imperial, and an Imperial group. The first group comprises several Dressel 1 A, a larger number of Dressel 1 B, including a specimen with a titulus pictus in red, *post cocturam* applied script, and some graeco-italic amphorae, mostly from the lateral building. In this phase, the spectrum and characteristics of the amphorae mirror the situation at other contemporary productive villas of central Italy. The second group largely comprises a great number of Dressel 2–4, but also contains some Aegean and probably Neo-Punic types, alongside a Haltern 70. An Oberaden 74 deserves special attention due to its stamp PHILODAMUS (fig. 7); this would be the first specimen of this Augustan wine amphora produced in Tarraconensis found on Italian soil.[24] The third group comprises Dressel 2–4, Dressel 7–11, but also Pélichet 47/Niederbieber 76, and some Gallic types up to Cretan Dressel 43 (fig. 8), one of which had an illegible titulus pictus in black script.[25]

In the general development trends, paralleling other villa sites in western Central Italy, (such as Settefinestre), both the amphora spectrum and chronology demonstrate the dominant position of Italian products during the Republican era: perhaps the am-

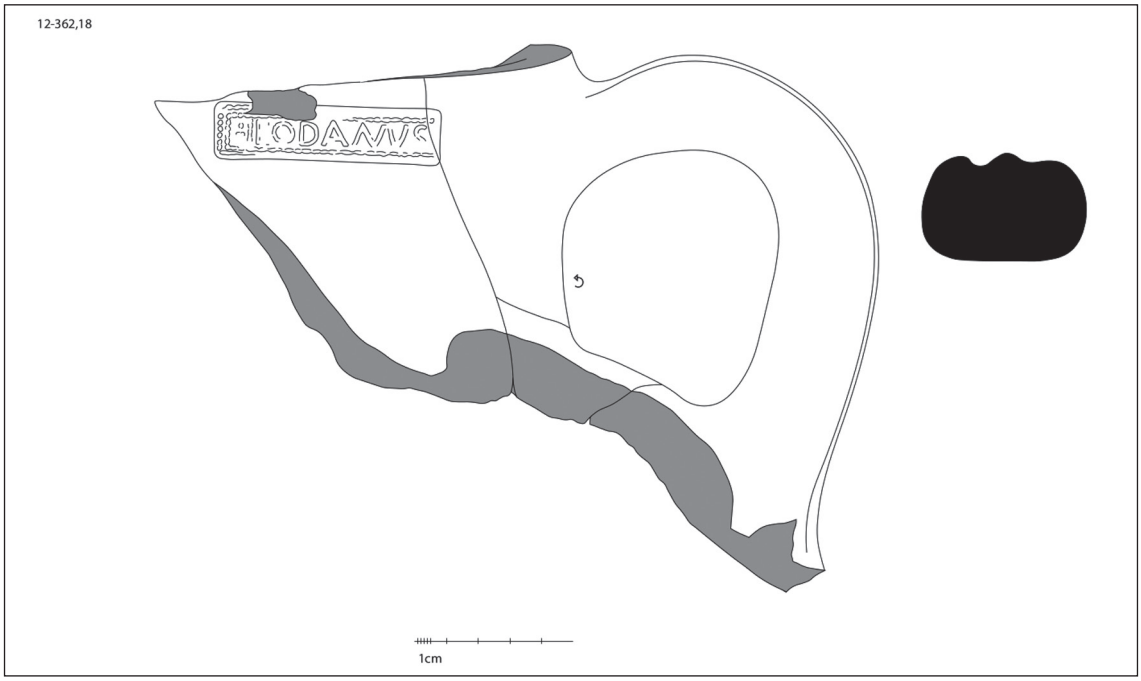



Fig. 7: Amphora 12-362,18 (Oberaden 74).



Fig. 8: Amphora 16,693,88 (Dressel 43).

phorae are related partly to the wine and oil production of the villa.[26] With the increased access to products from long-distance trade in the early Imperial period, imports increase, and it is possible to detect a differentiation of the regions of origin. The import of Spanish fish-products, as well as Spanish, French, and Cretan Wines (transported for example in Dressel 7–11 or Dressel 43) benefited from its proximity to Rome and its ports. This was facilitated by their connection with the wider Mediterranean and its increasingly interconnected markets.

## Conclusions – The Villa Metro Anagnina and the Suburbium of Rome

Overall, the development of the Villa Metro Anagnina reflects the process of socio-economic transformation that unfolded in the Roman Suburbium during the late Republican and early Imperial period. In the surroundings of Rome, shifting economic realities confronted the villa owners. The agricultural production of the Roman Campagna was no longer sufficient and/or necessary for the city's growing demand of staple foods, which now were imported increasingly from the newly added provinces.[27] Simultaneously, the capital's hinterland gained more and more importance as the place for the luxurious suburban estates of the empire's elite.[28] This led to an increase of land prices and made it more difficult to successfully run an extensive agricultural facility.[29] The example of the Villa Metro Anagnina could suggest that one possible strategy to handle these new realities was to change the functional concept from an agricultural to an artisanal production. The relatively close distance to Rome (ca. 7 km) and its ports, as well as the nearby overland connection to the Via Latina offered multiple accessible markets for manufactured products.

## Notes

[1] Tombrägel 2014, 193–214; Tombrägel – Bauch 2018, 153–180.

[2] Tombrägel 2014, 198–200.

[3] Tombrägel 2014, 201 f.

[4] Tombrägel – Bauch 2018, 163–168.

[5] Instead of the storage of grain, a use for wine or oil is evident in many sites, e.g. in the Villa of Castel di Guido: De Franceschini 2005, nr. 54, 156–161; or the Villa of Artena: Brouillard et al. 2012. The storage of non-agricultural products, like tiles, can also be observed: see the Villa of San Pietro di Tolve: Di Giuseppe 2008, 363–368.

[6] The use of a closed storeroom alone does not exclude the production of wine or oil. The numerous *cellae vinariae* in open courtyards, known from the surroundings of Pompeii, are often mentioned in this discussion, and were mainly used at the Gulf of Naples: See Feige 2021.

[7] Neither have been found the functional parts of a press (e.g. *foramina, stipides,* or an *ara*), nor can other typical features of Roman *torcularia* be recognized, such as a press platform or a *calcatorium.* Concerning the usual equipment of pressing facilities, see Brun 2004.

[8] An example of this is shown by archaeological evidence from the so-called Villas of M. Cellius Africanus and N. Popidius Narcissus Maior near Pompeii: Stefani 2003; Dé Spagnolis 2002, 105–108. 273 f.

[9] A differentiated use of such a storage area can be seen in the Villa of Russi, where parts of a large storage room was used for grain or dry goods and the remaining area was used for liquid commodities: Sacagliarini Corlàita 1975.

[10] See Morel 2007, 503 f.

[11] Carandini et al. 2006, 103–189 fig. 55. 71.

[12] Widrig 1980. See also the Republican Villa della Piscina in Centocelle: Coletti – Pacetti 2004.
[13] The closest chronological parallels with secured dates and comparable layouts can be found in the Villas of Selvasecca: Klynne 2007; Piano di Comunità: Belelli Marchesini 2015; and Villa Prato: Broise – Lafon 2001. All three sites can be dated to the later part of the 2nd century BC.
[14] For the following see Feige (forthcoming).
[15] See for example the villas of Castel Giubileo 1 and 15: De Franceschini 2005, nr. 12–13, 56–59; Piano di Comunità: Belelli Marchesini 2015; Cinquina: De Franceschini 2005, nr. 11, 54–56; or Casale Ghella: De Franceschini 2005, nr. 16, 63–66.
[16] See again the so-called Villas of M. Cellius Africanus and N. Popidius Narcissus Maior near Pompeii: Stefani 2003; Dé Spagnolis 2002.
[17] For the current state of research regarding the beginnings of the villa economy see: Volpe 2012; Morel 2007.
[18] For example, Villa di Settefinestre: Carandini 1985; Villa di Livia: Messineo 2001.
[19] At this point of research, it is not possible to give detailed information about the exact nature of the manufacturing process. Not every basin-vessel context can be highlighted as a proper *fullonica*. See for the discussion: Flohr 2013, 20–30.
[20] Ostia, Fullonica del Cardo: Pietrogrande 1976, 9–13. Pompeii: Flohr 2013, 25–27.
[21] Due to the poor preservation, it is not possible to determine the height of the basins. The surface measurements nevertheless find close comparison in the basins of the fullonicae in Pompeii: VI,8,20: min. 4,5 m²–max. 5,6 m²; I,6,7: min. 3,45 m²–max. 5,5 m²; VI, 12,21: min. 6,5 m²–max. 7,5 m².
[22] Tombrägel – Bauch 2018, 170–173. The reservoir 1279 was excavated by the Soprintendenza in 2010 and is not accessible at the moment.
[23] Aqueducts and villas: Coates-Stephens 2003, 430–432; Marzano 2007, 166–171; Wilson 2009, 750–753.
[24] 12–362,18 from room XXI. Even if some Oberaden 74 have been detected in western central Italy, until now a specimen with a Philodamus stamp was lacking outside of Tarraconensis, Gaul and Germania Inferior. See on Oberaden 74 in general and on the amphorae with a Philodamus stamp in particular: Miró i Canals 1981/1982; Miró i Canals 1988; Berni Millet – Revilla Calvo 2008, 99; Carreras Monfort – González Cesteros 2012; Berni Millet und Miró i Canals 2013, 74 f.
[25] 16–693,88 from room XIV. The excavations at the Nuovo Mercato Testaccio have produced a great variety on Cretan amphorae, among them many with tituli picti: Casaramona et al. 2010. The specimen of Villa Anagnina belongs to group AC 4.
[26] See Cambi und Volpe 1985 on Settefinestre. Another good example is the Villa of Pliny in Tuscis, although there are no Spello-amphorae in Anagnina; see Molina Vidal 2009.
[27] See Marzano 2013.
[28] See Mayer 2005.
[29] See Temin 2013, 139–144.

## Image Credits

Figs. 1. 2: by the authors. – Fig. 3: after: De Franceschini 2005, 157 fig. 54. – Fig. 4: after: Pasqui 1897, Pl. 14 + Sogliano 1899, 14. – Figs. 5–8: by the authors.

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# *Pars fructuaria.* New Data from the Excavations of the Theodoric's Villa (Galeata FC – Italy): the Artisanal and Productive Plants of the Urban-Rustic Villas of the Romagna Apennines

**Alessia Morigi – Riccardo Villicich**

## The Late Republican Age Rustic Villa

Before the excavations begun in 1998 by the University of Bologna, the site of Galeata was known to the scientific community as the so-called "palace" of Theodoric. Archaeological investigations conducted in 1942 by the German Archaeological Institute of Rome in collaboration with the Superintendence of Antiquities in Bologna discovered this site.[1] The University of Bologna conducted archaeological excavations here for twenty years, and the University of Parma joined the project in 2016. The data collected during this time not only modified previous interpretations of Theodoric's residential complex, but also clarified the Roman phases of the site (fig. 1).[2]

The excavations in Galeata confirmed the presence of an urban-rustic villa, previous to Theodoric's one, which remained in activity from the end of the 1st century BC at least until the beginning of the 5th century AD. However, thanks to the excavations of 2015 and 2016, it was possible to recognize the existence of a Republican settlement prior to the urban-rustic villa;[3] this was a rustic farmhouse or a villa, with a production atelier, dating from the 2nd century BC to the middle of the 1st century BC.[4] In addition to a series of masonry structures found in the strata underlying the Roman Imperial remains, two recently discovered furnaces date to this phase, together with their attached accessory compartments (fig. 2).

The first furnace (US 3052) consists of a single-channel with a circular *praefurnium* located at the eastern side, and a baking chamber in the western half. In particular, some raw ceramic fragments attributable to olle,[5] found in the filling of ashes and coals of the *praefurnium* and in the firing chamber, date the abandonment of the structure to the 2nd century BC. To confirm the proposed dating, a bronze asse emitted in the 2nd century BC came from the levels of trampling outside the furnace.

The position and orientation of the second furnace (US 3032) shows that it was built when the previous structure was still visible, perhaps because of the need to replace it with a larger construction. The furnace has a rectangular shape and a single-channel, with a semicircular *praefurnium* located to the east; the western half has a combustion chamber with a vitrified brick top that ended with a vertical wall. Only the part dug into the ground is preserved, while the upper part that constituted the cooking chamber has been lost. Inside, the filling layers preserved large lumps of vitrified clay with ceramic fragments transformed by heat (fig. 3). These come from the last production of the structure and perhaps are evidence for the sudden structural collapse of the

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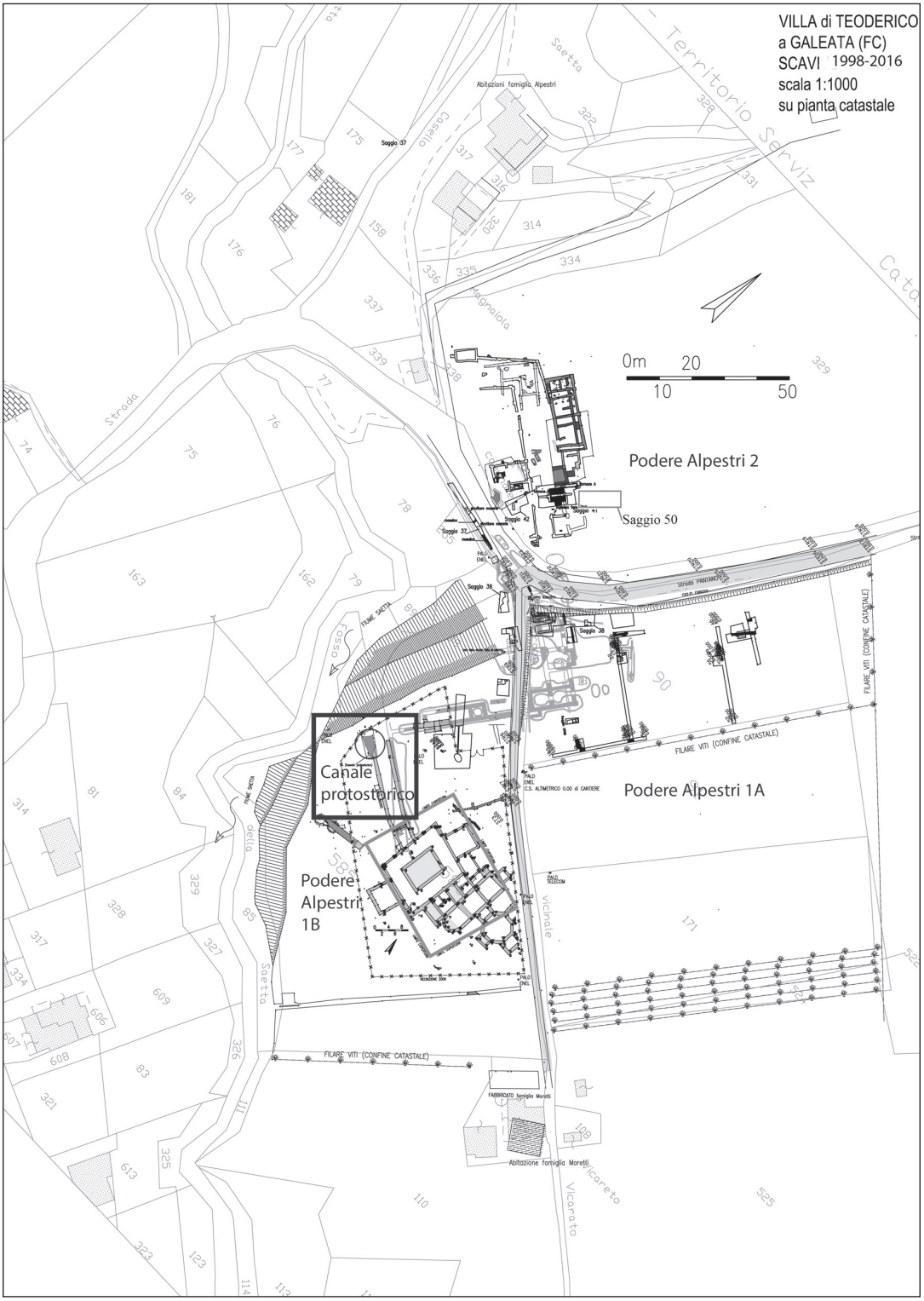



Fig. 1: Plan of the structures found in the archaeological site of the villa of Theodoric.

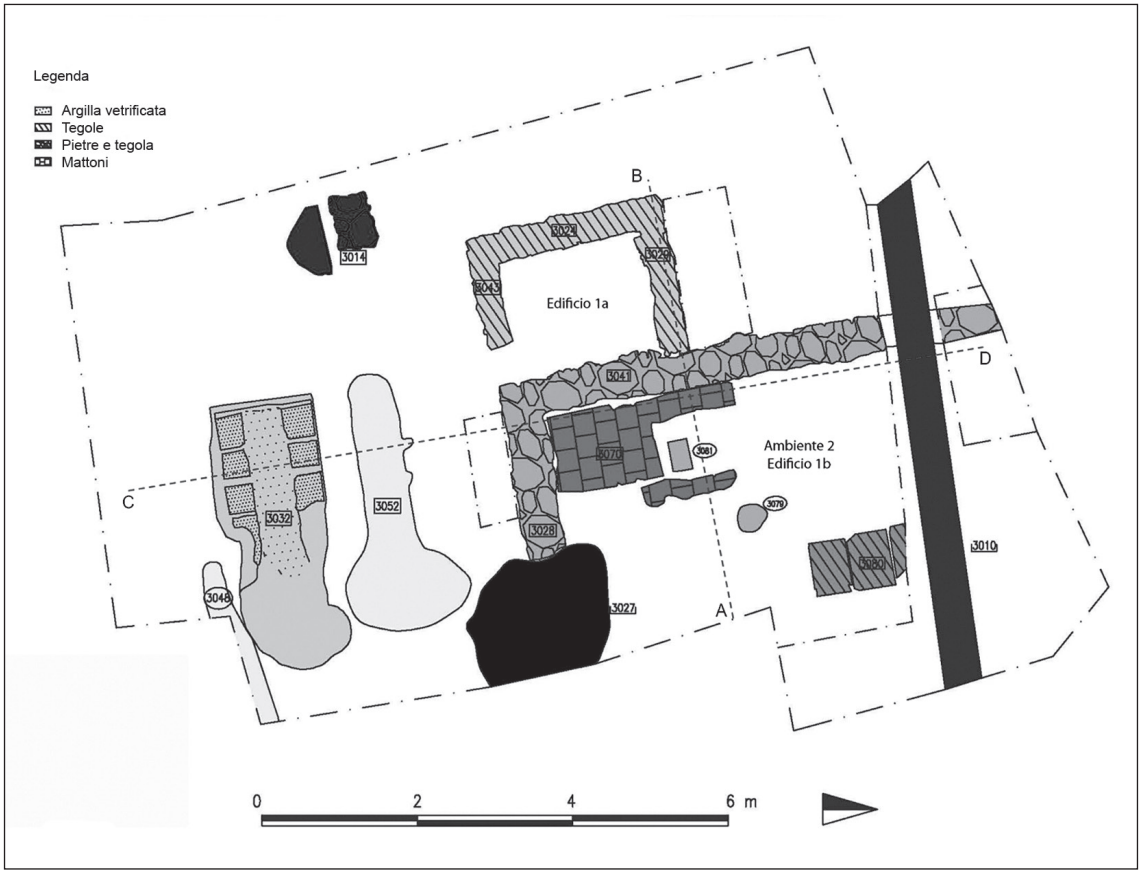



Fig. 2: Plan of the Roman structures found in 2015.

baking chamber and its consequent abandonment. Conglomerate blocks with ceramic fragments are being studied.[6] However, from an initial analysis, it seems that common acroma ceramic vases were inside the conglomerate fragments. These were completely enclosed and had evident malformations due to their excessive exposure to heat.

In particular, it is important to draw attention to a fragment of a loop belonging to a jug and a very deformed fragment of the hem of an olla. Based on the materials found, the abandonment of the furnace occurred towards the middle of the 1st century BC or, within the third-quarter of the same century, but before the construction of the subsequent urban-rustic villa. According to the data from the excavation, it is probable that the second furnace and its annexes already were unused for some years when a new warehouse (edificio 1b) was built in the sector which belonged to the Augustan age urban-rustic plan. This new building partially covered an area that served as an accessory space (edificio 1a) for the second furnace.

The data produced by the excavation confirms the hypothesis of a rustic villa with a productive function, which is proved also by the vast extension of the settlement in the 2nd–1st century BC. Unfortunately, it is not possible to reconstruct most of the plan of



Fig. 3: Lump of vitrified clay with ceramic fragments transformed by heat.

the rustic settlement, because the constructions of the subsequent period covered the Republican structures almost entirely.

With regard to the ceramic materials from the late Republican age, it is interesting to note that the excavation of the two furnaces demonstrated the coexistence of non-wheel thrown ceramics, especially olle and dishes, with common pottery or black glazed pottery. This material came from absolutely sealed layers and is datable between the 2nd and the 1st century BC.

The new discoveries in Galeata suggest that the dating of raw ceramics deserves greater attention, as they are often attributed to the protohistoric age, especially in the case of pieces out of context. Some forms, for example the olla, seem to be produced with similar characteristics for a very long time, as demonstrated by the discoveries at Galeata. In the case of Galeata, raw ceramic is present consistently in a greater percentage compared to other types of ceramics until the end of the 2nd century BC, if not until the middle of the next century.

Considering this, the villa offers an image of the settlement of the population in the territory of Galeata between the end of 2nd century BC and the second half of the 1st century BC. This is at the stage when the town hall of *Mevaniola* develops. The recently dis-

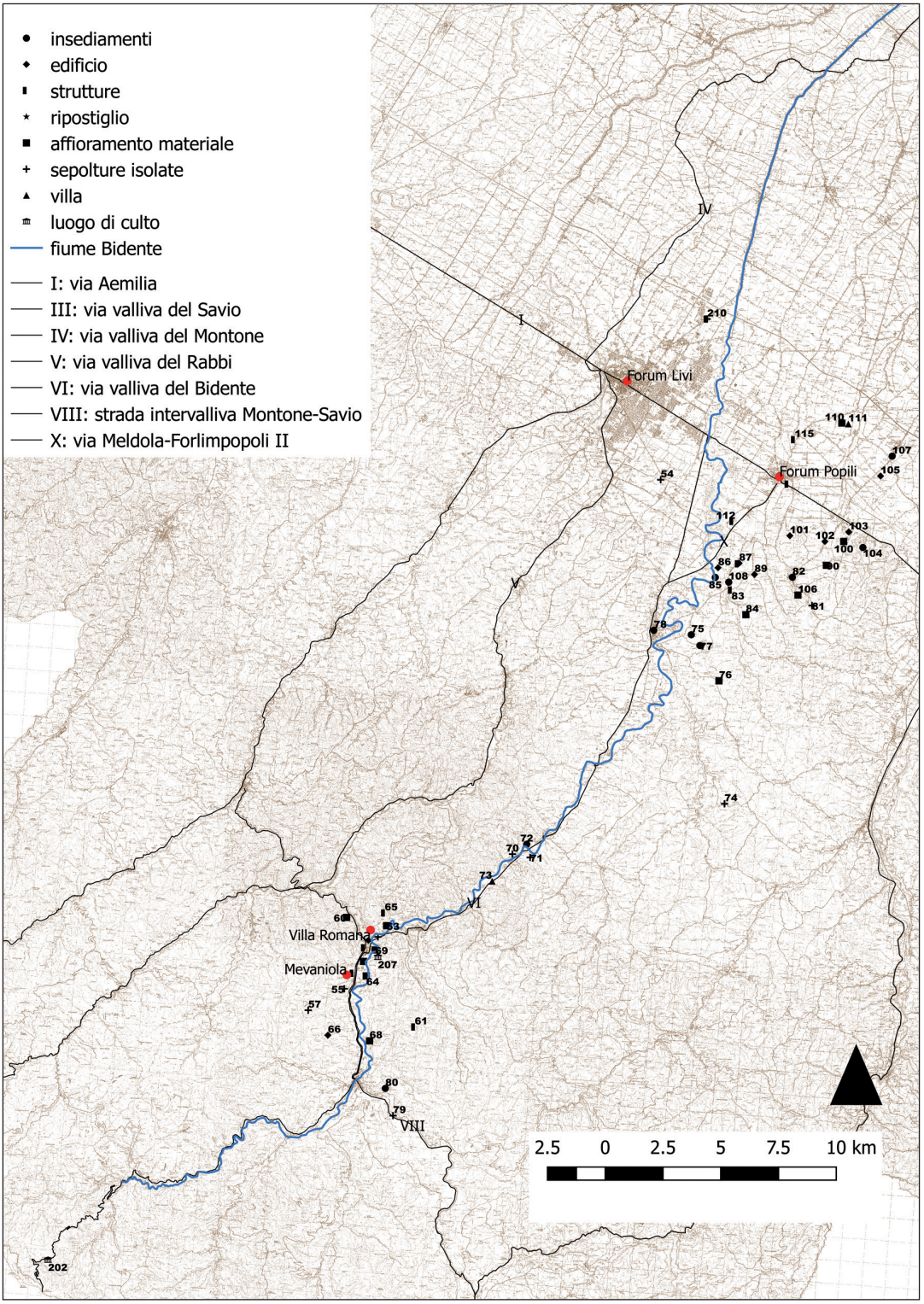



Fig. 4: Archaeological map and road systems of the Bidente valley in the Roman period.

covered rustic villa is attributed to the rural system of the *municipium.* Although little is known of the phases and distribution of the settlement before the establishment of the *municipium* of *Mevaniola,* it is clear that the rustic villa and the city are part of the same system. This is evident in their dislocation along the left bank of the river, which are placed according to the traditional distributive trend along the best exposed terraces of the valley to the detriment of the steepest and most inaccessible sectors.

Similar to Galeata's situation in the Bidente valley is the case of the nearby valleys of Savio and Rabbi: thanks to their Umbrian origin, the evolution of settlements and population in the three valleys follows similar criteria. These common Umbrian origins survived for a long time, as shown by the Augustan administrative reorganization, which attributed these valleys to the *Regio sexta Umbria.*[7]

The rustic villa of Galeata provides clues, therefore, to the history of the population of Umbrian matrix within the high Apennines in the early stages of the Romanization, which developed along the main axis of Roman penetration towards the north, the Adriatic coast, and Rimini.[8]

A complex that is geographically closer to the situation of Galeata comes from Fiumana in Val Rabbi, where there is a villa characterized by a series of environments with a clear distinction between the *Pars rustica* and the *Pars Urbana.* This complex seems to arise in the early 2nd century BC (given the presence of black glazed pottery), and survives at least until the 4th century AD.[9]

In the valley of the Bidente, there are about twenty-three sites of the Roman age identified to date: three are characterized by a pre-Roman occupation and five are attributable to the Republican age. With the exception of the urban settlements, they mostly consist of rural structures that exploited the territory between the 2nd century BC and the end of the 1st century BC. These rural structures are scattered in the territory, and sometimes are organized in *vici,* like Cusercoli, Meldola and Bertinoro. Thanks to the powerful road network documented for the Apennines of Romagna, the sites were probably linked to a mountain economy that had a productive dimension that was more than local. An example of this comes from the urban-rustic villa of Nespoli near Civitella di Romagna.[10]

The Republican phase of the rustic villa of Galeata includes the numerous rustic housing units built with poor building techniques and a layout traditionally open to the exterior, as well as the presence of artisan ateliers.[11] The territory was characterized by the vast presence of similar settlements, distributed in *vici* and *pagi* connected to the urban road.[12]

A. M.

## The Urban-Rustic Villa of the Imperial Age (End of the 1st Century BC–Early 5th Century AD)

On the site where the imposing residence or *palatium* of the king Theodoric would be built, a large villa of the urban-rustic type was constructed in the last decades of the 1st century BC. Its buildings entirely covered the structures of the late Republican settlement. This is not a single or random case, but was a widespread phenomenon. Many of the large urban-rustic villas of the Augustan or high Imperial age, located in the Apennine valleys of Romagna, were built over a previous farm or rustic villa of the Republican age.

Based on the study of the ceramic finds related to the phases of abandonment of the Republican building, it is entirely plausible that at least the production atelier of the settlement was abandoned towards the middle of the 1st century BC, or in any case within the third quarter of the same century. It is also obvious, according to what emerged in the investigated sectors, that the buildings of the end of the 1st century AD completely replaced the previous ones. The construction of the Eastern warehouse demonstrates this,[13] as it obliterated the last of the late Republican furnaces. Subsequently, the constructions of Theodoric erased most of the remains of the Augustan villa.[14]

The construction of the urban-rustic villa is dated with certainty to the beginning of the Augustan age, thanks to stratigraphic data.

On the basis of current knowledge, the new urban-rustic villa developed in a different way, extending over the whole area of Saetta and Poderina in Galeata. The size of the complex was undoubtedly remarkable, since only the *pars fructuaria* sector covered an area of at least 5,000 m$^2$. The production sector (fig. 5) is very important for interpreting the historical events of the entire villa. Although the last excavation campaigns gave us in-depth knowledge of the *pars fructuaria,*[15] the same cannot be said of the urban sector of the villa. This part still is largely unknown and probably is covered by the most prestigious sector of the *palatium* of king Theodoric.

While knowledge of the architectural remains of the *pars urbana* of the Roman villa is still very limited, there are no doubts about its existence and the consequent attribution of the context to the type of urban-rustic villas. In fact, the Romagna area contains many of these settlements, both in the Bidente valley and in the twin valleys of the Rabbi and the Montone. In the Romagna Apennines, perhaps the most suitable comparison with the urban-rustic villa of Galeata is that of the villa of Fiumana.[16] This is located in the valley of the Rabbi, in the Apennine area on the border with the Bidente valley.

Excavation only partially revealed the complex, which had a series of rooms and buildings distributed on terraces, similar to the *pars fructuaria* and the *pars urbana* of the villa. The structures found, attributable to the *pars urbana,* comprise a room with a four-sided plan, with corners ending in large circular niches, probably paved with mosaic and with a dome cover. It is plausible that in the building there was a nymphaeum or a thermal bath, as a testimony to the high quality of the complex.

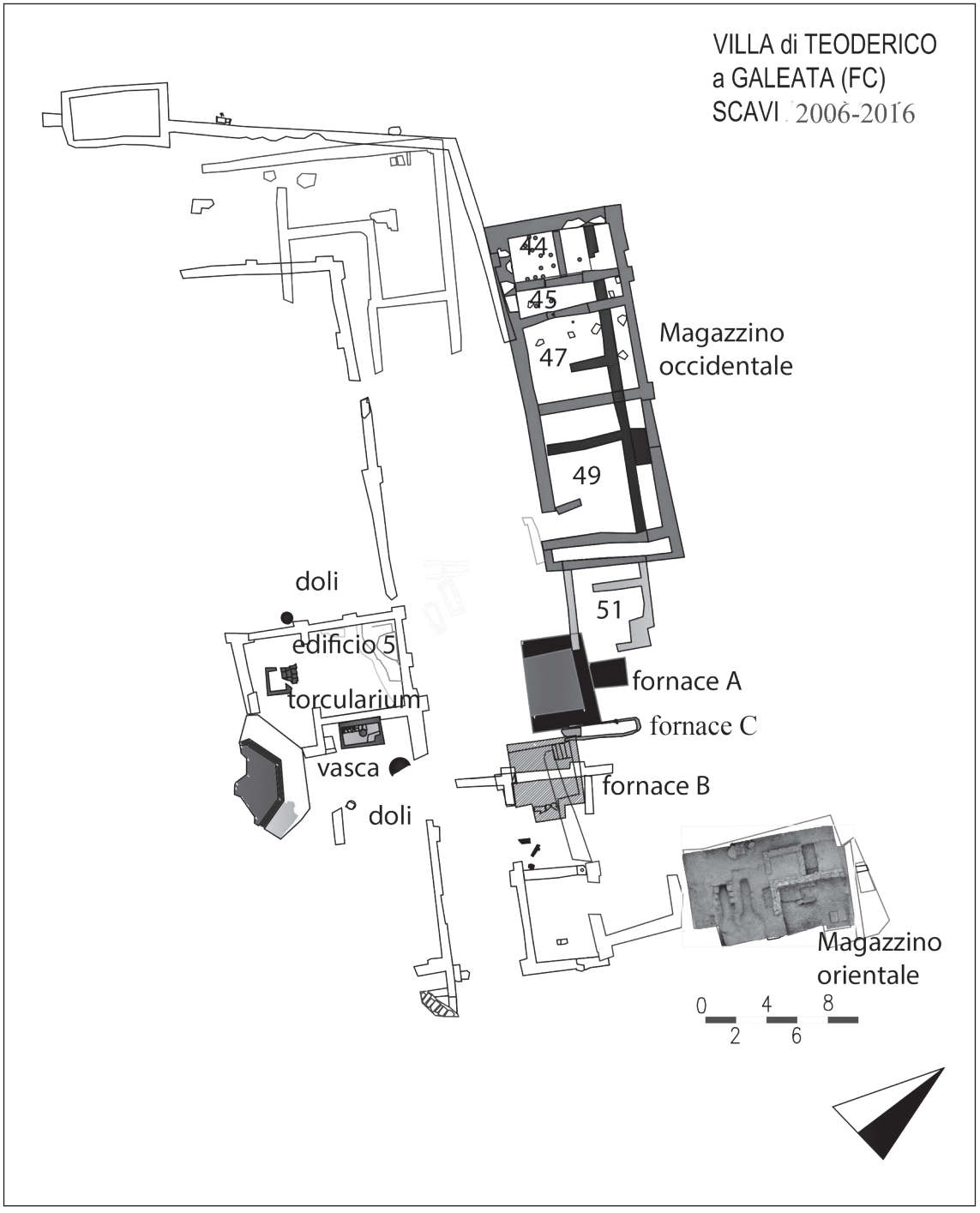



Fig. 5: The *pars fructuaria* of the urban-rustic villa.

Other villas of the urban-rustic type have been identified in the area of the Romagna Apennines. In the Bidente valley are the villas of Nespoli[17] and Meldola;[18] in the Montone valley are those of Rocca San Casciano, Località Calboli,[19] and Podere Fiume,[20] and of Dovadola, in the locality of Fondi Vigula[21] and San Varano; in the Lamone valley is the villa of Brisighella, in the locality of the Casale.[22]

Returning to the case of Galeata, two furnaces (furnace A and furnace B) were built to produce, at least in part, the brick material necessary for the construction of the urban-rustic villa and perhaps also the large containers (the *dolia* and amphorae), used in the productive area of the complex.[23] These furnaces were of a considerable size, and were located in the middle belt of the Podere Alpestri 2, coincident with the central sector of the ancient *pars rustica* and *fructuaria.* Both furnaces were found in an excellent state of preservation, with the walls of the cooking chamber and the perforated top still intact.[24] According to the Cuomo di Caprio classification, they are similar to typology II/b,[25] characterized by a rectangular combustion chamber[26] and central corridor (fig. 6).

Over time, the building of the urban parts of the villa coincided with the short life of the two furnaces, as did the various elements of the *pars rustica* and *fructuaria.* The



Fig. 6: The furnace A, seen from the south.

destruction of the two furnaces mentioned above and, probably, of others not yet identified, allowed construction to continue of the vast productive sector. The *pars rustica* and *fructuaria* of the villa included, in the Podere Alpestri 2, a central compartment focused on the processing of grapes, with a subdivision of the rooms in *torcularia, doliaria,* and wine cells. The presence of tanks for processing grapes and *doli* leaves no doubt about their function (fig. 7). The north-west and north-eastern sectors contained the warehouses.

The framework that emerges from the partial excavation of the production pavilion of the Roman complex is that of a rural villa, the central nucleus of a large *fundus*. Its economy seems to be centered on the production of wine and the manufacture of tableware, amphorae, and bricks for sale and trade on a large scale and to meet the needs of the small community that lived within the villa. Among other things, historical sources[27] note that Romagna was an area of great wine production between the 1st and the 3rd centuries AD.[28]



Fig. 7: A compartment of the *pars fructuaria* of the villa. We identified a tank for processing wine and the remains of a *dolium,* on the right.

These data, together with the discovery of various fragments of wine amphorae and grape residues recognized among the many archaeobotanical remains collected,[29] offer strong clues as to the specialization of the villa. This evidence is even more suggestive than the typological analysis of the tanks found, that could be used in a similar way both for the processing of the wine and oil.

According to the archaeological documentation concerning the productive sector, the complex prospered, without interruption, from the Augustan age until the middle years of the 3rd century. At this time, the entire *pars fructuaria* of the villa underwent the same fate: the complete and definitive destruction of all its structures, probably due to a vast fire.[30]

Traces of a violent fire are present throughout the area; the warehouses (fig. 8),[31] wine cells, and the tanks have clear traces of ash, coal, and burned wood. Despite having limited data, due to the lack of excavation at the urban parts of the Roman villa, it is probable that at least the most prestigious sector of the house continued to exist. A small burial ground developed among the ruins of the old *pars fructuaria.*[32] Continuity of life



Fig. 8: Some rooms in the western warehouse, with evident traces of a fire.

in the villa, even with a drastic downsizing of its productive capacities, could explain the subsequent, integral requalification of the entire *pars fructuaria;* this is datable, on stratigraphic data, to the beginning of the 5th century AD.

The restructuring of the entire productive sector of the Roman villa indicates a radical change in its production system. The available data are still partial, but in some areas of the renewed *pars rustica* it is possible to recognize stables or shelters for livestock instead of the earlier wine cells, warehouses, and furnaces. This confirms the exhaustion of a productive activity based on vine processing and probably on the cultivation of cereals, with instead the emergence of a new economy centered perhaps, at least in part, on the growing, processing, and production of timber.

R. V.

## Notes

[1] Fuchs 1942, 259–277; Krischen 1943, 459–472; Jacopi 1943, 204–212. For a summary of the results of the excavations by the University of Bologna on the site of the villa of Teoderico in Galeata, see Villicich 2014, 241–250.

[2] Excavations at the site of the villa of Teoderico in Galeata were conducted from 1998 to 2016 by the University of Bologna, directed by Prof. Sandro De Maria and co-directed, regarding the field activity, by Riccardo Villicich. Alessia Morigi of the University of Parma joined from 2016. From 2018 the excavation was in concession to the University of Parma and was directed by Alessia Morigi, who shares the scientific responsibility with Riccardo Villicich. For a summary of the results of the excavations by the University of Parma on the site of the villa of Teoderico in Galeata, see Morigi – Villicich 2017; Morigi – Villicich 2018, 401–446; Villicich et al. 2019, 267–288; Morigi – Villicich 2019a; Morigi – Villicich 2019b, 169–192; Morigi – Villicich 2020, 1–26; Bocchia et al. 2021, 129–155; Bersani – Saviane 2021, 219–240; Rinaldi – Gregori 2021, 241–258; Milanesi 2021, 259–304; Gamberini 2021, 305–316; Casacci 2021, 317–366; Morigi – Villicich 2021, 79–128; Porta 2021, 471–498; Morigi – Villicich forthcoming a; Morigi – Villicich forthcoming b.

[3] The sporadic presence of structures and materials dating back to the late Republican age already was detected during previous excavation campaigns: above all, these were in the lower levels, under the Villa Teodoriciana and the villa of the Imperial age. However, the few data acquired on these phases, until the excavations of 2015, never allowed the excavators to frame the habitation corresponding to that period in an effective way.

[4] The results of the excavation campaigns in 2015–2016 are published in Morigi – Villicich 2017.

[5] Inv. 290–293.

[6] The ceramic materials found in the excavation campaigns of 2015–2016 are being studied by Anna Gamberini. The author thanks her for the advances.

[7] Plin. *nat.* III, 114.

[8] Brizzi 1995, 95–109; Williams 2001, 91–101; Ravara Montebelli, 2006.

[9] Prati 1982, 313; Prati 2000, 484; Battelli 2004, 103; Assorati et al. 2006, 117 f.; Tarroni 2012–2013, 116–128.
[10] Pippo 2015–2016, BI CVR 5.
[11] Giordani et al. 1994; Ortalli 1996; Ortalli et al. 2000; On settlement typologies, see Ortalli 1994.
[12] Sabattini 1974, 295–301; Morelli 1995, 9–17.
[13] Morigi – Villicich 2017, 33–53. In this regard, see, below, the contribution of Elia Rinaldi.
[14] Villicich 2014, 241–250.
[15] Morigi – Villicich 2017.
[16] On the villa of Fiumana, see Bermond Montanari 1971, 51–73.
[17] Maioli 1990, 272.
[18] Maioli 1990, 270 f.
[19] Tarroni 2012–2013, 149.
[20] Tarroni 2012–2013, 149.
[21] Tarroni 2012–2013.
[22] For all these villas, see Morigi – Villicich 2017, 106–108.
[23] A third furnace, furnace C, is later than the first two.
[24] The western-most furnace (furnace A) was discovered in 2012, while the one immediately to the East (furnace B) was found in 2013. See Morigi – Villicich 2107, 35–41; Villicich 2012, 5.
[25] Cuomo di Caprio 1971, 371–463.
[26] Sometimes even square or trapezoidal.
[27] Strab. V, 1, 6–7, 213; Tac. *Hist.* III, 8.
[28] For the cultivation of the vine, the most famous areas are those of *Faventia, Caesena,* and *Forum Popili.* Tchernia 1986, 159–169.
[29] Villicich 2009, 184–192.
[30] Morigi – Villicich 2017, 67–72; Villicich 2012, 7.
[31] On the Western warehouse, destroyed by a fire in the mid-third century, see Morigi – Villicich 2017, 67–82 and Villicich et al. 2015, 75–87.
[32] Morigi – Villicich 2017, 69–71.

## Image Credtis

All images by the authors.

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# Production from Destruction: Change of Value of Recycled Decoration. The Roman Villa of Aiano – Torraccia di Chiusi (San Gimignano, Siena – Italy)*

**Marco Cavalieri – Antonia Fumo – Sara Lenzi – Gloriana Pace**

## Introduction

The late antique villa of Aiano-Torraccia di Chiusi is located in the municipality of San Gimignano (Siena, Italy), in the territory of the ancient *Roman VII regio.*[1]

The archaeological site (fig. 1) lies on the border between the Roman civic territories of Siena, Volterra, and Florence; it is in the small Elsa valley, formed by its tributary Fosci, on the axis that connects the region in and around Siena to the Arno Valley.

In the Middle Ages, the *Via Francigena* ran through this valley, leading pilgrims from Canterbury to Rome.[2]

The site has been excavated since 2005 by a Belgian-Italian team led by Marco Cavalieri (*Université catholique de Louvain*). About 3,000 m² of the settlement has been excavated (fig. 2), but various archaeological surveys[3] estimate a surface of about 10,000 m².[4]

Taken together, the information from the excavations, though still incomplete, and often difficult to understand, shows that the Aiano villa played an extremely prestigious role in the Tyrrhenian region.

## Chronology

The building presents at least six phases of occupation spanning from the 3rd to 7th century AD.[5]

Period 1: the settlement was founded between the late 3rd and the early 4th century AD.

The oldest building is located in the south-west area of the settlement: only the foundation walls, made of roughly hewn travertine blocks, are left of rooms A, B and E.

Period 2: between the late 4th and the late 5th century AD, the entire building underwent a monumental rearrangement in multiple stages.

From the late 4th century AD, the villa became wider, with the addition of a six-foil hall, surrounded by a five-foil *Ambulatio.* A small room in the southern part of this area has been identified as a rectangular "vestibule".

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Fig. 1: Location of the archaeological site.




Fig. 2: The excavated area of the villa (2005–2017).

Later on, between the late 4th and the early 5th century AD, the layout and flooring were changed, with the six foils replaced by three foils, after three of them were destroyed.

Three new rectangular rooms (H, I, L) were built after pulling down the foils.

Period 3: as a residential settlement, the site was abandoned between the late 5th and the mid-6th century AD; its furnishings and building materials were taken away to be recycled and reused.

Period 4: between the late 6th and the early 7th century AD, all workshops were closed down, and the site was therefore destroyed.

Period 5: until the mid-7th century AD, the ruins were occasionally used as a burial ground.

A grave was dug in room Q after the collapse of the roof and walls, and an adult was buried there; in the north-west corner of room Z a burial pit also contained the skeleton of a young male adult, buried there before the construction collapsed. Neither grave contains any goods, just a small and very badly preserved metal buckle. It is currently being restored and was found in the grave of the room Q.[6]

Period 6: contemporary age; the site was ploughed deep and flattened, layers were cut, and walls were shaved down to a mean depth of 75 cm from the ground level.

## Period 3: abandon and recycle

Between the late 5th and the late 6th/early 7th century, the decoration of the former residential settlement was removed and partially recycled.[7]

Among the decoration taken away from the villa, there are nearly 2,000 pieces of glass *sectilia,* originally part of the fish decoration of the wall panels.[8] They were found in pits and layers all over the surface of the site, but most of them come from pits in the south-eastern part of the excavated site.[9] They must have been taken to this area to be melted and reused as part of a process in which the settlement was systematically stripped.

Restorers in Palazzo Spinelli Group, Florence, are recomposing the glass *sectilia.*[10] They originally formed panels with representation of sea fish, such as breams, giltheads and morays, in framed groups of three or four (fig. 3).

These luxury products have the closest comparison in some glass fragments from Trier, dating back to the 4th century AD and assumedly made by Egyptian craftsmen.[11]

In particular, the central and southern part of the site contained marble fragments. They were not in their original context, but in layers dating back to the periods of



Fig. 3: Examples of glass *sectilia* with representation of sea fish.

abandonment and re-use of materials. About 1,000 fragments of different marbles came from Egypt, Greece, Numidia, Turkey and other quarries, such as Carrara (for some fragments of white marble). These were part of luxurious wall and floor revetments, systematically dismantled in the third period of the site.[12] Moreover, two fragmentary shafts of columns were found.[13]

Other parts of dismantled decoration of the site give us more information about the high level of the building: thousands of mosaic *tesserae,* either in stone or glass, some of them with gold foil decoration (*tesserae ialinae*).[14]

Lower quality decoration can be found in some out-of-context fragments of wall paintings, dating back to the 4th century.[15]

Only the late 4th–early 5th century floor of the central hall (trefoil hall) still remains *in situ* (fig. 4). This was made of *opus caementicium,* and mosaic details in geometrical and figurative patterns decorated the floor,[16] that was built after the refurbishment of the previous six-foil hall into a trefoil hall.

The central room must have had a taller ceiling: the collapsed roof found in this room must have been arched and in *opus latericium.*

During the 3rd period of the building, the spaces and functions of the building itself changed. The original purpose of the decorations no longer existed, since they were disassembled or recycled during the last stage in the life of the site, when the villa became a sort of quarry and a small-scale plant.



Fig. 4: Remains of the floor in the trefoil hall.

Most crafts took place in two separate areas of the site: the southern area, including the Trefoil Hall, and the north-western one.[17]

Extensive plumbing system likely served such workshops, and only traces of this system remain: one manifold runs south of the Trefoil Hall and the other one flows into the *Ambulatio,* between room H and the "vestibule".[18]

The proximity of materials as well as the state of preservation of these earlier places must have dictated the location of the workshops.

When found, the worktops were made with bricks, whose size and shape match the bricks of the collapsed arches of the apses of the Trefoil Hall.[19] Most of the bricks are rectangular and have three parallel lines made with the finger and crossing at the center

of the brick itself. Only in a few cases the worktops were made with rectangular bricks without any line.

No worktop was found with finger-drawn lines of circular or oval shape.[20]

Four rooms (H, I, L, and "vestibule") around the Trefoil Hall supported craft activities: room H for pottery, room I for copper, and room L for gold.[21] The gold for the mosaic *tesserae* was in fact purified by cupellation, which was also used to purify gold alloys.[22]

The "vestibule" room contained a small glass-fusing kiln (fig. 5):[23] the glass workshop of Aiano probably specialized in recycling glassware from the Roman villa, with the aim of producing small ornaments.[24] This practice of collecting and reprocessing glass shards reduced production costs: it required fewer raw materials and lower temperatures.[25]




Fig. 5: Small glass fusing kiln in the "Vestibule room".



Fig. 6: Kiln.

Also, marble was destroyed and re-used. The southern part of area V contained hundreds of marble fragments,[26] and "marbles", were found in the ceramic temper all around the site.[27]

To the west of the corridor, other three rooms hosted a number of workshops: room A for glass,[28] but perhaps for lead too; room B was used as a blacksmith's workshop (for iron).[29]

The tests performed on the ca. 200 specimens found in this room revealed that they were probably recycled items and scraps: none of the discovered waste could be interpreted as the result of the purification or refining of raw iron.[30]

The purpose of room C is still unknown.[31]

Another room hosted a kiln (fig. 6), very similar in shape to type II/B Cuomo di Caprio, which could be adjusted to bake different items, such as clay for building materials, vessels, and ordinary ware.[32] Again, no waste materials were found.

The wide range of crafts, high level of organization, and coordination between the workshops seem to suggest that the aim of the manufacturing system was not only related to domestic consumption.

On-going investigations in other parts of the settlement[33] provided evidence of other manufactures, all involving the use of fire. However, their features and relationship with such workshops have not been completely understood not been completely understood yet.

A high number of worktops was found during the last years also in the north-western part of the building.

Room U most likely housed the remains of some baking processes.[34] Fragments of wall paintings[35] and fragments of dismantled mosaics[36] were found in this place.

Room G and room Z hosted worktops with no traces of waste. However, it is clear that in room Z the (now ruined) worktop was used in association with fire and maybe for a long time: the wall of the room is completely eroded, traces of fire are recognizable, and ashes were all around.[37]

## A Peculiar Space: the so-called "Room K"

Even more problematic is the so-called room K.[38] This is a long rectangular room with the remains of furnaces/cooking surfaces along two opposite side walls (figs. 7 and 8). All the kilns have clear burning and erosion marks on the back walls, and many of them are located at different heights, which means that the railings of the nearby kilns were reused or destroyed. This suggests that they did not work – or they were not closed – all at the same time.[39]

What was actually produced in this area is not yet known: there is no waste material that could help in this respect.




Fig. 7: Worktops in room K (eastern side).




Fig. 8: Worktops in room K (western side).

Recently, excavation focused on two new sections of room K towards the north, but no other worktop was found.[40] We can say that a specific part of room K has a concentration of worktops, namely near to the two accesses of the room: the door leading to room G and the door leading to the western (and unexcavated) part of the building.

On the eastern side, there are three worktops, partially or totally destroyed: two of them were carved in an artificial plain surface, which is recognizable only in correspondence with the worktops.[41] The northern and southern part of room K did not possess any traces of this artificial structure.

Almost four worktops lie in the western part of the room: two of them are big (158 × 114 cm and 141 × 111 cm respectively) and traces of fire were recognizable on the eroded wall behind them. The other two are smaller (53 × 40 cm and 71 × 43 cm respectively). The wall behind them is also burned, but not eroded. The worktops were made with reused bricks, sometimes with parallel lines that cross the center of the brick itself (smaller kilns), but sometimes with no lines on their surface (bigger kilns). The worktops did not have any trace of ashes, with the exception of the thin layer covering the worktop number 3.[42]

Despite the abundance of pottery fragments in the layers of the whole site, room K gave only a few fragments.[43]

Some hypotheses were considered in order to understand the function of the worktops, especially the four on the western side of the room K.

The first hypothesis regards the production of pottery. However, the shape of the cooking surface[44] and the absence of the perforated plate, pottery spacers, and wasters seem to exclude the production of pottery in this area. Moreover, the marks of the fire on the wall[45] behind the worktops and on the very thin parapets show that, whatever the production was in this area, it did not require high temperatures.

So, we decided to consider possible productions requiring lower temperatures.

The second hypothesis regards the recycling of glass: our glass kiln (in the vestibule) is very similar in size[46] and shape to the two small worktops.[47] However, clear traces of a covering – clay mixed with snail shells – were found for the glass kiln in the vestibule, but this was not the case for the room K worktops. Moreover, in room K we did not find any proof of glass working in the nearby worktops, such as traces of waste materials, glass fusion, or water supply.[48]

The third and last hypothesis is very preliminary but may be the most probable one at this stage of research, is the use of these worktops (or some of these worktops) as cooking surfaces for food. It is noticeable that such a complex and organized site, with workers involved in different production inside the various rooms, had to have places for the preparation of food. The production of food, especially bread, does not require very high temperatures and does not produce much waste.[49] Among the few archaeological materials from around the worktops, most of the fragments are connected with kitchen ware and bread-baking pans, now part of an ongoing study.[50]

## Notes

* This paper was submitted in 2018. For an update about the chronology of the archaeological site, please see Cavalieri 2020. For an update about the glass beads, please see Boschetti et al. 2021

[1] See <http://www.villaromaine-torracciadichiusi.be>. See also: Cavalieri 2008; Cavalieri 2009; Cavalieri 2010a; Cavalieri 2012; Cavalieri 2013; Cavalieri – Orlandi 2014; Deltenre – Orlandi 2016; Cavalieri 2016; Cavalieri et al. 2019a.

[2] For the Via Romea in Tuscany, see Patitucci Uggeri 2004. For the Via Romea in the nearby of Aiano – Torraccia di Chiusi, see Chellini forthcoming.

[3] For archaeological surveys in Aiano – Torraccia di Chiusi, see Cavalieri – Pace 2011.

[4] Cavalieri 2016, 109.

[5] For the chronology of Aiano – Torraccia di Chiusi, see also Cavalieri 2016, 110 f.; Baldini et al. forthcoming, Cavalieri et al. 2019a.

[6] Lenzi et al. 2016.

[7] For recycling in Roman villas, see for example the studies by Beth Munro (Munro 2010; Munro 2011; Munro 2012).

[8] Cavalieri et al. 2016; Cavalieri et al. 2017.

[9] The so-called "area 5000". Nevertheless, the glass *sectilia* come also from other parts of the site: a few of them also were found during the 2018 campaign, in the northern area of the archaeological site (area 13000).

[10] Cavalieri et al. 2017; Cavalieri et al. 2019b.

[11] References in Cavalieri et al. 2016, 289 n. 10. For comparisons, see Merten 2012.

[12] About this topic, see Cavalieri et al. 2012a; Cavalieri et al. 2013, Lenzi – Cantisani forthcoming.

[13] The first shaft was found decades ago, just before the beginning of the excavation. The second one was found in 2012. The latter seems to be carved in a grey marble.

[14] Cavalieri 2011, 618–620 in particular.

[15] Cavalieri et al. 2019c.

[16] Cavalieri 2010b.

[17] Traces of worktops were found in most of the rooms of the site.

[18] Deltenre – Orlandi 2016, 76.

[19] Faralli forthcoming. The southern arch was dismantled in antiquity; the collapsed north-western and north-eastern arches were found during the excavation of the Hall.

[20] Most of the tiles with circular or oval patterns were found during the 2008 and 2018 excavation, either in the Ambulatio or in the northern part of the so-called "room K".

[21] About these rooms, see in particular Deltenre – Orlandi 2016.

[22] About this topic: Cavalieri 2009, 511 f.; Cavalieri 2013, 299 f.

[23] See in particular: Cavalieri – Giumlia-Mair 2009; Cavalieri 2011; Deltenre – Orlandi 2016, 80–82.

[24] Cavalieri 2011.

[25] Deltenre – Orlandi 2016, 81.

[26] Cavalieri et al. 2012a in particular.

[27] Cantisani et al. 2012.

[28] See Cavalieri 2009; Cavalieri 2013; Deltenre – Orlandi 2016, 80–82.
[29] See for example, Cavalieri et al. 2009, 513 f.; Deltenre – Orlandi 2016, 77–79.
[30] Deltenre – Orlandi 2016, 77 f.
[31] Room C is in the south-western part of the site. The soil of the room shows clear traces of activities connected with fire, and there is a structure made with fragments of bricks and stones in the north-west corner of the room itself. No waste material was found in order to understand the function of this room: only fragmented pottery, tiles, and mosaic tesserae.
[32] Recently, Cuomo di Caprio 2007, 524 (with other bibliography).
[33] The 2017–2018 campaigns only explored the northern and north-western part. Clear traces of fire activities also are recognizable in these new parts of the site.
[34] For room U: Cavalieri et al. 2012a; Lenzi et al. 2016. The excavation of room U, a big room with four pillars, is still ongoing. The last excavation campaign, in July–August 2018, showed further traces of baking activities in the northern area of the room. The results of the campaign are preliminary and part of an ongoing study. For further information, see the 2018 Summary of the excavation in Aiano – Torraccia di Chiusi on www.fastionline.org.
[35] Cavalieri et al. 2019c.
[36] Cavalieri e al. 2013.
[37] The worktop was maybe re-built at least once.
[38] Deltenre – Orlandi 2016, 84 f.; Lenzi et al. 2016.
[39] For a preliminary study of this room, see Deltenre – Orlandi 2016, 85.
[40] The 2017 and 2018 campaigns involved the excavation of the two new sections. They lie in the northern part of room K. The first one is visible in fig. 2.
[41] The structure is made mostly with mortar and stones.
[42] In this layer was found a glass mosaic tessera. There is no evidence for a possible covering of the kilns, except for kiln number 2: in this case, a possible collapased covering was found (small fragments of bricks and earth covering the entire surface of the kiln).
[43] About the pottery in Aiano – Torraccia di Chiusi, see for example Fumo 2010; Cavalieri et al. 2012b. The study of the pottery in this room is still ongoing.
[44] See Cuomo di Caprio 2007, 483–546.
[45] The wall is made with regular blocks of travertine and mortar.
[46] 65 × 46 cm approx.
[47] About this kiln in particular, see Cavalieri et al. 2010, 91 f. and Cavalieri – Giumlia Mair 2009.
[48] In the kiln of the vestibule were found some drops of glass, as well as channels and pits for water.
[49] For the preparation of bread in Roman times, see for example, in general: Ampolo 1994 and Manetta 2016. About fireplaces for heat and the preparation of food, see for example: Pizzinato 2014 (especially for the term "piani di cottura"). The cooking surfaces, when made with tiles and bricks, could be set close to a wall, as in Aiano – Torraccia di Chiusi, in Roman and Medieval times (see for example Rovina et al. 1999, 181 f.; Cattaneo et al. 2008, 88; Stampfer 2008, 57–61).
[50] About bread-baking pans, or "baking covers" (testi da pane), see for example Patterson 2017, 130.

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# Urban Roman Production and Distribution Sites

**Panel 8.24**

# Nouvelles données sur le travail des peaux et du cuir à l'époque gallo-romaine : le site Jean Fleuret à Bordeaux-Burdigala (Nouvelle-Aquitaine, France)

**Vanessa Elizagoyen**[1]

**Avec la collaboration de L. Benquet – E. Claud – Ph. Borgard – K. Couchez – C. Fondeville – P. Galibert – V. Guitton – M. Leguilloux – H. Martin – V. Pasquet – S. Raux – N. Saedlou – F. Sellami – L. Simon – C. Sireix – S. Vigier**[2]

**Résumé**

En 2011, les archéologues de l'Inrap ont fouillé un complexe artisanal en limite occidentale de la ville romaine *Burdigala,* en activité du milieu du Ier au milieu du IIe siècle de notre ère. Il documente le travail des peaux à l'alun et le façonnage d'objets en cuir tanné végétalement à partir de coupons rectangulaires.

**Summary**

In 2011, French archaeologists of Inrap excavated a craft complex in the western extension of the Roman city Burdigala (southwest France), that works between the middle of Ist and the middle of the IIth century AD. It is dedicated to alum tawing and the assembly of objects from rectangular leather coupons.

## Introduction

Notre connaissance archéologique des techniques de traitement des peaux durant l'Antiquité est très lacunaire. Elle se heurte aux difficultés inhérentes à l'étude des matières organiques et n'est que peu compensée par l'apport des textes anciens.

Les conditions nécessaires à l'étude de tels ateliers, c'est-à-dire le contexte humide d'un terrain rapidement recouvert par les eaux, sont difficiles à réunir. Le nord de l'Europe est la région qui regroupe la plupart de ces sites. Des ateliers de façonnage d'objets en cuir et d'autres interprétés comme des tanneries y ont été découverts, en particulier sur le *Limes.* Mais les données collectées restent très limitées et les sites dont l'interprétation est depuis remise en question sont nombreux.[3]

En 2011, un atelier de traitement des peaux à l'alun et à la graisse de peaux de Caprinés, puis de Bovinés pour produire des objets en cuir fin ou solides, a été mis au jour à

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Bordeaux. En parallèle, les artisans importent et apprêtent également des cuirs tannés pour façonner des coupons calibrés à partir desquels ils assemblent de grands objets.

## Les traitements des peaux dans l'Antiquité[4]

Le traitement des peaux (fig. 1) consiste à rendre le derme imputrescible, puis à l'assouplir et à l'apprêter.

La première phase, quelle que soit la méthode choisie, est le « travail de rivière ». Il s'agit de séparer le derme de l'hypoderme et de l'épiderme et donc d'ôter, côté chair, les résidus et le sang, et côté fleur, les poils. Le travail de rivière a également pour but d'ouvrir les pores des peaux en vue des traitements ultérieurs. Il implique de disposer d'une grande quantité d'eau claire. Une fois cette étape liminaire achevée, le traitement à proprement parler peut débuter. Plusieurs techniques sont susceptibles d'être mises en œuvre. Les méthodes traditionnelles, dites pseudo-tannages ou durcissements, sont réversibles à l'eau.[5] Elles s'opposent au tannage végétal qui est permanent mais nécessite beaucoup plus de temps et des infrastructures spécifiques.[6] Trois méthodes traditionnelles coexistent : le traitement à la graisse (chamoisage), le fumage et le tannage minéral (à l'alun pour le procédé de mégisserie). Le tannage minéral et le fumage se combinent avec un traitement à la graisse, animale ou végétale.

A l'issue de ces traitements, les peaux font l'objet du corroyage, pour les assouplir, les lustrer, éventuellement les teinter et les préparer à la confection.

Chaque technique de traitement des peaux procure aux produits obtenus des propriétés particulières. Notamment, la qualité fondamentale de non-réversibilité à l'eau ne s'applique qu'aux seuls cuirs véritables, c'est-à-dire obtenus par tannage végétal.[7] Cette préservation différentielle des peaux traitées par des procédés traditionnels et des cuirs tannés « végétalement » constitue un obstacle à une appréhension équilibrée des différents traitements appliqués aux peaux en archéologie.

Durant l'Antiquité, les techniques traditionnelles de traitement des peaux persistent après l'introduction du tannage végétal par les Romains dans les camps militaires d'Europe du Nord.[8] Au cours du Ier siècle de notre ère, le tannage végétal apparaît dans les villes de Gaule probablement pour répondre aux besoins des militaires, avant de s'étendre progressivement aux usages civils.[9] Le traitement à l'huile ou même le fumage sont pratiqués concomitamment au tannage végétal pour la confection d'objets variés à partir de peaux d'animaux sélectionnées pour leurs propriétés.

Le traitement minéral des peaux à l'alun en provenance de l'île éolienne de Lipari semble introduit en Gaule à partir de l'extrême fin du Ier siècle avant J.-C.[10] Les produits ainsi préparés pourraient correspondre à ceux appelés *aluta* par les auteurs anciens.[11] L'emploi de ce terme par César dans la « Guerre des Gaules » pour désigner les voiles des navires vénètes suggère que certains peuples de Gaule connaissaient ce procédé avant la Conquête.[12]

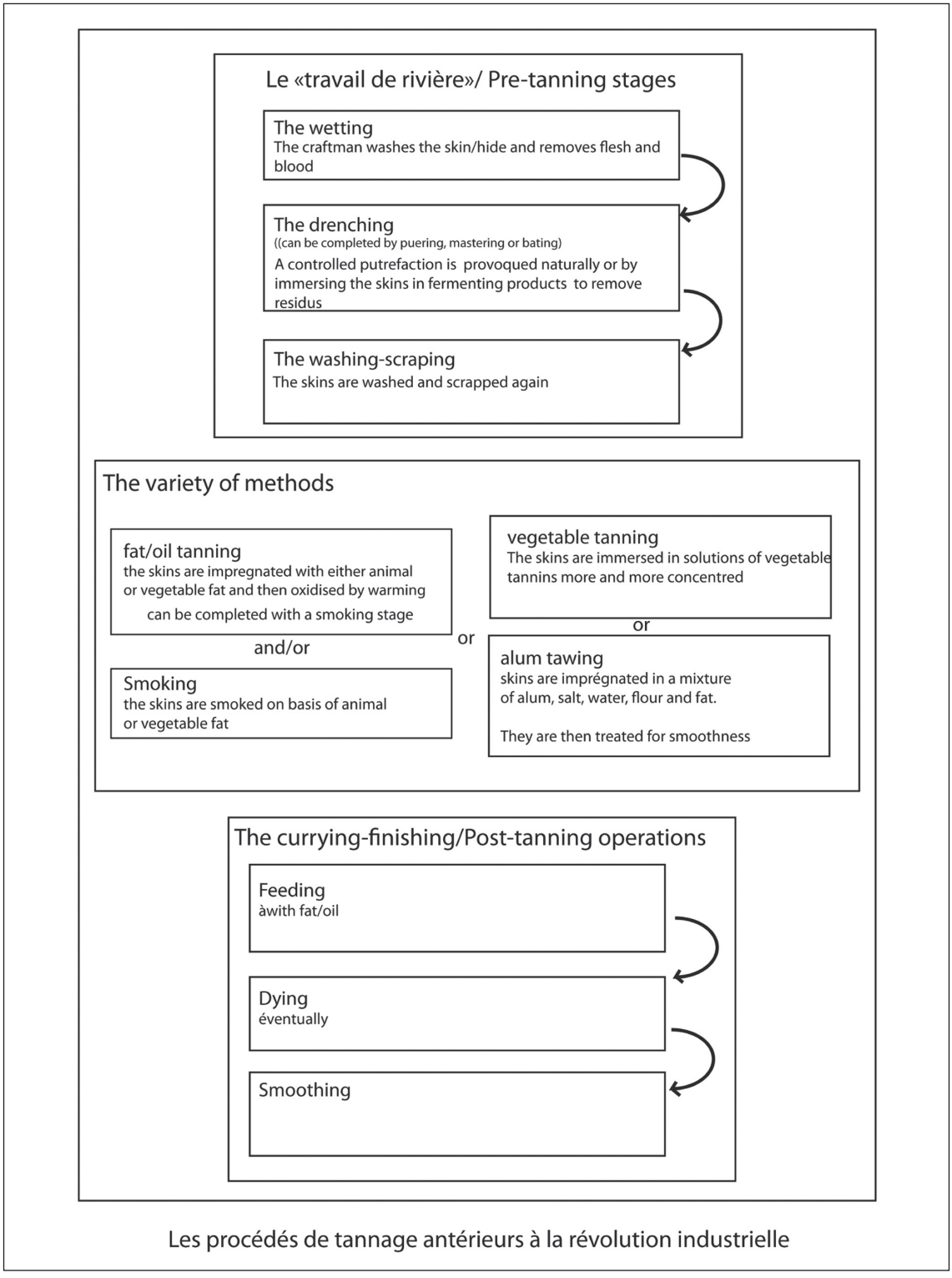



Fig. 1 : Les traitements des peaux durant l'Antiquité.

En archéologie, le traitement à l'alun est discriminé par la découverte conjointe de tessons d'amphores de Lipari et de restes de faune spécifiques (chevilles osseuses, vertèbres de la queue et extrémités des pattes encore présentes sur les peaux lorsque les artisans les réceptionnaient à l'atelier). Quelques ateliers de Gaule illustrent cette technique appelée mégisserie depuis le Moyen Âge et appliquée aux peaux des petits ruminants pour une production d'objets fins. C'est en particulier le cas du site Saint Anne à Dijon, fouillé en 1991.[13]

## Le site de la rue Jean Fleuret à Bordeaux (fig. 2)

La fouille Jean Fleuret, d'une surface d'environ 1.000 m², a été conduite par l'Inrap (Institut National de Recherche Archéologique Préventive) en 2011. Elle concerne une fraction d'un atelier en activité du milieu du Ier au milieu du siècle suivant dans une zone suburbaine occidentale de Burdigala. Le site est inscrit dans une vallée humide et marécageuse. Il est encadré de plusieurs cours d'eau dont le ruisseau Peugue circulant à proximité immédiate au sud. L'enfouissement des vestiges archéologiques sous la nappe phréatique est à l'origine de l'excellent état de conservation des matières organiques.

L'activité débute entre 50 et 70/80 (fig. 3a). Après un assainissement partiel de la zone inondable, un bâtiment à l'architecture de terre et de bois reposant sur des solins et des sablières basses disparues est construit en bordure d'un cours d'eau (fig. 4a). Il se poursuit en dehors de la zone explorée vers le nord-est. Son sol de calcaire concassé couvre une aire quadrangulaire évaluée à plus de 140 m².

La construction est divisée en deux espaces. Sa partie ouest est compartimentée en petites pièces dont deux renferment des fosses quadrangulaires aux parois verticales probablement cuvelées (l'une conserve une planche en chêne) et ayant pu servir à l'imprégnation de liquides. Un foyer circulaire encaissé, de 0,65 m de diamètre, y est également visible (fig. 4b). Les subdivisions et équipements de cet espace évoquent des postes de travail. La partie orientale du bâtiment apparaît au contraire vide de tout aménagement et pourrait correspondre à un espace de séchage et de stockage. Immédiatement au nord du bâtiment, une petite cour abrite une longue cuve en chêne monoxyle assemblée : la base, qui mesure 3,80 m de long, jusqu'à 1,30 m de large et 0,40 m de profondeur, est fermée sur ses côtés nord et sud par deux planches verticales disparues (fig. 4c). Elle est installée dans une fosse étanchéifiée probablement abritée. Une fonction d'imprégnation de solutions liquides, peut-être complétée de foulage, est supposée.

Vers le sud, en direction du chenal présumé du Peugue, un bassin de près de 65 m² correspond à une dépression naturelle dans le substrat calcaire accentuée par un surcreusement (fig. 4d). Il bénéficie d'une alimentation en eau canalisée à son angle sud-ouest. Un tuyau monoxyle en chêne y est installé.

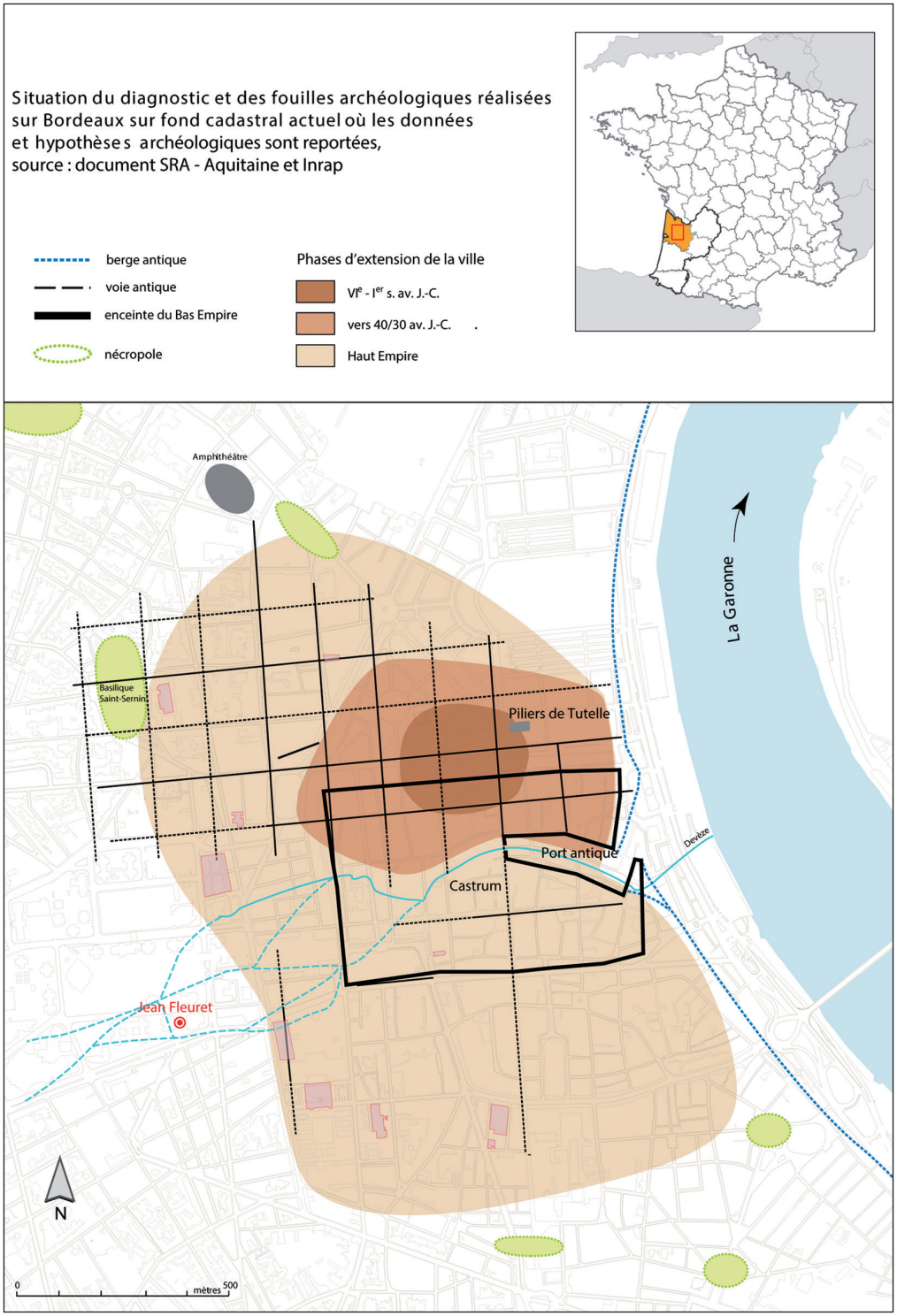



Fig. 2 : Situation de la parcelle Jean Fleuret sur vignettes : carte de France, cartes habituelles, cartes de bordeaux actuel et antique.




Fig. 3 : Les plans topographique de la fouille Jean Fleuret : a. Phase 1, entre 50 et 70/80, b. phase 2A, entre 70/80 et 90, c. phase 2B1, entre 90/110 et 120, d. phase 2B2, entre 110/120 et 130/140.

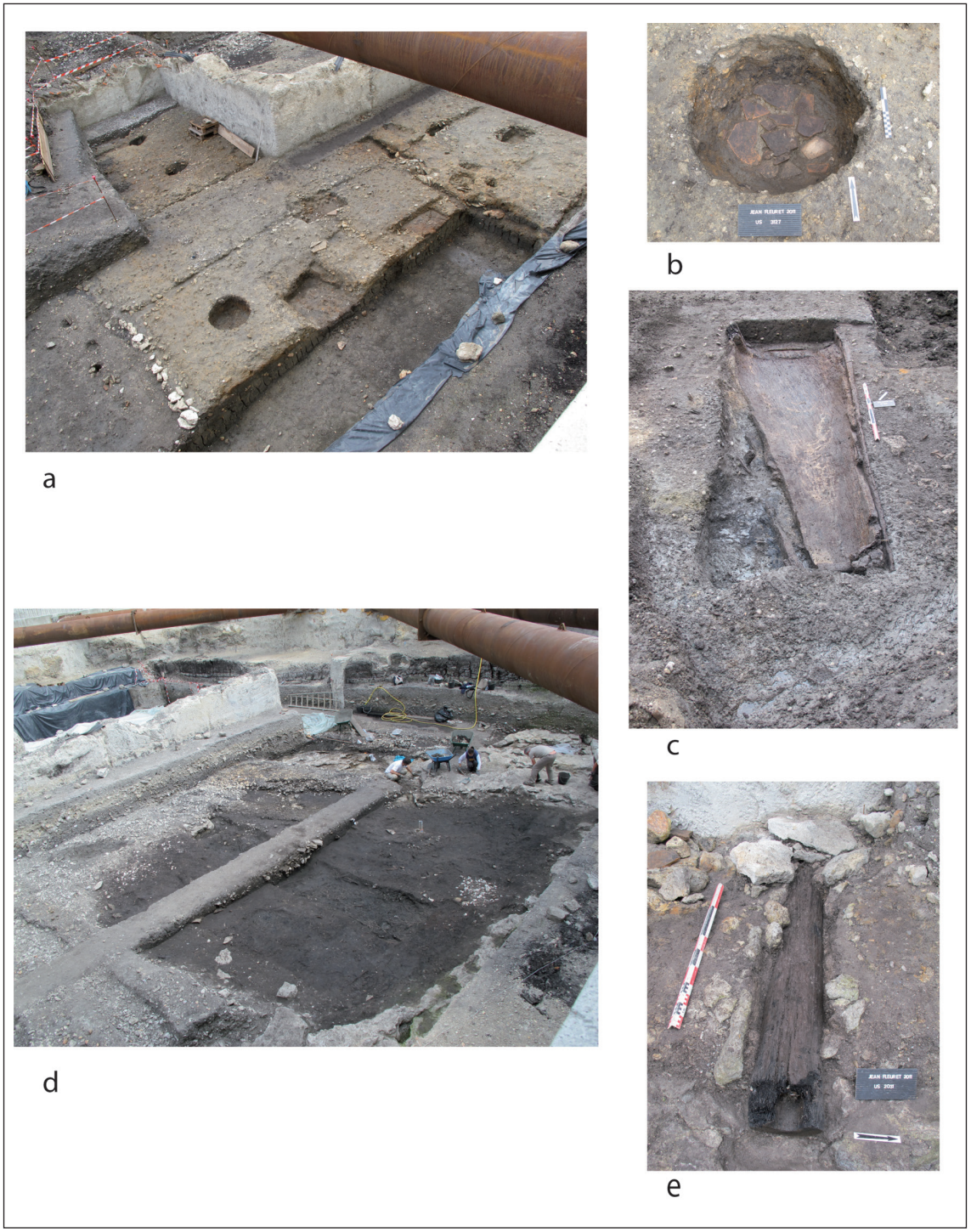



Fig. 4 : a. Le bâtiment ; b. Le foyer ; c. La cuve monoxyle en chêne ; d. Le bassin ; e. le tuyau en chêne.

La phase suivante d'occupation (phase 2) débute par une inondation. Elle est datée entre 70/80 et 130/140 et regroupe deux états, A et B, le second ayant lui-même été subdivisé en deux épisodes (phase 2A, phase 2B1 et phase 2B2).

Le premier état de la phase 2 est attribué à un intervalle compris entre 70/80 et 90 (phase 2A, fig. 3b). Il se caractérise par l'abandon du bassin, probablement remplacé par des fossés-canaux qui traversent le site d'ouest en est. Ces derniers ont l'avantage d'approvisionner l'atelier en eau en même temps qu'ils en assurent le drainage.

Le bâtiment construit durant la phase précédente est rehaussé, ses franchissements sont aménagés et sa façade sud est fermée. Le cloisonnement interne est abandonné au nord-est. Dans la cour, la cuve rectangulaire en chêne continue à être utilisée. Un grand chenal est creusé au sud de l'emprise : il permet l'approvisionnement de l'atelier en matières premières et le départ de produits manufacturés par voie d'eau (fig. 5).

La phase 2B est partagée en deux épisodes successifs. Le premier est daté entre 90/110 et 120 (phase 2B1, fig. 3c). Il débute par une nouvelle inondation qui conduit à une surélévation supplémentaire des sols du bâtiment. La surface de la construction est aug-



Fig. 5 : Le canal artificiel.

mentée. Elle est désormais encadrée de fossés-canaux. La cuve en chêne est entretenue. Le bassin, utilisé comme dépotoir, achève d'être colmaté.

Le second épisode de la phase 2B est situé entre 110/120 et 130/140 (phase 2B2, fig. 3d). Il se traduit par une nouvelle implantation de fossés. La densité de ce réseau est liée à la nécessité d'un approvisionnement constant en eau. Un caniveau-assainissement est creusé à l'intérieur du bâtiment. L'activité se poursuit et la cuve en chêne est toujours en usage. Le canal artificiel est entretenu.

L'abandon du site se produit en phase 3, entre 130/140 et 160. Des terres noires s'accumulent progressivement dans un espace peut-être mis en culture.

## Les éléments mobiliers

Le mobilier de la phase 1 est peu abondant. Les restes les plus significatifs sont constitués par la faune. Les fragments très largement majoritaires sont des chevilles osseuses, des extrémités de pattes et des vertèbres caudales de Caprinés et plus particulièrement, lorsqu'il est possible de les dissocier, de Moutons. Les individus sont jeunes à très jeunes. À la faune sont associées 129 petites fiches en fer (fig. 6a), des amphores à alun de Lipari, des amphores à huile Dr20 (fig. 6b) ainsi que du macro-outillage (galets aménagés, percutés, débités, portant des stries et/ou des résidus indéterminés). Une réglette de mesure en os fragmentaire (fig. 6c, 1), probablement utilisée dans le cadre « d'un artisanat de précision », complète les découvertes documentant la vocation artisanale du site.[14]

Les artefacts de la phase 2A, en beaucoup plus grande quantité, reflètent de même l'activité artisanale, en plus d'illustrer la vie quotidienne des ouvriers. Le cuir y tient une place de prédilection. Les 7.700 fragments découverts représentent un poids d'environ 15 kg (fig. 8). Concernant la faune, 2.628 restes ont été dénombrés. La grande majorité appartient à des Caprinés (2.368), Moutons en tête (213) puis Chèvres (111) lorsqu'ils peuvent être discriminés. Du point de vue artisanal, ce sont ensuite les Bovinés qui apparaissent significativement (99 fragments). Le Cerf (6) est présent à l'état de traces. Les restes de Caprinés sont des chevilles osseuses, des extrémités de pattes et des vertèbres de la queue, ceux qui se réfèrent aux Bovinés sont pour la plupart des chevilles osseuses (fig. 7a, 7b). Chez le Mouton, les individus âgés de 6 mois à deux ans sont privilégiés. Chez les Chèvres, la tranche d'âge recherchée est celle des individus périnataux à 6 mois. Ces observations conservent un caractère provisoire, la distinction entre Chèvre et Mouton n'ayant pas toujours été possible. Chez les Bovinés, 20 fois moins représentés que les Caprinés en phase 2A, ce sont des adultes, mâles et femelles, qui sont exploités.

Les amphores comptent 559 tessons en phase 2A. La quasi intégralité du lot associe des amphores à alun de Lipari (306) et des amphores à huile de Bétique Dr20 (201). Les autres vestiges relatifs à l'artisanat consistent en 200 fiches en fer, des galets portant des stigmates, des colorations et des lustres, ainsi qu'en déchets de tabletterie liés à l'exploitation des Bovinés. Enfin, des artefacts sont susceptibles de renseigner à la fois les voca-




Fig. 6 : a. (fig. 101) Tas de petites fiches en fer ; b. amphores de Lipari et Dr. 20, Ph. Borgard ; c. Les outils métalliques (1 : réglette de mesure en os, 2 : valet d'établi ; 3 : racloir ; 4 à 7 : poinçons ; 8 et 9 : aiguilles en os ; 10–11 : compas en fer et fer et alliage cuivreux).

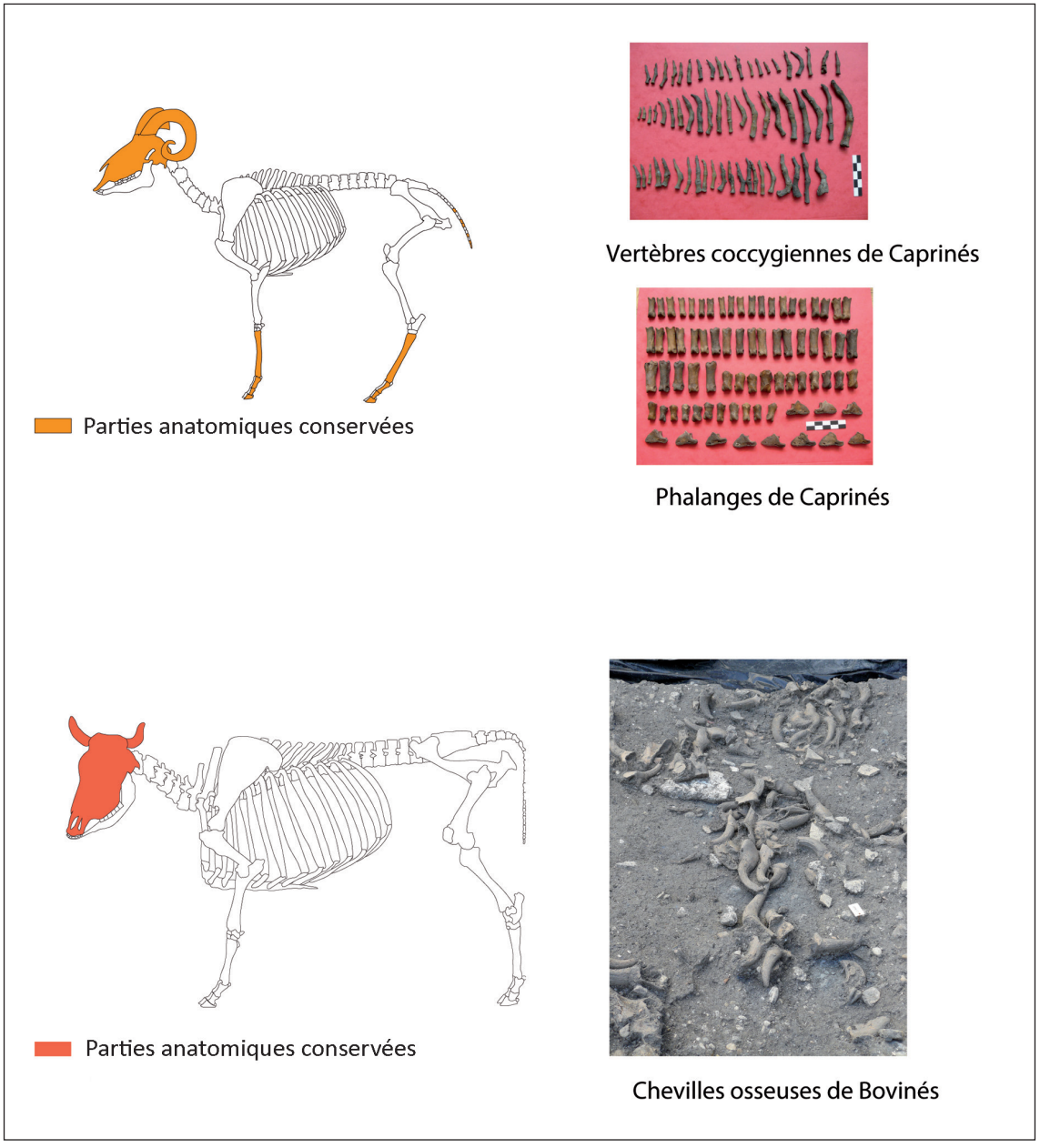



Fig. 7 : a. Les restes osseux de Caprinés ; b. Les restes osseux de Bovinés.




Fig. 8 : Les chutes de cuir: a, b et c. Les bordures ; d. La marque CERIC ; e. Les lanières ; f. Les chutes d'emporte-pièc ; g. Les chutes portant des coutures complexes ; h. Une sangle.

tions artisanale et domestique du site (trois pesons, un fuseau et sa fusaïole, un manche de couteau ou de rasoir, un stylet et une tablette à écriture en sapin).

Parmi les plantes identifiées,[15] nous pouvons mentionner la noix dont le brou est employé comme teinture ainsi que la très forte proportion de bryone, qui, d'après Dioscoride, était comme employée par les tanneurs pour faire tomber les poils des peaux.[16]

Durant la période 2B1, ce sont quasiment les mêmes déchets qui sont représentés, mais en quantité bien moindre. Ainsi, les restes de cuir représentent moins de 5% de la totalité de la collection. La distribution entre chutes de cuir primaires, secondaires et tertiaires demeure identique.

La faune regroupe 1.356 restes, dont près de 900 sont relatifs aux Caprinés. Encore une fois, les Moutons sont plus nombreux que les Chèvres. Les classes d'âge privilégiées sont les mêmes que précédemment, dans des proportions analogues. Après les Caprinés, les Bovinés rassemblent 251 restes. Ils sont mieux représentés qu'à l'état précédent. Le choix se porte vers des individus adultes.

Les amphores forment un lot deux fois moindre que celui de la phase 2A, avec 275 tessons. Lipari et Dr20 apparaissent encore largement en tête, avec respectivement 158 et 68 fragments, même si le taux de Dr20 à l'intérieur du lot s'amoindrit.

Les fiches en fer sont au nombre de 199. Huit outils métalliques ont été identifiés, dont deux poinçons, un racloir, un valet d'établi destiné à un travail de précision et deux compas (fig. 6c). Une aiguille à double chas en os complète les données, tout comme six galets portant des traces d'utilisation et/ou d'intervention humaine, dont un probable brunissoir. Trois pesons et une tablette à écriture en sapin ont une connotation à la fois domestique, économique et/ou artisanale. Le nombre de déchets de tabletterie (25) suit la progression des restes de Bovinés. Les Cervidés sont également exploités dans le cadre de cette activité. Des objets tournés sont produits. L'artisanat verrier est documenté par un fragment de verre brut importé, qui constitue à ce jour le plus ancien déchet de cette activité à Burdigala. Enfin, des fragments de tôle en bronze découpés évoquent le travail des alliages cuivreux. Pourraient-ils s'inscrire dans l'activité des artisans du cuir, la cordonnerie et la maroquinerie faisant en effet appel à de multiples accessoires métalliques : rivets et petits clous, boucles et appliques ?

Le mobilier des deux états les plus récents de la phase 2B est encore une fois largement dominé par les restes de faune (878), mais l'assemblage diffère. Les animaux les plus exploités sont désormais les Bovinés (622), loin devant les Caprinés (117), les Canidés (40), le Cheval (5) et les Cervidés (3). D'autres espèces animales sont présentes à l'état de traces.

Du point de vue des amphores, 399 tessons ont été inventoriés. Ils appartiennent pour 300 d'entre eux à des amphores à alun. Les amphores à huile ne comptent plus que 12 restes. De même, les fiches en fer n'apparaissent plus qu'à hauteur de 51 exemplaires. En parallèle à l'exploitation croissante des Bovinés, les déchets témoignant de la tabletterie augmentent de façon très significative (76). Quelques Cervidés font partie des animaux exploités, mais les Bovinés restent très largement majoritaires. Une plaquette

de tissage, une aiguille à chas, un pion et une plaquette ornée de cercles concentriques pourraient constituer des déchets de tabletterie, mais ils peuvent également s'apparenter à des objets artisanaux ou domestiques. Deux stylets et une tablette à écriture en sapin reflètent sans doute l'aspect économique des lieux. Deux pesons ont pu servir au tissage mais également à une mise en tension des peaux, ou comme lest. Aucun outil lithique ou en métal n'a été identifié. Les chutes de cuirs sont encore présentes, en quantité bien moindre mais avec une distribution conforme. Trois objets documentent l'artisanat verrier vraisemblablement établi à proximité du site.

## Conclusion

Le croisement des données permet de proposer une restitution de l'artisanat pratiqué sur le site : le traitement des peaux à l'alun et la manufacture d'objets en peau et cuir du milieu du Ier au milieu du IIe siècle.

De la phase 1 à la phase 2B1, une majorité de peaux de Moutons âgés de six mois à deux ans et de Chèvres dont la plupart a moins de deux mois arrivent probablement fraîches à l'atelier. L'assemblage de faune de la fouille est comparable à ceux mis au jour à Dijon, à Marseille[17] ou à Pompéi,[18] avec une surreprésentation d'animaux jeunes à très jeunes à Jean Fleuret.[19] Une similarité particulière existe avec le site contemporain de Sainte Anne, à Dijon, qui livre majoritairement des restes de Moutons adultes. La faune y est aussi associée à des fragments d'amphores de Lipari en proportion élevée, mais en quantité bien moindre qu'à Jean Fleuret.

En phase 1, le travail de rivière (raclage et échauffe) est sans doute pratiqué dans le bassin et peut-être finalisé dans le bâtiment, où une échauffe artificielle pouvait être démarrée. A partir de la phase 2A, des fossés jalonnent la parcelle. Ils remplacent le bassin pour le lavage et raclage des peaux.

A l'issue de cette étape, un traitement à base d'alun et de matière grasse végétale est effectué : imprégnation dans les cuves quadrangulaires du bâtiment, montée en température, ouverture des peaux et séchage grâce au foyer encaissé, trempage et foulonnage dans la longue cuve rectangulaire adjacente au bâtiment. Puis, les peaux sont foulées à l'eau claire, redressées et parées pour leur donner une épaisseur régulière et polies. Elles peuvent à ce moment être éventuellement teintées. Elles sont ensuite essorées, à nouveau graissées et mises en tension avec des fiches métalliques pour les faire sécher. Dans ce procédé, l'huile d'olive importée de Bétique est employée. Une partie des peaux peut avoir été traitée en pelleterie.

Le corroyage-finissage est enfin pratiqué par les artisans de l'atelier. Cette ultime étape d'apprêt des peaux concerne en parallèle des cuirs tannés végétalement appartenant probablement à des Chèvres adultes[20] (fig. 8). Les bordures et parties inutilisables des cuirs (pattes, cous, culées) sont éliminées en premier par les artisans (fig. 8a, b, c). Vingt-six portent des marques de tanneurs. Quatre noms répétés à plusieurs re-

prises évoquent l'importation d'au moins une partie de ces cuirs et/ou la cohabitation au sein d'une même tannerie, peut-être proche de Jean Fleuret, de plusieurs ouvriers qui marquent leur production (fig. 8d).[21] Les bordures montrent un semis régulier de trous sur leurs extrémités résultant de la fixation et de l'étirement (fig. 8a, à, c). D'autres chutes arborent des découpes liées à la mise en forme d'objets (fig. 8e). Leur analyse montre que les artisans produisent des coupons de cuir calibrés. Ils parent les peaux, de façon à les amincir au niveau des coutures et à conserver ainsi une épaisseur homogène à l'objet fini. De petits cercles en cuir débités à l'emporte-pièce montrent que des œillets ont été apposés (fig. 8f), des déchets fragmentaires portant des coutures perpendiculaires pourraient correspondre à des appliques employées comme renforts (fig. 8g). Des bandes de jonction avec coutures témoignent de l'assemblage des coupons entre eux. Enfin, des sangles ont été découvertes (fig. 8h). Sur le site Jean Fleuret, les peaux de chèvres adultes tannées servent donc de matière première à un grand objet composé de coupons assemblés : auvent, voile de bateaux, bateau, bâche de chariot, tente ?

Les objets confectionnés à partir de peaux de jeunes à très jeunes Caprinés traitées à l'alun restent quant à eux indéterminés en l'absence de restes.

Durant la dernière phase d'activité de l'atelier, Ce ne sont plus les Caprinés qui sont exploités en majorité, mais les Bovinés adultes. L'utilisation d'alun s'amplifie, probablement désormais associé à des graisses animales, ou des huiles végétales d'origine locale. Le corroyage-finissage semble également différer des traitements appliqués aux Caprinés. Aux artisans des peaux traitant les Bovinés s'associe le tabletier qui exploite les os longs et les cornes. Des objets en peau continuent à être assemblés, sans que l'on puisse déterminer si des cuirs tannés de Bovinés sont exploités par les artisans de l'atelier. Non loin de là, un atelier de verriers fait son apparition.

## Notes

[1] Inrap GSO

[2] L. Benquet : Inrap GSO ; E. Claud : Inrap GSO ; Ph. Borgard : CNRS ; K. Couchez : Archéologue indépendante, Gand. ; C. Fondeville : Inrap GSO ; P. Galibert : Inrap GSO ; V. Guitton : Inrap GO ; M. Leguilloux : Centre Archéologique du Var ; H. Martin : Inrap GSO ; V. Pasquet : Inrap GSO ; S. Raux : Inrap GO ; N. Saedlou : Xylotree ; F. Sellami : Inrap GSO ; L. Simon : Inrap GO ; C. Sireix : Bordeaux Métropole ; S. Vigier : Inrap GSO.

[3] Sur ce sujet, voir Van Driel-Murray 2011.

[4] Rappel élaboré à partir de Chahine 2002 et Leguilloux 2004. Les procédés de traitements des peaux mis en œuvre durant l'Antiquité sont sujets à discussion entre spécialistes : Wissa 2006, 287–290 ; van Driel-Murray 2011.

[5] Thomson 2011, 4.

[6] Van Driel-Murray 2011, 74.

[7] Van Driel-Murray 2002, 253.

[8] Van Driel-Murray 2002, 260–261 ; Lucien, Anacharsis, 24 ; cité par Leguilloux 2018, 54, n. 51.
[9] Van Driel-Murray 2002.
[10] Thomson 2011, 5.
[11] Chahine 2002, 23 ; Borgard et al. 2002, 235 ; Chahine 2005, 299–300.
[12] 3.13, cité par Borgard et al. 2002, 233 ; Borgard et al. 2002, 233–235 ; Chahine 2002, 23.
[13] Borgard et al. 2002.
[14] Les objets qui documentent la vie quotidienne tels que la céramique, les amphores vinaires et la faune de consommation ne seront pas énumérés ici dans cet article. En ce qui concerne ces artefacts, se référer à Elizagoyen 2018.
[15] Allenet 2018 ; Dietsch-Sellami 2018.
[16] Empeloleuce, « vigne blanche », cité par James 1746–1748. 1127–1128 ; utilisation par les corroyeurs aussi mentionnée par Pline XXIII, XVI, 2.
[17] Leguilloux 1998, 239–241.
[18] Leguilloux 2002 ; Botte 2005.
[19] Elizagoyen 2018, 99.
[20] En particulier les lanières résultant de découpes de réglages employées pour m'étirement des cuirs et des peaux. Elizagoyen 2018 ; Mould 2011, 36.
[21] Baratta 2008, 8.

## Crédits image

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# Economies of Scale: Late-Antique Bakeries outside Large Urban Centers

**Jared T. Benton**

The study of Roman bakeries sometimes has a tendency to treat them as somewhat different from other crafts and trades in terms of the scale of their production. Helmuth Schneider, for example, posits that Roman workshops "were not elaborately fitted out and it was quite cheap to set up a workshop; a craftsman usually needed only a few tools for his craft and often practiced it in a shop connected with his living quarters. There were some crafts, however, which were dependent on bigger production sites with more expensive equipment: bakeries had their ovens and mills… Bakers and fullers in particular were sometimes quite well-off: the baker Eurysaces, for example, was able to have erected for himself a pretentious monument at the Porta Maggiore in Rome."[1] Commercial baking is often grouped with fulling as investment heavy industries with undifferentiated product and inelastic demand, allowing for a form of industrialization not evident crafts of other sorts.[2] This understanding of the baking industry has largely been grounded in the material remains of bakeries from central Italy, which are well outfitted with elaborate masonry ovens and large imported millstones. But the idea of the high-production bakery, unique among Roman crafts, is really grounded in the evidence from Ostia where massive installations were capable of milling vast sums of grain and of baking huge numbers of loaves. Pompeian or Ostian bakeries are sometimes even used as a template for commercial baking at other sites, where the evidence is less well preserved,[3] but the bakeries elsewhere, even those at Pompeii, are much smaller installations often with much less infrastructure. Such myopia in our examinations has had the effect of placing undue emphasis on economic growth leading into the first few centuries of the Common Era and exagerating any collapse at the end of antiquity, giving the impression of a shift from near-industrialization and high product dependence to modest production hardly distinguishable from domestic activities.[4] An expanded examination of the Roman baking industry from urban centers around the Mediterranean indicates that most bakeries were small workshops producing on a modest scale, rather than massive bread factories with close ties to the State. A reconceptualization of late antique bakeries, and workshops in general, as relatively small spaces grounded the Roman *familia* is consistent with observations about Roman bakeries in earlier periods,[5] but also matches the types of commercial baking activities we see in the Middle Ages.[6] Such consistency suggests that we should view the nature of commercial activity at the end of antiquity as an evolution, rather than an interruption or disastrous collapse. On the other hand, there is good evidence for a shift in the localization of bakeries, away from urban centers and centered instead on the grounds of churches and monasteries.

The emphasis on large bakeries with close relationship with the State is not without some corroboration, especially from the Roman jurists and from the material remains

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at Ostia Antica. But that evidence has been over-emphasized, largely driven by three narrative strains within the study of Roman history, of the Roman economy, and of Roman bakeries in particular: first, the role of bakers and bakeries in the provisioning of large urban centers; second, an archaeological focus on material evidence from the central Italian cities of Pompeii and Ostia; and third, most recently, an effort to isolate and understand economic growth and 'industrialization.'

## Provisioning Rome

Provisioning of Rome is a very old and familiar topic, from the importance of Sicily and Egypt to Rome's food supply to the annonae or doles, free distributions of grain (and later bread) to the citizens of Rome.[7] The narrative is that the Roman state, and in particular the Emperor, was very much concerned with provisioning the capital city to prevent riots and reinforce his image as a capable ruler. Paul Erdkamp writes, "The most direct way to intervene in the grain and bread supply of the Roman populace was to control the activities of the bakers."[8] Within this narrative, the Emperor ensured the provisioning of Rome at first by incentivizing increased productivity through concessions to bakers and later by establishing state-run bakeries.[9]

The evidence for the relationship between the baking industry and the state is largely grounded in literary and legal evidence concerning the policies of Roman emperors and the state toward bakers and bakeries. Aurelius Victor records that Trajan re-formed and strengthened the *collegium pistorum,* probably before AD 107.[10]

> *"Adhunc a Domitiano coepta, forum atque alia multa plus quam magnifice coluit ornavitque, et annonae perpetuo mire consultum, reperto firmatoque pistorum collegio: simil noscendis ocius, quae ubique e re publica gerebantur; admota media publici cursus."*[11]

> "Furthermore at Rome he improved and decorated in a more than magnificent fashion a forum and many other structures begun by Domitian, and showed admirable concern for the permanent grain supply by reviving and strengthening the guild of bakers."[12]

Aurelius Victor is specific about Trajan's motivations; his concern was for the permanent grain supply of the city. There are other instances of Trajan showing care toward the provisioning of the city and directly intervening with the baking industry. Gaiaus records that the emperor proclaimed that any Junian Latin assuming the responsibility for a *pistrinum* milling at least 100 *modii* for no less than three years would hence forth have rights as expressed by the *ius Quiritium.*[13]

> *"Denique Traianus constituit, ut si Latinus in urbe triennio pistrinum exercuerit, in quo in dies singulos non minus quam centenos modios frumenti pinseret, ad ius Quiritium perveniat."*[14]
>
> "Lastly, Trajan enacted that if a Latin carry on the business of miller in Rome for three years, and grinds each day not less than a hundred measures of wheat, he shall attain Roman citizenship."[15]

Another, recorded in the Fragmenta Vaticana, grants an *excusatio tutelae* (exemption from the duty of guardianship) to members of the *collegium pistorum* provided they operated a bakery of a hundred unspecified units.

> *"Ulpianus de officio praetoris tutelaris. Sed qui in collegio pistorum sunt a tutelis excusantur, si modo per semet ipsos pistrinum exerceant; sed non alios puto excusandos, quam intra numerum constituti centenarium pistrinum secundum litteras divi Traiani ad Sulpicium Similem exerceant; quae omnia litteris praefecti annonae significanda sunt."*[16]
>
> "Ulpian, in his commentary on the (official) function of the *praetor tutelaris.* Yet those in the *collegium pistorum* are exempted from guardianship if they themselves operate a *pistrinum,* but I believe that no others can be released apart from those among their number who operate a hundreder *pistrinum* in accordance with the letter of the late Trajan to Sulpicius Similis. And all these matters are given in the letter (to) the Prefect of the Annona."[17]

The word *centenarium* is sometimes taken to mean a bakery worth 100,000 *sestertii,*[18] but within the context of Gaius' explanation concerning the hundred *modii* of grain milled a day, one prefers to view it in that light. This is an important point. Trajan is not merely intervening in the baking industry, he is doing so with the goal of incentivizing increased production. A small bakery run as a side hustle would not suffice. One must operate a large bakery helping to meet the needs of the city in order to enjoy the concessions on offer by the Emperor. The social incentives might also offset desire for profits, keeping the price of bread down.

Hadrian and Caracalla make similar sorts of interventions in the Roman baking industry seemingly with an interest in incentivizing higher productivity.[19] Later, Aurelian is said to have converted the dole from grain to bread in AD 275.[20] In the fifth century, Socrates Scholasticus describes massive underground bake-houses which were run by men referred to as *mancipes,* who purportedly used prostitutes to lure unsuspecting strangers into above-ground *tabernae* and then, by means of a trapdoor, enslaved the strangers to work in the mills.[21] The story forms part of a larger narrative about

the purging of sin and iniquity from Rome by the Emperor Theodosius, including a banning of penal prostitution.[22]

Socrates' story is probably apocryphal, but it does fit within a broader habit of Roman emperors seemingly intervening in the Roman commercial baking industry with an apparent eye toward ensuring the provisioning of the city. On the other hand, it is not entirely clear that the intention of the Roman emperors was to compel increased production, particularly where the concessions of Trajan, Hadrian, and Caracalla are concerned. Our understanding of such interventions by emperors hinges on the assumption that Junian Latins would have found the lure of full citizenship appealing enough that they would have maintained a massive bakery.[23] Moreover, Henrik Mouritsen has observed that such measures, particularly where freedmen are concerned, can actually be intended as a buffer to social mobility rather than a sincere effort at modifying social or economic habits.[24]

## Pompeii and Ostia

Even if the intention of certain emperors was more about buffering citizenship rather than incentivizing production, the levels of production, milling 100 *modii* a day, suggest massive production levels. Indeed, the material evidence from Ostia and Rome does attest to high levels of productivity and production within individual bakeries. Although no bakehouses *in Rome* have been preserved in their entirety, we do have some indications of large-scale production. Just outside the Porta Maggiore, the Tomb of the Baker, Eurysaces, has a frieze across the top that famously depicts the production of bread. Although an idealized, fictionalized depiction of the operation of a bakery, it represents large-scale production on par with the obvious wealth needed to produce such a monument. Furthermore, Eurysaces' title within his profession, *pistor* and *redemptor,* indicates he was some kind of contract baker, possibly working for the state or the army, though he does not specify for whom he contracted. Throughout the frieze, not only does one see large scale production, but also accountants tallying bags of grain as they enter the scene and weighing bread as it leaves. One wants to see these accountants as agents of the state, but they are not labelled and the tomb is hard to interpret in general.

At Ostia, on the other hand, there are more comprehensive remains of the bakeries, studied and published by Jan Theo Bakker.[25] The late second- and third-century bakeries in the city are massive in size and in the scale of their production (fig. 1). Bakker identifies eight bakeries, some small with a single oven and others massive with as many as eight millstones and as many mixers. But even in the small one-oven bakeries, the diameters of the ovens are much larger than any of the ovens at Pompeii, some over five meters in average diameter. The Ostian bread factories differ from the bakeries of Pompeii in some significant ways. They are larger; there are no indications of domesticity

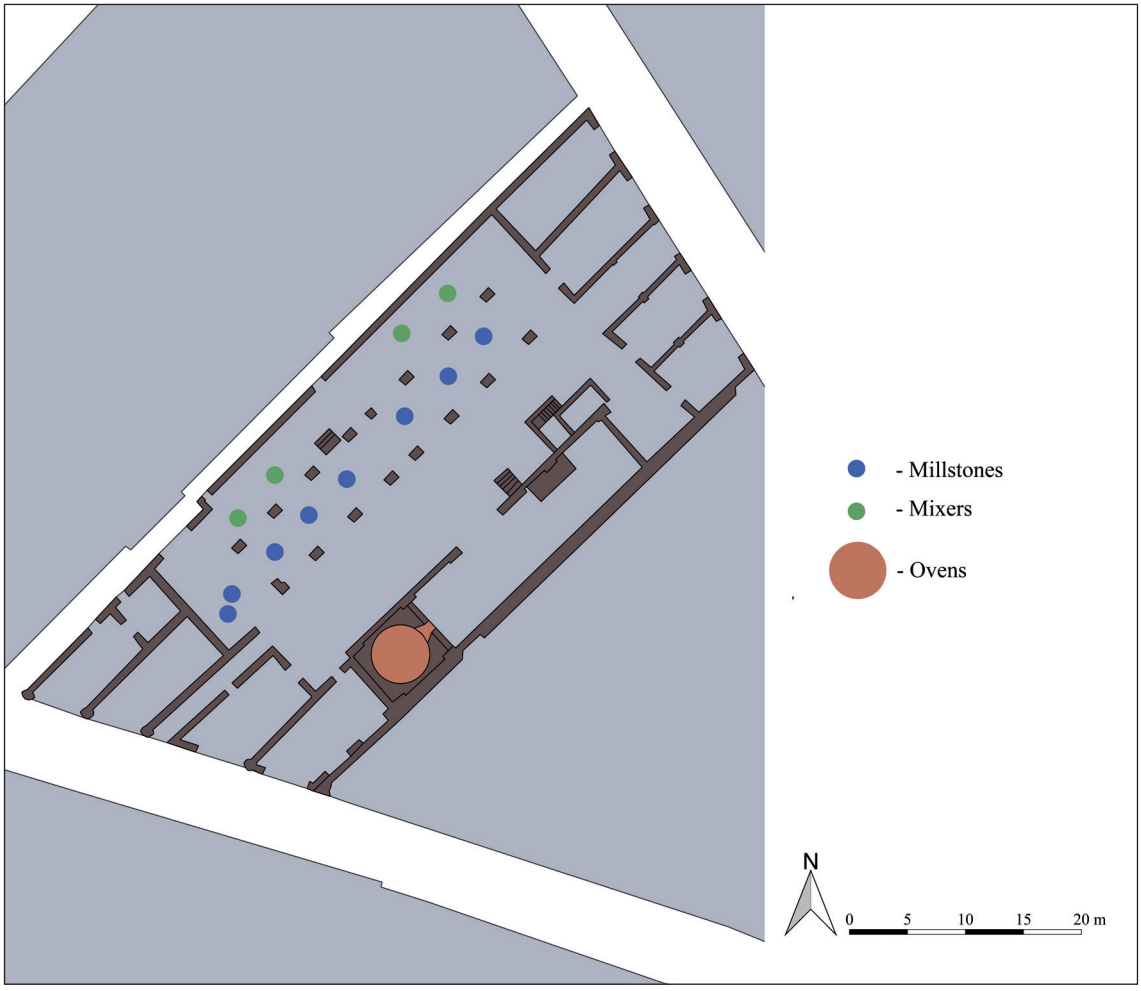



Fig. 1: The Molino from Ostia, I.13.4.

such as wall decorations, lararia, or other usual domestic architectural forms. This is not to say that no one could have lived in the bakeries, but it does contrast starkly with the close relationship almost universally evident throughout Pompeii between production and domesticity. Where the Ostian bakeries have as many as eight millstones, the Pompeian bakeries never have more than four and they are much smaller. The average oven diameter in Pompeii is just over 2 meters; the average diameter of the Ostian ovens, on the other hand, is about 5 meters.

## Economic Growth

One is tempted, as Emanual Mayer has done, to create a linear, developmental trajectory from Pompeii and Ostia, a trajectory of increasing levels of production and productivity.[26] Such an emphasis on high levels of production and product dependence at the end of Antiquity contrasts starkly with our evidence for production in the Middle Ages, disproportionally emphasizing decline or discontinuity. In fact, the high levels of specialization and product dependence insinuated by the massive bread factories of Ostia and the narrative of state intervention in baking industry have been used as evidence for the severity of collapse at the end of antiquity, most notably by Brian Ward Perkins.[27] But it is not entirely clear that we should accept this narrative of increasing production and productivity or that specialization should necessarily exacerbate collapse. Would the baking industry of Pompeii have developed into something akin to that of Ostia if the city had been allowed to survive another 200 years? I think we all suspect not; Ostia had some unique attributes that Pompeii did not, not the least of which was its special relationship with the Empire's capital, but also its much larger population.

In fact, Ostia and Pompeii loom large in the study of Roman industries and Roman studies in general. To some extent, this is a bias of preservation. The evidence – from workshops to baths – are better preserved at these sites than almost anywhere else in the Roman world. On the other hand, there is also a bias in study. We, our discipline, have chosen to focus on central Italy not only because the cities there are well preserved, but also because of the cachet they hold through their proximity to Rome itself and the narratives of life, destruction, and rediscovery. More recently, a search to understand growth in the ancient economy has shifted to a gathering of proxy data more broadly throughout the Empire.[28]

Even if the discipline has moved past a focus on the central Italian sites, their superior preservation, combined with the myopic search for economic growth, results in a false narrative of increased production Empire wide. For example, millstones are a subject of regular study and even if the old linear technological progress charts have been abandoned, the regular use of proxy data derived from such technologies creates a similar type of linear trajectory of increasing productivity through technological innovation. Comparisons of millstones from Morgantina (3rd century BC), Pompeii (1st century AD), and Ostia (2nd–3rd centuries AD) indicate that innovation in millstone technology was occurring and that such innovation was likely driven by demand for devices that could offer increased productivity (fig. 2). Similarly, the oven technology, although very understudied, reveals a similar trajectory of increasing productivity (fig. 3). Ovens at Morgantina in the third and second centuries BC are never more than 0,75 m in average diameter and they are constructed out of reused bricks, tiles, and pottery. The masonry ovens of Pompeii are about 2 m in average diameter. The massive ovens at Ostia average of ca. 4 m.[29]

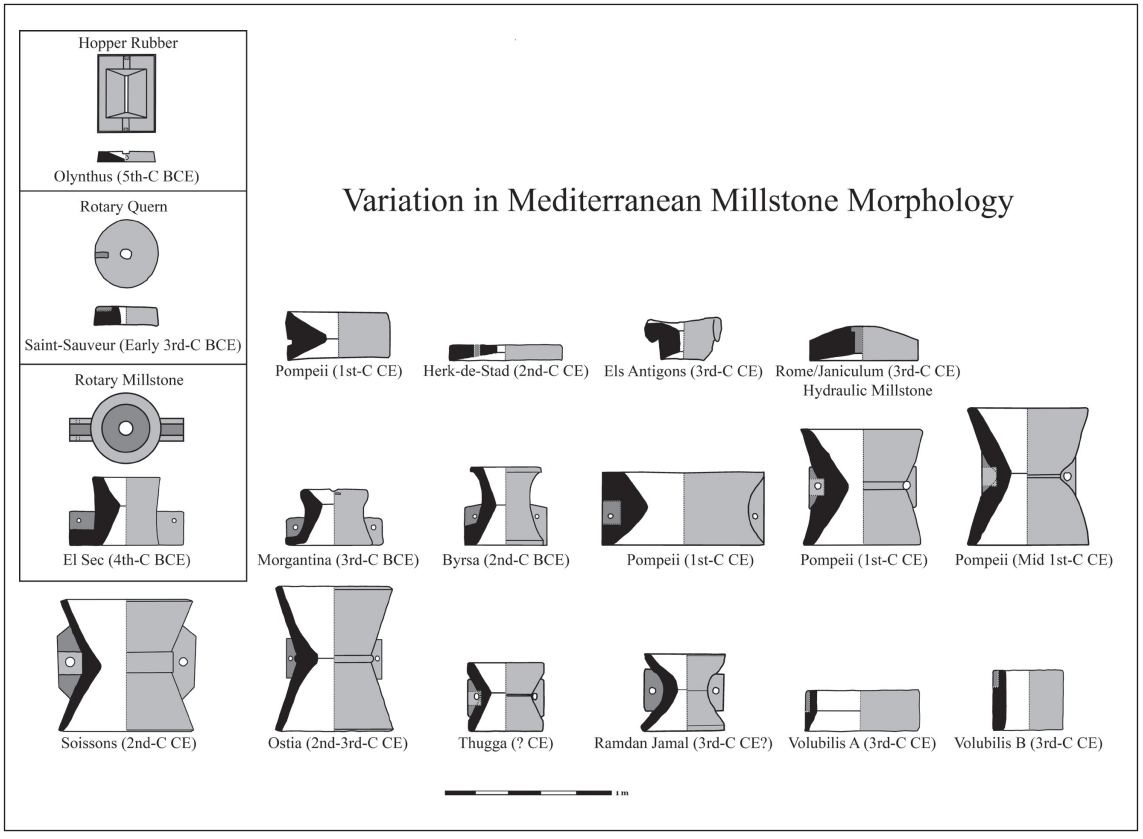



Fig. 2: Variation in Mediterranean Millstone Morphology.

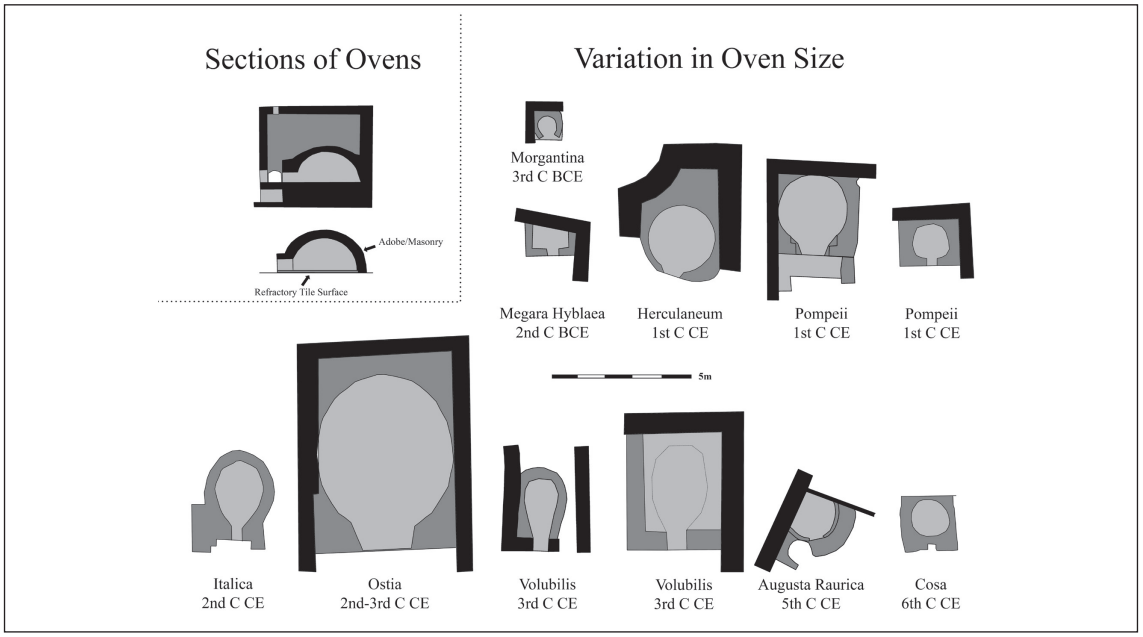



Fig. 3: Variation in Masonry Ovens.

## An Expansive Approach

Even if there was technological innovation driven by demand for increased productivity, not all areas experienced technological innovation the same way, especially in the Roman world.[30] Furthermore, locations that do benefit from such technological innovation are often also the best-preserved sites due to the very infrastructural advantages that allowed them to benefit from innovation. As such, bias is introduced to proxy data through the lacunae of unpreserved or poorly-preserved evidence, even without a deliberate focus on Rome and its environs. This is especially true for commercial baking, which is achieved in Ostia and Pompeii with elaborate masonry ovens so similar that they invoke the notion of sub-industries specializing in commercial oven construction.

Other sites do not share this preservation or infrastructure. Some of our best evidence for Roman bakeries exists in the bakeries of Volubilis, a Roman city in North Central Morocco.[31] The bakeries there largely date to the third – and possibly the early fourth – century AD. Bakeries in the NE quarter were initially identified by Robert Etienne and they were preliminarily studied by Mathieu Leduc, focusing mostly on their distribution throughout the city and on the capacity of kneaders. Production in Volubilis bakeries appears closer in scale to that of Pompeii than that of Ostia and, if anything, was probably somewhat lesser. Although the annular millstones in the bakeries are relatively portable compared to the hour-glass Pompeian and Ostian millstones, there are never more than two in a bakery.

Moreover, unlike the massive 5-meter diameter ovens of Ostia, the bakeries in Volubilis are 1,5 to 2,0 meters in diameter, more akin to ovens of Pompeii. The bakeries of Volubilis, however, are far from carbon copies of those of Pompeii. The ovens of Pompeii are remarkably homogenous, which suggests a close relationship with construction contractors or workshops of some sort. They consist of well-built masonry that integrates with the buildings around them. This is less true of Volubilis where the remains of the ovens are sometimes just refractory tiles on the floor with what one imagines was an adobe dome above.

Further evidence comes from Augusta Raurica in Northwest Switzerland. A number of ovens cluster just west of the theater, including a remarkably intact baking oven. The oven and its building were discovered in 1966 and were uniquely preserved by a collapse of an upper story sometime in the fourth century AD. Sandra Ammann and her colleagues, after careful analysis of the legacy data of the excavation, hypothesize that the building produced bread, but that the presence of other faunal remains and seemingly domestic items such as mirrors, indicate that the building may well have been bakery, but was *also* an inn.[32] Confirmation of such a hypothesis would be difficult and one could easily interpret the evidence another way: that the domestic items and dining detritus are not indicative of an inn, but an integration of domestic and commercial habits.

Several sixth-century bread ovens (fig. 4) were found in the area of the basilica at Cosa by the team led by Lisa Fentress. The ovens range from 1 and a half to 2 meters in

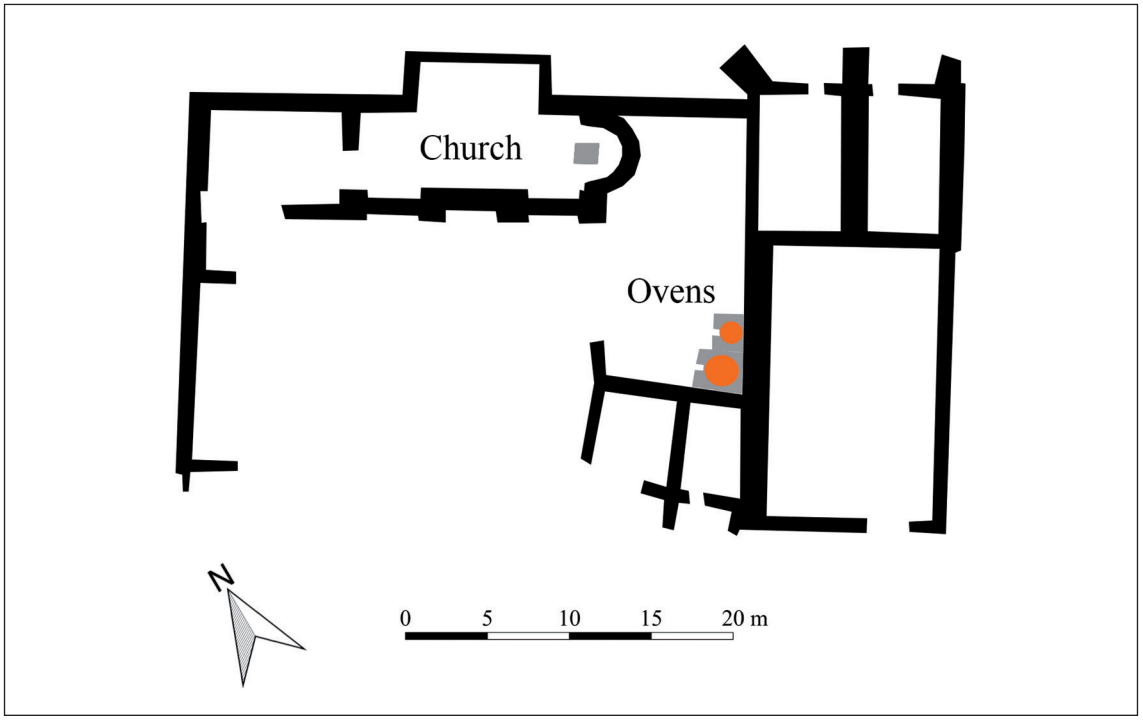



Fig. 4: Late-Antique Ovens in the Church Grounds at Cosa.

diameter, matching the more modest oven sizes at Volubilis and Augusta Raurica. But the nature of the production to which the ovens contributed remains unclear. There are no millstones or other bread-producing technologies, as far as I know, associated with the ovens and their location within the built environment is unique as part of a repurposed public space. They are possibly communal ovens, but they hold a closer relationship with the church in Cosa than they do with houses as was formerly the case.

In fact, there is some good evidence that the focal point – the architectural context – of Roman baking shifts in late antiquity from the Roman city and the household to the church and monastic space. A sixth-century contract from Oxyrhynchus attests the lease of a bakery located in a monastery by a noble woman named Serena to two "bakers and master-millers."[33] The contract indicates that the bakery contained three ovens and two millstones. Three ovens could be interpreted as large-scale production, but we do not know their size and the facilities at both Augusta Raurica and Cosa contained more than one small oven. It also seems unlikely that the bakery's production – and thus also profits – were relatively high considering that the miller-bakers paid their rent – at least in part – with eggs and chickens.

In conclusion, if we set aside the evidence (both archaeological and juridical) from Rome and Ostia as unique and not representative of the western Mediterranean region at large, and focus instead on the evidence from other sites, we see a less dramatic difference, even including Pompeii as just another typical Roman town. Where the evi-

dence from Ostia and Rome served to highlight the challenges of late antiquity and the early Middle Ages, average oven diameters by century, excluding the exceptional data from Ostia, suggest a more gradual decline and greater continuity albeit with qualitatively worse construction leading into the fifth and sixth centuries. Finally, we also see a transition occurring in the sixth century with baking shifting from cities and houses to churches and monasteries. Such a transition remains evident in the Middle Ages for which we have ample evidence of baking in monastic settings such as the bakeries on the plan of St. Gall. Admittedly, the evidence is sparse and sometimes difficult to interpret, but my hope is to offer a narrative that better represents the evidence of a broader geographical area and also challenges the view that the existence of specialization and specialists (such as bakers) only exacerbated collapse. In fact, the evidence presented here underscores some continuity from Antiquity to the Middle Ages, even as fundamental shifts were underway.

## Notes

[1] Schneider 2007, 169.

[2] Hawkins 2016, 93.

[3] Broekaert – Zuiderhoek 2013, 323; Mauné et al. 2013; Bustamante Álvarez et al. 2014, 15–19.

[4] Ward Perkins 2005, 102–121.

[5] Flohr 2013; Monteix 2016; Murphy 2016; Ellis 2018.

[6] Reith 2008, 128.

[7] Rickman 1980; Garnsey 1989; Sirks 1991; Erdkamp 2005.

[8] Erdkamp 2005, 252.

[9] Sirks 1991, 406.

[10] The letter mentioned in FV 233 is to Sulpicius Similis, who ceased to be Prefect of the Annona in 107 AD. D'Escurac 1976, 334. Sirks 1991, 315.

[11] Aurelius Victor *de Caes.* 13.5.

[12] Trans. Bird 1994, 15.

[13] A precedent for Trajan's concession occurred during the principate of Claudius, who gave concessions to those who built merchant ships (*naves mercaturae*), each according to their status. He gave Roman citizens a *vacatio* from the *lex Papia Poppaea,* which prevented low-born Roman citizens from marrying into the Senate or equites. Clausius gave to Junian Latins protection under the *ius Quiritium,* the law protecting the rights of citizens. And to women, reprieve from the *ius quattuor liberorum.* Suetonius, *De Claris Rhetoribus,* 18.4,19.

[14] Gaius Inst. 1.34.

[15] Trans. Poste 1894, 52.

[16] Frag. Vat. 233.

[17] Trans. Sirks 1991, 315 with the exception of *centenarium,* which was translated separately by author.

[18] This interpretation predates Sirks' translation.

[19] FV 234 and FV 235. The fragment records that Trajan's concessions concerning guardianship did not extend to the *collegium pistorum* at Ostia. Yet Sirks notes that fragment 234 is conspicuously positioned between Trajan's allowance and Caracalla's limitation of it. Sirks 1991, 6.58.305.
[20] Watson 1985, 138–39.
[21] Socrates HE 5.18.
[22] McGinn 2004, 28–29; also Bond 2016, 145; makes the case that mills were places impugned as places of prostitution because they were places where the sexes met. This is largely constructed from the sixth century passage from the HE and from Plautus' third-century use of the word *alicariae,* mill-girls, to refer to a specific group of prostitutes.
[23] Garnsey 1999.
[24] Mouritsen 2011, 281.
[25] Bakker 1999.
[26] Mayer 2014, 25.
[27] Ward Perkins 2005, 102–121.
[28] Bowman – Wilson 2009.
[29] The ovens also have interesting lines clearly worn into the stones that form the base of the oven dome. Bakker hypothesizes that a sort of turn wheel might have made the wear marks, but they exist at two levels and all of the ovens are ovoid, making it impossible for the ovens to have an internal rotation element. I hypothesize that the wear marks were actually made by trays which were inserted and manipulated by long poles. The Caseggiato dei Molini has cavities in the wall behind the oven, which Bakker identified as vents or for the passage of goods, which may be true, but the space is too narrow for poles to be used unless there was a way to extend them through the wall behind the oven operator and the apertures in the wall are angled to aim at the oven. Such sophistication in technology and procedure indicates the extent to which desire for increased productivity was driving innovation in these areas.
[30] Humphrey 2006; Schneider 2007; Cuomo 2007.
[31] Leduc 2008; Leduc 2011; Benton 2020.
[32] Ammann et al. 2011, 275–318.
[33] P.Oxy. 1890.

## Image Credits

Fig. 1: Bakker 1999, fig. 19. – Fig. 2, 3: by author – Fig. 4: Fentress 2003, fig. 27.

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**Session 6** | Consumption
**Session 7** | Economy of Cult
**Session 8** | The Role of the City

Economic aspects permeate all areas of public and private life in ancient societies, whether in urban development, religion, art, housing, or in death. Research on ancient economies has long played a significant role in ancient history. Increasingly in the last decades, awareness has grown in archaeology that the material culture of ancient societies offers excellent opportunities for studying the structure, performance, and dynamics of ancient economic systems and economic processes. Therefore, the main objective of this congress was to understand economy as a central element of classical societies and to analyse its interaction with ecological, political, social, religious, and cultural backgrounds. The theme of the congress was addressed to all disciplines that deal with Greco-Roman civilization and their neighbouring cultures from the Aegean Bronze Age to the end of Late Antiquity.
This collective volume contains single contributions from sessions 6, 7 and 8, which discuss questions about consumption and investment in everyday life, sanctuaries and urban contexts, as well as questions about the role of the city in the ancient economy.

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