



Universiteit
Leiden
The Netherlands

Artisans and Markets: the Economics of Roman Domestic Decoration

Flohr, M.

Citation

Flohr, M. (2018). Artisans and Markets: the Economics of Roman Domestic Decoration. *American Journal Of Archaeology*, 123(1), 101-125. doi:10.3764/aja.123.1.0101

Version: Not Applicable (or Unknown)
License: [Leiden University Non-exclusive license](#)
Downloaded from: <https://hdl.handle.net/1887/69905>

Note: To cite this publication please use the final published version (if applicable).

Artisans and Markets: The Economics of Roman Domestic Decoration

MIKO FLOHR

This article investigates how consumer demand shaped markets for high-quality domestic decoration in the Roman world and highlights how this affected the economic strategies of people involved in the production and trade of high-quality wall decoration, mosaics, and sculpture. The argument analyzes the consumption of high-quality domestic decoration at Pompeii and models the structure of demand for decorative skills in the Roman world at large. The Pompeian case study focuses on three categories of high-quality decoration: Late Hellenistic *opus vermiculatum* mosaics, first-century C.E. fourth-style panel pictures, and domestic sculpture. Analyzing the spread of these mosaics, paintings, and statues over a database of Pompeian houses makes it possible to reconstruct a demand profile for each category of decoration and to discuss the nature of its supply economy. It is argued that the market for high-quality decoration at Pompeii provided few incentives for professionals to acquire specialist skills and that this has broader implications: as market conditions in Pompeii and the Bay of Naples region were significantly above average, the strategic possibilities for painters, mosaicists, and sculptors in many parts of the Roman world were even more restricted and, consequently, their motivation to invest in skills and repertoire remained limited.¹

INTRODUCTION

Enormous amounts of money were spent throughout the Roman world, and by almost all classes of people, on decorating the walls and floors of houses with mosaics and frescoes and on embellishing rooms, halls, and gardens with statues, statuettes, and other movable ornaments. To judge from the excavated remains of houses and villas throughout the Roman world, both the quantity and the quality of demand in the Late Republic and Early Empire were unprecedented. This facilitated the emergence of a substantial supply economy in which specialized decorators, skilled artisans, and traders could earn a living. This proliferation of domestic decoration in the Roman Mediterranean has not gone unnoticed: the stylistic and cultural history of domestic paintings, mosaics, and sculpture has been one of the traditional strongholds of scholarship in the field of classical archaeology. Study of the production of decoration has been part of this tradition. Especially at Pompeii, there has been extensive debate about the composition and functioning

American Journal of Archaeology
Volume 123, Number 1
January 2019
Pages 101–25
DOI: 10.3764/aja.123.1.0101

www.ajaonline.org

¹I would like to thank Massimo Osanna and the Parco Archeologico di Pompei for generously allowing me to work on-site on many occasions over the past 15 years. The initial research for this article was carried out as part of the Oxford Roman Economy Project, in a position generously funded by Baron Lorne Thyssen; inspiration came from discussing approaches to the economics of Roman art with Andrew Wilson and Ben Russell. I am indebted to the anonymous reviewers for the *AJA* whose comments helped me to improve the manuscript, and to Eric Moormann, who offered indispensable advice at several stages. All figures are my own unless otherwise noted.

of painters' workshops and about the identification of individual painters. There is a large and growing amount of scholarship on the production of mosaics and sculpture.² Still, it may be argued that the economic history of domestic decoration —particularly the size and nature of consumer demand—have seen only limited consideration. This means that we know very little about the conditions under which artisans and traders had to make their strategic decisions: How attractive were markets for domestic decoration for the people involved in its production and supply? How many artisans could local markets for domestic decoration typically support? How did this impact the way in which those responsible for workshops made decisions about investment in labor, skills, and repertoire? Literary and epigraphic evidence sheds a bit of light on the artisans involved in domestic decoration: Diocletian's Prices Edict suggests that sculptors, painters, and mosaicists could be paid like other skilled artisans, though the person listed as *pictor imaginarius* (portrait painter) could get more than double the amount paid to any of the others.³ Epigraphic evidence, mostly from the city of Rome, reveals that some of these people, like many epigraphically attested craftsmen, were of freed or servile status, suggesting on the one hand that they were socially dependent but on the other that they could be closely associated with the elite—indeed, several epitaphs of *pictores* (painters) and *marmorarii* (marbleworkers) come from the columbaria of senatorial or imperial households.⁴ Otherwise, we have very little specific information on the professional lives of decorators. Recent work on craftsmen in general has moved away from the traditional emphasis on the low status of craftsmen, but it has at the same time emphasized that many urban professionals had to operate in market conditions that were difficult and sometimes unpredictable.⁵ However, to what extent and in what way these market conditions applied to people in-

volved in the production and trade of domestic decoration has remained unclear. In a recent article, Harris has attempted to set up a framework that can be used to study the economic history of Roman domestic art.⁶ His analysis also introduced some of the issues at stake in understanding the economics of Roman domestic decoration, but he was mostly interested in movable and collectible art consumed by equestrian and senatorial elites. Harris argued that painters, sculptors, and mosaicists would have been commonly present in any town, but other than that, his model offers limited guidance in analyzing the relation between supply and demand for the more ephemeral and widespread forms of domestic ornamentation.

This article attempts to develop a clearer idea of the nature of demand for domestic decoration in the Roman world to get a better view of the professional lives of the craftsmen involved. It does so on the basis of a case study at Pompeii, which offers a unique opportunity in the Roman world to attempt an assessment of consumer demand for several types of decoration on a citywide level. The argument is presented in four basic steps. First, it is necessary to sketch some conceptual issues involved in studying markets for domestic decoration and to identify the types of decoration that can be analyzed. The second step introduces the Pompeian evidence—a large data set of urban houses—and discusses how this evidence can be used to measure the social spread of domestic decoration. The third step, which forms the analytical core of the article, discusses the consumer markets for three key forms of high-quality domestic decoration. This discussion is based on a quantitative assessment of the structure and scale of consumption. Finally, the fourth step considers how the picture that emerges at Pompeii affects our view of markets for decoration in the wider Roman world. While the evidence from Pompeii is unique in quality and quantity and thus cannot easily be compared to evidence from other sites, our understanding of the exceptional regional context in which the city flourished can be used as a starting point for modeling market conditions elsewhere in the Roman world.

² On painters and their workshops at Pompeii, see, e.g., Richardson 2000; Esposito 2009, 2011, 2017. On mosaics, see Dunbabin 1977, 24–30; 1999, 269–78; Westgate 2000. On sculpture, see van Voorhis 1998; Russell 2013, 310–16.

³ Edict of Diocletian 7.1. On the nature of the *pictor imaginarius*, see Esposito 2017, 264.

⁴ E.g., the *pictores* in CIL 6 4008 and 4009 from the Monumentum Liviae. On the servile background of many epigraphically attested craftsmen, see Joshel 1992.

⁵ See, e.g., Flohr and Wilson 2016; Hawkins 2016; Ruffing 2016.

⁶ Harris 2015, esp. 407–8.

MARKETS FOR DOMESTIC DECORATION IN THE ROMAN WORLD

As an economic phenomenon, decoration is a murky concept and resists clear categorization. In its simplest form, decoration may be economically invisible in the sense that it does not require any transaction—for instance, people may use flowers and plants from their own garden to make garlands for a festive occasion. Conversely, in its most complex form, it can be carefully planned and designed, involve exclusive materials and complex techniques, and be very expensive.⁷ Between these two extremes, there is a wide range of decorative forms that are more or less complex to make and more or less dependent on specialist skills. In terms of demand, the desire for elaborate domestic decoration is a cultural phenomenon that is more prominent in some societies than in others. The last centuries B.C.E. and the first centuries C.E. saw, throughout the Mediterranean, a marked increase in the amount and complexity of the decoration of domestic space. This may perhaps be partially attributed to increasing prosperity, but it also reflects a cultural change in the social role of the house. Houses began to reflect, through size and embellishment, the social status of the owners, as is explicitly stated by Vitruvius (*De arch.* 6.5) in his discussion of the atrium house. For Pompeii, this development has been particularly well documented in the work of Dickmann.⁸

The analysis in this article targets the more complex forms of decoration that cannot be produced without specialized professional training. Particularly, it focuses on the forms of decoration that include complex figurative representations of human or animal bodies, such as mythological scenes and still lifes in paintings and mosaics and stand-alone statues of bronze and marble. Arguably, these were the more prestigious and costly decorative elements in domestic contexts, and their acquisition is likely to have been given special consideration by prospective buyers. Critically, they were optional elements; even if they added significantly to the atmosphere of a room, they could be—and often were—left out in favor of a more basic decorative scheme. Economically, they thus enjoyed a special status. The extent to which people were able and willing to spend money on this kind of high-quality

decoration was crucial for the economic possibilities of the artisans (or artists) involved and for the extent to which professionals would be inclined to truly specialize and invest in the training needed to make these paintings, mosaics, and statues. This article approaches the market for high-quality decoration mostly from a quantitative angle, as this is the only way to assess its performance on a citywide scale. It is clear, of course, that style, quality, and appreciation also played a role in the production of domestic decoration; there could be (and were) significant differences between individual paintings, mosaics, and statues in the style and quality of their execution. Some designs were technically more complex than others, and the work could be done with more or less detail or precision; the tablinum of the House of Marcus Lucretius Fronto (V 4, a) at Pompeii, with the sharp difference in quality of execution between two similarly designed decorative systems, is a case in point.⁹ Such variation is very hard to quantify, but this is also unnecessary; even the production of relatively poorly or quickly executed figurative mosaics and panel pictures required training and skills and cost time and effort that the surrounding decorative background of walls and floors did not. The same is true for sculpture—both marble and bronze. For the present purpose, quantification can be a good starting point for understanding consumer markets, even if it is insensitive to several aspects of the economics of domestic decoration that may have been central to the way in which walls, floors, and sculptural arrangements were evaluated—both by ancient viewers and by some modern scholars.¹⁰

A theoretical complication in discussing the economics of domestic decoration is that, while there may be a clear case for studying it as one phenomenon on the demand side, this is less obviously true when considering supply. Paintings, mosaics, and sculpture were made by different artisans who each operated in a differently functioning economic niche. While for some of these craftsmen domestic decoration was their core business, for others this may have been different. To judge from the archaeological record, it seems that many painters and mosaicists produced most of their work for domestic contexts rather than

⁷ On this fluidity, see also Harris 2015, 396.

⁸ Dickmann 1999. See also Hales 2003.

⁹ On the House of Marcus Lucretius Fronto and its paintings, see Peters 1993, 255–60.

¹⁰ See, e.g., the debate about freedman taste in Petersen 2006, 123–62.

for public buildings, but sculptors could also focus on statuary destined for display in public space. Particularly in the Early Imperial period, demand for honorific statues may easily have been comparable to that of garden sculpture and portraits.¹¹ More fundamentally, painters of frescoes by necessity had to work on the spot, whereas sculptors could work in their own atelier or workshop, especially when making smaller and relatively easily portable products.¹² Mosaicists could work on the spot or in a workshop, depending on what they were making.¹³ Moreover, for their raw materials and instruments, these artisans depended on different kinds of supply networks. Thus, what seems from the demand side to be an interrelated economic whole looks much more fragmented and complex from the supply side.

A more practical methodological problem in studying markets for domestic decoration on the basis of material remains is that the Pompeian paintings, mosaics, and sculpture buried in 79 C.E. were the product of developments over a longer period of time. Many Pompeian houses had their origins in the third or second century B.C.E. and developed slowly, over the following centuries. Size and scope of redecoration projects differed. In some cases, house owners may have had large parts of their house redecorated in one go; in other situations, a project embellished just one or two rooms. This leads to a rather mixed spread of decorative forms through the city of 79 C.E. At least one house in Pompeii had rooms decorated in all of the four Pompeian styles of wall-decoration, and the entire site is essentially a chronologically differentiated collection of smaller and larger construction and renovation projects.¹⁴ Moreover, not all phenomena that involved polychrome representations of humans or animals were in vogue at the same moment. This is true for the forms of high-quality decoration discussed in this article. The most prominent category of figurative mosaic in the Pompeian archaeological record, *opus vermiculatum*, was popular in the late second and

first centuries B.C.E.¹⁵ While the first figurative scenes in wall painting emerged in the same period, the body of evidence analyzed here consists of fourth-style panel pictures mostly dating from the last decades of the city's existence—from about 50 C.E. onward.¹⁶ Similarly, sculpture may have been present in Pompeian houses and gardens from the first century B.C.E. onward, but the archaeological record at best sheds light on art collections as they were in 79 C.E.¹⁷ As a consequence, the following analyses do not all apply to one specific moment or period, but rather they sketch three separate scenarios that illuminate three different supply economies at different points in time. These scenarios, however, together offer a cohesive perspective on the economics of domestic decoration at Pompeii.

Finally, the relative lack of debate about consumer markets for domestic decoration in the Roman world means that there are no ready-made historical scenarios that can be used as a starting point for the discussion. Recent discourse about the economically comparable phenomenon of private art consumption in early modern Europe can provide some helpful parallels. Scholars have analyzed the market for paintings and pictures in, for example, Flanders, the Dutch Republic, London, and early modern Italy.¹⁸ This work is mostly based on categories of evidence (e.g., notarial inventories) that do not exist for the Roman world,¹⁹ and it particularly highlights two points of relevance. In the first place, art historians have in the last decades increasingly emphasized the role of subelite demand in shaping early modern art markets. Despite the often central role of elite consumption in setting trends and defining quality, the quantities of demand generated by the broader citizenry can be shown to have had a profound impact on the quantity and nature of what was produced or reproduced. This is true of the market for pictures in 17th-century London, of the art market in the Dutch Republic, and of the market for paintings in

¹¹ On honorific sculpture, see, e.g., Stewart 2003; 2008, 77–107.

¹² Of course, some painters made transportable panels in a wooden frame, and while there is clear evidence at Pompeii that these paintings existed, they were exceptionally rare. See also Esposito 2017, 266–67.

¹³ See especially Westgate 2000, 272–73.

¹⁴ The house with the four styles is house I 8, 17. See Gallo 1989.

¹⁵ Westgate 2000, 273–74.

¹⁶ Hodske 2007.

¹⁷ See Allison (2004, 19–21) on the disturbance of art collections resulting from human action during the 79 C.E. eruption.

¹⁸ Flanders: Martens and Peeters 2006. Dutch Republic: De Marchi and van Miegroet 1994; Montias 2006. London: Gibson-Wood 2002. Italy: Etro and Pagani 2012.

¹⁹ Notarial inventories are used by Blondé and De Laet (2006); Martens and Peeters (2006); Montias (2006). Similar documents are known from Roman Egypt, but these do not feature many references to art.

16th- and 17th-century Flanders.²⁰ Indeed, it has been argued that the Dutch school of painting partially resulted from a unique increase in the purchasing power of subelite groups in the early 17th century.²¹ As earlier work on the social spread of painting in Pompeii suggests, this market-shaping role of subelite demand is potentially relevant in Roman contexts, too.²² Secondly, recent scholarship on art markets in the early modern world strongly argues against studying local art markets in isolation. For instance, a great deal of the market for paintings in 17th-century Amsterdam was shaped by the presence of low-quality imports from the southern Netherlands. In Haarlem in the same period, many artists were addressing supralocal markets because local demand was not sufficient for them to survive.²³ In 17th-century northern Italy, artists working on nonmovable paintings were extremely mobile, so that the location of cities had little or no impact on price levels. Higher prices in some of the bigger cities were caused by a greater demand for high-quality products and not by a low supply.²⁴ Yet, despite their mobility, artists often operated from, and were based in, a limited number of key consumer centers such as Rome, Florence, and Venice. By analogy, in making sense of Pompeian demand for high-quality decoration, we need to see this demand in its immediate regional context: southern Campania and the Bay of Naples.²⁵

PRIVATE WEALTH AND DOMESTIC DECORATION IN THE ARCHAEOLOGICAL RECORD

Before looking at the actual decoration, it is necessary to say a few things about how demand for domestic decoration can be measured at Pompeii. Some work on this issue has already been done by Wallace-Hadrill and, more recently, Hodske. Wallace-Hadrill set out a methodological framework in his article on the social spread of luxury in houses in Pompeii and Herculaneum, which he slightly refined in his subse-

quent monograph on houses and society in the cities buried by Vesuvius.²⁶ Hodske used an essentially similar methodology in studying the social spread of painting in Pompeii. The present analysis follows the approach developed by Wallace-Hadrill but adapts it in two minor ways. First, I use a different unit of account. Wallace-Hadrill used as his unit of account the “house,” which he defined as any structure that could be inhabited by a household. His “houses” thus included a wide range of units—from small *tabernae* (shops) with one or two back rooms to the urban villas of the wealthy elite.²⁷ This makes sense, as it is relevant to understanding the social spread of buying power throughout society, from the smallest and poorest households to the largest and richest. However, it must not be forgotten that *tabernae* and rental apartments, even if they were occupied by economically more or less independent households, also generated additional income for the owners of the properties to which they belonged—often the occupants of the atrium houses of which the *tabernae* were a part. In assessing the relative value of atrium houses and the buying power of their owners, we should take into account the number and size of the dependent units associated with them. Hence, what is analyzed here are entire domestic buildings rather than independent domestic units. In practical terms, this means that while this analysis only sheds direct light on the wealthier portion of Pompeii’s households, it can better assess the distribution of consumption within this wealthier portion. Moreover, because of the bad preservation of upper floors, virtually no evidence for high-quality domestic decoration has been found in either *tabernae* or upper-floor apartments. Leaving these households out of the equation does not fundamentally distort our understanding of the evidence for domestic decoration, however, as including *tabernae* and upper-floor apartments as separate entities, by contrast, would wrongly suggest that what has not been preserved was never there in the first place.²⁸

A second adaptation to the methodology of Wallace-Hadrill concerns the way in which house size is

²⁰ E.g., in late 17th-century London: Gibson-Wood 2002, esp. 495–96. See also, for the Dutch art market in the same period, De Marchi and van Miegroet 1994, 455. For 16th-century Antwerp, see Martens and Peeters 2006.

²¹ Bok 2001, 199–204.

²² Esp. Wallace-Hadrill 1990, 1994.

²³ De Marchi 1995, 204–14.

²⁴ Etro and Pagani 2012, 427.

²⁵ For the importance of regional markets in understanding Pompeii’s textile economy, see Flohr 2013.

²⁶ Wallace-Hadrill 1990, 1994. His method was subsequently used by several other scholars, most prominently Robinson (1997) and Hodske (2007).

²⁷ Wallace-Hadrill 1994, 151–55.

²⁸ *Opus vermiculatum*: only in taberna VII 13, 23, where two panels were found that were probably on sale. Panel pictures: taberna I 1, 2, taberna V 2, 14, taberna VI 10, 1.19, and taberna IX 2, 23. Sculpture: only in taberna VII 7, 18.

assessed. Previous scholars have used plot size as the leading criterion in assessing house size. This nicely captures differentiation among households in access to land, but on its own, this is a very rough measure, as it neglects the way in which a plot was used and the extent to which it was built up.²⁹ As an additional measure, this article therefore uses the number of rooms, which is the criterion used in some assessments of early modern art consumption.³⁰ The number of rooms may be seen as a proxy for the architectural complexity of a house, and thus for the relative value of the built structures. At Pompeii, reconstructing room number is not always unproblematic; by necessity, the analysis must exclude upper floors, which have been very unequally preserved throughout the city and therefore cannot be used in any systematic analysis. Still, combining the two parameters of plot size and room number makes it possible to quantify, albeit roughly, the dimensions of a house.

To make the two parameters comparable, they were converted to the proportion of the maximum value for each parameter and then averaged out. For example, the House of Orpheus (VI 14, 20) has 26 rooms on the ground floor and a surface of 674 m². The house with the largest surface area is the House of the Faun (VI 12), with 2,809 m², while the House of Fabius Rufus (VII 16, 21–22) has, with 78, the largest number of rooms. For the House of Orpheus, this results in the following calculation:

$$100 \times \frac{\left(\frac{674 \text{ m}^2}{2,809 \text{ m}^2} + \frac{26 \text{ rooms}}{78 \text{ rooms}} \right)}{2} = 28.66$$

While this figure in itself does not directly reveal the actual buying power of the household occupying the House of Orpheus, it gives a numeric indication of the relative dimensions of the property that can be compared with those of other houses. Relatively simple database technologies suffice to perform this calculation for all houses in Pompeii and to rank the houses on this basis. The ranking provides a rudimentary estimate of the social distribution of living space and of the basic structure of wealth inequality at Pompeii. Compared to other domestic buildings, the House of Orpheus ap-

pears relatively sizable: it is larger than 484 excavated houses but smaller than 95. This means that it ranks 96th in the housing database and belongs to the 84th percentile, or the ninth decile.

A ranking of the houses of Pompeii as of 79 C.E., from small to large (fig. 1), shows a long continuum of houses slowly increasing in size and culminating in a small but high peak that begins to climb rapidly around the 90th percentile. This brings us to a third issue: the degree of precision in analyzing the spread of consumption. A disadvantage of the approach of both Wallace-Hadrill and Hodske is that they rigidly subdivided their data in a very rough way. Wallace-Hadrill divided his data set into four quartiles, of which, essentially, the lower two include tabernae, while the upper two include medium-sized and large houses. Hodske just separated the houses smaller than 300 m² from the larger ones, and, in a parallel analysis, those with an atrium and/or a peristyle from those without. Crucially, these approaches impose a framework on the data set that makes it difficult to do justice to any internal differentiation that may exist. For the present argument, it is essential to be able to discuss the spread of consumption in greater detail. Hence, in what follows, the hierarchy visualized in figure 1 is analyzed mostly in groups of 10% (deciles).

Before projecting the evidence for decoration on the socioeconomic hierarchy of Pompeian houses, it makes sense to briefly reflect on what the hierarchy itself looks like. Small to medium-sized atrium houses dominate. On the grounds of the deviation of the 10th decile from the rest, it is perhaps feasible to identify some kind of economic elite in the 10th decile, which consists of the large to exceptionally large houses, such as the House of the Faun, the House of the Labyrinth (VI 11, 8–10), and the House of the Vettii (VI 15, 1; fig. 2, elite villas). This was not the complete elite, though, as there were several exceptionally large and luxurious elite villas just outside the city, such as the Villa of Cicero, the Villa of Diomedes, and the Villa of the Mysteries. These suburban villas have not been included in the database as most have been only partially excavated and remain insufficiently known, but their existence is important. If we assume that the city's poorest consumers either lived within elite houses as slaves or in the rental apartments and tabernae belonging to other houses, the many small to medium-sized houses (see fig. 1) represent a variety of groups situated above the relatively poor and below the very

²⁹ On this issue, see also Flohr 2007, 132.

³⁰ E.g., Blondé and De Laet 2006; Martens and Peeters 2006. See also Flohr 2017.

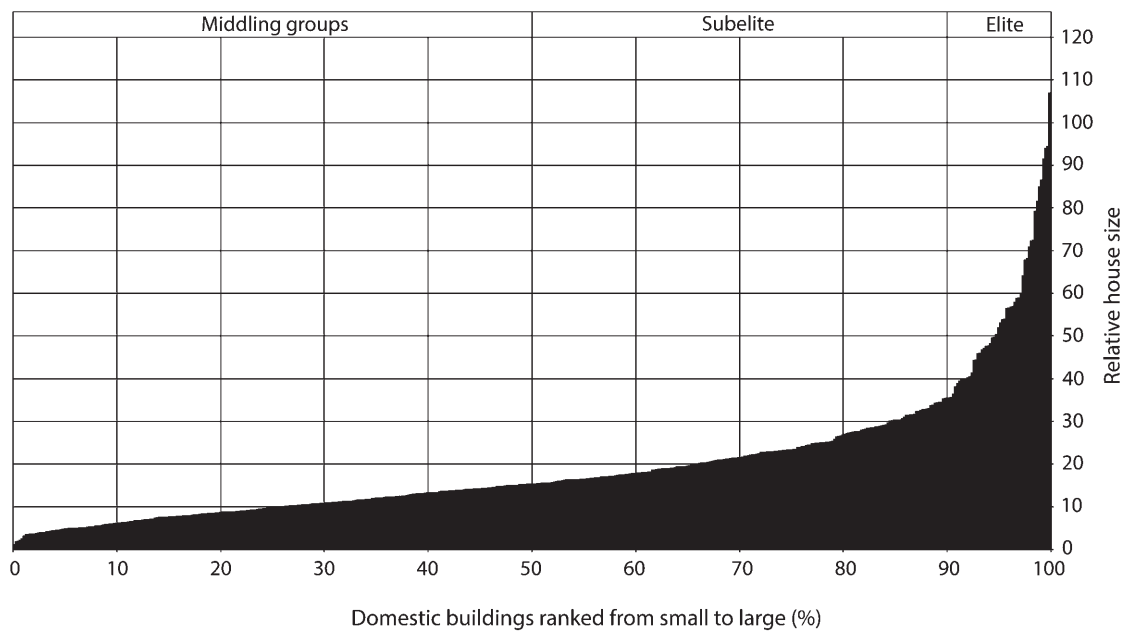


FIG. 1. Pompeian domestic buildings (N = 507) ranked from small to large, highlighting differences in relative house size, based on plot size and number of rooms.

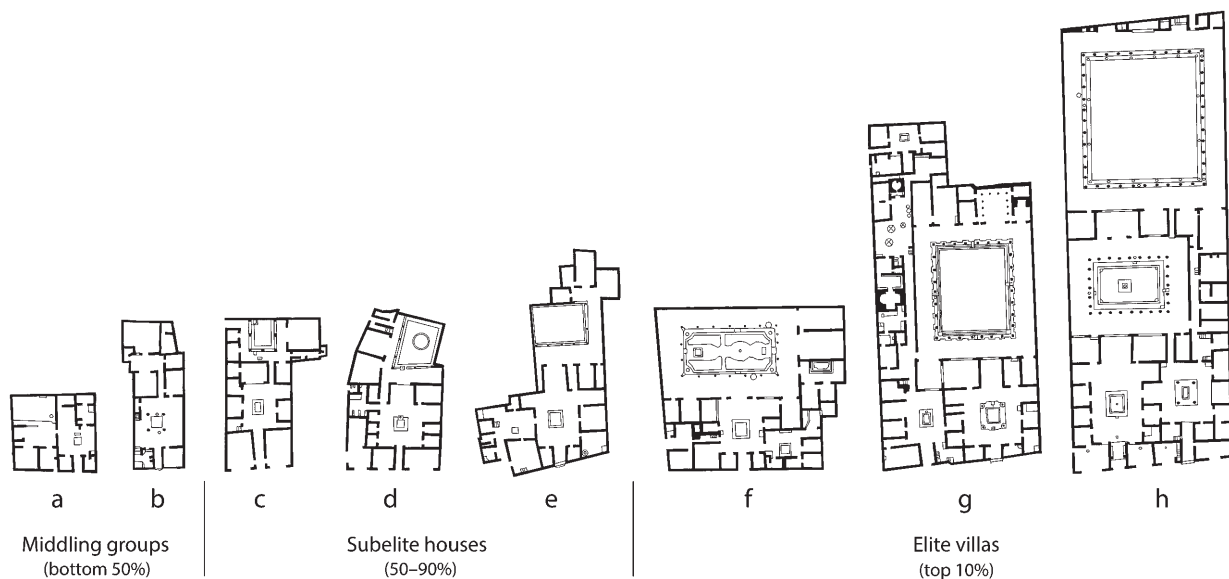


FIG. 2. Eight Pompeian houses compared in size and complexity from small (left) to large (right) and the percentile group to which they belong in the ranking of Pompeian houses shown in fig. 1: *a*, House of the Prince of Naples (27th percentile); *b*, House of the Ceii (46th percentile); *c*, House of the Tragic Poet (68th percentile); *d*, House of the Ancient Hunt (80th percentile); *e*, House of Orpheus (83rd percentile); *f*, House of the Vettii (91st percentile); *g*, House of the Labyrinth (98th percentile); *h*, House of the Faun (99th percentile) (plans adapted from Vander Poel 1986; courtesy Ministro per i beni e le attività culturali, Parco Archeologico di Pompei).

wealthy.³¹ In what follows, the houses in the bottom half of the scale are referred to as belonging to “middling groups”—households that were neither living at subsistence level nor very wealthy with respect to the rest of the community. This group of houses includes, for instance, smaller houses like the House of the Prince of Naples (VI 15, 8; see fig. 2a) and the House of the Ceii (I 6, 15; see fig. 2b). The upper half of the scale, excluding the 10th decile populated by the elite, is referred to as belonging to the subelite: households that were relatively wealthy compared to the rest of the community but distinctly less wealthy than the elite. Good examples of houses belonging to this group are the well-known House of the Tragic Poet (VI 8, 3–6; see fig. 2c), the House of the Ancient Hunt (VII 4, 43–49; see fig. 2d) and the House of Orpheus (VI 14, 18–20; see fig. 2e). The point of distinction between the middling groups and the subelite is arbitrary, and the labels used should not be taken to bear a strong intrinsic historical meaning—the middling groups are certainly not meant to correspond to a middle class.³² Rather, these labels make it possible to discuss the spread of consumption in understandable terms.

Obviously, this hierarchy of buildings represents the situation in 79 C.E., and it is, with our present knowledge of Pompeii’s housing stock, very hard to measure precisely how it developed over time. Nevertheless, it may be suggested that, from the early to mid first century B.C.E. basically until 79 C.E., Pompeii’s housing stock (though not necessarily also its society) appears to have been more or less stable, with perhaps a slight increase in the number of larger houses. During this period, very few large houses were split up into smaller parts, but some smaller properties merged to form larger houses, and some large houses bought and incorporated one or more of their smaller neighbors.³³ The only more significant structural development of the first century C.E. concerns the extension of the houses overlooking the Sarno plain and the sea on the southern and western edges of the town, but even

this had already begun in the Late Republic.³⁴ Overall, most houses in Pompeii kept their Late Republican dimensions, except for the occasional exchange of a back room with one of the neighbors.³⁵ By implication, in earlier periods the proportion of large houses and elite villas may have been slightly smaller than was the case in 79 C.E., as some of these were constructed only in the Early Imperial period, but the basic shape of the graph will have been roughly similar. In other words, Pompeii’s hierarchy of houses (as visualized in fig. 1) can be used not only for understanding the consumption of the forms of decoration that date from the middle of the first century C.E. but also as a reliable starting point for analyzing the consumption of the Late Hellenistic *opus vermiculata*.

CONSUMING OPUS VERMICULATUM

Of the three data sets to be discussed in this article, *opus vermiculatum* is the smallest. These mosaics have been found in just 18 houses in Pompeii, including three suburban villas. Their spread over the hierarchy of Pompeian houses (fig. 3) immediately makes clear that access to this form of art was very strongly concentrated in the elite: eight of the 15 ranked houses with *vermiculatum* within the city walls (56%) belong to the top 10% of Pompeian houses by size. Together, these houses contained 63% of all mosaics (22 of 31). With one exception, all houses containing more than one room with *vermiculatum*, such as the House of the Faun (see fig. 2h), the House of the Menander (I 10, 4), and the House of the Labyrinth (see fig. 2g), belong to this group.³⁶ The subelite group contains one-third of the houses with mosaics, and of these five houses, three are to be found in the upper half of the ninth decile (table 1). Only two houses in the bottom half of the scale had rooms with *opus vermiculatum*.³⁷ In other words, for those who, in the first century B.C.E., were involved in the supply economy of these mosaics, elite demand was clearly the leading factor. That *opus vermiculatum* was a form of decoration reserved for the elite is further confirmed by the fact that all other high-quality

³¹ On the inhabitants of tabernae and rental apartments, see Wallace-Hadrill 1994, 80–1; Pirson 1999, 165–74.

³² On Roman middle classes, see Mayer 2012, to be read with Wallace-Hadrill 2013.

³³ See, e.g., Wallace-Hadrill (1994, 74) on the merger that resulted in the Casa dell’Efebo (I 7, 10–12). On comparable developments at Herculaneum, see De Kind 1998, 202–4.

³⁴ On the development of these houses, see Noack and Lehman-Hartleben 1936.

³⁵ On this issue and on the stability of plot boundaries, see Schoonhoven (2006), who reconstructs initial plot divisions of the insulae of region VI on the basis of standing walls.

³⁶ The exception is house IX 2, 27.

³⁷ VI 15, 14–16, and IX 2, 27.

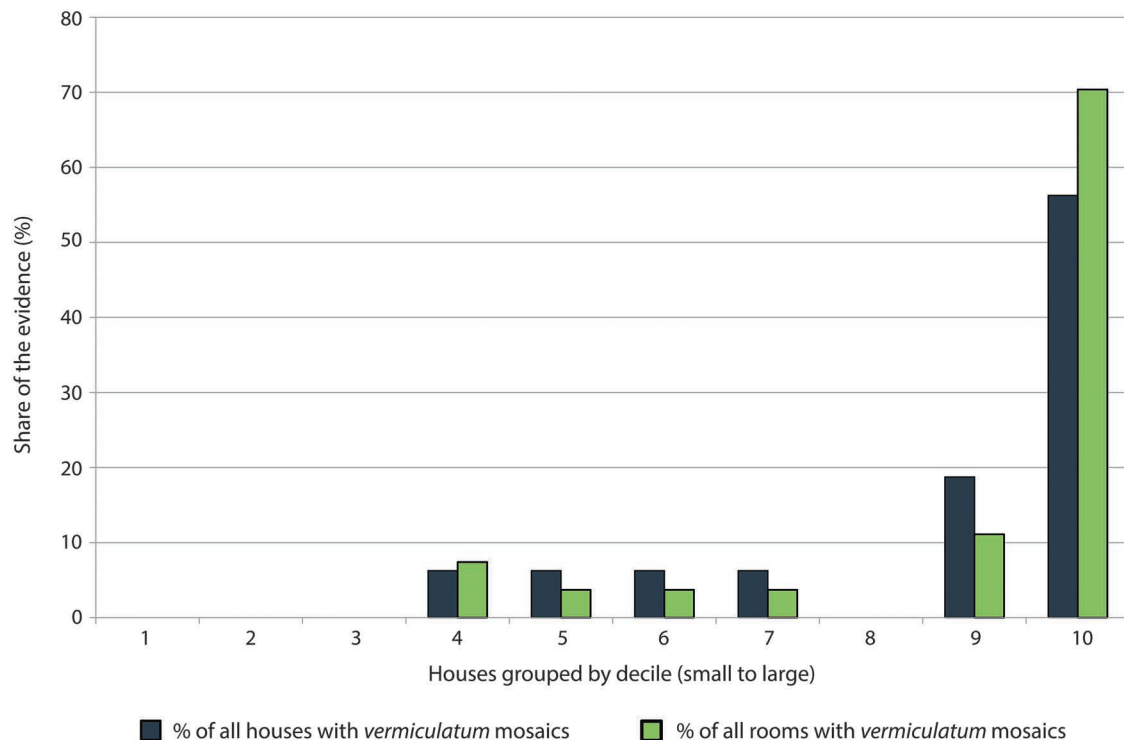


FIG. 3. Social spread of *opus vermiculatum* at Pompeii, showing for each decile what percentage of the houses with *opus vermiculatum* it contained and what percentage of the rooms with *opus vermiculatum*.

mosaics known from this period found in the environs of Pompeii were found in suburban villas like the Villa of Cicero and the Villa of Siminius Stephanus.³⁸

The implication of this is that aggregate demand for *opus vermiculatum* in Pompeii and its immediate environment was extremely low, even if it could be argued that we do not have the full picture of what once was there—several mosaics originally put in place in the early first century B.C.E. may have been removed in the course of the subsequent century and a half when buildings were reorganized or redecorated. However, given the social spread of demand, it is extremely unlikely that, measured over the period in which these mosaics were in vogue, there was one household per year on average buying them. Such a low level of demand for a form of decoration the production of which depended on highly specialized skills could not have

supported artisans primarily targeting the local market. This is reflected in preserved *opera vermiculata* of Pompeii. As noted by several scholars, many were made in trays of stone, terracotta, or marble, which suggests they had been fabricated elsewhere and were inserted into the floor at a later time.³⁹ Indeed, some of the *emblemata vermiculata* seem to have come from rather far away. For instance, the two *emblemata* found in the so-called Villa of Cicero outside the city gate were made in a tray of white marble and signed—in Greek letters—with the name of Dioskourides of Samos. It is very possible that these *emblemata* actually came from somewhere in the Greek world.⁴⁰ Other trays were made of travertine, suggesting a provenance in the environs of the Roman metropolis (fig. 4).⁴¹ These

³⁸ Villa of Cicero: mosaic of street musicians (Naples, Museo Archeologico Nazionale, inv. no. 9985); mosaic of sorceress, (Naples, Museo Archeologico Nazionale, inv. no. 9987). Villa of Siminius Stephanus: mosaic depicting the academy of Plato, (Naples, Museo Archeologico Nazionale, inv. no. 124545).

³⁹ See particularly Westgate 2000, 272. For individual cases, see also Strocka 1992; Ling and Ling 2005, 201, 234.

⁴⁰ Cf. Westgate 2000, 273.

⁴¹ Westgate (2000, 273) considered these local, but travertine was not quarried in the direct environment of Pompeii in antiquity and, within Italy, mainly comes from Rome, which was a logical place for specialized Hellenistic mosaicists to settle, given high local demand there.

TABLE 1. Mosaics in *opus vermiculatum* at Pompeii.

Building	Size ^a	Rank ^b	Percentile	No. <i>Vermiculatum</i> Mosaics	Area Covered by <i>Vermiculatum</i> (m ²)	% of Total Area Covered by <i>Vermiculatum</i> at Pompeii
House of Ariadne	86.53	6	99	1	0.64	1.72
House of the Faun	84.85	8	99	10	25.81	68.80
House of the Labyrinth	72.25	12	98	3	0.45	1.22
House of the Menander	70.88	14	98	2	0.33	0.90
House VIII 2, 16	68.17	15	97	2	2.81	7.50
House of the Centaur	46.70	39	93	1	2.21	5.91
House/Tannery I 5, 2	40.73	45	92	1	0.19	0.51
House VIII 2, 34	39.90	49	91	2	2.28	6.08
House I 7, 1	33.70	65	88	1	0.06	0.15
House VII 16, 17.23	32.30	71	87	1	0.02	0.05
House VIII 3, 8	31.41	76	87	1	0.24	0.64
House of the Tragic Poet	20.44	175	69	1	0.16	0.43
House VII 6, 38	15.29	270	52	1	0.26	0.70
House VI 15, 14	13.55	315	44	1	0.04	0.11
House IX 2, 27	10.65	392	30	2	0.99	2.64
Villa of Simenus	—	—	—	1	0.75	1.99
Villa of Cicero	—	—	—	2	0.20	0.52
Shop VII 13, 23	—	—	—	2	0.05	0.12

^aRelative size score calculated on the basis of surface area and number of rooms (as explained in text)

^bRank in housing database by size; rank 1 is the largest house

relatively remote origins suggest that these mosaics were not made on demand but were prefabricated and traded commercially. At the same time, mosaics in trays also could be relatively easily removed from their original context to be reused elsewhere. For instance, the famous memento mori mosaic (fig. 5) was found set into the top of a table in the summer triclinium in the garden of house I 5, 2—the *vermiculatum* dates from the Late Hellenistic period, but it has been used in an architectural ensemble of the Early Empire.⁴² The two *emblemata vermiculata* from taberna VII 13,

23, were, to judge from the excavators' reports, found out of place; their location in a shop suggests that they were available for sale.⁴³ The portable nature of these *vermiculata* thus also opens up the possibility of a (tiny) secondhand market. Perhaps the Late Hellenistic *vermiculatum* emblem in the otherwise Early Imperial decoration of the House of the Tragic Poet also belongs to the realm of reuse.⁴⁴

⁴³ Fiorelli 1864, 30.

⁴⁴ On the role of this mosaic in the decoration of the tablinum, see Bergman 1994, 254.

⁴² De Caro 1994, 191.



FIG. 4. Mosaic of Theseus and the Minotaur, *opus vermiculatum emblema* prefabricated in a travertine tray, House of the Labyrinth (VI 11, 8–10), Pompeii, room 42, 43.5 x 44 cm.

Small, portable *emblemata vermiculata* in trays of up to about 55 x 55 cm represent the norm at Pompeii: of the 32 *opera vermiculata* in Pompeii, 18 (58%) fall into this category. The number of larger mosaics was limited. A group of 10 medium-sized *opera vermiculata* ranged in size from about 80 x 80 cm to 115 x 115 cm. These medium-sized mosaics may have been portable and were occasionally made in trays, though some may have been produced in situ. Four come from the House of the Faun and may have been part of one commission (see below). Of the other six, two come from house VIII 2, 34, where they appear to belong to one phase of redecoration.⁴⁵ In other words, there is evidence for just six transactions involving mosaics of this size. Finally, four remaining mosaics had a surface of more than 2 m². These include, besides the Alexander Mosaic and the Nilotic scenes that formed the threshold of the same *oecus* in the House of the Faun, the big marine mosaic from house VIII 2, 16, and the circular lion mosaic from the House of the Centaur (VI



FIG. 5. Memento mori mosaic in *opus vermiculatum*, found set into the table of the triclinium in the garden of house I 5, 2, in Pompeii, 47 x 41 cm. Naples, Museo Archeologico Nazionale, inv. no. 109982.

⁴⁵ On house VIII 2, 34, see Noack and Lehman-Hartleben 1936, 44–55.

9, 3–5). Westgate believed that, of these mosaics, only the Alexander Mosaic was really too large to be transported, but one could argue that, for the others too, transport was extremely complicated and may have cost more than making the mosaic locally.⁴⁶

Not only was the number of transactions modest, their average size was limited as well. Of the 18 houses with *opus vermiculatum*, 10 had only one mosaic (see table 1). Six houses had two mosaics, but in only three of these were larger mosaics involved: two were large elite residences on the southern edge of Pompeii, overlooking the Sarno delta, and the third was the relatively modest house IX 2, 27, which happened to have one larger mosaic and a small *emblema*.⁴⁷ The only house with three *opera vermiculata*—the House of the Labyrinth—had three small *emblemata* in trays. Basically, it seems that we are left with a modest number of small-scale transactions involving just one or two, often portable, mosaics. The major exception is the House of the Faun. Measured by surface area, the mosaics of this house make up 69% of all *vermiculatum* in Pompeii (fig. 6). Even excluding the Alexander Mosaic, six of the 10 largest *opus vermiculatum* mosaics from Pompeii come from this house. This spectacular decorative program is unique not only for Pompeii, but, in its specific chronological context, for the Roman world as a whole. Understandably, it has attracted attention from scholars. Many of these have assumed that the mosaics were all or mostly made in one commission by a specialized workshop temporarily settling at Pompeii. Zevi has even suggested that the mosaicists were Alexandrians from Latium, who, after completing the Nilotic mosaics at Palestrina, came to Pompeii for this project.⁴⁸ Others have suggested that the project was split into several smaller parts and stretched over a period of several decades; Pesando has argued that there were at least three, and probably more, separate phases between the last quarter of the second century B.C.E. and the first years of the Sullan colony founded in 80 B.C.E.⁴⁹ Both scenarios may be possible, but as far as the present argument is concerned, the point lies in the complete exceptionality of the House of the Faun: it is such an outlier that it is of limited relevance

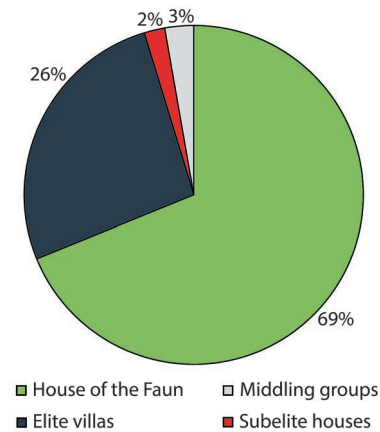


FIG. 6. Total area of *opus vermiculatum* compared, in the House of the Faun, other elite villas, and the houses in deciles 1–9.

to understanding the economics of *opus vermiculatum* at Pompeii.

To sum up, the low level of consumption in subelite and middling groups, the dominance of small, portable (and imported) *emblemata vermiculata*, and the modest size of transactions in general suggest that it would have been impossible for artists specializing in *opus vermiculatum* to earn a living in Pompeii—even in the period when these mosaics were most popular. Notwithstanding the House of the Faun, it was exceptional for mosaicists actually to work on-site at Pompeii. This may have happened on only two other occasions—in the House of the Centaur and in house VIII 2, 16. The other *vermiculata* that we find in Pompeii were probably imported from elsewhere. The precise mechanisms through which these mosaics arrived in the city mostly elude us. Demand seems too low for traders to bring portable *vermiculata* to Pompeii spontaneously on a regular basis. Perhaps some of the *vermiculata* were acquired by consumers through private networks in places like Puteoli or Rome. Alternatively, the acquisition of *vermiculata* may have been in the hands of the craftsmen responsible for laying the rest of the floor—and thus dependent on their supply networks. These locally based mosaicists probably specialized in the geometrical patterns that characterized the decoration of *opus signinum* and mosaic floors during the first century B.C.E., and there would have been little motivation for the proprietors of these workshops to invest in the specific skills needed to produce high-quality *opus vermiculatum* as long as they did not target a market significantly larger than Pompeii and its immediate environs.

⁴⁶ Westgate 2000, 272.

⁴⁷ On house IX 2, 27, see Bragantini 1998.

⁴⁸ Zevi 1998, 43–4.

⁴⁹ Pesando 1996, 197–98.

COMMISSIONING PANEL PICTURES

The exclusivity of Late Republican *opus vermiculatum* contrasts sharply with the widespread consumption, slightly over a century later, of the panel pictures that formed the visual focus of fourth-style wall paintings (fig. 7). Unlike the *emblemata vermiculata*, these pictures were made on the spot as part of a larger wall decoration, but it seems they were often produced independently at a late stage in the production process. Several scholars have argued that these panel pictures were made by skilled specialists who were trained for this specific form of decoration and may have developed a repertoire of scenes they could easily paint.⁵⁰ Thus, while the panel pictures may have been part of a transaction including the entire wall decoration of a room, their specialist character makes it likely that their size, design, and quality were often negotiated independently and that the decision to include panel pictures in the decoration of a room was informed by the extra costs involved.⁵¹

The quantity of panel pictures known at Pompeii is large: this article works with a data set of 901 panel pictures, which is based on the work of Hodske and the *Pompei: Pitture e mosaici encyclopaedia*.⁵² These panel pictures come from 441 rooms in more than 197 buildings. The spread of panel pictures over the houses database (fig. 8) immediately reveals that they were much more widely distributed through the social hierarchy than were *emblemata vermiculata*. Indeed, the 197 buildings that had one or more rooms with panel pictures make up 35% of all excavated domestic buildings at Pompeii.⁵³ Rooms with panel pictures were more common in larger properties, but a significant proportion of demand was concentrated outside elite circles. Panel pictures emerged as a form of art to which a

relatively large minority of the population had access: 81% of the households that commissioned panel pictures belonged to subelite and middling groups, and together their houses contained 66% of all rooms that were embellished with this form of decoration (table 2). The subelite group, both in number of customers and in the total volume of demand, represented over half of the Pompeian market. Arguably, this compares rather nicely with the picture evoked by scholars studying the art markets of early modern Europe. While the elite may have had the highest demand per household and may have been able to afford products of higher quality, the market as such was dominated by the moderately wealthy who had some funds but not an endless budget for panel pictures when decorating or redecorating their houses.⁵⁴

The question is, of course, what this demand profile meant for the painters who specialized in the production of these panel pictures. The number of rooms with panel pictures per house varied quite substantially (see fig. 8), with larger houses having multiple rooms with these paintings, while smaller houses often had only one or two. Grouping houses by the number of rooms decorated with panel pictures (fig. 9), which roughly equates to the maximum possible size of commissions, shows that almost half of all buildings with panel pictures have them only in one room, and another quarter in only two rooms. At least three-quarters of all commissions thus concerned only one or two rooms, generally with two or three panel pictures per room. Of the remaining quarter, the majority had three or four rooms with panel pictures. Houses containing five or more rooms with panel pictures are exceptional, and there are only two houses with more than 10 rooms: the House of Ariadne (VII 4, 31), which had 11 rooms with panel pictures, and the House of Meleager (VI 9, 2–3), which had 12, including a true pinacotheca along the walls of the peristyle (fig. 10). Demand for panel pictures and the specialist skills related to their production thus often came in small commissions.

It seems sensible to speculate briefly about the aggregate yearly demand for panel pictures at Pompeii. This can be done in four steps. The first of these is to correct our figures for missing panel pictures that once decorated the walls of excavated houses but for some reason went unrecorded, either because they were destroyed in the eruption or because they were over-

⁵⁰ Leach 2004, 239–40, 263–64; Esposito 2009, 22–4; both with references to earlier discourse.

⁵¹ Beyond the basic decision to have or not to have panel pictures, there were considerations of dimensions and quality that could affect the costs involved. These considerations are much harder to reconstruct or quantify because they depend on information that is not always available. These issues have been left out of the present analysis. While this is a simplification of historical reality, it does not impede our view of the basic structure of the market.

⁵² Hodske 2007; Pugliese Caratelli 1990–2003.

⁵³ This number is comparable to Wallace-Hadrill's, which came to just above 20% because he counted tabernae and apartments separately. See Wallace-Hadrill 1994, 154, fig. 7.6.

⁵⁴ See *supra* n. 21.



FIG. 7. Fourth-style wall decoration with panel pictures, House of the Tragic Poet, Pompeii, east wall of *oecus* 15.

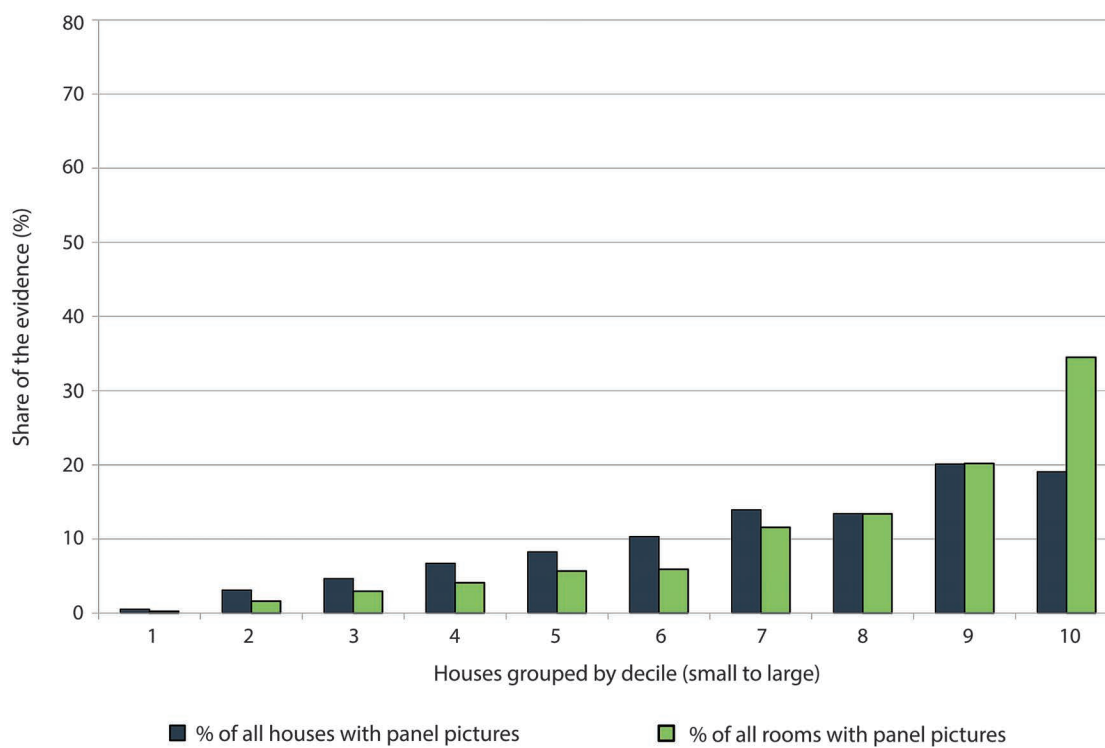


FIG. 8. Social spread of fourth-style panel pictures in Pompeii, showing for each decile what percentage of the houses with panel pictures it contained and what percentage of the rooms with panel pictures.

TABLE 2. Distribution of the evidence by status group and decile from small (1) to large (10) houses. (Includes data reflected in figs. 3, 8, and 11.)

Status Group	Decile	<i>Opus vermiculatum</i>		Panel Pictures		Marble Sculpture		Bronze Sculpture	
		No. Mosaics	No. Houses	No. Rooms	No. Houses	No. Statues	No. Houses	No. Statues	No. Houses
Middling groups	1	–	–	–	–	1	1	–	–
	2	–	–	7	6	–	–	–	–
	3	–	–	13	9	4	2	–	–
	4	2	1	18	13	4	2	–	–
	5	1	1	25	16	–	–	1	1
Subelite	6	1	1	26	20	1	1	–	–
	7	1	1	50	27	7	3	1	1
	8	–	–	57	26	15	8	2	2
	9	3	3	89	39	12	8	2	1
Elite	10	22	8	152	37	44	8	14	5
N.C.	–	5	3	4	4	–	–	–	–
Total		35	18	441	197	88	33	20	10

N.C. = Not classified: paintings and mosaics that come from tabernae or from villas outside the city walls

looked by the 19th-century excavators and vanished before they made it into the archaeological literature. There is no need to be overly pessimistic about this; panel pictures were consistently recorded and catalogued early on. Even if stolen, they left visible traces in the archaeological record.⁵⁵ For the sake of this argument, it is assumed here that only 80% of the panel pictures in excavated ground-floor rooms have been catalogued. Following this estimate, the total number of panel pictures in the excavated parts of Pompeii would have been 1,126 (in up to 246 houses).⁵⁶ The next step would be to estimate the number of panel pictures on upper floors—not included in the database for reasons outlined above. It is clear that some upper floors belonging to tabernae and apartments could have been lavishly decorated, and there is evidence for panel pictures on upper floors at Herculaneum.⁵⁷ How-

ever, the total number of panel pictures on upper floors can only have been a fraction of that on ground floors. Upper floors were common but not omnipresent, and they tended to lack the types of rooms that were best suited for panel pictures. It is also likely that the people inhabiting these units had a demand profile comparable to (or lower than) that of the middling groups in the bottom half of the housing database. Hence, assuming the number of panel pictures on upper floors was a third of that on ground floors probably overestimates their number to a significant extent.⁵⁸ This would take the (theoretical) reconstruction of the number

of the Bicentenary (V, 15–16); Maiuri 1958, 234–35.

⁵⁸ Assuming that all tabernae were inhabited, the number of households inhabiting these tabernae and apartments would be similar to that of households inhabiting independent houses (see Flohr 2017, 62–3). If the bottom half of the housing hierarchy used in this article is responsible for 16% of attested demand (see table 2), or 180 panel pictures, and if the average demand per household for tabernae and apartments is equal, then the conjectured number of panel pictures in upper floors is twice the number of panel pictures in deciles 1–5, or 360 (32% of the total number of panel pictures).

⁵⁵ Consistent cataloguing of panel pictures began as early as the 1860s. See, e.g., the catalogues of Helbig 1868; Sogliano 1879; and esp. Mau 1882. See also Schefold 1957, 1962.

⁵⁶ This is the 901 attested panel pictures divided by 0.8.

⁵⁷ An example is room E in apartment V, 18, above the House

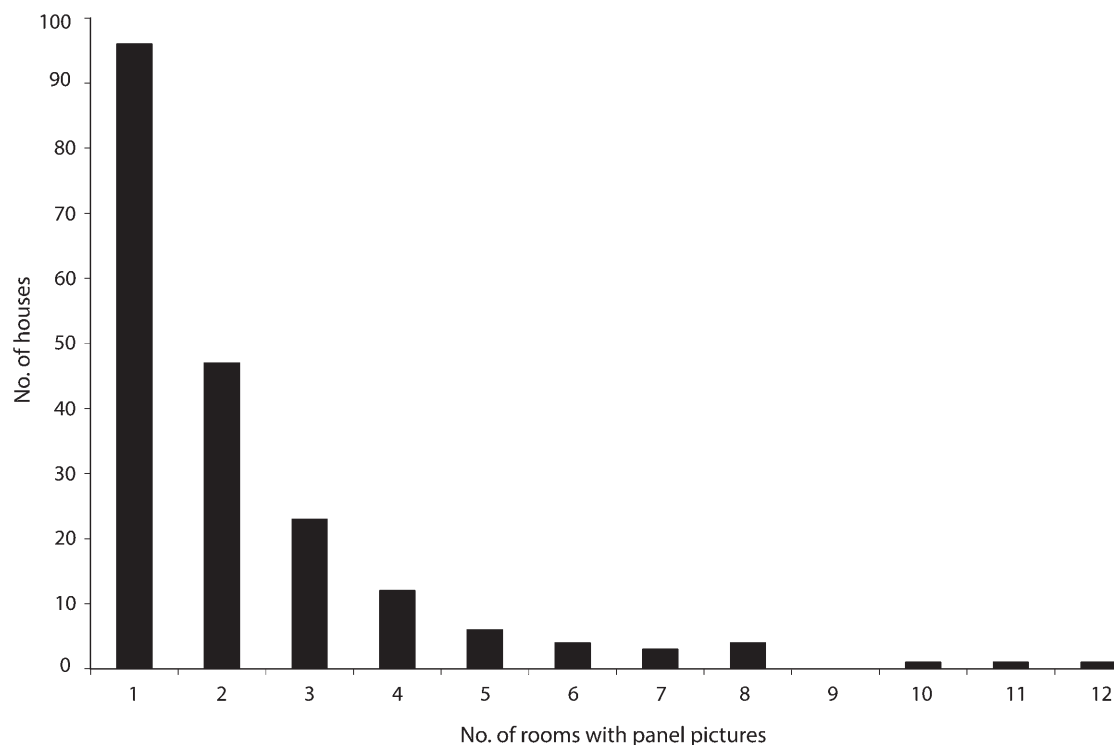


FIG. 9. Number of rooms with panel pictures, per house, in Pompeii.

of panel pictures up to 1,486 (in up to 325 houses).⁵⁹ The third step involves estimating the number of panel pictures in the unexcavated parts of Pompeii. If the unexcavated part of Pompeii (16.79 ha) contains as many panel pictures per square meter as the excavated part (46.18 ha), the result would be a theoretical number of 2,022 panel pictures in 442 houses. Again, this is an overestimation, as the zone east of the Via Stabiana, which contains the unexcavated parts, was less densely built up than the rest of the city.⁶⁰ Finally, this figure can be used to reconstruct the amount of demand per year. Even supposing all panel pictures were made between 60 and 79 C.E., which is certainly not the case, and that demand was equally divided over these years, one would arrive at a total demand of about 106 panel pictures per year, spread over about 23 houses.

Though this theoretical reconstruction knowingly overestimates average yearly demand, even in this scenario demand was not overwhelming and often came in projects of relatively limited size. In only two or three houses each year would the number of rooms

to be embellished with panel pictures have exceeded three or four. This limited demand, and the fact that panel pictures were often produced together with the rest of the wall decoration in the room, may have had an impact on the economic strategies of those involved in making these pictures and particularly on the need to invest in specialist skills.

The more difficult questions, however, are how much time the production of these panel pictures cost and how many people were needed. Obviously, the amount of time needed to complete a panel picture depended on a variety of factors, including its size, the desired quality of the product, the complexity of the design, and the expertise of the painter. Yet variation was not unlimited, as paint had to be applied when the plaster was still wet (and during daylight hours).⁶¹ Simple landscape paintings or standardized scenes in smaller panels—such as the familiar scenes with Narcissus or Venus and Mars—may have cost just one day to complete.⁶² Larger or more complex arrangements

⁵⁹ This is 1,126 x 1.32.

⁶⁰ Flohr 2017, 60–2.

⁶¹ On the technology of Roman painting and the role of *gornate di lavoro* (days of work), see Ling 1991, 200–10.

⁶² On these standardized images, see Hodske 2010, 185–86.



FIG. 10. Remains of pinacotheca (picture gallery) along the north wall of peristyle 16, House of Meleager, Pompeii.

may have cost more time, but this would mean that the panel picture would need to be (horizontally) divided into several separate zones of one workday each. Here, it is assumed that the average working time per panel picture was as much as three days. This is probably a significant overestimation, but it means, with 106 panel pictures a year, an aggregate net workload of not more than 318 worker days for the entire city. In this calculation, one specialist painter would have sufficed for the city if he devoted his entire working life to painting panel pictures. Any lower estimate of the production time needed for individual panel pictures would lower the number of worker days needed.

It is interesting to combine this with the picture emerging from recent discourse on Pompeian painting workshops and particularly with Esposito's work on the painting workshops that can be identified archaeologically on the basis of stylistic criteria. Esposito envisaged a market dominated by two painting workshops that employed specialized artists devoting their time both to panel pictures and to the more

complex details of decoration elsewhere on the wall.⁶³ This could work, but there would not have been much room for more competition in the market. More specialists would mean that there would be fewer panel pictures for each specialist to paint, so they would need to spend more time on other tasks to make enough money to live. Doing smaller amounts of specialized work in turn would mean they had fewer incentives to focus on developing the specific skills needed for painting panel pictures and on building up a repertoire of scenes they could easily paint. If they did not want to do this less-specialized work, the only alternative would have been for them to spend less of their time at Pompeii and to look for additional commissions in neighboring cities.

It is crucial to note that Pompeian demand in the decades preceding the eruption was probably not at average levels but rather was higher, given the reconstruction work necessitated by the earthquakes of the early 60s C.E.⁶⁴ In other words, in a period in which the pro-

⁶³ On this issue, see Esposito 2009, 2011, 2017.

⁶⁴ See Esposito 2011, 79.

duction of wall decoration was fostered by domestic building activity on a considerable scale, the number of panel pictures produced in Pompeii may have been just enough to support two painters partially specializing in panel pictures. If it is true that the reconstruction work was unevenly divided over this period and peaked in the years that followed larger earthquakes, it then follows that there were many years when demand was too low even to keep these two specialists working. Thus, again, the scale and nature of structural demand at Pompeii suggest an economy in which, outside the recovery period of the 60s and 70s C.E., painters focusing on panel pictures operated either on a regional scale or diversified their work, diminishing the need to acquire the skills required for painting high-quality panel pictures.

MARKETS FOR DOMESTIC SCULPTURE

The last category of decoration to be discussed is also the most difficult to assess. Significant amounts of sculpture have been dug up at Pompeii, but it is a complicated data set. Unlike wall paintings and mosaics, Pompeian sculpture has not been consistently catalogued and studied by modern scholars, and, as statues and statuettes often were removed from their original findspot shortly after discovery, the analysis depends on often imprecise excavation reports to ascertain how much and what kind of sculpture was found in a certain building. The original findspots of many statues remain unknown.⁶⁵ Especially for the earlier periods of Pompeii's excavation history, one cannot even assume that all the sculpture that was found was also recorded.⁶⁶ Moreover, statues may have been moved during the eruption, recovered by returning survivors afterwards, or removed in illicit excavations in the 18th or 19th century.⁶⁷ It is thus very hard to get a complete picture of the proliferation of statuary in Pompeian houses. The evidence discussed here comes from a set of publications that bring together a limited amount of Pompeian sculpture. These include the work of Dwyer on the sculpture collections of five Pompeian houses, Jashemski's catalogue of Pompeian gardens, De Caro's catalogue of the museum in Naples, Bonifacio's collection of portraits from Pompeii, Allison's online data-

base of Pompeian domestic artifacts, and the volume on Pompeian marbles in the collection of the National Archaeological Museum of Naples by Carella and others.⁶⁸ The focus in the selection of evidence was on statues, reliefs, and portraits of more than about 20 cm in height or width. The intention was to include only sculptures large enough to perform a decorative role on their own and to filter out the small bronze and terracotta statuettes that populated altars and served religious rather than purely decorative purposes. This approach resulted in a data set of 108 objects from 37 houses. Of these, 20 are of bronze and 88 of marble. This is a modest data set, but it is still much larger than that of *opus vermiculatum*, and it makes possible some basic observations. In the first place, while not all of these statues have been dated, those with convincing dates belong overwhelmingly either to the Augustan period or to the first century C.E. Domestic sculpture was not a phenomenon of the last decades of Pompeii's existence, but neither does it stretch back far into the Republican period.⁶⁹

The sculpture in our data set comes from throughout the Pompeian socioeconomic hierarchy: 73% of houses with sculpture fall outside the top 10%, and the bottom 50% of households still comprise 18% of the houses with sculpture (fig. 11). As with panel pictures, more than half (54%) of the houses with sculpture belong to middling and subelite groups, though there is a clear concentration in the eighth and ninth deciles, which together contain 16 of the 20 houses in the subelite group (see table 2). Yet, more than half (54%) of all sculpture included here comes from the 10th decile, and the five houses that had a collection of more than five pieces of sculpture all belong to this group.⁷⁰ Moreover, bronze sculpture seems more skewed to

⁶⁸ Dwyer 1982; Jashemski 1993; De Caro 1994; Bonifacio 1997; Allison 2004; Carella et al. 2008. While it would perhaps have been possible to get a slightly more complete picture by consistently studying the published excavation reports, it was beyond the scope of the article to do this, and though it might change some details and add some nuances, it would not take away any of the uncertainty about what is and will remain missing.

⁶⁹ See esp. Carella et al. 2008, 264. Besides one example from the fourth century B.C.E., all statues are dated to the Augustan period or the first century C.E.

⁷⁰ These include the House of the Cithar Player (I 4, 5), House of Marcus Lucretius (IX 3, 5), House of the Gilded Cupids (VI 16, 7.38), House of the Vettii, and house VII 2, 20.

⁶⁵ E.g., Bonifacio 1997, 113–27; Carella et al. 2008, 209–63.

⁶⁶ On the quality of Pompeii's excavation reports, see Allison 2004, 30–4.

⁶⁷ On this issue, see Dwyer 2012, 306–7.

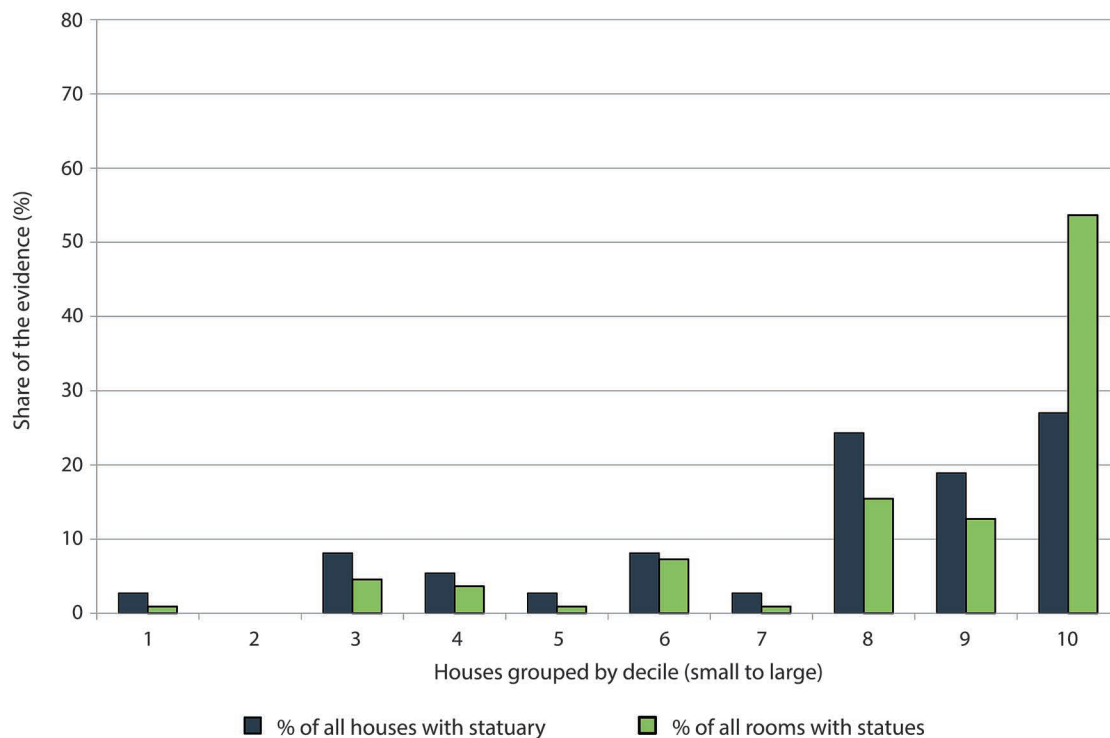


FIG. 11. Social spread of domestic sculpture at Pompeii, showing for each decile what percentage of the houses with sculpture it contained and what percentage of all individual statues.

the wealthy than marble sculpture; 70% of all bronzes were found in houses belonging to the 10th decile, as opposed to 50% of all marbles. Of the 10 statues found in houses in the bottom half of the urban housing hierarchy, only one was of bronze (see table 2). However, even if larger sculpture collections and bronzes were a privilege of the elite—obviously, they also had more space for it—a much broader group of society appears to have had access to some sculpture. For instance, the tiny house I 11, 6–7, on the Via dell’Abbondanza takes its popular name, House of Venus in a Bikini, from the small marble statuette placed prominently at the back end of the impluvium in the center of the small atrium.⁷¹ Similarly, in the even more modest house VI 14, 27, excavators found several marble herms in the small courtyard at the back of the house.⁷² Both houses clearly belonged to the lower half of the socioeconomic hierarchy of Pompeian houses, and the people inhabiting them were neither very poor nor very rich. The inhabitants of house I 11, 6–7, made money through the

taberna next to the house’s main entrance, while those living in house VI 14, 27, had what seems to have been a small wine cellar in the back of their house.

While the general pattern of consumption seems clear enough, it is much harder to understand how the sculpture ended up in Pompeii. As far as the marbles are concerned, the raw materials had, of course, originally been quarried elsewhere, and the objects themselves suggest that at least some of the sculpture found at Pompeii was imported. Some statues came from outside Italy, but it is hard to translate patterns of use in 79 C.E. into a model of production and trade in the preceding decades.⁷³ In any case, it is again clear that local demand at Pompeii had its limits. Many houses with gardens or peristyles appear to have been found without any sculpture, even those excavated in periods when publication records were excellent; examples include the House of the Silver Wedding (V 2, i), the House of Marcus Lucretius Fronto, and the House of Julius Polybius (IX 13, 1–3). Of the 30 houses analyzed by Allison, most of which belong to the ninth

⁷¹ On this house, see Fergola 1990.

⁷² Jashemski 1993, 150.

⁷³ Dwyer 1982, 135; Tronchin 2011, 43–4.

and 10th deciles, only 10 contained sculpture.⁷⁴ It has been argued that some of the other houses were abandoned and emptied of valuable objects because of ongoing seismic upheaval, but many in fact seem to have continued functioning: they probably simply never had any sculpture.⁷⁵ Moreover, collections may have developed over a longer period and over a number of generations. There are some larger houses in Pompeii where cohesion within parts of collections suggests that they were bought together or as part of a relatively short-term strategy, but Dwyer has rightly emphasized that this was the exception rather than the rule.⁷⁶ By implication, transactions were generally small in size; most consisted of one or two statues. Furthermore, sculpture may easily change hands; even the larger statues could be transported without great difficulty. Much more than paintings and mosaics, a sculpture could have a life course of its own, and the owner of a statue in 79 C.E. was not necessarily its first (Pompeian) owner. Sometimes, the objects themselves show indications of their reuse. The marble herms found in house VI 14, 27, appear to have been reworked.⁷⁷ The same is true for some of the sculpture found in the garden of the House of Octavius Quartio (II 2, 2).⁷⁸ Based on this evidence, some scholars have suggested that there was a secondhand market in garden sculpture at Pompeii in the decades preceding the eruption of Vesuvius.⁷⁹ This is not impossible, but it is not the only option; while used sculpture may be sold on the market, it also may change hands more informally (e.g., as a gift). Nevertheless, if it is true that elites were leaving Pompeii because of the seismic upheavals in the 60s and 70s C.E., this probably would have increased the circulation of sculpture among larger parts of the population.

Given these circumstances, it is likely that the Pompeian market for new sculpture was too small to support locally oriented production or retail, especially

as far as larger statues and portraits were concerned.⁸⁰ Hence, it seems to make perfect sense that no unequivocal evidence for sculpture production has been identified at Pompeii, and no assemblages of sculpture—bronze or marble—have been found in places that suggest they were being traded or sold.⁸¹ Again, this would imply that for the acquisition of sculpture, Pompeians were dependent on supralocal supply networks. The functioning of such networks may have varied. Because of its size and weight, sculpture is an unlikely trade good to be spontaneously carried around overland by specialized traders. Perhaps it is more credible to imagine that the artisans and traders involved in supply operated from outside the city and maintained active ties with key consumer groups—the elite—in the Pompeian community. Alternatively, Pompeians interested in buying sculpture may have gone to a larger urban center in the region where traders and artisans were regularly present. Particularly for portraits, of which a large number have been found in the city, this direct contact between producer and consumer was of course essential.⁸² Around the Bay of Naples, the most logical place to go would be Puteoli, which would be a port of arrival for sculpture imported from farther away and a probable center of production because of the size of its local market and its central role in many regional networks. To some extent, this is backed up by evidence: three Imperial-period inscriptions referring to *marmorarii* found in this city suggest that Puteoli was a place where marbleworkers could thrive.⁸³ Notably, Puteoli is the only place outside the city of Rome where a concentration of several inscrip-

⁸⁰ On the process of buying and producing statuary, see Russell (2013, 311–16), though it should be noted that his discussion fits more easily with honorific and imperial statuary than with the domestic sculpture discussed here.

⁸¹ Carella et al. (2008, 266) have claimed the existence of several sculpture workshops at Pompeii, but the evidence on which these identifications are based is fragmentary and problematic. The evidence listed for marbleworking in house VII 2, 20, and the House of Sallustius (VI 2, 3–5) basically consists of several loose blocks of marble; we have no reliable reports on the 18th-century excavation of house VIII 7, 24; workshop VII 11, 3, was a *lanifricaria*, not a marbleworking establishment (Flohr 2013, 57); on the nature of the finds in house I 8, 7, see Allison 2006, 348–49.

⁸² Bonifacio (1997) catalogues 52 portraits, of which 14 were found in domestic contexts.

⁸³ On the evidence for workshops of *marmorarii* at Puteoli, see Demma 2010.

⁷⁴ The houses studied by Allison (2004) where sculpture was found include House of the Ephebe (I 7, 10–12), House of the Menander, House of Venus in a Bikini, House of Trebius Valens (III 2, 1), House of the Vettii, house VI 15, 5, House of the Gilded Cupids, and houses VIII 2, 14–16, VIII 2, 28, and VIII 2, 39.

⁷⁵ On the occupancy of houses in the last years of Pompeii, see Allison 2004, 192–98.

⁷⁶ Dwyer 2012, 313.

⁷⁷ Jashemski 1993, 150.

⁷⁸ Tronchin 2011, 48–9.

⁷⁹ Powers 2011; Tronchin 2011.

tions featuring these craftsmen has been found.⁸⁴ Both scenarios suggest that, for Pompeians, there was a serious socioeconomic threshold for acquiring new sculpture. Besides the price of the object itself, it would have cost time to go to Puteoli and buy it, and it would have cost money to transport it to Pompeii. It would not have been impossible for nonelite Pompeians to buy sculpture, but the market as such was skewed toward the elite. Practically, the costs involved make it plausible that much of the sculpture found at Pompeii was initially brought to the city by wealthy elite consumers or through their networks. Some of the sculpture then trickled down the social scale either as gifts or through a secondhand market.

MARKETS WITH IMPLICATIONS: POMPEII AND BEYOND

The three forms of decoration analyzed in this article differ in their chronological background, in the peculiarities of their production, and in their social spread, but taken together they reveal some key characteristics of the market for high-quality domestic decoration at Pompeii. Two points should be made. First, it is clear that, in the first century C.E., consumers from subelite and middling groups had begun to play a role in the consumer market for high-quality domestic decoration. This is particularly obvious in the case of panel pictures. Of course, elite consumption was, in absolute terms, disproportionately large, but for painters and their workshops, the decorative priorities of the rest of society were considerably more significant. Most commissions for panel pictures came from outside elite circles; work for the elite was the (undoubtedly lucrative) icing on the cake. To judge from the situation in 79 C.E., sculpture also appears to have been accessible to relatively large groups of people, though, as has been argued here, this does not mean that new sculpture was bought on the market by purchasers from all levels of Pompeian society. Overall, though, iconographically complex decoration was consumed by a much larger proportion of the population in the first century C.E. than had been the case in the Late Republic. This is a notable development, and it does bring to mind the flourishing art markets of early modern Europe, though it should not too easily be linked to increasing prosperity in general. As outlined at the start of this ar-

ticle, it also reflects cultural and stylistic developments in domestic decoration in Early Imperial Roman Italy. The second point to be made here is that we should be realistic about the overall dimensions of local demand at Pompeii. Regarding all three forms of domestic decoration, it has been argued that the Pompeian market was dominated by relatively small-scale transactions. Large-scale commissions involving the redecoration of an entire set of rooms, including a large number of panel pictures or *opera vermiculata*, or acquisitions of an entire group of marble or bronze sculptures, were exceptionally rare. The few cases in which this did happen are perhaps too well known: the House of the Faun received many of its mosaics as part of one project, even if it possibly ran for a couple of decades, and the House of the Vettii had multiple rooms decorated as part of one project of refurbishment.⁸⁵ The House of the Tragic Poet, with its six large mythological panels on the walls of the atrium and several more elsewhere in the house, was also probably decorated more or less in one undertaking.⁸⁶ These were important projects that earned the artists executing them considerable income, but, in terms of frequency, smaller projects were much more common. In general, it is clear that, despite the emergence of significant amounts of subelite demand, the Pompeian market for domestic decoration on its own never provided strong incentives for artisans to invest in the extra skills needed to make mosaics, frescoes, and sculpture of the highest quality. In normal periods—before the seismic upheavals of the 60s and 70s C.E.—we may imagine that the expertise needed for the larger commissions involving decoration of higher quality often had to be brought from outside the city, just as in 17th-century Venice the most highly skilled artists traveled from commission to commission through the region.⁸⁷ Arguably, the demand at Pompeii was to some extent increased by the suburban villas surrounding the city. These were lavishly decorated complexes; it was mentioned above that two of the known suburban villas contained *opus vermiculatum*, almost all included panel pictures, and high-quality sculpture was found in some of them.⁸⁸

⁸⁵ On the House of the Vettii workshop, see Esposito 2007.

⁸⁶ On this house see, Bergman 1994.

⁸⁷ Etro and Pagani 2012.

⁸⁸ Seven suburban villas are more or less known: four outside Porta Ercolano (the Villa of the Mysteries, the Villa of Diomedes, the Villa of Cicero, and the Villa of the Mosaic Columns),

⁸⁴ *CIL* 10 1549, 1648, 1873.

Yet, the total quantity of demand coming from these villas should not be overestimated. Even if there were quite a few of these villas, their total number is too low to alter fundamentally the demand profile of the Pompeian economy for domestic decoration.

As highlighted in the introduction, the exceptional regional context in which the Pompeian market for high-quality domestic decoration developed makes the city a good starting point for discussing the nature of local and regional markets for domestic decoration in the Roman world at large. Pompeii holds a clear place in the spectrum of Roman urbanism. It was among the larger cities of Roman Italy.⁸⁹ More importantly, it was highly privileged. From the later second century B.C.E. onward, the Bay of Naples was the wealthiest consumer region of the Roman empire outside the Roman metropolis and its immediate environs, with an aggregate demand for high-quality mosaics, paintings, and sculpture that was probably unparalleled in most places in the Roman world.⁹⁰ As a consequence, it was comparatively attractive for artisans in the region (or for their patrons or owners) to invest in developing specialized decorative skills. For traders, it made sense to import high-quality mosaics and sculpture as these could be sold with relative ease, particularly from Puteoli. Within the region of the Bay of Naples, distances were small, and social ties between communities were tight. Mosaicists, painters, and sculptors could easily work in more than one place, and Puteoli is likely to have been the major regional center and a logical base for the most highly skilled artists to work from. This is echoed in the epigraphic record; besides the already mentioned *marmorarii* of Puteoli, *pictores* are attested at Puteoli and Surrentum.⁹¹ In and around Pompeii, then, market conditions were comparatively good. Outside the Bay of Naples and the immediate area of the Roman metropolis, things were different. Demand may still have been relatively high in densely urbanized and wealthy Latium and Campania, but in

the Apennines, in Cisalpine Gaul, or indeed in large parts of the Roman West—with the possible exception of relatively densely urbanized regions like Africa Proconsularis and Hispania Baetica—regional markets for domestic decoration were much less rewarding to artisans. Aggregate regional demand was lower, urban centers were often smaller and less intensively connected so that ties between consumer populations and specialist artisans were weaker, and it was more difficult to bring consumers and producers together.

Thus, it may be argued that Pompeii offers more than a glimpse of how Roman economies of domestic decoration could work under almost ideal circumstances in regions with exceptionally high demand. It is not insignificant that, under the exceptional circumstances of the Early Imperial period, patterns of consumption emerged that to some extent resemble those of early modern Europe. The parallels highlight the exceptional level of wealth and development reached in the wealthiest core of the Roman empire and bring to mind the comparison drawn recently by Temin between this wealthy core of the Roman empire and the 17th-century Netherlands.⁹² At the same time, however, our analysis of the Pompeian evidence also points to the limits of Roman markets for domestic decoration. If even a privileged place like Pompeii did not develop a local consumer market able to sustain more than a few skilled painters, and no good mosaicists and sculptors at all, then in most places in the Roman world, local markets did not offer a strong incentive for the development of specialized decorative skills. In most regions of the empire, demand simply would not have been high enough to support many highly specialized decorators. Generalists had a better chance of economic survival.

In this regard, the picture sketched here diverges from Harris' suggestion that there were artisans and artists in every town. This may be too optimistic. It is clear that there were limits to demand almost everywhere, and there probably was no room for highly skilled painters, mosaicists, and sculptors in every urban community in the Roman world, though there may have been room for craftsmen who could do the basic decorative covering of walls and floors quickly and well.⁹³ At the same time, while Harris sketched

and three outside Porta Vesuvio (the Villa of Siminius Stephanus and the villas on the land of Antonio Prisco and Ippolito Zurlo). For an overview, see Moormann 2007.

⁸⁹ De Ligt (2012, 309–10) ranks Pompeii among the large cities of Roman Italy in the Augustan period.

⁹⁰ On this point, see Flohr and Wilson 2017, 13–4.

⁹¹ *CIL* 10 702 (Sorrento) and 1950 (Puteoli). These are two of only four inscriptions with this occupational title found outside the region around the Roman metropolis.

⁹² Temin 2013, 252.

⁹³ Harris 2015, 407–8.

a sharp contrast between, on the one hand, an integrated, empire-wide market for high-quality art, and, on the other hand, a local market for other forms of art and decoration, it can be suggested here that, in the case of higher-quality domestic decoration, painters, mosaicists, and, perhaps to a lesser extent sculptors, may have operated at an intermediate level between these two extremes. Thus, the role of regional economies may have been a bit more important than Harris suggests.⁹⁴ Yet regional economies involve distance, and this may have had consequences for consumers and producers alike. When people in regions with a low average demand wanted high-quality domestic decoration, it may not always have been easy to find sufficiently skilled specialists, and prospective consumers would be dependent on the quality of their personal networks to find the right artisan or trader. Conversely, producers operating in such areas would have depended on their own personal networks to locate their customers. These factors add complexity, uncertainty, and risk to the market. For consumers, it may often have been complicated to find the right person to satisfy their demand for a price they could afford; in such cases, consumers may have had to settle for a lower-quality alternative that was available locally. For decorators, especially when traveling around, it could have been difficult to arrange their next commission. Put differently, one could argue that low regional demand raised transaction costs for both consumers and producers.⁹⁵ Particularly with respect to less densely urbanized regions of the Roman West, therefore, one factor in evaluating the technical qualities of domestic art should be the practical obstacles related to its production. These obstacles may have had a detrimental effect on the quality of the skills that could be mobilized by consumers. For the artisans as well, this situation had social implications. As they served a regional market, they were visible within their own urban communities only to a limited extent. This restricted their ability to build a public professional identity. Unlike the many craftsmen and retailers operating *tabernae* along an urban thoroughfare, they may have had a modest local profile.⁹⁶ This does not mean that they

had a low social status; if they did their work well, they could easily be appreciated for it. Rather, it meant that they remained invisible in their own city except to the people they were doing business with and therefore remained relatively anonymous. The paucity of epigraphic evidence for mosaicists, painters, and sculptors outside Rome and the Bay of Naples may be thought to reflect this relative invisibility.

Miko Flohr
Institute for History
Leiden University
Doelensteeg 16
2311 VL Leiden
Netherlands
m.flohr@hum.leidenuniv.nl

Works Cited

- Allison, P.M. 2004. *Pompeian Households: An Analysis of the Material Culture*. Los Angeles: Cotsen Institute of Archaeology.
- . 2006. *The Insula of the Menander at Pompeii*. Vol. 3, *The Finds: A Contextual Study*. Oxford: Oxford University Press.
- Bergman, B. 1994. "The Roman House as Memory Theater: The House of the Tragic Poet in Pompeii." *ArtB* 76(2):225–56.
- Blondé, B., and V. De Laet 2006. "Owning Paintings and Changes in Consumer Preferences in the Low Countries, Seventeenth–Eighteenth Centuries." In *Mapping Markets for Paintings in Europe, 1450–1750*, edited by N. De Marchi and H. van Miegroet, 69–84. Leuven: Brepols.
- Bok, M.J. 2001. "The Rise of Amsterdam as a Cultural Centre: The Market for Paintings, 1580–1680." In *Urban Achievement in Early Modern Europe: Golden Ages in Antwerp, Amsterdam and London*, edited by P. O'Brien, D. Keene, M. 't Hart, and H. van der Wee, 186–209. Cambridge: Cambridge University Press.
- Bonifacio, R. 1997. *Ritratti romani da Pompei*. Rome: Giorgio Bretschneider.
- Bragantini, I. 1998. "Casa del Granduca di Toscana (IX 2, 27)." In *Pompei pitture e mosaici*. Vol. 9, edited by G. Pugliese Caratelli, 116–27. Rome: Istituto della Enciclopedia Italiana.
- Carella, A., L. D'Acunto, N. Inserra, and C. Serpe. 2008. *Marmora Pompeiana nel Museo Archeologico Nazionale di Napoli*. Rome: "L'Erma" di Bretschneider.
- De Caro, S. 1994. *Il Museo Archeologico Nazionale di Napoli*. Napoli: Electa.
- De Kind, R. 1998. *Houses in Herculaneum: A New View on the Town Planning and the Building of Insulae III and IV*. Amsterdam: Gieben.
- De Ligt, L. 2012. *Peasants, Citizens and Soldiers: Studies in*

⁹⁴Harris 2015, 410–11.

⁹⁵On the concept of transaction costs in Roman economic history, see Frier and Kehoe 2007, 117–19.

⁹⁶On the role of physical presence in constructing occupational identities, see Flohr 2016, esp. 167–71.

- the Demographic History of Roman Italy 225 BC–AD 100*. Cambridge: Cambridge University Press.
- De Marchi, N. 1995. "The Role of Auctions and Lotteries in Shaping the Art Market(s) of 17th Century Holland." *Journal of Economic Behaviour and Organization* 28:203–21.
- De Marchi, N., and H. van Miegroet. 1994. "Art, Value, and Market Practices in the Netherlands in the Seventeenth Century." *ArtB* 76(3):451–64.
- Demma, F. 2010. "Sculptori, redemptores, marmorarii ed officinae nella Puteoli romana: Fonti storiche ed archeologiche per lo studio del problema." *MÉFRA* 122(2):399–425.
- Dickmann, J.-A. 1999. *Domus frequentata: Anspruchsvolles Wohnen im pompejanischen Stadthaus*. Munich: Pfeil.
- Dunbabin, K. 1977. *The Mosaics of Roman North Africa: Studies in Iconography and Patronage*. Oxford: Clarendon Press.
- . 1999. *Mosaics of the Greek and Roman World*. Cambridge: Cambridge University Press.
- Dwyer, E. 1982. *Pompeian Domestic Sculpture: A Study of Five Pompeian Houses and Their Contents*. Rome: Giorgio Bretschneider Editore.
- . 2012. "Collectible Singletons." *Arethusa* 45(3): 305–18.
- Esposito, D. 2007. "I pittori dell'officina dei Vetti di Pompei: Meccanismi di produzione della pittura parietale romana." *BABesch* 82(1):149–64.
- . 2009. *Le officine pittoriche di IV stile a Pompei: Dinamiche produttive ed economico-sociali*. Rome: L'Erma di Bretschneider.
- . 2011. "Il sistema economico e produttivo della pittura romana: Esempi dall'area vesuviana." In *Les savoirs professionnels des gens de métier: Études sur le monde du travail dans les sociétés urbaines de l'empire romain*, edited by N. Monteix and N. Tran, 65–85. Naples: Centre Jean Bérard.
- . 2017. "The Economics of Pompeian Painting." In *The Economy of Pompeii*, edited by M. Flohr and A. Wilson, 263–89. Oxford: Oxford University Press.
- Etro, F., and L. Pagani. 2012. "The Market for Paintings in Italy During the Seventeenth Century." *Journal of Economic History* 72(2):423–47.
- Fergola, L. 1990. "Casa della Venere in Bikini (I 11, 6.7)." In *Pompei pitture e mosaici*. Vol. 2, edited by G. Pugliese Caratelli, 526–569. Rome: Istituto della Enciclopedia Italiana.
- Fiorelli, G. 1864. *Pompeianarum Antiquitatum Historia*. Vol. 3. Naples.
- Flohr, M. 2007. "Nec quicquam ingenuum habere potest officina? Spatial Contexts of Urban Production at Pompeii, AD 79." *BABesch* 82(1):129–48.
- . 2013. "The Textile Economy of Pompeii." *JRA* 26:53–78.
- . 2016. "Constructing Occupational Identities in the Roman World." In *Work, Labor and Professions in the Roman World*, edited by K. Verboven and C. Laes, 147–72. Leiden: Brill.
- . 2017. "Quantifying Pompeii: Population, Inequality and the Urban Economy." In *The Economy of Pompeii*, edited by M. Flohr and A. Wilson, 53–84. Oxford: Oxford University Press.
- Flohr, M., and A. Wilson. 2016. "Introduction." In *Urban Craftsmen and Traders in the Roman World*, edited by A. Wilson and M. Flohr, 1–19. Oxford: Oxford University Press.
- . 2017. "Introduction: Investigating an Urban Economy." In *The Economy of Pompeii*, edited by M. Flohr and A. Wilson, 1–22. Oxford: Oxford University Press.
- Frier, B., and D. Kehoe. 2007. "Law and Economic Institutions." In *The Cambridge Economic History of the Greco-Roman World*, edited by W. Scheidel, I. Morris, and R. Saller, 113–42. Cambridge: Cambridge University Press.
- Gallo, A. 1989. *La casa dei quattro stili*. Napoli: Electa.
- Gibson-Wood, C. 2002. "Picture Consumption in London at the End of the Seventeenth Century." *ArtB* 84(3): 491–500.
- Hales, S. 2003. *The Roman House and Social Identity*. Cambridge: Cambridge University Press.
- Harris, W.V. 2015. "Prolegomena to a Study of the Economics of Roman Art." *AJA* 119(3): 395–417.
- Hawkins, C. 2016. *Roman Artisans and the Urban Economy*. Cambridge: Cambridge University Press.
- Helbig, W. 1868. *Wandgemälde der vom Vesuv verschütteten Städte Campaniens*. Leipzig: Breitkopf und Härtel.
- Hodske, J. 2007. *Mythologische Bildthemen in den Häusern Pompejis*. Ruppolding: Rutzen.
- . 2010. "Häuser und Mythenbilder in Pompeji als Spiegel der Gesellschaft." *BABesch* 85:179–92.
- Jashemski, W.F. 1993. *The Gardens of Pompeii, Herculaneum and the Villas Destroyed by Vesuvius*. Vol. 2, *Appendices*. New Rochelle: Caratzas.
- Joshel, S. 1992. *Work, Identity and Legal Status at Rome*. Norman: University of Oklahoma Press.
- Leach, E. 2004. *The Social Life of Painting in Ancient Rome and on the Bay of Naples*. Cambridge: Cambridge University Press.
- Ling, R. 1991. *Roman Painting*. Cambridge: Cambridge University Press.
- Ling, R., and L. Ling. 2005. *The Insula of the Menander at Pompeii*. Vol. 2, *The Decorations*. Oxford: Oxford University Press.
- Maiuri, A. 1958. *Ercolano*. Vol. 1, *Nuovi scavi*. Rome: Istituto Poligrafico dello Stato.
- Martens, M., and N. Peeters. 2006. "Paintings in Antwerp Houses (1532–1567)." In *Mapping Markets for Paintings in Europe, 1450–1750*, edited by N. De Marchi and H. van Miegroet, 35–54. Leuven: Brepols.
- Mau, A. 1882. *Geschichte der dekorativen Wandmalerei in Pompeji*. Berlin: Reimer.
- Mayer, E. 2012. *The Ancient Middle Classes: Urban Life and Aesthetics in the Roman Empire, 100 BCE–250 CE*. Cambridge, Mass.: Harvard University Press.
- Montias, J.M. 2006. "Works of Art Competing with Other Goods in Seventeenth-Century Dutch Inventories." In *Mapping Markets for Paintings in Europe, 1450–1750*, edited by N. De Marchi and H. van Miegroet, 55–64. Leuven: Brepols.
- Moormann, E. 2007. "Villas Surrounding Pompeii and Herculaneum." In *The World of Pompeii*, edited by J. Dobbins and P. Foss, 435–54. London: Routledge.

- Noack, F., and K. Lehmann-Hartleben. 1936. *Baugeschichtliche Untersuchungen am Stadtrand von Pompeji*. Berlin: Deutsches Archäologisches Institut.
- Pesando, F. 1996. "Autocelebrazione aristocratica e propaganda politica in ambiente privato: La Casa del Fauno a Pompei." *Cahiers du Centre Gustave Glotz* 7:189–228.
- Peters, W. 1993. *La Casa di Marcus Lucretius Fronto a Pompei e le sue pitture*. Amsterdam: Gieben.
- Petersen, L.H., 2006. *The Freedman in Roman Art and Art History*. New York: Cambridge University Press.
- Pirson, F. 1999. *Mietwohnungen in Pompeji und Herculanum: Untersuchungen zur Architektur, zum Wohnen und zur Sozial- und Wirtschaftsgeschichte der Vesuvstädte*. Munich: Pfeil.
- Powers, J. 2011. "Beyond Painting in Pompeii's Houses: Wall Ornaments and Their Patrons." In *Pompeii: Art, Industry, Infrastructure*, edited by E. Poehler, M. Flohr, and K. Cole, 10–32. Oxford: Oxbow.
- Pugliese Caratelli, G. 1990–2003. *Pompeii: Pitture e mosaici*. 11 vols. Rome: Istituto della enciclopedia italiana.
- Richardson, L., Jr. 2000. *A Catalog of Identifiable Figure Painters of Ancient Pompeii, Herculaneum, and Stabiae*. Baltimore: Johns Hopkins University Press.
- Robinson, D. 1997. "The Social Texture of Pompeii." In *Sequence and Space in Pompeii*, edited by S. Bon and R. Jones, 135–44. Oxford: Oxbow.
- Ruffing, K. 2016. "Driving Forces for Specialization: Market, Location Factors, Productivity Improvements." In *Urban Craftsmen and Traders in the Roman World*, edited by A. Wilson and M. Flohr, 115–31. Oxford: Oxford University Press.
- Russell, B. 2013. *The Economics of the Roman Stone Trade*. Oxford: Oxford University Press.
- Schefold, K. 1957. *Die Wände Pompejis*. Berlin: De Gruyter.
- . 1962. *Vergessenes Pompeji: Unveröffentlichte Bilder römischer Wanddekorationen in geschichtlicher Folge*. Bern: Francke.
- Schoonhoven, A. 2006. *Metrology and Meaning in Pompeii: The Urban Arrangement of Regio VI*. Rome: L'Erma di Bretschneider.
- Sogliano, A. 1879. *Le pitture murali campane scoperte negli anni 1867–1879*. Napoli: Giannini.
- Stewart, P. 2003. *Statues in Roman Society: Representation and Response*. Oxford: Oxford University Press.
- . 2008. *The Social History of Roman Art*. Cambridge: Cambridge University Press.
- Strocka, V. 1992. *Casa del Labirinto (VI 11, 8–10)*. Munich: Hirmer.
- Temin, P. 2013. *The Roman Market Economy*. Princeton: Princeton University Press.
- Tronchin, F. 2011. "The Sculpture of the Casa di Octavius Quatun in Pompeii." In *Pompeii: Art, Industry, Infrastructure*, edited by E. Poehler, M. Flohr, and K. Cole, 33–49. Oxford: Oxbow.
- van Voorhis, J. 1998. "Apprentices' Pieces and the Training of Sculptors at Aphrodisias." *JRA* 11:175–92.
- Vander Poel, H.B. 1986. *Corpus Topographicum Pompeianum*. Vol. 3b, *The Rica Maps of Pompeii*. Austin: University of Texas.
- Wallace-Hadrill, A. 1990. "The Social Spread of Roman Luxury: Sampling Pompeii and Herculaneum" *PBSR* 58:145–92.
- . 1994. *Houses and Society in Pompeii and Herculaneum*. Princeton: Princeton University Press.
- . 2013. "Trying to Define and Identify the Roman 'Middle Classes.'" Review of *The Ancient Middle Classes*, by E. Mayer. *JRA* 26:605–9.
- Westgate, R. 2000. "Pavimenta atque emblemata vermiculata: Regional Styles in Hellenistic Mosaic and the First Mosaics at Pompeii." *AJA* 104(2):255–75.
- Zevi, F. 1998. "Die Casa del Fauno in Pompeji und das Alexandermosaik." *RM* 105:21–65.