

Archaeology and Economy in the Ancient World



42

Shops, Workshops and Urban Economic History in the Roman World

Panel 8.3

Miko Flohr
Nicolas Monteix (Eds.)

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Edited by

Martin Bentz and Michael Heinzelmann

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PREFACE

On behalf of the 'Associazione Internazionale di Archaeologica 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 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 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 is in two stages: larger panels are initially presented as independent volumes, such as this publication. Finally, at the end of the editing process, all contributions will be published in a joint conference volume.

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 were involved in the editing and printing process.

Bonn/Cologne, in August 2019

Martin Bentz & Michael Heinzelmann

Commerce and Architecture in Late Hellenistic Italy: the Emergence of the Taberna Row

Miko Flohr

One recent development in the study of Roman crafts and retail is that there seems to be a slight shift away from studying the actual work installations towards studying the architectural environments within which these were situated.¹ This development seems to offer a number of opportunities. One of these is that, while comparative approaches to actual work installations or retail practices are often highly complex if not impossible, the study of the architectural and spatial contexts in which they were situated makes it considerably more straightforward for scholars working in varying geographical and chronological contexts to actually confront each other's observations. Moreover, an increasing focus on the place of work in the built environment also makes it easier to engage in debates with scholars working on other topics: more than anything else it is architecture that connects the study of crafts and retail to broader debates about Roman urban communities. It needs no arguing that this is important: not only were there many people spending their working days in shops and workshops, in many places, these people also were, in a physical way, very central to the urban communities, in which they lived, and could be a defining part of the urban atmosphere – particularly in Roman Italy, but to some extent also elsewhere in the Roman world.

This article aims to push the role of architecture in debates about urban crafts and retail a little bit further, and brings up the issue of how these architectural contexts changed over time, and how this is to be understood economically. As Steven Ellis has recently argued, this requires a bit of caution: even if we want to think of the construction of shops and workshops as 'investment', we should be wary of uncritical 'economistic' interpretations of these processes as ancient realities may have been more complex.² Nevertheless, several developments in Roman architecture and urbanism seem to highlight the flipside of the coin, namely that we also should be wary of too easily dismissing profit as the leading motivation behind certain categories of building projects. Put more strongly: this article argues that one key development in the history of retail and manufacturing in the Roman world lies precisely in the emergence of several architectural forms that seem directly rooted in the desire to invest commercially for profit's sake. If it is true that, to some extent, we may still think of crafts and manufacturing as 'embedded' in social structures and cultural norms – one can for example think of the continuing scholarly emphasis on the role of freedmen in business apparent from the work of Mouritsen and Broekaert – it is precisely their gradual *dis*-embedding that is the historically unique development of the era.³ The emergence of commercial elements in architecture, and of truly commercial building types, illustrates how crafts and retail increasingly became a socio-cultural sphere of their own.

The Commercialization of Roman Architecture

In terms of evidence, this article focuses on the early history of one specific building type, which is here referred to as the 'taberna row', and which emerged in the Italian peninsula in the second century BC. The core argument will be particularly focusing on one urban context – Pompeii – but it makes sense to briefly sketch the broader architectural landscape of manufacturing and retail as far as Roman Italy is concerned. This cannot be done without acknowledging that a great deal of commerce was taking place in architectural contexts not primarily designed for this specific purpose: the evidence from Pompeii and Herculaneum leaves little doubt that Roman architectural practice was flexible enough to accommodate the construction of workshops (and shops) in places that had been used otherwise earlier on, particularly inside houses.⁴ At the same time, there emerged, probably in the third century BC, a novel architectural form that was intrinsically commercial in nature – the taberna, which, defined by its wide opening, was designed to facilitate interaction between producer and retailer on the one hand and the outside public on the other. As they emerged, tabernae were typically constructed either in long rows around fora, or in small numbers around the entrance corridor of private houses.

This emergence of the taberna represented a major shift in the structure of Roman urban economies, and it marks the first step in the development of an unprecedentedly rich commercial architectural vocabulary, which, at least in Italy, from the second century BC onwards, began to include more complex architectural scenarios: tabernae began to be included in a much wider variety of building types, and were increasingly constructed in larger numbers. Additionally, a number of commercial building types began to emerge. In its fully developed form, the Roman commercial architectural vocabulary consisted of four building types; two of these are commonly recognized in scholarship; two have often been overlooked. Well known and (relatively) well studied are storage buildings (horrea) and market-buildings, particularly the macella.⁵ These two building types also emerged in the second and first century BC: not much earlier, and certainly not later. A third building type that came to play a (modest) role in Roman commercial architecture was the large, covered, purpose-built production hall. This was the closest that the Roman world came to something resembling a factory building. It seems to present a later and more modest development: a couple of examples of such 'production halls' can be found at Ostia; the earliest goes back to the first century AD.⁶ There may have been more examples at Rome, but elsewhere in Italy, these buildings remain mostly off the archaeological radar. Nevertheless, the production hall is relevant for its sheer existence.

The fourth commercial building type that emerged was the taberna row. As its name suggests, these buildings consisted, in their most basic form, of a simple row of tabernae. It could be longer or shorter in length and include a larger or a smaller number of tabernae, which could be smaller or larger in size and might include one or more back rooms, or none



Fig. 1: Plan of Pompeii indicating the location of the four taberna rows discussed in this article.

at all; occasionally, taberna rows also could include separate staircases to an upper floor level with one or more apartments, and the complex may or may not have been equipped with a porticus in front of it. However, as a matter of principle, the taberna row was an independent building simply consisting of tabernae and nothing else.

To some extent, many of these buildings looked remarkably like the rows of tabernae that were already being constructed alongside fora. This practice had begun in the third century, in cities like Pompeii and Paestum and had increased in the early second century BC, at least partially through initiatives of the Roman state.⁷ Still, the taberna row discussed in this article must be seen as a distinct phenomenon that, even if it may have been inspired by the rows of tabernae alongside fora, came from a different socio-economic background. One important distinction lies in the context, in which these taberna rows emerged: whereas it is clear that tabernae along fora were a public phenomenon – they were built by the authorities, and, as Vitruvius emphasizes, returned money to the authorities in the form of vectigalia – this is less obviously in the case of the taberna rows, which are not generally found in places strongly associated with public landownership.⁸

The taberna Rows of Pompeii

The earliest excavated taberna rows can be found at Pompeii. It makes sense to discuss some of these to a bit more detail to understand (a) what these buildings looked like, and (b) in which contexts they were constructed. Four examples will be discussed; their locations are highlighted on fig. 1. in the AD 79 situation. They include the so-called ‘Commercial



Fig. 2: Typical wall of opus incertum with lava and limestone (*taberna* VIII 5, 20).

Triangle’ at the south end of insula VI 1, situated along the Via Consolare between the Herculaneum gate and the forum, the northeast section of insula VII 12 alongside the Via degli Augustali, one of the central thoroughfares of the city, the building that included tabernae VIII 5, 19–23 along the Via dell’Abbondanza, between the forum and the Stabian Baths, and the commercial complex along the east side of insula VII 6, close to the forum, which included a row of tabernae along the Vicolo delle Terme.

The dating of these early taberna rows is mostly uncontroversial. Only one has been stratigraphically dated, but the chronological proximity of the others is suggested by the building materials and techniques used for their construction. All four complexes have an ornamental façade of tufa ashlar combined with walls in opus incertum of which the lower part consists of local gray lava, and the upper part of a local limestone (fig. 2). Quoins and posts were reinforced by large rectangular blocks of limestone. While there has been debate among Pompeian scholars about the date of façades with tufa ashlar, the opus incertum used is, throughout Pompeii, commonly associated with first-style wall-decoration and disappears around the period when the second style emerges.⁹ In other words: the four tabernae rows discussed here belong to Samnite Pompeii’s ‘golden century’ between 150 and 80 BC, and thus antedate the formal incorporation of Pompeii into the Roman Republic after the Civil War.

The best known of these four buildings is the so-called ‘Commercial Triangle’ in insula VI 1, which has been intensively studied in the context of the Anglo-American Pompeii



Fig. 3: Pompeii, tabernae VI 1, 13–18.

project (fig. 3).¹⁰ It occupies the triangular south end of an irregularly shaped city block and consists of four shops that seem to have been conceived according to a similar plan, with a main front room and a back area consisting of one or more rooms, and a connection to the back of the building, which initially may have been left uncovered. The rationale for this building, at first sight, seems straightforward: the location was unfit for the construction of houses, so it was used by someone to construct a row of shops. Reality, however, may have been a bit more complex: there were a number of similarly triangular plots in Pompeii, and none was used in this way.¹¹

The taberna row in insula VII 12 was a bit longer, but it falls in to several parts that do not need to have been contemporary; the longest section covers the five tabernae VII 12, 10–14 (fig. 4).¹² The design of these tabernae is remarkably similar to those of in insula VI 1: each had a large main room with behind it a secondary room and a corridor, which connected the main room to a back area, which initially seems to have been left open. Here, the choice to construct a taberna row was less obvious: the area easily could have been used for the construction of two or three medium-sized atrium houses with a backyard – as happened at the west end of the city block (house VII 12, 1–4).

The third complex, along the Via dell'Abbondanza, bears very close resemblance to the other two in its design (fig. 5). It included five tabernae (VIII 5, 19–23). Each had a main room and a back room and, it seems, initially a corridor with a connection to a small, possibly open, back area. Like in insula VII 12, these tabernae were constructed



Fig. 4: Pompeii, tabernae VII 12, 10–14.

on a location that could have been used for at least one big atrium house. This is clearly suggested by the surrounding buildings, which include some of the larger houses in the city; most also date to the same period, and use similar building materials and techniques. It should be noticed that the structures south of the tabernae all seem to postdate the construction of the building and seem organically grown rather than part of one consistent plan. Possibly, the people deciding about the use of this very centrally situated plot preferred to use it for commerce rather than for a house, and initially simply left the back half of the area unused.

Finally, the fourth complex (VII 6, 20–27) was situated close to the forum (fig. 6). Slightly more complex in its lay-out, it is thought to have consisted, initially, of seven tabernae along the Vicolo delle Terme, which connected the forum to the Via Consolare, and another three along the Vico dei Soprastanti, which was the westernmost prolongation of the Via degli Augustali that continued all the way to the eastern part of the city. The tabernae along the Vicolo delle Terme had their usual shape of a main room with behind it a second room and a corridor leading to a small back area; the other three tabernae consisted of simply one room. A recent study by Michael Anderson has argued that the building was constructed in the first decade of the first century BC and that it occupied the place of a series of small domestic buildings of which remains were preserved in the back area of the tabernae.¹³ Again, the choice for tabernae was not



Fig. 5: Pompeii, tabernae VIII 5, 19–23.

dictated by the shape of the plot: the total area covered by the building was as large as the neighbouring house VII 6, 28.

Discussion

These four buildings resemble each other rather closely in size, structure and design. With the exception of complex in insula VII 6, the number of tabernae also remained limited. The layout of the tabernae, with back rooms and possibly upper floors, suggests that they were designed to combine commercial and domestic functions, and thus served to accommodate households with a relatively large everyday independence. In terms of location, these four complexes were situated on clear commercial hotspots along the major thoroughfares between the city center and the gates or along key intra-urban connection roads. Interestingly, the complexes are also situated on similar plots, which through their location and their shape closely resemble private allotments rather than space reserved for public use and are mostly surrounded by houses.¹⁴ This suggests that these taberna rows belong to the private rather than the public realm. Possibly, these buildings were constructed by wealthy investors, who decided to spend some of their money on the urban property market



Fig. 6: Pompeii, tabernae VII 6, 20–27.

rather than on agricultural land; indeed, precisely this scenario is echoed by Cicero, who inherited a taberna building at Puteoli.¹⁵

Yet, what happened beyond second century BC Pompeii? Arguably, the taberna row was a success of some sort; several examples were constructed in the early imperial Pompeii, and it can also be encountered, in substantial numbers, in Rome and Ostia.¹⁶ It did not, however, become common throughout the Italian peninsula, let alone in the Roman world at large. Nevertheless, its emergence in itself is of great value for our understanding of the history of urban crafts and retail in the Roman world: it shows how, especially in the wealthiest parts of Roman Italy, urban commerce increasingly got an architectural place of its own, and began to be dis-embedded from the social contexts with which scholarship has associated it, such as, particularly, the atrium house. Moreover, the taberna row also highlights how commercial property in places like Pompeii, Rome and Ostia became an investment model for private individuals, and how this had direct consequences for the social context within which craftsmen and traders operated: an increasing number of craftsmen and traders worked in facilities owned by a landlord not living on the spot – he may actually have been rather far away, as was true for the tabernae at Puteoli inherited by Cicero.

Methodologically, these conclusions confirm the importance of architectural remains for the study of retail and manufacturing: architectural innovations like horrea, macella,

production halls and the *tabernae* rows highlight on the one hand, how the structure of urban economies in central Italy was transformed by Rome's new imperial hegemony, and, on the other hand, how this transformation of everyday economic life had an impact on the social level as well: even if we may struggle to understand the exact consequences of these new architectural models on the basis of their scarce remains, their layout and context show that, in any case, the everyday landscape, within which people were operating, was unprecedented—not only in Italy, but in the ancient world as such. Architecture, therefore, holds an important key in the study of urban craftsmen and retailers.

Notes

¹ See e.g. Monteix 2010; Holleran 2012; Flohr 2013; Holleran 2017.

² Ellis 2018.

³ Mouritsen 2011; Broekaert 2016.

⁴ Flohr 2007.

⁵ Rickman 1971; De Ruyt 1983.

⁶ Bakker 1999; Flohr 2013.

⁷ See e.g. Livy 41.26.

⁸ Vitr. 5.1.2.

⁹ On this debate see e.g. Carrington 1933, Mogetta 2016.

¹⁰ Jones and Robinson 2005

¹¹ E.g. the south end of *insula* VI 3, and the north end of *insula* VI 4.

¹² The complex is very briefly discussed in Pirson 1999, 159.

¹³ Anderson 2015. Pirson 1999, 159 thinks that the *tabernae* belonged to house VII 6, 28, but this is only at a very late stage.

¹⁴ I disagree with Pirson 1999, who argues that these complexes were situated in places that were unfit for the construction of houses.

¹⁵ Cic. *Att.* 14.9.1.

¹⁶ E.g. just outside Porta Ercolano. For Ostia see Flohr 2018.

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From Buyers to Shoppers? The Evolution of Shopping Streets in Roman Ostia

Rhodora G. Vennarucci

Marketing historians have recently challenged the orthodox view that shopping streets – streets characterized by a high density of shops with architectural installations, which facilitate the activity of shopping – were a modern innovation tied to the “retailing revolution” of the mid-nineteenth century. Their work demonstrates how the dramatic improvement of streetscapes in many pre-industrial European towns between the sixteenth and eighteenth century promoted the growth of shop economies, in which the permanent shop was the basic unit of urban distribution.¹ Perhaps, however, shopping streets have an even earlier origin: many imperial Roman towns had paved streets lined with porticoes, sidewalks, and, of course, shops. Roman streets were often embellished with street fountains, benches, sculptures, and shrines. The textual sources even provide some evidence for street lighting.² If shopping streets existed in ancient Rome, did the act of ‘shopping’ ever become a cultural activity?

This paper investigates the historical development of the shopping street in Ostia’s retail landscape from the mid republican through late antique periods. The urban renaissance initiated by Augustus in the first century BC and urban reforms instituted in the first century AD triggered a new urban planning environment in Rome, which linked the shop – and the act of shopping – to leisure activities (e.g. the theatre and circus) and an emergent cultural identity that reflected the prosperity and sophistication of the empire.³ We see the maturation of this trend at Ostia where, starting in the second century AD, standardized shopping streets appear and undergo a process of monumentalisation. The east *Decumanus* and north *Cardo Maximus*, for instance, received colonnades and porticoes.⁴ Common in eastern cities of Hellenistic origin, the colonnaded axis was a rare investment in towns in the Roman west.⁵ Over the course of the second and third centuries AD, porticoes, sidewalks, balconies, and benches also appeared on secondary streets. These architectural installations encouraged pedestrians to spend more time in the streets by offering them a protected, more pleasant area in which to stroll.⁶

Shopkeepers, whose businesses profited from the increased pedestrian traffic facilitated by shopping streets, contributing actively to the construction of new “leisure landscapes” by embellishing their shops with polychrome marbles, black-and-white mosaics, and painting styles popular in public and domestic architecture.⁷ Streets, then, as a destination, encouraged people to consume space and time alongside the goods and services offered in the shops that flanked them. This process affected a shift in consumer behaviour, as buying transformed from a purely functional act into shopping as a cultural activity that some groups undertook for enjoyment or as a social signifier.⁸

Ostia underwent a large-scale reorganization of the street network in the late antique period due to natural disasters and a shrinking population. Street blocking contributed to the creation of new ‘pedestrian zones’ in central areas, which maintained their monumental appearance, but no longer functioned as landscapes of consumption. Instead, with a few exceptions, commerce was now relegated to open-air markets on secondary streets and confined to new commercial zones in abandoned areas of the city.⁹ Since shopping streets contributed to the visible prestige of Ostia in the imperial period, transforming the major armatures, and even secondary roads, into pleasurable arenas for socialization, their disappearance in the late antique period may have resulted in a shift back to functional buying for the majority of the population.

Past approaches to Roman shops focused on detailed typological studies of space and function, which underscored the diversity and ubiquity of commercial architecture in Roman towns, but did little to inform on a shop’s social and economic activities: i.e. the human element.¹⁰ In the last ten years, however, a new wave of scholarship has established that retailing was significant for urban economies, highlighting how shops and shopkeepers actively shaped urban space and society.¹¹ In addition to confronting entrenched views in marketing history, this research uses consumer culture theory, environmental psychology, and phenomenology to demonstrate how the physical remains of Roman streets and shops, as active agents in shaping urban experience, can be used to reconstruct past consumer behavior.¹²

Notes

¹ E.g. Furnée and Lesger 2014, 1-15.

² E.g. Dig. 9.2.52.1.

³ Vennarucci 2015, 143–146.

⁴ DeLaine 2002, 96.

⁵ Burns 2017, 301.

⁶ E.g. Tac. Ann 15:43; Suet. Nero 16.

⁷ For a survey of shop décor in Ostian shops see e.g. Hermansen 1981, 125–184.

⁸ E.g. Martial Epig 9.59.

⁹ Gering 2012, 255. 265.

¹⁰ E.g. Girri 1956.

¹¹ E.g. Ellis 2018; Wilson and Flohr 2016; Tran 2013; Holleran 2012.

¹² See e.g. Veitch 2017 for a phenomenological approach to a shopping street in Ostia.

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New Light on the Commercial Landscape of Roman Cities: the Contribution of Non-invasive Survey

Adeline Hoffelinck

The cities of Pompeii, Ostia and Herculaneum have provided us with an exceptional image of Roman urban life. These cities have revealed an almost complete street network and sequence of buildings. Therefore, they turned out to be excellent case studies in the analysis of the spatial organization and functional zoning of Roman cities. Over the past decades the urban economy and the patterning of space of these cities has been investigated intensively.¹ Especially a paradigm shift in the study of Roman urbanism, the Spatial Turn, provoked a more detailed study of the spatial relationship between economic buildings and their urban environment. The study of the embedment of commercial and industrial infrastructure in the urban fabric became a hot topic. Distribution maps, that highlighted the spread of economic space in the city, were being created and compared to one another and in this way trends of urban zoning were exposed.² More recently, other sites have been taken into account as well.³

However, cities that were mapped and visually reconstructed by means of non-invasive full coverage surveys, an integration of surface, geophysical, and topographical survey and aerial photography, have been left out of the picture almost completely, while the great potential of this approach for the study of Roman urbanism, and in particular for the evaluation of economic space, has been demonstrated sufficiently the past decades. In this article a full contribution of these non-intrusive techniques for the study of Roman urban economic space will be argued.

The Emergence of Non-Invasive Techniques in Archaeological Research

The 1988 paper ‘Mediterranean Survey and the City’ by Bintliff and Snodgrass illustrated the potential of archaeological field survey for the investigation of lost ancient cities.⁴ The underlying message of the article, a call for the employment of non-destructive survey in the study of ancient urbanism, resulted in a great number of field projects organized throughout the Mediterranean world. From 1996–2001 a joint project of the DAI and the American Academy in Rome was set up to study, by way of geophysical prospection, the unexcavated zones of Ostia.⁵ In Italy The British School at Rome initiated the Tiber Valley Project in 1997 and achieved remarkable results, again with large scale geophysics, on green-field sites such as Falerii Novi, Ocrinum and Portus.⁶ In 2000 a team from Ghent University launched The Potenza Valley Survey Project, an intensive rural and urban survey in an Adriatic Valley, employing a wide variety of non-invasive techniques on four abandoned cities.⁷ Also in the wider Roman world urban survey projects were set up, e.g. Sagalassos, Sikyon, Leptiminos, Silchester and Wroxeter.⁸

These innovative studies have led to the emergence of an *urban landscape archaeology*, a recognition that a combination of non-destructive methods could result in a complete mapping of ancient towns.⁹ This caused a major break with traditional archaeological research, which was for quite some time solely dominated by excavation and was concerned with the study of individual architectural structures, providing only selective information on certain parts of the city but not taking into account its broader development and character.¹⁰ The importance of attaining a full overview of Roman town plans is undeniable. Not only do these give us the opportunity to determine more reasonably, which zones could be of interest for excavation and permit us to prepare more targeted questions before actually excavating, these also make it possible to detect spatial and functional patterns.¹¹ In what way can non-destructive methods now exactly detect economic space?

Surface surveys, ideally performed on agricultural land, during which all kinds of material are collected – ranging from building material and pottery to industrial waste and other products of manufacture - enable us to create distribution maps informing us on processes of functional zoning.¹² Aerial photography can detect buried archaeological features in the form of soil-, crop- or shadow marks on the ground, allowing specific building structures in the urban fabric to be discerned.¹³ Geophysical survey techniques are capable of generating an image of the surface with multiple anomalies, a projection of buried structures. According to their physical characteristics and their specific form these can be interpreted in a very reliable way.¹⁴ Notably magnetometer survey, with its ability to detect variations in the magnetism of the soil – a reflection of not only walls and roads, but more importantly of productive installations like furnaces, kilns and hearths, can expose important parts of the functional topography of cities. In this way industrial or artisanal districts can be distinguished from the more public and private quarters of the city.¹⁵ It is especially a combination of these non-invasive techniques that will lead to a better understanding of the embedment of economic space in the wider urban complex.

Let us elaborate on several sites to demonstrate how economic space can be scanned in surface surveys, aerial photography and geophysical data, and how in certain cases this led to diagnostic interpretations on functional urban zoning.

Economic Infrastructure Investigated through Non-Invasive Techniques

When studying the maps achieved by aerial photography and geophysical survey an in-depth knowledge of Roman architecture is necessary. To that end a consideration of excavation results of sites over the entire Roman world is highly important as these produced plans of almost all known types of buildings. These plans can subsequently be taken as a starting point for the identification of structures with similar formal characteristics in the aerial and geophysical maps. Within the category of Roman buildings with a predominant economic

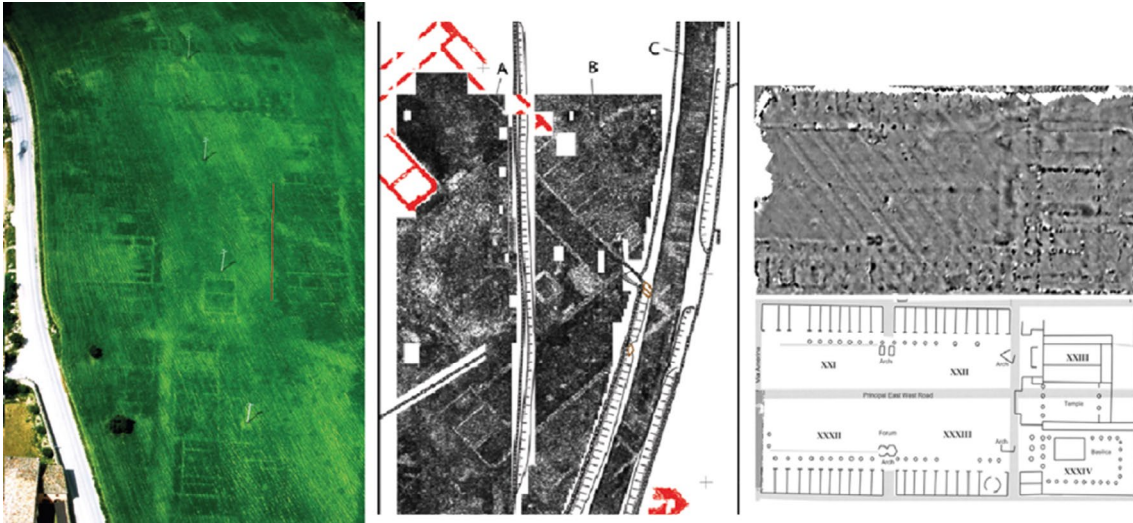


Fig. 1: *Tabernae* identified through aerial photography on the forum of Trea, and through geophysical prospection on the fora of Ammaia and Falerii Novi (from left to right).

function, especially *tabernae*, *macella* and *horrea* are relatively easily recognizable, because these structures have a very characteristic layout.

Tabernae are defined by a simple elongated plan, normally with a rectangular room connected to the street, often including a back room. *Macella* are identified through their mostly rectangular or quadrangular courtyard, fully or partially surrounded with *tabernae* and often with a round building or *tholos* in the middle. *Horrea* also consisted in most Roman urban contexts of an open courtyard with rooms surrounding it and closed off by a robust outer wall, or as a common second type shows, with narrow rooms of great depth opening on the same side.¹⁶

Not only the layout of these buildings can be a hint for their identification, but also their topographical position within the cityscape. *Tabernae* were generally located on the *forum*, aligned the principal streets of the city and were built into other public structures or residences. *Macella* are in most cases to be found on the forum or nearby, often on one of the main streets. In a few cities the *macellum* is situated more outside the administrative heart of the city.¹⁷ *Horrea* were certainly most present in harbor cities where they clustered around the rivers, yet they are often found distributed over the entire city.¹⁸

In particular *tabernae*, because they were built so widespread across the city and have such a distinctive form, appear clearly in the non-invasive survey record. The *forum* of Potentia, reconstructed by a combination of aerial photography, geophysical survey and excavations, was bordered on both long sides by *tabernae*. An aerial photograph of Trea reveals how the forum was partly surrounded by shops. The same accounts for Ammaia, where ground-penetrating radar has shown how both sides were aligned with *tabernae*. At Falerii Novi the magnetometer survey has demonstrated that the forum square was enclosed by no less than 40 shops (fig. 1).¹⁹



Fig. 2: Aerial photograph of a *macellum* at Vieil-Évreux.

The *macellum* however seems to be a harder structure to identify: even though it has a typical layout, it is also characterized by a huge architectural variety, meaning that no two *macella* are the same. For instance at the Gallo-Roman sanctuary of Vieil-Evreux aerial photography revealed a semi-circular monument, at first sight not at all identifiable as a *macellum* (fig. 2). Yet during excavation the architectural aspects of the structure became obvious: a semi-circular wall with 13 shops and in the middle a water supply. Especially the presence of animal waste and ovens in the vicinity of the building, datable before and after the use of the building and related to food production, support this identification. Moreover, the building is comparable to other *macella* with a hemicycle plan, for instance the one of Thamugadi or Gightis.²⁰

Horrea have been observed by means of aerial photography and geophysical survey at a number of sites in the Mediterranean. At the Gallo-Roman site of Novioregum, modern Barzan, a large *horreum* has been found by aerial photography in the 1970s and excavated since 2003.²¹ At Ostia magnetometer surveys have proven the existence of a large number of *horrea* on top of the already multiple excavated examples. The storage buildings seem to be concentrated mostly along the river harbor.²² Since 2006 more surveys have been conducted at Ostia, more precisely at the Isola Sacra, the artificial island between Portus and Ostia. Remarkable results were obtained immediately north

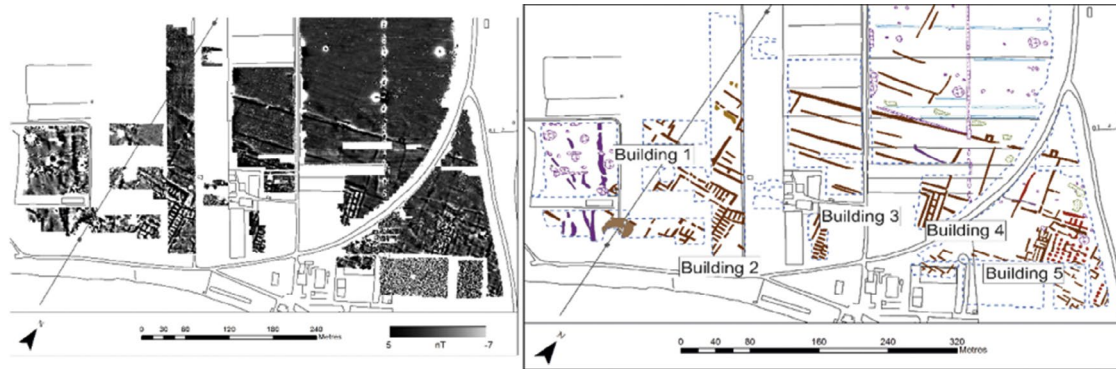


Fig. 3: Magnetometer survey in the southern part of Isola Sacra (Ostia) and interpretation of several warehouses.

of the Tiber, where several large warehouses were observed (fig. 3).²³ At Nauportus, a huge amount of *horrea* was revealed by geophysical surveys. A market place, 30% of which was dedicated to storage buildings, was detected by for instance geoelectric mapping (fig. 4). Next to *horrea*, also individual shops were built on the market.²⁴ *Horrea* were equally revealed at the port city of Aquileia. The economic character of this city is attested through geophysical surveys, magnetometer and ground penetrating radar, conducted since 2011.²⁵ Apart from the excavated harbor in the eastern part of the city, a second harbor has been revealed by geophysical techniques in the western *suburbium*, surrounded by warehouses.²⁶

Functional Zoning Investigated through Non-Invasive Techniques

By using a combination of non-invasive techniques, patterns of functional zoning can be detected. Remarkable results were achieved at several Roman North African sites, for instance the harbor city of Leptiminus. An intensive field survey was performed and based on the distribution of the artifacts a distinction could be made between different functional zones.²⁷ In the western and eastern area high clusters of ceramic and kiln waste were detected, suggesting that these were zones, where ceramic production took place. The presence of kilns here was confirmed by the magnetometer survey, of which several examples have been excavated. Nearby, slag deposits from ironworking were found, related to iron smelting and smithing. It is clear that industrial buildings were limited to the periphery of the city, while the public center remained free of these activities.²⁸

The harbor city of Meninx has been subjected to a combination of non-invasive techniques.²⁹ The city is known especially for its purple dye production, hence the great finds of crushed murex shells over the urban surface. Next to this, coarse ware and amphora wasters were dispersed across the site, often linked to concentrations of kilns.³⁰



Fig. 4: Geoelectric mapping image of market square and *horrea* at Nauportus.

The magnetometer prospection exposed a large part of the commercial infrastructure of the city. Not only the discovery of multiple *horrea*, several of which are excavated, but also the identification of a monumental *macellum* with surrounding *tabernae*, prove the high commercial character of the city (fig. 5). The latest magnetometer survey has defined high magnetic values in some of the *tabernae* surrounding the *macellum*, which could be an indication of floor heating or cooking.³¹

In Britain, a couple of sites provided detailed information on their commercial and industrial organization. At Wroxeter an intensive campaign of geophysical surveys, mostly magnetometry, ground penetrating radar and resistivity, was initiated in 1994, resulting in a complete plan of the ancient city. Previously defined as a *garden city* in which areas of open space dominated, the magnetometer has brought to light multiple anomalies connected to public, residential and industrial activities. The city was divided in functional zones, reflecting social and economic activities.³² One zone seemed to be occupied by elite residences, while another one is interpreted as an area for the habitation of poor people or activities connected to agriculture.³³ What concerns the industrial activities in Wroxeter, and actually in Roman towns in general: these are expected to be located on the edges of the town so their negative effects on the city center are limited. Wroxeter seems to fit this picture, with kilns and large open spaces – possibly connected to tanning and fulling – situated on the periphery of the town.³⁴

The town of Silchester was subjected to a large mapping project in 2005–2010, combining the results of all previous excavations, surface surveys, aerial photographs

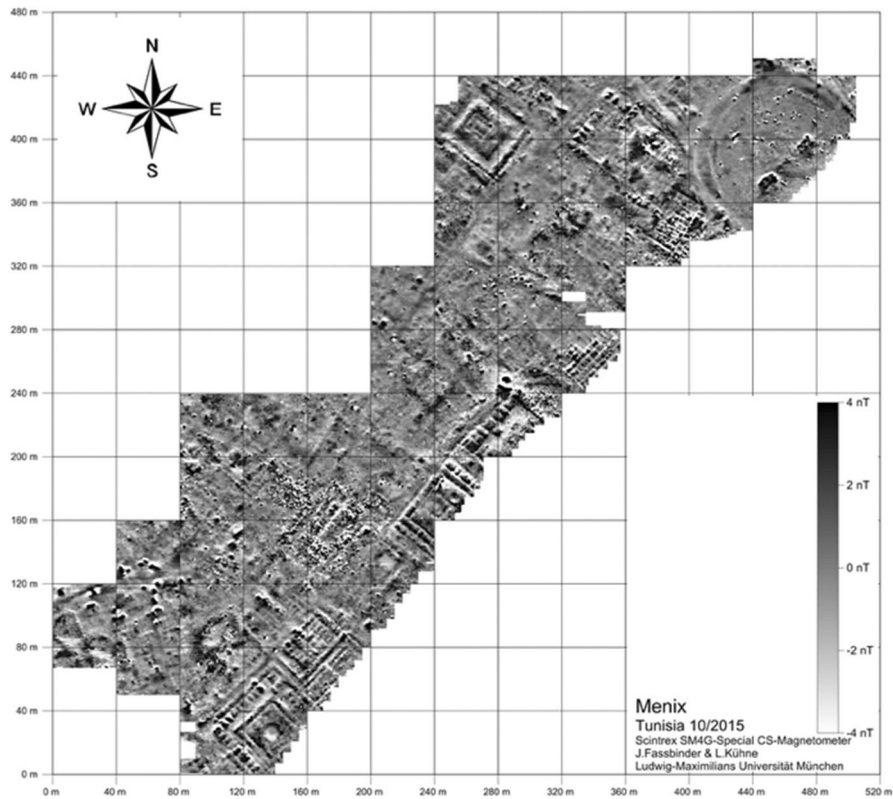


Fig. 5: Magnetometer survey at Meninx.

and accompanying it with a large scale geophysical survey, to provide us with one of the most complete Roman town plans.³⁵ Multiple strip-buildings, which functioned as *tabernae*, were identified clustering along the main east-west street (fig. 6). The lack of this type of building in other parts of the town is a sign of zonation: this was the most important street and was thus an excellent location for selling and buying. *Tabernae* were also found around the forum, but not so much in connection with residences, as is the case in most cities in the Mediterranean world. As in Wroxeter, the geophysical survey at Silchester provided possible proof for activities of tanning or fulling in the form of 80–100 tanning pits southwest of the town.³⁶

At Sagalassos, located in Turkey, a combination of large-scale excavations, surface surveys and geophysical survey, exposed how the city was divided in different zones: a monumental center bordered by residential zones to the east and west, and artisanal areas situated in the periphery of the city on the southwestern and eastern side. A dominant artisanal activity at Sagalassos was pottery production, strongly reflected in kilns and other workshop infrastructure detected by geophysical survey. At least 25 workshops and 89 kilns were identified by geophysics. The southwestern zone was more focused on metal working, as confirmed by geochemical analyses.³⁷ Sagalassos

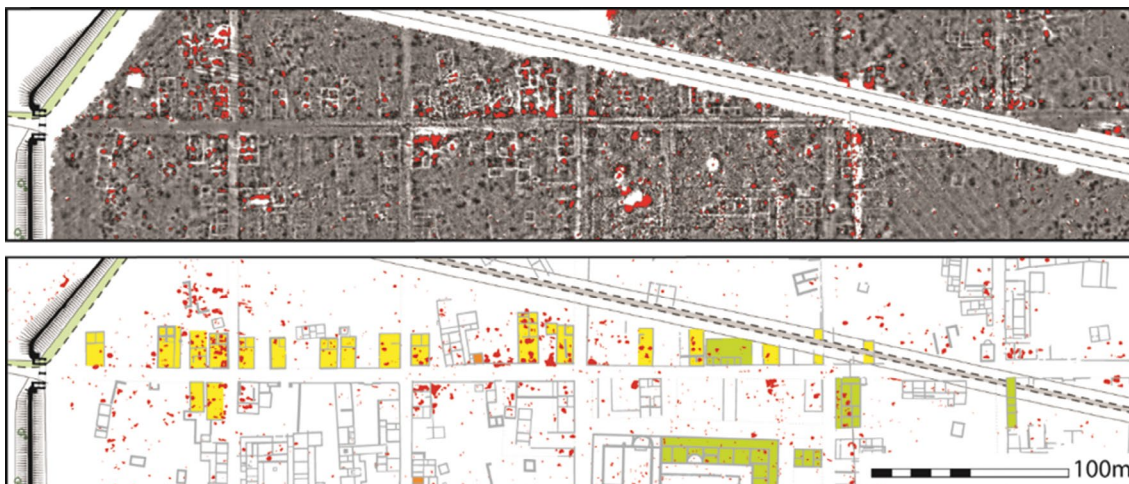


Fig. 6: Strip-buildings (yellow) along the main east-west road at Silchester. Other *tabernae* (green) are visible.

is thus a clear case study of how non-invasive approaches can show that industrial activities were confined to the peripheral areas of the city.

Conclusions

The last three decades non-invasive techniques have undoubtedly experienced an upsurge in archaeology. Apart from generating an overall view of the street network of buried cityscapes, these techniques have the possibility to detect a wide array of building structures, reflecting on different domains of Roman city life.³⁸ As has been demonstrated, the economic sphere is strongly attested in the form of specific building structures, material remains, or of course a combination of both. Moreover, these techniques have the great potential to detect patterns of (economic) functional zoning, therefore they should in the future definitely be taken into account more in the study of Roman economic space.

Notes

¹ Eschebach 1970; Raper 1977; Ruddell 1964; Mayeske 1972; Gassner 1986; Graf 1988; Bakker 1999.

² Gulino 1987; La Torre 1988; Laurence 1994; Ellis 2004; Delaine 2005; Flohr 2007; Monteix 2010.

³ Laurence – Newsome 2011; Kaiser 2011; Flohr – Wilson 2017 (especially part III); Wilson – Flohr 2016 (notably the section ‘Space’, which is concentrated on the context of economic activities in Roman cities). Amraoui 2017.

⁴ Bintliff – Snodgrass 1988.

- ⁵ Martin et al. 2002, 259.
- ⁶ Keay et al. 2000; Keay – Paroli 2011; Hay et al. 2013; Millett 2013, 24; Johnson 2013, 8.
- ⁷ Vermeulen et al. 2017.
- ⁸ Neubauer – Eder-Hinterleitner 1997; Buteux et al. 2000; Lolos et al. 2007; Mattingly et al. 2011; Clarke – Robinson 2011; Martens et al. 2012.
- ⁹ Christie 2012, 25 f.
- ¹⁰ Millett 2013, 26.
- ¹¹ Vermeulen et al. 2012, viiii; Boschi 2016, 87.
- ¹² Mattingly et al. 2001, 73–75.
- ¹³ Van Limbergen et al. 2017, 17 f.
- ¹⁴ Keay et al. 2004, 228; Millett 2013, 29.
- ¹⁵ Keay et al. 2004, 227; Johnson 2013, 10; Boschi 2016, 93.
- ¹⁶ Rickman 1971, 148. 153; Holleran 2012, 71 f. 100 f. 161.
- ¹⁷ De Ruyt 1983, 326–330; Holleran 2012, 101 f.
- ¹⁸ Geophysical survey at Portus, Ostia and Aquileia has proven that warehouses were built close to rivers, yet at Ostia and Rome, among other examples, *horrea* were scattered throughout the street network.
- ¹⁹ Keay et al. 2000, 35–39; Verdonck – Taelman 2012, 71; Vermeulen et al. 2017, 91.
- ²⁰ Guyard – Bertaudière 2011, 29, 35 f.; Bourgois et al. 2015, 89.
- ²¹ These results remain unpublished (<http://www.fa-barzan.fr/decouvrir/visite-guideee/les-entrepots/>).
- ²² Heinzelmann 2002, 104 (Pl. IV.2). 112–114.
- ²³ Germoni et al. 2015.
- ²⁴ Horvat 2008, 116.
- ²⁵ Groh 2016.
- ²⁶ Groh 2012, 1–3. 5. 7 f.
- ²⁷ Mattingly et al. 2001, 74.
- ²⁸ Minor production took place within the centre, but this is related to re-use in later periods. Clarke – Robinson 2011, 97–103. 109 f.; Mattingly et al. 2001, 75 f. 80. A variety of economic activities were identified. For more information on these economic activities I refer to Mattingly et al. 2011, 205–272.
- ²⁹ From 1996–2006 Meninx was part of the project ‘An Island through Time: Jerba Studies’, in which small excavations were combined with magnetometer survey. Starting from 2015 a new project was launched ‘The Urban Structure of Ancient Meninx’, during which a large-scale magnetometer survey was conducted.
- ³⁰ Wilson 2002, 251; Fentress et al. 2009, 136.
- ³¹ Fentress et al. 2009, 154–157; Lambers et al. 2017, 135–137.
- ³² Buteux et al. 2000, 69–80; Gaffney et al. 2000, 81–99.
- ³³ Gaffney et al. 2000, 95.
- ³⁴ Buteux et al. 2000, 74; Gaffney et al. 2000, 96; Results in White, Gaffney, Gaffney 2013.
- ³⁵ Creighton – Fry 2016, 37–47.
- ³⁶ Creighton – Fry 2016, 407–409. 416 f.
- ³⁷ Martens et al. 2012, 89; Poblome 2016, 395.
- ³⁸ E.g. social, residential, political, entertainment, religious, economic.

Image Credits

Fig. 1: Trea: F. Vermeulen et al. 2017, 92 fig. 59; Ammaia: L. Verdonck – D. Taelman 2012, 72 fig. 47; Falerii Novi: S. Keay et al. 2000, 36 f. figs. 25. 26. – Fig. 2: Copyright S. Bertaudière & L. Guyard. – Fig. 3: P. Germoni et al. 2015, 227. 229 figs. 11. 13. – Fig. 4: B. Mušič – J. Horvat 2007, 224 fig. 4a. – Fig. 5: J.W.E. Fassbinder – L. Lambers 2017, 135 fig. 1. – Fig. 6: J. Creighton – R. Fry 2016, 409 fig. 15.1.

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Work/Shop Till You Drop. Reflections on (Work)Shops and Associated People from Hellenistic to Roman Imperial Pisidia

Jeroen Poblome – Rinse Willet – Dorien Leder-Slotman

In geographical terms, the ancient region of Pisidia in SW Asia Minor is characterized by mountainous landscapes. The Taurus mountain range forms the backbone of the region, dominating its outlook, defining its Siedlungskammern and providing the framework for its ecological and climatological conditions. As with other mountain ranges, this setting is comparatively rich in a variety of mineral and natural resources, while the topography plays a strong role in its connectivity within and without the region, with few rivers, let alone navigable ones, and generally at a distance from the Mediterranean (fig. 1). In historical terms, Pisidia can be considered to be in a marginal position vis-à-vis the contemporary yet shifting centers of power of Hellenistic kings or Roman rule, in Republican or Imperial times. A result of these conditions is that ancient Pisidia is to be situated away from the socio-political poles of attraction of the time and outside of the core regions of exchange and trade.

From a long-term perspective, there will always have been kinds and types of artisanal activities, long before and long after the region was called Pisidia. Pottery production is an obvious testimony to this in the archaeological record, beginning in late Neolithic period and still continuing today. Apart from a range of domestic activities, related to textile production for instance, a typical community would have provided some quantity of work to a carpenter and a smith to build and maintain houses and buildings, and make and repair tools and equipment.¹ From that same long-term perspective, it is good to bear in mind that the history of the study region is mostly characterized by non-urban forms of community organization. In the case of ancient Sagalassos, one of the prime sites of urban development in Pisidia, the monumentalization part of urbanization was initiated around 200 BCE, following a period of political community formation. The site maintained central functions for its hinterland into middle Byzantine times, but the urban grandeur typically associated with classical antiquity had faded away already from the second half of the sixth century CE onwards.²

Even in periods when provincial towns dotted the Pisidian landscapes, the importance of secondary settlements and the role of the rural economy for the entire region is not to be underestimated. Agriculture was at the core of the Pisidian social metabolism, providing the framework of regional development. Production specialization, urbanization and colonization of new territories could foster development, in the sense of growth, in agricultural societies, but such were discontinuous processes, mostly limited to aggregate growth and not resulting in metabolic change of the social-ecological system. Additionally, taking the overarching concerns of the urban communities into account



Fig. 1: The urban centre of ancient Sagalassos in winter conditions.

related to food supply and generating revenue, the Pisidian context in general provided only modest options for artisans.³

Clearly, most options for these groups of people would have been available in an urban context. When urbanization happens, in Hellenistic and Roman Imperial times, the urban physical landscape represents mostly concerns for catering to the gods, defence of the own community and the organization of spectacles and festivals, apart from housing to be sure. Investments in the civic and commercial infrastructure in Pisidian towns also took place, to some degree, developing a built framework for the urban economic activities.⁴ Notable examples are the so-called Hellenistic Market Buildings, as identified in Pisidia at Sagalassos (fig. 2), Melli, Kapıkaya, Pednelissos and Selge, although recently the traditional definition of the function of these buildings has been deconstructed.⁵ A functional symbiosis with the agora seems to be in play, but it is quite unclear how the supposed commercial and storage functions of these buildings would have worked in detail and to which benefits for the poleis. The presumed functions also do not seem to have been continued in Roman Imperial times in all cases, without an alternative providing continuation of functions being available in the Roman urban spaces.

Urban craft industry originates in middle Hellenistic times, more or less in tandem with the process of urbanization. The installation of a limited amount of potter's workshops in the area of the later Odeion at Sagalassos serves as a case in point. The



Fig. 2: Remains of the middle Hellenistic Market Building(?) under excavation and conservation at Sagalassos. Remains of the original building formed part of series of transformations into late antiquity.

laying-out of this area went hand in hand with a developed chaîne opératoire and increased product differentiation, and these processes have been considered to reflect increasing complexity in society.⁶ In general, however, from an opportunity cost point of view, the urban craft activities implied a marginal, absorbable loss for the rural economy. The agricultural sector in any case allows for a certain range of opportunities at diversification of economic activities and the Hellenistic artisanal production seems to have fitted in this range. The process of urbanization in Hellenistic Pisidia, the contemporary constitution of chorai tied to these poleis and the development of institutions including markets improved the general functioning of society and the craftsmen finding their places in this developing constellation. There seems to be relatively more archaeology in Hellenistic Pisidia compared to previous epochs, which leads to the open question whether also a scenario of demographic growth is at play, or at least one of growing population concentrations. It is another open question whether these conditions of development actually equalled economic growth in this period. If such would have been the case, which is far from clear yet, there are in any case no indications available for per capita growth. This context was creating new possibilities, however, as is exemplified by a range of Hellenistic amphorae arriving at Sagalassos,

which is an indicator of the region opening up, at least to some degree, to new forms of exchange.⁷ This proceeded dialectically with the urbanization and institutionalization of Pisidia, and the early manifestation of social elites, creating possibilities for (urban) markets and, in the wake of that, for (work)shops.

With the incorporation into the Roman Empire of the region of Pisidia in 25 BCE, much of these local processes continued, whereas Rome also introduced some structural changes. The laying-out of the *via Sebaste* created improved conditions for connectivity, the foundation of a string of military *coloniae* implied immigration of new groups into the region introducing new social models *à la romaine*, but most of all there was the sensation of the *pax Romana*. Local and regional markets and fairs, both urban and rural, taxation, the organization of courts and to some degree religion and the socio-political ambitions of the local elites represented a framework of potential integration between towns and their hinterlands as well as between the local communities and the Roman Empire at large.

The archaeological and interdisciplinary record of the Sagalassos Archaeological Research Project has revealed many aspects indicative of increased production specialization in the agricultural as well as artisanal sector. Some degree of path dependency on earlier, Hellenistic patterns should be acknowledged, but much was also new, such as the installation of a sizeable potters' quarter in what would now become a veritable suburbium in the eastern parts of town.⁸ No doubt, this created opportunities for the craftsmen at Sagalassos and presumably also for those in the wider region, but to be sure contract/order/income instability possibly combined with winter conditions not conducive to year-round production meant that insecurity continued to be part of the artisans' lives. In this respect, a lot could have been at stake during the year markets or other, religiously tied festivals, such as the emperor's cult at Sagalassos, which on occasion brought throngs of visitors to the local communities. (Work)shops clearly needed to seize the moment when opportunities presented themselves. Other parts of the answer to managing insecurities was limiting investment in production infrastructure and the working of social buffering mechanisms by, for instance, placing the *familia* central to the production organization and giving importance to the functioning of professional associations. In the past years, a *schola* was identified and excavated in the Eastern Suburbium of Sagalassos, catering to the congregation needs of local associations and other parties (fig. 3).⁹ Third party or civic investment in specific economic infrastructure is also attested in the Pisidian towns, featuring market places, porticoes housing shops, the occasional *Macellum*, as well as institutional arrangements arranging exchange and trade. These initiatives did not form part of openly mercantile policies, however, and it is unclear to which degree these facilities would have made a difference in the quality of life of artisans.

The factor that perhaps made most difference to these artisans is how, from an opportunity point of view, the artisanal sector no longer acted within the margins provided by subsistence production. Most productive activities seem to have specialized



Fig. 3: Major changes to the presumed schola at Sagalassos. Left: original layout (blue) from c. 50 CE, with one single entrance from the north and the water infrastructure (green) against the back wall. Middle: layout after c. 100 CE, with an extended building subdivided into separate rooms (red), multiple entrances and a later added kitchen annex (yellow). Right: post-abandonment layout.

to some degree, and the entire system seems to have been made relatively dependent on the external markets of the Roman commonwealth. This affected the typologies of the range of local and regional products, consciously forming part of a larger whole or socio-cultural koine. The analysis of the tableware market in the Roman East based on Agent based Modelling further revealed how places, actors, produce and information were relatively integrated. In this respect, the type of market active in the Roman East is also of importance. Most material categories attest to the functioning of an oligopolitical system, in which basically few suppliers are catering to many customers at this integrated market level. Oligopoly aims at stable conditions or a zero-risk economy, with guaranteed sales for the few suppliers in the immediate, known environment and satisfied customers with a product of a constant quality level, compatible with the geographical and cultural koine. These conditions allowed Pisidian communities and their artisans a voice, fostered specialization and increased productivity.¹⁰

In more ways than one, the Roman imperial socio-economic system was different from that of the Hellenistic kingdoms. The monumentalization of the Pisidian towns and the contemporary archaeological record bears testimony to development and growth, also for the artisanal sector, at least in aggregate but possibly occasionally also per capita. The factors of peace and the integration with the Roman world were nothing but instrumental. Recent research, however, has indicated that energy availability in the contemporary social-ecological system was limited 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. Other 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.¹¹ The question of whether this system was sustainable as such has been answered (negatively) by the conditions and developments of late antiquity. The main open question is in how far the Pisidian pattern, displaying a delicate balance between potential and opportunities, and structural brakes within the own and the general Roman systems, should be valuable to approaching and understanding other regions in the ancient world. To be sure, life in the Pisidian (work)shops in Hellenistic and Roman imperial times will not necessarily have been easy, but conditions need not be considered as dire or desperate. As with most aspects of daily life of the ordinary townsfolk, risks were better avoided, but uncertainties were simply part of life.

Acknowledgments

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Notes

¹ Duru 2008; Lefort 2002, 308–310.

² Jacobs 2013; Poblome et al. 2017a.

³ de Molina – Toledo 2014; Persson 2010.

⁴ Willet 2019.

⁵ Leder-Slotman forthcoming.

⁶ Poblome et al. 2013; Daems forthcoming.

⁷ Monsieur et al. 2017.

⁸ Poblome 2015; 2016.

⁹ Claeys – Poblome 2017.

¹⁰ Poblome et al. 2017a; Brughmans – Poblome 2016.

¹¹ Janssen et al. 2017; Van Loo et al. 2017.

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Fig. 1: Eşref Özülkülü. – Fig. 2–3: Sagalassos Archaeological Research Project..

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Late Antique Urban Industry in Asia Minor: Industry Occupation of Public Buildings and the Work Organization of Limeburning

Elizabeth A. Murphy

The Late Antique cities of Asia Minor underwent major reorganizations from the fourth through the seventh centuries AD. Changing uses of classical building types, redefinitions of city space (with the construction of new city walls), and shifting social and ritual topographies driven by new church construction, have all been seen as characteristic of these urban transitions.¹ Whether these processes index decline, resilience, stagnation, or growth, however, is far from clear, and defies simple classification. Notwithstanding, industry has played a central role in many of these debates. Perhaps most outstandingly, the appearance of productive spaces in once-public buildings has come to be understood as a defining feature of Late Antique urban communities. Indeed, Late Antique workshops and industrial infrastructure appearing in bath complexes, *agorai*, and theaters have all been regularly observed in cities of the region.

Given the central role of industry in the scholarly literature on dynamism in Late Antique urbanism, this paper evaluates evidence used in the construction of these narratives to better understand the contribution of regional difference and local economic organizations to this process. It considers the unique methodological challenges associated with studying the archaeological contexts of this period. General trends are outlined from Asia Minor and compared with a broader regional study in order to assess the extent to which these trends (a) might be characterized as part of wider Late Antique patterns and (b) are more locally and regionally specific. While these region-wide discussions are useful in understanding the generalities of this process, this analysis will then be complemented with a smaller-scale evaluation of this urban phenomenon in terms of industry organization and scale of production. Therefore, in the second part of this paper, the organizational diversity of a single industry (limeburning) will be discussed in detail to demonstrate the economic organization of cities was founded on diversified organizational structures.

Late Antique Urban Industry: Methodological Challenges

The majority of the scholarly literature which traces the urban distribution of workshops and industry has employed urban case studies from the western Mediterranean during the Roman period.² Applying these approaches to Late Antique sites, however, is problematic, as cluster analysis requires large area excavations of cities and consistently systematic documentation methods. As concerns the latter, one of the long-standing challenges in systematically evaluating archaeological evidence of this period concerns

the legacy of earlier archaeological work—and particularly documentation and research design of such work, which long undervalued workshop and industry contexts. This is of course changing, and in recent years there has been a more concerted effort to document the archaeological remains of later occupational phases at urban Anatolian sites. As concerns the scale of open-area excavation, many projects have focused excavation efforts in urban areas that contained monumental Roman-period public buildings. This interest in the city-centers has had interpretive consequences, however; namely, the movement of industry activities into these once-public Roman period buildings has resulted in their accidental discovery and documentation, rather than as a consequence of any systematic research design and analysis. While providing a large and growing dataset, this means that other industry contexts are lesser represented.

Together, these two factors have resulted in a dataset with particular biases, not least a high rate of discovery for the Late Antique production contexts yet with sometimes minimal documentation. While these circumstances undeniably are changing, there remain limitations that necessitate an alternative methodological approach which attempts to integrate datasets of variable location and of variable quality. In response, a regionally-focused study – that draws together published evidence of worksites in order to track where workshops were situated, when they were occupied, and what, if any, building renovations were necessary – was performed. The dataset – compiled from a range of annual journals (*Kazı Sonuçları Toplantısı* and *ANMED Anadolu Akdenizi Arkeoloji Haberleri*) and site publications – contains information on over 100 published production contexts representing over a dozen industries, dating from the late third through the seventh century AD.³ These derive from 31 cities, with western and southern Anatolia better represented (due to regional research biases).

Urban Workshops: Understanding Patterns in Changing Economic Cityscapes

What is immediately clear from synthesizing evidence of workshops sites is that there are general trends in the dataset.⁴ First, it is clear that industry's appearance in monumental buildings is exceedingly common in the region, and all sorts of industries appear to be involved in these re-occupations (ceramics, metals, glass, limeburning). Second, *agorai* and bath complexes are the most commonly occupied, with notable examples of *agorai* at Ephesus⁵ and Hierapolis,⁶ and of bath complexes at Sardis,⁷ Anemourion,⁸ and Sagalassos. Third, these two building types also tend to be occupied by industry at different times. *Agorai* begin to be renovated for industry beginning in the late fourth / early fifth century AD,⁹ and public bath complexes begin to be converted for industrial use in the mid to late sixth century AD. These trends appear across the region, regardless of city status or geographical location.

Studies of similar Late Antique urban worksites have been performed elsewhere, notably in North Africa¹⁰ and Britain.¹¹ Rogers' study of Late Roman Britain provides

the closest parallel analysis to that performed for Asia Minor.¹² Therefore, if we compare the Asia Minor and British results, telling similarities and differences can be observed—particularly as concerns the timing of this process, representation by different industries, and the nature of renovations that take place within the context of local and regional urban and building traditions. That is, the public building most commonly occupied by industry is the ‘Forum-Basilica Complex’.¹³ Metallurgy is overwhelmingly observed in cases where industry appears in once-public buildings,¹⁴ and these occupations by industry in most building types typically begin in the fourth century AD.¹⁵

While it is perhaps not surprising that divergent patterns are observable in different regions, it does highlight how similar narratives of urban decline have been read from the presence of these worksites in reused buildings. Yet, in interrogating these trends more closely, it is clear that these are undeniably local stories, drawing upon local public building forms that variably become available for use by locally significant industries.

Intra-Industry Organizational Diversity: The Case of Limeburning

If trends in industrial repurposing of public buildings offer some comments on the important place of worksites in urban reorganization across the region, looking closely at a single industry highlights variable contexts and organization in different localities. This organizational diversity is perhaps best demonstrated in the case of limeburning. Baldini Lippolis has described the close association between Imperial authorities and this industry, with particular mention of the special privileges afforded to lime producers in the dismemberment of public buildings,¹⁶ and Brogiolo has suggested that large-scale lime production was regulated by some sort of central authority.¹⁷ Occasional archaeological examples known from the cities of Asia Minor might very well be used to support this idea of a centralized organization of lime production, whether by imperial or local authority. In particular, this might be argued for the highly organized multi-crafting industries observed within the baths complex of Sagalassos, where limeburning was organized alongside copper alloy and lead recycling, or for the organized piles of stones discovered in the agora of Hierapolis, presumably in preparation for their transformation into lime.¹⁸

In general, however, the archaeological evidence from Asia Minor suggests a much more varied picture of limeburning activities. In fact, limeburning appeared in a particularly diverse range of contexts and was organized according to a great variety of work structures, when compared to other industries. As one of the best represented industrial activities documented for the period, lime burning is observed on streets surfaces, in private residences, and in public buildings; the kilns are not always clearly associated with major public building demolition, nor with new building projects (although such cases are also present in the archaeological record); and there are no

clear chronological trends in kilns' frequency or location. Lime slaking activities have also been inferred in private houses; for instance, a house of a large insula ('A Evi') at Laodikeia was the scene of limeburning in the early seventh century AD.¹⁹

Considering the degree of architectural investment in this activity, limeburning generally appears to have received noticeably less investment than other industries documented in the region – being either installed into already existing structures (with no major architectural additions) or standing independently of any built workspace whatsoever. If the lack of associated buildings reflects an overall lack of investment or a short-lived operation, examples at cities, such as Sagalassos and Sardis, are even more telling. In the case of Sagalassos, the repurposing of pottery workshops for limeburning has been documented, whereby a short-lived limeburning operation appears to have taken over the space without even clearing the discarded remains left by the potters, and the elevated floors of the pottery kilns were simply removed, leaving a straight shaft furnace for limeburning.²⁰ In a case at Sardis, a barrel-vaulted chamber, possibly an earlier cistern, was filled with a sixth-century AD limekiln.²¹

If we assume that much of this lime was used by building industries, this may represent a supply chain supported by highly variable types of labor group. Certainly, sometimes limeburning appears to have been centrally organized, and in some cases it is possible to attribute it to a particular public building project (e.g., North-East Gate of Sagalassos²²); but lime production also appeared outside of those contexts, and this contextual diversity may have future implications for our understanding of the building industries of this time. The building styles of this period, relying heavily on lime mortar to fix building tile and stone, may have helped drive this widespread production, even in non-specialized contexts. The diversity of context, scale of operations, and work organization for the production sites of lime highlight local responses by industry to meet demand for lime (presumably for building works). This suggests that while certain generalities can be posited concerning the appearance of industry in Late Antique cities, there are likewise local specificities in the expression of these urban phenomena.

Discussion

This paper has presented archaeological evidence of industrial worksites that is often used in discussions on Late Antique urban reorganization. By balancing a discussion on regional trends with observations from a single industry, two complementary perspectives have been presented which highlight the role of local communities in determining the organization of industry, as well as regional trends in the timing and occupation of industry in repurposed public buildings. While similar patterns in public building reuse have been observed in other regions, the specificities of these

urban processes speak to uniquely regional circumstances. These observations offer some degree of nuance to otherwise generalized narratives of Late Antique cities.

Notes

- ¹ Niewöhner 2017; Jacobs 2012; Saradi 2006; 1994.
² Wilson 2002; Goodman 2016.
³ This dataset was compiled with the help of Prof. Inge Uytterhoeven.
⁴ These trends were observed with the help of Prof. Inge Uytterhoeven, and are published in a comparable study of private contexts: Uytterhoeven 2019.
⁵ Czurda-Ruth 2005.
⁶ Arthur 2005.
⁷ Yegül 1986.
⁸ Russell 2002.
⁹ This pattern was also observed by Lavan 2006.
¹⁰ Leone 2007.
¹¹ Rogers 2011.
¹² Rogers 2011.
¹³ Rogers 2011, 130–134.
¹⁴ Rogers 2011, 130–138.
¹⁵ Rogers 2011, 130–148.
¹⁶ Baldini Lippolis 2007, 231–233.
¹⁷ Brogiolo 2006, 272.
¹⁸ Arthur 2006, 117 f.
¹⁹ Şimşek 2009, 415–417; Uytterhoeven 2019.
²⁰ Murphy – Poblome 2016, 189.
²¹ Greenewalt et al. 1988, 35 f.
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A Late Antique City Quarter in Ephesos: Social Differentiation and Functional Heterogeneity

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Many architectural structures that have been excavated in Ephesos, are generally interpreted as tabernae.¹ This interpretation is based on their location within the buildings and their urbanistic context along the streets (fig. 1).

So far the Ephesian tabernae have received little attention, largely because, as a building type, they appear relatively frequently, both in archaeological excavations in other cities in the west (e.g. Pompeii² and Ostia³), as well as in literary sources. Only rarely, however, have tabernae been a distinct area of research. Often the excavation ended at the facade of the insulae because the researchers were more interested in the street itself and its accompanying porticoes. In other cases, structures, which were later built within the porticoes, were frequently removed without precise documentation or were not completely excavated.

In Ephesos, among the earliest tabernae of the Imperial period, which are known so far, are those from the Terrace House 2⁴ and the earlier structures along the Street of Domitian.⁵ These were erected in the early first century BC. In the course of the large-scale urban transformations, which accompanied the rise of the city to a provincial capital in the Augustan-Tiberian period, tabernae arose along the streets and were integrated into the newly built insulae. These have been excavated, for example, in the two Terrace Houses⁶ along the Curetes Street⁷ – which were later overbuilt – and also along the South Street in the area of the Upper Agora.⁸ When the great gymnasia – the Vedius Gymnasium and the East Gymnasium – were erected towards the end of the first until the mid-second century, tabernae along the adjacent streets were also part of the building concept.

In the third quarter of the third century, a series of earthquakes shook the city and caused immense damage to the entire urban development. For the following decades, the archaeological evidence indicates an absence of any building activity.⁹ In the middle of the fourth century, the first reconstructive measures can be observed, which – at first carried out in what appears to be haphazard fashion – reached their peak at the end of the fourth and the beginning of the fifth century. Some imperial structures were repaired or rebuilt, but there were also complexes, and even entire city quarters, which were built completely anew.¹⁰

The majority of the tabernae visible today were built at the beginning of the late antique phase of the city; they offer a glimpse of both micro- and macro-economic activities of Ephesos. In many places, it can be observed that space, which used to be public, was turned into commercially utilized areas. The upper section of the Curetes Street can be regarded as a clear example for this development. The portico was successively walled up – a phenomenon, which occurred in other cities of Asia Minor as well.¹¹ Very often



Fig. 1: Map with the Late Antique tabernae in Ephesos.

in these commercially used spaces, a phase of destruction – frequently caused by fire – occurred in the course of the seventh century. Whereas some tabernae offer only a snapshot from said period, due to their structural configuration, other tabernae allow the reconstruction of their entire life cycle – from their initial construction and the period of their everyday use up until their destruction.¹²

The Ephesian tabernae of the Imperial period show a strict structural separation from the privately used areas, which are generally located behind or above them. Only in the case of residential unit 6 in Terrace House 2, there is an indication of a connection between the entry and the adjacently located tabernae;¹³ these were located on the property of the residential unit's master. Unfortunately, the archaeological evidence does not indicate whether he rented out these commercial units or used them himself. The tabernae in the north of residential unit 7, were after the late Severan period, probably connected to the private rooms in the south. But the state of the structures does not allow definitive conclusions.¹⁴

In the course of late antique rebuilding activities of imperial structures, the tabernae of Terrace House 1 (fig. 2) were expanded northward. In addition, stairs leading to the upper floor were built, which was probably used as a living quarter for the family who worked at the tabernae.¹⁵ The architectural evidence indicates that a strict separation between this area and the residential area of Terrace House 1 was maintained.¹⁶



Fig. 2: Tabernae in the front row of Terrace House 1.

Between 2011 and 2018 new excavations have taken place in the lower city of Ephesus, where an area of roughly 1800 square meters was selected based on the results of a geophysical archaeological prospection. The excavated houses were built in the late fourth / beginning of the fifth century and traces of activity here extend up to the 14th century.¹⁷ The prospection data shows that these structures are part of a large city quarter which was constructed in the area of the imperial Harbor Gymnasium and the xystoi in the east. This transformation of formerly public into privately used space at such an enormous scale was presumably carried out at the initiative of an urban authority.¹⁸ More or less simultaneously, the nearby Flavian Harbor Baths were extensively renovated.

In the late antique period the city center developed in this region: in addition to the seat of the Archbishop and Metropolitane, the church belonging to this authority was also found here - the Church of St. Mary. In the course of the second half of the fourth century, an imperial basilica was transformed into an early Christian church. Originally the basilica formed the southern part of the Olympieion, a temple precinct erected under Emperor Hadrian and dedicated to Zeus Olympios.¹⁹ Whether it was the fact that it was a formerly pagan cult site, or whether it was the size of the building that was decisive for the choice as Episcopal Church remains an open question. Indicative of the significance of the late antique Ephesus is its infrastructure. The road to the



Fig. 3: Drone picture of the excavated Late Antique residential quarter.

south of the Church of St. Mary formed a direct connection to the northern part of the harbor, which was at this time still an important hub for a variety of goods and wares and which also served as a transit site for passengers. This latter aspect was additionally enhanced by the increasing traffic of pilgrims. This street is not much narrower than the so-called Arkadiane, the main road that connected the harbor with the theater. Its size is signifying its importance. It can, therefore, be assumed that this newly excavated city quarter (fig. 3–4) was situated in one of the best regions of the late antique city, where a huge number of visitors were to be found.

Based on the findings discovered in the first years of the excavations and also those, which were already found in the late 19th century in the nearby Harbor Gymnasium, it was until recently assumed that this complex represented a unified, large-scale city palace of prestigious character. This interpretation ought to be revised. In fact, there are three independent houses, which show considerable differences in size. These were erected in the early fifth century, and they show signs of massive destructions that occurred mainly in the second half of the seventh century. From the typology of their layouts, the westernmost house and the one in the middle conform to the tradition



Fig. 4: Map with representative and economic/commercial rooms.

of imperial peristyle houses, whereas in contrast, the easternmost house has a court without columns. These courtyards served as places of communication and also functioned as dividers. Around them were arranged, according to the possibilities of the existing building space, rooms of differing function and equipment. The courtyards could be accessed via entrance rooms in the north, which open into a portico alongside the road.

Many of the rooms did not show a specific form or interior so that their character cannot be identified properly. In other rooms, changes in function can be observed. In any case, in all three of the houses regions can be identified which, due to their floor- and wall decoration as well as in part due to the preserved archaeological evidence, were clearly of prestigious, representative character. In contrast, rooms can be recognized



Fig. 5: Detail picture of the opus-sectile floor, room 1.16.

within the houses, which, due to the installations preserved within them, were used for activities associated with the household economy. This is also confirmed by the inventory excavated there.

This is very clearly indicated in the last phase of House 1: the large courtyard (1.11) was used to access the surrounding rooms, which can be divided into commercial and representative units.

The rooms of representative character were located at the south of the courtyard. To this category belonged a sequence of three rooms, which could be entered in the southwest corner of the peristyle (1.13, 1.14, 1.17); they display polychrome mosaic floors with a variety of geometric patterns. A sword and the point of the scabbard belonging to it, as well as the point of a lance, which was probably placed at the wall of 1.14 as a collection of regalia, make it likely that this space was an audience room of the master of the house. Further east, two other representative rooms with opus sectile pavements could be excavated (1.18 and 1.16). The second one (fig. 5) shows

an apsis in the south, which is elevated by a step. The walls are decorated with wall paintings, only partially preserved, carried out in imitation of marble incrustation. In the north wall two closable cupboards were set, their contents consisted primarily of objects of bronze and glass. In the destruction horizon remains of carbonized decorative elements of furniture have been preserved. This room may have served as a reception or as a dining room.

Fragments of wall paintings, marble incrustations and many opus sectile pieces, which were found in the destruction layers of the upper story, indicate the elaborated and preciously interior of these rooms. This house is, therefore, best to be interpreted as the residence of a family of the uppermost social class of late antique Ephesos.

On the other hand, in the north and west of the courtyard, rooms of clearly commercial and economic function can be identified. In one of these rooms (1.12) a platform and a parallel shaft were set along the entire southern side wall. This combination of platform and shaft is also encountered in other rooms of this city quarter.²⁰ The shafts could probably be covered by wooden boards and were most likely used as storage spaces. This assumption is supported by the specific archaeological evidence of room 1.12 which was used for stock-keeping.

In the north of house 1, five elongate rooms are built next to each other (fig. 6). Two of them (1.2, 1.4) could clearly be identified as tabernae based on their characteristic location in the architectonic context. They open to the street and show no direct connection to the courtyard and the residential area. In addition, findings such as installations and archaeological material were discovered, which allow the interpretation of those rooms as small facilities, which served commercial purposes.

The room between them (1.3) is noteworthy due to a large number of amphorae. Furthermore, a great quantity of large-scale utilitarian pottery was excavated from the destruction layer. From this area, a polygonal amphora stopper was discovered with negative imprints, which could have come on the one hand from coins or on the other hand from lead seals. One token displays the motif of the adoration of the Christ child by the Μάγοι. None of the objects were produced in Ephesos, but instead, they were imported. Due to the finds from this room, one may also assume that it was used as a taberna, even if this space does display a direct connection to the interior of the house. The narrow chamber 1.5 was used as an entrance room.

The function of room 1.1 was more complex. A number of installations were found suggesting that agricultural products were processed and foodstuff was prepared here: Some structural features like grooves in the marble plates of the floor and a shaft with specific beam-holes, but also findings from the destruction layer – such as large burned layers which are nonetheless clearly limited, suggesting a considerable amount of burned, organic material, indicate a press facility for the production of liquids. A domed oven and a walled-in hearth, where foodstuffs could be prepared, were also found in this room. In the northwest corner the remains of an embedded pithos were discovered, which had been repaired with lead.



Fig. 6: Detail picture of the economic/commercial rooms at the front of house complex 1.

From 1.1 the rooms 1.6 and 1.7 could be entered in the south. 1.7 did not show a specific interior so that it cannot be assigned a function. But along the walls of 1.6 the remains of built-in benches and work platforms were found. Grooves cut into the floor may well have served for slip resistance, which is why it is assumed that the people worked with liquids here. This room could have been used for storage and other economic functions.

The last room in the northwestern part of the house (1.8), which was accessible through the courtyard, was also an economic area. An open slot along the northern wall was connected to a drain so that the wastewater originating here could be drained off. Originally 1.7 and 1.8 belonged together so that the other rooms in the northwestern part of the house were also connected to the residential area.

The destruction layer of the upper story in the northwestern part of the house contained a high concentration of animal bones. A total of 1905 bone fragments were analyzed, of which 1379 could be associated with a species. Amongst these, almost half – 48% – are associated with pigs, whereby small ruminants are almost equally frequently represented, with 43%. Cattle bones are present at only 9%, while dog, horse, and red deer are each represented only twice.²¹ Particularly noteworthy is the distribution of the skeletal elements, of which the main share consists of teeth. 89% of the domestic and wild pigs' teeth consist of canine teeth from the upper and lower jaw. The employment of the same technique in breaking off and removing the upper and lower teeth is remarkable, and they also display a uniform handling, which suggests that this activity was carried



Fig. 7: Three recently excavated tabernae at the upper Curetes Street.

out professionally. For the teeth of sheep and goats, a large percentage of molars from the lower jaw are present; these could have been broken off as well as hacked off, which equally applies to the molars of the upper jaw, yet these are present in much smaller amounts. Based on these materials, we can assume that a business for the processing of bones and teeth took place here, in which bone objects could have been produced and teeth could have been ground up for medicinal purposes.

The rooms 1.2–1.4 have in common that they were used for commercial or economic purposes and are situated at the front of the building. For those, which were separated from the living area, an interpretation as tabernae seems clear from the building evidence. For which purposes the tabernae were used cannot be determined precisely. Based on the enormous amount of excavated coins, which cannot be associated with other findings, that could have been traded here, a broad range of activities seems possible.

Whether room 1.1, in which agricultural products were produced, represents a taberna as well, cannot be precisely answered. In this context, the connection to other rooms in the interior of the house seems noteworthy, which suggests a direct interaction between the inhabitants and the employees. It is also conceivable that here, goods were processed, which were closely connected with the function or situation of the master of the house. This would not have been in the context of the practice of a small business, as would be common for tabernae.

The fact that the archaeological material allows a substantially nuanced interpretation of the function of tabernae is revealed by the recently excavated structures in the northern colonnade of the upper Curetes Street, where tabernae were constructed which, based on a series of coins beneath the loam floor, could not have occurred before the middle of the sixth century (fig. 7). During the reign of Heraklios, the space was destroyed by a massive conflagration, suggested by freshly minted coins of 40 nummi.²²

The findings and evidence from the eastern taberna allow a detailed reconstruction of the room's interior. Shelves, tables, walled-in benches, as well as storage spaces, can be reconstructed accurately from the evidence. The cups and bowls were found where they fell, and a row of wine amphorae found in situ, give an impression of activities just before the destruction. The disposal-system could be reconstructed and worked as follows: via an opening in the floor, food remains could be quickly and efficiently disposed of in the drainage system. The neighboring taberna was a place of production, in which individual objects of wood were manufactured. In addition to carbonized remains of the stored wood, tools such as a saw were also preserved.²³

It is – at least for now – not possible to reconstruct all the economic processes in Ephesos from the perspective of the small business units, which were located in the tabernae, given the lack of evidence. Measured by the existing archaeological evidence, there are only very few tabernae, whose findings and installations allow an unambiguous assignment of function, and even then, one can just get a fragmentary picture, which can only be transferred to the whole city in a very general and limited way. The majority of the excavated tabernae reveals a very indifferent picture and cannot be precisely identified in terms of their function. Characteristic equipment, as in the Curetes Street, is lacking, as is specific archaeological evidence which might point to commercial activities. In order to be able to comprehend the entire range of variation of the “types of the taberna” characterized in archaeological research, an avoidance of a sweeping attribution and also an attention to detailed evidence and its careful interpretation are required.

Notes

¹ see e.g. recently Scheifinger 2016; Scheifinger 2018, 421–426.

² see Packer 1978; Gassner 1986; Ellis 2004, is speaking about shops and bars in general and does not use the Latin synonym taberna. MacMahon 2005; De Felice 2007, esp. 478; see most recently Ellis 2018, 18–24 with Pompeii as a case study and taberna in general.

³ see Girri 1956; Packer 1971; Meiggs 1977.

⁴ Thür 1995, 93; Ladstätter 2000, 373; Thür 2009, 18; Waldner 2009a, 101–103. 108; Waldner 2009b, 294.

⁵ Vettors 1972–1975, 323–327.

⁶ Terrace House 1: Lang-Auinger 1996, 119–135.

⁷ Thür 1995, 84–95; Quatember 2005, 271–278; Thür 2009, 9–28; Iro et al. 2009; Fildhuth 2010, 137–153.

- ⁸ Eichler 1963, 59; Eichler 1965, 96 f.; Eichler 1966, 8 f.; Eichler 1967, 21; Jahresbericht 2009, 16 f.
- ⁹ Foss 1979, 188–191; Ladstätter 2002, 25–29; Ladstätter 2011, 3. 6; see more detailed Ladstätter – Pülz 2007, 391–433.
- ¹⁰ Ladstätter 2011, 6–12; for more detailed explanations about further steps after the earthquake and the changes of the Imperial townscape see Pülz 2011, 53–73.
- ¹¹ see e.g. Saradi 2006, 190 f. fig. 26–28; 271 f. 282.
- ¹² This life cycle is e.g. traceable for the tabernae at the upper Curetes Street, which were excavated in 2015. In the course of a project funded by Stadt Wien, MA7 – Wien Kultur and Gesellschaft der Freunde von Ephesos in cooperation with 7reasons the life of this tavern – from its construction period until the destruction – was visualized as a film; Schwaiger – Scheifinger 2019.
- ¹³ Tabernae T II S, T III, T III. UG: Thür – Rathmayr 2014, 116–120; Rathmayr 2016, 770.
- ¹⁴ Rathmayr 2016, 770 f.
- ¹⁵ Lang-Auinger 1996, 119. 131; Rathmayr 2016, 766.
- ¹⁶ Lang-Auinger 1996, 131–135.; Rathmayr 2016, 770.
- ¹⁷ Schwaiger 2012, 192–200; Schwaiger 2017, 87 f.; Jahresbericht 2011, 23–25. 52 f.; see additionally Jahresbericht 2012, 23–27; Jahresbericht 2013, 21–24; Jahresbericht 2014, 14–18; Jahresbericht 2015, 5–11; Jahresbericht 2016, 6–15; Jahresbericht 2018, 7–15.
- ¹⁸ Benndorf 1898, 62–65; Heberdey 1898, 71–73; Heberdey 1904, 39–41; Foss 1979, 60; Pülz 2011, 62 f. 67; Schwaiger 2012, 191–198 fig. 2–5; Schwaiger 2017, 87.
- ¹⁹ Karwiese 1989; Ladstätter 2011, 12 f.
- ²⁰ E.g. 1.8, 2.10–11, 3.2, 3.14.
- ²¹ Jahresbericht 2015, 41; Unpublished analysis of G. Forstenpointner (University of Veterinary Medicine, Vienna, Institute of Topographic Anatomy) based on preliminary results.
- ²² Unpublished analysis of N. Schindel (Austrian Academy of Sciences, Vienna, Institute for the Study of Ancient Culture) based on preliminary results.
- ²³ Jahresbericht 2015, 14–16.

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The material remains of Roman urban shops and workshops long played a marginal role in classical archaeology, but in recent years, they have enjoyed a marked increase of scholarly attention. Influenced by debates about the nature of ancient urban economies, scholars began to study the archaeological evidence for urban retail and manufacturing with an unprecedented vigour from the late 1990s onwards.

Since the turn of the millennium, scholars have increasingly begun to study shop- and workshop design in relation to profit-oriented investment strategies, and to explore the economic history of urban commercial landscapes. This volume discusses the ways in which the study of urban shops and workshops has challenged our conceptualization of urban economic history in the Roman world, and it explores possible avenues to further deepen our understanding of the changing nature of Roman urban commerce, and to bridge spatial and chronological distances between local sets of evidence.