Threads in the Urban Fabric:
Patterns of Non-Elite Housing at Pompeii

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Dissertation Abstract

This study presents the first comprehensive GIS analysis of the full range of non-elite, working class housing in ancient Pompeii at the time of its destruction in 79 CE. Using the presence and absence of particular architectural features to identify discrete units of property, a new survey of the city reveals a wide spectrum of domestic arrangements that resist interpretation by traditional models, those that have focused on *atrium* house examples. Turning instead to middle- and lower-class housing, this project engages Pompeii on three mutually-informative levels: the city, its neighborhoods, and its discrete residences to paint a fuller picture of the city and its inhabitants.

Toward these goals, a series of spatio-statistical tools in GIS software are employed to interrogate the location, attributes, and diversity of non-elite houses throughout Pompeii's urban fabric, revealing never-before-seen patterns in the siting and distribution of residential property types. The GIS analyses furthermore identify the locations of neighborhoods of non-elite housing at Pompeii, illuminating elements of the urban armature that either promote or discourage their clustering. Finally, by reconsidering the architecture, decoration, and artifactual remains of working-class houses in Pompeii, this project explores the performance of non-elite identities, offering a new understanding of the built and lived environments of Pompeii's middle- and lower-class citizens.

A new approach promises to transform the typical narrative by shifting academic discourse towards overlooked, popular issues of Pompeian urbanism and domestic studies. By viewing Pompeii through the lens of the non-elites, the city is shown to have pronounced patterns in its urban topography that reveal, among other trends, a spatial

zone in which most middle-class housing appears. The diverse and socially distinct neighborhoods identified through the GIS analyses correspond to theorized locations of ancient Pompeian *vici*, the voting districts centered around crossroads shrines and built from a working-class core of citizens. Also employing Latin texts from the Republic and Empire concerned with the house as a social index, this study associates a series of banking records with specific properties and endeavors to place residents of varied status back in their homes. These literary details are corroborated by the physical elements of the houses and their positions in the city. What emerges from this multivalent and interdisciplinary examination is a new understanding of the ancient conception of status as it is documented by the archaeological record. In short, this dissertation proposes a reading of non-elite identity at Pompeii that is built from the most populous, yet neglected body of evidence: the homes of the majority residents, the middle- and lower-classes that lived in, worked throughout, and shaped the city, just as they were shaped by it.

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GdS	Fiorelli, Giuseppe, ed. 1861-1879. *Giornale degli Scavi di Pompei.* Naples: A Dekter;Tipografia Italiana nel Liceo V. Emanuele.
NdS	*Notizie degli Scavi di Antichità*. First Issued 1876. Rome: Accademia Nazionale dei Lincei.
PPM	Carratelli, G. P. and I. Baldassare. 1990-2003. *Pompei: Pitture e Mosaici*. 11 vols. Rome: Istituto della Enciclopedia Italiana.
CIL	*Corpus Inscriptionum Latinarum*
AJA	*American Journal of Archaeology*
JRA	*Journal of Roman Archaeology*

Plan of Pompeii.
Adapted from Dobbins J. and P. Foss. 2007. *The World of Pompeii*. London: Routledge. Map 3.

INTRODUCTION

> Since [the architectural] language is designed to express the axes of differentiation central to the upper class, it is ineffective to express any other type of differentiation. There is not one language for the rich and one for the poor, but a common language in which the rich are eloquent and the poor dumb.[1]

The houses of Pompeii can provide a great many insights into the world of the ancient city, revealing much about its residents, neighborhoods, and urban plan. Homes are architectural expressions of social, civic, and personal identity in which quotidian rituals and cultural expressions are replicated and reified. Ancient Pompeians ate, slept, socialized, worked, and practiced their cult duties within the home, and instilled within their domestic architecture key signifiers of their identity, status, and their positions relative to the broader community. The home offers valuable interpretive avenues into questions of Roman architecture, performativity, social status, and even urbanism; it is at once shaped by, and in turn shapes, the urban community writ large. As a microcosm of the city itself, the architecture of the home informs, reflects, and reveals the social patterns of its city and its diverse neighborhoods. On one hand, the spatial and connective environments embodied by the city and encoded in the urban plan can direct different types of movement, access, and visibility; on the other, they illuminate the lived experience of its occupants, revealing through space the variable demands of comfort and interaction.

Although scholars have generally tracked these social themes through the eyes of the wealthy few, the present study presents a different set of residences to reconsider

[1] Wallace-Hadrill 1994, 14.

Pompeii's wider urban scope: those of the non-elites. By focusing on the non-elites, the working classes of Pompeii, this project endeavors to construct a more robust investigation of the full range of domestic architecture available to Pompeians, reveal where they were sited throughout the city, and examine any neighborhoods they engender. The homes of the majority population, while they may not preserve the most elegant architecture or art, make up the largest portion of the city's domestic footprint. Because they are more representative of the city's broad urban landscape, these overlooked domiciles are especially well-suited to aid in interrogations of Pompeii's social and civic infrastructure and the set of diverse neighborhoods within the city. Looking also beyond the houses themselves, this project aims to better understand the city as a whole, focusing on the plethora of non-elite dwellings to illuminate new features of Pompeii's urban character. It is through an examination of these middle- and lower-class homes that the present study builds successive stages of investigation into questions of housing, neighborhoods, and the broader urban layout of the city. The result will be an understanding of the wide range of architectural expressions available to middle-class persons at Pompeii, and more broadly the ability of such populations to carve out significant portions of their urban environments suitable to their needs and interests. Further, this study reveals how the working classes could implement an architectural lexicon that, while rejecting the modes of the wealthy few, is nonetheless responsive to them and embodies a system of encoded social expressions adapted to non-elite needs.

To answer questions of what the homes of average citizens looked like, where they were positioned in Pompeii's urban armature, and how issues of status are embodied and reproduced in non-elite architecture, this examination compiles the first

comprehensive catalogue of potential non-elite domiciles (numbering 316 in the current project, as opposed to only 120 *atrium* houses traditionally matched with the elite population), maps them throughout the city, and employs spatio-statistical tools to reveal patterns and relationships in their character and distribution. Such an examination of the houses reveals much about the positions and status of their probable occupants and leads to a new characterization of the city's makeup at the time of its destruction in 79 CE.[2]

Concerns of the Project

When Pompeii was unearthed to great fanfare in the eighteenth century, it was the massive, well-appointed structures that captured the interests of dilettantes, kings, and engineers, and the subsequent years revealed a great deal of impressive architecture around the forum proper. It was not long before the elaborate houses of wealthy Pompeians began to provide *objets d'art* for ambitious collectors, and some agents of plunder went so far as to cut out certain frescoes for display.[3] To increase the rarity of surviving paintings, certain others were unceremoniously destroyed. As academic interest grew, these large houses formed an indispensable avenue for inquiry into ancient practices.[4] What were the homes of Pompeians like? What can we learn about the city from its most well-appointed habitations? Such questions drove scholarly narratives for

[2] For a history of Pompeii's architectural and urban development contributing to its makeup at the time of its discussion, see Dobbins and Foss 2007, most notably chapters by Carafa, De Caro, Geertman, Descoeudres, and Wallace-Hadrill. Richardson 1988 provides an epoch-by-epoch breakdown of the architectural trends in the city. Ellis 2011 collects a number of essays detailing the earliest developments in specific parts of Pompeii.

[3] Leppman 1968, 54-56; Ramage 1992, 655; Amery and Curran 2002, 33-37. Such destructive and avaricious practices were famously recorded at the Casa di Diana I in the *Insula* Occidentalis, wherein only two of ten painting fragments depicting Apollo and Diana were preserved, the other eight, being considered "useless" were destroyed along with other decorative elements from the house in order to prevent others from obtaining or studying them. For this story, see *PAH* 1; Allroggen-Bedel 1976.

[4] Mau 1902; Corti 1951; Maiuri 1965; Etienne 1977; Pesando 2012.

some time, and have led to a skewed interpretation of the city, its neighborhoods, and its dwellings, viewed through the lens of the elite few.

The problem with which the current project is concerned is twofold. The first issue is that insufficient scholarly attention has been paid to the homes of the non-elites in Pompeii, those neglected dwellings which did not provide the art and architecture desired by eighteenth-century collectors and amateurs.[5] The second issue is that many of these same studies that attempted to reconstruct visions of the entire city have been unduly colored by this same inadequacy, and if we wish to paint a more accurate picture of Pompeii, an approach spanning the whole of the urban fabric and emphasizing the homes of the non-elites is required.

Pompeii's exceptional form of preservation and the extent of its excavation means that it is uniquely suited to comprehensive urban examination, and it rewards methods that avoid sampling in favor of broader, more truly representative study. As is discussed below (Chapter One), few investigations of domestic architecture at Pompeii have rigorously attempted to incorporate data from the entire city, and fewer still have focused on the homes of the non-elites.[6] The current literature is therefore slanted in its scope,

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[5] Mau 1902 only mentions three houses of what he calls "unusual" plan; Maiuri 1929 similarly notes three "*parva domus*" after a wide ranging narrative description of the fine establishments of the elite; Maiuri 1965 reads the elite type as the fundamental house, quickly noting that middle classes may have lived in homes of differing design; Grant 1971 focuses on the decorative elements of only wealthy houses; Etienne 1977 devotes a chapter to large *atrium* houses and urban villas, but nothing to the middle or lower classes; Richardson 1988 mentions some well-appointed small houses, but sees them effectively as small elite spaces and vehicles for fine decorative ensembles; Maiuri 2000 (a collection of previous essays and lectures) notes the scarce attention paid to non-elite houses, but does not attempt to remedy the problem; Grahame 2000 is one of the few to discuss elite and non-elite homes alike in his space syntax reading of *Regio* VI; Berry 2007 notes the large presence of freedmen in the city and that their houses would have conformed to their needs, but does not examine any such homes; Nevett 2010 deals with the public and private types of performance in the elite houses, focusing attention on the *dominus* behind the wealthy *domus*; Pesando 2012 presents a walkthrough of a well-decorated elite space as an object lesson in the art of Pompeian houses.

[6] For problems with sampling, see especially Wallace-Hadrill 1994; Allison 1994; Grahame 2000; Nappo 2007. Nappo 2007 does address spaces which may be conceptualized as non-elite, but he does so for only

and our understanding of the ancient city is narrower than it should be. To remedy these omissions and shed new light on the broader domestic contexts of Pompeii's urban composition, the present study asks and seeks to answer the following questions: What were these overlooked residences like? How were they arranged internally? And what can these attributes tell us about the social positions of their occupants? Beyond the houses themselves, can we reconstruct how their occupants experienced the city? What different intra-urban social attitudes and groups can be detected throughout Pompeii based on these properties? By testing for patterns in their distribution, highlighting issues of urban access, and identifying never-before recognized neighborhoods at Pompeii, this project presents a new interpretation of the city's urban fabric founded on the analysis of working-class residential examples.[7]

A new approach to the study of Pompeii and its houses is long overdue. Despite their prevalence throughout the city, non-elite, middle- and lower-class domestic spaces have received scant attention until very recently, owing to several persistent biases in the academic study of the site. The first of these biases is the most banal: working class architecture is generally not beautiful, at least not in the same ways that wealthier Roman *atrium* houses are beautiful. Aesthetic pursuits find little purchase in homes of humbler men and women, and early amateur excavators, prizing those residences with exceptional

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one portion of the city. Raper 1977 and Laurence 1997 illuminate the problems underlying city-wide investigations that are troubled by problems with a lack of fine-grained investigation.

[7] For an in-depth analysis of "working class" as a valuable alternative term to describe the non-elite, see Mayer 2012. He details the requirement of working for a living as the primary criterion separating such groups from a truly elite population. It should be noted, however, that Mayer's conception of middle classes is born from an empire-wide perspective, and thereby includes portions of a population that would more likely be considered among the upper class if viewed at Pompeii alone. For Mayer, the range of people included within such a "working class" includes everyone from the humblest laborer employed in shop to well-off artisans plying their gem-cutting trade from within their homes.

architecture and ornament, did not linger long on such dwellings.[8] This phenomenon helps to explain the relative paucity of objects and decorative ensembles recovered from smaller, poorer, more modest domiciles. It also may have resulted in a general dismissal of those materials that could have been preserved during excavation but were not, many of which did not earn inclusion in records of assemblages or descriptions of freshly unearthed properties. A great deal of artifactual and decorative information from these addresses was lost during excavation, resulting in an unfortunate paucity of recording and analysis in the intervening years.[9] It follows, then, that scholarly attention to domestic spaces at Pompeii has subsequently been rewarded more by a focus on the data-rich, well-documented, and more aesthetically pleasing elite homes, perpetuating a conversation that ignores substantial swathes of the city's domestic footprint.

A second reason for the relative disinterest in non-elite domestic spaces at Pompeii is born out of the ways scholars have come to speak about and understand the architecture of Roman houses. When academic scrutiny settled on the homes of the wealthy few, it was natural to develop a vocabulary to describe and problematize the spaces that feature most prominently and commonly within them.[10] As discussed extensively in Chapter One below, the writings of Vitruvius provided a useful touchstone by which to understand *atrium* houses, and the rigid lexicon that governed their interpretation has only recently begun to be relaxed.[11] However, the language of domestic architecture shaped by these houses understandably leaves little room for applications to

[8] Mau 1902, 25-30; Leppmann 1968, 48-128; Etienne 1977, 49-56; de Franciscis 1978, 8.
[9] See the early years of the *GdS* and the *NdS* especially, which often preserve only a short paragraph to describe a month's excavation, with no specificity attached to what objects were found where, and often only recording those objects the excavators thought worthy of note. A good example of this phenomenon can be observed in Fiorelli 1875, 376-377, wherein the entire property at IX.1.28 receives only a single page of general description.
[10] See footnote 1.
[11] Note Allison 1994 especially as influential in moving away from Vitruvian labels.

non-elite homes; if a residence shares none of the recognizable features codified in ancient text, it not only resists interpretation, but even discourages it. Why attempt to speak about spaces for which we have no words? The opinion expressed by Andrew Wallace-Hadrill in the quotation above exemplifies the problem that arises from such an interpretive challenge.[12] Investigations into the city and its houses need to account for the variability and divergent modes of expression of middle- and lower-class housing and recognize that the academic bias towards wealthy spaces has produced a diminished ability to interrogate large portions of the city. Failing to do so prevents a more detailed engagement with the majority population and presupposes an inability on the part of their houses to inform scholarly interpretations of domestic life, architecture, and identity. The solution presented in the current study is to move away from an outmoded reliance on anachronistic labels, pivot the discussion towards precisely those spaces for which traditional terminology has proved lacking, and utilize modern digital tools to construct different conceptions of domestic space and integrate those spaces within their local and urban context.

Methods and Models

There are both advantages and disadvantages to investigating non-elite housing at a site like Pompeii. Due to the nature of its preservation, no other Italian site provides as complete a picture of a city's arrangement and composition. But due to the methods of its early excavation and documentation, much artifactual and stratigraphic information has been lost; often all that is left to us is a short, curated list of some objects found at a particular address with no account of their stratigraphic depth or position within the

[12] See footnote 1.

building.[13] It is thus often impossible to reconstruct assemblages as they were originally preserved in the houses at Pompeii, especially for those buildings that were not carefully recorded during the early years of excavation, and so scholars can only push the interpretive power of the artifacts themselves so far. To combat this limitation, the current project utilizes the buildings themselves as tools for the reconstruction of ancient issues of status, activity, and identity. Where the information regarding art and artifacts is preserved, it is integrated into the discussion of houses in order to carefully contextualize these spaces without putting too much emphasis on their interpretive value.

This study employs the tenets of Mertonian Middle-range theory and Henri Lefebvre's conceptions of space as analytical frameworks that allow for Pompeii's residents to be interrogated through the record of their built environment.[14] If it is possible to understand space as shaped by the people within it, and in turn to recognize that spaces shape its occupants' own activity, it is also possible to highlight the power of the house as an interpretive scaffold allowing for the study of its residents as well. Space can and should be read as a social product, and the homes of ancient Pompeians produced this space in accordance with the spatial practice of their society, at varying levels of societal definition (Roman, Pompeian, elite, working class, etc.).[15] The homes of these citizens were representational spaces that embody the complex symbolisms of their social practice and were therefore also shaped by the needs of performing that very practice. In

[13] See footnote 3. Early excavations were rushed, non-stratigraphic, and primarily concerned with locating and describing either monumental public architecture or the art and objects of luxury primarily found in wealthy residences. An informative counterpoint can be seen in the city of Olynthus. Destroyed in a single event by Phillip II of Macedon, it similarly represents the state of a city abandoned all at once. However, its methods of excavation have been far more careful in the recognition of artifact distribution, allowing for a fine-grained study of assemblage distributions within houses; see Cahill 2002.
[14] Merton 1968, Lefebvre 1991.
[15] Lefebvre 1991, 289ff. See Mayer 2012 for important considerations setting apart the decorative elements of the (generally upper) middle classes as functionally distinct from but conversant with those of the elite class.

this sense it is possible to reconstruct the homes of Pompeii's non-elites as reciprocal environments engaged with broader issues of social performance and construction. The spectrum of types of homes evident at Pompeii covered in this study reflects the spectrum of middle- and lower- class Pompeians who dwelt within them, and who by the act of their dwelling instilled their own characters into their houses.[16] It is from such a conception of space—as a representational system of expression produced by and instrumental for the (re)production of social identity—that this study must proceed. In part, this approach has been selected to circumvent the unreliable and often scanty nature of the artifactual documentation that survives from many of these homes, for which excavation records seldom provide satisfactory detail.

A fuller description of the investigative methods employed in this study is presented in Chapter Two, but here an introductory note is merited. The current study involved multiple weeks across three summers of on-site investigation of the standing remains of Pompeii in order to build on and refine an existing survey of all properties within the city.[17] The survey produced a typology of property divisions allowing for the individual unit, the home, to be examined as the basic building block of investigation. Results of this modified and expanded survey were then integrated into a GIS (Geographic Information Systems) document to enable the efficient quantification and qualification of many aspects each property, allowing this study to chart a better-defined and more representative scope of housing of the middle and lower classes. GIS provide an unparalleled investigative platform for determining trends in features across an urban landscape, and it is through careful application of tools within GIS that this dissertation

[16] Gieseking et al. 2014, 147; Heidegger 1971.
[17] The original survey of Pompeii which the current project elaborates on and further refines can be found in Craver 2010.

interprets the relationships among and between non-elite properties and the wider city.[18] By identifying trends, common attributes, features, and connections in architecture, urban access, and attendant ideas of social performativity through these tools, this project is able to conceptualize Pompeian households in an analytical framework that preserves elements of their diversity while still promoting their examination as a functional, broad group of non-elite spaces.

The methods employed further build upon the results of the GIS analyses to develop and interrogate theories of neighborhood as it exists diachronically, cross-culturally, and most specifically at Pompeii itself. GIS tools allow for an integration of theoretical and mathematical considerations of what it meant for houses to perform certain types of spatial identity, and this project is thus able to test the ways in which these homes deviate from traditional expectations of Pompeian domestic realities. As constructed and lived spaces, the homes thus can provide some insights into the choices, interests, and social identities of the people within them. Beyond GIS alone, however, the current project also draws upon literary sources to ground its examination in ancient opinions contemporary with the physical evidence (Chapters Three and Four). To further integrate the model with ancient realities, inscriptional evidence from Pompeii is also wrapped into the discussion as a touchstone by which the conceptions of status which result from this study may be juxtaposed against their ancient counterparts (Chapter Four).

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[18] Surprisingly few archaeological investigations in the Classical world and beyond have utilized this platform to its full extent to discuss neighborhood identification and characterization. Chapter One details many GIS applications in archaeological investigations and notes that there are untapped avenues of inquiry in urban and domestic studies which would benefit from similar methods to those employed in the present study. Interestingly, modern urban topographers and sociologists have recognized the utility of GIS tools in interrogating urban design, and have explored neighborhood identity and variation through applications of kernel density analyses and spatial autocorrelation. See Dubin 1992; Basu and Thibodeau 1998; Zenk et al. 2005; and Rundle et al. 2008.

The model that guides the following investigation is carefully designed to negotiate the problematic and somewhat amorphous categories of elite and non-elite. It posits that architecture is one of many potential indicators of status, and by categorizing and examining attributes in the architecture of a home it is possible to approach some of the motivations behind its builder or occupant. While there are no concrete, uniform boundaries that define the precise divisions between upper, middle, and lower classes (in part due to these classes' nature as relative concepts), the architectural elements within a home represent empirically observable phenomena in the archaeological record, and are therefore are an attractive avenue of inquiry. Further, the distribution of homes with similar architectural features is also empirically observable in the urban plan, and thereby this study draws inferences about the wider city based upon the architectural elements of individual houses. From small scale to large, then, the model of investigation in this project reads the neighborhoods through their homes, and the city through its neighborhoods.

No model is without its limitations, of course, and the one employed here is designed to focus only on the homes of the middle and lower classes as identified first and foremost by their architectural arrangements. Such a choice consciously avoids inclusion of traditionally elite homes as a means of shifting the window of academic consideration away from an exhaustively researched and debated body of evidence and onto one that has not received enough scholarly attention. The model in use here also relies more heavily on architectural elements than decorative programs or smaller artifacts due to the nature of Pompeii's excavation and state of its preservation, as already mentioned above. While it would be ideal to be able to incorporate such components in a

uniform and exhaustive way with the present model, the problematic nature of their excavation and publication demand that such features and finds generally be avoided in the present study. Despite relying on ancient realities such as the presence or absence of certain architectural elements, it must be acknowledged that this model is nonetheless a modern construct, and it should be tested against the views and opinions of the ancients themselves to ensure its validity. This project therefore pursues such a test by drawing on literary documents from ancient Rome and Pompeii to support the inferences upon which the model relies (Chapter Four).

An advantage of this model and its methods, however, is that GIS is perfectly suited to incremental, modular elaboration as new research questions emerge. That means that further sets of empirically-attested entities throughout Pompeii could be integrated with the results of the present project at a later date to broaden its scope and improve its connections with those categories not included at present. This model and the methods of its implementation are also advantageous in that they are easily translatable to other sites and time periods; the same set of tools can be applied to identify overlooked patterns in any urban or rural landscape, depending on the criteria that inform the categorization of objects of any new study, such as temples, graves, villas, etc. By relying on observable architectural features as indicators of divisions within property types at Pompeii, the methodological choices underpinning this investigative model avoid ambiguity in favor of a clearly observable dichotomy: either the features exist or they do not. An integral component of both the model and its methods is the fundamental rejection of sampling as the best approach to the ancient city. Scholarship should not back down from its goals, even when dealing with a dataset of such size and variety like that at Pompeii; modern

tools allow for an investigation of the entirety of the urban fabric through digital avenues of quantification, qualification, and statistical rigor. In so doing, it is possible to present an image of the entirety of Pompeii, broadening the applicability of any conclusions beyond a narrower, sub-local focus and enabling claims that pertain to the city as an entity produced by its smaller regional and household components. The terminological and categorical choices which underpin the model and its application are explored below.

Terminological Considerations

Because this project deals extensively with the possible homes of the non-elites at Pompeii and the neighborhoods which they manifest in the urban fabric, a brief definition of these terms is merited at the outset. Further, more detailed justifications of each idea—non-elite, home/house, and neighborhood—are provided in the narratives of their respective chapters. To start, it must be clarified what is meant by "house," or "home."[19] This study uses the two interchangeably to refer to any built space at Pompeii that preserves evidence of habitation as one of its primary uses. Such evidence can be artifactual, supported by the presence of cooking and dining implements or the remains of residential furniture,[20] or it can be architectural, as when a space preserves an arrangement of rooms which indicate habitation, such as bedrooms or a dining

[19] The two words are not always interchangeable, as expressed by Rykwert 1991. He separates them based on physicality (house), and sentimentality (home.) Young 2005 applies feminist theory to the terms and views the home as problematically conceptualized as the domain of women, and the house as the restrictive boundary prescribing their activities. Lawrence 1987 examines how one can transform a house into a home, moving from physicality to personal, emotional investment, thereby illuminating the overlapping reference frames which exist between these terms. Such considerations are valid, but the semantic distinctions they reinforce do not apply to the current study. This project is not concerned with what separates the house and the home as lexical or ontological categories, and so can proceed with the caveat that some theorists may take issue with my conflation of the terms.

[20] Johnston and Gonlin 1998; Gillespie 2008 argues for kinship and lineage as better ways to conceptualize the house in Ancient Maya culture.

chamber.[21] Shop houses with a commercial front and potential living space above or behind are included as likely non-elite homes based on scholarship which has demonstrated their suitability for and widespread identification as domestic spaces.[22] Within this category one may find unusual or unexpected properties that have not been considered as likely houses in the past, but that is by design. This definition of home is a broad one, but it is broad by both intention and necessity; the goal of the current project is to identify the full range of possible non-elite domiciles, and therefore should be wary of excluding properties which have traditionally not been identified as houses simply because they preserve evidence of commercial activity. It is precisely such exclusionary definitions which this study aims to correct, and by recognizing the variation inherent in non-elite dwellings it is possible to illuminate the wide range of architectural choices available to the majority of Pompeian residents. Further discussion and justification of this idea of home and its scholarly reception follows below (Chapter One); why ostensibly diverse property types may be tentatively united as under a single umbrella for the present study is also considered at length (Chapter Two); the validity of this project's house terminology within its investigative framework is revealed by a discussion of ancient Roman literary conceptions of house and home (Chapter 4).

The term "non-elite" in this study must also be clarified. Status is a difficult category with which to wrestle, and it was undoubtedly somewhat fluid and multivalent in ancient Pompeii, at least within particular social strata if not

[21] See Ault 2000 for use of such features to identify and explore Greek houses and *Typenhaüser*.
[22] See especially Laurence 1995; Pirson 1999; Mayer 2012. It is essential not to exclude such properties or keep them separate, as the spatial, archaeological line between occupation and vocation was not as pronounced in ancient Rome as it is today. Scholarship must recognize that commercial interests in a space do not preclude its potential function also as a residence. Baird 2014 explores the combined commercial and residential functions of many houses at Dura Europos.

between them.[23] The fact that "elite" must always be a relative term—one is always elevated in comparison to some and diminished in comparison to others—means that it can be understood in any number of ways from any number of perspectives. In order to attach it firmly to an archaeological examination of homes at Pompeii, the idea of non-elite in the present study is one built from the architectural remains themselves. If a house is physically articulated in such a way to participate in the performative nature of patron-client relationships as they were attested in ancient literature, its designer or occupant communicates either an expectation of participating as patron through that architectural identity or an intention to associate themselves with those who do. One should understand a home that integrates commercial activity throughout its majority of ground floor plan by a different metric than one that does not (for example, the oil workshop-house at VII.4.23-25), and a space that opens broadly to the street presents itself differently to the public than those that are tucked away behind narrow doors (compare the two doorways at property VI.16.26). Such architectural considerations are among the many common features of non-elite, or working-class homes throughout Pompeii.[24] Since myriad architectural choices were available to the residents of the city, choosing to articulate a house in the traditional *atrium* style indicates a degree of elite identity that is absent from homes which lack such architecture. Therefore, all homes that reject the architectural indicators of high-status known to be common in elite residences are here considered to be potential non-elite homes.

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[23] Note Maiuri 1929 supposing that merchants in Pompeii were actively attempting to climb the social ladder through their enterprise. Jongman 1988 notes the far stricter delineations amongst the upper class (where precise ranking was more important) than it would have been in the middle and lower classes, for whom social position may be more changeable as fortunes grew or dwindled. See also Mayer 2012 for the discussion of the aspirational pursuits of the working class.

[24] While these elements are not exclusive or universal indicators of the middle and lower classes in Pompeii, they are valuable interpretive signifiers that aid in identifying and discussing possible non-elite homes.

It should be noted that, in identifying non-elite spaces by what they have traditionally been understood to lack, this project is not appending a pejorative dynamic to their quality or construction. Instead, the discussion recognizes that to begin challenging a system that has emphasized one particular category of building over another, new investigations must first work within the prescriptions of that system to demonstrate what it has excluded. Non-elite, working-class homes at Pompeii are thus simply those that have largely escaped thorough consideration based on an absence of certain features. That absence does not render them lesser, only different, and here it is marshaled to identify the full range of properties outside the highest levels of Pompeian society. Documentation left by the residents of these very homes confirms such a conception of non-elite as valid (Chapter Four). It should be remembered, of course, that issues of elite and non-elite need not be binary; they exist along a spectrum, within which a great many degrees of differentiation and identity both prevail and overlap. The non-elites here may be related to conceptions of the working classes, those nebulous groups of Pompeians that could not rely on the maintenance of their social priority to provide them with financial security. Such residents of the city would have employed a variety of commercial and vocational enterprises to pursue their livelihood, and this variety naturally results in a wide spectrum of house sizes, arrangements, and locations throughout the urban fabric. Nonetheless, any categorical spectrum, no matter how fine its gradations, can still be divided based on certain indicators, and the variation within each division itself can then be explored.

Lastly, the idea of “neighborhood” in the present study needs to be clearly explained. The theoretical considerations of neighborhood are examined at length below

(Chapter Three), but here it should suffice to briefly define the term. In the present study, a neighborhood represents two connected ideas. At the most basic level, it is a zone of the city identified primarily through spatial proximity, a feature that encouraged shared social interactions.[25] Functionally, however, the neighborhoods studied in the following pages are those zones of Pompeii which demonstrate non-elite residential cores, identified by shared architectural features and social character, and spatially delimited by statistical indicators of density in the urban plan.[26] While these neighborhoods are identified by the presence of their non-elite cores, they contain other building and property types as well. It will be shown that these clusters of middle and lower class residences correspond to *vici* (singular: *vicus*) at Pompeii, the administrative districts and sub-local residential groups with shared participation in religious practices and civic concerns. Members of these neighborhoods share access to certain civic utilities such as public fountains and large intersections, spaces of leisure, and other nodes on the urban armature which may have contributed to their shared social experience and identity. In short, neighborhoods are not just vicinities; they are vicinities defined and bounded by shared social, architectural, and spatial indicators which delimit their size and reinforce their distinct character.

Layout of Chapters

The following exploration of houses, neighborhoods, and the urban layout of Pompeii is composed of four chapters, a conclusion, and two appendices. To appropriately situate this undertaking, Chapter One presents a selected historiographic discussion of scholarship pertaining to Roman houses with special emphasis on those

[25] Keith 2003; Michael Smith 2010; Monica Smith 2003; 2014.
[26] These indicators are detailed in Chapter Two below.

from Pompeii. As this project occupies the intersection of household and urbanism studies, the first chapter also must address studies of Pompeian urbanism, especially those relating to or engaged with issues of domestic architecture. This chapter also discusses the utility of GIS for studying sites like Pompeii. It begins with an introduction to houses at Pompeii, attending to the priority of elite spaces in academic study of the city, and situating the need for an examination that instead emphasizes the homes of the common people as significant contributors in the construction of Pompeian domestic realities. The following section interrogates the academic tendency to rely on textual models for interpreting ancient residences, with particular consideration of the reception of Vitruvius. The discussion then turns to studies that have moved away from such literary touchstones to instead interrogate the architecture and artifactual remains of houses at Pompeii. By allowing the standing remains themselves to guide interpretation rather than seeking to impose an abstracted terminology that would skew any investigation, such examinations avoid the pitfalls of restrictive Vitruvian room labels and help to locate the human agents within the homes, identifying how people and their activities shaped the spaces they inhabited. Much of the scholarship discussed in Chapter One is concerned primarily with wealthy residents, and so the chapter then pivots towards studies of the common people of the city. Attempts to exhume the practices and positions of non-elites in Pompeii transition into discussions of urbanism, with a brief section examining how the city took its final shape and what types of property variation may or may not exist within its design. The final section of the first chapter discusses the applications of GIS in archaeology and at Pompeii as a means for interrogating the layout and texture of a region, a city, or a house. This chapter reveals the lacunae in scholarship

both on houses of the non-elites and on issues of urbanism, indicating the need for more modern applications of GIS in order to identify these elusive residences and employ them as a tool to study the fabric of the entire city.

Chapter Two presents the city as a whole, examining Pompeii through the widest possible lens, and details the GIS analysis that forms the methodological core of the current project. It lays out the criteria necessary for the identification of possible non-elite homes at Pompeii and briefly discusses the resultant property typology. Two significant property types emerge: non-patterned spaces and peripheral properties, which are defined and justified as probable homes of the middle and lower classes, mapped in a GIS document, and populated with a series of attributes based on their empirical architectural features and positions within the city. The chapter proceeds to test these property types individually—recognizing their validity as separate ontological categories with distinct architectural, social, and economic concerns—and as a group, examining trends in their area, architectural complexity, and degree of access to certain notable junctures in the urban armature, presenting each test as a series of graphs and short discussions. By employing tools such as spatial autocorrelation and kernel density analyses, certain patterns in distribution, clustering, and feature types emerge. These data are then examined as a group to provide a summary of where non-elite homes are found, when they cluster, and what attributes seem to influence their patterning. The resultant maps reveal tantalizing pictures of the city indicating a kind and depth of property diversification never before documented at Pompeii.

Chapter Three narrows the scope from the city to the neighborhood, seizing upon the revelations of the preceding analyses of non-elite homes to discuss the phenomenon

of neighborhoods as they are both theoretically defined and reflected in the archaeological record. Scholarship that attempts to identify neighborhoods at Pompeii is briefly documented, and the shortcomings of these studies are addressed. Having justified the clusters of properties found in this study as fulfilling the requirements of neighborhood, this chapter then proceeds to enumerate each of these potential non-elite neighborhoods and discuss their architectural, domestic, and commercial features. Chapter Three reveals the overlap of these newly identified neighborhoods with ancient Pompeian voting districts, and examines the history, conceptualization, and nature of such *vici* at Rome and at Pompeii. Since not all non-elite homes in this study belong to easily identifiable neighborhoods, the remaining dispersed properties are also examined as a unit, in order to determine what factors might have influenced their relative isolation. What emerges from this chapter is a new conception of Pompeii as a city with pronounced middle and lower class zones of differing character that fundamentally reshapes the way we should read the layout of the city's social and urban fabric.

Chapter Four tightens the focus even further, zooming in to examine the individual homes of a series of named residents at Pompeii. This chapter is concerned primarily with questions of status, of how these residents saw their own social positions, how they expressed them architecturally, and how those expressions align with the archaeological record. In order to test these relationships, this chapter draws on ancient literature to justify these dwellings as viable stages for the performance of status, questioning the interpretation of the *domus* as house, family, and home. Issues of status are then connected directly to named individuals at Pompeii through the tablets of Caecilius Iucundus, a series of banking and auction records that provides unparalleled

evidence of self-attestations of status. The addresses from the current study that correspond to names from these tablets are then examined in order to justify our assumptions about architectural expressions of status and to help clarify the probable owners of certain properties. The result is a presentation of non-elite homes at Pompeii that problematizes entrenched beliefs about how the middle and lower classes lived, their degree of agency and autonomy, and how their homes' architecture rejects the assumptions and prescriptions that have so long controlled the modern reading of Pompeian houses.

Two brief appendices follow the main chapters and conclusions, detailing the property-specific data measured for each dwelling in this study. The first appendix presents all properties arranged by address (*regio*, *insula*, doorway), and indicates what type of dwelling they represent. For each unit the size, number of rooms, and architectural complexity are recorded, as well as distance measurements to the forum, city gates, intersections, and leisure spots. The second appendix presents the same information, but selectively arranged by neighborhood, so that the individual properties which comprise the neighborhoods identified in Chapter Three are evident.

To date, no one has attempted as study of this type, depth, and technical rigor. As the selected historiography of Chapter One reveals, there have been many investigations into the nature of Pompeian houses and many analyses of the city's arrangement, but an unfortunate number are hampered by sampling biases or the rejection of non-elite architecture as a valuable interpretive tool. Here the utility of non-elite domestic spaces for interrogating the urban fabric of Pompeii is brought to the fore, allowing for an examination not only of the homes themselves, but of how houses and city relate to each

other. The development of a city-wide GIS document to map and analyze the full set of potential non-elite dwellings represents a significant advancement towards a comprehensive investigation of Pompeii's urban plan, and provides a platform that can be further elaborated to tease out even more details of the built environment.

The current study is about the city as much as it is about the houses, and it embraces successive levels of investigation that correspond to the levels of organization within Pompeii itself—the city, the neighborhood, and the home—to reveal, for the first time, the nuanced connection of domestic arrangements of the lower and middle classes with ancient conceptions of status, the neighborhoods defined by their non-elite cores and their correspondence with attested *vici*, and the type and intensity of diversification evident throughout the urban fabric.

While it must be remembered that attempting to define precise demarcations between the variable categories of elite and non-elite, house and home, and neighborhood boundedness can be complex and misleading, a thorough discussion of architectural evidence that avoids ingrained expressions of high-status concerns presents something closer to a comprehensive image of the full range of domestic situations available at Pompeii. With its combination of methods drawn from on-site archaeological observation and spatio-statistical analysis through modern GIS applications, this study represents the first of its kind into the nuances of Pompeii's urban fabric. It is hoped that this project will demonstrate the utility of a model that embraces theories of space as indicators of social performance beyond the household alone and substantially refigure our

understanding of Pompeii and its people, the nature of its urban topography, and the variation and social positions of its inhabitants.

CHAPTER ONE: HOUSES AND URBANISM AT POMPEII

Introduction

In 2004, Barbara Tsakirgis asked a simple question about a new book on Roman houses that revealed a great deal about the state of their study.[27] Reviewing the recent work by Shelley Hales, Tsakirgis inquired rhetorically, "Why another book on the Roman house?" responding to the veritable "forest" of such publications already in circulation.[28] Tsakirgis' question calls attention to some valid concerns about the subject, most notably an entrenched assumption that, in some respects, there might be precious little to say on the matter. Roman houses, and their attendant multivalent cultural considerations, have been a mainstay of academic thought and investigation in circles of archaeology, ancient history, art history, classics, and anthropology for well over a century, so it is understandable that recent years would see the field variously characterized by academic exhaustion, boredom, and fear of repetition. However, the more significant thrust of Tsakirgis' query is the possibility that there are still, in fact, advances to be made in this area, and new approaches that can be applied to old data to reveal heretofore unconsidered aspects of Roman houses.

Despite the admitted wealth of research and publications on questions of ancient Roman domesticity, household architecture, and family structures, Hales' book uses novel questions of social identity to examine architectural and spatial elements of houses that demonstrate political power, or shape public interaction, and in turn she allows the

[27] The book in question is Hales 2003, *The Roman House and Social Identity.*
[28] Tsakirgis 2004, 1.

material remains themselves to promote innovative readings of social organization within the home.[29] Though leaning on conventional methodological structures, such as employing Petronius' Trimalchio and his infamous domestic excess as a literary touchstone by which to judge archaeological remains, Hales brings the houses—notably of the Roman empire's wealthier citizenry—to life. It is through allusions to spatial Ciceronian rhetoric and discussions of painting, mosaic, and design that Hales animates the sociological considerations recently espoused by academics such as Andrew Wallace-Hadrill.[30] Most relevant for the present study, Hales' book has been considered one of the few which attempt a "holistic" approach to the Roman house, less parochial in its purview than examinations which consider only the frescoes, room types, or structures of a certain size.[31] Though one should be cautious about the validity of this "holistic" appellation, it is significant to note that, by calling attention to such an apparently rare quality, scholarship admits that the discipline is populated by studies with too-narrow scope. There therefore exists a need for examinations which do not isolate select regions or features they consider worthy of investigation.

The Roman houses of Pompeii offer vast potential for understanding numerous aspects of the ancient world, and so any approach which claims to treat every facet of their informative utility should be viewed with suspicion. The current project seizes on this vast potential to answer the following questions about Pompeian homes: what did the homes of the majority of Pompeians look like? Where were these residential spaces located throughout the city? How were these homes arranged with respect to issues of visibility, access, and display? Does their distribution indicate any possible

[29] Hales 2003.
[30] Wallace-Hadrill 2015.
[31] Tsakirgis 2004, 1.

neighborhoods with common social identity? How do these homes align with ancient attestations of social status as they are expressed through domestic architecture?

Historical scholarship that has addressed the study of Pompeian domestic spaces and architecture is understandably an arena with a great many divergent sub-fields and approaches, each offering specialist insight into overarching questions regarding issues such as art and domesticity in the ancient world, economy, and urbanism.[32] Some of the earlier and most monumental studies of Pompeii, such as those by Mazois, Mau, and Maiuri, integrate examinations of the city with a specific attention to its domestic contexts. Mazois' magnum opus, published between 1812 and 1838, reproduced in exacting detail the facades, plans, and reconstructions of monuments, public buildings, and houses throughout a city still very much under excavation.[33] His work included hundreds of plates detailing the architecture and decoration of the exposed remains, laying the groundwork for many future investigations to follow. Indeed, many of the decorative programs he reproduced in striking detail and color have since faded or been destroyed, so the field is forever in his debt. August Mau's contributions to Pompeian studies cannot be overstated. In his early accounts of the city, he devotes much discussion to the design and components of houses with limestone *atria*, detailing their form and arrangements throughout Pompeii.[34] Moreover Mau's work provides an overview of the

[32] To name only a few, Boyce 1937 uses household remains to discuss domestic cult practices; Andersson 1990 considers the impact and utility of fountains and water displays within homes; Allison1994 and Berry 1996 reconstruct domestic activity through artifact assemblages; Dunbabin 1993 and 1996 analyze dining and drinking within Roman villas; Riggsby 1997 considers divisions between public and private through the lens of Pompeian *cubicula*; Mayer 2012 explores the economic considerations of middle class houses and their occupants; Hermansen 1978 treats issues of broader urban population as it can be implied by the houses that comprise the city; Robinson 1977 charts the density of house sizes throughout the various *regii* at Pompeii. Pesando and Guidobaldi 2006 represents one of the more recent and comprehensive guide to the art, architecture, and artifacts from not only Pompeii, but also Oplontis, Herculaneum, and Stabia.
[33] Mazois 1838.
[34] Mau 1879.

town's history, destruction and excavations, and it balances discussion of public monuments with considerations of domestic characters, seeing the houses as sharing the essential particulars of Vitruvian design.[35] But Mau also presents a reading of Pompeii's economic landscape, revealing the nature of the commercial and craft activities throughout the city alongside his discussion of Pompeii's art and inscriptions. Amedeo Maiuri, in addition to serving as the driving force behind the excavations on site for nearly 40 years, helped inspire questions on the nature of the city pre-79 CE by excavating below the destruction level of particular houses. Maiuri's writing presents the houses of Pompeii as the best lens through which the city's history can be read, emphasizing the grandeur of their design and decoration,[36] but he also believed in pursuing the unique character of Pompeian craftsman and innovative artistic attitudes in his words and deeds, once advising that "What we must now do is…learn the daily life of the ordinary people."[37] The approaches and attitudes of these giants laid the foundations for all that would come after, and the resultant discussions on Pompeian urbanism and housing have been mutually informative and vastly productive. When reviewed in brief, they should provide insight into some of the investigative underpinnings which shape approaches to ancient domestic realities, while also illuminating the problems inherent in studying such a rich and diverse set of data.

The field of Roman domestic studies is of course concerned not just with the houses themselves, but rather with the roles that they manifest in the life of the ancient Roman and in the fabric of their urban context, endeavoring to tease out realities of social

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[35] Mau 1902.
[36] Maiuri 1929, 53-54. His account of houses does not neglect the working classes entirely, but he only presents three such non-elite domestic examples, and devotes less than a page to each.
[37] Maiuri 1953 on the artistic attitudes of Pompeians. For the quote here attributed to Maiuri, see Matthews 1954.

behavior more broadly writ.[38] That the houses themselves should offer such insights into the lives of their inhabitants is at the same time evident and worthy of explication. The house is at once a center for the production and enaction of social behavior at the smallest measurable grouping—the family.[39] The social realities engendered by the house, its family, or household, should be considered the fundamental unit of organization in a society at large.[40] In other words, just as the individual can inform an academic understanding of the family, the family can inform an understanding of the larger population. The house has thus rightly been seen as a microcosm of the social realities beyond the home itself, and therefore serves as a bridge between the large and the small, allowing scholars to study the Roman world through an examination of its houses.[41] Since these social realities occur within and are bounded by—in a sense governed by—the architecture of the home, examinations of the house itself reveal potential realities about the people within and beyond it. Space shapes people as much as people shape space.[42]

Houses and Society through Text

One of the primary forms of evidence marshaled in the study of Roman houses is, unsurprisingly, the body of ancient texts that refer to parts and functions of the home. Ancient sources such as Varro, Vitruvius, and Pliny are frequently mined for specific labels—terms such as *atrium*, *tablinum,* and *fauces*—that a researcher might feel secure

[38] Allison 2001, 182.
[39] Nevett 1999; Marcus and Sabloff 2008a, 333; Godino and Madella 2013, 1.
[40] Latin *familia* and *domus*, the somewhat fluid definitions of which are discussed at length in Chapter Three.
[41] Hendon 1999; Barcelo and Maximiano 2013, 18.
[42] Lefebvre 1991; Zanker 1998, 3; Revell 2012, 43.

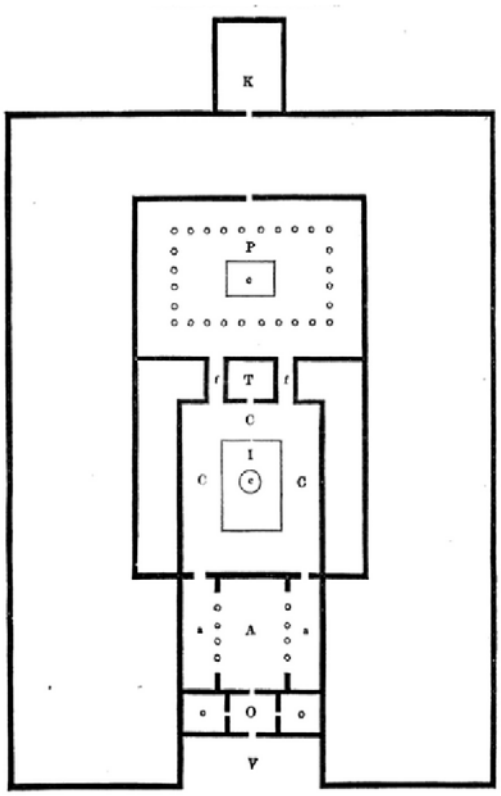
in applying to distinct spaces within an architectural assemblage.[43] Interweaving textual records with extant remains is certainly a valuable exercise. Nevertheless, without a secure relationship between the text—which may have been produced in a different time and place, for a different audience, and with a completely unrelated agenda—and the archaeological data to which it is applied, such application is often presumptive at best.[44] The most obvious and commonly employed such approach is to harvest language used by Vitruvius to describe the ideal house, and to use his terminology to assume the function of rooms within a domestic space. Such a practice is so entrenched as to be often repeated without theoretical justification in much research engaged with aspects of Pompeian housing. There is, of course, merit in the tactic of leaning on Vitruvius for guidance, for example, when rooms that do not have an easy and obvious modern analog (as a kitchen or latrine might) demand interpretation. Since a room's functions can often be related to its shape, position, and arrangement within a house, having a literary exemplum by which to define and understand the space is both attractive and rewarding, but this must be approached with care. The need for caution can be seen from Dickmann's use of the terms *peristyliym, ambulatio*, and *exedra* all to identify what the modern reader might consider a peristyle, assuming the Latin authors who employed these words to be discussing the same type of space in each example.[45] But whether the ancient authors were actually speaking of the peristyle as modern thought sees it or simply of spaces with similar features is impossible to determine without recourse to the surviving architecture about which they were writing. Indeed, there are plentiful examples of occasions when

[43] Wallace-Hadrill 1994, 6
[44] Allison 2001, 185.
[45] Allison 2001, 186. Note that Dickmann later rejects his own strict room terminology in his *Domus Frequentata*, 1999.

the ancient texts' prescriptions fail to relate to the extant remains at all, an issue laid bare most famously by Allison's 1994 publication on the assemblages and rooms of 30 *atrium* houses in Pompeii.[46]

The Vitruvian tradition has a long pedigree and features prominently in the earliest explanations of the domestic nature of Pompeian houses, especially through the lens of these grand *atrium* houses. An early and influential discussion of the Pompeian house by Wilhelm Adolf Becker dates to 1838. Published two years before the birth of August Mau, it is often regarded as a progenitor of Pompeian studies. Becker's work on Roman life included a chapter on the nature and form of the Pompeian house in which he discourses on "such parts as had their situations fixed and always the same, and formed the skeleton."[47] Among these parts he believed were always present and the same, Becker included the *atrium, tablinum, peristylium, alae,* and *fauces*. Curiously, the plan which he supplies illustrating these parts hardly resembles any known houses in Pompeii at all, and rather seems born from a general unfamiliarity with what the recently uncovered architecture actually looked like (Fig. 1.1). Illustrative creativity aside, Becker's prescription crafts a picture of an idealized and entirely fictional provincial Roman house developed around the spaces Vitruvius recommends, a house type that Becker believes mimics the great mansions of the capital in miniature.[48]

[46] Allison 1994. The room assemblages in many of the 30 houses in her study suggest functions divergent from the expected, for example she produces evidence of cooking and weaving in *atria* and bulk storage in *cubicula*.
[47] Becker 1838, 237.
[48] Becker 1838, 231; McKay 1975, 32.



PLAN OF A LARGE ROMAN HOUSE.

Vestibulum.
Ostium or *Janua.*
Cellæ Ostiariæ.
Atrium.
Alæ.
Cavum ædium.
Impluvium, in the centre of which is
c Cistern or Fountain.
T *Tablinum.*
f f *Fauces*, or entrance into the *Peristylium.*
P *Peristylium*, in the centre of which is
c A Cistern or Fountain.
K Ὄικος Κυζικηνός.

Figure 1.1
Becker, W.A. 1873. *Gallus; or, Roman Scenes of the Time of Augustus*.
Trans. F. Metcalfe, 4th ed. Longmans, Green & Co.: London.

Becker is hardly alone in his language and suppositions regarding the rooms in the Pompeian house, and a century and a half later scholars still rely on the rooms of Vitruvian canon to structure their analyses. John Clarke's impressive 1991 monograph on Pompeian homes understandably treats the design and character of the Italian house in great detail.[49] Clarke's diachronic approach is mostly concerned with the decoration of lavish houses throughout the Republic and Empire, and he relies heavily on the room

[49] Clarke 1991. Clarke emphasizes the type of elite residence and its descriptors pioneered by figures such as Becker, Mau, and Zanker throughout.

typology inferred from Latin authors for his conceptions of space. In Clarke's writing, the immutable, evident nature of rooms such as the *tablinum*, *atrium*, and *peristyle* do not require discussion or justification, because Vitruvius and other ancient authors conceived of them as "obvious and invariant feature[s]."[50] Starting from the assumed function of these and other rooms, his analysis of Roman houses develops decorative ensembles inspired by and responding to the Vitruvian expectation for each room. While providing a thorough and thoughtful exegesis on the styles and development of wall-painting, Clarke's analysis, like many others, cannot break free of the restrictions inherent in this institutionalized view.[51] Work by Richardson on the architectural history of the city provides a similar comparandum. Similarly seizing on the utility of the house as a vehicle for the presentation of painting styles and chronologies, Richardson details successive phases of Pompeii's urban development, targeting a discussion of monuments and houses he reads as representative of the construction techniques popular to each period.[52] The houses on which his work focuses are almost entirely drawn from the body of large, well-decorated homes of conventional Vitruvian plan,[53] but he also provides a wide-ranging discussion of public monuments and civic buildings throughout the city.

Recognizing that an approach reliant on Vitruvius has limited our investigative capacity regarding the potential uses and realities of ancient Pompeian dwellings, recent

[50] Clarke 1991, 4. See also Matz 2008, 35-36 for a summary of these "universal" spaces, and Guhl and Koner 1994, 358-364 for a discussion of Greek influences on the development and assumed ubiquity of these spaces.
[51] McKay 1975, 4; Dupont 1993; Ellis 2000; Nevett 2010.
[52] Richardson 1988. However, note that direct correlations between building materials and phases of Pompeii's development have since been shown to be problematic at best; see Adam 2007.
[53] He does, however, explore the construction history of some unusual homes which he argues are cobbled together from earlier phases and neighboring properties. Richardson 1988, 222-223.

scholarship has begun to pursue alternative avenues of examination.[54] However, these recent works, too, are sometimes overshadowed by the long tradition of Vitruvian canon. As seen in Simon Ellis' 2000 work on Roman housing, Pompeii's *Casa del Principe di Napoli* (VI.15.08 – *Regio* V, *Insula* 15, doorway 8), which has been extensively studied due to its excellent state of preservation and the presence of wall-decoration throughout, presents a house plan often considered "irregular."[55] This word reveals clear Vitruvian bias, and any interpretation of the space that follows from its "irregular" arrangement is colored by expectations about what *should* have been found, and where. Although some acknowledge that house plans do not need to conform to the conventions laid out by Becker, Mau, et al., scholars such as Ellis nevertheless attempt to impose conventional labels onto these "irregular" spaces. At the *Casa del Principe di Napoli*, the presence of a central hall of sorts is undeniable—though here the cautious interpreter might carefully distinguish the English "atrium" from the Latin *atrium*, so as not to impose ancient Roman expectations on the space's function. Ellis, however, also expects a *tablinum*, an office space of conspicuous display frequently attached to a formal *atrium* wherein the master of the home kept his records and treated with those clients who came to beg his favor. He thus assigns that name to one of two similar rooms behind what he reads as the *atrium*. In the absence of discernible *alae* or a *peristylium* which would help dictate the Vitruvian position of a *tablinum*, Ellis is attempting to restore "the usual axial symmetry of *fauces*, *atrium*, and centralized *tablinum*" absent an architectural arrangement which actually supports it.[56]

[54] For a detailed discussion of the shortcomings of Vitruvius' architectural expectations, see Jones 2003, 34-38.
[55] Ellis 2000, 81.
[56] Ellis 2000, 81.

It is interesting to note that Ellis' supposed *tablinum* lets onto what he considers a *cubiculum* (traditionally, one would expect it to let onto a garden instead), and in fact was found to have a great many cooking elements present during excavations, items strangely absent from the adjacent "kitchen."[57] These aspects differ greatly from what one would expect if the house followed the typical arrangement of elite form and function. Similarly, Ellis claims that despite their irregular shape and position, "the *atrium, tablinum,* and *triclinium* are all recognizable," foregoing a critical analysis of their space or "unusual" features in favor of their assumed role within the house.[58] By forcing these labels onto the spaces, such approaches demonstrate the problems with the pervasive expectation of an "ideal" house type and "obvious and invariant" rooms.[59] Such selective interpretation of the evidence to suit established types falls short of fully recognizing the variability of room placement, use, and the frequent irrelevance of Vitruvian room names, and too often scholarship fails to sufficiently accept or discuss the importance of the fact that Roman houses need not be Vitruvian at all.[60]

Houses in the Material Turn

In his repeated discussions of domestic *fullonicae* at Pompeii, Miko Flohr has demonstrated what studies of Pompeian houses stand to gain by moving away from strict paradigms like those mentioned above. Recognizing that conventional assignations of room labels stifle new and more inclusive interpretations of the domestic character of the spaces, Flohr utilizes the extant archaeological remains in a series of *atrium* houses

[57] Penelope Allison's online database, specifically discussing the rooms in the *Casa del Principe di Napoli* can be found at http://www.stoa.org/projects/ph/house?id=20.
[58] Ellis 2000, 81.
[59] Clarke 1991, 3-4.
[60] For the problematic dominance of Vitruvian vocabulary on Roman houses, see Leach 1997.

throughout the city to argue for their mixed commercial and domestic nature. In so doing, he diminishes their position as solely status-architecture and spaces for elite social display, and opposes "the model that currently dominates debates about domestic space in Pompeii," which he attributes to the research of Zanker, Wallace-Hadrill, Dickmann, and Hales.[61] The model that Flohr avoids touts the ever-present *dominus* and the patron-client relationship, around which *atrium* house models revolve as a nexus for performance, social promotion, and class interaction. Turning the limitations of Vitruvian labels on their head, Flohr engages with the evident utilitarian and commercial activities that took place in a room generally thought to be a reception hall for visiting clients and hangers-on waiting their turn to treat with the *paterfamilias* in his *tablinum*.

Flohr's approach to domestic contexts demonstrates the value of unorthodox examination of houses at Pompeii and advocates for a shift away from the traditional stress on assumed room usage, widening the possible range of activities which may have taken place even within elite spaces. Taking the *atrium* as his starting point, he transforms the house into a tool for interrogating commercial productivity, social fluidity, and the chronology of the last years of Pompeii, an approach shared by Elisabetta Cova in her work on the *alae* of *Regio* VI. Seeking to overturn long-held assumptions about the function and character of these small, open rooms adjacent to the space of the canonical *atrium*, Cova studies the material remains of every *ala* within *Regio* VI. Cova attests that her dataset features *atrium* houses of nearly identical design, and that the *alae* were considered indispensable features of the "cruciform" plan inherent in these homes.[62] Yet, she includes discussion of vastly different domestic arrangements, from the House of the

[61] Flohr 2011b, 88; Mayer 2012, 51. Mayer compares Flohr's work with a study of bakeries to suggest that many such industries may have occupied elite residences without a disruption of their domestic function.
[62] Cova 2015, 72.

Faun to the Bottega del Profumiere, the latter of which does not seem to have any discernible *atrium* at all, and therefore no dependent *alae* in the traditional sense.[63] Her conclusions illuminate the flexible nature of the *alae* spaces, noting that they were prone to modification for purposes of access to other rooms and the permanent storage of household goods.[64] By incorporating such rooms that would not conventionally be known as *alae,* she demonstrates the mutable nature of domestic planning at Pompeii. Atypical, non-*atrium* style houses can provide insights into the nature of Pompeian homes and could nonetheless host similar spaces that share form, function, and treatment with those in the wealthier, "ideal" types.

Both Flohr's and Cova's approaches are indicative of a new generation of research into Pompeian houses, one inspired by scholars such as Penelope Allison, whose work on the artifact assemblages from Pompeian *atrium* houses has helped to revolutionize the field.[65] Allison's studies recognize the inherent problems with the reliance on outdated labels in much of the scholarship discussed above, and from the outset of her research, she eschews Vitruvian names for the rooms in her selected houses.[66] Instead, Allison ventures a more objective approach to analyzing the character of various domestic spaces, which she draws from the artifacts found within each room. When scholars rely on expectations drawn from the *De Architectura*, they impose a function on a space that may have had no association with Vitruvian prescription or with the archaeological reality. Allison avoids this problem by allowing the material evidence

[63] Cova 2015, 83.
[64] Eristov 1992 discusses the visual relationship between *alae, tablinum,* and *atria* and their specific suitability for display of wall painting at a series of houses in Pompeii.
[65] See footnote 46 above.
[66] Allison 1994; 1997; 2007.

to speak for itself.[67] In so doing, she has shown that a great many of even the wealthiest houses in Pompeii, those which largely conform to the "ideal" type, contained *atria* which were hotbeds of production and labor alongside *cubicula* which must have been storerooms rather than bedrooms, based on readings of the artifacts found within. Her endeavors at redirecting domestic studies have demonstrated that a careful analysis of even the most canonical spaces can cause assumptions to crumble. In her conclusions, she calls for a wider net to be cast across Pompeii and the Roman world, one that aims at a more comprehensive approach and incorporates similar evidence from non-*atrium*-style houses as well, to present a better, more representative appraisal.

Perhaps the most notable and formidable answer to this call is the research undertaken by Andrew Wallace-Hadrill in his 1994 publication, *Houses and Society in Pompeii and Herculaneum.* This book represents an ambitious cross-sectional analysis of domestic spaces, examining 234 houses between Pompeii and Herculaneum in an effort to better characterize the use of space within Roman houses. Wallace-Hadrill's publication is laudable not only for its impressive and wide-ranging scope, but also for its refusal to focus only on elite residences, as determined by the expected status architecture discussed above. Examining only *Regii* I and VI at Pompeii, his book includes careful study of canonically wealthy residences, such as the House of the Faun, alongside far more meager domestic establishments like that at address VI.6.24. In order to classify the spaces in houses with such divergent plans and sizes, he establishes a series of interconnected "axes of differentiation" that plot rooms within a Roman house on a Cartesian plane, assigning each a different value along spectra of public or private, humble or grand. In so doing, Wallace-Hadrill begins to question the character of un-

[67] Allison 1999a, 57-77.

labeled—and perhaps impossible to label—rooms without relying on their similarity to conventional terms.

However, Wallace-Hadrill's framework results in a conception of Pompeian architectural expression in which "the rich are eloquent and the poor dumb," thereby diminishing the homes of the non-elites as a potentially useful category of study in questions of domestic architecture.[68] Scholars have been indebted to his creation of four quartiles of house size, categories that Wallace-Hadrill marshals to suggest social class; the upper two ranges contain what most would recognize as the typical *atrium* house, the lower two including houses of the non-elites.[69] This foray into conceptualizing a more accurate picture of what constitutes the true range of Roman residences nevertheless retains elements of the very tradition from which it endeavors to break; much of the focus remains on the elite houses with rooms treated in the typical fashion. Much discussion is given over to the character and quality of the *atria* and *peristylia*, more emphasis given to houses with lavish decoration, and evidence from the smaller two house-types is underrepresented in the analysis. The current project upends such a reliance on wealthy exempla by focusing entirely, for the first time, on the domestic arrangements of the homes of the non-elites throughout Pompeii. In so doing, this study endeavors to produce a more robust and comprehensive examination of the urban fabric at Pompeii built upon the homes of the majority population, one which reveals never-before recognized patterns in their siting throughout the city and interrogates the architectural and communicative natures of their residences.

[68] Wallace-Hadrill 1994, 14.
[69] Wallace-Hadrill 1994, 80-82

Pursuing the Common People

By admitting houses of non-*atrium* floor plan into his study, Wallace-Hadrill has illuminated one of the pervasive issues plaguing Roman domestic studies. When Hales' 2003 book was lauded for its "holistic" approach, it was in part the discussion of the houses of "ordinary Roman citizens" that helped it earn this praise.[70] The nebulous "ordinary" Roman has largely been overlooked in every study of domestic space outlined above, and indeed generally ignored in the vast majority of books and articles too numerous to recount here, in part because there is no archetypal "ordinary" person identifiable in the archaeological record.[71] Though Tsakirgis might mistakenly read Hales' Cicero as a lens through which archaeologists can view such an ordinary citizen, the vast difference between domestic architecture of the imperial family and the estates of a well-to-do man of Cicero's standing should be obvious. What such a gap calls into question, then, is the further, likely wider, gulf in domestic realities that must have existed between a person of Cicero's standing and the average, far less affluent Pompeian.[72]

Attempts at exhuming the common people and the non-elite classes from the archaeological record at Pompeii have alternatively focused on questions of production, literacy, aesthetics, and housing. Many such studies have paid little attention to the possibility of examining lower-class housing itself in a productive fashion, instead emphasizing the domestic nature of the non-elite citizenry as embodied by the simple one- or two-room shops that line many of Pompeii's streets.[73] Such small shop-houses

[70] Tsakirgis 2004, 1.
[71] Hutson 2016, 7.
[72] See Craver 2010, chapter one for a thorough discussion of Cicero's wealth and property engagement.
[73] Tanzer 1939, 4; Ellis 2000, 78; Moorman 2003.

were no doubt a significant component of non-elite housing throughout Pompeii, but a focus on such spaces ignores the wide variety of other house types available. Assuming little can be gleaned from these unimpressive spaces, due in part to their lack of easily definable rooms, studies such as Tanzer's emphasize the preponderance of graffiti distributed on external walls throughout the city.[74] Whereas Cicero composed orations for carefully assembled and discerning masses, Pompeii's average citizens turned to more humble methods of communication. If one might consider upper-class Pompeians too refined to scratch vulgarities on walls, then the advertisements, jokes, complaints, and commercial receipts littering the streets must represent the activities and characters of the more socially and economically impoverished townsfolk.[75] Tanzer's narrative leads to a conception of the non-elite residents of Pompeii as a spectrum of socio-economic "noble savages," light-hearted in their graffiti and surprisingly literate, invested in the politics of their stratified betters and employed in a colorful mix of occupations.[76] Tanzer's assessment of these Pompeians likely does not extend all the way to the bottom stratum of the social organization, but instead provides a multifaceted look at how the middle and lower (if not lowest) classes interacted with their city and their social betters.[77] It avoids, however, a meaningful engagement with the material record of their domestic spaces, the homes they shaped and that shaped their social performance in turn. Decades after Tanzer's work, Ray Laurence has similarly taken graffiti as an index by which to tease out information regarding non-elites within the city, charting the frequency of graffiti and doorways along the streets throughout to determine which parts of the city were most

[74] Tanzer 1939.
[75] Tanzer 1939. 95.
[76] Orr 1983, 96-98 records the general involvement in socio-political activity attested by graffiti and inscriptions throughout the city.
[77] For a discussion on the growth of the middle classes, see Hill 1952.

frequented by the kinds of citizens likely to scratch on walls. Though it does not seek to examine the nature of their houses, Laurence's study nonetheless hints at patterns in the urban fabric which might reflect the presence of non-elite dwellings.[78]

To tackle questions around the non-elite residences of Pompeii, the nature of their homes and how their domestic realities influenced their lives, Felix Pirson conducted a thorough study of the town focusing on apartment rooms termed *cenacula* and *taberna*.[79] The *taberna* familiar to most visitors and scholars of Pompeii are the small, single-room shops that line many of the streets, but Pirson identifies them as potential rental spaces in which less-wealthy residents could both work and live. Many of the small structures hosted a second-story, or *pergula*, the possible living (or at least sleeping) quarters for those who worked below. Pirson deals extensively with *cenaculae*, the second story apartments usually nested within or appended to large *atrium* houses. The homes of non-elites, in Pirson's examination, thus generally comprised either one- or two-room shops or the rented accommodations subordinated in the architecture of, and in status to, the wealthier residences in which they were embedded.[80] One crucial thrust of Pirson's research exposes the relationship between these disparate spaces, demonstrating that the apartments of the less well-off were often intermixed with and adjoined to wealthy residences by nature of their architectural embedding. Therefore, while one might expect a spatial separation of rich and poor, instead they are often found closely intertwined. Such spaces, so tightly knit into the architecture and affairs of the socially-elevated

[78] Laurence 1994, 73. Laurence's street system investigation is a tantalizing intersection between urbanism and domestic studies, and while he is unconcerned with "finding zones" in Pompeii, his results nonetheless suggest that very phenomenon, which will be treated with extensively in the following chapters.
[79] Pirson 1999. The two are terms which were differentiated in the rental postings at the *Insula* Arriana Polliana, potentially distinguished as apartments or flats.
[80] Since the *taberna* and *cenacula* were often part of the same *insula* as and nested within the architecture of the larger elite houses, much of Pirson's study is itself shaped by the presence of and available spaces within wealthy *atrium* houses.

occupants of large *atrium* houses, may hardly even qualify as truly non-elite due to their embeddedness within and frequent internal communication with the domestic spaces of the elites. It is easy to envision such properties inhabited by members of the adjoining *dominus'* household, or staffed by servants who otherwise made use of the larger wealthy space to which they had easy access.

Pirson's discussion of the rented dwellings throughout the city concludes that the conditions of common persons were "modest, but not humiliating."[81] It would seem then that these smaller apartments were occupied not by the poorest of denizens, such as those in the notoriously miserable tenements like the Subura at Rome, but by people with the income and agency to rent and decorate to a degree of comfort. Pirson's reassessment of the quality of life enjoyed by the owner-occupiers of such shop-houses ties in well with Wallace-Hadrill's studies that flexibly allocate smaller houses along the spectrum from "grand" to "humble," helping to contextualize the position of non-elites with respect to their more luxurious neighbors, but always elevating them above the lowest stratum of society, the slaves. The renters in Pompeii, at least, had some money to spend and places to call—tenuously perhaps—their own.

Past forays into non-elite domestic situations represent significant advancements in the way scholars are approaching Roman houses by recognizing the value of humbler spaces and non-elite architecture as indicators of the range of Roman life. Perhaps one of the more salient issues the above studies touch on is the relationship of household archaeology to urbanism. The need for revising scholarly engagement with Pompeian domestic realities is intertwined with research into the urban fabric of the city itself. Understanding where these houses were sited, their distribution, and the role they played

[81] Pirson 1999, 96, "bescheidene, nicht aber ärmliche Lebensverhältnisse."

in informing the composition of the city, as well as shaping intra-urban issues of citizenship and neighborhood, are integral considerations for any scholar seeking to explore the reality of Roman housing. Looking only inside individual homes thus produces a limited understanding, and scholarship is better served by integrating these pieces within the urban whole. In recent studies on an ancient "urban dialogue," Alan Kaiser has built upon R.A. Raper's attempts at charting the character of urban space throughout the entire city of Pompeii.[82] Though not specifically concerned with elite or non-elite domestic spaces, his research focused on the functional and social character of buildings, exploring any social variation that he considered evident throughout the urban fabric. Interestingly, Raper's results suggested that there was little variation in the residential sector of land use, no evident clustering of houses or differentiation in architecture, allowing him to posit that urban land-use at Pompeii is largely consistent throughout, and absent relevant spatial patterning.[83] The present study refutes this stance, and employs non-elite houses as a tool to reveal the variation evident in property types across the city.[84]

Alan Kaiser challenges Raper's conclusions for their lack of depth, but points out the inherent value of the method. By casting a net across the entire city and categorizing

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[82] Kaiser 2000. This study uses a finely-meshed grid superimposed over the urban fabric of the city of Empuries, Spain, to produce a more thorough and high resolution examination than that originally employed by Raper at Pompeii.

[83] Raper 1977, 215-217: "the average mean of the three sectors [of land use] is generally consistent with little deviation…" (p. 216), "the conception of patterning over the whole urban space is not evident" (p. 217); Wallace-Hadrill 1995 effectively disproves this theory as it pertains to particular types of urban architecture such as the brothel, noting that they "are never on the main roads, but are hidden away on the narrow back streets" (p. 54).

[84] Raper 1977. This approach to conceptualizing the urban fabric was to impose a grid of 100m squares across the city and label each with its basic category of use, to determine patterns across the city. His problematic conclusions are perhaps the result of his methods, which characterized building types based on a 100m grid, far too porous a sieve to catch meaningful diversification. For a more thorough engagement with these conclusions, see Chapter Three below. Raper's conclusions are echoed in recent summaries of Pompeii's urban character such as Barnow 2002, 93-96.

the building types and civic functions in a fine-grained examination, such approaches can test for patterns of occupation, use, and character throughout. Kaiser has successfully reworked these methods into a far more detailed study of the city of Empúries, Spain, which demonstrated clustering of building types and revealed regions of specialized civic and social investiture. His study ends with a call for wider application of such techniques and notes that Pompeii would benefit from a similar, more finely-tuned methodology to better conceptualize the variation in status and non-status housing.[85] The current project responds to this call by recognizing the impact of homes of the non-elites on the nature of the city's character. By identifying the architectural peculiarities of just those properties often overlooked in favor of elite spaces, and by studying their diffusion throughout Pompeii, the present work can begin to approach a more comprehensive analysis of the city that reveals patterns in the urban fabric that have never before been brought to light.

In pursuit of a goal similar to that of Kaiser's, Wallace-Hadrill's seminal research on the character of Roman houses as they obtain in Pompeii and Herculaneum endeavored to broaden its scope by means of a selection of homes from different regions in the city, and a sliding scale of humble or grand, public or private.[86] By choosing adjacent blocks from *Regii* I and VI, his study has the potential to hint at the frequency and position of elite and non-elite spaces within their neighborhoods, painting different areas of the city in subtle tones between the social extremes and offering fuel for more nuanced extrapolation. It is critical to note, however, that Wallace-Hadrill's approach here, limited as it is to two *Regii* of the city, is not representative of statistical realities

[85] Kaiser 2000.
[86] Wallace-Hadrill 1994. Much of this study revolved around the "axes of differentiation" discussed above which governed the characterization of space. Rooms in a house were varying degrees of public or private, grand or humble along these axes, suggesting different uses for each room.

due to its spatially biased sampling. He confesses to choosing these regions specifically for their quality of preservation and high incidence of well-published, ornately decorated, wealthy houses.[87]

A similar approach has been applied by Nappo to a series of "row houses" in *Regii* I and II, noting the non-*atrium*, modular, and "simple" style of domestic planning in this portion of Pompeii.[88] Some homes in these two *regii,* initially laid out in regularized lots but later adapted by their residents in response to shifting economic situations, were identified as working-class establishments. Such homes were characterized as "modest, but presentable," indicating that at least for this small subset of Pompeian residences, the non-elites had escaped the one-room shop-house type and achieved some degree of domestic elaboration.[89] Nappo convincingly argued that such row houses demonstrate a type of residential unit at Pompeii that differs markedly from *atrium* design, and that archaeologists need to be wary of "seeing an *atrium* where there was none."[90] Nappo also observes that later modifications to some of the row houses in *Regii* I and II were later redesigned around *atrium* plans, suggesting that it was only when the social standing of an occupant rose to a sufficient level that his home merited the presence of a formalized *atrium* design.[91] Valuable and influential as these studies of select regions in Pompeii have been, their intentional sampling biases, mean that the picture they present should not be applied to the entire city, and in the case of Wallace-Hadrill, the discussion is still heavily weighted towards elite examples.

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[87] Wallace-Hadrill 1994, 67.
[88] Nappo 1994; 2007, 348.
[89] Nappo 2007, 349.
[90] Nappo 1997; Metraux 2002.
[91] Nappo 1994. 93. Here Nappo rebuts Hoffmann's 1980 suggestion that the row houses had been of two-story *atrium* design all along.

One of the persistent challenges that arises when discussing non-elites in the archaeological record is how to define them. There is no one homogenous group of urban residents who share easily identifiable features and strictly defined limits of wealth, occupation, or religious practice. It is impossible to locate one perfect "ordinary person"[92] who represents the mass of non-elites at Pompeii, and terms such as "commoner" fail to address this inescapable heterogeneity.[93] Because the salient defining feature which can be applied to this nebulous population is the fact that they were not "elite," at least in terms of their architectural performativity, domestic arrangements, and rejection of traditionally understood markers of elite status, the term "non-elite" is used to refer to all such persons covered in the present study.

Urbanism's Wide-Cast Nets

Sampling biases such as those prevalent in the works of Wallace-Hadrill and Nappo are a near-ubiquitous hurdle in past studies of Pompeian houses. Any conclusions drawn from such methods can only reflect the character of the city as it relates to the sampled zones. To avoid this difficulty, Damian Robinson has examined Pompeii as a whole in his interrogation of its urban fabric. His 1997 study tallied the property types in every *Regio* and compared each to question the lack of residential diversification posed by Raper.[94] Robinson's approach is aggressive in scope, refusing to back down from the claim of some scholars—including Wallace-Hadrill and Grahame—that an analysis

[92] Trigger 2003, 121.
[93] Hutson 2016, 7.
[94] Robinson 1997. The problem with his study is the arbitrary division of the space dictated by "*regio*." This modern construct has no functional bearing on the ancient town plan, and is an anachronistic reading of the city's layout. The property types he employs are those traditionally understood and expressed by Eschebach in his extensive mapping of the city.

of the whole of Pompeii is "out of the question."[95] An analysis of the entire city is, rather, clearly possible, though it must come with its own caveats regarding the level of detail. Robinson's essay charts the distribution of residences of differing social classes through an analysis of their domestic architecture. Integral to his study are the house sizes and the number of "reception rooms" such as formal *atria* and large *peristylia*.[96] These criteria inform the construction of Robinson's four-part typology, reminiscent of Wallace-Hadrill's own, with the typical *atrium* house occupying the lion's share of the upper two categories, and the lower two categories determined mostly by small property size alone.

Studies such as Robinson's deserve praise for their ambitious, perhaps even comprehensive, scope, insofar as the areas of the city they investigate. However, despite this point in Robinson's favor, a project like his would benefit from further nuance. The resulting spatial distribution of social classes has no differentiation beyond the *regio* level: individual *insulae*, important intersections, and other variations within the *regii* are not represented at all. The fact that the *regio* is itself an arbitrary, modern division of the city, unrepresentative of ancient perceptions of the urban space, renders claims about a *regio*'s makeup largely unhelpful, unless it is further contextualized by ancient attitudes toward the urban topography.[97] His categories of differentiation offer no divisions beyond "average," "above average," or "below average" with respect to the frequency of house types in each *regio*.[98] The fundamental variation in size and content between the *regii* in Pompeii indicate that one needs to use a more finely tuned analysis to come to

[95] Wallace-Hadrill 1994, 67; Grahame 2000, 38 expresses the same sentiment.
[96] Robinson 1997, 139. He suggests the number of courtyards as an indicator of social status, originally proposed in Grahame 1995.
[97] Foss 2007, 34. The system of numbered *regii* and *insulae* was developed by Fiorelli in the 1860s.
[98] Robinson 1997, 141.

grips with the social reality of the city. The maps produced by Robinson indicate that there are more high-status houses in *Regii* II and VI, and a less-than-average clustering of low status homes there, claims that seem to clash with some of Wallace-Hadrill's conclusions. Such maps also do not account for Pirson's provocative assessments, which note the spatial adherence of low-income rentals to the wealthiest of private homes. The fact that these similar approaches produce incompatible results suggests that scholars need to look elsewhere or investigate more deeply to tease out the realities behind dwellings of non-elites and their positions within Pompeii.

Recent work by scholars such as Viitanen, Nissin, and Korhonen has nuanced the picture left to us by the conclusions of Raper and Robinson, by mapping points of interest throughout the city in an attempt to consider possible neighborhood relations at Pompeii. By analyzing the distribution of doorways, bars, shrines, fountains, and other elements of urban design, they have been able to demonstrate that not only was there variation in how such components of street activity and local identity were dispersed throughout the city, they have also revealed which streets likely saw the most activity.[99] When the house-size quartiles of Wallace-Hadrill's and Robinson's studies were then examined with respect to these urban features, however, they failed to demonstrate any trends in domestic architecture, seeming to support Raper's initial conclusion that there was little spatial patterning in domestic property investment in Pompeii.[100] While such examinations of Pompeii's urban character are invaluable for the amount and variety of data they have accumulated in one place, without an exacting and clearly articulated process by which to identify categories of domestic property and measure their position in the city, they can

[99] Viitanen et al. 2012, 62-65.
[100] Viitanen et al. 2012, 67-68.

only take the discussion so far. The present project answers this shortcoming by detailing precisely those absent analytical processes and challenging the conclusions of Raper, Robinson, Viitanen, and any who suggest that non-elite homes tell us little about Pompeii's urban fabric.

Understanding the nature of Pompeii's urban character is essential to any analysis seeking to interpret its constituent parts. The house, as a microcosm of the city and site of the basic unit of social organization, both shapes and is shaped by the urban environment in which it obtains.[101] In 1913 Francis Haverfield, noting the irregular clustering of buildings in the city's southwest corner and seemingly random spider web of streets around the forum, posited what has become a contentious theory for the city's development, though he did not strenuously argue for its adoption. As this southwestern region did not match the orthogonal grid of streets elsewhere in the town—a feature already thought to be indicative of Roman urban planning at the time of his writing—he suggested the possible presence of an *Altstadt* predating the rest of the town's growth, centered in the southwest of the plateau at its higher area of elevation.[102] The urban nucleus would later expand, yielding the full area inside the city walls along regularized Roman grid planning to create the arrangement preserved today.

The oldest core of the city, in Haverfield's model, would have retained its significance as it transformed into a Roman forum in later years, acquiring governmental, religious, and permanent commercial structures where there first had been just an open space, likely used as a market. As the forum regularized over the centuries, urban development radiated outward to the north and east, gradually taking on the shape and

[101] Ur 2014; Ault 2000; Hendon 1996.
[102] Haverfield 1913, 63-6.

character preserved today.[103] The *Altsdadt* theory was challenged, however, when it was discovered that the extant fortification walls and gates were built in the sixth century BCE, informing the grid plan beyond the *Altstadt*—where there was already significant evidence of occupation—and constraining the growth of houses into more regularized blocks.[104] The presence of gates predating a formalized, sudden expansion of an urban core would mean that the city's most basic grid pattern was intrinsic to its original conception insofar as the main roads which terminated at the original gates would dictate the basic arrangement of avenues. Whatever earliest settlement existed was not just a cluster in the southwest, therefore, but instead included all the space within the walls, built up or left undeveloped to varying degrees. Further challenges to the idea of the *Altstadt* can be found in recent work by scholars such as Paolo Carafa, who considers a number of artifacts dating to the earliest years of the city, as well as *pappamonte* foundations aligned with the later grid of the city outside the area of the *Altstadt*.[105] Carafa's theory even goes so far as to suggest that a more broadly dispersed settlement existed as early as the ninth century BCE. Alternate explanations for the strange layout of the area around the forum include the possibility of a late retraction, wherein the population withdrew into the zone of the so-called *Altstadt* for defense.[106]

Nonetheless, the idea of an *Altstadt* still finds its supporters, such as Herman Geertman, who, in 2007, embraced it as a theoretical urban starter yeast which grew by successive phases outwards.[107] His theory uses the regular arrangements of *insulae* in the

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[103] Carafa 2007.
[104] Geertman 2007, 86–87.
[105] De Caro 1985 challenges the *Altstadt* theory due to the early presence and alignment of the complete circuit wall. Carafa 2007, 65; Guzzo 2011; Coarelli and Pesando 2011; and Pedroni 2011 all agree that the street system's early arrangement further weakens the idea that there was likely any true *Altstadt*.
[106] Esposito et al 2011, 131.
[107] Geertman 2007, 85. The original phase gradually builds outwards into what became the "*Neustadt.*"

radiating regions of the city to hypothesize planned, staged urban growth in each area, though he does not attempt to rigorously define the length of these intervals or their intermissions. During this period of expansion, the relatively underdeveloped areas of the city to the east and north of the *Altstadt* would have included larger plots of open land suitable for the siting of larger, more elaborate houses, often including spacious *peristylia* and garden spaces.[108] If one were to accept this theory of the urbanization trends within the city, it would follow to find lower concentrations of small dwellings further from the city center, with areas to the north and east largely consumed by luxurious *atrium* and peristyle house plans as suggested by Robinson's social mapping of the urban texture. The current study contests these assumptions by charting the clustering of non-elite residences throughout the city at a far finer resolution than presented by Robinson, revealing new patterns of habitation that do not generally indicate larger residences farther away from the forum.

By now it should be clear why the focus on Pompeii's elite has proved so inescapable in the vast majority of both household studies and investigations in Pompeian urbanism. The bias enjoyed by wealthy house types is understandable, due to the nature of their preservation and the academic interest spurred on by their discovery. Indeed, surviving literature from the period tends to be drawn from elite sources, so it is natural that our philological interpretations and applications also privilege the upper classes. Because wealthy residences tend to have more and higher quality artifacts preserved in their assemblages, their lavish decorative ensembles have captured the eye and mind of the excavator, connoisseur, and academic alike. While remains of these elite houses have been the basis for the modern narrative about what it meant to be a Roman, the field has

[108] Geertman 2007; Chiaramonte 2007; Westfall 2007; Jashemski 1993.

seen issues of patronage, politics, business, slavery, and display develop on a stage of which sidelines the majority of the population. Largely ignored, with rare exception, both for their own domestic character and the role they play in a broader urban context are the actual homes of the non-elite, the middle or lower classes that must have represented a significant population in Pompeii. While some studies have engaged with them in limited scope, the problem of consistently identifying them throughout the city and examining them *en masse* have kept us from treating them with the attention they deserve.

GIS, Archaeology, and Pompeii

It has proven difficult to situate and interrogate effectively the homes of non-elites within the fabric of Pompeii using traditional approaches like those described above. The preceding summary of relevant urbanism studies indicates that careful analysis of the entire urban fabric of Pompeii could be a valuable avenue of inquiry for investigating these spaces. However, studies like those already discussed have chosen to focus on singular areas within the city; a house, a block, or a street alone can often generate productive research questions and avoid the challenges of dealing with the entire city. To better grasp the nature of roman dwellings and their position within Pompeii, the current project utilizes Geographic Information Systems (GIS) to interrogate the archaeological remains of the entire city.

GIS find applications at both the macro- and micro-levels of archaeological investigation.[109] As a platform designed to situate and investigate data within a geographic spatial reference frame, GIS are well suited to address questions of

[109] Green 1990 provides a wide-ranging call to action for GIS applications in archaeology, especially noting the utility of spatial theory and landscape studies in classical archaeology.

distribution, dispersal, access, patterning, and reveal any spatial correlation which might otherwise be invisible to the naked eye.[110] Over the last few decades, archaeologists, geologists, and anthropologists have brought this strength to bear most often on macro-level questions of landscape analysis. By combining existing data sets such as known settlement locations in a region with morphological surveys of the terrain and available natural resources, researchers have developed predictive models for where undiscovered sites might be located, the extent of their sightlines and, and possible zones of control or influence.[111] Diachronic studies of this type of data have, for example, revealed the impact of human intervention on the woodlands in Neolithic Romania, tested varying degrees of access to lithic tools enjoyed by ancient settlements, aided in visualizing the hidden paelaeoenvironment near Cambridgeshire, England, predicted settlement dates in Stone Age, Bronze Age, and Iron Age Aland (Finland), and defined the relationship between settlement location and landscape throughout the Etruscan period of Tuscany.[112] By mapping distribution patterns and analyzing correlations between features in an archaeological landscape, such studies are indicative of the ability of GIS to illuminate possible archaeological relationships of a social, economic, or political nature. Developing a set of persistent GIS documents and classifications can also help guide future research and inform avenues of archaeological preservation, as seen with the

[110] Conolly and Lake 2006, Chapter 8.
[111] Brigand and Weller 2011; Mazurkevich and Dolbunova 2011; Burton and Shell 1996,
[112] Preoteasa 2011. See Crumley and Marquardt 1990 for theoretical considerations on the applications of GIS in diachronic landscape studies. See Burton and Shell 1996 for applications on the paleoenvironment at Cambridgeshire, Daly et al. 1996 for spatial analysis at Aland, and Perkins 1996 for landscape-settlement relationships in Tuscany.

integration of GIS models for the study and prediction of cultural resources and land management data of sites like Barbados and Sabodala, West Africa.[113]

GIS applications are well-suited to examinations of ancient landscapes, identifying trends in settlement location, resource access, and diachronic shifts in artifact distribution or regional occupation.[114] But can these tools be translated from the study of landscapes in the broadest sense to the examination of a small town like Pompeii? It is notably a much smaller area for the purposes of GIS implementation, but the city has its own topography (physical, social, and economic), its own features and sightlines, just as any broad swath of Neolithic valley or the entire island of Sicily might. Since GIS are suited to testing spatial relationships, identifying trends, and predicting elements within a non-urban setting, there is no reason they cannot do the same at Pompeii, albeit at a smaller scale.[115] In fact, it could easily be argued that the city itself is a landscape in its own right, with the primary functional distinction being that the city is largely anthropogenic.[116] At the Maya city of Coba, it was only through the careful application of GIS tests that scholars have been able to identify spatial trends correlating the cost of urban structures and their proximity to the city's core, a useful case study for applying GIS to tease out relationships between individual structures and their surroundings within an urban fabric, at least within Maya examples.[117] The terms cityscape and townscape, much like landscape, can certainly be applied to the aggregate urban features

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[113] Farmer 2008 applies GIS to heritage management at Barbados; Verhagen et al. 2009 discuss applications in West Africa and North America. See also Altschul et al. 2011.
[114] For an overview of applications of landscape archaeology and GIS, see Chapman 2006.
[115] See Moscati 1998 for a discussion of the dual applications of GIS in Italy in both *regio*nal and urban environments.
[116] MacDonald's 1986 work on the urban armature treats with this idea at great length, as does Kevin Lynch's 1960 *The Image of the City*. See also Thomas 2001 for archaeological theories of landscape and their role as "a set of relationships between people and places which provide the context for everyday conduct" (p. 181). Such a definition leaves ample room for a city to be treated as a landscape.
[117] Hutson 2016.

of a place like Pompeii, and there should be no doubt that a city can be approached and investigated with the same tools brought to bear on other regional surveys or analyses.

The above sections have already examined some of the ways in which the entire city of Pompeii has been approached in the preceding sections on urbanism. These studies, especially those by Raper, Robinson, and Pirson, have helped set the stage for a more robust GIS implementation that employs technology that was either unavailable or still in development until recent years. Some of these studies' shortcomings can now be repaired via the analytical tools provided by digital platforms such as ArcMap and QGIS, the same tools generally employed in landscape and regional analyses. Further foundational studies which have paved the way for GIS at Pompeii—both in theory and in method—are the space syntax approaches developed by Hillier and Hanson in the 1980s and 1990s. It is through the tools of space syntax that researchers can most easily bridge the gap between the macro- and micro-levels of a GIS examination of Pompeii.

In their seminal book on the topic, Hillier and Hanson discuss the built environment—the entire city or the individual house—as a type of "abstract artefact" comprised of buildings whose forms are products of human valuation and which convey the social purposes of their builders.[118] Furthermore, the built environment of a city like Pompeii, for example, is not just the backdrop to individual and social behavior and values; in fact "it *is* a social behavior," one which is produced by and reproduces the socio-economic realities of its residents.[119] Hillier's and Hanson's research spurred the development of analytical tools like the isovist (which reveals the volume of space

[118] Hillier and Hanson 1984; Hillier 1996, 92. This concept is intimately connected with Lefebvre's theories of all space as the product of social performance, in Lefebvre 1991.
[119] Hillier and Hanson 1984.

illuminated by a point source of light) to study and interpret the built environment of a city or a house.[120] Space syntax has fostered interest in depth-distance calculations and functional implementation of "choice" and "integration" values, mathematical concepts as useful in characterizing movement within street networks as within the rooms of a house. Space syntax theories and their descendants are valuable for conceptualizing issues of access, visibility, and social integration, as can be famously seen in the Booth map of London, which shows the differing levels of urban integration associated with higher- and lower-class neighborhoods.[121]

Traffic patterns and issues of movement and access at Pompeii have recently been explored through careful application of GIS network analysis and space syntax. It is not enough to count doorways or note that a street was host to many urban features which may have attracted visitors;[122] researchers must submit these values to rigorous testing to tease out the possibilities of movement, access and traffic density to better visualize how the city directed its population. Eric Poehler's 2016 essay on movement economy has even gone so far as to extrapolate the presence of streets, doorways, and traffic patterns for the unexcavated portions of Pompeii.[123] By utilizing network analysis tools within GIS, Poehler has revealed all potential movement in the city, highlighting not just where residents may have traveled *to* on the urban armature, but also where they traveled *through*, illuminating, for example, that the northern side of VII.12 witnessed 23 times the amount of traffic as its southern side.[124] Poehler has further utilized GIS to create a

[120] Hillier 1996, Chapter Four engages well with how isovists form useful tools for revealing how people both use space and are shaped by it, resulting in the association of specific activities with specific spaces.
[121] Hillier 1996, 166.
[122] Laurence 1995.
[123] Poehler 2016b.
[124] Poehler 2016b, 20.

visual bibliography of the entire city, digitizing addresses atop satellite imagery of the city and endeavoring to tie each to its relevant scholarship. As useful as such a resource is, the accuracy of this online map is diminished due to its overreliance on satellite imagery alone, resulting in floorplans that do not align with the architectural remains and general inaccuracies born from aerial imagery. Furthermore, it functions only as an image, not taking advantage of the analytical tools present in GIS software.[125]

GIS and space-syntax tools such as these have also been used in Pompeian domestic studies by scholars like Michael Anderson, who has used the j-graphs and isovists popularized by space syntax to visualize access, movement, and privacy in a series of Pompeian houses.[126] Anderson's study is especially salient not only because it uses ArcMap GIS software to complete these calculations, thereby uniting GIS and space syntax, but also because it focuses on the lavish Casa di Trebius Valens, of largely typical *atrium* house design, to showcase his results (Fig.1.2).[127] The application of GIS tools to Pompeian homes is thus prone to similar biases as older scholarship has been; the architecture of the elite provides more enticing opportunities for exploration using these digital tools, and the humbler houses which do not preserve fanciful sightlines focusing on lavish points of decoration or articulation have yet to be drawn into the conversation.[128] The present examination rectifies this shortcoming by

[125] https://digitalhumanities.umass.edu/pbmp/
[126] Anderson 2004.
[127] Anderson 2004.
[128] While elite homes have born the focus of domestic inquiries, some progress has been made in the commercial and industrial arenas as well. A 2014 dissertation by Jared Benton similarly weaves GIS into Pompeii through a wide-ranging examination of bakeries throughout the city, also employing viewshed analysis within ArcMap to test questions of visibility and liminality as a means by which to define the social relationships which shaped these spaces. An outgrowth of this study is the conclusion that Roman bakeries, especially at Pompeii, occupied a unique position within the social hierarchy of the town, one which does not conform to expectations of high- or low-class status.

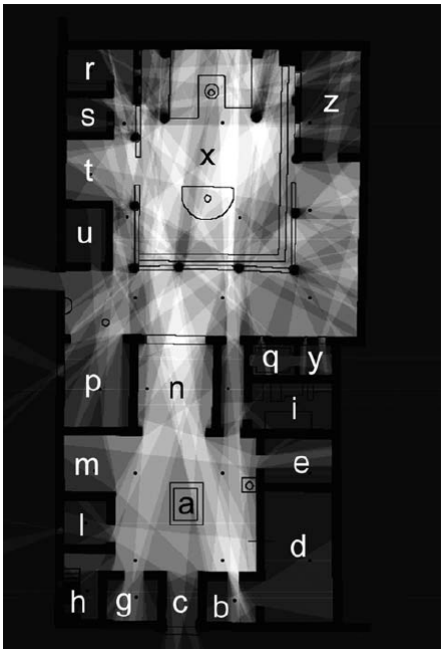

Figure 1.2
A GIS visualization showing a "visibility map" of the Casa di Trebius Valens.
The lighter the area, the more easily visible the point within the house.
Anderson 2004: 186.

applying GIS tests to the full range of potential non-elite dwellings across the entire cityscape.

GIS has been considered one of "the most powerful technological tool[s] to be applied to archaeology since the invention of radiocarbon dating," and it can bring a vast suite of analytical processes to bear on the investigation of sites like Pompeii.[129] Digital tools such as the Kolmogorov-Smirnov test or the Student's *t*-test analyze a set of data points, such as different houses with similar features, to determine the statistical likelihood that they should be associated with the same population within a region or town.[130] Statistical values such as Pearson's *r* and its attendant r^2 can be joined with Moran's-*I* to examine incidences of spatial autocorrelation, testing if features with similar

[129] Conolly and Lake 2006, 10. Eiteljorg 2007, 141 details why GIS has not been commonly used in comprehensive archaeological site investigations."
[130] Conolly and Lake 2006, 130.

attributes are more likely to occur in close proximity to each other.[131] Cluster analyses such as Clark and Evans' "nearest neighbor" method and Ripley's *K*-function can be applied to artifact distributions within a site, a room, or even across an entire landscape to test for randomness and identify the spatial structure of point patterns, especially useful in a diachronic approach that probes how a population's use of space and objects changes over time.[132] Each of these tests can then be easily visualized through a series of graphs or symbolized values on a map, fusing statistical realities with geospatial representation that is easy to digest and interpret.[133] Tools such as these that are integrated into GIS platforms like ArcMap open up myriad avenues of investigation into a site like Pompeii, allowing for thorough examination of property types with a degree of accuracy and confidence that was not formerly possible. Such tools cannot on their own reveal the complete, ineffable truth of ancient peoples' lives, but they can illuminate patterns, trends, and relationships in the physical, observable data which otherwise have escaped scholarly attention. Identifying such overlooked patterns and trends is the first step toward building a more robust conversation around how non-elite peoples may have experienced their homes and the city itself. It is through the development of such a map and utilization of spatio-statistical tools that the current project exhumes homes of the non-elite from the urban fabric at Pompeii. A comprehensive discussion of the specific GIS methods and tools employed in the present project, the dataset to which they are applied, and the questions regarding the nature of housing, neighborhoods, and urban topography, follows below in Chapter Two.

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[131] Conolly and Lake 2006, 158.
[132] Conolly and Lake 2006, 166-168.
[133] For a thorough list of spatio-statistical tools and their archaeological applications, see Wheatley and Gillings 202, Chapter 6.

Conclusion

It has been noted that excluding or sidelining lower class domestic architecture from the mainstream consideration of Roman houses at Pompeii is problematic. By focusing on the elite houses, scholars have either rendered the experiences of the common Roman citizen only in light of their participation within the patron-client interactions that *atrium* houses are thought to host, or otherwise have discounted their presence entirely.[134] As the studies of Pirson, Robinson, Kaiser, and Wallace-Hadrill have demonstrated, there are avenues of inquiry available to scholars that have the potential to reveal patterns of distribution, domestic realities, and everyday life of the non-elite residents of the city. Even the work of these scholars, however, is often dominated by the narratives of the wealthy patron and *paterfamilias*. The social organization of the Roman world is one that necessarily narrows as it moves up the ladder of wealth, influence, and standing, resulting in far fewer *patricii* than *equites* and fewer patrons than clients. Just as a bank has more customers than owners, clients vastly outnumbered the wealthy members of their town towards whom they turned for financial support, political influence, and social promotion.[135] The nature of an elite group of individuals, no matter how nebulous its definition, suggests its association with a minority subset of a population, a smaller echelon of powerful bodies that controls, influences, or benefits from a larger non-elite base. Therefore, in order to assess the nature of Pompeian houses as they were experienced by the vast majority of the people

[134] Pirson's seminal work on rented accommodations, while invaluable for its methods, dataset, and theoretical direction, nevertheless understands non-elite housing as largely dependent upon the rental spaces available within elite domestic complexes. For a discussion of how elites cemented their power using their connections with their clients in a practice of cooptation, see Veyne 1987, 95-113.
[135] Adams 1868, 180; Flohr 2011b, 88; Clarke 1991, 4; D'Arms 1970, 119; McKay 1975, 34; Patterson 2006, 225. See also Perkins 2009, 4 for the distinction between a general elite and a "local elite," both representing a population with "power, status, and wealth."

who occupied them, scholars need to interrogate the architecture, distribution, and material record of non-elite homes as well.

The beginnings of a solution that takes into account the shortcomings of the scholarship on houses and urbanism at Pompeii discussed throughout this chapter, and one that endeavors to circumvent them, can be found by rejecting Wallace-Hadrill's suggestion that a city-wide survey of Pompeii is impossible.[136] A comprehensive survey incorporating every building within the city limits into a series of categories based not on size or presumed function, but instead on extant, observable architectural elements results in a number of categories of Pompeian houses which, to varying degrees, conform to or reject expectations of *atrium* house arrangement. Most significantly, the results of such a survey can be applied to the identification of a category of buildings which simply do not conform to any such Vitruvian patterning. If scholars are to engage with the realities of non-elite spaces, a rejection of precisely those wealthy homes that have thus far dominated the narrative is a fruitful place to begin.

Such an approach to the domestic arrangements of the city demonstrates that there are far more properties within Pompeii that do not bear the hallmarks of high-status domestic architecture than those that do.[137] In essence, this realization proves that the houses which have been traditionally identified as elite residences represent only a minority of not only the urban makeup, but the whole body of Pompeian dwellings. The problem of how to identify which spaces might be representative of non-elite homes can thus be solved by defining their houses specifically by what they are not. The fact that such homes do not conform to the *fauces-atrium-tablinum-peristyle* axis that generally

[136] Craver 2010, 143; Mouritsen 2001, 3.
[137] Craver 2010, 120-121.

dominates the literature means that they possess rooms and arrangements that are both difficult to read through the lens of wealthy domestic spaces, and difficult to categorize or group on their own.[138] Such houses communicate their occupants decisions to avoid emulation of elite architectural identity, either by necessity or prerogative. The absence of easily recognizable elite architectural features, of course, helps to explain why they figure so little in research into the Roman house, and points to the obvious next steps which must be taken in order to fill the lacunae so long extant in studies of Roman domestic spaces and urbanism.

The present study takes all such non-patterned spaces as the starting point for the recognition of a Pompeian house which better communicates the realities of domestic space within the city of Pompeii. One of the largest challenges which scholars have had to overcome when approaching studies of Pompeian domesticity and urbanism has been how to recognize such spaces, as their lack of expected forms leaves them outside the framework that has governed most interpretation in these fields, and their urban footprint has thus been insufficiently examined. Studies that employ only select samples from discrete units within Pompeii, chosen specifically for their ability to support a narrative, can only paint an incomplete and misleading picture.[139] A city-wide survey of all potential non-elite domestic spaces helps refine the conception of what constituted the full array of Pompeian houses and fundamentally reshapes how the makeup of an ancient center like Pompeii should be understood.

To bring the conversation full-circle, it should be remembered that one of the elements of Shelley Hales' recent book on the Roman house that makes it a welcome

[138] For the fundamental importance of axes in governing human interaction, see Le Corbusier 1927, 187 and Hillier 1996, Chapters 4 and 6.
[139] Wallace-Hadrill 1994, 67.

addition to the long thread of scholarship on the subject is its attempt to discuss of the home of an "ordinary" Roman, though Hales' choice of Cicero as an example of one such is somewhat less than convincing.[140] Breaking away from long-held assumptions that interpretations of Pompeii's character can rely on the wealthy few to dictate the broader narrative is a development that is being echoed across the field.[141] What remains to be undertaken is a categorical analysis of the urban whole of Pompeii that identifies exactly which properties might best represent these elusive members of the ancient city and investigates their homes, patterns, and social character. The following chapter presents the methods and model by which a GIS document was constructed to pursue just such a categorical analysis of the city.

[140] Hales 2003; Tsakirgis 2004, 1.
[141] Wallace-Hadrill 1994; Allison 1992; 1994; 1997a; 1997b; 2007; Pirson 1999; Flohr 2011b.

CHAPTER TWO: THE CITY SURVEYED AND DATA ANALYSES

Introduction

> The city is, rather, a state of mind, a body of customs and traditions and of organized attitudes… The city is not, in other words, merely a physical mechanism and an artificial construction. It is involved in the vital processes of the people who compose it; it is a product of nature and particularly human nature.[142]

The preceding chapter endeavored to demonstrate the need for the present study to address the lacunae in scholarship on housing and urbanism at Pompeii, as well as the suitability of Geographic Information Systems (GIS) as a data collection, display, and analysis platform for an investigation into the nature of non-elite architecture. The long and complex history of scholarship concerning Roman houses and Pompeian urbanism has produced a staggering corpus of information on many facets of domestic life, household features, and the urban fabric, but the character, distribution, and impact of non-elite houses are underrepresented. One deterring factor behind this phenomenon has perhaps been the inherent difficulty in identifying these spaces, to say nothing of finding theoretical and analytical platforms for their consistent and rigorous interrogation.[143] GIS provide potential answers to these problems, and have multivalent applications and engagements within the fields of archaeology, ecology, geography, and urban planning.

This chapter presents the methods by which a GIS document was constructed from a complete survey of the city of Pompeii and outlines the criteria used to identify individual properties that might represent non-elite domestic spaces. A series of

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[142] Park 1952, 13.
[143] Wallace-Hadrill 1994, 14. See especially his chapter one, endnote 44.

geospatial and statistical analyses are performed on the resultant set of properties that seek to interrogate their characteristics and their position within the city with respect to each other and areas of civic interest. Finally, this chapter compares the results of this geospatial survey with the findings of other scholars of Pompeian houses and urbanism, presenting an image of non-elite housing drawn from its architecture and attributes and supported by spatio-statistical conclusions.

The first challenge in analyzing the nature of non-elite spaces throughout Pompeii is, of course, identifying them. While some scholars have selected small, well-published and highly preserved samples of the city from which they might identify a handful of humbler houses, a more robust investigation of the entire city presents more statistically viable conclusions. Unfortunately, there exists no official, ancient record of all property divisions within the city, meaning that the precise extent of individual properties can be frustrating to pin down.

A Survey of the City

The original survey which led to the creation of the dataset involved on-site examination of not just every *regio* or *insula* in Pompeii, but every room, façade, and doorway in the entire city.[144] However, certain portions of the city were in fact left out of the examination, lacunae which have been identified and remedied in the data presented in this current chapter.[145] To correct for these gaps, the author of the current study

[144] Craver, 2010. Craver's project was not designed to study houses themselves as a single classification of architecture, but rather to investigate the property divisions which may have existed within the city, and it resulted in a minimum number of property units which must have been present at the time of Pompeii's destruction in AD 79.

[145] Craver 2010 explains that many were excluded due to relative difficulty of access, being located in the more remote and cordoned-off portions of the city, in addition to being only incompletely excavated. I can find no explanation for the absence of *Regio* VII, *insula* VI from the 2010 survey.

worked in Pompeii across three summers to document the standing remains which were absent from the initial survey to construct a more comprehensive catalogue of all properties within the city. Further, certain properties which seem to have been candidates for multiple categories in the original survey were re-examined and occasionally relocated into different category. It should be noted that the original survey upon which the present model is built was not particularly concerned with mapping or investigating the nature or types of non-elite, working class housing at Pompeii. Instead, the survey was designed to enumerate the full range of probable property divisions throughout the city; the present project recognizes the utility of having such a complete dataset, and builds upon it to allow for spatio-statistical examinations and interrogations of status, neighborhood, and diversification at Pompeii.

In the model that guides the following investigation, the standing remains of the homes themselves serve as the primary body of evidence. Each observed architectural component—walls, doorways, stairwells, room types, etc—contributes to the character of the individual property, whereupon the properties themselves can then be examined across the city to test for statistically observable patterns. The system employed in the present project called for nine criteria to be studied for every building in Pompeii that, when considered in tandem, suggest certain relationships between property types and their divisions. The criteria for determining distinct property divisions are as follows:[146]

1. Communicating interior spaces: all spaces accessible upon exiting the street without reentering the street are communicating spaces. Such connected spaces likely belong to the same property.

[146] For a more thorough engagement with the original applications of these architectural criteria, see Craver 2010, chapter two.

2. Shared vertical construction: Second-story architecture likely belongs to the same property unit as the ground-story architecture below it.[147] By recognizing this relationship, it is possible to unite non-communicating ground-floor spaces into a single property if they shared a communicating second story.

3. Uniform façade treatment: spaces which share the same façade treatment and decoration are more likely to belong to the same property. This criterion alone is not enough to determine shared property, but it can help to confirm the extent of property that otherwise seems unified.[148]

4. Uniform sidewalk treatment: In much the same way as façades, uniform sidewalk treatments are taken as indicators that the buildings they front may have originally represented a single property.[149]

5. Shared-wall down-pipes: water or waste pipes in shared walls not only suggest occupied second-story rooms, but also indicate possible common ownership of the spaces on either side of the shared wall, due to Roman legal opinions that forbade down-pipes in walls shared by different owners.[150]

6. Internal relieving arches: Walls which contain relieving arches to accommodate subterranean water channels are much like down-pipes in shared walls. Due to the legal

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[147] The juridical opinion, however loosely it may have been applied, is commonly referred to as *superficies solo cedit*, meaning "the building above yields to the soil below." While it might be attractive to dismiss this legal opinion by virtue of its later date, one should consider the ramifications of attempting to enforce such a new legal decision if it were only a late installment. Therefore one could cautiously assume that such an expectation was relatively well understood for some time before its mention in the *Digest*. See *Digest* 43.17.3.7; *Digest* 39.2.47; *Codex Iustinianus*. 3.32.2.

[148] The façade changes in *insula* I.10 helped Pirson demonstrate the proper extent of the House of the Menander. Pirson 1999, 64.

[149] Saliou 1999, 197-99. Saliou's discussion includes the prescription that sidewalks must be maintained by the owners of the property which they front.

[150] *Digest* of Justinian. 8.2.13, 8.2.19. However, *Digest*. 8.2.18 indicates that pipes attached to party walls were common enough to litigate over the damages resulting from their failures. This is a particularly problematic criterion, and one which is only useful in helping determine relationships established by other indicators.

restrictions on access to and use of water, properties situated over a shared water channel are possibly under common ownership.[151]

7. Immured doorways: Such blocked-up doorways signify where the flow between interior spaces was changed to prevent or redirect access. Instead of demonstrating property divisions, immured doorways are taken to suggest that the spaces on either side of the wall were at one time under common ownership. Precisely why the door was blocked is usually unknowable, but regardless of the reason, they indicate communicating spaces at one point during the building's history.

8. Embedded architecture: When a smaller unit, such as a shop, is completely embedded within the larger architecture of its surrounding construction, the two were likely to be under common ownership.

9. Building materials: Properties constructed of the same building materials are more likely to have been under common ownership than properties built of disparate materials. The presence of a sudden change in building material indicates a possible division in property.

The application of these criteria for all the properties within the entire city produced a six-part "core" property typology. The core of a property is best understood in relation to its periphery, and largely means the extent of a building which does not open broadly to the street, but instead functioned as a contained unit in the interior portions of a block accessible through a small door to the street. A periphery is the opposite; most often it is the shop or shops which do not deeply penetrate the block. Peripheries engaged directly with the foot traffic of the street and have a large, open front door accessible to

[151] By many of the same laws as those governing pipes, however, *Dig*est 8.2.15 makes it clear that different property owners could establish an agreement for the one conducting water through another's land. As with down-pipes, relieving arches are only a tentative criterion.

passers-by, while cores are the houses or spaces which focus inward towards the center of the *insula*.

The property types that the original survey revealed can be divided into six categories of core: *atrium* complexes, partial-*atrium* complexes, double-*atrium* complexes, multiple agglomerated cores, open spaces, and non-patterned spaces.[152] Each of these property types can be further distinguished by the presence or absence of a peristyle. As cores, these properties were removed from the street, embedded within their *insulae*, and generally accessed through a relatively narrow doorway, instead of being left broadly open to the public traffic passing by along the sidewalks. *Atrium* complexes, partial-*atrium* complexes, and double-*atrium* complexes represent the classes of dwelling most commonly studied by scholars of Roman houses. Each of these three preserve the *fauces-atrium-tablinum* axis discussed in Chapter One above, and have traditionally been interpreted as representing the domiciles of the wealthy elite.[153] Multiple agglomerated cores are generally large properties comprised of more than one distinct core type, often with hints that they may have functioned interdependently. This might include a large *atrium* house adjoined to an industrial complex or open space which may or may not communicate internally, or two distinct houses with a single small door inserted between them. "Open spaces" are properties without meaningful internal division, potentially used for storage or agriculture, or perhaps the result of numerous destructions between the earthquake of 62 CE and the present day. The most interesting core type resulting from

[152] Craver 2010, 87ff.
[153] As with the current chapter, recent scholarship on Roman houses has begun nuancing this claim. Some elaborate *atrium* houses include evidence of commercial and industrial labor retro-fitting in later years. See especially Flohr 2011b.

this analysis, and the one studied in depth in the present project, is the final one: non-patterned space.

Non-patterned spaces are defined entirely by what they are not. They are the remaining properties embedded throughout the urban fabric of Pompeii that do not conform to any of the other types detailed above. Therefore, for a dwelling to be considered non-patterned, it must not have the features of a complete or partial-*atrium* complex, and cannot align with the Vitruvian recommendations for how a Roman house should be arranged. Non-patterned spaces do not preserve the *fauces-atrium-tablinum* axis thought to be an "obvious and invariant"[154] feature in Roman houses, and thereby one might infer that they were owned and/or occupied by Pompeian citizens who did not feel pressured to perform as *dominus* in the formalized patron-client relationship that shaped houses of conspicuous wealth and display (Fig. 2.1).

Nevertheless, such non-patterned spaces contain sufficient architectural articulation to suggest numerous rooms of disparate purposes (unlike the open space type) and are not subsumed by their often larger *atrium* house neighbors (unlike multiple agglomerated cores), but remain independent properties. Like the other types, non-patterned spaces have the capacity to feature added peristyles. The potential utility of studying non-patterned spaces becomes evident when one looks at the percentages of their distribution throughout the city. The initial survey of the city upon which the present project has built suggested that non-patterned spaces made up 43.2% of all the property divisions at a staggering 223 occurrences, approximately twice as many as *atrium*,

[154] Clarke 1991, 4.

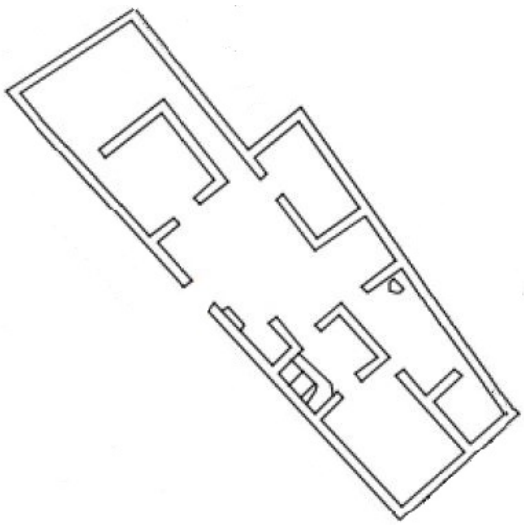

Figure 2.1
Plan of a non-patterned space at address V.2.f
known as the House of N. Herrenius Castus.

partial-*atrium*, and double-*atrium* complexes combined.[155] It follows from this assessment of property types at Pompeii that the impact of working-class and non-elite housing on the character of the city has been severely underestimated by studies that privilege the remains of wealthy establishments. Examinations that fail to account for the overwhelming majority of potential domestic spaces fall far short of presenting reliable interpretations of Pompeian domestic realities, and are similarly burdened by a conception of the broader urban makeup that is limited in its scope. By turning attention to these homes of the middle and lower classes, the present study marks a significant change in the way scholarship can identify and characterize domestic realities throughout the city.

A separate category of potential non-elite residence also deserves consideration in the current project. As work by scholars like Robinson and Pirson has indicated, a great

[155] Craver 2010, 106. The current study adds new properties to this total, and removes others which seem to have been incorrectly included.

deal of humbler dwellings are likely to be found within the range of small shop-houses that open broadly onto the street. Ninety-six percent of these spaces preserve evidence of small habitation rooms either behind the commercial front or on a second story accessed by an internal or external stairwell.[156] These mixed-use commercial and domestic properties do not represent a "core" like the types outlined above, but are instead considered a "periphery."[157] Though a valid dichotomy on the grounds of basic architectural differences, this semantic distinction risks distancing such peripheral properties from equal consideration alongside other potential house types. To remedy this, a complete survey of such spaces that are not embedded within the larger *atrium*-style houses is included in the present study. It is precisely these two types of house, the core and the periphery, that have already proved useful indicators of social status in Ray Laurence's analysis of the frequency of graffiti and doorways in the city, and his conclusions are tested in the current chapter.[158] Due to their lack of an architectural core within the *insulae*, for the sake of clarity, these properties are termed "peripheral" in this chapter.

Due to their frequency and occurrence throughout the city, it is clear that the two property types—both non-patterned spaces and peripheral properties—represent important contributions to the make-up of Pompeii, and they should demand attention in proportion to their presence. Within these categories is likely the range of properties owned or occupied by local residents who either could not afford, or saw no reason to

[156] Craver 2010, 122.
[157] Craver 2010, 96.
[158] Laurence 1994. High concentrations of doorways suggests lower-status property, as less of the internal *insula* is dedicated to the large houses of the elite. More small houses and shop-houses leaves less wall space for graffiti.

indulge in, the architectural fashion of the social elite.[159] Vitruvian preconceptions did not dictate the articulation of their domestic space, and they therefore resist interpretation based on the charged terminology such assumptions might impose. Using the criteria outlined above, the present study included onsite examination of the areas of the city not covered in the original survey in order to construct a comprehensive assessment of all extant properties within Pompeii.[160] Any areas that were inaccessible for autopsy were examined through photographs and publications, resulting in a more detailed and statistically reliable picture of the city.

Mapping the Survey Results

The results of the current survey indicate 316 properties of the two types discussed above that should be considered relevant for an examination of potential non-elite dwellings within Pompeii. Excluded from the survey were any of the non-patterned spaces which incorporated lavish peristyles into their domestic architecture. The peristyle, as opposed to a less formalized portico or garden space, is a strong indicator not only of disposable income but of an adherence to the architectural fashion popularized by elite members of the city.[161] Properties from the eight *insulae* not covered in the original survey of Pompeii were added to the totals, and a number of spatial divisions within the data were imposed to best investigate patterning throughout the city.

An ArcMap document was created to catalogue, symbolize, analyze, and interpret the data (Fig. 2.2). Using 60cm resolution satellite imagery of Pompeii, a comprehensive

[159] Craver 2010, 143.
[160] Craver 2010, Appendix 2. Notably lacking from his list of properties are the entireties of *Insulae* VII.6, V.3, V.4, V.5, IX.8, IX.9, IX.13, and IX.14.
[161] DuPont 1993, 31; Ellis 2000, 23; Wallace-Hadrill 2007, 287.

architectural plan was georeferenced onto the extant remains of the city in order to promote accurate measurements and ensure a fine-grained analysis at every level, including individual properties, *insulae*, *regii*, and the entire city. This method of mapping avoids the problems encountered by scholars such as Robinson and Raper, wherein patterns could only be examined at the arbitrary or too-broad scales of 100m squares or entire *regii*, as well as the challenges of maps like that produced by Eric Poehler, which relies solely on the satellite data as a basemap.[162]

Every pixel on the GIS map document is a valid space for data visualization, and any patterns detected in the presence of potential non-elite spaces can be measured within and between houses, *insulae*, and *regii*. The map was georeferenced using a series of over 200 tie-points, distributed throughout the city and concentrated in regions with complicated street layouts and internal architectural divisions to ensure accuracy.
A set of polygons representing the overall architectural footprint of each unit of property was generated for both types to allow for more controlled manipulation of data within both the non-patterned space and peripheral categories. Every property type was further grouped by *insula* and *Regio*, and the centroid of each property was calculated and segregated into similar spatial divisions.[163] A comprehensive group containing all the properties covered in this survey was also created and termed "composite" to reflect the union of both non-patterned spaces and peripheral properties. In addition to the

[162] See Chapter One, footnotes 94-96 and 125.
[163] A centroid is the center of mass of an object of uniform density. For these spaces, the centroid was kept internal to the house to ensure validity and chosen as the unit of measure so as not to privilege or punish houses with severely irregular plans or entrances on multiple streets which might otherwise skew distance or proximity measurements.

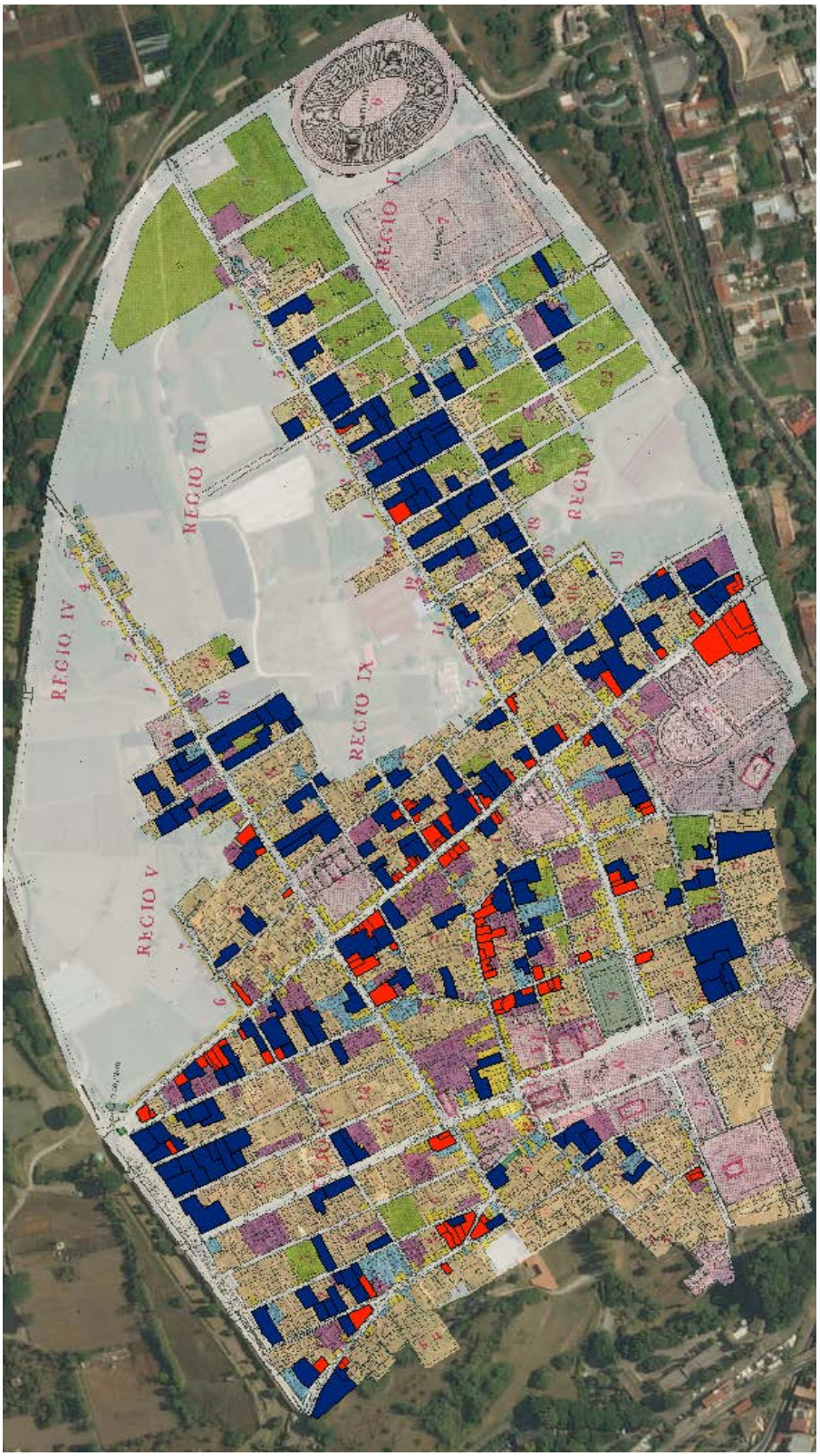

Figure 2.2
A complete map of Pompeii with every property
identified as non-patterned spaces (blue) or peripheral properties (red) indicated.

complete survey of composite spaces, points of interest throughout the city, such as the forum, city gates, large intersections, public baths, and entertainment centers were also represented by polygons and points and tied to their georeferenced plans to provide touchstones for more nuanced interrogation of the relationships of potential non-elite spaces with the urban topography. A series of spatio-statistical tools within ArcMap's software were then employed to conceptualize patterns of distribution, dispersal, and clustering throughout the city. The following sections detail each type of spatial and statistical test and examine the results when applied to the non-patterned space category of properties. The results from peripheral properties and the composite dataset follow below.

Spatial trends in Non-Patterned Space

Area

Taken as a partial indicator of wealth, the size of a property helps to inform the social standing of its owner or occupier.[164] As discussed in Chapter One, non-elite spaces might be expected to have a smaller general area than their wealthier counterparts, as epitomized by large *atrium* houses like the House of the Faun (approximately 3000m^2) or the House of the Menander (nearly 2000m^2). Of the 208 total properties determined to represent non-patterned spaces, the average area is approximately 260m^2 (Fig. 2.3). However, the presence of a small number of extreme outliers suggests that the median is a better indicator of normality within this dataset. The median is approximately 222m^2, with a minimum value of 28m^2 and a maximum of 1260m^2. All outliers are on the high

[164] See Chapter One, footnotes 52 and 77.

end of the distribution, and the box plot below demonstrates a typical range between 150m^2 and 325m^2, conforming to expectations that possible non-elite spaces generally tend to be smaller. However, with a standard deviation of nearly 170 m^2, the range for property sizes within this category is surprisingly large. This result would suggest that the owners or occupiers of non-patterned spaces, while generally invested in humbler dwellings than their elite counterparts, were not overly constrained by the costs of acquiring somewhat more sizable properties. Such a phenomenon demonstrates that

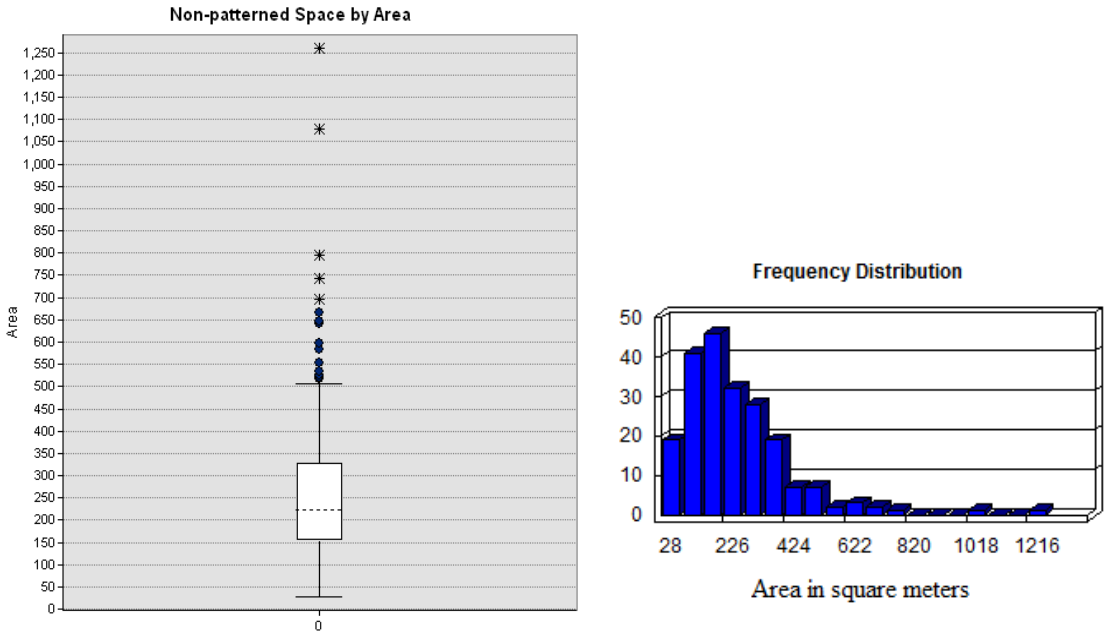

Figure 2.3
A box plot and frequency distribution of non-patterned spaces by area.

wealth was not directly and solely correlated with status in the Roman world, and even those members of society who did not conform to architectural expressions of elite identity could nonetheless achieve varying degrees of financial success and comfort, through business, familial connections, or any number of other opportunities. It was not

only the ability to acquire a relatively large property that communicated status, but how that property was arranged and presented to the public.

Complexity

Area alone, as discussed in Chapter One, is an insufficient indicator of wealth or status in Roman Pompeii. One of the fundamental tenets underlying the study of houses, borne in part out of the traditions of spatial syntax, is an understanding that the division of space into discrete rooms within a dwelling can be taken to represent a division of activities.[165] While not an inflexible rule, appending certain activities to certain rooms can be a valuable guide to reading the architecture of a home.[166] One should not assume that any room could have had a single function only, but a more diversified set of internal spaces allows for more specialization of activity by room. As the Latin authors make clear, status architecture involved the creation of specialized spaces within a home in order to perform certain functions, and the presence or absence of these spaces can help scholars infer activities that might have been common in the home.[167] Therefore, it may be attractive to infer that lower status dwellings have fewer architectural divisions within them due to a diminished imperative for hosting visiting clients, performance of social display, or separation of servile and lofty residential activity.[168] Such a theory is

[165] Allison 1994, and Kent 1984 for discussion of activity areas as bounded by the material remains present in a house. Nelson 1997, Chapter 6 addresses the utility of activity areas to distinguish gendered zones within a household.
[166] See Anderson 2004, 109-111 for the association of specific areas with specific activities within a household. Wilk and Netting 1984 provides a thorough definition of such "activity areas." Kent 1984 provides an application of rooms and spaces as distinct activity areas in Navajo and Spanish American sites. Longacre 1984 uses artifact assemblages in specific areas and rooms to argue for distinct male and female activity areas in the American Southwest.
[167] Though the problems of strict adherence to this rule and its implementation to determine precisely which activities in which room have been made clear in Chapter One, and in the work by Flohr and Allison.
[168] See Leach 1992 for the utility of specific room types in encouraging the entertainment and circulation of visiting clients in an *atrium* house. See also Wallace-Hadrill 1994, 11. The relationship between status and domestic architecture is discussed at length in Chapter Four of the current study.

supported by the work of scholars such as Pirson and Nappo, who have foregrounded smaller houses with fewer rooms and simpler arrangements as likely non-elite spaces in Pompeii.[169] To test for such characteristics in Pompeian dwellings, a metric was created which calculates the achitectural complexity of a space by dividing the number of rooms within a property by its overall area.[170] Smaller properties might be expected to be less complex than grand *atrium* houses, but the results suggest that this is not always the case. The mean complexity score for non-patterned spaces is 5.34, with scores ranging from 1 (wherein the entire property has a single architecturally defined room) to a maximum of 10 (achieved by packing ten rooms into an area of only 60m^2) (Fig. 2.4).

In contrast to the complexity values of these non-patterned spaces, the largest double-*atrium* complex in Pompeii, The House of the Faun in *Regio* VI, boasts a complexity score of only 6.78. Especially large *atrium* houses with peristyles included massive spaces without further subdivision, reducing their overall complexity. The relatively high complexity scores observed here indicate that non-patterned spaces, despite being smaller overall, nonetheless had a wide range of internal architectural differentiation, suggesting the potential for a diverse set of activities occurring within the homes of non-elite citizens and resulting in architectural complexity that rivals and occasionally even outranks those of their grandiose neighbors.

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[169] Pirson 1999; Nappo 1994; 2007, which focus on *cenaculae/tabernae* and the architecture of row houses respectively. This is also an essential component of Wallace-Hadrill's 1994 examination of houses at Pompeii and Herculaneum.

[170] The full equation devised for this measure is: $c=\sqrt{\left(\frac{rooms^2}{area}\right)x100}$. The equation was designed to normalize the linear and exponential values of rooms and area and results in a normally distributed, scaled value between 1 and 10.

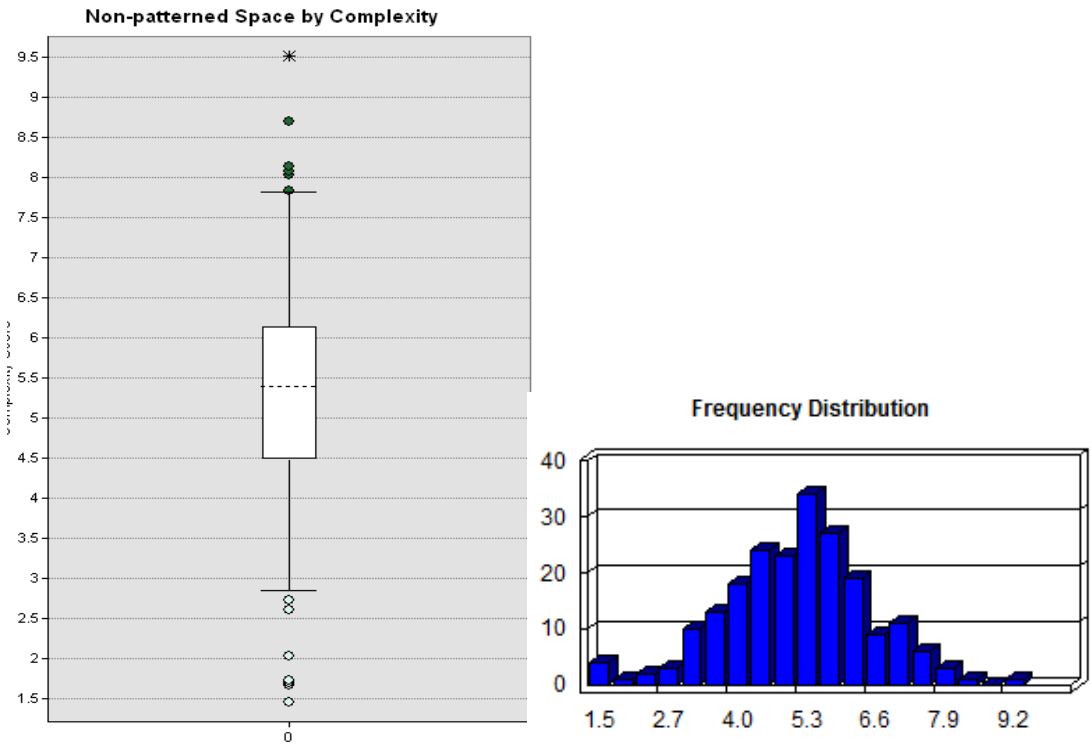

Figure 2.4
A box plot and frequency distribution of non-patterned spaces by complexity score.

Distance

In 1977 Raper presented an analysis of Pompeii that suggested the presence of "consistent" land use, or a lack of notable changes in social diversification of architecture throughout the city, with the exception of obvious zones such as the forum or theater complex.[171] In his closing arguments, he hypothesized that future research might be able to separate the categories of domestic spaces in Pompeii more carefully through detailed classification strategies. One metric he hoped might be employed was the degree of accessibility to certain nodes throughout the armature such as public services, gates,

[171] Raper 1977, 216.

fountains, etc. as a avenue to test which houses are sited most advantageously.[172] GIS and ArcMap in particular are well suited to many measures of distance and accessibility, and enable a detailed study of just such features. For every property in this dataset the distance was calculated between the functional center of each unit and a) the forum, b) all city gates c) notable intersections, and d) leisure locations (such as baths and theaters). To ensure that the resultant degree of accessibility is reliable, all distance calculations were performed using a "Manhattan" distance value. Manhattan distance measurements simulate city blocks of any size, calculating the sum of the east-west and north-south distances between any two points.[173] The alternative, Euclidean distance, would only measure "as the crow flies," thus Manhattan distance may be a better calculation when measuring or simulating movement and access within a city shaped by a rough grid plan.

Forum distance

Understood as the civic, commercial, and religious center of the city, the forum at Pompeii represents a crucial nexus in the urban fabric.[174] While it was by no means the only place where residents could fulfill their needs in these categories of daily life, its role in the city's character cannot be overstated. Measuring by Manhattan distance, the average non-patterned space was located at a remove of approximately 617m, from this metaphorical center of urban life (Fig. 2.5). The closest measured 107m away and the most distant 1,200m, with the majority being between 450m and 800m distant. The

[172] Raper 1977, 218.

[173] The formula used for Manhattan distance calculations is: $\sqrt{(X_1-X_2)^2 + (Y_1-Y_2)^2}$, where X and Y represent the latitude and longitude values of the origin and destination being compared.

[174] For an overview of its civic functions and its role in the city, see Ward-Perkins and Claridge 1978. For discussions of chronology, see Dobbins 1994.

median is very close to the mean at 587m, suggesting that outliers were not especially detrimental to the distribution. The immediate result of this measurement is a suggestion that very few non-patterned spaces are evident in a close band around the forum, and only begin to become frequent at a remove of over 400m, gradually becoming less frequent as distances increase beyond 650m.

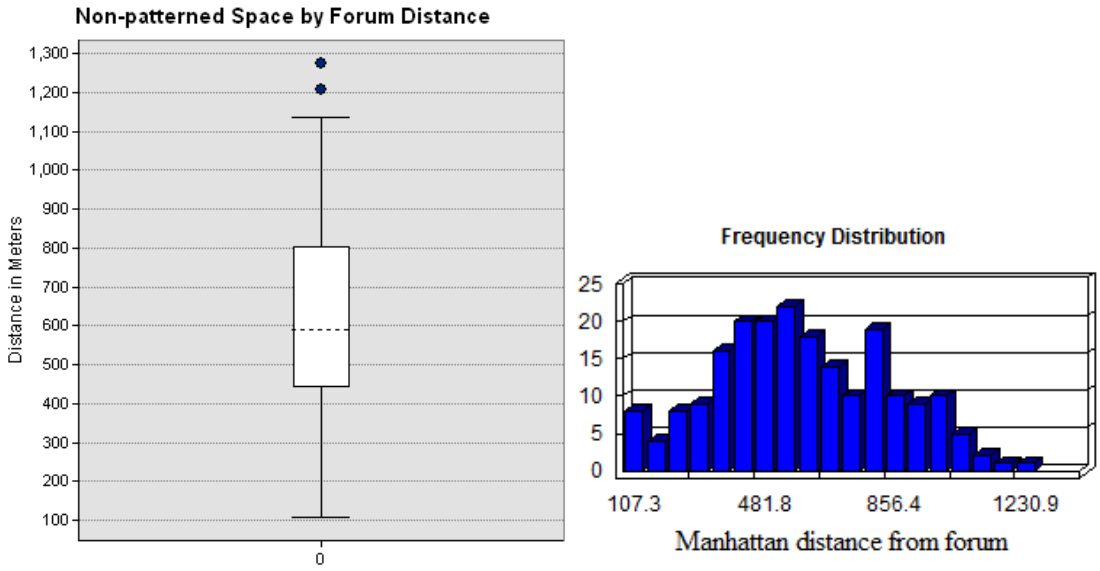

Figure 2.5
Box plot and frequency distribution of the distance between non-patterned spaces and the center of the forum

Gate distance

If the forum represents the center of the urban armature at Pompeii, the city gates embody its furthest extremes.[175] Because the shape of the urban plan is not perfectly symmetrical and the forum is not located in the precise geographic center of the urban footprint, distance away from the forum alone should be compared with a similar

[175] MacDonald 1986, 84. See also Goodman 2007, 60 for notes on the importance of gates not as defensive structures, but as communicative elements of the urban armature.

proximity to the city gates to better understand where non-patterned spaces tend to appear. Did they adhere to the city's entrances and exits, or were they nested deep within the urban core? The frequency distribution for this measurement suggests that the mean and median distance from the city's gates were approximately 345m, far closer than their proximity to the forum (Fig. 2.6). The suggestion that less formalized houses were likely dispersed away from the civic center is bolstered by this measurement, with the majority of relevant properties situated between 250m and 450m from a city gate.

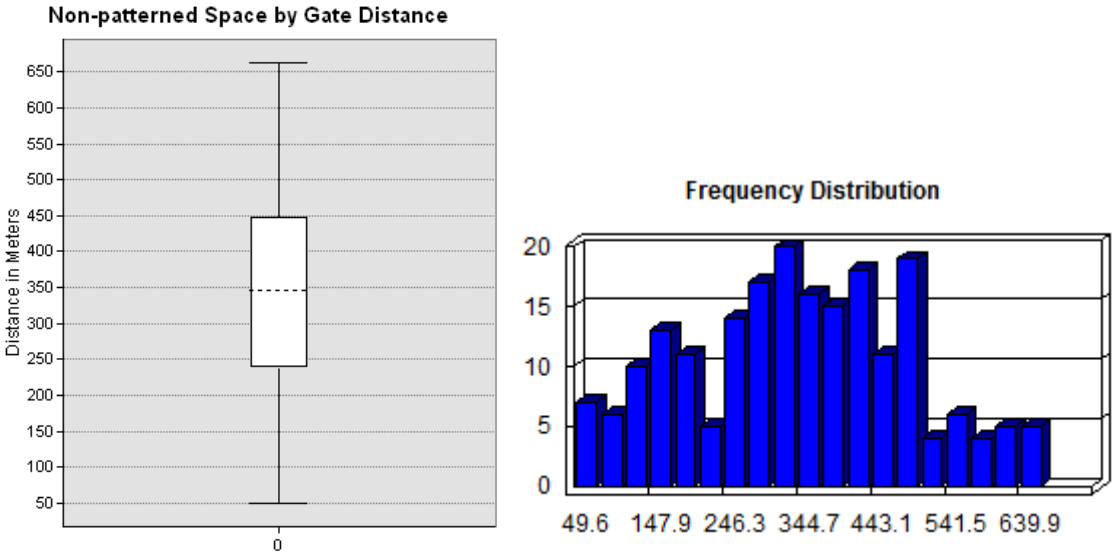

Figure 2.6
A box plot and frequency distribution of the distance between non-patterned spaces and the closest city gate.

Intersection distance

Certain intersections throughout Pompeii can be assigned a greater significance to the urban armature than others.[176] Those which demonstrate a deliberate widening of the crossing streets at their meeting or include a small carved-out *largo* seem to be designed

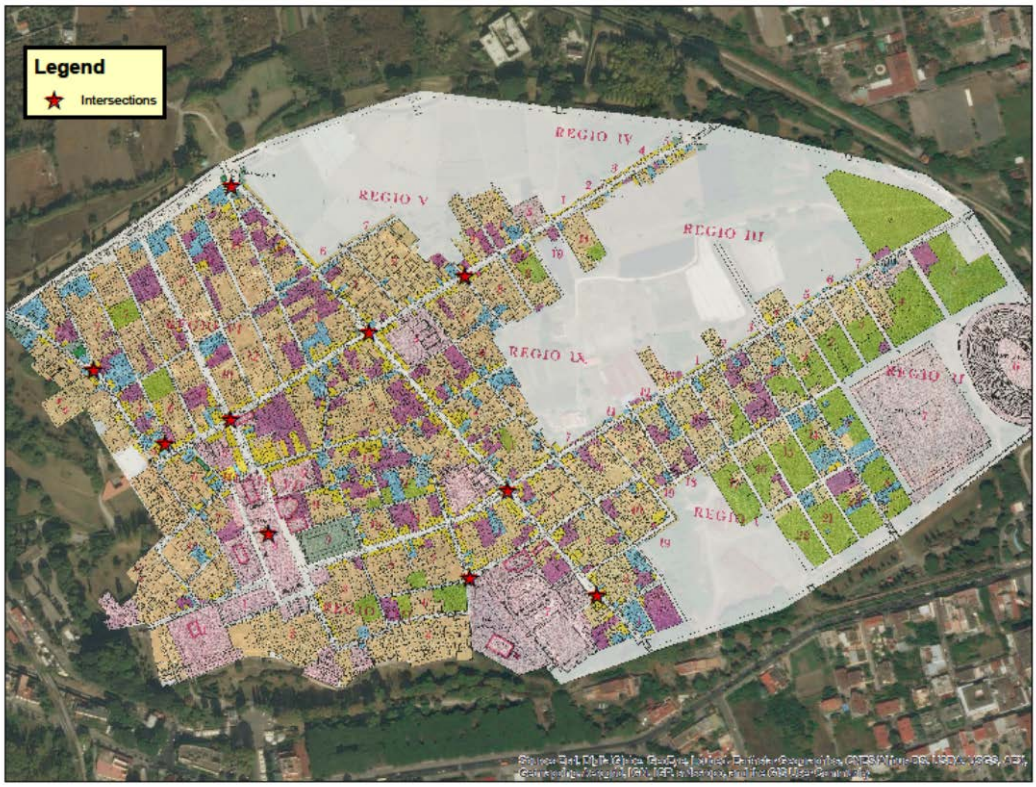

Figure 2.7
A map of the 10 major intersections used for this study, marked out by red stars.

to promote social interaction, often hosting a public fountain, an arch, or a group of shops which serve to direct pedestrian attention and movement.[177] Ten such intersections throughout the city were mapped, and the distance from all non-patterned spaces were

[176] Lehmann-Hartleben 1943, 24; Dobbins 2016; Poehler 2016b, 177. Poehler further points out weaknesses Kaiser's improper evaluation of large, important intersections and resituates them as crucial nodes on his network analysis of the city.
[177] MacDonald 1986, 105. See also Longfellow 2011, 25-27 for the intersections elaborated with large public fountains and other amenities, which would have served as a destination point for locals.

tested to query accessibility to such nodes of movement, interaction and commercial activity (Fig. 2.7).

Very few non-patterned spaces were far removed from noteworthy intersections, with a median distance of 150m and the vast majority within 250m, implying easy access to the nodes of passage architecture throughout the urban armature (Fig. 2.8). A small set of outliers seem to have been far removed from easy access to these locations, but the unexcavated portions of the city in the east and north may well conceal more intersections which would correct for these oddities.

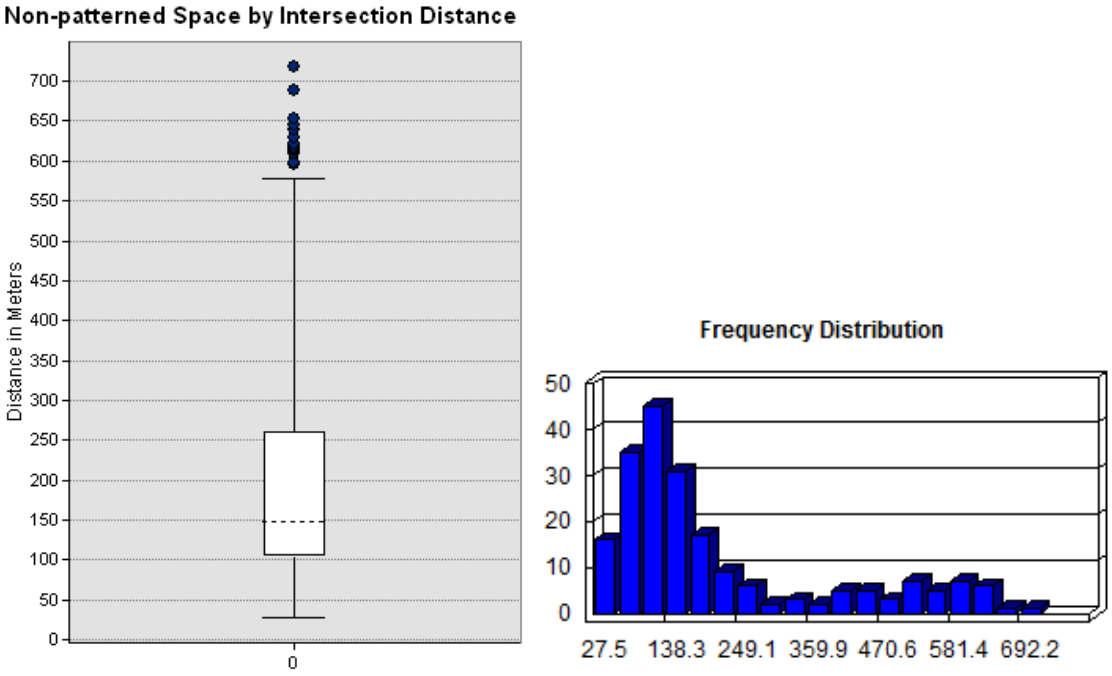

Figure 2.8
A box plot and frequency distribution of the distance between non-patterned spaces and the nearest major intersection.

Leisure Distance

Certain areas within the city deserve their own classification as leisure or recreational spaces.[178] Urban baths, (amphi)theaters, and exercise yards such as the grand *palaestra* represent locations which a resident might wish to visit for interests of *otium*, or "leisure." This is not to suggest that *negotium*—literally "not *otium*; work"—could not also be conducted in these spaces, but their design was such that they mark significant destination spots throughout the city that a resident might have chosen to visit and relax, be entertained, or otherwise occupy him- or herself outside of quotidian labors.[179] Such locations seem to have been well-distributed throughout the city, and non-patterned spaces are never more than 462m distant. Most non-patterned spaces fall within a 200m distance, and still more between 0 and 100m than between 100m and 200m (Fig. 2.9).

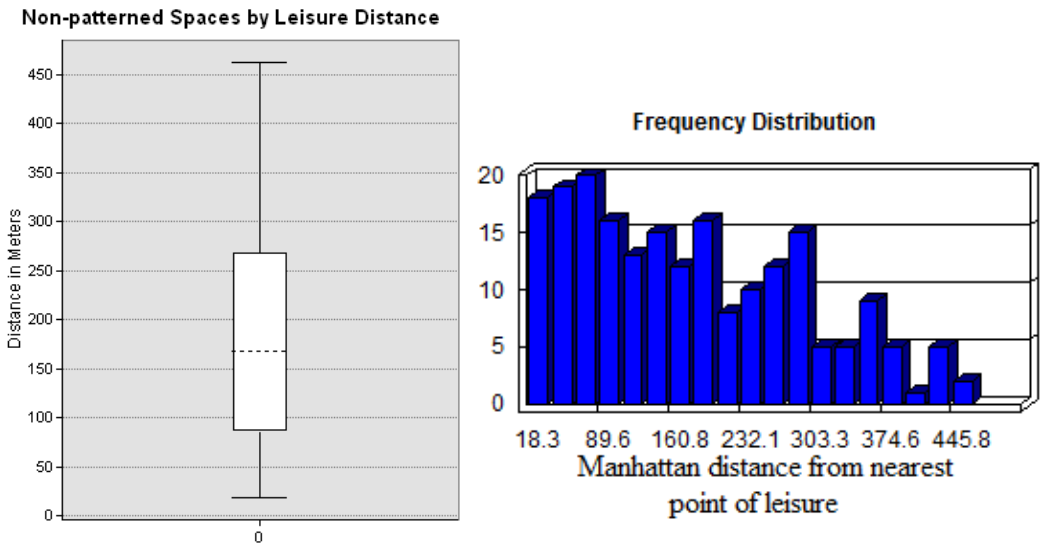

Figure 2.9
A box plot and frequency distribution of the distance between non-patterned spaces and the closest point of leisure in the city.

[178] For a discussion of many such spaces and their identification as nodes of leisure, see Cooley and Cooley 2004, 44-47; D'Arms 1988 focuses on the theatral complex; Nielsen 1993 details the baths of Pompeii. Casson 1998, 67ff. details the schedules of the typical urban resident and when they would have visited baths for leisure, noting especially that the super-wealthy would have no need of public baths, so such structures should perhaps be read as catering more broadly to the middle and lower classes.
[179] See Casson 1998, 33-34 for a discussion of leisure activities afforded to the wealthy.

The proximity of leisure spaces to lower class dwellings suggests that whatever factors were in effect to guide the siting of non-elite residences throughout the city, they did not obstruct such dwellings from being positioned with easy access to areas of recreation and leisure.[180]

An initial look at these isolated attributes already suggests certain qualities that help dictate where non-patterned spaces propagate within the urban fabric, but such one-dimensional analyses offer only limited insight into the position of non-elite dwellings at Pompeii. By plotting each attribute against the others these methods can begin to develop a far more nuanced picture and determine the presence of such trends as whether smaller houses were always less complex, if larger houses were located farther from the city center, and any other such relationships within the dataset.

Area and Distance

It may be attractive to assume, based on the observations of scholars like Geertman, that the eastern portions of the city were some of the last developed and represented areas of former agricultural cultivation with larger plots of land than those around the theoretical *Altstadt*.[181] It would follow that there would be more space for larger buildings further from the city center. Indeed, the cramped confines and the twisting, irregular street network around the forum proper suggest that smaller properties might be more frequent in close proximity to it, but the spatial statistics suggest that this was not the case. By plotting a regression equation that compares property area to

[180] Etienne 1977, 360ff. Etienne notes the ease of access to leisure in "*ses instants quotidiens de détente"* as one of the triumphal achievements of the cultured citizen at Pompeii. Also see Revell 2012, Chapter 5 for a discussion of lack of access to leisure spaces by the non-elites of a Roman town.
[181] Geertman 2007. His final phases of development are notably those furthest east from the forum.

distance from the forum, this test reveals effectively zero change between the average house sizes close to the forum and those far away (Fig. 2.10). If one can understand this to indicate that the availability for non-elite constructions of larger sizes was not affected by distance from the forum then one might also infer no relevant change in the associated cost for property in these areas. The same lack of a trend holds true for distance measured between non-patterned spaces and all other categories of special interest within the city; average property size was not dependent on ease of access to city gates, important intersections, or the leisure spaces outlined above.

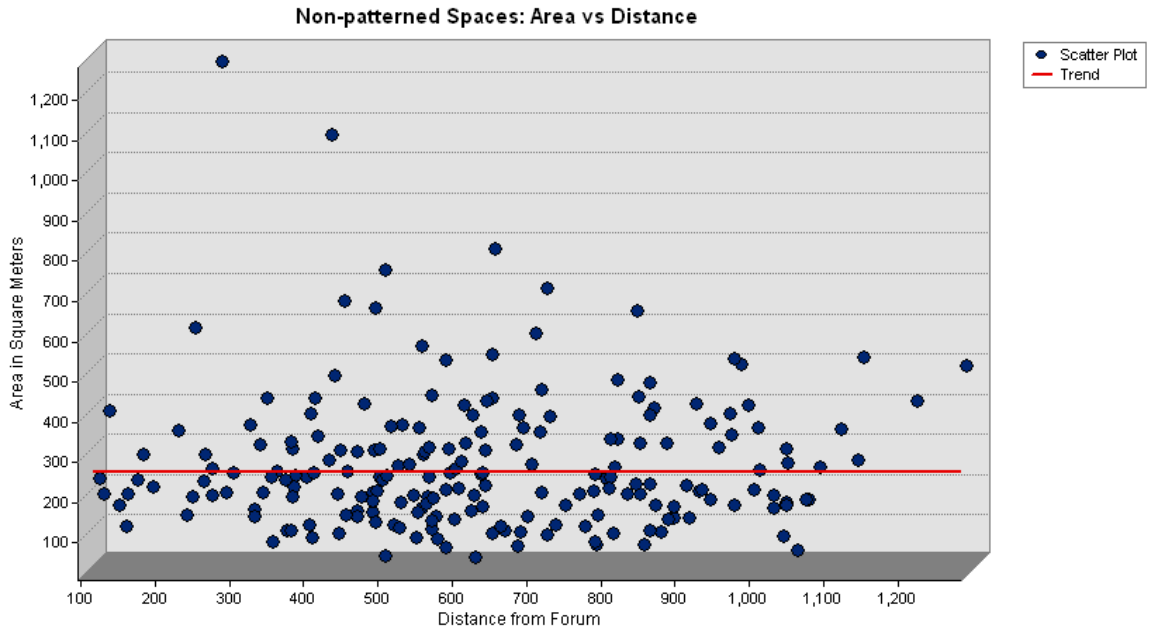

Figure 2.10
A scatter plot and regression line comparing size and Manhattan distance from the forum. Note that properties of all sizes are equally prevalent at any distance from Pompeii's civic center. Similar distributions were found when size was tested against all other plotted nodes in the city.

Area and Complexity

The relationship between area and complexity within non-patterned spaces is compelling. It is tempting to assume that larger properties have more space for rooms and

would therefore achieve a higher complexity score. However, the presence of massive rooms such as peristyles and elaborate *atria* in wealthy *atrium* houses reduces their overall complexity, often to the point that smaller properties without such spaces have a higher relative complexity score. The same trend holds true within the non-patterned space subset of properties. Plotting these two attributes in relation to each other reveals that, while there is a definite positive trend correlating area and complexity, a great many of the most complex properties in this category nevertheless belong to the smaller two groups, based on natural divisions known as jenks (Fig. 2.11).[182]

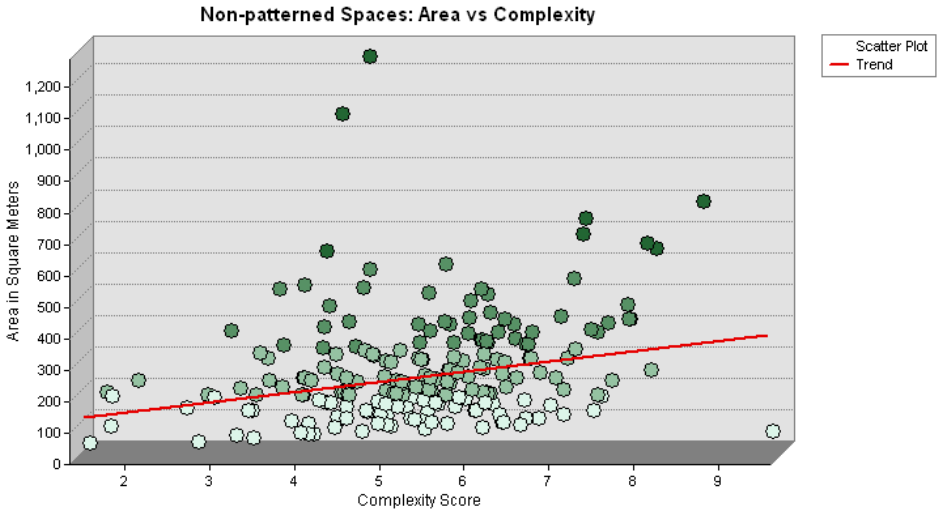

Figure 2.11
A scatter plot and regression line comparing property size and complexity score. The properties are colored according to naturally occurring divisions (jenks); lighter colors representing smaller jenks.

Certain impressively complex examples of smaller properties go so far as to include ten rooms into a property not much larger than 60m^2. Nevertheless, as non-patterned spaces grow in size, their complexity tends to increase, indicating a consistent

[182] "Jenks" represent the ideal separation of values into different classes by minimizing each class's average deviation from the mean, while also maximizing each class's deviation from the means of the other groups. For a technical explanation see: http://support.esri.com/technical-article/000006743

avoidance of overly large rooms akin to peristyles or massive *atria* without meaningful subdivisions. The two points floating at the top of Figure 2.11 indicate the largest properties in this dataset which included rooms of proportionally large size, limiting their complexity score to below 5.

Complexity and Distance

As non-patterned spaces increase in distance from the forum, they display effectively no reliable increase in their complexity scores. Regardless of ease of access to the city's civic core, non-elite spaces within this category were equally likely to be simple as highly complex (Fig. 2.12). The same general lack of a spatial trend or correlated values remains true when comparing complexity and any other distance in the city; access gates, intersections, and recreational spaces had no bearing on the relative complexity scores of non-patterned spaces.

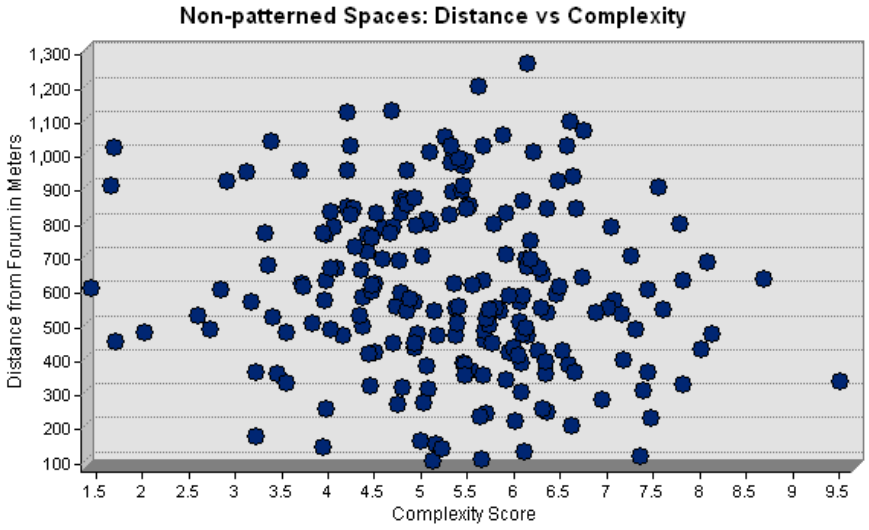

Figure 2.12
A scatter plot comparing Manhattan distance from the forum and complexity score for non-patterned spaces.

Spatio-Statistical Clustering

Hotspot analysis

Patterns in the urban topography, or in the scatter plots derived from it, are easy to misinterpret. If relying on the naked eye alone was sufficient for detecting meaningful distributions of property types within the city, spatial statistics would be largely unnecessary for the purposes of the present study. But just as humans are inclined to invent constellations in the night sky that do not reflect real patterns, the unaided eye might perceive the presence or absence of clustering within Pompeii that is not truly extant.[183] ArcMap GIS software contains a number of statistical tools to reliably test for the presence of real patterns, among them a kernel density analysis tool that analyzes incident data from a set of polygons or points and produces a heat map raster image to indicate where relevant clustering is evident within the full area of the survey.[184] In such an image, the darker the color, the higher the spatio-statistical concentration that can be inferred. The resultant image produced for this study is an optimized kernel density analysis which can be overlaid onto the city plan to indicate where spatial clustering of a given property type is especially intense compared to its overall distribution.

Non-patterned spaces run through this tool demonstrate several areas of intense clustering throughout Pompeii. To further nuance the spatial trends seen in the sections above, the kernel density analysis tool indicates that these properties are most frequent in four areas. Each of these zones is sited at a considerable remove from the forum in the southwest, notably around *Regio* VI, *Insulae* 1 and 2, *Regio* VI, *Insulae* 11 and 15, *Regio*

[183] Adamo 2017.

[184] Areas that did not preserve enough incident data to earn any "heat" on the map are therefore left colorless to reveal the city plan beneath. For a thorough discussion of how this tool functions mathematically, see: http://desktop.arcgis.com/en/arcmap/10.3/tools/spatial-analyst-toolbox/how-kernel-density-works.htm or Silverman, 1986.

V, *Insulae* 3 and 4, and *Regio* I, *Insulae* 9, 11, 12, and 13. A fifth, somewhat less intense cluster is detectable in the center of the city around *Regio* IX, *Insula* 2 (Fig. 2.13).

While the above analyses suggested that there was a trend for the majority of non-patterned spaces to be especially common within a band of middling distance around the forum, the kernel density analysis indicates that those properties which are farther away are especially tightly clustered, rather than being evenly sprinkled across multiple *insulae* and *regii*. The extreme concentration of such dwellings indicates a series of potential neighborhoods throughout the city which were characterized especially by domestic architecture of non-elites, perhaps representing locales with a prominently middle- or lower-class population.

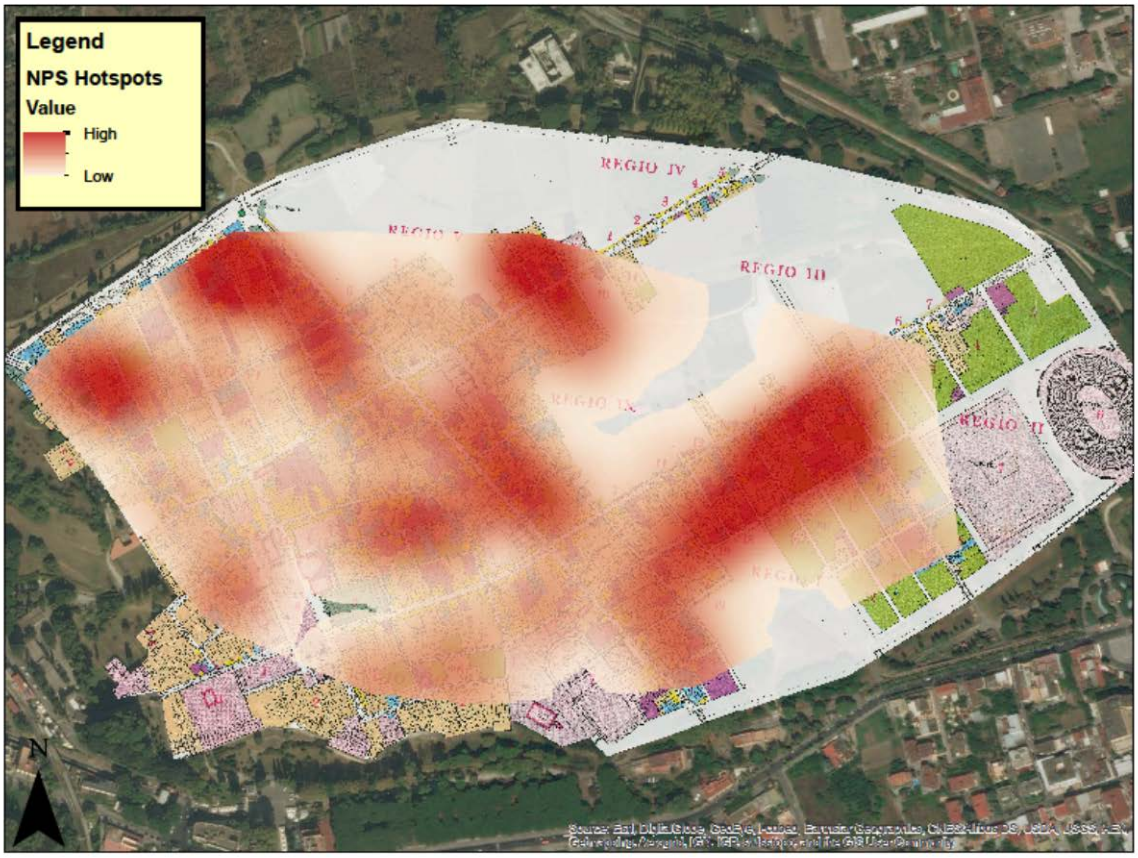

Figure 2.13
A map document of the statistically significant hot spots of non-patterned spaces in Pompeii. High concentrations are evident wherever the heat-map is darkest.

Spatial Autocorrelation

Measurements of spatial trends, such as area, distance, and complexity hint at the patterns of distribution throughout the city, and kernel density analysis indicates where clustering is especially pronounced. Application of the spatial autocorrelation tool within ArcMap takes the examination a step further, by identifying what attributes of non-patterned space seem to be the driving factors behind any evident clustering. Is it possible to identify features within non-elite residences that correlate with their relative concentration or dispersal? The spatial autocorrelation tool produces a value known as Moran's-*I* for the set of properties being analyzed, demonstrating the degree to which occurrences are clustered, dispersed, or randomly scattered based on a common attribute.[185] The score falls between -1 and 1, indicating perfect dispersal (-1), random patterning (0), or perfect clustering (1). In addition to the *I* value, the test indicates how far removed from an expected normal distribution the results are (z-score) as well as the probability of randomly observing results even more extreme than those encountered (p-value). Measuring by Manhattan distances, the spatial autocorrelation tool was used to test non-patterned spaces with an inverse-distance squared conceptualization. The inverse-distance squared conceptualization means that only properties that are very close exert full influence over their neighbors, and the level of influence drops off sharply beyond the initial search radius. Employing such a strict measurement ensures that clustering is rigorously enforced and distant properties do not count as neighbors in the analysis.

[185] For a thorough discussion of this tool in ArcMap, see: http://pro.arcgis.com/en/pro-app/tool-reference/spatial-statistics/spatial-autocorrelation.htm

Spatial Autocorrelation by Area

Testing autocorrelation based on the area of non-patterned spaces allows examination of whether properties of similar size tend to cluster together. The results of the test, applied uniformly throughout the city, provide a Moran's I value of .13, indicating mild clustering based on total area. The z-score of 2.14 suggests this pattern is over two standard deviations away from a random distribution, and a p-value of .03 means that there is less than a 5% chance that the evident clustering is the result of chance (Fig. 2.14). It is evident that non-patterned spaces reliably cluster—though not terribly tightly—according to similar size; neighborhoods of smaller spaces grouped

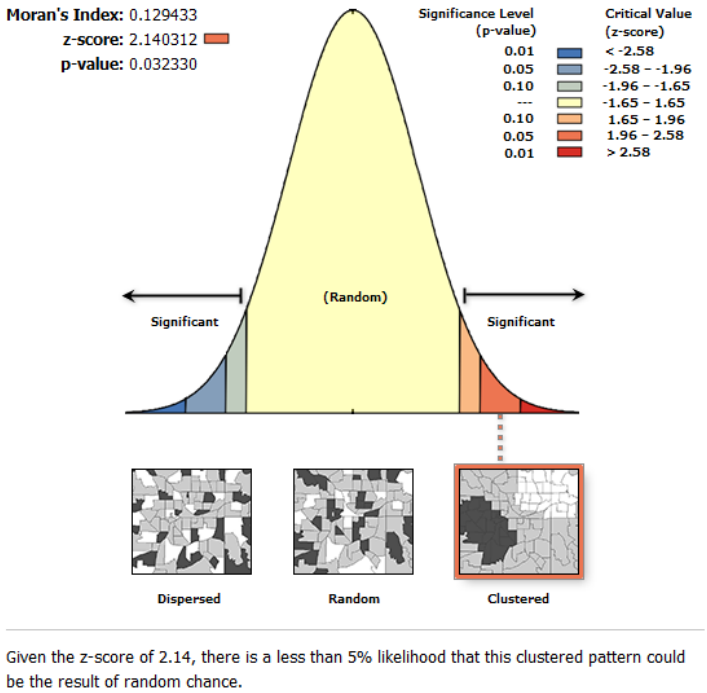

Figure 2.14
Spatial autocorrelation report by area. Non-patterned spaces demonstrate mild clustering according to similar areas at a 95% confidence.

together and neighborhoods of larger spaces grouped together, though some variation in size can be seen. The minimum distance for each feature to have at least one neighbor

was 92m, and to ensure that this measure persists even under stricter statistical requirements, the same test was performed with a zone of indifference conceptualization bounded to 40m. The zone of indifference ensures that only features within 40m of a non-patterned space were weighted fully in the autocorrelation measurement, and the results still indicate mild clustering based on area with at least 90% confidence.

Spatial Autocorrelation by Complexity

Applying the same autocorrelation tests based on the complexity scores assigned to non-patterned spaces produces even more impressive results. The resulting Moran's I value of .2 and z-score of 3.24 indicate that complexity is a strong enough influence on autocorrelation to the point that the clustering evident is less than 1% likely the result of chance distribution (Fig. 2.15). Examining this data indicates that the clusters of non-

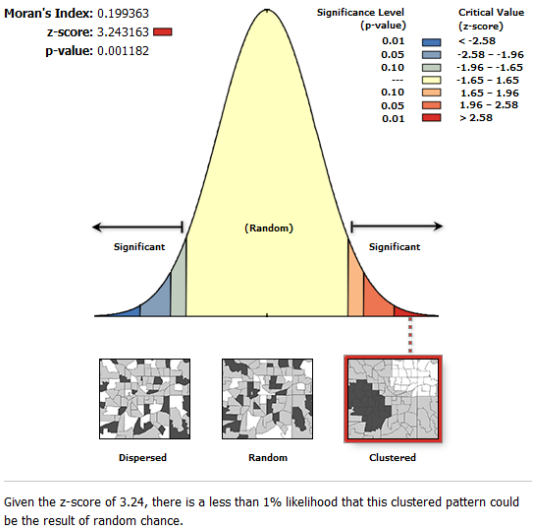

Figure 2.15
Spatial autocorrelation report by complexity. Non-patterned spaces demonstrate mild clustering according to similar complexity scores with a 99% confidence.

patterned spaces within Pompeii have roughly similar levels of complexity within each. Such an evaluation aligns well with the conclusions of scholars like Nappo, who demonstrated that the series of row houses in the city's eastern quadrants, likely designed in tandem as part of a single building project, all possess similar arrangements and domestic functions.[186] Less-complex houses tend to group together in much the same way that smaller houses group together. Again, reducing the valid zone of influence to 40m still suggests spatial autocorrelation based on complexity, with some clustering evident with at least 90% confidence.

Incremental Autocorrelation

To better understand the potential topography of the neighborhoods suggested by tests of spatial autocorrelation, an incremental spatial autocorrelation tool can be applied to test for the most statistically significant neighborhood size. Testing incremental autocorrelation answers the question of how tightly property types cluster and how large any pronounced neighborhood is most likely to be. By incrementally expanding the radius around each unit of property in a series of distance bands and testing for autocorrelation within each band, this test can identify probable ranges of distance which defined the theoretical neighborhoods of dwellings with similar attributes, with an attendant z-score to indicate statistical confidence at each benchmark.

[186] Nappo 2007, 349.

Incremental Area

Generating 30 distance bands for the incremental autocorrelation calculation and testing against the total area of each non-patterned space produced the results seen in Figure 2.16. There are three statistically significant zones where properties seem to cluster with this metric; at approximately 100m, 175m, and 225m. Each of these suggests a possible neighborhood radius comprised of clustered non-patterned spaces of similar size. Between 100m and 175m the dramatic drop-off in autocorrelation indicates the introduction of properties with widely diverse sizes, as does any measurement of neighborhoods above 225m in radius.

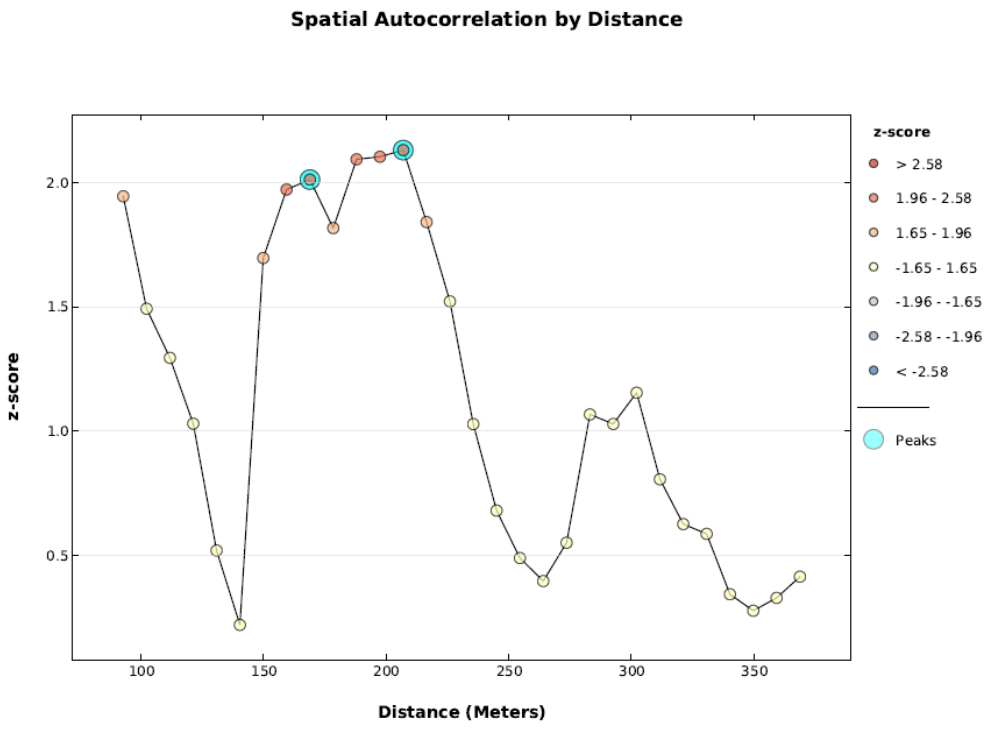

Figure 2.16
Incremental autocorrelation measuring area. Each node represents a distance band wherein a different degree of autocorrelation is evident.

Incremental Complexity

Intriguingly, measures of complexity produce different results when tested by the same incremental methods. The results indicate that the only statistically relevant neighborhood size of similarly complex non-patterned spaces exists at approximately the 125m range. This measurement is precisely where the area value from the preceding paragraph demonstrated the least significant influence on autocorrelation, suggesting that a neighborhood of non-patterned spaces might be clustered according to area or complexity, but likely not according to similar values in both categories at the same time (Fig. 2.17). Such a discrepancy between the two metrics of area and complexity presents

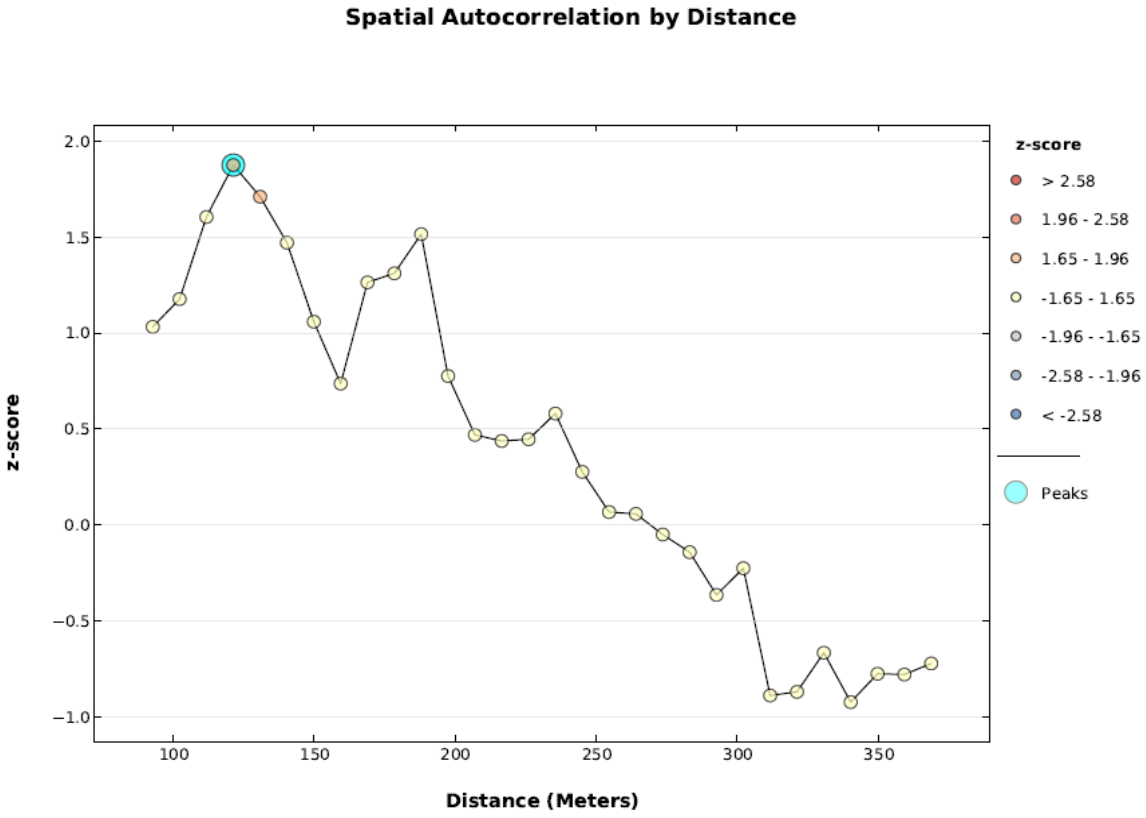

Figure 2.17
Incremental autocorrelation measuring complexity. Each node represents a distance band wherein a different degree of autocorrelation is evident.

an intriguing conundrum. If both are taken to be partial indicators of status as it can be expressed architecturally, one would expect them to share trends within the body of potential non-elite spaces. Their failed correspondence at the 125m radius indicates one of two possibilities: either the observed clusters of non-patterned spaces were spatially distinct when measured by their area and complexity—a problematic conclusion for the validity of architectural expressions of status—or the category of non-patterned space is itself insufficient to categorize all potential non-elite spaces in Pompeii. It is this latter possibility that will bear out in the coming pages, and by uniting the non-patterned spaces with their peripheral counterparts, the discrepancy in the two categories is not only erased, but all statistical values for autocorrelation greatly increase in intensity. See the section on Composite Properties below for further discussion of these results.

Spatial Analyses of Peripheral Properties

The preceding analyses have all been applied to the architectural category that represents non-patterned spaces. The other type of property that deserves consideration as potential independent dwellings of non-elites within Pompeii (thereby setting them apart from similar architectural spaces embedded within *atrium* houses) is the "peripheral" group. The following section subjects the full set of peripheral properties to the same tests to determine any patterns of this property type within the city.

Area

Peripheral properties, by virtue of their positions along the edges of *insulae*, have smaller footprints in the urban fabric. The distribution of their areas is centered very low,

between 50 and 120m^2 (Fig. 2.18). The smallest such space is only approximately 12m^2, which may well be too small for any habitation of even lower class Pompeians, and the largest is an extreme outlier at 742m^2. This latter, as with the few other outliers, seems to have been formed from a number of peripheral units that were joined into a single communicating property through the removal of key walls. With a median size of approximately 75m^2, peripheral properties tend to be about three times smaller than non-

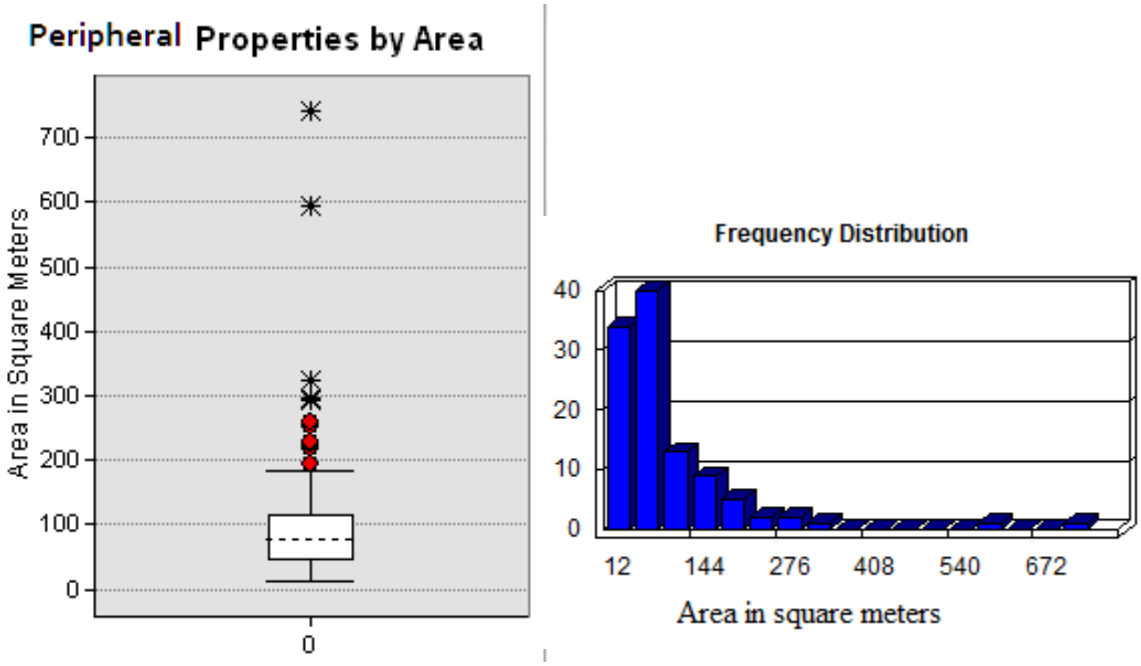

Figure 2.18
A box plot and frequency distribution of the area of peripheral properties in Pompeii.

patterned spaces. Nonetheless, the overwhelming majority of the peripheral type retains evidence of an upstairs residential unit like the types catalogued by Pirson in his study of *tabernae* and *cenacula*, and therefore deserve consideration as potential non-elite dwellings.[187]

[187] Pirson 1999.

Complexity

The mean and median complexity values for peripheral spaces hovers at approximately 3.7 (Fig. 2.19). This is notably lower than the score observed for non-patterned spaces, as one might expect for properties that are often only three or four small rooms. It is however, not so low as to preclude functional overlap between the two categories, and is certainly higher than one might expect when examining such small spaces, properties that have been traditionally dismissed as uniform shop-houses. The

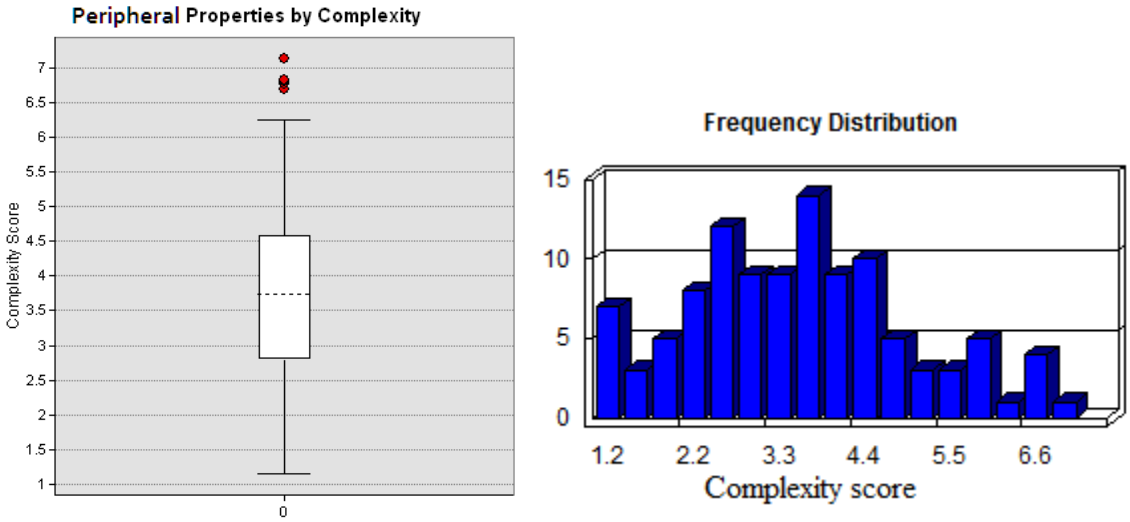

Figure 2.19
A box plot and frequency distribution of the complexity scores of peripheral properties.

maximum value of 7.13 actually ranks higher than that of the massively wealthy House of the Faun—which scored 6.78 by the same metric—suggesting that the owners or occupants of peripheral properties could nonetheless pack a great deal of architectural diversity into their relatively small, often commercially oriented dwellings.

Forum Distance

By Manhattan distance measurements, the mean and median peripheral property is approximately 440m removed from the forum, with the majority between 330m and 530m away. No such spaces were closer to the forum than 160m, again implying a buffer zone separating these independent properties from the functional center of the city. After a distance of 500m, the frequency of peripheral properties drops off dramatically (Fig. 2.20). From such a trend we might recognize that non-elite residents of Pompeii were aware of commercial advantages to be found in the more heavily trafficked areas of the city and chose to devote more of their space to retail in the heart of the city to benefit from the increased flow of potential customers.

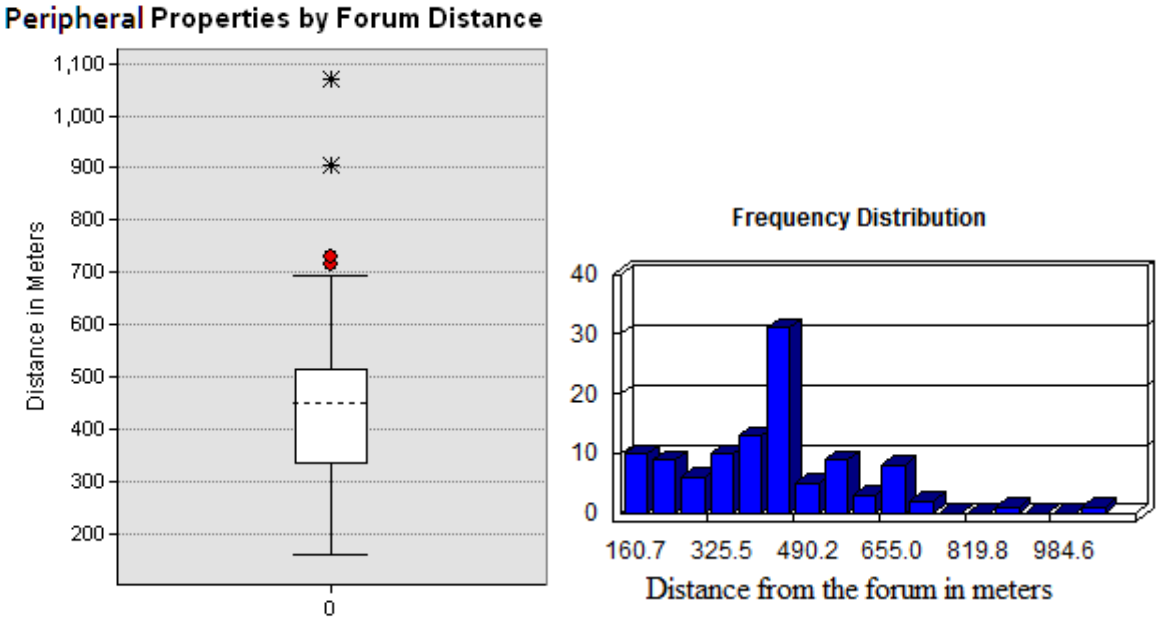

Figure 2.20
A box plot and frequency distribution of the distance between peripheral properties and the forum.

Gate Distance

Peripheral properties present a median distance of 440m from the city gates (Fig. 2.21). This is a surprising result in light of how much more closely sited the non-patterned spaces were by the same metric, and suggests that peripheral property types were more often located closer to the center of the city than to its gates. Considering their evident commercial function in many instances, it follows that this sort of building might serve to draw people further into the city, and might be a boon to any nearby residents who were similarly far removed from the other commercial activity concentrated at the forum proper. The middle of the city is also where main thoroughfares met, providing a fruitful location for residents with commercial interests.

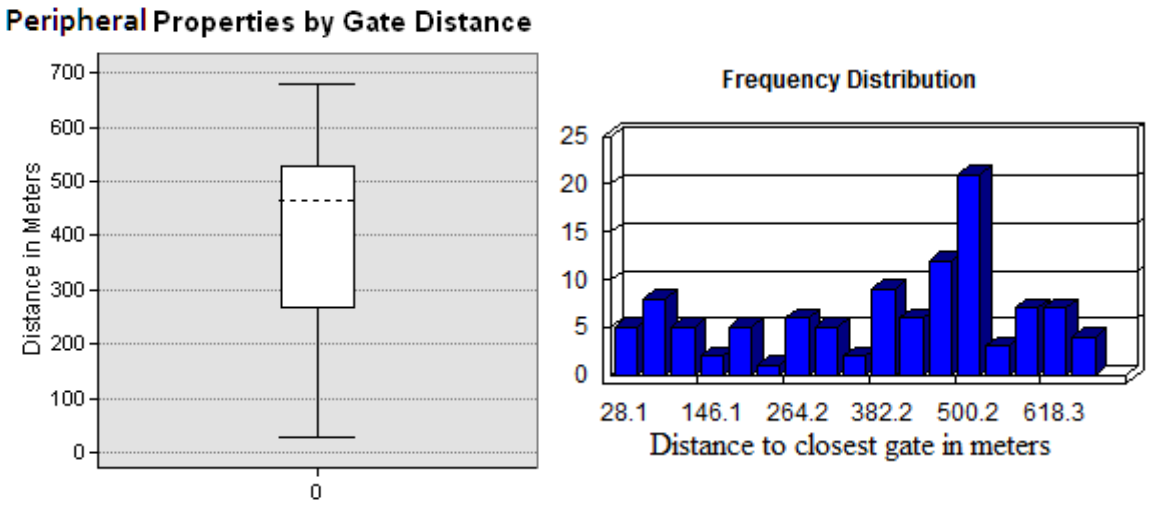

Figure 2.21
A box plot and frequency distribution of the distance between peripheral properties and the nearest city gate.

Intersection Distance

The median distance from major intersections is 136m, only slightly closer than the same measure for non-patterned spaces. The mean distance is closer still, at 72m, suggesting that some distant outliers near the eastern unexcavated parts of the city are skewing the data upward, and that most peripheral properties were located with notable proximity to the intersections which promoted commercial activities and social interaction throughout the city (Fig. 2.22). The extreme outliers are evident on the boxplot, and in their absence it is easy to see how closely bound peripheral dwellings were to pronounced intersections in the urban armature.

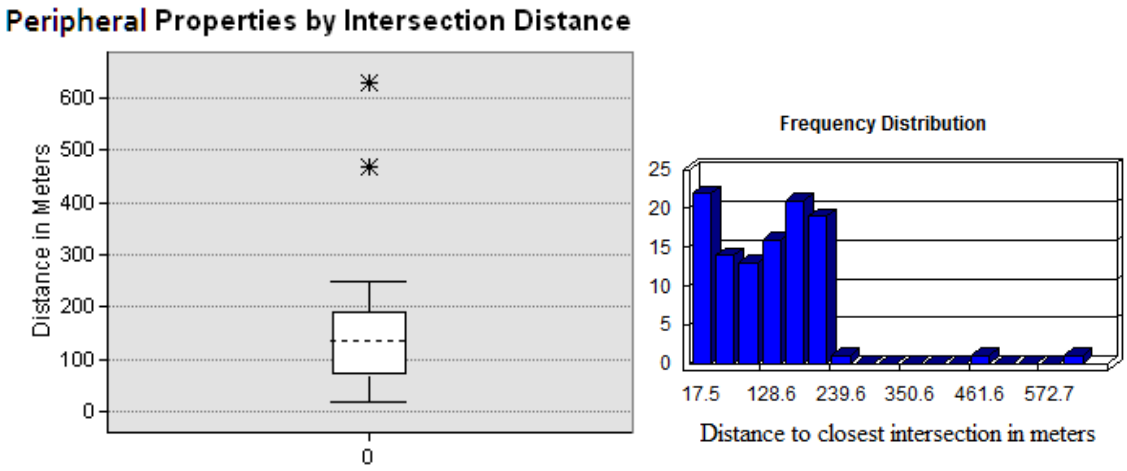

Figure 2.22
A box plot and frequency distribution of the distance between peripheral properties and the nearest major intersection.

Leisure Distance

The mean and median peripheral property is located approximately 110m from the nearest zones of recreational architecture within Pompeii. With a maximum remove of 430m, peripheral properties again share the pattern of non-patterned spaces having

generally easy access to leisure (Fig. 2.23). Their commonly small size might behoove them in this instance—and in others—since it should be easier to find a 100m^2 space for rent than a sprawling 800m^2 house in desirable parts of the city, and the commercial activities associated with many peripheral properties likely go hand-in-hand with areas in Pompeii that served as common destinations for residents moving through the urban topography seeking to spend their money or otherwise engage in *otium*. One might even consider the potential associations of leisure with the peripheral properties themselves; those that preserve definite evidence of commercial activity may have served as destinations for other pedestrians as well, or even helped direct walking routes through Pompeii, as travelers decided which shops to frequent on their way to more pronounced leisure spaces such as the baths or theatral area.[188] The comparatively brisk economic

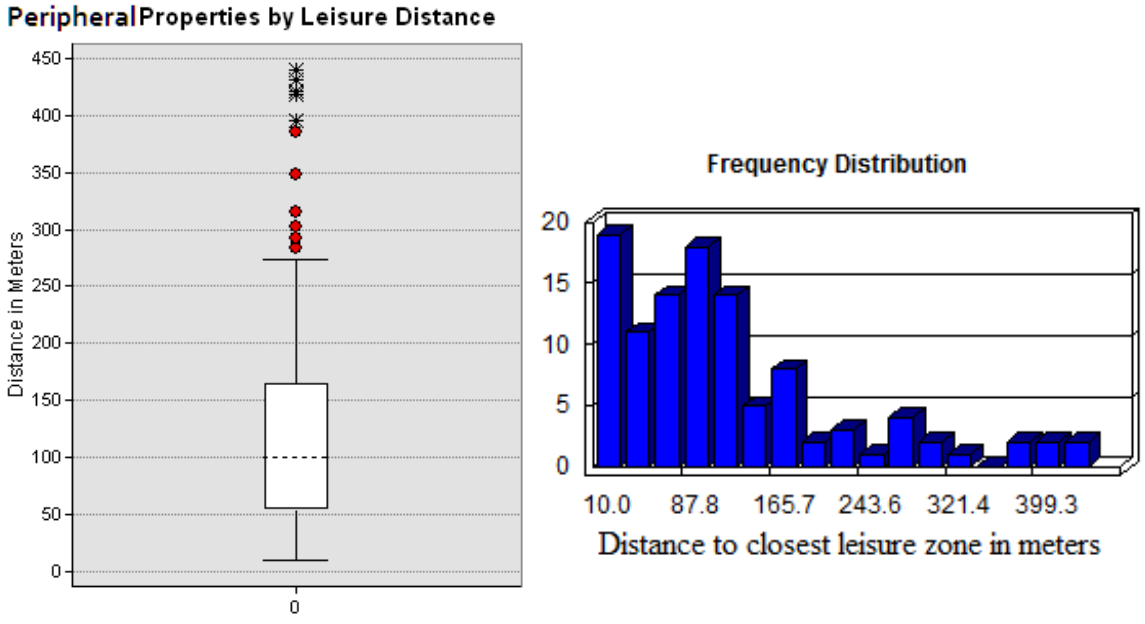

Figure 2.23
A box plot and frequency distribution of the distance between peripheral properties and the closest leisure location throughout the city.

[188] For the benefit of having shops that could attract customers to their *regio*ns of the city, see Beard 2008, Chapter Three.

activities which likely characterized such parts of the city would benefit members of the lower classes who were able to invest in commercial production, and similarly reward them with increased access to leisure themselves.

Area and Distance

When the few outliers are excised from the data, peripheral properties do not demonstrate any relevant correlations between area and distance. The properties are generally quite close in size, and their overall areas neither increase nor decrease based on relative ease of access to the forum, gates, intersections, or recreational nodes of the city.

Area and Complexity

The relationship between these two factors is slightly more straightforward for peripheral properties than it was for non-patterned spaces. There is a pronounced positive correlation, with complexity increasing in proportion to total property size (Fig. 2.24).

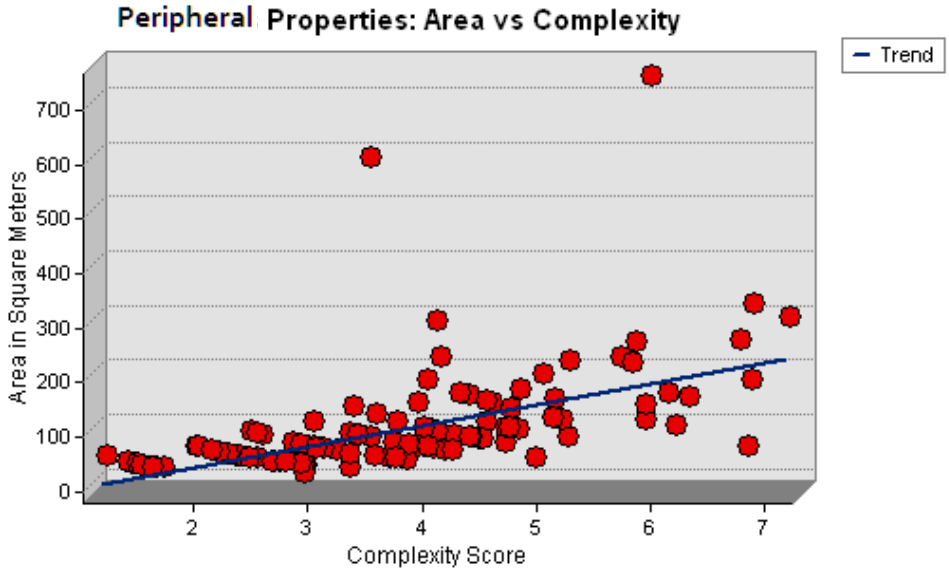

Figure 2.24
A scatter plot and regression line comparing peripheral property size and complexity score.

This relationship suggests that there was slightly less architectural variation within the smaller peripheral properties and that the owners or occupiers of these spaces were less interested in packing extreme differentiation into their relatively confined areas than those in non-patterned spaces seem to have been.

Complexity and Distance

As with the absence of correlation between area and distance, complexity and distance do not seem to have any mutually informative bearing, regardless of which points in the city are chosen as reference. These trends, or rather the lack thereof, indicate that peripheral properties occupy a similar position in the urban fabric as their non-patterned counterparts. Neither property type thought to represent possible non-elite dwellings demonstrates any significant fluctuation in architectural complexity with respect to various nodes of activity within Pompeii's armature.

Kernel Density Analysis

Using the kernel density analysis tool to create an optimized hotspot raster of peripheral properties throughout Pompeii produces results that are complementary, though strikingly different, to those of non-patterned spaces. There is only one statistically significant zone of clustering according to the resultant raster, located precisely in the spatial center of the city (Fig. 2.25). Some relatively warm spots are on the verge of significance in areas which overlap the non-patterned space hotspots, but far and away the most significant grouping is the one concentrated at the intersection of via

Stabiana and via degli Augustali, combining the *insulae* on all four corners into one solid group. The comparatively lower concentration of non-patterned spaces in this central

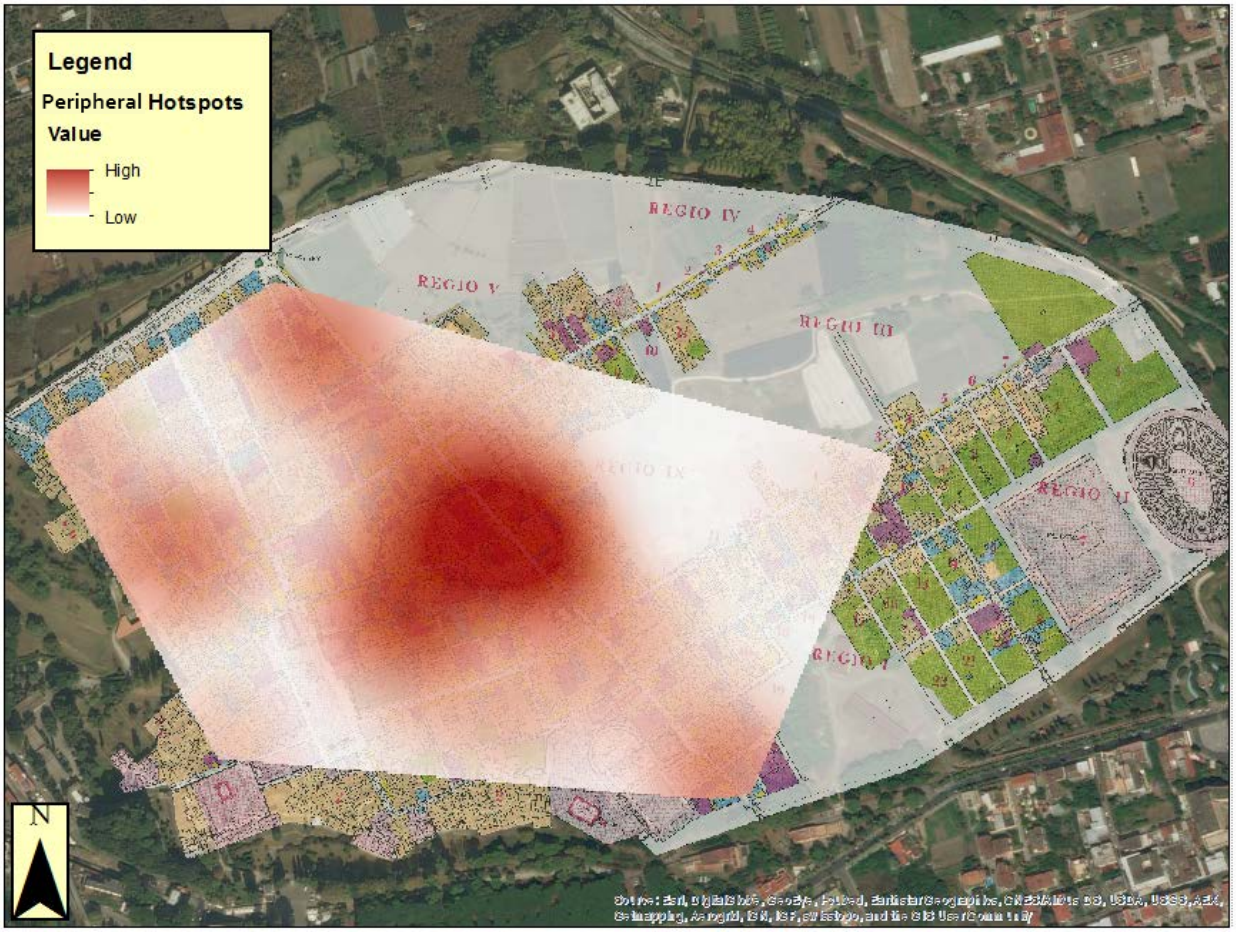

Figure 2.25
A map document of the statistically significant hot spots of peripheral properties in Pompeii. Noteworthy neighborhoods are present wherever the heat-map is darkest.

region seems to suggest that the majority of lower-status architecture located at and around this intersection was likely to be of the peripheral type, with less commercially structured spaces instead finding more purchase further from the center of the town. This is not to say that there was no non-patterned presence in the center of the city—far from it—but rather that the concentration of peripheral, more heavily commercial properties was much higher. See Figure 2.13 for comparison.

Spatial Autocorrelation by area

As might be expected for a class of properties with relatively little variation in size, peripheral units are highly autocorrelated according to their area (Fig. 2.26). The Moran's I value of .25 for this property type is higher than that found in non-patterned spaces, and the distribution has only about a 1% chance of being random. From this statistic, one can infer that when peripheral properties achieve sizes larger than their norm, these incidents tend to cluster spatially in neighborhoods that encourage or allow for less restrictive units of property.

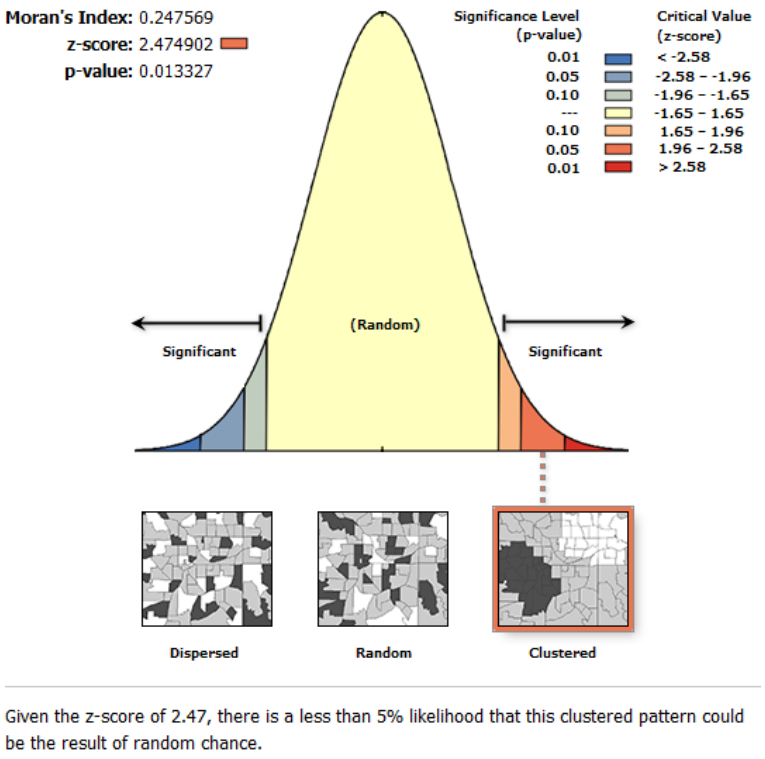

Figure 2.26
Spatial autocorrelation report by area. Peripheral properties demonstrate mild spatial clustering according to similar areas at a 95% confidence level.

Spatial Autocorrelation by Complexity

Complexity in peripheral properties is by far the strongest indicator of autocorrelation yet encountered. The Moran's I of .47, the influence of each property's complexity on its neighbor's probable complexity, is twice that found in non-patterned spaces. The p-value obtained in this test indicates that this pattern of clustering would only occur 25 out of every million random distributions throughout the city (Fig. 2.27). As with area, and the trends described above, this measurement indicates that the variation in attributes of peripheral properties is far less than that in non-patterned spaces, and that when a space was able to develop higher complexity, its neighbors also had the same ability.

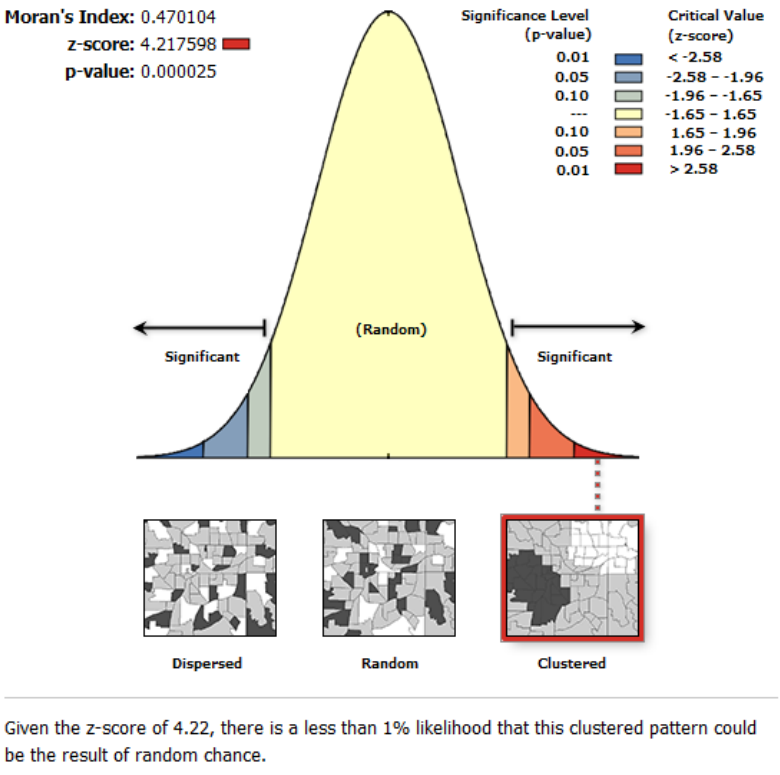

Figure 2.27
Spatial autocorrelation report by complexity. Peripheral properties demonstrate mild spatial clustering according to similar complexity scores with 99% confidence.

Incremental Autocorrelation

Peripheral properties demonstrate such little variation in area and complexity that an incremental test in spatial autocorrelation produces curious results. Effectively, the chart in Figure 2.28 indicates that no matter the distance threshold tested, both complexity and area are fantastic indicators of autocorrelation, but if one were forced to determine the neighborhood size that is most strongly autocorrelated with either or both of these attributes, it would be at a radius of approximately 220m. This radius might be a response to a generous measurement of the central neighborhood at the intersection of via Stabiana and via degli Augustali evidenced in the kernel density analysis, where there is an especially high concentration of peripheral properties at the center of the city. By comparing these results to those obtained when testing the incremental spatial autocorrelation of non-patterned spaces within Pompeii, it is possible to note an interesting dichotomy. Neighborhoods of non-patterned spaces demonstrate spatial clustering based on either area or complexity, but seldom both in a given area of the city. The neighborhoods of peripheral properties show consistent autocorrelation for both features in tandem. The coincidence of these attributes is an indicator of the validity of peripheral properties as a consistent functional type of independent property units within the city, and is likely a further consequence of the relatively rigid restrictions imposed upon their size and elaboration as compared to non-patterned cores.

There are enough differences in the two types of properties discussed above that there is value in examining their spatial patterns and position within the urban fabric independently. Certain trends observed are already quite telling and offer some insights into where non-elite spaces of differing design might cluster and why. However, because

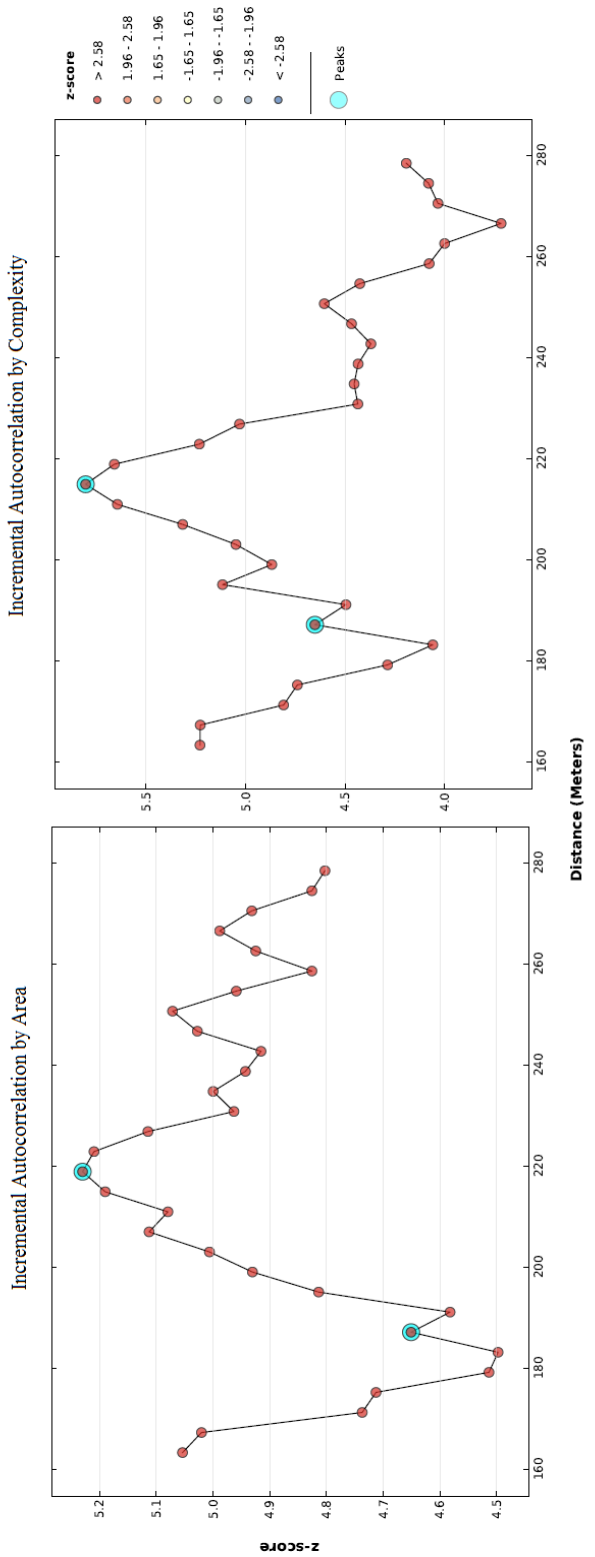

Figure 2.28
Incremental autocorrelation by area and complexity, comparing the effective neighborhood sizes in peripheral properties.

both of these types can be understood as potential residences of non-elites, their combined trends should also be considered. The following section unites the two categories into a single group of properties termed "composite" and examines the spatial trends that obtain when non-patterned spaces and peripheral properties are considered together.

Spatial Analyses of the Composite Dataset

Composite Area

When peripheral properties and non-patterned spaces are combined, the mean area of the resultant composite group is approximately 205m^2, with a median slightly lower at 167m^2. The small handful of large outliers create a large positive skew to the distribution, with most properties clustered between 100 and 300m^2 (Fig. 2.29). This combined data set has an average size understandably smaller than that found in the non-

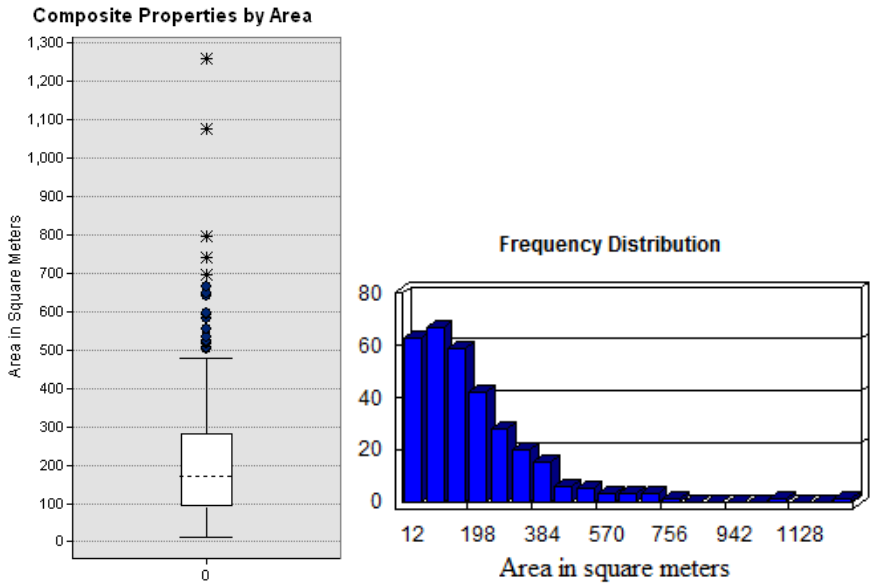

Figure 2.29
A box plot and frequency distribution of the areas
of properties within the composite dataset.

patterned group alone, yet one which still falls within the most numerous quartile of non-patterned sizes. The similarity between these values would suggest that including peripheral properties in an assessment of non-elite spaces has not created so dramatic a shift in property area as to render the new composite set invalid as a cohesive unit.

Composite Complexity

The distribution of complexity within the composite set is similar to that of both property subsets in that it is normally distributed, but it is noteworthy in having a broader range of middling scores all competing for the highest frequency of occurrence. Scores ranging from 3.8 to 6.0 out of 10 represent the most numerous examples, with well over half the properties falling within this zone (Fig. 2.30). Very few properties (13%) have a complexity score above 7 or below 2, indicating that most units obtained a middling level

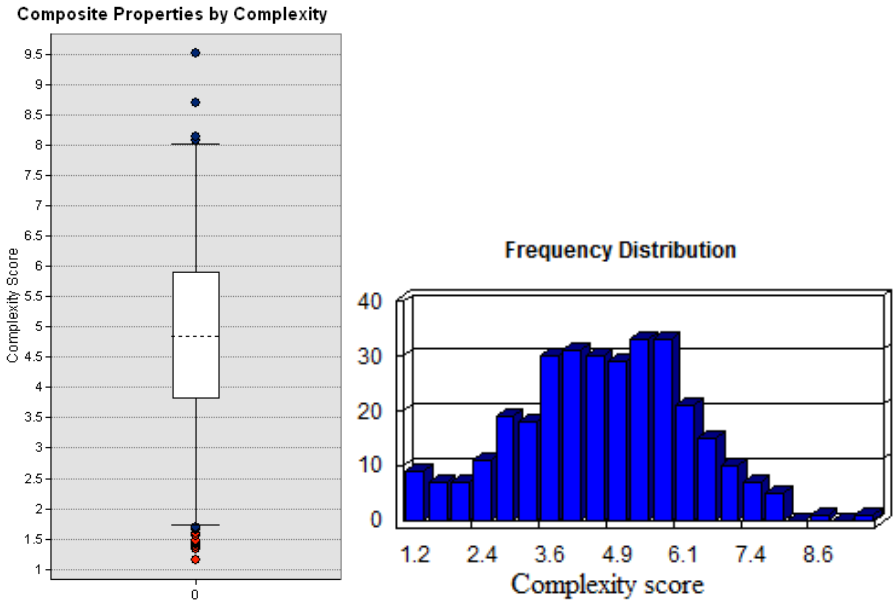

Figure 2.30
A box plot and frequency distribution of the complexity scores of properties within the composite dataset.

of architectural diversification in their arrangement and division of rooms. Very few exceed the level of complexity found in the larger *atrium* houses, but many possess a score that is similar to that of smaller elite dwellings.

Composite Distance from Forum

The median distance from the forum for the properties within the composite set is approximately 510m, with a mean of 555m. This distance is roughly half the distance to the furthest city gate, and by far the most numerous occurrence of these spaces is between 450m and 550m, with over 1/3 of all properties within this band (Fig. 2.31). This is actually a narrower range than was observed for the common distances of non-patterned spaces alone, and tightens the overall distance between non-elite spaces and the forum by

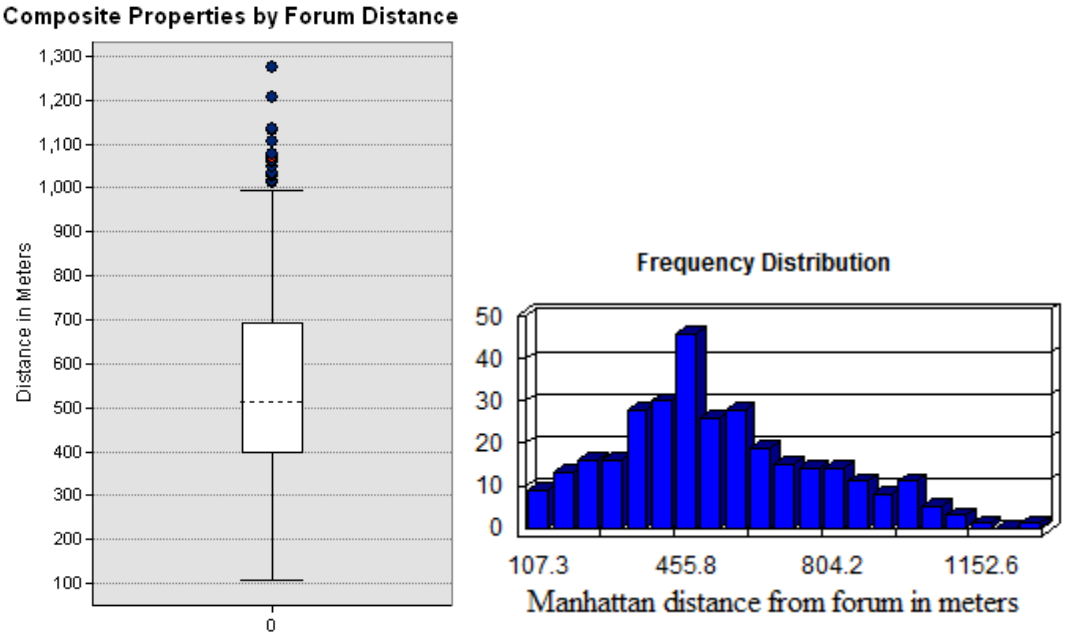

Figure 2.31
A box plot and frequency distribution of the distance between the forum and properties in the composite data set.

approximately 100m. Combining the peripheral and non-patterned datasets should provide a comprehensive account of where non-elite spaces may have been located throughout the city, and this measurement indicates a definite buffer zone around the forum of 200m which was only penetrated by 17 properties, or 5.3% of the entire data set.

Composite Distance from Gates

Both the mean and median distances from city gates are approximately 370m for the composite dataset. There are no outliers within this measurement, but fewer than 20% of the properties surveyed are sited closer than 200m away from one of the city gates (Fig. 2.32). Therefore, most properties occupied by non-elites in Pompeii are distributed within the city's interior, not immediately encountered upon entry to the urban fabric through one of the monumental gates.

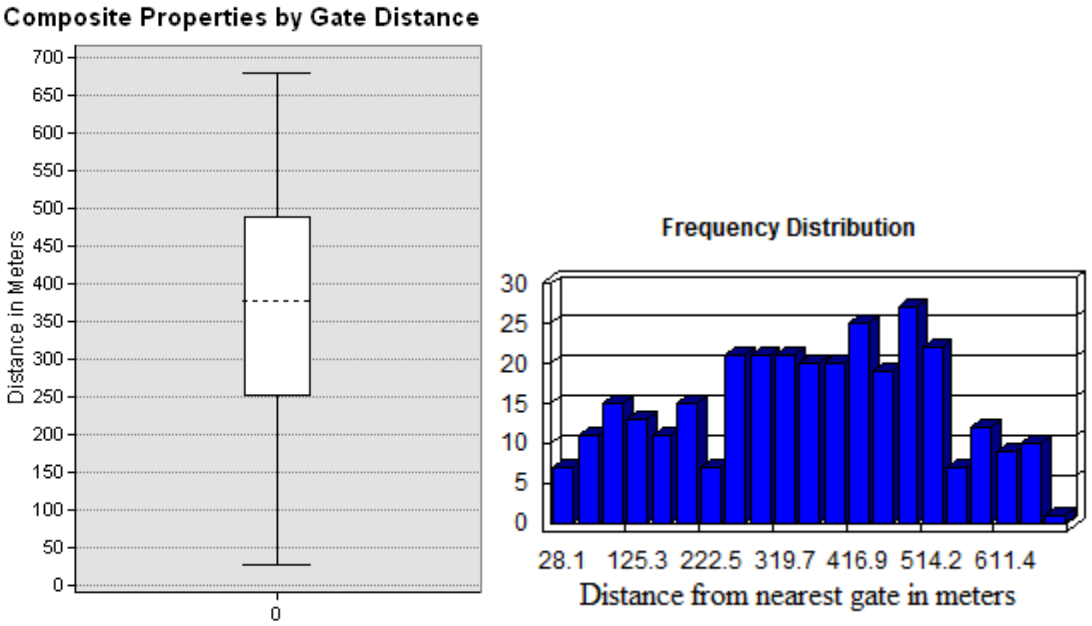

Figure 2.32
A box plot and frequency distribution of the distance between the nearest gate and every property within the composite data set.

When viewed alongside the distance from the forum, it should be noted that the majority of non-elite spaces are similarly removed from each of these types of social node; they only become common at a distance of approximately 200m, though small clusters do exist at a closer proximity to the gates. The hotspots observed in non-patterned spaces near the gates should then indicate that few of the total set of non-elite properties were near gates, but those that were, were tightly clustered.

Composite Distance from Intersections

The extreme outliers present in the eastern part of the city again make this particular metric difficult to interpret. A median distance of 143m would suggest that the average non-elite space has relatively easy access to major intersections, as indicated by the similar observation of this measure for both of the separate property types (Fig. 2.33).

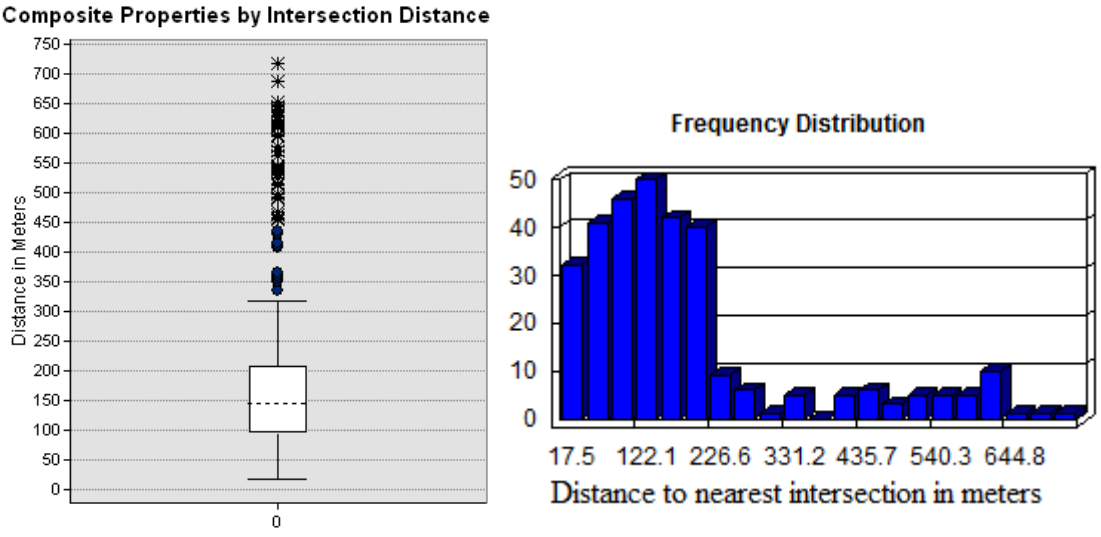

Figure 2.33
A box plot and frequency distribution of the distance between properties in the composite dataset and the nearest major intersection.

Regardless of whether a non-elite space might be considered peripheral or non-patterned, they had easy access to these nodes of passage and transition which were often monumentalized with fountains, arches, or large areas for public circulation. Only 27% were hindered by a remove of more than 200m. As with the preceding discussion of this metric, the unexcavated regions of the city likely obscure more significant intersections which would make this measure more valuable for the present study.

Composite Distance from Leisure

The measure for ease of access to leisure facilities throughout Pompeii has a similar distribution (Fig. 2.34). The median distance of 130m and the mean of 163m indicate that non-elites throughout the city, no matter the type of property they occupied, had relatively unfettered access to such recreation sites as bathing complexes and theaters.

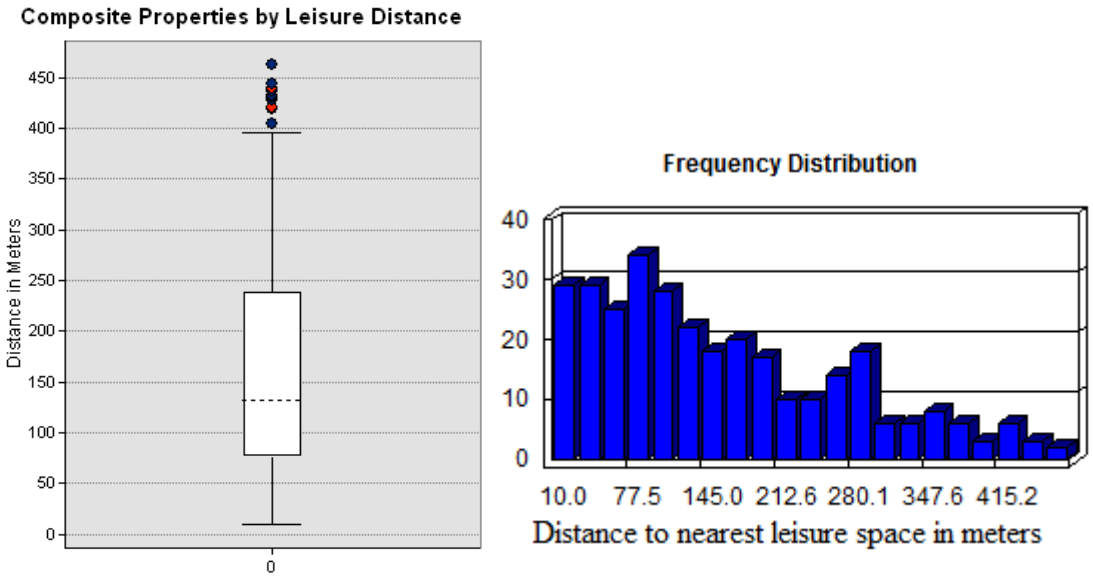

Figure 2.34
A box plot and frequency distribution of the distance between properties in the composite dataset and the nearest leisure location.

Area and Distance

As observed with the two separate categories of property, the composite data set does not indicate any trends or correlation between the size of the property and its distance from any of the major nodes within the city. Regardless of where a non-elite space might be sited within Pompeii with respect to the forum, city gates, intersections, or leisure activities, it was as equally likely to be large, small, or anywhere in between. This also would suggest that as the city developed and expanded outward into the relatively open swathes of land to the north and east of the forum, there was no consistent advantage taken by the non-elite citizenry to construct, occupy, or maintain larger properties than those found closer to the city's original core.

Area and Complexity

The relationship between area and complexity observed in the separate categories is preserved in the composite set of properties as well. There is a clear correlation between larger property sizes and higher complexity scores, but one should again note that many of the smaller properties nonetheless score high in the complexity distribution (Fig. 2.35). The humblest spaces (in terms of overall area) in the non-elite set of properties nevertheless are often those with some of the more carefully diversified interior architectural divisions. A small set of outliers is evident above the $1000m^2$ that belong to properties with roughly a median complexity score, and the most complex property within this survey is also one of the smallest.

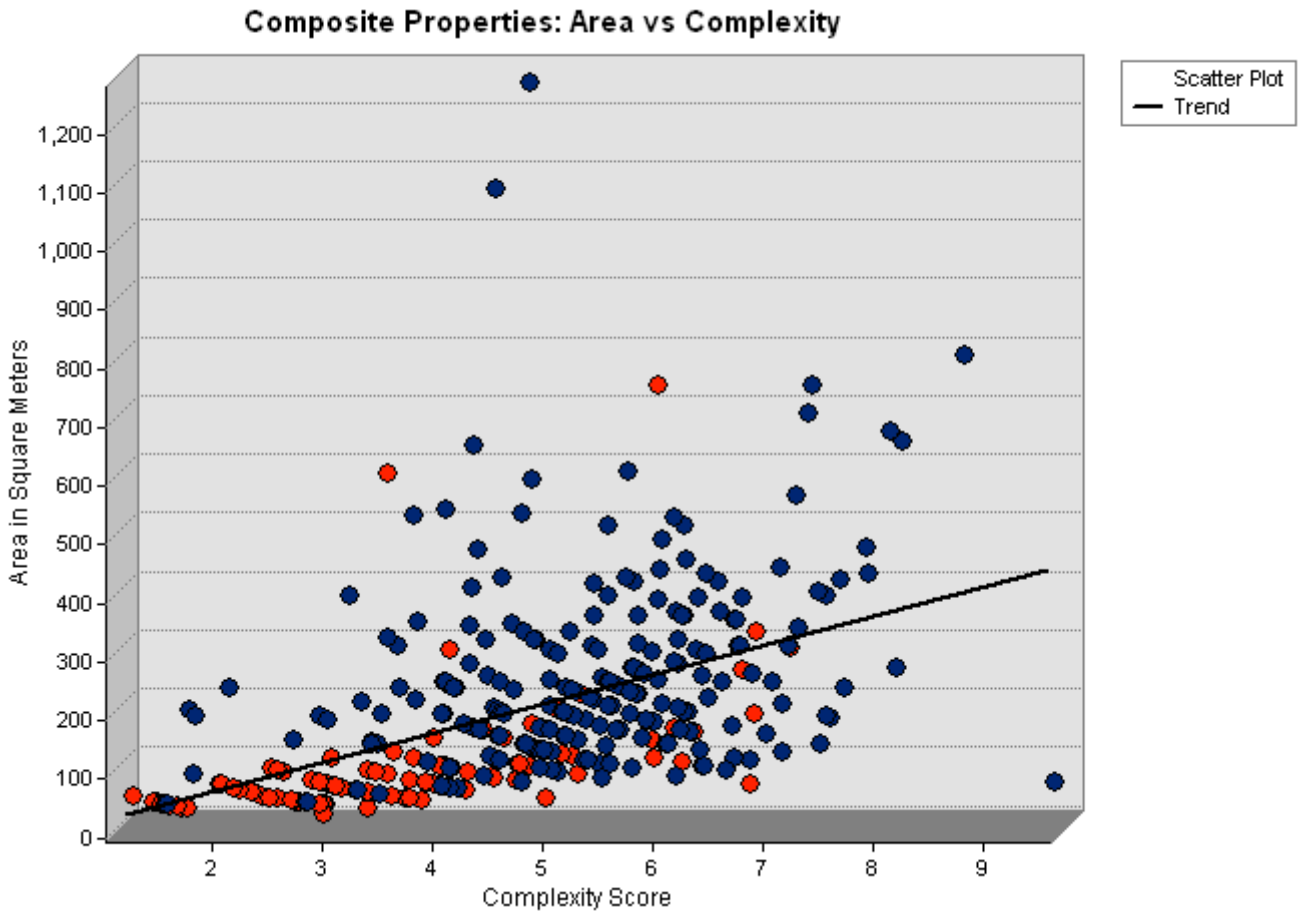

Figure 2.35
A scatter plot and regression line comparing property sizes and complexity score in the composite data set. Red points are units drawn from the peripheral property set and blue are drawn from non-patterned spaces.

Complexity and Distance

The combined datasets of peripheral and non-patterned spaces continue to suggest no correlation between complexity and distance. Even though peripheral properties tend to be less complex than non-patterned spaces and each has its own distinct spatial trends throughout the city, the composite group of all such potential non-elite properties shows no signs of complexity being related to overall degree of access to important nodes throughout the urban fabric of Pompeii.

Composite Kernel Density Analysis

The hot spots observed in non-patterned spaces and peripheral properties were largely spatially distinct, with some minor overlap present in the spatial center of Pompeii along via Stabiana and near the city gates. By combining the two data sets into the composite group, these areas of overlap are made more pronounced, and the clustering seen near the Porta Ercolano and around *Regii* I, *Insula* 12 and VI.1 are somewhat diminished in relative intensity (Fig. 2.36). It is still clear to see that clustering is pronounced in all the zones outlined in the discussion of non-patterned spaces, but the emphasis seen in the two discrete datasets has shifted towards the city center when examined as a composite group. Intriguingly, a small offshoot of this primary neighborhood of non-elite spaces between via Stabiana and the forum is now more detectable, despite its relative insignificance in either of the separate kernel density analyses above. In the earlier analyses, it was evident that the majority of the properties surveyed failed to penetrate a 200m buffer around the forum, and this small cluster of the composite set seems to represent the one neighborhood wherein those which were sited close to the forum found purchase.

Perhaps the most interesting feature of the composite kernel density analysis is not the hot spots at all, but rather the cold spots between them. There is a pronounced corridor running north from the forum along via del Mercurio and much of *Regio* VI which seems largely devoid of non-elite spaces, and a similar zone along via del Abbondanza and its adjacent *insulae*.[189] A similar absence of non-elite spaces is

[189] Note that elsewhere in *Regio* VI there are many non-elite properties, contrasting with the conclusions of Schoonhoven 1999, which again treat the entire *regio* as characterized by "large, elegant residences" (p. 243). Clearly, there are elite spaces in the *regio*, but there are a great many non-elite spaces as well.

observable in *Regio* V just north of the Central Baths, as well as in the city blocks just east and south of the forum.

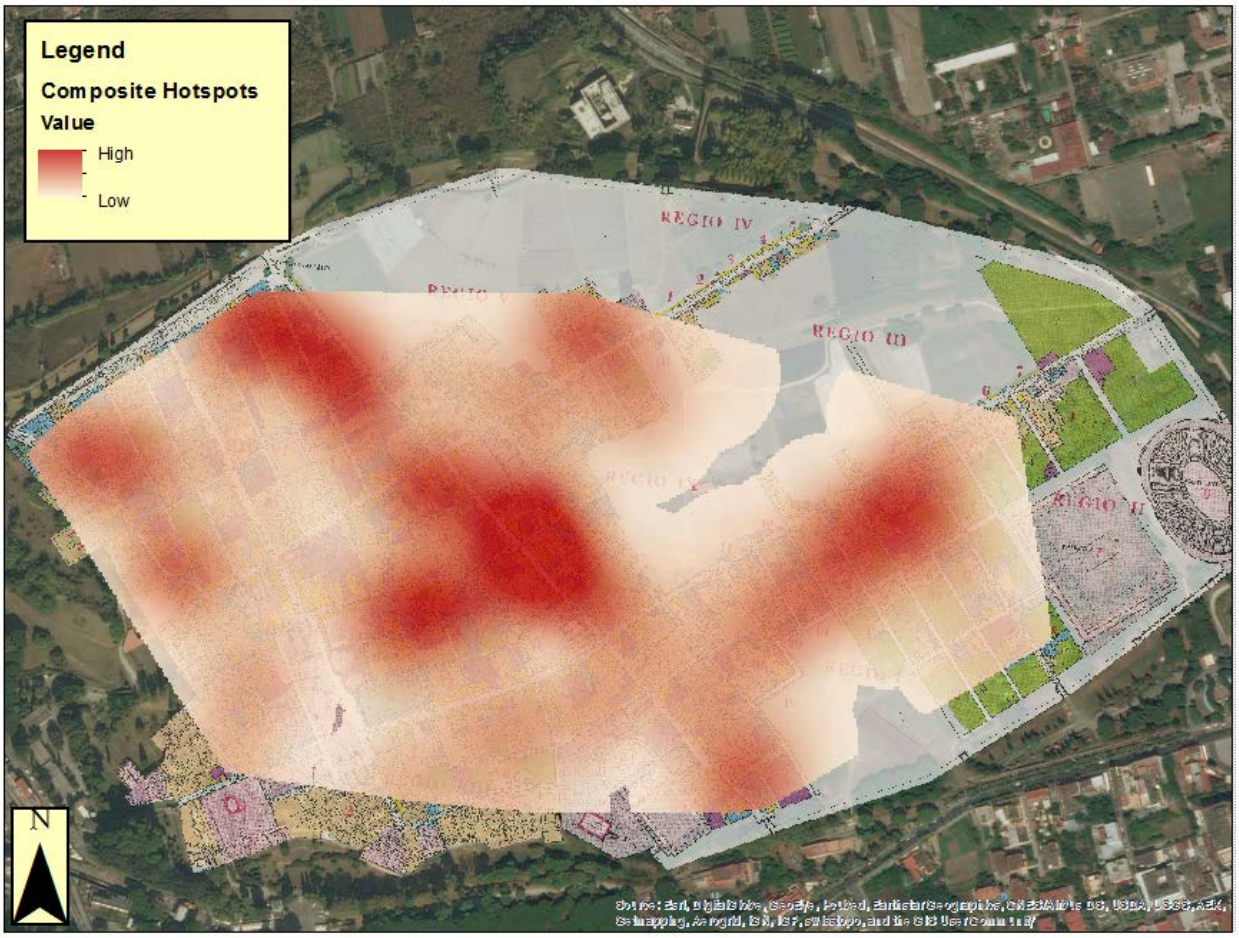

Figure 2.36
A map document of the statistically significant hot spots of properties within the composite dataset. Noteworthy neighborhoods are present wherever the heat-map is darkest.

Spatial Autocorrelation by Area

The trend for properties within the composite data set to cluster based on their size is quite evident. The Moran's-I value of .28 is stronger than the same value for peripheral or non-patterned spaces, indicating that even within the composite group, properties of similar size cluster together (Fig. 2.37). Since it has already been shown that there is some overlap in where non-patterned spaces and peripheral properties are

concentrated within the city, such a strong Moran's I value would suggest that observers are likely to see peripheral properties near non-patterned spaces of the same size where the two hot spots overlap. The z-score of 5 is high, indicating beyond any doubt that similarly sized properties tended to be sited near each other, rather than being randomly distributed throughout the city, at a statistical confidence level of effectively 100%.

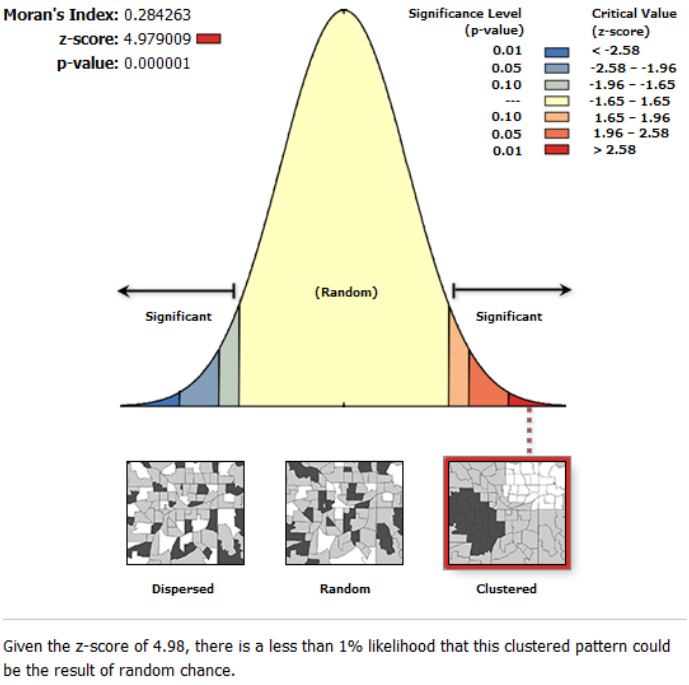

Figure 2.37
Spatial autocorrelation report by area. Properties in the composite dataset demonstrate moderate spatial clustering according to similar sizes at over a 99% confidence level.

Spatial Autocorrelation by Complexity

By far the most intense measure of autocorrelation thus far encountered, complexity seems to be a powerful predictive force in modeling clusters of non-elite spaces within Pompeii. Using the same metrics involving Manhattan distance measurements and an Inverse Distance Squared conceptualization, the composite data set

received a Moran's-I value of .6 when testing the influence of complexity - over twice the value obtained when testing against property size (Fig. 2.38). The attendant z-score and p-value again suggest a statistical confidence of effectively 100% that such clustering is not the result of random chance.

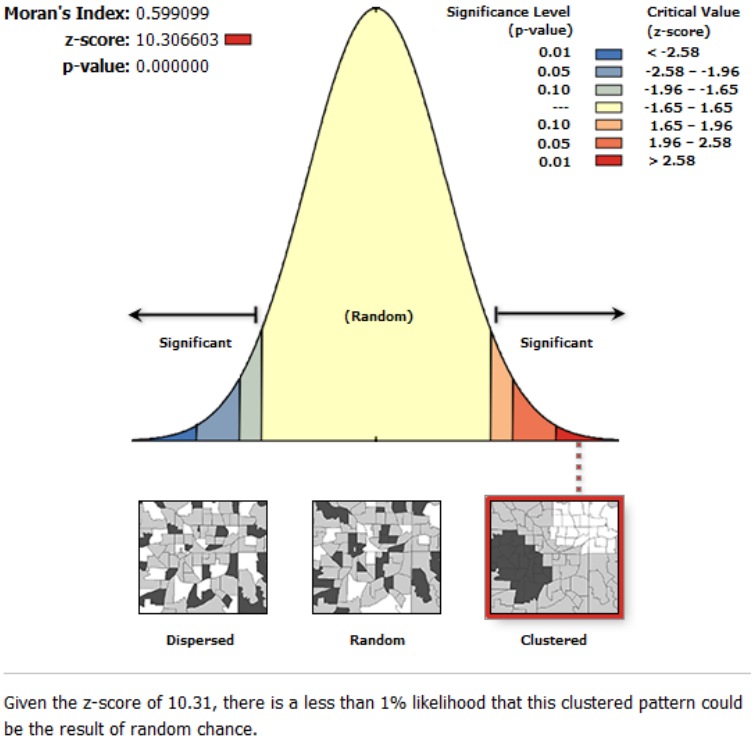

Figure 2.38
Spatial autocorrelation report by area. Properties in the composite dataset demonstrate extreme spatial clustering according to similar complexity scores at a confidence of 100%.

Reducing the viable radius for each neighboring property to as low as 20m in order to ensure a rigorous and strict metric still produces a 99% confidence level. The observed autocorrelation by complexity score actually increased from the already high value seen when testing peripheral properties, and helps confirm the existence of non-elite neighborhoods which are clustered based on their relative architectural complexity. A relatively simple property is more likely to have simple properties nearby, and the

presence of one highly complicated non-elite dwelling strongly suggests that neighboring spaces will be similarly intricate.

Incremental Autocorrelation.

The peaks observed when applying a test for incremental autocorrelation to the composite dataset indicate the most significant clustering occurs at a radius of approximately 125m. When measuring increments by area, further peaks can be observed throughout the data, with the largest one at a radius of approximately 330m. When measuring against complexity, these potential non-elite spaces demonstrate further statistical neighborhood peaks at 150m, 210m, and 320m, but none are as significant as the initial radius of 125m. Since the influence of area and complexity are both such strong indicators for the values of their neighbors throughout the data, it is difficult to draw distinct divisions between where clustering is most significant and where it is not, but the peak observed at a 125m radius in both measurements represents the ideal neighborhood size, wherein intensity decreases with either slightly smaller or slightly larger radii (Fig. 2.39). One should observe that this is somewhat smaller than the ideal neighborhood size attested in peripheral properties, and precisely the same size as that observed with non-patterned spaces alone. Viewing these three measurements in conjunction demonstrates that in combining the two smaller datasets, the composite results serve to restrict and constrain overlapping data and provide a more carefully delineated potential neighborhood size, like that evident in the composite kernel density analysis.

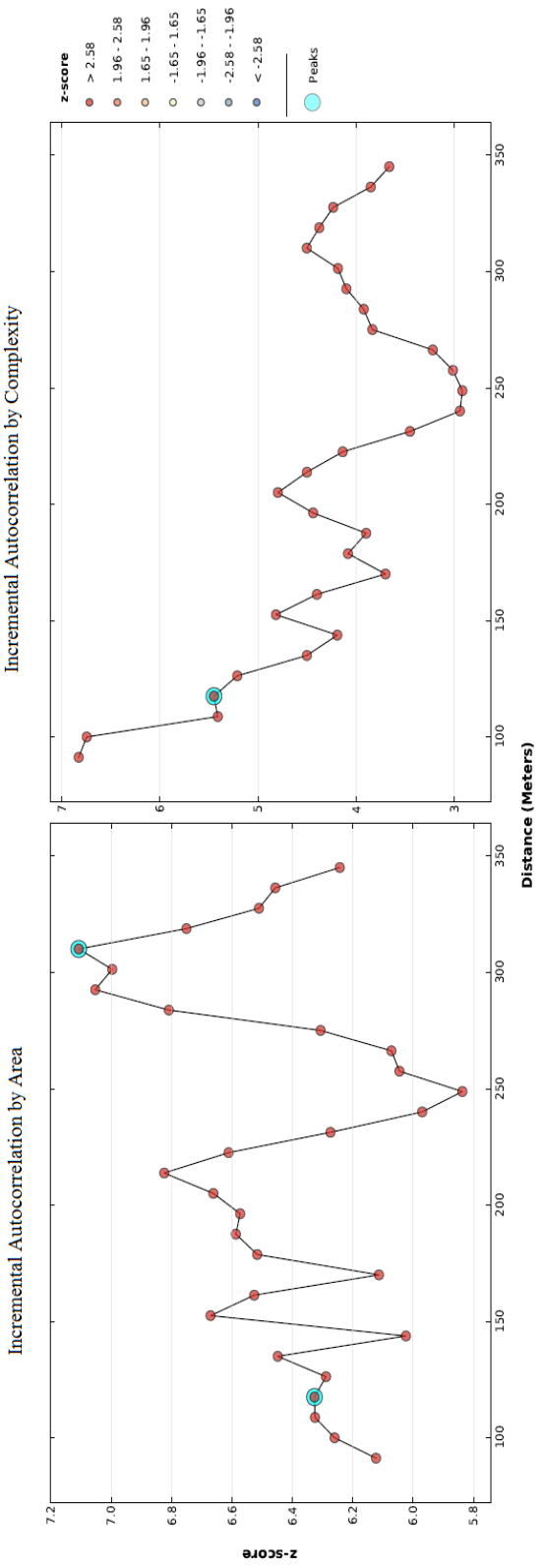

Figure 2.39
Incremental autocorrelation by area and complexity, comparing the effective neighborhood sizes in composite properties.

Discussion of Results for Non-Elite Spaces

The preceding discussion has focused on presenting the spatio-statistical tests performed on the properties involved in this study. GIS applications such as ArcMap enable sophisticated tests not only of basic mathematical trends, but of expressly spatial relationships as they exist within a cartographic space. But what do all of these tests mean? Having now provided the data and explained the basic tenets of the tools used to interrogate the features and spatial relationships in the full range of potential non-elite spaces, the following section examines what the evident relationships tell us, writ large. What do all of these tests really communicate about the position of non-elite properties throughout Pompeii?

While other studies that touch on non-elite spaces in Pompeii have tended to treat the types of non-patterned spaces and peripheral properties as fundamentally different, this study unites the two under a single ontological category to best represent the full range of potential non-elite dwellings. Felix Pirson engages with peripheral properties such as *tabernae* and *cenaculae* as a representative class of non-elite housing, and Scott Craver briefly discusses non-patterned spaces as possible homes of the middle and lower classes, but keeping these categories separate reinforces potentially problematic divisions within possible non-elite spaces that hinder our understanding of the category.[190] While it is true that the presence or absence—to varying degrees—of commercial investment in a non-elite property is a noteworthy distinction, it must be recognized that each of these property types represent potential non-elite domestic spaces. The two primary types of property were examined separately to do justice to these categorical differences, however, if a study seeks to investigate the full range of possible non-elite residences, the

[190] Pirson 1999; Craver 2010, 119.

potential utility in uniting them cannot be overlooked. In fact, the lack of spatial diversification observed by scholars such as Raper, Laurence, and Robinson may well have been the result of enforcing such rigid categories without accounting for the possibility of overlap in their domestic characters. Similar problems were observed in the incremental tests of autocorrelation for non-patterned spaces above, wherein a disconnect occurred between clustering by area and by complexity. However, when the non-patterned spaces and the peripheral properties are united, those problems are diminished. The tests above have demonstrated similar ranges in size and architectural complexity, as well as complementary patterns of distribution, concentration, and autocorrelation throughout Pompeii. Considering the body of scholarly literature which discusses examples of these properties as possible non-elite dwellings, the results of the spatio-statistical analyses above serve to further indicate that the composite union of both may help better illustrate the role these properties played in the urban fabric.[191] It should be noted, of course, that by uniting these property types the current project does not erase their diverse character; Chapter Three details the presence of each property type in the clusters observed here, paying special heed to the frequency and variety of commercial and non-commercial units in each group.

Non-elite spaces, as observed in the composite group, exhibit a range of features. They are most often between 100m^2 and 300m^2 in area, possessed of a decidedly smaller architectural footprint than those of elite residences throughout the city. Despite their relatively humble size, the properties surveyed have a surprising range of internal architectural elaboration. Most of these spaces contain between 6 and 12 distinct rooms or otherwise architecturally differentiated spaces, implying a variety of activities which

[191] See Chapter One, footnotes 79-81, 96, and 98.

could routinely take place within the house. The idea that the majority of non-elite Pompeian citizens would have lived behind or above tiny two-room shops or in houses measuring less than 100m^2 needs to be reconsidered in light of this comprehensive survey, especially because the existence of a second story would often double the size of the house and the number of rooms.[192] Certainly the least economically privileged Pompeians would have been limited in their purchasing/renting power as it is reflected in their domestic floor plans, but one should never forget the range of property types that existed between one-room shop houses and full-fledged *atrium* spaces. The spectrum of non-elites at Pompeii is wide, and while a certain subset of them did live in humble, single-room dwellings, a far broader subset had access to a great variety of domestic arrangements. As these potential non-elite spaces trend upward in area, they also increase in complexity, with many properties achieving complexity scores between 6 and 7 out of 10. More than a dozen rooms are relatively common (over ¼ of all surveyed properties have upwards of 12 rooms). When compared to similar complexity scores of massive *atrium* houses, this suggests that the owners or occupiers of these non-elite houses were decidedly invested in diversifying the spaces within their much smaller homes. It should thus be recognized that the less privileged members of the citizenry need not have conducted their domestic activities in one or two multi-purpose spaces; many different rooms makes it likely that different tasks could have been located in different parts of the house. The architectural diversification of these homes is often just as impressive as that found in *atrium* houses, and therefore similar considerations of what activities took place where and when need to be applied to even these far humbler residences.

[192] For the idea that non-elites are generally represented by such small shop-houses, see the house-size quartiles of Wallace-Hadrill 1994 and Robison 1997.

Most non-elite spaces in Pompeii were located at a considerable distance from the area of the forum, and only one significant cluster of such properties was as close as 150m to the civic center of the city. The majority of these types of dwelling were located in a band between 400m and 600m from the center of commercial, political, and religious activity, but nowhere were they deprived of easy access to leisure activities or the bustling intersections which punctuate the connective architecture of the city. Occupants of these dwellings would only need to walk a short distance to enjoy *otium* or access the same shop clusters, fountains, or city gates as their socially stratified superiors. Within this spatial band around the forum where the composite dataset is most evident, non-elite spaces tend to cluster into four distinct groups, in addition to which one may also observe one small clump closer to the forum and another much further removed. These potential neighborhoods, never before revealed in studies of Pompeii's texture, demonstrate spatial clustering based on both the size and complexity of their properties. A small house is likely to have small neighboring houses, and an architecturally complex space is likely to have architecturally complex neighbors. Such a collocation of spaces with similar features speaks to the likelihood of urban zones which were well-suited to particular types of property. As the non-elite spaces tend to be clustered most densely near city gates in a number of occasions, one can infer that such nodes in Pompeii's armature rewarded, for example, simple shop-house type constructions more than deep non-patterned spaces. Similarly, the hotspots found far to the north and east were far from the most heavily-trafficked areas of the city and therefore did not attract a great number of small shop houses; instead they might have been sites for residents more interested in diversifying their domestic arrangements and stretching the limits of their purchasing

power to achieve generally larger homes. The theoretical neighborhoods observed based on these autocorrelative elements never extend beyond a maximum radius of 125m before yielding ground to many different types and sizes of property. Each of these neighborhoods is discussed in detail in Chapter Three.

The range of sizes and complexity scores within the surveyed spaces indicate that structures that did not adhere to the common architectural elements of the *atrium* house nevertheless might be expected to reveal varying degrees of wealth.[193] This study is not meant to suggest that the occupants of the non-elite spaces as described had little investment in their own domestic comfort, but rather that they built and lived in spaces which are not at all like the *atrium* house of popular academic consideration. These citizens did not construct theatrical sightlines of ostentatious display culminating in lavish *tablina* or peristyles, nor did they respond to any compulsion to design their spaces to mimic their social betters in miniature.[194] The occupants of these houses were embedded throughout the city with varying degrees of dispersal and lacked the formalized spaces to perform as patron to numerous visiting clients as part of their daily *salutatio*. Nonetheless, they often created architecturally complex domestic ensembles and commonly sited themselves near comparable properties throughout the city, creating neighborhoods with an apparently non-elite character. They are often found near main thoroughfares, and tightly packed clusters are evident around intersections and city gates, taking productive advantage of the increased accessibility and commercial opportunity provided by such locations.

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[193] See Veyne 1987, 140-141 for a discussion of how even the lower classes should not truly be considered "poor."
[194] See Chapter One, footnote 48.

By surveying the entire city and examining spatial trends through GIS software, the above examinations are able to better conceptualize the average, even ideal, non-elite spaces. Due to the lack of specific guidelines in how to construct such a home, there can be no single house that presents the nature of all such non-elite homes within Pompeii, but when discussed as a group, they illustrate what architectural features and relationships with the urban fabric should be expected when encountering homes entirely unlike those of the upper echelon at Pompeii.

Conclusions

The homes revealed in this analysis represent a highly diverse and complex set of properties. Sampling, as addressed in Chapter One, presents an incomplete picture of the city, and the current study generally eschews sampling in favor of a more comprehensive survey.[195] While it would be impossible to discuss each of these 316 properties in detail in the current study, it can briefly be mentioned how this city-wide catalogue can illuminate some expected trends in non-elite housing at Pompeii. Specific houses are discussed at length in Chapter Four, but here it serves to summarize some of the features which can be observed in the addresses that comprise the full dataset. The properties identified here indicate that Pompeian homes need not have large, formalized spaces for the reception of guests, in which resident patrons could host their clients. Some dwellings were unavoidably entangled with commercial activity and others completely devoid of any evidence of it. The visual axis meant to advertise power and wealth to passers-by expected from elite residences is largely absent, and where public vision does penetrate

[195] Nonetheless, a set of these homes are discussed at length in Chapter Four. These houses represent all those which the present study identifies and have been connected with the names of known Pompeians in records kept during the first century CE.

the home it is likely to find asymmetric, functionally diversified spaces.[196] Decoration is not absent, but is often simpler than that present in the *domus* of the city's high-status patrons, and household religion remains formalized in small shrines and niches in the houses' central halls. Light is often permitted to the residence through an atrium-like space, but that space need not contain *atrium* elements such as an *impluvium* or *compluvium*, nor the formalized sets of rooms at its rear or sides that we might expect, and instead it often maintained a utilitarian function as the house's core and lightwell with no architectural division between public and private areas of the house. One should not assume that such houses did not host visitors, but it can be seen that the architectural divisions of the space were not such that visitors were clearly prevented from accessing private parts of the house behind a formalized *tablinum* (as may have been the case in many *atrium* houses), since such a room was generally not present. These houses might appear throughout the city, as the conclusions of Robinson and Raper also indicate, but they tend to cluster in discrete neighborhoods with a less architecturally formal character than those dominated by grand *atrium* houses. Robinson determined that *Regii* I and VI were especially characterized by large elite residences and that low-status architecture was prevalent throughout *Regii* VII and VIII.[197] However, the survey applied in the current project, which identifies properties through a series of nine architectural criteria and does not generalize based on *regio*, instead demonstrates that independent non-elite dwellings show minimal clustering in *Regii* VII and VIII, pronounced clustering in *Regio VI*, and further nuances their distribution to a much finer degree. Though the seminal work of Wallace-Hadrill discussed in Chapter One remains invaluable in conceptualizing

[196] For the importance of symmetry as an indicative feature of wealthy house types, see Ward-Perkins 1981, 188-189.
[197] Robinson 1997, 141.

some of the domestic realities in *Regii* I and VI, the current examination demonstrates what stands to be gained by not relying mainly on property sizes as indicators of status, and on interrogating the entire urban fabric at a higher resolution than the just the region or *insula*.

From the analyses presented in the current chapter, some inferences about the character of non-elite, working-class homes as they obtain throughout the city can be drawn. The variation in their composition and siting is key to approaching a conceptualization of what it meant to live in one of these homes. It appears that the domestic situation of the working class in Pompeii responds to the impressive scope of commercial and civic pursuits with which they could be concerned. The occupants of these houses elaborated the internal architecture of their homes to whatever degree was required for the performance of their domestic and professional labors, in fact corroborating the claims of Vitruvius that men and women not concerned with the performance of high status activity such as the daily *salutatio* need not have corresponding rooms. Their concerns instead seem to reflect a desire to occupy locations in Pompeii advantageous to their position within the daily life of the city; highly trafficked areas such as through routes and city gates attracted a great concentration of these homes, often correlated with a higher presence of peripheral (rather than purely residential) property types. While many such middle- and lower-class residents seemed drawn together into the hotspots evidenced by these tests, seeming to respond to potential opportunities and advantages provided by proximity to like-minded neighbors, a great many nonetheless remained dispersed throughout Pompeii. One might imagine such relatively isolated properties as the small shop-house VI.6.14 as tenacious, or perhaps fortunate, outliers in an urban zone

that otherwise did not afford the spatial real estate for many properties of this type. If such a dwelling, heavily integrated with its own commercial production, was able to turn a profit here, it may have been producing goods of an especially desirable quality. Otherwise, the space was liable to become subsumed into one of its neighboring *atrium* houses, as seems to be the case with many nearby establishments.

The occupants of working-class homes, even when spatially autocorrelated with neighbors living in similar houses of similar sizes, nevertheless were often confronted with Pompeians of all social strata. Elaborate *atrium* houses are never far from these non-elite clusters, so one cannot imagine a true spatial separation of classes. Average citizens may have worked in the *tabernae* embedded within their wealthy neighbors' palatial homes, or otherwise visited them in the morning *salutatio.* Despite the spatial patterning evident throughout the city, revealed for the first time by the methods of the present study, it must be recognized that non-elite spaces did not exist in a vacuum, but carved out integrated niches for themselves amidst an urban topography that provided both opportunities and challenges to their ways of life.

The quote that opened this chapter speaks of the city as a state of mind, an organic process intimately intertwined with the activities and choices of the people who comprise it. The spatio-statistical analyses presented here help to bring to light these choices made by the most populous group of citizens within the city. Those members of the population below the upper echelon may not have had the most visually impressive architecture, but they leave an undeniable imprint on the city's topography. Pompeii was shaped by these people as much or more than by the few elite *atrium* owners, and their impact is woven throughout the urban fabric, knotting in pronounced neighborhoods away from the forum

that take productive advantage of commercial and recreational opportunities. Non-elite spaces in Pompeii are integral to the patterns of the city, and its residents demonstrate a range of flexibility and innovation in their siting, design, and elaboration. While the simple shop house type associated with non-elites by scholars such as Robinson and Pirson is certainly evident, a great many other layouts and designs are observable. Some non-elite spaces are squeezed between two larger *atrium* house neighbors, others cling shallowly to the edge of a city block. Non-elite spaces are common in the deep interstices in the spatial core of the city, but also congregate tightly around the commercial opportunity afforded by city gates, the extreme ends of the urban armature. If an investigation such as the present one seeks to understand the nature of a city like Pompeii, or at the very least the nature of dwellings within it, a comprehensive catalogue of all potential non-elite spaces and their spatial relationships is an essential place to start. The ability of these methods and the model which drives them to reveal such aspects of urban variation and tease out the position of overlooked populations of the city hint at wider applications that remain to be pursued. It is easy to imagine applying an adapted form of this investigation to other cities in the Roman world and beyond. One should not imagine the urban topography of Pompeii to represent the way all Roman provincial towns were patterned, and further studies in other regions might help nuance the picture presented by this case study. The patterns revealed at Pompeii are telling, but they are only a beginning. The following chapter changes tack by interrogating the possible neighborhoods which have been revealed above, tightening the scope to characterize specific clusters of non-elite homes and situate them within theoretical and practical frameworks for understanding neighborhoods at Pompeii.

CHAPTER THREE: NEIGHBORHOODS REVEALED

Introduction

The previous chapter investigated the city as a whole as it is revealed through the lens of non-elite, working-class properties. The current chapter narrows its focus to address the potential neighborhoods specifically. One of the most significant contributions of the spatio-statistical analyses presented above is the suggestion of distinct non-elite groupings at Pompeii, demonstrating how modern methods of interrogating the urban fabric can reveal fluctuations in property investment and nuance the city's organization. The clusters of non-elite spaces that are the focus of this chapter, born directly from the GIS implementation in Chapter Two, now need to be examined in depth. To what degree can scholarship come to understand these entities as actual archaeological neighborhoods, expressive of real divisions in the ancient mindset, and how can they be variously characterized, or differentiated from their surroundings? Beyond the statistical neighborhoods, the following section also considers the non-elite residences revealed in Chapter Two that are not spatially associated with any of the observed clusters. The set[198] of possible neighborhoods at Pompeii—those clusters that evidence a higher than expected concentration of non-elite dwellings—are treated in turn below. In order to justify these identifications, the first task is to examine how modern modern ideas of neighborhood can align with ancient conceptions of the city and how the idea of "neighborhood" should be understood in the present study.

[198] Five neighborhoods were clearly indicated by the kernel density analysis as having statistically relevant clustering. The potential sixth neighborhood fell just short of the same benchmark and therefore needs to be justified separately, based on criteria and relationships observed in the initial five.

The Idea of Neighborhood

That neighborhoods of some form existed in Pompeii should be beyond doubt.[199] Indeed it has been argued that the presence of neighborhoods in urban settings is a universal—or near universal—phenomenon, present in all cities studied by social scientists, historians, archaeologists, and anthropologists regardless of period or culture.[200] These spaces can be recognized in part by locating the parts of a city that are not devoted to industry or large-scale public architecture, such as the forum at Pompeii, but instead are comprised largely of residential units.[201] Distinguishing individual neighborhoods as discrete units within the urban fabric may be based on shared attributes among the buildings, but can also be preliminarily determined simply by recognizing spatial clusters. The current project, of course, uses physical architectural attributes joined to statistical measures of significance to find those spatial clusters, thereby not relying on a single shared attribute or on spatial proximity alone. Other possible indicators of the presence of neighborhoods include kinship relationships among proximate residents, shared linguistic or ethnic traditions (might there be a Samnite neighborhood at Pompeii?), organization around a focal element in the urban infrastructure such as a crossroads shrine or elite residence, shared commitment to military service, or common pursuits of trade and manufacture.[202] This last criterion is especially attractive at Pompeii, most immediately in light of the non-elite, highly commercialized clustering around city gates and in the center of the town; could these

[199] Zanker 1998, 8 notes that "subdivision by neighborhood and/or social class" was a common feature in the Roman urban landscape.
[200] Mumford 1954, 258; Smith 2010, 137; Smith and Novic 2012, 1. Note, however that Smith has also argued that neighborhoods may only be exceedingly common, not universal in York et al. 2010.
[201] Yaeger 2000.
[202] Smith and Novic 2012 details many of these considerations for the identification of neighborhoods in Mesoamerica and Nepal. See also Ling 1990 for the possibility that neighborhoods in Pompeii served to identify military groups of resident defenders in case of an attack on the town.

represent such zones as a "shop quarter" or "inn/tavern quarter?" Many such indicators of possible neighborhood identity are beyond the scope of the present study (such as kinship bonds and linguistic traditions), but others—organization around focal points in the city and trade/commercial concerns—seem to resonate well with the data provided in Chapter Two, and are discussed below.

Sometimes, and often at Pompeii especially, the term "neighborhood" is used in a vague sense without a reliance on strict spatial or social boundaries, such as "in the neighborhood of the forum," or when considering that a building might be highly visible to "everyone in the neighborhood."[203] Sightlines, passers-by, and the general area around an urban space are all elements which contribute such a nebulous idea of neighborhood. Archaeologists are occasionally comfortable ascribing attributes to a neighborhood based on a general reading of the area, for example evaluating some neighborhoods as "lesser" when compared to "the grandest neighborhood in the city" just north of the forum.[204] Sometimes the presence of an impressive street is all it takes to justify the term neighborhood, as when the via Consolare northwest of the forum is treated as one, but in such an instance it is unclear what truly binds the members of this neighborhood together or how far the neighborhood might extend in any direction.[205] Should one then assume that every street represents a distinct neighborhood? Do the residents of a street that span the entire length of the city belong to a single neighborhood?

[203] Ball and Dobbins 2017, 29. To generally refer to the unexcavated portions of the city as "neighborhoods," see Owens 2013. As a synonym for the *Regii* of the city see Ciarallo et al. 2012. To denote to general vicinities see Zanker 1998, and Kaiser 2011, especially as they relate to the most important streets in Pompeii.
[204] Ball and Dobbins 2017, 29.
[205] Jones 2003.

In such instances, the term neighborhood is not being used to distinguish a discrete, well-bounded zone within the urban fabric, but instead means simply "vicinity" or "area." This approximation is an acceptable usage when the neighborhood itself is not a focus of comparative analysis, but when scholarship is concerned with evaluating neighborhoods and the homes which comprise them, more strict definitions are useful. The present study draws inspiration from the definitions provided by scholars such as Ruth Glass and G. D. Suttles, wherein a neighborhood represents an urban zone "distinct by virtue of the specific physical characteristics of the area and the specific social characteristics of the inhabitants" and is populated by "a network of acquaintances who have been selected primarily because they are known from shared conditions of residence and the common usage of local facilities."[206] Such zones within a city should demonstrate "considerable face-to-face interaction and distinctive physical or social characteristics."[207] By identifying the architectural features of residences at Pompeii that aid in the performance social identity, this project has defined both the physical and social characteristics relevant for a neighborhood, and the measurements that indicate shared conditions and access to local facilities further nuance the character of each zone.[208] Shared local facilities such as public fountains, monumentalized intersections with shops, leisure buildings, religious shrines, etc., all help contribute to the face-to-face social interaction which would have been common within these areas of the city and can aid in the development of a cohesive social identity among neighbors. A problem with

[206] Glass 1948, 18; Suttles 1972, 55.
[207] Smith and Novic 2012, 4. Keith 2003 also echoes the ideas of Glass and Suttles, demonstrating their currency even 60 years later.
[208] Features discussed throughout Chapters One and Two that allow for the identification and analysis of non-elite properties such as the absence of traditionally elite architectural components, similar house size, and similar internal architectural diversification.

Suttles' neighborhood framework lies in the desire for a "face-block" to define the extent of a neighborhood.[209] In an evaluative framework reliant on the presence of face-blocks, all members of an isolated *insula* at Pompeii should be counted as belonging to the same neighborhood. But if one considers the need for a neighborhood to facilitate face-to-face interaction or be comprised of socially or architecturally similar elements, it seems unlikely that a resident at the southeast corner of a large city block would consider themselves necessarily socially bonded to a resident at the opposite, northwest corner, especially if each corner of the block had substantially differing access to urban amenities.[210] Indeed, one would think that there would be more interaction and social communication between two houses on opposite sides of the same street. Suttles' face-block idea is an arbitrary assumption, and one that enforces authorial expectations on the data rather than allowing the data themselves to drive interpretation.[211]

Ray Laurence has made an ambitious study of possible neighborhoods in Pompeii that draws on ideas such as those outlined above, primarily orienting his neighborhoods around shared access to local facilities.[212] By plotting the public fountains throughout the urban grid and measuring the distances between them, he created a map of neighborhoods centered on each fountain (Fig. 3.1). While useful from a methodological standpoint, the even distribution and large number of these public fountains results in a confusing jumble of neighborhoods that really indicates nothing beyond a shared proximate fountain.

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[209] Suttles 1972, 56. Though speaking generally about the phenomenon of the neighborhood in urban settings, Suttles discusses applies this theory primarily to 20th century New York neighborhoods.
[210] Smith 2010, 139; Hutson 2016, 71.
[211] See Hutson 2016, 100-101 for further problems of relying on the face-block to detect neighborhoods at any meaningful scale.
[212] Laurence 1994, 38ff. These are precisely the kinds of local facilities which Suttles' expects.

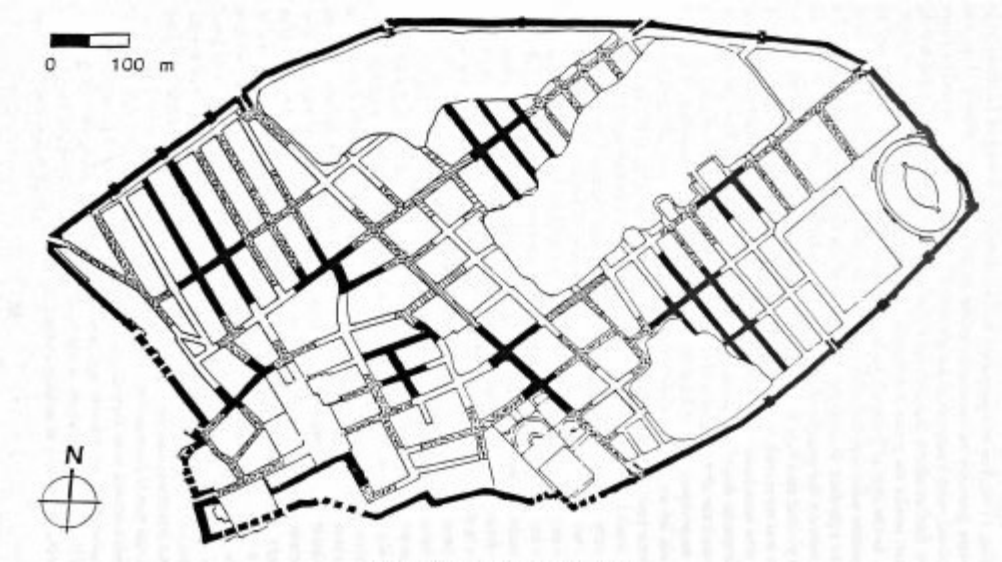

Figure 3.1
Each shaded set of streets represents a "neighborhood" in that a single public fountain was most proximate to all properties within that zone.
After Laurence 1994, Map 3.4

Distance from a fountain alone is not sufficient to indicate an actual neighborhood of any relevant identity, nor can it be assumed that residents always used the closest fountain to their home. And what of those residents who lived equidistant between multiple fountains? One might easily encounter problems with such an idea at Pompeii considering the individual agency of residents in determining where to go for water, bathing, and shopping based on their own personal preferences and schedules, rather than based on spatial proximity alone.

By cataloging the architectural elements which suggest social status, the data presented in the previous chapter reveal zones that adhere to the expectation that neighborhoods should identify a "social definition with comparative utility, and a material-culture definition that permits the identification of traces of the social concept in

the archaeological record."[213] Furthermore, the spatio-statistal tools applied allow for a careful measurement of distance or size within these neighborhoods, aligning with the belief that "spatial distance is inversely correlated with social interaction" in urban neighborhoods, and generally conforming to Tobler's First Law, which states that near things are more related than distant things.[214] Similar studies have been applied to good effect at urban centers outside Pompeii, where subtle differences in architecture and social factors are chosen as indicators of likely neighborhoods.[215]

The Vicus *at Pompeii*

Discussions of neighborhood are not unusual in Pompeian scholarship, and perhaps one of the most significant ideas that needs to be addressed here is that of the ancient Roman *vicus*. The *vicus* in the time of Pompeii is generally understood to represent an administrative ward of the city, an officially delineated area with voting representation in elections and shared participation in cult practice focused on crossroad shrines.[216] The attraction between *vicus* and "neighborhood" is clear when one looks at the related words *vicani* and *vicini*, "those living in a *vicus"* and "neighbors" respectively.[217] Clearly there is a strong lexical association between the two. That Pompeii contained *vici* is beyond doubt, and the presence of crossroad shrines dedicated to the public *Lares* have been used to suggest their number and distribution.[218] However,

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[213] Laurence 1994, 38ff.
[214] Laurence 1994, 147.
[215] Stone 1987, 126 for architectural differences as be successful delineators of neighborhoods in Babylonian Nippur as well as at various Islamic cities. See also Hutson 2016, 75-76 for a similar application with explicit social consideration in Maya urban centers.
[216] Laurence 1994, 34ff; Wallace-Hadrill 2003; Lott 2004.
[217] Mouritsen 1990, 146-47.
[218] Laurence 1994, 39-40. See Lott 2004, 134 for comparanda at Rome, where Augustus supplied cult images for the neighborhood shrines associated with *vici*, in 7 BCE.

it is not as simple as pointing to each shrine as the center of a neighborhood (some such resulting neighborhoods would be comprised of fewer than five residences), nor can one assume that the shrines explicitly define their borders. It can perhaps be inferred that these street altars were contained spatially within the *vicus* that they represent, but establishing strict boundaries based on their location cannot be accomplished with certainty given the current state of evidence.[219]

Scholars like Ling, Laurence, and Castrén have noted likely names for the *vici* at Pompeii, such as Salinienses, Ubrulanenses, Forenses, and Campanienses, associated with names for the city gates and based on inscriptions listing the titles of local magistrates in these portions of the city.[220] However, it should be noted that excavations likely have not revealed the full set of *vicus* or ancient gate names, and so one must be cautious about giving these administrative zones too much weight in a reconstruction of all possible Pompeian neighborhoods. The *vicus* at Pompeii is especially attractive as a way to identify neighborhoods in part due to its own association with streets; deriving from the word for road, *via*, the *vicus* embraces face-to-face interaction among its constituents and avoids the face-block problem discussed above. While one need not assume that an administrative district naturally maps perfectly onto the conceptions of neighborhood held by its residents, the historical development of the *vicus* from informal, organic groupings of social, vocational, religious, and ethnic identities[221] into officially recognized and regulated zones within a city suggests that the administrative zoning was

[219] Lott 2004, 154 further suggests specialized buildings and rooms which might have served individual neighborhoods cult needs for their surrounding properties, but does not provide delineated boundaries of their influence.
[220] Castrén 1975, Ling 1990, Laurence 1994. See also Butterworth and Laurence 2006 for a discussion of the role of such Pompeian neighborhoods in local elections.
[221] Wallace-Hadrill 2003, 196–197. The *vicus* at first seems to have been an informal identity with spatial manifestation in the city of Rome until the time of Julius Caesar and Augustus, at which point they began to be tapped as administrative districts with a wider political application.

applied to neighborhoods which had already developed their own identities through natural social processes of urbanization.

Rome itself was host to a number of *vici* in the early empire, treated as neighborhoods with their own urban character and material culture. These formal units, reorganized by Augustus with official leaders called *vicomagistri*, were often associated with lower-class freedmen and even slaves, residents who took up civic duties for their neighborhood such as firefighting and food distribution.[222] An integral component of each *vicus* was the set of dwellings—and thereby dwellers—comprising its residential extent, and each was arranged around a street system with at least one significant crossroads.[223] These crossroads, or *compita*, would have hosted the small shrines at which local religious practices helped perform neighborhood identity. *Vici* at Pompeii have proven more difficult to concretely identify than those at Rome.[224]

The *vicus* is a useful tool for examining administrative boundaries within the city, such as voting blocks and cult distribution,[225] but it is wise to remember that neighborhood identity should not necessarily be strictly associated with legislative demarcation without supporting evidence, especially when one considers the modern phenomenon of gerrymandering. Instead of trying to warp unknown legal demarcations onto the social fabric of the city or suggesting that every neighborhood was organized around a single common feature like a shrine or public fountain,[226] the GIS

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[222] Lott 2004, 2; Wallace-Hadrill 2003, 199 claims craftsmen and artisans provided the *vicus* citizen backbone.
[223] Lott 2004, 14; Wallace-Hadrill 2003, 197. Pliny also attests this relationship when he identifies *vici* with their *compita Larum* in *Naturalis Historiae* 3.66.
[224] Viitanen et al. 2012. Their exhaustive mapping of elements throughout Pompeii nonetheless does not identify neighborhoods, but instead tallies the kinds of activities which may have taken place within such ambiguous zones.
[225] Laurence 1994, 41-43.
[226] Laurence 1994, 34-49. See Figure 3.2 above.

implementation of the present project reveals neighborhoods based on empirically observable statistical realities in the archaeological record.[227] The neighborhoods which result from these analyses align with the theoretical necessities considered above,[228] but are neither inflated nor artificially restricted by issues like street boundaries or *insula* size.

A Neighborhood Model

It should be made clear that the neighborhoods revealed in this study are not meant to be exclusionary; they are not comprised only of the middle- and lower-class properties within them. Rather it is the abundance of such properties in certain parts of the city that allows this study to identify possible neighborhoods that would have contained these intense clusters of non-elite residences as their cores. It is likely, and in fact unavoidable, that the working-class neighborhoods discovered either contain or are proximate to other types of buildings. The presence of a*trium* houses, temples, recreational spaces, governmental buildings, and all other properties become more apparent at the edges of the non-elite zones, and even appear within them, so long as they do not disperse the non-elite dwellings beyond a significant spatial autocorrelation. In short, the clusters of working-class dwellings identified in Chapter Two tell us where to look for neighborhoods, but not their explicit boundaries or the entirety of their contents.

The spatial autocorrelation tools applied in Chapter Two revealed that non-elite properties tended to cluster both based on their size and relative architectural complexity. The incremental autocorrelation tool measured this relationship within an expanding

[227] For similar approaches which discuss distributions of *programmata*, shrines, fountains, doorways, shops, and other features in the urban fabric, see Viitanen and Nissin 2017 and Viitanen et al. 2012.
[228] See footnotes 206 and 207 above.

radius around each property, resulting in a series of statistically significant potential neighborhood sizes, with the first and most instructive radius appearing at 125m. To best highlight the architectural neighborhoods that these studies revealed, a 125m buffer was then applied to the center of each hotspot throughout Pompeii, and the surveyed properties contained within it were grouped into representative clusters. This means of identifying neighborhoods avoids many of the problems discussed in the preceding paragraphs—an over-reliance on streets, shrines, fountains, or *insulae*, or arbitrary spatial divisions absent measured rationale (Fig. 3.2)[229]—and manifests the theoretical guidelines for what should constitute a neighborhood through a selection of archaeological features and application of specialized GIS tools.[230]

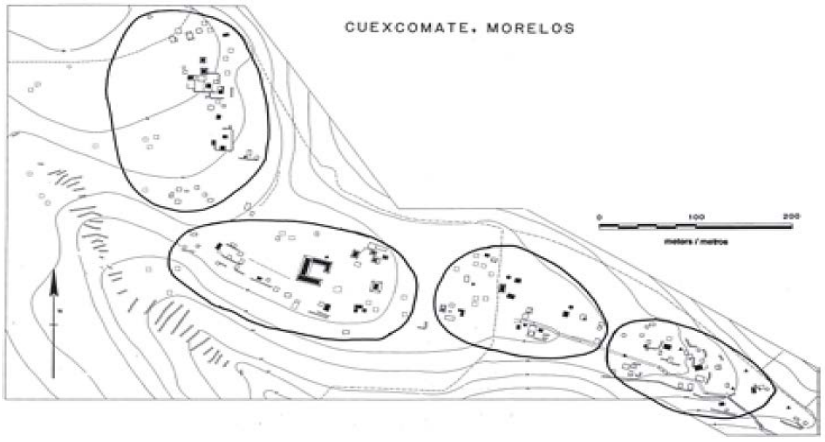

Figure 3.2
House clusters grouped into neighborhoods.In this example, visual proximity alone cannot indicate where the boundaries should be drawn.
After Smith and Novic 2012, Fig. 1.2.

[229] Smith and Novic 2012, 7.
[230] Tools such as these have been applied to modern urbanism and sociology studies to distinguish and differentiate neighborhoods in places such as Baltimore, Maryland (Dubin 1992), Pune, India (Durgi et al. 2017), Melbourne, Australia (King et al. 2016), and Berlin, Germany (Groß et al. 2016).

Special attention should be paid to some of the caveats inherent in any conception of neighborhood. There is a danger, when discussing neighborhoods as generators of and generated by intra-urban social identity, of presuming a sort of uniformity to the residents who comprise their cores. While it is true that a neighborhood is "enabled and strengthened by factors such as a common language, common membership in an ethnic, religious, or political group," one cannot assume that all members of a neighborhood experienced it in the same way or contributed to its identity to the same degree.[231] The strength of a neighborhood's identification can be seen as proportional to the degree to which these factors intersect in a spatial location, but some Pompeians who participate in neighborhood activity may not live within its spatial bounds, and some who do live within it may view themselves as relative outsiders.[232] For example, the dense non-elite cores which indicate the possible presence and locations of neighborhoods at Pompeii may leave the wealthier residents of the area with an entirely different conception of the neighborhood's function—as an area full of clients to help promote their standing—than that held by the less socially fortunate members. Those whose domestic situations are outliers, either spatially or socially, and those whose personal preferences and habits deviate from their neighbors', blur the boundaries of the neighborhood and remind us that neighborhoods are naturally ambiguous entities. While it may not be possible to provide precise demarcations for their borders or detail exactly their social identities in any singular, all-encompassing fashion, it is nevertheless possible to recognize the non-elite cores as indicators of where neighborhoods may have centered and how many of the residents at the heart of such zones lived, worked, and experienced their residential

[231] Downs 1981, 12-15; Lott 2004, 20.
[232] Lott 2004, 20.

quarters at Pompeii. These groups of potential non-elite neighborhoods are outlined individually below.

Pompeian Neighborhoods Revealed

Northwestern Neighborhood

The northwestern neighborhood identified by the GIS analysis contains 20 distinct non-elite dwellings (Fig. 3.3). Its location at the extreme northwest corner of Pompeii's walled urban space stretches from the Herculaneum Gate down along the via Consolare, vicolo di Narciso, and vicolo di Modesto, and it abuts the vicolo di Mercurio at its southern extent. The range of property sizes within this neighborhood runs from one-room spaces at approximately $30m^2$ to a rather large $695m^2$. The properties have a correspondingly broad range of rooms, topping out at approximately 25 distinct architectural divisions within the largest space. The complexity scores achieved by these units range from 1 to 7.6, an impressively wide range for non-elite dwellings. Most properties cluster between a complexity score of 4 and 6, with a mean and median of 5. The average distance from the city gate is 150m, and the nearest intersection is generally about 85m away. The forum is at a distance of just over 600m from the mean or median property in this neighborhood, and notable leisure spaces are located at a remove of approximately 340m.

The via Consolare is one of the most important roads in Pompeii, channeling traffic into and out of the city in the direction of Herculaneum, and linking the forum with the city's periphery.[233] The northwest neighborhood's position along—or at least

[233] Carocci et al. 1990; Jones and Robinson 2004; Nappo 2007; Kaiser 2011.

Figure 3.3
The Northwestern Neighborhood.
Highlighted in dark green are the properties which
fall within the 125m radius of the hotspot here identified in Chapter Two.

proximate to—this artery plus its relative distance from the forum would recommend it as a place of attractive real estate for residents who wanted to take advantage of the commercial opportunities presented by an increased flow of people along a major through-route while still avoiding the crush of the civic center. Interestingly, the proportion of non-patterned spaces to peripheral properties which comprise this neighborhood is 4:1, meaning there is a dramatically lower proportion of traditionally commercialized properties like one-room shops in this area of the city than might be expected, considering the commercial opportunity present near a city gate and along such an important road (though this still a higher proportion of commercial properties than seen in the eastern and northeastern neighborhoods discussed below). However, a number of the buildings in this cluster have been read as *cauponae* (inns) or *popinae* (taverns), suggesting that there was a concerted effort to provide temporary housing and food

services for those people who were just arriving to the city.[234] The *caupona* and *popina* building types serves as a reminder reminds that there was often an overlap of commercial property investment and residential occupation of a space, wherein goods and services were exchanged in the same property that served as a residence, often on separate floors. Therefore, while residents here were not necessarily focusing their commercial enterprise on the vending of small goods, they nonetheless took advantage of the neighborhood's location to provide commercial opportunities in the way of food, drink, and temporary lodging.

The properties within this neighborhood have a wide variety of floor plans, with some in *Insula* VI.2 approaching an embryonic *atrium* type with a narrow entrance opening onto a central chamber, but there the correspondence with traditional views of the Roman house stops. There are far more houses with no clear *fauces* in the traditional sense, but rather a door which opens directly into a room or a stunted foyer which immediately branches off into separate spaces on either side. Almost all of these dwellings preserve evidence of upper stories, regardless of whether the first floor might have been dedicated to commercial activities. Interestingly, this neighborhood aligns well with Ling's projection of where the *Vicus Salinienses* might have been centered (Fig 3.4), strengthening the idea that there was a common social identity uniting members of this quarter of Pompeii.[235] The name *Saliniensi*s has been suggested to denote an association with salting, and especially the fish-salting industry for which Pompeii had become famous by Pliny's time.[236] It is possible to imagine this region of Pompeii as in part responsible for the production or sale of such products, and further investigations into the

[234] Laurence 1994, 78-84.
[235] Ling 1990, 205.
[236] Ellis 2018, 95; Pliny *Naturalis Historiae* 31.95.

vessel types common to the inns and taverns in the region may help to confirm or reject such a theory.[237] Could such a localized set of food specialization contribute to a different conception of self for the residents of this neighborhood?[238] Of course, not everyone in the neighborhood would have had any connections to such an industry, the system of production and consumption which shaped its unique intra-urban character was built from a diverse set of interdependent, privatized households.[239]

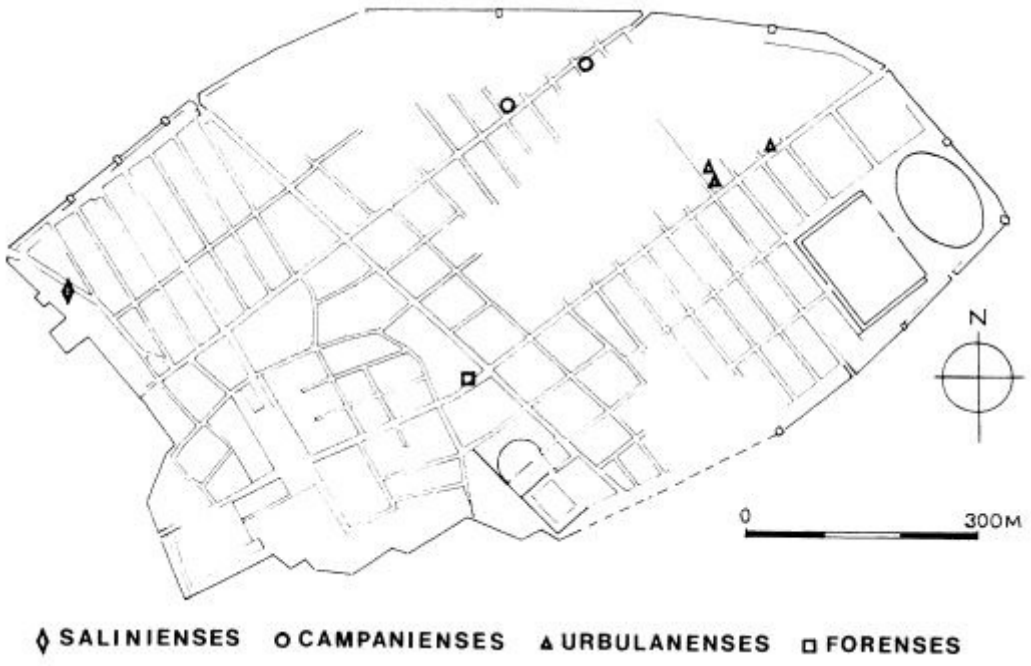

Fig. 3.4
The possible locations of *vici* at Pompeii based on electoral inscriptions.
From Ling 1990, Fig. 1.

Though the clustering of non-elite spaces here is pronounced, that is not meant to suggest that there were no high-status residents in this neighborhood; indeed, there are approximately a dozen properties belonging to the *atrium* house type which also appear

[237] Certain vessels such as the *urceus* were commonly associated with fish products like *garum*; see Curtis 1984.
[238] Hamilakis 2013 discusses how food becomes self through the act of eating.
[239] See Urry 1985 for the role of such diversified production in neighborhood identities.

in and around it, including the famous House of the Surgeon, which is often regarded as a type-house of early *atrium* design and the oldest home in the city.[240] Based on traditional interpretations of *atrium* houses, one might imagine that the non-elite of this neighborhood visited a local *dominus* at one of these nearby homes for their daily *salutatio.* The local community identity produced within this neighborhood is rooted in how its people make their world work, given where they live and what they need from their communities, and the residents who form the core of the northwestern neighborhood would have had a diverse set of needs.[241] Those homes with a great deal of internal articulation and commercial investment may well have been able to fulfill many of their needs within the home such as subsistence baking, weaving, and meal preparation, but some of the less architecturally complex spaces such as the tiny shop houses would have turned to their local community to fulfill such needs. Spaces oriented towards providing those needs for others, in turn would have required members of their community to supply them with custom. The inns and taverns here would have relied on the flow of traffic through the nearby gate, and may have seen their position in the city as particularly advantageous due to such a reliable flux of customers.

The occupants of the larger *atrium* houses nearby, however, may have fostered stronger social bonds with the permanent residents of the area, relying on a stable base of clients to maintain their social capital.[242] While many of the homes within the neighborhood here are inward-facing—nested within *insulae* on short city blocks whose sightlines terminate at the city wall or an adjacent block—some face almost entirely

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[240] Sear 1982, 105; Wallace-Hadrill 1997, 280. See also Bon et al. 1997 for a discussion of its character and notes on its influential relationship with its surrounding *insula*.
[241] Yaeger 2000.
[242] Urry 1985 discusses the differing relationships within shared neighborhoods dependent on particular viewpoints.

outward.[243] The larger properties perched atop the city wall to the west direct their views to the sea by means of balconies and large open windows across multiple levels of their terracing. Such houses along the *Insula Occidentalis* serve as a reminder that the boundaries of the neighborhoods identified herein are fuzzy ones, both spatially and socially.

The Northern Neighborhood

Radiating south from the *Castellum Aquae* just inside the Porta Vesuvio, the northern neighborhood abuts the unexcavated portions of *Regio* V to the east (Fig. 3.5). Its working-class core of residential units spans properties from eastern side of vicolo del Fauno through via del Vesuvio and includes a handful of dwellings along vicolo di Mercurio. Two of the *insulae* which it envelops have their southern portions dominated by massive *atrium* houses, but otherwise the breadth of this neighborhood is largely non-elite spaces. Since the neighborhood abuts unexcavated parts of the city, it is entirely possible that more non-elite spaces are present to the east of via del Vesuvio, but high-status residences are equally as likely. In light of this limitation, one should assume that this neighborhood was no smaller than is currently observable, but could easily have been much larger, extending eastward into *Regio* V. That this neighborhood—like all others identified here—stretches across multiple city blocks indicates the face-block interpretation of neighborhood is insufficient when applied to Pompeian urban form, instead, the increased potential for social integration encouraged by face-to face

[243] Tilley 1994 uses the intervisibility of monuments and sightlines to nuance the boundedness and inward vs. outward facing qualities of neighborhoods.

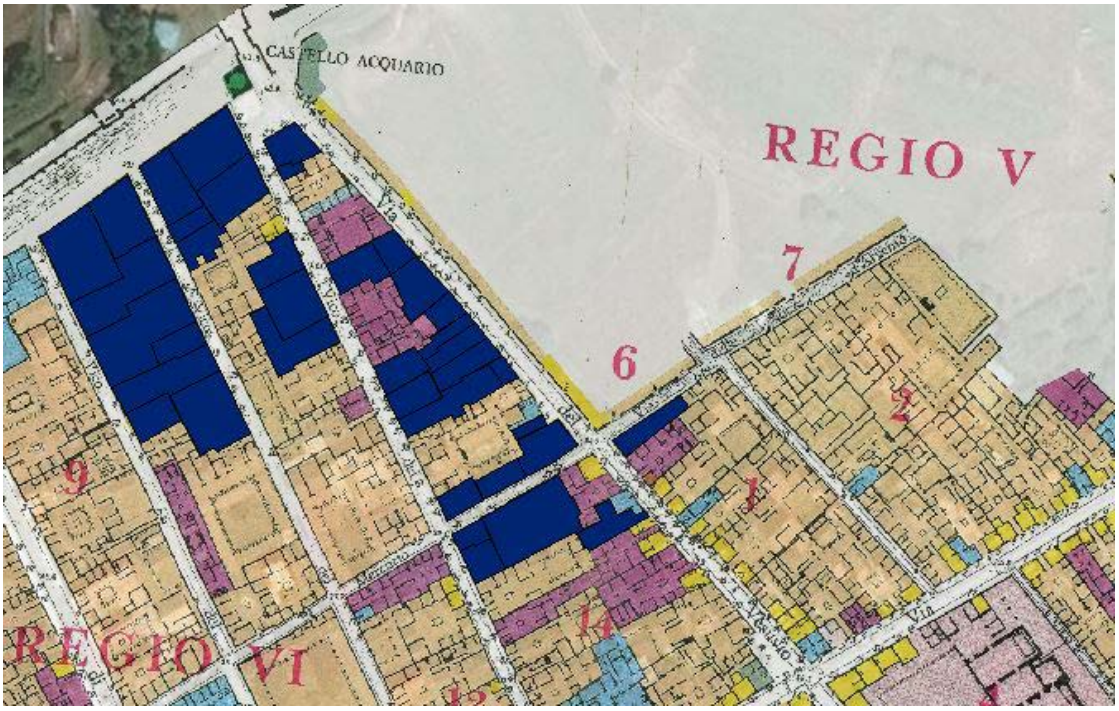

Figure 3.5
The Northern Neighborhood
In dark blue are the properties which comprise the
northern group of potential non-elite dwellings.

interaction along streets, intersections, and around other nodes of civic interests should lend strength to the identity of the neighborhood.[244]

Properties within the northern neighborhood range in size from 30m^2 to 518m^2, slightly smaller on average than those in the northwestern neighborhood, with a median area at roughly 141m^2. Over one third of all dwellings in this neighborhood have upwards of ten rooms, and the architectural complexity ranges from 1 to 6.5, somewhat less complex than the northwestern neighborhood but still quite varied. The difference between the neighborhoods' complexities aligns well with the slightly reduced property size in this zone; more tightly clustered properties with a smaller overall footprint dominate. The northern neighborhood is also clustered relatively close to a main city

[244] Keith 2003; Monica Smith 2003; 2014

gate, with a mean distance of approximately 180m, though this is notably not as tightly bound to the Porta Vesuvio as the northwestern neighborhood is to the Porta Ercolano. A noteworthy intersection is similarly close by, and most residents of the northern neighborhood would need to walk only 130m to reach such a juncture in the city's armature. Though the large intersection hosts a fountain and an enlarged crossroads, it does not preserve evidence of a compital shrine. Instead, a compital shrine has been identified in this neighborhood near the *castellum aquae* that would provide easy access to most of the residents here. The homes here are still quite far from the forum at a remove of ~500m on average, but leisure spaces are also a bit more accessible than they were for the members of the northwestern neighborhood, at an average distance of 300m.

There are twice as many non-patterned spaces as peripheral properties in this neighborhood, and while this proportion does denote a heavier residential than commercial focus, it is still a comparatively high number of shops when viewed against many other parts of the city. For example, the presence of commercial properties here is twice as high as in the northwestern neighborhood. The peripheral properties—generally understood to be a mix of residential and commercial investment by people of the lower classes—are mostly concentrated along via del Vesuvio, and their penchant for clinging to main arteries in the street grid would suggest that more would be found on the eastern edge.[245] The majority of properties comprising this non-elite zone do not retain anything resembling the *fauces-atrium-tablinum* axis which traditionally has been assumed to govern the internal arrangement of rooms within a Roman house. Nine of these spaces are associated with services provided by *cauponae* or *popinae*, which again would suggest

[245] Robinson 1997, 140-141; Pirson 1999; Craver 2010, 92-95.

that there is a correlation between lower-status areas of the city, properties near gates, and temporary housing for people moving into and out of the city along through-routes.

The position of this neighborhood along the primary north-south road of Pompeii would have likely engendered a set of experiences markedly different from parts of the town not on such arteries. The sightlines alone may have contributed to a stronger sense of urban integration, allowing residents to view themselves as intrinsically bound up with the inner parts of Pompeii as soon as they stepped out their front doors.[246] But even within this neighborhood, such conceptions would not have been universal. Those residents in the blocks to the west of the main thoroughfare did not share such visual integration, and may have found themselves still benefitting from proximity to such a highly-trafficked route while still enjoying a quieter and more inward-facing location. And of course, the experiences would change along the axis of time as well.[247] It is attractive to imagine that the mornings would bring a rush of traffic through this neighborhood, surging in toward the city center and forum, and that middays may have been less busy and crowded in comparison. Did the residents of the northern neighborhood that were not directly on the via del Vesuvio recognize the auditory benefits of avoiding the press of people that moved along such avenues?[248] Did they pursue such an advatage in choosing where to site their more residential, less commercial dwellings? While it is impossible to determine such considerations based on the archaeological data available at the time of the current study, it is still rewarding to acknowledge the diverse set of sensory, chronological, social, and economic experiences

[246] Tilley 1994.
[247] Urry 1985.
[248] Helmer and Chicoine 2013 engages with the acoustic advantages of certain urban positions and constructions.

that would have shaped the lives of the residents living in and moving through these neighborhoods.

The Central Neighborhood

The central neighborhood is by far the most populous and dense zone of potential non-elite dwellings revealed through the spatio-statistical analyses conducted in Chapter Two. Spreading outward from the intersection of via degli Augustali and via Stabiana, it sits at the center of Pompeii along the most important north-south street in the city (Fig. 3.6). It could perhaps be argued that this neighborhood should be split into two, as there is a subset of its properties slightly closer to the forum and almost distinct from the main body, but the kernel density analysis reveals that at no point does the clustering of non-elite spaces in this zone fall below a statistically significant level, and so the entire space is here treated as one large, oddly-shaped neighborhood.

With 80 discrete non-elite spaces, the central neighborhood has over twice as many such residences as any other zone revealed by the preceding analyses. The average area is smaller, at 139 m^2, with an even smaller median size of 95m^2. There still exists a large range of property sizes in this neighborhood, reaching up to nearly 700m^2, but the lower median implies that large outliers skew the average upward; smaller properties are more common here. The complexity scores for this neighborhood are correspondingly lower; with a mean and median at about 4 out of 10, indicating that properties clustered in this dense core of the city were generally less architecturally compartmentalized than those in other neighborhoods. Due to their central location, residents of the central

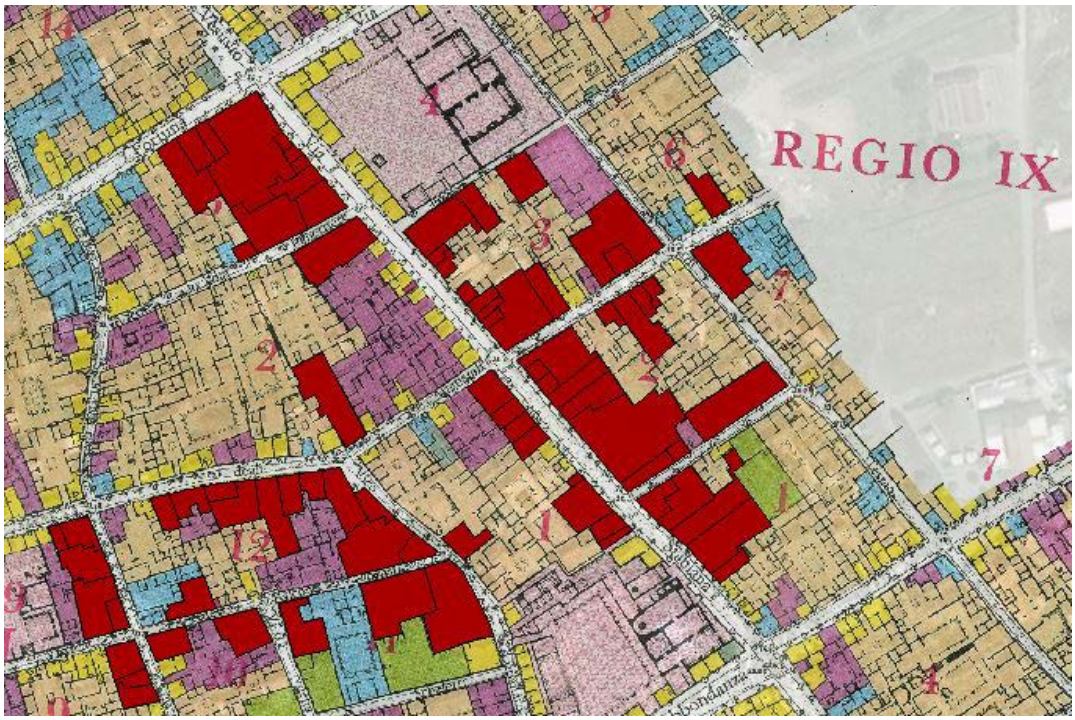

Figure 3.6
The Central Neighborhood
In dark red are the 80 patternless properties identified as a statistically significant cluster in the center of Pompeii.

neighborhood enjoyed easy access to leisure spaces, with an average distance of only ~80m from such amenities, and are generally only about 150m from one of Pompeii's more bustling, built-up intersections. Such close integration with Pompeii's nodes of social exchange and encounter stand at a marked contrast to the northwestern neighborhood, where residents would have had to walk four times as far to access large bathing establishments. Even though the average distance of the homes within central neighborhood from the forum is approximately 400m, a small cluster is far closer, situated just behind the *insulae* hosting the Macellum, Imperial Cult Building, and the Temple of Vespasian/Sanctuary of Augustus.

The central neighborhood inverts the proportion of peripheral and non-patterned

spaces seen in the two other neighborhoods discussed above, hosting twice as many peripheral properties as those which penetrate the block. This inversion coincides well with expectations about the size of dwellings with commercial connotations; the one- and two-room shop house types are abundant here, where the owner or operator might easily live above or behind the commercial front of their property. Being situated along a main thoroughfare and centrally located, the residents of this neighborhood were able to take productive advantage of the increased foot traffic such a location might bring. A shopper shops with his or her entire body, of course, and so the sensory experience produced by this neighborhood brings with it not only the sights, but the sounds, smells, and physical sensations of its environment.[249] The small vendor locations which lined the streets around the central intersections may have provided a wider range of food and drink for locals and visitors alike, and the blacksmith/metalworking shop at VII.1.31 would have added its attendant din and smells to a complex sensory experience here.

The proximity to two large bathing complexes (the Central and Stabian Baths), destination spots for travelers both within and from without the city walls, would no doubt also encourage further commercial investment in the area, and the abundance of non-status architecture in this space indicates that the lower classes of Pompeii were more than capable of recognizing and exploiting that phenomenon.[250] In fact, this neighborhood must have been a rather desirable location for denizens looking to occupy smaller houses and pursue commercial opportunity considering its ease of access to the baths, the forum, and the abundance of vibrant commerce nearby. The proximity to the

[249] Hamilakis 2013.
[250] Beard 2008, 83. The advantage of locating one's property in proximity to a bath was the resultant increase of foot traffic. Certain properties such as the house at I.iii.31 even had stepping stones connecting it directly to the façade of the public baths.

baths especially raises some considerations about how the experience of these locals may have shifted throughout the day as bathers followed the rhythms of their personal schedules, resulting in a mercurial social texture of the area that was itself shaped by the timing and presence of people all over the city pursuing *otium* at their convenience.[251]

The position of this neighborhood and its rough extents corroborate a possible location of the *Vicus Forenses* proposed by Roger Ling, located near what he called the "old quarter" or "south-west" portion of the city (Fig. 3.4).[252] Two compital shrines have been identified at the eastern and western sides of *Insula* VII.1 in this neighborhood, neither of which corresponds with an especially large intersection. The presence of two such shrines might lend support to the idea that this central neighborhood should be read as two adjacent neighborhoods instead, but it is unclear if a *vicus* was only permitted a single crossroads shrine.[253] One might thus infer that one shrine could have served as the primary shrine of the neighborhood while the other helped serve residents with lessened access to the more central one. The observations presented here provide a more thorough and accurate extent for the *vicus* tentatively located by Ling, showing the distance it might have stretched in all directions before relinquishing its social cohesiveness.

The Southern Neighborhood

Clinging to the Porta Stabia to the east of the theatral complex and Triangular Forum, the southern neighborhood is one of the smaller clusters of non-elite properties at Pompeii (Fig. 3.7). With 21 addresses packed along via Stabiana, this neighborhood also abuts a large unexcavated area to its east. The buildings here are somewhat larger on

[251] See Tilley 1994 for the rhythms of the city providing different experiences at different times of day.
[252] Ling 1990, 205.
[253] Flower 2017, 118.

average than those in the three neighborhoods discussed above, with a mean size of 318m^2. This neighborhood has a larger range of property sizes as well, ranging from two-room spaces at only 40m^2 to 26 rooms spread across 743m^2. The average complexity of these spaces is 4.9, with a maximum of 7.3, roughly the same average as the other neighborhoods but a lower maximum than that of the central neighborhood. Obviously, there is easy access to the nearby city gate, but the forum itself is significantly further away, approximately 620m removed from the center of this neighborhood. The inconvenient removal from the main forum was likely mitigated by the nearby *Foro Triangolare* and multiple bustling intersections. A compital shrine was located just on the south side of *Insula* I.2, a conveniently central location for many of the properties in this neighborhood. However, it should be noted that this particular cluster of properties does not correspond to any of the known *vicus* locations at Pompeii. As stated above, the full set of *vici* at Pompeii has likely not been excavated or preserved in inscriptional evidence, and the neighboring unexcavated area of *Regio* I could well conceal evidence of a further named *vicus* that would encompass this area.

Approximately half the properties in this neighborhood have been identified as *cauponae* and *popinae*, again indicating a marked investment of the lower classes in building up commercial short-term housing near city gates, though the level of other merchant commercialization in this zone is somewhat less pronounced than at the central neighborhood.[254] The residents of the southern neighborhood occupied a particularly liminal zone in Pompeii. While both the northern and northwestern neighborhoods discussed above occupy a similar proximity to a major gate, the southern neighborhood is more tightly clustered specifically along the road leading from its gate.

[254] See discussion of this clustering phenomenon on pages 85 and 86 above.

People here would have been exposed to a great many visitors from outside Pompeii, passing into the city through the southern gate, to work, vend, or otherwise take advantage of the city's resources and opportunities. The inns and taverns here demonstrate how the locals turned this character to their advantage, and would have lent a temporal instability to the social character of the space as visitors stopped briefly to eat or rest before moving on. It is not hard to imagine that the constant exposure to people from outside Pompeii's walls, upon whom many of the southern neighborhood residents relied for their custom, would have generated within the southern neighborhood a sense of community that transcended the city's boundary. And of course, for the people

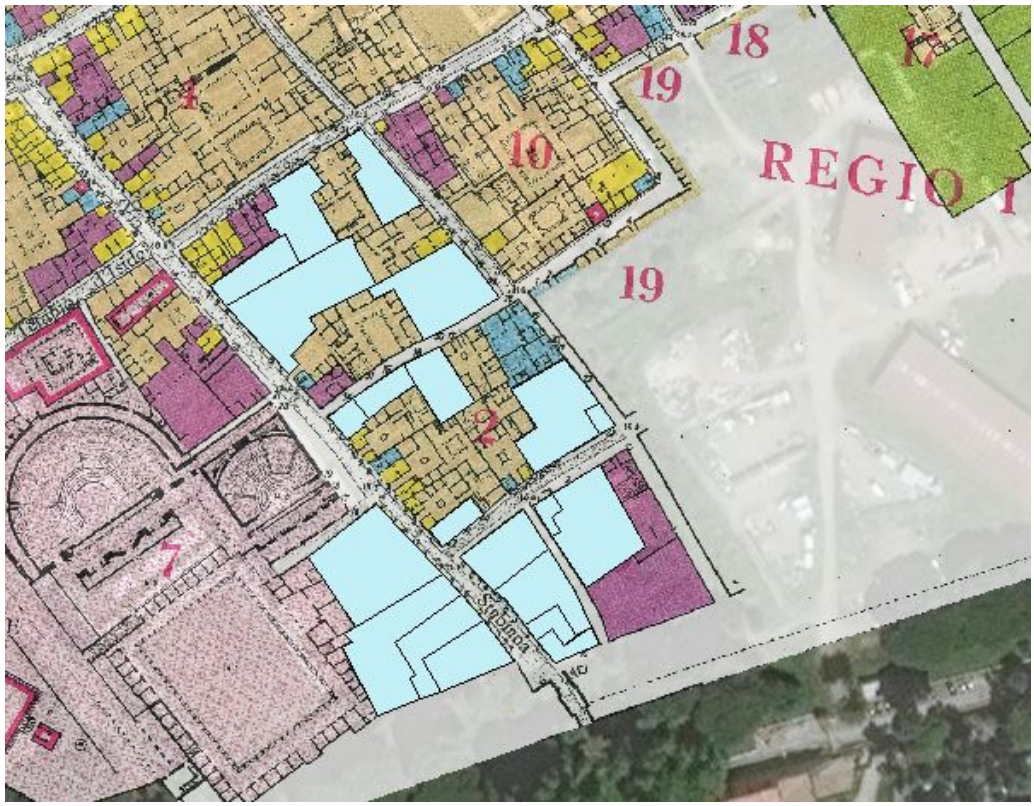

Figure 3.7
The Southern Neighborhood
The patternless properties with statistically significant clustering
near the Porta Stabia are shown in light blue.

coming in to the city and using these taverns and inns, this zone was their first experience of Pompeii; all observations of the city would follow spatially from this southernmost impression. The extreme proximity to the entertainment district just to the west may have also led to a sense of community here that ranged from annoyance at the attendant noise and tourism to gratitude for the increase in custom such nodes of leisure encouraged.

The ratio of peripheral and non-patterned spaces in the southern neighborhood is roughly 1:1, the second highest relative presence of more commercialized properties of any neighborhood in this study. The proportions here may be somewhat skewed by the presence of the adjacent *Quadriporticus,* theaters, and unexcavated zones of the city which closely border this region, so one should assume that the data presented here represent only the lesser bounds of possibility when it comes to the presence of particular housing types in the area. Only three of the properties in the southern neighborhood preserve anything close to a *fauces-atrium* axis, and even those have a highly unpredictable and diverse set of internal architectural divisions.

The Eastern Neighborhood

The only definite neighborhood of non-elite dwellings well outside the roughly 500m band from the forum, the eastern cluster stands out from the others in more ways than one (Fig. 3.8). Comprised of 34 different properties, this neighborhood has a ratio of non-patterned spaces to peripheral properties of 16:1. Such an imbalance of property types is 4 times as wide a margin as that of any of the above neighborhoods and indicates a near absence of any peripheral properties at all. The dwellings in this zone of the

city were almost entirely given over to completely residential investment, as attested by the general lack of peripheral properties with commercial fronts.[255] Their average size is larger than those of any other neighborhood except the southern at 260m^2, and the complexity scores range from 1.7 to 7.5, about the same as most of the others, but with a slightly lower median at 4.4. Based on these measurements one can infer that even though the spaces in the eastern neighborhood are somewhat larger overall, and though there is a striking lack of peripheral properties (typically less complex), fewer of these properties complicated their internal architecture as much as they could have. These dwellings were more prone to less confined, more open room arrangements.

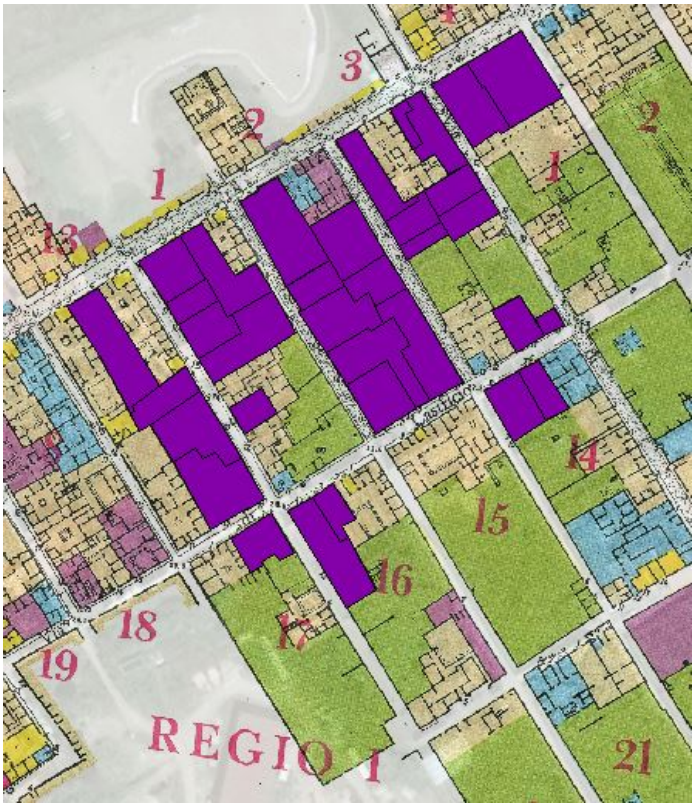

Figure 3.8
The Eastern Neighborhood
Along via dell'Abbondanza, this cluster of properties
near the Quadriporticus is shown in purple.

[255] See also Laurence 1994, map 5.2, detailing the general absence of *cauponae* in this *regio*n.

The eastern neighborhood was almost a full kilometer from the forum, by far the most remote of those yet identified, but it nonetheless enjoyed proximity to leisure and entertainment. Most notably seen with the nearby amphitheater and Grand *Palaestra*, the average distance to such amenities for the eastern neighborhood was just under 200m, closer than all but the central and southern neighborhoods. No large intersections are evident nearby, though that could well be due to the massive unexcavated portions of the city to the north and south. The striking lack of peripheral properties suggests less emphasis on commercialization of domestic space here. While it is surprising that a through route like via dell'Abbondanza would have a zone devoid of shop-houses, the remoteness from the civic center or notable cross streets makes it somewhat less odd.[256] The relative absence of non-elite properties tailored to commercial activity lends some credence to theories that more remote areas of the city are better suited to larger residential investment.[257] Despite the proximity to the main street that this neighborhood enjoyed, however, the orientation of the blocks was such that very few of these properties actually had space to front on via dell'Abbondanza. Instead, many of the residents here had doors on the long side of the blocks, along smaller side streets, facilitating face-to-face interaction among their neighbors, but generally removing them from the stream of passers-by to the north.

It should not be a surprise at this point to find that the eastern neighborhood attested in the spatio-statistical analysis of non-elite properties once again matches up with the predicted center of a *vicus* at Pompeii. The *Vicus Urbulanenses* was likely sited

[256] The avoidance of commercial properties here also reminds the reader that the working classes had the agency to determine where their labor was reproduced, and were not required to collocate residence with occupation. See Urry 1985.

[257] Saunders 1985 explores the idea of consequences of commercially advantageous urban zones rendering other areas of the city less attractive for similar investment.

precisely in this area of the city according to Ling's reading of electoral inscriptions, though the epigraphic records themselves were found on the north side of via dell'Abbondanza and the properties in this neighborhood are on the south side. Would the sightlines stretching east from the gate to the center of the city in the west have created a sense of integration that helped overcome their relative isolation, or would the distance that such sightlines promote have only furthered the idea that the eastern neighborhood was remote, disconnected from the hubs of commercial and leisure interaction in other portions of the city?

At least four compital shrines are attested in this neighborhood, two of them on adjacent street corners. Such a frequency of neighborhood cult locations supports the suggestion that there need not be a 1:1 correspondence of *vicus* and compital shrine; while a neighborhood clearly needed a convenient location for the performance of its religious identity, some neighborhoods contained multiple. Perhaps local patrons could commission personalized shrines, or possibly their frequency was determined by the population they were intended to serve. Might the presence of multiple in such a small span suggest this area was more densely populated than others? Or perhaps the *vicus* here was born from a mix of ethnic or kinship traditions, and the residents of the neighborhood were invested in maintaining their discrete religious affiliations through separate street shrines. Such cult nodes reinforce the idea that there would have been no singular experience of neighborhood even by the people living within it; diversity finds expression even within spatial groupings that are born from shared issues of identity, access, and practice.

The continued collocation of non-elite neighborhood and *vicus* presence lends further weight to the ideas of shared social identity of this block of properties and also suggests that excavations on the north side of this thoroughfare would likely reveal more properties with similar features. The eastern neighborhood marks the third of four identified *vicus* locations which correspond with hotspots of potentially non-elite properties throughout the city. Very few of the non-elite spaces in this neighborhood have been identified as *cauponae* or *popinae*, a phenomenon which aligns well with the general lack of commercially oriented domestic spaces in the area.

A Possible Northeastern Neighborhood

The five neighborhoods discussed above were the only zones of the city which demonstrated statistically significant autocorrelation based on kernel density analyses (roughly 1.5 standard deviations above the mean). However, the edge effect which occurs when data are missing from the raster—here wherever the unexcavated portions of Pompeii abut directly on areas of non-elite housing—means that there is a potential erroneous reduction in statistical significance for areas along this edge.[258] This phenomenon can be noted for the northwestern, northern, southern, and eastern neighborhoods, in fact, but not to such a degree that they failed to appear as hotspots within the urban fabric. One location in the northeastern portion of the city comes very close to statistically significant autocorrelation but falls just short of that demonstrated by the other five. In addition, of the four named *vici* which have been identified and tentatively located throughout the city, three have been shown to align with the neighborhoods which demonstrate significant non-elite clustering. The fourth and final

[258] For a discussion of such boundary problems in spatial statistics, see Griffith 1983, and Gill 2016.

theorized *vicus*, *Vicus Campanienses*, has been tentatively identified in the same northeastern part of the city where this final cluster of potential non-elite houses is located (Fig. 3.4). It sits just at the edge of the excavated portions of the city, flanked on three sides by a lack of data, but the beginnings of a neighborhood which shares similar features to the other five can clearly be seen. Due to the repeated collocation of attested *vici* and non-elite neighborhoods elsewhere, it would be an oversight not to consider the possibility that this cluster represents another such zone (Fig. 3.9).

The possible northeastern neighborhood, insofar as it can be currently enumerated, would be comprised of at least 22 residences of varying size and complexity. Spanning both sides of via di Nola and centered around vicolo di M. L. Frontone, the properties in this neighborhood have an average size of approximately 208m^2 with a

Figure 3.9
Possible Northeastern Neighborhood
Though this cluster did not rank as high as the other five in the hotspot analysis, due to the edge effect surrounding it on three sides it should probably be treated as a similar zone to those above.

slightly smaller median, and complexity scores from 3.1 to 7.8. Interestingly, this would be the highest minimum complexity of any of the statistically recognizable neighborhoods of non-elite spaces, suggesting that there were few spaces in this part of the city which had only one or two-room designs. Appropriately, the ratio of peripheral properties to non-patterned spaces is only 1:10, indicating a drastic reduction in the commercialization of small residential properties; there are comparatively few shop houses in this relatively remote area of Pompeii. There are two compital shrines in this potential neighborhood, both sited at the intersection of via di Nola and vicolo del Centenario. The double presence of these shrines bolsters the identification of this zone as a neighborhood associated with a *vicus* and further indicates that a single *vicus* could utilize multiple crossroads shrines for the performance of its local religious identity.

With a mean distance of 800m from the forum, these spaces have a similar degree of remoteness as the eastern neighborhood, and a similar dominance of non-patterned spaces is evident. Movement to and from the forum was difficult here, but other elements of Pompeii's armature were far more accessible. The central baths were only about 200m away, and notable intersections were similarly close-by. The unexcavated Porta Capua would have been quite close, and located along the same road as many of these properties, and the via di Nola would have easily carried traffic back and forth from the Porta Nola and this neighborhood. Despite their remote distance from the forum, these properties still seem to have been rather well integrated into various elements of Pompeii's urban armature, though they were not as focused on attracting or serving potential customers as neighborhoods to the west and south. The forum has traditionally been understood to be the most important node in civic life at Pompeii, but the

convenience enjoyed by the members of the northeastern neighborhood serve as a reminder that there were many other hubs around which the city's activities and identities turned.

The parallels between the northeastern neighborhood and the eastern neighborhood are impossible to overlook. Both seem to be in relatively quieter areas of the city, away from the bustle of commercial intersections and frequented gates, and both have effectively overlapping crossroads shrines for the performance of their neighborhood cult identity. It seems as if Pompeii's urban character was one that rewarded commercial investment at particular nodes, and residents interested in somewhat larger, more purely residential investment moved away from such zones to create neighborhoods of a markedly different character. Such neighborhoods may have experienced a daily miniature exodus as its residents left their homes to earn their living at the workshops and markets elsewhere in the city, in turn modifying the experiential character of the locales that received these commuters. In a sense, such an intra-urban phenomenon reproduces one seen at the broader, regional or state level wherein cities themselves attracted people from outside their walls, especially on market and festival days.[259]

Dispersed properties

Of the 316 properties identified by the present survey, nearly one third (101) do not belong to any statistically relevant neighborhood, discounting those in the possible northeastern cluster. These remaining properties are scattered throughout the city without

[259] Saunders 1985 discusses the potential for rhythms of the city acting as microcosms of similar state processes.

any evident spatial patterning, filling the spaces between the neighborhoods. Since each spatially significant cluster has been examined for its relationship with the city's armature, it would make sense to consider the dispersed properties as well in order to determine any significant difference between those non-elite spaces which clustered into socially cohesive spatial groups and those which did not.

Of these properties, the vast majority belong to the non-patterned category. There are four times as few peripheral properties dispersed throughout the city that do not seem embedded in status architecture, suggesting that independent, primarily residential non-elite properties are far more common than many previous studies might have indicated. The average size of these buildings is largely in line with those found in neighborhood clusters at 222m^2, but the upper size limit is far larger than any of those in a neighborhood. At 1260m^2, the largest of these scattered properties is almost twice the size as the largest members of many of the neighborhoods. The complexity scores span the full range between 1 and 10, with a mean and median of 5, indicating a wide variety of both simple and complex properties; there seems to have been no size or complexity metric encouraging homes of any particular complexity to cluster or not to cluster. Interestingly, the average distance from the forum for those properties not within a neighborhood was approximately 472m, closer than many of the neighborhoods. This observation nuances the above discussion of where non-elite properties were likely to be found within Pompeii; occasional, scattered properties could find purchase closer to the civic center of the city, and some did, but they were unable to cluster there. Obviously, as these properties are spread throughout Pompeii, their relative access to various other

elements of the city's armatures are highly varied, but average out to be roughly in the middle of what was observed for the neighborhoods.

Conclusions

A number of factors have been shown to shape the different characters of the neighborhoods within this study. Among the most obvious is their proximity to city gates and along throughroutes, greatly increasing their exposure to visitors from outside the city. The presence or absence of highly commercialized properties further sets certain neighborhoods apart from others, as does the degree of access to major intersections, leisure spaces, and the forum. The size and complexity of housing within these zones also contributes to their varied experiences, responding to the available space within their parts of the city and to economic or productive needs of their inhabitants. As a corollary, where the doors were sited on the *insula,* responding to its size and position, can help promote or discourage interaction with foot traffic along the main streets. Finally, organization around one or more crossroads shrines, generally associated with the *vicus* and bound up with its issues of social identity, serves as another point of distinction among the neighborhoods with non-elite cores.

Two thirds of the properties identified as non-elite residential spaces in Pompeii were clustered into statistically relevant neighborhoods, and one third remained dispersed throughout the city. Those properties which found common spatial, architectural, and social ground with their close neighbors had similar overall trends in size and complexity with isolated properties, but the largest working-class properties were generally removed from anything resembling a neighborhood as it can be identified by the present model.

Besides revealing their markedly different social textures, the most important discovery of this chapter perhaps lies in the recognizing exactly where they obtain in the city. As discussed in Chapter One, earlier attempts at investigating the nature of the urban fabric at Pompeii have not indicated relevant patterns in property types across the city.[260] While other studies have noted the abundance of shops along through-routes, little further differentiation has been indicated throughout the various *regii* and *insulae*. The revelation that statistically relevant clusters of non-elite properties coincide with the locations of Pompeii's *vici* demonstrates that GIS analyses can shed light on previously undiscovered relationships between non-elite properties and other elements of the urban armature.

The clear correlation between the neighborhoods of non-elite spaces in this analysis and the hypothesized locations of Pompeii's *vici* mentioned above is a tantalizing discovery. The preceding discussion indicates that non-elite residences within the city were often decidedly clustered into distinct neighborhoods, forming residential cores of properties which often seem to align with known voting districts. The likelihood that these zones correspond to residential groups possessed of a common social identity—real neighborhoods—is thus even more attractive. By illuminating distinct neighborhood groupings for the first time, this chapter hints at some broader social, economic, and political implications for Pompeii as a whole. It is possible to recognize commercial neighborhoods which attracted a flow of people and encouraged the exchange of goods and services at the city gates and at the intersection of its central main streets. Might it also be possible to recognize districts further subdivided by trade, such as a bakers' or fullers' quarter? Certainly there seem to have been inn and tavern quarters at the northwestern, northern, and southern neighborhoods.

[260] Most notably see Raper 1977.

The collocation of *vici* with these neighborhoods also reminds us that Pompeii should never be assessed as a single unit possessed of a single political identity, but an organism with a set of competing socio-political zones. *Vici* in Rome at least were targeted by particular political campaigns, received different types of euergetistic actions from the elites, and were under the guidance of *vicomagistri* with divergent agendas for the advancement of themselves and their neighborhoods.[261] Electoral *programmata* that cluster in particular neighborhoods now need to be reexamined to determine if there were particular political agendas or families associated with different *vici* in the city.[262] The religious character of the city is nuanced by these revelations as well. It is now possible to begin attaching specific compital shrines to known *vici* and their associated neighborhoods, marking out zones of intense public cult activity in the eastern and northeastern neighborhoods, a striking contrast to the paucity of such shrines in the other *vici.* From such a diversification of cult practice it is tempting to envision either (or both) of the two following possibilities. First, neighborhoods with many shrines may have felt a need to emphasize their devotional practices in the public sphere, performing religious identity as a means of marking themselves out as notably "pious." Alternatively, such zones (especially seen in the eastern and northeastern neighborhoods) may reflect multiple traditional identities colliding in a single space—kinship ties, ethnic traditions, or *collegia* may all have felt the need for their own more personal cult space so as to prevent its assimilation into a singular *vicus* identity. Identifying these areas of social diversification in the city allows us to pull religious practice away from the large temples

[261] Wallace-Hadrill 2003, 197-198.
[262] See Viitanen and Nissin 2017 for the distribution of such *programmata*.

of the forum and *Foro Triangolare* and relocate it to the streets with a far more subtle and varied character than has been possible until now.

Reality is not what a person thinks, but the world through which they live.[263] The different neighborhoods identified in the present chapter would have engendered different experiences of the urban environment for their residents, and thereby different ideas of what life at Pompeii meant. This idea should be immediately apparent from their diverse set of locations and compositions, but it deserves further discussion here as well. One should not imagine non-elite properties, and the neighborhoods for which they form the cores, to be of a uniform character, and the data have demonstrated the wide variety of size, arrangement, commercial investment, and location available for such properties. This broad spectrum is an intentional consequence of the methods applied in the current study, as it seeks to identify and interrogate the full range of properties not associated with elite architectural performance. The diverse nature of the neighborhoods reflects just this spectrum. Members of the northwestern and southern neighborhoods resided in a somewhat liminal zone of Pompeii's urban plan, just inside some of its busiest gates. Such liminality would be a spatial concern bound up with Pompeian identity; these zones would have been the center of economic focus and neighborhood expression for many, but for any who recognized the city-country divide, such spaces would have represented the transition from one to the other, the area of mediation through which one must pass to leave the old and enter the new. It is through the Herculaneum or Stabian gate that a great many local extra- and peri-urban farmers would have passed on market days to sell their wares in the city. This constant in- and outflow of rural folk would have generated a bustling and brisk character to these parts of the city, and their more permanent residents

[263] Hamilakis 2013, 65.

may well have felt almost as much a part of Pompeii's external situation as they did its internal character. The high number of inns and taverns in such neighborhood adds to the temporal instability of their character; many of the people who moved in and out of the zone would only have been there for a short time. The northwestern neighborhood, for example, was seldom a destination, but its residents may have engaged in enough face-to-face interaction with those people passing through the city gates to come to know them, developing a social identity which linked the interior of Pompeii with its external community.

In contrast to such liminal zones, the central neighborhood must have had a markedly different character, insofar as it was experienced by its occupants. Much like the area around the forum, the central neighborhood represents something of a destination in the city's armature. Here were two of the largest bath complexes in the city, here were a multitude of shops lining the streets, here was the most densely integrated part of Pompeii urban fabric. Residents in this neighborhood lived in somewhat more cramped quarters than elsewhere, and were surrounded by the press of constant commercial activity. The Central and Stabian Baths served as destinations for people throughout Pompeii, but likely attracted a somewhat regular clientele; other baths would have been more convenient for those living in more remote sections of the city. The location of the central neighborhood at the intersections of the largest and most important roads in the city likely encouraged its intense commercialization, and may also have made it an attractive site for such large leisure destinations. Residents here, whether they recognized it or not, occupied an enviable position, and their proximity to such desirable destinations as the baths may have fostered a sense of communal identity absent in other parts

of the city. The two compital shrines that were found within the borders of this neighborhood seem to correspond to the two somewhat distinct clusters observed in the heatmap, and may indicate that there were at least two relatively divergent neighborhood identities associated with these different shrines.

The eastern neighborhood, in counterpoint, occupied a far quieter and less commercialized position within the city. Its residents largely chose to keep commercial activities out of their domestic realms and invest in somewhat larger, purely residential properties. Those who lived here likely worked outside their homes, traveling to other parts of Pompeii to earn their living. The members of this neighborhood were located on a major through-route (like all the other neighborhoods identified in this project), but not at anything resembling a destination point; no gates, major intersections, or leisure locations were bound up with this neighborhood, though its residents enjoyed easy access to the amphitheater and Grand *Palaestra*. If the members of this neighborhood conceived of themselves as such, it is possible that they saw their position as somewhat disconnected from the rest of the city. Pedestrian and cart traffic would have passed through the eastern neighborhood, but with no shops, inns, or taverns to speak of, the members of the *Vicus Urbulanenses* enjoyed a less boisterous and busy existence when compared with the central or northwestern neighborhoods (*Vici Forenses* and *Salinienses* respectively). The larger, generally more open plans to the houses here indicate that the owners and occupants felt the freedom to expand their living situations more so than those in the cramped central parts of the city. The striking frequency of compital shrines here may suggest the residents of this neighborhood were more invested in cult practice than those elsewhere. Most neighborhoods were served by one or two shrines, but their

density here indicates that the locals may have pursued personalized shrines to reflect their own sub-local differences in social identity; families, ethnic associations, *collegia*, could each have paid for or pursued the installment of their own crossroads shrines. Might this perhaps suggest a fracturing of neighborhood identity, or a recognition of the multitude of identities which may nonetheless comprise a single neighborhood? And of course, the fact that many of the above neighborhoods was associated with a separate *vicus* allows for a multitude of political concerns as well. The residents of a bustling commercial neighborhood such as the *Vicus Forenses* likely would benefit from different representation and legislation than the residents of a quiet, more commercially isolated and religiously complex *vicus* such as the eastern neighborhood.

Clearly, the lines of inquiry opened to us by the recognition of neighborhoods and their association with *vici* are numerous and tantalizing, but it remains to consider the individual properties themselves that comprised these neighborhoods and how the social positions of their occupants were seen at the time. The following chapter further refines the current study's approach by interrogating particular houses which have been identified as non-elite, generally working-class residences in the current project. The city has revealed its patterns and the neighborhoods have been examined for their compositions and differences; all that remains is to situate the homes themselves within this framework and investigate non-elite dwellings at Pompeii at the smallest scale available. Certain homes considered in this project have been tied to the names of individual citizens in the city through a series of financial documents, and by examining each with respect to its design, likely occupants, and surrounding environs the following

chapter begins to qualify how these residents saw their own social standing at Pompeii, and how their own views can help refine the scholarly interpretation of their homes.

CHAPTER FOUR: NON-ELITE HOUSES AND STATUS

Introduction

The task of this final chapter is to refocus attention onto the non-elite residences themselves and move away from large-scale considerations of the entirety of Pompeii and its neighborhoods. Earlier chapters have examined the city as a whole, noting patterns and features of its urban plan as they are revealed by mapping these working-class dwellings. Neighborhoods that correspond to *vici* have been uncovered for the first time, and their composition scrutinized with respect to their surroundings and the city as a whole. Clearly, using such examples of non-elite housing as a key opens many doors into studies of the city and the neighborhood. It remains now to turn to a specific investigation into the individual houses in the present study, the very building blocks on which all these previous analyses were dependent, and a sample of the 316 properties from this project are discussed below.

The preliminary discussion of dwellings and neighborhoods which emerged as a result of this project's GIS analyses leans on presuppositions about architecture and urbanism which demand further scrutiny here. The urban properties that make up the complete data set are determined by the presence or absence of certain architectural features generally understood to be representative of the Pompeian upper classes. Using architectural choices to identify members of social orders—no matter how loosely constructed or bounded those orders may be—aligns with the tenets of Mertonian Middle-range theory, and especially with the ideas of canonical and indexical communication.[264] Similar ideas are echoed by the work of theorists such as Lefebvre, who argue that space

[264] Smith 2011, 175.

is a social construct and is encoded with the symbols which enable the performance of social identity.[265] In such a framework, identity can be communicated through vernacular architecture, and houses can employ architectural features to signal a household's participation in a broader cultural or social tradition.[266] When this theory is applied to the architectural remains at Pompeii, it is easy to see how closely such an interpretive apparatus might find purchase in the elements of status architecture explored in Chapter One.[267] Yet, part of the aim of this study is to problematize the traditional reliance on status architecture as the best analytical scaffold for approaching a conception of "the Roman house." How can this argument best progress while avoiding the pitfall of becoming stuck in a self-defeating hermeneutic circle?[268]

An underlying premise of the current study is that an understanding of the whole house informs that of its constituent parts, and in turn the conception of its parts engenders the interpretation of the whole. Much of the preceding discussion surrounding the identification and study of houses has been directed at demonstrating the problems with how scholarship has used rigid room types to build an understanding of Pompeian houses, and a critique of how the over-reliance on Vitruvian labels has sidelined the homes of the middle and lower classes and stifled their interpretive utility. The challenge now is to distinguish between a complete rejection of those labels and a re-evaluation of their too-narrow application. The shortcomings of the domestic studies that have been discussed are not so much that they used Vitruvian labels to inform their analysis, but

[265] Lefebvre 1991.
[266] Blanton 1994.
[267] Wallace-Hadrill 1994, 10–11.
[268] For a thorough discussion of this problem and its applications in art history, see Heidegger 1962. Hodder 1986 and Kosso 1991 discuss issues of the hermeneutic circle in archaeology, especially as it relates to middle range theory.

rather that they do not allow for enough flexibility within and beyond these labels. In failing to do so, conceptions of Roman houses cycle endlessly around in a self-fulfilling framework wherein expectations define results. The present study instead has responded to two areas of elaboration necessary within that framework: 1) room types such as a formalized *atria* or *tablina* did not always adhere to Vitruvian prescription, and 2) many domiciles do not retain evidence of these room types at all. By analyzing all of those homes in the city which do not maintain these forms as one might expect to find them, Chapter Two illustrates the broader range of domestic architectural realities and relationships that were actually present within the Pompeian home and the position of the non-elites in the city. It is a conceit of this analysis that the absence of these architectural features denotes an avoidance of the social performance typically associated with them.[269] But to further justify this assumption and demonstrate its utility for the current chapter, it must first be ensured that an association between domestic architectural attributes—such as house size, elaboration, and room types—and the participation in what is traditionally understood to be "elite" practice is firmly grounded in the ancient realities, and not just a misapplication of modern conceptions.

If there is evidence of ancient Roman authors acknowledging the relationship between these aspects of a house and social standing, then the categorization of residences identified in the present study as "non-elite" should be more firmly justified as an ancient reality and it is possible to proceed with an examination of particular examples of these houses with respect to their social position and performance. Thankfully for the present project, there are many sources which lend weight to such an interpretation. A

[269] Packer 1975, 133; de La Bedoyere 2010, chapter four.

brief look at the usage of the word *domus* in ancient literature provides excellent context to the issue.

Domus: Meanings and Interpretation

It is often difficult to disentangle the precise meaning of Latin words rendered in a modern mindset, and the words referring to the house are no exception. One of the more frequent and charged Latin terms pertaining to domestic concerns is *domus*, which can be used to refer to the physical house itself or to the broader idea of the household, including the family, servants, lineage, and all other associated actors.[270] On some occasions it is evident which meaning was intended, on others it is impossible to distinguish. Examples of *domus* being used to communicate both the physical and the social elements of the house together can be found in the writings of both Pliny the Younger and Seneca, wherein they discuss the *domus* as something akin to a *res publica* in miniature.[271] This ancient comparison works as a physical analog in that a well-structured house reflects a well-ordered republic; a well-ordered house or city can be easily navigated and divided into functional parts. The social parallels are apparent in that the discussions of these authors pertain to different occupants of the home performing specific functions for the house much as different citizens perform specific functions for the republic.

When the emperor Tiberius rejects the idea of selecting magistrates five years in advance of their appointment, he does so in part due to the impossibility of knowing the candidates' *domus* so far in the future.[272] Here it is difficult to know exactly how he

[270] Storey 2004, 49.
[271] Pliny *Epistulae* 8.16; Seneca *Epistulae Morales ad Lucilium* 47.13 "*domum pusillam rem publicam esse iudicaverunt.*"
[272] Tacitus *Annales*, 2.36.

meant the term. Likely some mix of the two spheres is intended, as both the condition of the man's familial affairs and his ownership of enough property (often in the form of an elaborate house) were important considerations for a respectable office-holder. Regardless, Tiberius' reliance on *domus* as an indicator of worthiness makes it clear that status was inextricably bound up in the idea of the home; a man without a respectable *domus*—be it house, family, or both—would not be considered valid for candidacy.[273] But some authors use the term *domus* in ways that could only refer to the physical building itself, the house.[274]

When Pliny details the display of familial pride and ancestral veneration appropriate to families of notable status, he does so with explicit mention of the *domus* as a physical space that should be decorated with statues and *imagines*, making note of the *atrium* and *tablinum* as spaces to be filled with such visual and documentary reminders intended for a viewing audience.[275] Pliny's account brings to the fore the idea that not only was the house itself an important vehicle for communicating social status, but that particular spaces within it were well-suited, indeed designed, for such performative display.[276] It should be noted, however, that nowhere in his discussion does Pliny make mention of where these rooms should be located, their dimensions, precise arrangements, nor does he describe them beyond their inherent suitability for communicating expressions of status. Therefore, homes without such spaces should be seen as homes not engaged in the communication of high status, but instead as

[273] Berry 2007, chapter six details the need for large, well-appointed houses for Pompeians who had a large clientele associated with their public and political lives.
[274] Cicero *De Haruspicum Responsis* 16; Saller 1984, 343. For discussion of the term *domus* as only referring to the household or family and not the physical building, see Ernout 1932 and Benveniste 1973.
[275] Pliny *Naturalis Historiae* 35.2. See also Valerius Maximus 5.8.
[276] For specific houses in Pompeii known to have hosted *imagines*, see Bonifacio 1997. Casson 1998, 68 notes that in addition to images of the *paterfamilias* and his renowned ancestors, famous figures from history might also appear.

performing their own type of self-representation and middle-class identity. But does this mean that the idea of *domus* is only the realm of those families with enough social clout to have busts of renowned ancestors arranged in their houses? On the contrary, there exists literary precedent enabling the application this same term to even the humbler members of the Roman citizenry, families who would certainly not have possessed houses of great wealth and ostentation.[277] By situating the conception of middle- and lower-class housing on the spectrum of domestic communicative abilities as they were discussed by Latin authors, it becomes possible to evaluate how their architectural remains participate in issues of social expression and identity.

In his *Fasti*, Ovid relates a story of the goddess Ceres healing the son of a poor man named Celeus and notes that the "whole house rejoiced" upon the divine intervention.[278] "House" here seems to be referring to both the nuclear family gathered around and metonymically to the humble, physical house itself, suggesting that no matter how one chooses to interpret the word, *domus* as a concept was not limited only to the upper echelons of society. Perhaps one might understand that a poor family like that of Celeus both is (in that *domus* can refer to the household) and is possessed of a *domus*, but one of a less socially or visually impressive quality than those which have dominated the academic narrative. The fictive hut of Celeus likely did not contain any formal *atrium* or *tablinum*, but that does not prevent it from qualifying as a *domus*. It is through the intervention of the goddess that such a family and dwelling might rhetorically be elevated into the conceptual circles of their social superiors. If *domus* can therefore refer to the family, the house, or a blending of both, and if it is not a term only usable by the wealthy

[277] Storey 2004, 50.
[278] Ovid *Fasti* 4.543. The entire story is relayed in *Fasti* 4.505–4.562. See also Hinds 1987, 63–67 and Murgatroyd 2005, 161–163.

elite, then evaluations of the house and its social considerations such as those presented in Chapter Two are useful when applied to lower-status dwellings.

The analogy between house and status seen in the ancient authors must not have been especially rare in ancient conversation, and these authors attest that the "*domus*, a central symbol of social status under the Republic, was easily adapted to serve as status symbol under the new political conditions of the Principate," including the first century CE upon the transition to empire.[279] The Principate and early empire was the period of Pompeii's heyday, and such ideas were espoused by Seneca the Younger in the final years of his life just before the city's destruction.[280] Seneca's *Epistulae Morales*, published around CE 65, suggest that his intended audience at least would have understood a sort of equivalency between house and status.[281]

Ancient Attestations of Status

The ancient literature thus brings the conception of house as status symbol into conversation with the actual period of Pompeii's final years, but it is possible to get closer to the ancient mindset still, and to directly connect the properties in this project to the Pompeians' own ideas of status. While the literature of the late Republic and early Empire demonstrates the close connection of house and status, a series of wooden tablets recovered from the house of Caecilius Iucundus in Pompeii documents the actual ancient perception of status as it was recorded by the residents of Pompeii themselves.

Lucius Caecilius Iucundus was a well-known banker and auctioneer who kept meticulous records of his numerous financial transactions in Pompeii, many of which

[279] Hopkins 1983, 36; Saller 1984, 337.
[280] Seneca *Epistulae Morales ad Lucilium* 41.7; Saller 1984; Jašková 2012.
[281] Saller 1984, 552. Gardner 1991, 8.

involved the sale or rental of real estate or the loan of money to other citizens.[282] Among his archives was a series of 153 wooden tablets which recorded the details of payments made by Iucundus, each witnessed by between three and eleven members of the community.[283] A number of the witnesses who appear on these tablets have names which have also been tied to various addresses throughout the city,[284] and some early attempts have been made to fashion a rudimentary spatial analysis of their distribution by noting what could be considered mild clustering around the house of Iucundus himself or in the vicinity of a potential office to the east of the forum.[285] While such a pursuit comes close to a consideration of neighborhoods in Pompeii (could these people have been from a commercially invested neighborhood around Iucundus' house?),[286] what is far more valuable about the list of names in the Iucundus tablets is that it communicates the realities of a social stratification that obtained in the city during the middle of the first century CE.

On every tablet, the witnesses sign in order of their social rank. The names are often—but not always—drawn from the upper strata of Pompeian society; the *gentilicia* and magistrates whose office-holding, candidacy, or euergetism are otherwise recorded in inscriptions around the city, and so only a handful represent the working-class members of Pompeii that are the focus of the current study.[287] Within and beyond these official groups of status-bearing citizens, "persons with high social status sign higher than

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[282] Marx 1975, 43; Jongman 1988, 173. Iucundus is labeled an *argentarius coactor* around the period of the middle of the first century AD.
[283] Discovered in 1875, the tablets of Iucundus have been called "the most important evidence relating to private business transactions in the ancient world" according to Marx 1975, 42.
[284] Della Corte 1965.
[285] Della Corte 1965, 221-222; Andreau 1974, 187; Mouritsen 1988.
[286] Della Corte 1965, 225.
[287] Andreau 1974, 134. Franklin, Jr. 2004, 27 discusses a particular family of somewhat successful freedmen who appear as witnesses among these tablets.

persons with lower status."[288] Jongman confirms this by comparing numerous tablets in which the same names appear multiple times, and in almost every instance they preserve a consistent hierarchical relationship. In addition, there are a few occasions of names being crossed out and reordered to align with their positions on other tablets, demonstrating that it was important to get the ranking correct.[289]

The tablets of Caecilius Iucundus reveal a few salient points about the ancient city: a significant body of Pompeian citizens had the connections to serve as witnesses to the transactions of a banker and auctioneer; they belonged to a social hierarchy which could be agreed upon by numerous members of the town; and some of these witnesses lived in houses for which the addresses are known or suspected. By combining all 334 of these names across all the tablets and aggregating relative positions within the corpus, Jongman has recreated a self-attested account of social status within Pompeii. No precise ranking of individuals is currently available, and instead each witness receives a range of possible positions (Fig. 4. 1). Nonetheless, being able to claim a position, for example, among the top ten of all witnesses or within the lowest third is invaluable for the question of architectural markers of status in the city. Notably, Jongman concludes that the vast majority of those witnesses whose addresses are known to a high degree of certainty lived in "the socially very respectable *atrium* type" of dwelling.[290] Those who rank lower and lived in less socially "respectable" houses had more ambiguity and flexibility in their positions.

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[288] Jongman 1988, 226. Broekaert 2016 provides a network analysis of these witnesses to argue that signatories need not have been especially experienced in commercial enterprises to earn inclusion on the tablets, but nonetheless had enough social credit to serve as witnesses.
[289] Jongman 1988, 226.
[290] Jongman 1988, 239.

The connection between social status and a wealthy *domus* as revealed by this ranking system is a powerful one, and one that connects directly to the ancient mindset. In his *Second Philippic*, Cicero ridicules Antony's diminished social standing by pointing out his lack of a proper *domus*.[291] Wealth and status were publicized by a fine house which could best provide for the needs of a large crowd of clients during the morning *salutation,* according to Seneca.[292] At one point in Cicero's *Epistulae,* he brags of obtaining a house of high quality for 3,500 sesterces, and he makes a point of telling

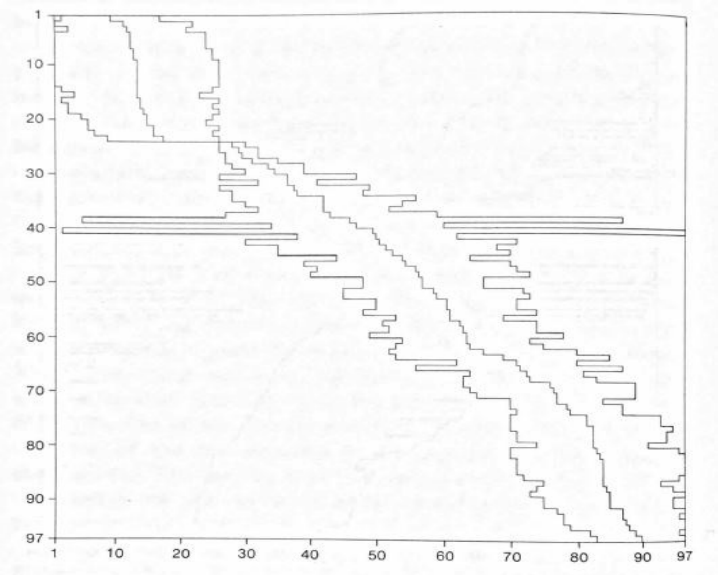

Figure 4.1
The relative rankings of witnesses who sign more than once
in the tablets of Caecilius Iucundus.
After Jongman 1988, Figure XV

Publius that he strongly approves of the latter's own house and all the details of its construction.[293] The house was a potential instrument of social comparison, and the niceties of its layout, decoration, and construction are clearly details which earned admiration or reproach.

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[291] Cicero, *Philippicae* 2.48.
[292] Seneca. *De Constantia Sapientis* 8.2, also *De Beneficiis* 6.33-34; Leach 1992; Ellis 2000, 27.
[293] Cicero *Epistulae ad Familiares* 5.7. See also Publius Syrus, *Sententiae* 182.

Of course, it has already been noted that houses were not the only way of achieving status, nor were they the only physical manifestations of wealth under the republic and empire, but it cannot be denied that they were one such. The choices that manifest in a house of particularly grand presentation are bound up in the status and wealth of the owner or occupier of that property.[294] The tablets of Caecilius Iucundus, therefore, provide an unparalleled opportunity to explore how domestic architecture of known citizens compares with their own conception of their standing in the social order. Furthermore, due to the known addresses of these witnesses, it is possible to connect each residence itself to the neighborhoods discussed in Chapter Three, where there is evidence that the property likely belonged to such socio-spatial groupings.

The above discussion has hopefully demonstrated why the methodological choices made in the previous chapters are useful ones for revealing the relationship between the house and status; it is possible to reject a strict adherence to Vitruvian room types as the best means for identifying and understanding Roman houses while still using status architecture itself as a lens for examining the social encoding of domestic situations in Pompeii. As the ancient literature attests, Pompeian citizens understood themselves as socially stratified, and it is apparent that their position within this hierarchy could be expressed through architectural choices. The avoidance of high-status architectural elements—a critical criterion for the homes in the present project—indicates that the owner or occupier of the property was avoiding participation in the social performance of the elite as it is expressed in the ancient sources; Tiberius would likely not consider the occupant of such a home for high office. And nor should he have; residents of working-class homes built and maintained their spaces to facilitate their own

[294] Ball and Dobbins 2017, 29.

working-class aspirations, elaborating their spaces around productive functionality that often integrated commercial enterprise. The position of such people in the social hierarchy of their city was such that they had no need of traditionally elite spaces, and they thus chose domestic arrangements suited to their needs and work, often smaller but not necessarily less architecturally complex than their social betters. The range of status expressions achieved by such choices is broad, and as is discussed below, sometimes demonstrated the social aspirations and limits of non-elite Pompeians by coming very close to, but not quite crossing into, *atrium* house design.

The hermeneutic circle with which this project wrestles, then, should be better viewed as a spiral.[295] The parts improve our understanding of the whole, but a critique of the whole nuances our understanding of the parts. With each trip around the spiral, more is revealed about the domestic realities of the ancient Pompeian home and the interpretation of these spaces is made more nuanced, secure in the knowledge that at the core of the investigation lies an ancient tendency toward social expression through domestic architecture. Among the residences in Pompeii, five are common to both the tablets of Caecilius Iucundus and the survey of non-elite, working-class properties in this project, each of which has been tied to a specific address. A discussion of all those homes in the present study that are also attested in the socially stratified tablets of Caecilius Iucundus follows.

[295] Schokel and Bravo 1998, 74.

The Houses of Witnesses

V.4.12-13—The House of Marcus Fabius Secundus

Also known as the House of the Foundation of Rome, this private dwelling was joined to the small shop space at V.4.12 and represents the most northeasterly extent of the excavations at Pompeii, part of the possible northeastern neighborhood.[296] As with many houses in this study, little scholarly attention has been paid to this house in its own right beyond its initial, relatively cursorily documented excavation in the years 1873, 1899, and 1903.[297] Those authors who do tend to mention it generally do so only offhandedly in wider discussions of frescos and surveys of mythological imagery.[298] Accessible only from vicolo dei Gladiatori, the house takes its name either from a bronze seal found within one of its smaller rooms with the letters M FAB SECUNDI, or from a third-style painting in a dining room which showed mythological figures associated with Rome's foundation.[299] The house is of moderately large size, approximately 300m^2, with a complexity score of 6.1, putting it in the upper range of architecturally diversified potential non-elite spaces. The identification of the space as belonging to M. Fabius Secundus, or at least to his family, its strengthened by an inscription on its exterior near the doorway, wherein one Optata Secundus gives her greetings to passersby.[300] The home lacks all the recognizable features one would expect from a typical conception of the Pompeian house; a traditional *atrium* is absent, replaced with a wide central hall or light

[296] Its two names are drawn from a seal with Secundus' name or a painting depicting the myth of the foundation of Rome. *NdS* 1905 gives a brief description of its layout and the few finds which were recorded from the house. Dionisi 1972 discusses the painting portraying the foundation of Rome; Dall'Osso 1906 and Della Corte 1941 further mention this house and its connection to the cult of Rome's foundation myths based on the art within it. Little discussion has focused on the house or its finds apart from this painting. *PPM* vol. 3 notes that the adjacent shop originally connected to a garden space inside V.4.13.
[297] See Sogliano in *NdS* 1905 for the most thorough description of the house's components.
[298] See Pais 1905, Dall'Osso 1906, Della Corte 1966, Dionisi 1972, and Camaggio 1972.
[299] *NdS* 1905, 97; Della Corte 1965, 110; Dionisi 1972.
[300] *NdS* 1905, 111; CIL IV 6755: "*Optata Secundo suo salutem.*"

yard running nearly the width of the property with a "modest" floor decoration of *cocciopesto*.[301] No visual axes are apparent, and the architectural forms which would denote a *tablinum* or formalized *cubicula* are lost in favor of a row of open rooms running along the north wall and along the small garden dining space tucked into the back corner (Fig. 4.2).[302] The house does preserve decoration throughout, but generally of a "rough" manner generally consistent between rooms.[303] Within the central hall, which lacked any evidence of an *impluvium*, two bottles and a small terracotta cooking pot were recovered, suggesting that this space hosted activities such as dining or preparing food, actions not generally associated with a formal *atrium*.[304]

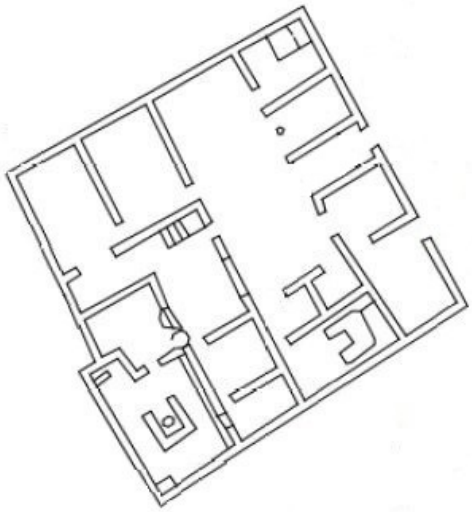

Figure 4.2
The House of M. Fabius Secundus (V.4.12-13)

[301] See Camaggio 1928, 25-44 for a discussion of the central hall in this property and its relationship to the chronological development of Italian house design.
[302] *NdS* 1905, 87-88. *PPM* vol. 3 claims the back of the house as given over to living spaces, as opposed to more utilitarian, workshop, and commercial activity at the front, as in V.4.12.
[303] *NdS* 1905, 87-88. *PPM* vol. 3 describes wall paintings as relatively trivial, generally white stucco with some depictions of animals. The only exception was the fresco of the Foundation of Rome myth in the far northwest room, which has dominated descriptions of this house's decorative elements.
[304] *NdS* 1905, 88; Pais 1905.

While one might be inclined to see the central room directly behind the main hall as a *tablinum*, the finds from this space include amphorae and a millstone, objects which would not have been especially well-suited to the receiving of clients or the record-keeping of a patron.[305] Though it is possible that the position of such a room behind the central echoes the underlying architectural rhythms of *atrium* and *tablinum* as they would have been in traditional elite architecture, it should not be assumed that members of Pompeii's working classes were only influenced by their social betters. In fact, the house here at V.4.12-13 seems far closer in design to the *pastas* house type common at Olynthus, so the influences on its design may have come from outside Italy entirely.[306] And of course, agency in house design need not be overshadowed by such influences at all; the ability of working-class members of the city to arrange the rooms of their houses as they saw fit is part of what it meant to be non-elite at Pompeii.

When M. Fabius Secundus signs as a witness in the tablets of Caecilius Iucundus, he does so only twice, and both times as the lowest-ranked participant in the transaction. On Tablet 83, he is the eighth name, marking the seven names above his as his social betters. Among these, Cn. Alleius Logus ranks first, a man whose name appears also on Tablet 16 in the second position, and M. Lucretius Epicalus ranks seventh. Epicalus signs in the lowest position on Tablet 110, pushing M. Fabius Secundus' status lower than all who signed on Tablet 110 as well, many of whom sign in middling positions on still other tablets, and so on. On Tablet 90, Secundus occupies the fourth and last position, ranking

[305] *NdS* 1905, 90. The millstone and amphorae were found on what is generally understood to be the 79 CE occupation level, indicating that these objects were in the area often called a *tablinum* shortly before the eruption of Mt. Vesuvius. Precise dating is often impossible, because these houses were not excavated stratigraphically, and individual, datable layers were not documented in the early reports and publications.
[306] See Cahill 2002 for a thorough discussion of this house type and its variations. See Wallace-Hadrill 2007 for Pompeian houses drawing inspiration from Greek domestic architecture.

immediately below T. Sornius Eutychus. Eutychus is a prolific witness, signing 17 documents in middle-to-high positions, but generally only outranking other middling witnesses on these other documents.[307] Through this method, it is clear that M. Fabius Secundus did not enjoy an especially high position in hierarchy of all those who witnessed the transactions of Caecilius Iucundus. The fact that Secundus was nonetheless included in the transactions of Caecilius Iucundus reminds us that there were a variety of forms of social credit available to citizens of Pompeii. Precisely why he signs as a witness is unknowable, but one might imagine a number of possibilities: could it have been a requirement of earning favor with his own patron, establishing credit with Iucundus himself, cementing his own position as a reliable member of his local community? Wealth alone did not dictate influence, as discussed above, and the variety of houses which avoid the performance of elite architecture demonstrates that many Pompeians found other avenues for pursuing success, however it may be defined. How does Secundus' position in the tablets then square with the understanding of status architecture at Pompeii?

In one sense, Secundus' home fits well with scholarly expectation. The suppression of the *fauces-atrium-tablinum* axis discussed in Chapter One would indicate that the owner of this house was not concerned with receiving many visitors in a daily *salutatio* nor impressing clients with lavish sightlines and fanciful architectural ensembles; one might expect such a composition in the house of a man who ranks this low relative to many others in Pompeii. If he were inclined to do so, one would expect to find benches outside his *fauces,* carefully crafted sightlines, and impressive reception rooms appropriate for the invitation, circulation, and entertainment of clients. That

[307] Jongman 1988, 350.

Secundus chose not to diversify his architecture in this manner demonstrates his rejection of elite modes of performance and identity. Such a rejection need not be interpreted as active resistance, but rather the freedom to explore architectural options which he found preferable, perhaps due to their suitability for his business, social position, or other domestic interests. On the other hand, this house does not appear excessively humble or especially low-class. It was larger than the mean non-patterned space and roughly twice the median size of properties within its neighborhood, and retains evidence of a garden space in its rear. It would fall in the upper range of Wallace-Hadrill's third quartile, the class of houses comprised of smaller atrium types and the "'typical" Pompeian houses."[308] Though the house of M. Fabius Secundus is hardly "typical" in the Vitruvian sense, it is only slightly more complex than the average of all those houses in the current study, and the presence of a small garden space does suggest the owner had some degree of wealth, as do the kitchen, private latrine, and decorated rooms variously identified as *triclinia* and *cubicula* ranged around the home.

It is likely that the owner of this space was a merchant. The embedded two-room shop at V.4.12 which communicated directly with the main hall of the house suggests an integration of commercial and domestic activity, and paintings to either side of the main entrance depict Mercury—the patron deity of merchants—and a ship laden with cargo in transit.[309] Andreau, in his early discussion of these tablets, suggests that M. Fabius Secundus would have been one of the more well-off traders of the city.[310] Of course, the association of prestige with trade is a complicated one. While Cicero may have spurned

[308] Wallace-Hadrill 1994, 82.
[309] Fröhlich 1991, F33; Warscher 1925, 129. The account in *PPM* vol. 3 suggests the space may have served as an animal stall, not a workshop.
[310] Andreau 1974, 306; Jongman 1988, 359.

commercial activities as a means of acquiring and maintaining wealth and status, the abundance of evidence from Pompeii contradicts his complaints.[311] Many wealthier residents were also engaging in the commercial activities such as fulling within their *atrium* type houses or otherwise rented out shops or flats which were embedded within their property, suggesting that mercantile pursuits could be the purview of citizens of any social standing.[312] The *dominus* of an elaborate house might dabble in real estate, moneylending, or industry in order to expand his influence and secure his power, and a man like M. Fabius Rufus may have used his commercial trade to climb the social ladder towards achieving elite status himself one day.

In fact, it is this potentially commercial nature of the house that is so interesting in light of its spatial circumstances. As a member of the potential northeastern neighborhood, associated with the *Vicus Campanienses*, the presence of a shop within the house is surprising considering the proportionate abundance of un-commercialized spaces in this neighborhood. The ratio of 1:10 peripheral to non-patterned spaces and the general absence of small shops in the region makes some sense in light of the neighborhood's remove from the city center. It would appear then, that the few commercial interests in the area were integrated into larger non-patterned spaces like the house of M. Fabius Secundus. A man capable of sustaining a relatively large house (at least in comparison with his fellow non-elite neighbors) with its own attached shop might well stand out as a more successful member of this local sub-community. Despite his relatively low standing within the tablets of Caecilius Iucundus, he is distinct within his neighborhood in part due to his commercial interests, and further by virtue of the size, elaboration, and decoration

[311] Cicero *De Officiis* I.151
[312] See Flohr 2011b for a thorough discussion of the integration of such commercial practices with larger *atrium* houses; also Chapter One, footnote 61 above.

within his home, many rooms of which bore evidence of rough third style wall painting. And indeed, in order to sign as witness to the transactions of a man like Iucundus, the owner of this house must have had some degree of social credit. Though his house was not designed to entertain clients in the traditional elite fashion, unlike some of those nearby, M. Fabius Secundus nonetheless seems to represent a relatively well-off member of the middle and lower classes within his neighborhood, with a modestly large, complex house bound up in commercial activities.

V.2.f—The House of N. Herennius Castus

Without a doubt, The House of N. Herennius Castus is one of the humbler and more oddly designed dwellings that have been identified as non-patterned spaces within the city (Fig. 4.3).[313] It was excavated between 1891 and 1892, and received less than a single page of description in excavation reports.[314] Since then, it has largely been overlooked by scholarship on Pompeii or variously assumed to be a subordinated suite of architecture within one of the larger homes to the east and south.[315] Sited midway between the northern and northeastern neighborhoods, it is one of only seven potentially non-elite properties in the large insula of V.2, and it shares its northern frontage with three impressive *atrium* houses along vicolo delle Nozze d'Argento.[316] The dwelling, characterized by Jongman as "modest and utilitarian" looks nothing like what many

[313] For a brief discussion of the graffiti found outside this home, see Della Corte 1965, 108. *NdS* 1896, 436 provides a short account of the layout of the rooms. The *lararia* within the home are catalogued in Boyce 1937, 36; 103.
[314] *NdS* 1896, 436.
[315] Van Aken 1950. The house at V.2.f receives only five sentences of description in *PPM* vol. 3, in part due to the general lack of decorative elements, and is characterized as a "modest habitation of irregular form"
[316] Much scholarship that mentions this property at all lumps it together with one of the larger *atrium* houses nearby, as seen in van Aken 1950, 112-128 mentions it briefly in his discussion of the Casa delle Nozze d'Argento; Archer 1994, 129-150; Ehrhardt 1995, 140-153.

scholars have come to expect from a Pompeian house.[317] It is far wider than it is deep, a shallow structure clinging to the periphery of an otherwise lavish stretch of houses, and the only doorway opens directly to the main room of the home. There is no entry hall of any sort, but rather a central room with openings to the left, right, and ahead, with narrow access-ways running off to the northwest and southeast leading to the more remote parts

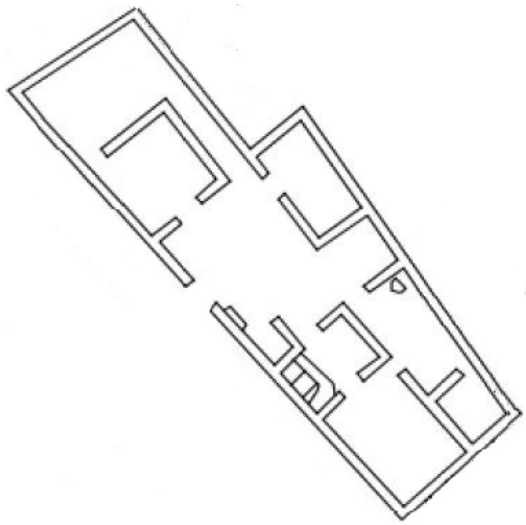

Figure 4.3
The House of N. Herennius Castus (V.2.f)

of the property.[318] An altar with evidence of burning was tucked into a niche to the right of the entrance, and a simple white stucco covered the walls. Other, smaller niches beside the main altar were present in this first room, as well as a hearth in the southern corner. High windows lit the rooms to the north, and all construction seems to have been of a rough *opus incertum* type with occasional vertical ashlar blocks. A small staircase behind the central room led to a second story.

[317] Jongman 1988, 360.
[318] Lazzaro 1892, 119-122 provides a brief description of the house, but little to no critical discussion of its finds or layout.

A seal was found in this house bearing the text N HERENNI / CASTI MUSAES / HAVE, indicating the owner or occupant would have perhaps been a freedman of someone named Musa, an identification strengthened by the inscription on the outside wall that read MUSA.[319] The N. Herennius Castus who witnesses transactions on the tablets of Caecilius Iucundus signs only once, roughly in the middle position—fifth out of nine—on Tablet 12.[320] His co-signers from this tablet are drawn from every level of Pompeian society, appearing high and low across many other tablets, and among them N. Popidius Amarantus is especially prolific.[321] Ranking just above Herennius on their shared document, Amarantus witnesses seven transactions total, twice appearing in the lowest position himself. If Herennius must call Amarantus his social better, and Amarantus himself ranks quite low on other tablets, the occupant of this small, uniquely designed dwelling found himself in a low stratum of Pompeii's social ladder indeed. Those who sign below him, such as L Iunius Corinthis and P. Aefulanus Chrysanthus, are consistently in the lowest positions on other tablets, while those above him demonstrate a broad range of respective social ranking, cementing N. Herennius Castus as a member of the lower-status social groups in the city who nonetheless could participate in these financial transactions.[322]

Though his house does not belong to any of the statistically evidenced neighborhoods discussed in Chapter Three, it is instructive nonetheless. Slightly smaller than the average non-elite property at 190m^2, the home of N. Herennius Castus does away with all organizational principles governing traditional expectations of Pompeian

[319] *NdS* 1891, 133; Jongman 1988 359; CIL IV 4286.
[320] Jongman 1988, 344.
[321] Jongman 1988, 348.
[322] Jongman 1988, 345; 338.

houses while maintaining a complexity of 4.9, just about average for non-elite properties. Every property is constrained by the size and shape of the plot of land on which it is sited, but a house at I.7.3 clearly illustrates that even small, somewhat narrow homes could pursue something akin to an embryonic *atrium* house design if their occupants chose. The occupants and visitors to N. Herrenius Castus' home would have been confronted with the largest space in the dwelling immediately upon passing the threshold. Instead of an *atrium* space with *compluvium* or *impluvium,* the central hall was covered, and the only light came in from a small garden space behind it and to the right.[323] What seems to have been a dining space opened immediately on the left, fully visible and easily accessible directly upon entering the home.[324] Having one's dining area so integrated with the central and public spaces of a house demonstrates a rejection of elite practice, wherein the *triclinium* more often represented a private space in the domestic sphere.[325] There is nowhere in this property for a sightline from the doorway to penetrate or to tease impressive views, let alone any sort of architectural display to take advantage of such a sightline; directly across from the doorway was a small room tentatively identified as a *cubiculum,* though its use remains unclear.[326] The household was nonetheless heavily invested in its cult practice, with a pronounced altar and niches taking up a large portion of the main room's western wall attesting an investment in familial piety.[327] While it is not unusual for non-elite houses to engage in family cult activities, larger altars and shrines are generally associated with more elaborately

[323] *PPM* vol. 3; Jashemski 1993, 112.
[324] *NdS* 1896, 436.
[325] Wallace-Hadrill 1994, 10–11.
[326] For the importance of penetrative sightlines in the articulation of domestic spaces at Pompeii, see Wallace-Hadrill 1994, 17-23.
[327] Boyce 1937, 36; 103; Giacobello 2008, 164.

designed atrium houses, whereas humbler homes of the non-elites might only have a simple painted niche.[328] The presence of a relatively elaborate shrine and multiple niches for the performance of familial cult serves as a reminder that the working-class members of Pompeii had the agency to pursue domestic religion in unexpected ways. In well-ordered *atrium* houses, it is common to find an elaborate shrine for the *Lares* in the *atrium* itself, and smaller niches tucked away in the back of the kitchen for use by the serving members of the household. Finding both a large shrine and a small niche in the front room of the house at V.2.f shows how its working-class occupants were able to integrate the various components of household religion together and break away from elite practice.

Decoration was largely absent, as only plain white plaster was preserved at the time of its excavation, yet the presence of three amphorae and a dolium within the residence would suggest that the occupants of the space were not entirely bereft of disposable income.[329] Further, within the room immediately to the left of the entrance a semiprecious incised gemstone was recovered, alongside a series of small plates and bottles, some of which were glass, and a set of spoons in ivory.[330] These implements indicate that the space immediately to the left of the front door may have been used for dining, food preparation, or storage, and that the occupants were able to obtain utensils of some quality, yet there is no suggestion of a benches or couches which would mark the space a formal *triclinium*.[331] Clearly, one should not infer from these features that N.

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[328] Small 2007, 191; Pesando 2013, 36-38.
[329] *NdS* 1891, 169; Jashemski 1993, 112. Mau 1893, 7-9 mentions the space briefly and recounts that the only notable decoration was in the southernmost room behind the garden, but that the design was completely illegible.
[330] *NdS* 1891, 204-5; 275.
[331] *PPM* vol. 3, following the excavators, suggests that it may have been a dining space.

Herennius Castus was unable to decorate his home, but rather that he used his money for purposes other than wall frescoes. The lack of architectural or artifactual remains associated with commercial activities—such as a counter, wide doorway, or vending implements—suggests that this dwelling is possibly an example of a lower-class resident who worked outside their home, perhaps at one of the many wealthy houses which surround this space.[332]

To further nuance the status of this individual, it should be remembered that those witnessing the financial transactions of a man like Caecilius Iucundus were generally not drawn from the absolutely least-privileged members of the city; they were people whose names must have carried some credit with their peers and betters, else their signature would bear little weight in hefty financial transactions. This might help explain why someone ranking so low amongst the witnesses nevertheless has ivory spoons and carnelian gemstones in his home. Jashemski notes the presence of a small window in the back garden space that opened into the *atrium* House at V.2.g, perhaps indicating the negotiation of servitudes or easements between the socially diverse members of this city block.[333] It is attractive to imagine that N. Herrenius Castus may have worked in one of the large *atrium* houses in the *insula*, or for one of their wealthy owners, but nonetheless the contained set of rooms at V.2.f seem to detail the domestic arrangements and situation of a middle-class member of the city. The boundary between non-elite and elite is somewhat blurry not only along the social scale, but also spatially, as when humble establishments like that of N. Herrenius Castus are sited among far wealthier establishments with which it shares its walls. The spectrum of social ranking that this

[332] *NdS* 1896, 436.
[333] Jashemski 1993, 112.

study reveals and interrogates, again, is broad. Non-elite identity and performance is bound up in architectural expressions of status, and therefore when a man like N. Herrenius Castus chooses to direct his spending in avenues other than embellishing the architecture of patron-client relationships, it demonstrates a conscious decision to avoid the performance of elite identity. He seems to have deliberately kept his home humble while indulging in small luxuries for himself or his family, investing not in architectural performance and public display as an elite member of the city may have wished to, but instead on some of the items working-class citizens may have desired for themselves.

IX.2.15-16—The House of Q. Brittius Balbus (?)

The two houses discussed above belonged to men of middling and low status at Pompeii, attested by both their positions on the tablets of Caecilius Iucundus as well as the size, arrangement, and features of their houses. The correspondence between attested social standing and architectural expression serves to show that in some sense it is possible to trust the ideas of canonical and indexical communication as they obtain in Mertonian middle range theory.[334] In these instances, architecture as it has come to inform modern views on ancient status is a good indicator of how the Pompeians themselves considered, and how they performed, social status by constructing generally smaller homes without structured sightlines for performative display, often integrating commercial production with their domestic architecture instead of ostentation. With the House of Q. Brittius Balbus, the issue becomes more complicated (Fig. 4.4).

[334] See footnotes 14 and 246 above.

Excavated between 1867 and 1876, the architecture of this house bears some resemblance to traditional *atrium* types, but with an unusual orientation.[335] The space, like that of Herennius Castus, is far wider than it is deep, with two doorways along its broad, southern side. It is a modestly large property at 350m^2, again placing it in Wallace-Hadrill's upper third quartile, and just above average complexity with a score of 5.7, but its internal divisions confound traditional interpretation. A garden area takes up the western third of the property, immediately accessible from its own doorway, and the main entrance lets onto a squat hallway which opens directly onto a large main room.[336] The central room lacks evidence of an *impluvium*, rear *tablinum*, lateral *alae*, or other architectural features which would mark it a canonical *atrium*. If a *tablinum* is present, it

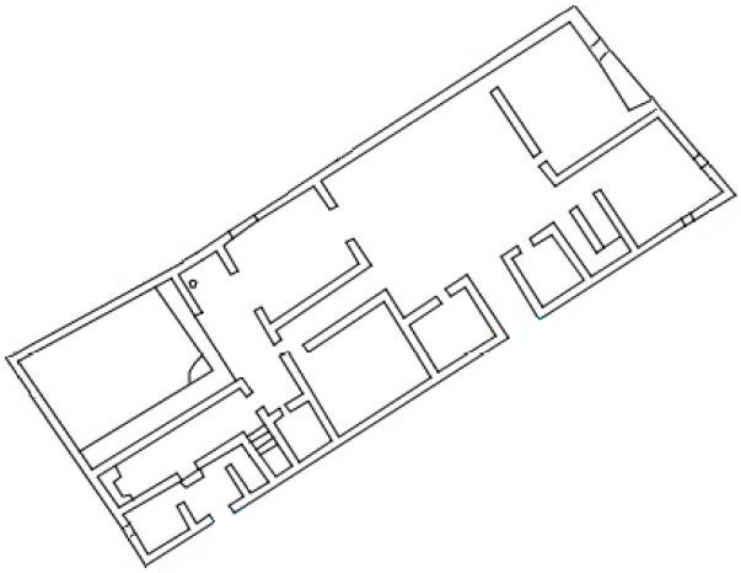

Figure 4.4
The House of Q. Brittius Balbus (IX.2.15-16)

[335] For early accounts of its excavation, see *GdS N.S. 1* 1868, 4ff. Fiorelli 1875, 381-384 also gives a short description of its arrangement and decoration, but does not touch on any artifactual finds.
[336] Despite the house's relatively large size and number of decorative elements, it has received little scholarly attention with respect to its arrangement and finds. Most mentions of the property here are tangential to discussions of frescos: Brizio 1868 is only interested in the painting of Bellerophon; Fiorelli 1875 gives a quick overview of its mythological scenes; Sogliano 1874 focuses on a depiction of Medea in the house; Brizio 1870 more generally discusses the decoration throughout.

is to the west of the main chamber, separating the garden from the rest of the house alongside a narrow hallway. But the arrangement of these rooms responds to an entirely different vocabulary than that found in typical *atrium* houses—visual axes are again diminished, public and private areas of the house are both easily accessible from the street, and the jumble of divisions in the eastern portion defy easy definition.[337] All of that is to be expected in a house of the non-elite, as indeed so many of these non-patterned spaces seem to be, but Q. Brittius Balbus was certainly not a member of the lower classes.

Q. Brittius Balbus signs only two tablets of Iucundus' business affairs, but in first and second position. Those who sign below him, however, often sign in very high positions on other tablets, substantially expanding the list of signatories ranked below Balbus himself.[338] While one cannot pin down a precise rank for him, the tablets make it clear he was considered to be of high social standing. A series of *dipinti* hailing Q. Brittius Balbus as a candidate for political office surround the property and adjacent street, either naming him expressly or mentioning his cognomen only.[339] Such messages to the neighbors must have been successful to some extent, as a Balbus was elected to the position of *aedile* around the year 56 CE.[340] However, there is some thought that this office was attained not by the Q. Brittius Balbus who signed as a witness to Caecilius Iucundus, but instead by his father.[341] Whichever generation of his family attained the office, that Balbus was in a position of elevated social standing and wealth seems evident,

[337] See Fiorelli 1875, 381-384 for a quick, but somewhat indecisive account of these spaces.
[338] Jongman 1988, 340.
[339] CIL IV 935 c, 935 g, 3159, 3607, 3702, 3773. For discussions of these *dipinti*, see Della Corte 1965, 214; Jongman 1988, 340.
[340] Castrén 1975.
[341] Jongman 1988, 355.

and the association of such an influential member of Pompeii's elite with a house of such design invites curiosity.

Two lines of reasoning emerge from the apparent contradiction between expected and actual architectural arrangement. The first responds to the claims of scholars such as Penelope Allison, who demonstrate the loss of comprehension attendant with over-reliance on Vitruvian expectation for room function.[342] Her work indicates that many of the wealthier houses at Pompeii had rooms within them that did not exclusively perform the functions traditionally associated with their canonical titles. Allison's research on *atrium* houses suggests that members of the upper class often engaged in commercial or craft activity within their own homes, that *atria* and garden spaces were used for utilitarian production of goods or food, that dining took place not only in formal *triclinia*, etc. While her study applied directly to *atrium* houses, and therefore does not map perfectly to the house here at IX.2.15-16, her dismantling of these strict evaluations of domestic space might fit well to the House of Q. Brittius Balbus regardless. If Allison's ideas are born out here, it would be tempting to reconstruct this as an example of a wealthy, influential Pompeian who nonetheless resided in a house which does not conform to Vitruvian ideals. Indeed, this space does contain some fresco paintings of mythological scenes, the kind of art generally thought to be the purview of the elite.[343] Such a residence as this would confirm that Roman houses did not need to look the way

[342] Allison 1994 presents the material remains of 30 *atrium* houses and uses them as a lens to reevaluate room functions; Allison 1997b further develops the conclusions of her seminal study with a special emphasis on the relationship with textual information and household interactions; Allison 2006 focuses on the Insula of the Menander, analyzing over 2,000 artefacts and their provenance, functions, and influence on scholarly interpretation of the Pompeian houses.

[343] Brizio 1870, 100-112; Fiorelli 1875, 381-384 for a short account of these scenes; *PPM* vol. 9, 1ff provides a much more detailed description and notes that early excavators were not interested in the artifacts here, instead being entirely preoccupied with the paintings. Diana and Actaeon appear three times, Priapus once, and one *cubiculum* had an image of the eternal sleep of Endymion.

Vitruvius wanted them to, as much for potential members of the wealthy as for the middle and lower classes, but the evidence of this particular home does not bear this theory out. If this was the home of a candidate for *aedile* and *duovir*, one would expect it to be designed in a way to encourage the presence and circulation of a supportive clientele, with a clear division between public and private and controlled access to the more personal areas of the home, none of which are evident here. Where are the benches for clients awaiting their turn in the *salutatio*? Where is the wide sidewalk which would have supported their throng in the mornings, as surely an *aedile* would have required a great many clients? Such features are common elsewhere with *atrium* houses of the elite.

In fact, if the occupant of this house had any interest in engaging in elite practice, he could have done so simply by blocking up the doors on the south wall and installing one on the eastern side of the property. A doorway there would partially reconstruct sightlines down something akin to a *fauces*, across the central hall to a rear garden, and might push the performative nature of the home into the category of "partial-*atrium* complex" discussed in Chapter Two. It would not have been overly difficult to install an *impluvium* in the central hall, helping transform the space in to a proper *atrium*. That such a simple solution was not pursued suggests that the owner of this space did not wish to perform elite identity in the ways so commonly employed at elite domiciles, at least not architecturally; the occupant of this house chose to avoid the architectural language of the elite, even though his neighbors directly to the north in the same *insula* designed their homes to do expressly this. The agency of the occupant of the house at IX.2.15-16, then reflects the decision-making of a man who did not want to, or had perhaps not earned the

right to, identify himself as an elite patron of Pompeii. The opportunity was there, architecturally, but it was not pursued by its occupant.

Furthermore, if one considers the decorative elements of the house more critically, the possibility that the occupant of this house might have been performing elite identity becomes even more problematic. On the back wall of the main room was a painting of Bellerophon at the palace of King Proetus.[344] This painting would have confronted any entering the house from its main door, and while at first it may seem to reinforce a performance of the patron-client relationship expected from an elite member of the city, its contents tell a different story. The scene depicted shows the wife of King Proetus lusting after Bellerophon, anticipating her attempted seduction of the hero in a violation of guest-host relations. The admonition inherent is not directed at a visitor, but instead at the hosts themselves. What patron would choose to announce to his visitors that *xenia* held no sway within his walls? The entire story is a condemnation of the very patron-client style of relationships archaeologists, classicists, or historians would want to see for an elite member of Pompeii, and it demonstrates the same kind of rejection of elite practice seen architecturally through the home's arrangement.[345]

The second line of reasoning questions whether this was the house of Q. Brittius Balbus at all. Found within the main hall at IX.2.16 was a seal bearing the name T. Dentatius Panthera, a man whose position in the Iucundus tablets fits far better with the

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[344] *GdS N.S.1*, 155. Now on display in the Naples Archaeological Museum, inventory number 115399. Mayer 2012 provides an exceptional analysis on the character of decoration in middle-class contexts, noting that often their wall paintings were of the same quality as those found within wealthy houses, often even by the same hand. Note however, that Mayer's middle-class is applied to the wider context of the empire in which the emperor and his family represent the elite. The present study is concerned with the local working classes at Pompeii, and sets them apart from the local elite.

[345] *PPM* vol. 9, 1ff details these images and makes it apparent that while the occupants of this space were conversant with how mythological frescoes could communicate certain expectations to viewers and embody the intended activity of the room (such as the sleeping Endymion in one bedroom), they had creative flexibility in how to utilize such scenes.

expectations based on the examinations of non-patterned spaces presented in the current study.[346] Indeed, the property is sometimes called the House of Titus Dentatius Panthera, or even the Casa di Bellerofonte, instead of the House of Q. Brittius Balbus,[347] so it seems curious that scholars such as Jongman, Della Corte, and Andreau would settle on the possible *aedile* as resident.[348] Since the *dipinti* naming Balbus appear only outside the house—and indeed all along the street—and the seal of Panthera's was found within the residence, it is more defensible to argue for Panthera as the primary occupant.[349] Miraculously, Panthera also appears as a witness on the tablets of Caecilius Iucundus. When Panthera signs the Iucundus tablets—only once—he is the lowest ranked name that appears, below seven others.[350] Some of his social betters from Tablet 101 such as T. Sornius Eutychus, rank generally in the middle or upper ranges of other documents, while others are consistently low, such as P. Cornelius Tages and M. Cestilius Philodespotus. The result is that Panthera seems to have been considered as a middling-to-low member of Pompeii's wider social circles during the decades before the city's destruction—at least insofar as they are captured by the Iucundus tablets. It must be remembered that these tablets are not a representative cross-section of Pompeii, and one can only draw inferences relative to other names on the documents. Such an assessment of Panthera as a middle-ranking member of the signatories, but nevertheless a privileged member of the non-elites, would fit well with what has been observed from the other houses in this study, and agrees with the architectural arrangement, size, and elaboration of his home.

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[346] *GdS N.S.1,* 246. Fiorelli 1875, 381 says this should be attributed to Panthera based on the seal, though it was originally read as Tito Decio (?) Panthera.
[347] Eschebach and Muller-Trollius 1993, 408.
[348] See Hartnett 2017, 155 for recent support forof naming the house after Panthera; Della Corte 1965, 215; Andreau 1974, 191, Jongman 1988, 354.
[349] For the locations of the *dipinti* and the seal, see Fiorelli 1875, 381; Della Corte 1965, 214-215.
[350] Jongman 1988, 342.

Though not a perfect solution, understanding Panthera as the owner of the property avoids the problems that arise when the space is attributed to a high-ranking citizen like Balbus.

The property at IX.2.16 was likely the House of T. Dentatius Panthera, not Q. Brittius Balbus. Since the dwelling is one of the largest in its neighborhood—only five non-elite spaces are larger in the entire survey—and in the upper quartile of complexity as well, one might be inclined to view Panthera as one of the more well-off inhabitants of such non-patterned spaces in the central neighborhood. A similar phenomenon was seen for M. Fabius Secundus above, and it is tempting here to see Panthera as a supporter of Balbus and a somewhat influential member of his local community.[351] *Dipinti* around a house alone are no guarantee of the name of its occupant, but they do demonstrate an investment in the political sentiment of the neighborhood, here aligned with the *Vicus Forenses*.[352] Perhaps the resident of this house, humble in comparison to the great *atrium* houses nearby but large and elaborate in comparison to other surveyed properties in the neighborhood, was one of Balbus' clients and a vocal supporter within the *vicus*, turning his relatively impressive home towards the goal of electing Balbus by allowing the *programmata* along his walls.[353] Surely if the occupant had desired an *atrium* house with impressive sightlines, reception rooms, and other trappings of elite identity, his architecture was primed to accomodate them. That he did not choose these expressions of status remind us that wealth and status are not always perfectly correlated, and the home of Panthera provides an excellent example of when it is possible to see their divestment

[351] See Viitanen and Ynnila 2014 for the political influence local home-owners could have on their neighborhoods at Pompeii.
[352] Mouritsen 1988, 58–59; Laurence 1994; 100.
[353] For the role of such heads-of-household in helping to elect their patrons through political advertising and by mobilizing their client-base, see Butterworth and Laurence 2006, chapter four.

preserved in the archaeological record.[354] If nothing else, the spatio-statistical analyses, when read alongside the rankings provided in the Iucundus tablets, lend weight to the idea that this house was not occupied by one of Pompeii's *aediles* or *duoviri,* but instead by T. Dentatius Panthera, a more middling member on the city's social ladder and an influential member of the lower classes who may have channeled his relationship with Q. Brittius Balbus to influence the political leanings of his surroundings.

IX.1.28 – The *Stabulum* of Thesmus

The property at IX.1.28, located just east of the central neighborhood identified in Chapter Three, has been identified as a possible *stabulum* belonging to a freedman by the name of Thesmus.[355] The space was excavated in 1858, and there are, perhaps unsurprisingly, very few publications which deal expressly with this house. Since it did not contain noteworthy decoration or fantastic architecture, it has largely been overlooked since its initial, scantily documentated excavation.[356] A *stabulum* may be translated as stable, but such properties were also the site of lodging for their proprietor and for guests who sought temporary stay in the city.[357] Thesmus seems to have been the freedman of one L. Albucius, a candidate for *aedile*, based on the electoral *programmata* painted on

[354] Hutson 2016, 141.
[355] Della Corte 1965, 212; Jongman 1988, 354; Fiorelli 1875, 376-377 notes the lowered threshold as appropriate for animals stepping up from the street.
[356] The property receives under a page of description in Fiorelli 1875, 376-377; Garcia y Garcia 1998 records no publications which deal specifically with this address.
[357] DeFelice 2007, 477. Other common translations include "dwelling," "abode," "lodging," "tavern," and many other turns of phrase associated with humble, sometimes impermanent residence. Fiorelli 1875, 376-377, perhaps not wanting the property to be read as an independent dwelling, suggests it might belong to the adjacent IX.1.22, which abuts it at the back. *PPM* vol. 8, 956ff similarly treats it as part of IX.1.22, but does not describe the rooms of the *stabulum* at all, in part because they preserved no wall-painting or mosaic floors.

the wall of this property: L ALBUCIUM AED / THESMUS LIBERT ROG.[358] While a name painted on the outside of a property alone is not as strong an indicator of the owner or occupier of the home within as a signet or seal found inside, the absence of any other conflicting evidence gives no reason to think otherwise.[359] Furthermore, that the notice is worded in such a way as to specify that it is a freedman asking for support for his former master—rather than the master himself seeking support—aligns well with both the humble nature of the dwelling itself and the associated position of L. Albucius Thesmus on the tablets of Caecilius Iucundus.

The space bears no resemblance to *atrium* houses, and absent are any easily recognizable room types (Fig. 4.5). The doorway is quite wide; it would have been well-suited to commercial activity by facilitating entrance to a large number of people and providing a view of any goods or services offered, and it may have granted easier access to any livestock which were intended to be stabled here.[360] However, the first room upon entering is rather small—only 2.5x4 meters, which might have been somewhat restrictive for maneuvering carts or the horses to which they were attached. This front room opens up to the right and straight ahead into an L-shaped central space, with a number of rooms opening off its back. Della Corte has identified the largest of these to the south as the likely livestock stall itself.[361]

[358] CIL IV 2893. Fiorelli 1875, 376-377.
[359] Unlike the issue of conflicting names at the House of T. Dentatius Panthera discussed above.
[360] Fiorelli 1875, 376-377; Della Corte 1965, 212.
[361] Della Corte 1965, 212.

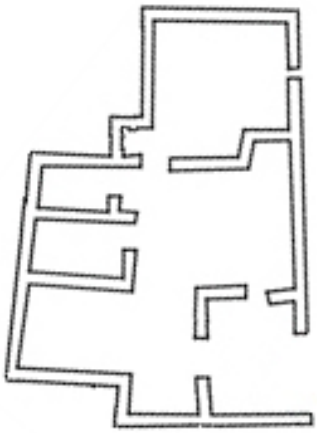

Figure 4.5
The *Stabulum* of L. Albucius Thesmus (IX.1.28)

The other rooms against the back wall may have served as lodging for visitors (or smaller livestock?), and a large room flanking a latrine opened to the north beneath the stairs, potentially used for storage and the preparation of foods. Della Corte suggests that the low threshold of the wide entrance indicates that Thesmus would have been a muleteer of some sort, but one who lived in this establishment.[362] The single stall at the back of the property could have housed one horse at most, and given the location of this property five blocks deep from the nearest city gate, one would be hard pressed to imagine that arriving riders or drovers found it a convenient place to store their animals.[363] If this property did function as a *stabulum,* it was an especially humble one that could have served only a small clientele, and likely also housed the living quarters of its operator. It has now been well established that domiciles of the non-elites could take many forms and often integrated commercial activities with their lodging, so one should have no trouble reading this as a domestic space which was able to provide some extra income for its owner through the renting of a small stable.

[362] Della Corte 1965, 212.
[363] Poehler 2011, 201-203. Poehler provides a survey of all potential stables throughout the city and notes that they were most common near city gates, not in the physical center of town.

Thesmus' position in the tablets of Iucundus helps to solidify this property as the residence of a non-elite member of Pompeii.[364] L. Albucius Thesmus, as attested on the electoral *programmata* at IX.1.28, signs only once, on tablet 71. Here he is the second lowest-ranked witness, and the name in the highest position is W. Appuleius Severus, a prolific signatory on dozens of contracts who always ranks 1st or 2nd. Among the other witnesses on Thesmus' document are M. Fabius Eupor, who here signed 7th and A. Messius Phronimus, who signed 5th. Eupor signs four other tablets besides, always in 2nd and 3rd position (out of 9 and 11 respectively), and A. Messius Phronimus signs 17 other tablets in a variety of positions from 2nd to 6th. M. Fabius Eupor is relatively high ranking member of Iuncunds' witnesses, but Phroniums himself is more middling, often placing below signatories who themselves rank rather low on other tablets.[365] These relative positions push L. Albucius Thesmus into a lower position on the self-attested social ladder. A lower position within the tablets' stratification fits well with Thesmus' relatively humble property; a smaller dwelling but with some potential commercial investment, likely associated with animal husbandry. His is not the least impressive property in the composite dataset, but at 100m^2 the *Stabulum* of Thesmus would fit into Robinson's smallest house category.[366] However, with a complexity score of 5.4 it ranks just above the average level of architectural diversification of all potential non-elite properties, demonstrating that even the smaller and more humble establishments could create nuanced and complicated domestic arrangements, here possibly integrated with some commercial pursuits. The separation of rooms into potential stalls, albeit somewhat small, reflects the occupant's choice to utilize this dwelling for economic pursuits,

[364] Jongman 1988, 354 calls him a "humble freedman, but with a regular means of support."
[365] Jongman 1988, 346-347.
[366] See Chapter One, footnote 96.

similarly attested by the wide front door. No space is wasted here, and the complexity of the property attests Thesmus' need for diversified rooms to accommodate the workings of both his employment and his living arrangement.

VII.4.23-25 – The House of Sextus Numisius Iucundus

The House of Sextus Numisius Iucundus is one of the more curious properties covered by the present study. At approximately 300m^2, it is among the largest 20% of dwellings surveyed, and its proximity to the forum makes it one of the very few that are closer than 200m to the civic core of Pompeii. Just north of the Macellum on via degli Augustali, this property sits just outside the western boundary of the central neighborhood, and is embedded in a block replete with larger, far more lavish *atrium* houses.[367] At first glance, it would appear that this property is two distinct units each around 200m^2, but the criteria for joint ownership, including shared building materials, façade treatments, and curbing, would suggest that the two units should be considered a single entity.[368] When the property here was excavated in 1822, 1833, and 1868, there was evidence of a doorway between the wall separating VII.4.23 from VII.4.24.[369] Early descriptions of the property focused on the painting of Mercury, Venus, and Priapus that fronts the pilaster between doorways 23 and 24.[370] All three entries to the property are of

[367] The properties only receive brief mention in their earliest documentations; see Avellino 1839 for a brief description of the image fronting the building; GdS 1862, 20; *GdS* 1868, 31.
[368] Jongman 1988, 362 considers them as separate. Eschebach 1993, 277 unites them, and Craver 2010, 170 also combines them due to the architectural features discussed. *PPM* vol. 6, 986ff treats VII.4.23 as part of the large house to its west, but this is likely in error.
[369] Fiorelli 1875, 216.
[370] Helbig 1868, 20; Fiorelli 1875, 216. The Priapus clearly serves an apotropaic function, and here his protection likely encompasses the spaces on either side of his pilaster, otherwise he might be expected to be found within one space or the other. Mercury, patron saint of merchants, lends weight to the idea that these spaces were associated with commercial enterprise, and Venus has been connected to perfumes and fragrances, also strengthening the connection of the interior spaces with the business of an *olearius*; see

the wide, commercially oriented type opening directly onto a broad shop front (Fig. 4.6). Behind this front room seem to be the more residential spaces associated with the property, complete with kitchen and small *lararium*,[371] and the address has been termed an *officina olearia,* or oil workshop/mill in part due to the oil press located in the rear rooms behind doorway 25.[372] However, it should be noted that this press was actually recovered from the address at VII.14.14, and was not originally associated with the dwelling of Sextus Numisius Iucundus.[373] Other implements associated with the pressing and selling of oil were recovered from at this address, so it seems possible that the press was relocated here to enhance the presentation of the space as one dedicated to oil production.[374]

The electoral notice painted on the wall of this workshop-residence reads A(ULUM) VETTIUM FIRMUM / NUMISIUS IUCUNDUS CUM SECUNDO / ET VICTORE ROG(AT), wherein Numisius Iucundus together with his family or freedmen support the candidacy of Aulus Vettius Firmus.[375] When Numisius Iucundus signs as a witness on the tablets of Caecilius Iucundus, he does so in three instances. Twice he signs in the first position and once in the second. Ranking so high on his tablets seems incongruous at first when contrasted with the humble nature of his residence, but the context becomes clear when one examines who else signed those documents, as each

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Detienne 1972; Pirenne-Delforge 1994; and Cyrino 2010 for these associations of Venus with the products of an *olearius*.

[371] Garcia y Garcia 2006, 97 notes the extensive destruction of these portions of the house due to the bombardment of the city during 1943. Frohlich 1991, 286 gives a brief description of the remains of the *lararium* found in the kitchen area at the back of the house.

[372] Wallace-Hadrill 1994, 231.

[373] Eschebach and Muller-Trollius 1993. 277

[374] *GdS N.S.1 (1868-1869),* 31.

[375] CIL IV 558. See Pagano and Prisciandro 2006, 124 for a discussion of this *dipinto.*

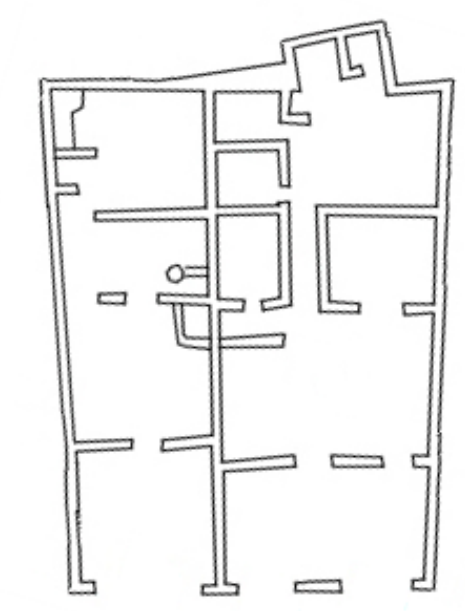

Figure 4.6
The House of S. Numisius Iucundus (VII.4.23-25)

tablet is only a relative testament to social ranking.[376] On Tablet 7, there are seven other witnesses who sign beneath Numisius. In the third position we find Q. Caecilius Attalus, who signs two other documents in their lowest positions (ninth and sixth), placing him quite low on the social order of these witnesses. Vettius Donatus signs sixth, and signs elsewhere only once, in the eighth of nine positions. One of the lowest ranking members on Tablet 7 is P. Aefulanus Chrysanthus, who signs on six other documents in middling to low positions, but never above third. The other witnesses on the tablets with Numisius never sign again, so it is impossible to infer very much about their social standing.

From these comparative rankings it is clear that Numisius placed highest on a document signed only by other low-ranking members of society. Such a relative position fits nicely with what is observable in the architecture of his shop and house. The living

[376] Jongman 1988, 230.

space behind the shop fronts was comfortable, with a private kitchen and latrine at in the rear, accessed from a narrow hallway. Though there is no formalized *atrium*, a broad main room sits just past the initial, public-facing shop areas, and stairs to an upper story are present at the back of the property. In the central, main chamber, a monochrome, reddish fresco depicts Heracles dragging his wife away from Dionysus while being urinated on by a Silenus figure, invoking a comical inversion of the serious mythological scenes which may have been more appropriate to upper-class housing..[377] Much of the space at the rear of the western portion of the property, primarily accessed from doorway 23, was originally filled with shelving, storage, and production materials associated with the oil trade, and a sink at the far back wall further might respond to this property's investment in a liquid industry.[378] That the residence seems split between its western and eastern parts, in tandem with the similar accoutrements found in each portion, might suggest that Numisius acquired enough wealth to purchase what was once the adjacent property and integrate it with his own business. Even though the two were likely built at the same time, they may have originally been separate shop-houses before Numisius took one of them over. This is a residence which does not follow elite guidelines for considerations such as the position of *cubicula* or *fauces*, and it eschews impressive sightlines in favor of functionality. It is, however, one of the larger non-elite properties in the city and reflects an interest in integrating commercial productivity with private dwelling space.

What is perhaps the most interesting development to arise from contrasting the architecture of Numisius' residence with his self-attested status actually pertains to the

[377] *PPM* vol. 6, 986ff reproduces this image in fine detail.
[378] Helbig 1868, 20 also focuses attention on the now-lost drawing of Mercury, patron divinity of merchants, on the pilaster dividing doorways 23 and 24.

tablets themselves. That the vast majority of his co-signers only appear once or twice, and that all ranked lower than Numisius himself on Tablet 7 might suggest the presence of distinct subsets of witnesses in the Iucundus tablets. The men who signed with Numisius were not prolific signers, nor especially respectable ones, and in some cases may even have been tapped expressly for the purpose of this one transaction. Only P. Aefulanus Chrysanthus seems to have been a regular witness, and so it is tempting to view him as an intermediary between Numisius, together with his co-signers, and the broader lending community at Pompeii. Tablet 7 and its connection to the non-elite residence at VII.4.23-25 reveals the likely presence of social neighborhoods that may or may not have been connected to the physical ones discovered in Chapter Three. These witnesses may have been people within Numisius' social circles, but they generally did not intersect with the money-lending affairs of their social betters.

Conclusions

By using the self-attested positions of status as recorded in the Iucundus tablets as a contemporary touchstone, this chapter has tested how architectural expressions of social rank align with the Pompeians' own expectations. Dozens of other witnesses besides those discussed above—especially witnesses who sign in the highest positions within this socially stratified document—have been tied to houses which reflect how they perceived their own rank. Cn. Alleius Nigidius Maius, a *quinquennialis, flamen Caesaris Augusti,* and *princeps coloniae* signed his tablet in the highest position, and owned one of the largest and most elaborate *atrium* houses in the city.[379] Appuleius Severus, who often ran

[379] Jongman 1988, 354.

for the office of *duovir* and likely won it by the mid-fifties CE,[380] signs in the first place on ten documents, and he is the only man who ranks above Julius Polybius when the latter signs as well.[381] Polybius, of course, is known as the owner of the massive and lavishly-decorated *atrium* house at IX.13.1-3 and he himself stood as a candidate for *aedile* in the sixties CE.[382]

That the known addresses of the Iucundus' witnesses who were established as wealthy political players at Pompeii correspond so well to the type of large *atrium* house helps to demonstrate the utility of this study. It would seem that the rankings attested in the Iucundus tablets reflect the architectural realities to a high degree for both the upper and lower strata of its witnesses, and when inconsistencies are apparent, careful examination can indicate the likely occupant of the house. The comparison of named rank with status architecture also illuminates the architectural realities of Pompeii's middling and lower classes by integrating them into the financial dealings of many more high-powered individuals. Certain citizens attested in the inscriptions occupied houses which mark them as non-participants in the architectural fashion of the truly elite, but nonetheless cause them to stand out within their neighborhood. These figures, such as T. Dentatius Panthera and M. Fabius Secundus, may serve to clarify motivations behind the distribution of electoral *programmata* throughout neighborhoods at Pompeii. When the known addresses of these signatories belong to one of the neighborhood clusters identified in this study, they help to color our understanding of the "specific social

[380] Franklin Jr. 2001, 76.
[381] Jongman 1988, 345.
[382] Franklin Jr. 2001, 147.

characteristics of the inhabitants" as indicators of neighborhood identity.[383] The examples explored above show some specific ways in which these social characteristics were expressed through non-elite architecture. A number of working-class homes present architecture that communicates their working-class status by devoting the entire front of the establishment, or much of its ground floor, to economic activity, unlike in typical *atrium* house practice. A visitor would encounter first the productive zones of these houses, behind or above which much of the more purely domestic activity would be located. Many of these spaces open directly on the largest room in the house, not bothering to restrict or channel sight which penetrated their front doors; such middle- and lower-class homes operated in full view of the street (assuming the doors were open), and mixed their more traditionally private and public rooms together, again unlike what is often observed in wealthy homes. When decoration is evident, it seems to announce the working-class nature of the residents, as with the depictions of Mercury at VII.4.23-25 and V.4.12-13, or otherwise poke fun at the elite preoccupation with patron-client performance, as at IX.2.15-16. The houses may often be humble, but their internal articulation denotes the need for a variety of productive activities to take place within them. The messages that the architecture communicates, then, speak to hard-working, unpretentious occupants with little to hide from the public, announcing a diverse group of people who integrate their homes with the economic affairs and commercial interests of their neighborhoods and, while they may aspire towards better positions on the social ladder, avoid articulating their homes in such a way as to claim membership in elite practice.

[383] See Chapter Three, footnote 206 on theoretical requirements for neighborhood in Glass 1948, and Suttles 1972.

The individual houses interrogated in the current chapter shed some light on the wide range of attitudes members of these neighborhoods may have experienced. One cannot imagine that a man in the lower ranks of witnesses like L. Albucius Thesmus or N. Herrenius Castus would have seen their relationship with their neighbors the same as someone like T. Dentatius Panthera. In fact, Panthera's relatively impressive home was only one block away from Thesmus' humble *stabulum*, and the *programmata* and electoral notices which Panthera allowed along and around his house would no doubt have influenced Thesmus' own political opinions and the role he felt his neighborhood played in local elections. As they represent the extremes of our dataset—the one among the highest signatories associated with non-elite dwellings and possessed of one of the nicer houses, and the other among the lowest ranked witnesses and with the least impressive dwelling—the occupants of these homes demonstrate not the need to examine the diversity of housing available to non-elites at Pompeii, but also how neighbors may have influenced each other based on their social station and political capacity.

Having first identified, mapped, and analyzed the houses which do not conform to *atrium* design throughout Pompeii, this study has for the first time also revealed some of the neighborhoods which must have dotted the city, characterized by varying average size, complexity, and commercial investment. Both inside and outside these neighborhoods, the current chapter has scrutinized a handful of residences of especial note. The model employed herein has also proven useful to identify the spatial extent of properties that, as detailed above, have variously been thought to be divided differently (VII.4.23-25), or have been treated as subordinated satellite suites of large *atrium* houses (V.2.f; IX.1.28). It is clear that scholarship is split on what the spatial extent of some

houses should be, and so a more rigorous method is needed to best identify the spaces belonging to the working-class members of the city. Certain owners or occupiers of such homes have provided a self-attested appraisal of their social status, and by comparing these documents with the archaeological record to challenge assumptions about architecture and rank this chapter has demonstrated the value of employing GIS applications to interrogate ancient perceptions of status. The correspondence is encouraging; the least elaborate houses in this study correspond to the known witnesses who signed low on their tablets. Most houses align well with their ranks in the Iucundus tablets and provide insight into how architectural elaboration within a home corresponds to social position in Pompeii. The arrangements and objects found within these dwellings demonstrate the impressive variability present in homes of the non-elites, as well as the flexibility of their positions within Pompeii's social hierarchy. The homes of the named individuals here help show the varying degrees of commercial investment, wealth, and architectural elaboration to which the non-elite members of the city had access, and provide clear examples of how domestic spaces could reject easily interpreted room types and arrangements while nonetheless painting a clear picture of how their own homes may have functioned at the level of the household, the neighborhood, and the city itself.

CONCLUSION

The study of Pompeii, its neighborhoods, and houses has demonstrated the value of non-elite, middle- and lower-class homes as an investigative body of evidence. An examination of their structural components and positions has led to the construction of a new narrative of how ancient occupants utilized space to communicate issues of status, household economies, and identity at three levels: the house, the neighborhood, and the city. The inherent variety of non-elite homes in their size, architectural elaboration, and positions within Pompeii have long been regarded as obstacles to their collected study, but the current project reads this variety as a necessary consideration when approaching the body of working class, non-elite people. Scholarship has too often attempted to discuss the habitations of the less socially advantaged with a lexicon intended for elite residences, and it should be no surprise that some scholars have found these spaces "dumb."[384] Instead of assuming that homes of the working classes are thus incapable of communicating ideas of status, identity, and domestic preferences, the current project has argued that these humbler domiciles simply communicate differently. In fact, the non-elite rejection of elite rooms and terminology—the very phenomenon that renders them mute in the view of some—says a great deal about their use and context, as well as the identity of their occupants; by refusing to conform to "standard" architechctural expressions of patron-client relationships such as formalized *atria*, lavish *tablina*, and artfully constructed sightlines of display, the occupants of these homes communicate their lack of interest in such matters. Public and private rooms, often intermingled,

[384] Wallace-Hadrill 1994, 14; and see Introduction, footnote 1. It should be noted here that "dumb" is being used in the medical sense: incapable of speech.

demonstrate a dissolution of the careful delineation of such concerns as seen in traditional *atrium* houses. One can learn much about non-elite spaces expressly from the components they do not include, just as onecan learn about *atrium* houses by what they do; each architectural element represents a choice by the owners or occupants of the residence, and each choice in turn communicates the values and interests of its chooser, further informing issues at the neighborhood and city levels as well.

Homes and Status

By exhuming Pompeii's non-elite homes not only from their archaeological obscurity, but also from a general neglect in scholarship this study has demonstrated their utility as informative tools for framing the city's urban fabric. When considering the architectural language embodied in Pompeian houses and its communicative ability, one must recognize that the homes of the majority population are equally as expressive as those of the wealthy few; because they are not restricted to a set of predictable room types and arrangements, non-elite residences achieve far more variety in their design, size, and function than the typical *atrium* house. They are not bound by the architectural rhythms, ostentatious sightlines, or carefully delineated zones of public and private that have shaped academic discourse. Instead, homes of the working classes utilize their own range of architectural and domestic vocabulary to shape spaces as they saw fit, and when they chose, to respond to, and in many ways reject, the spatial patterns of their social superiors. Within this shared and diverse vocabulary is an embodied expression of the occupants as members of the working class; these residents could not rely upon a population of subordinates to maintain their status or upon political capital to maintain

their wealth. Their homes often display this through their deep integration of commercial or productive spaces, or otherwise indicating that the occupants, unable to attract clients to their own homes, must have left their residence for work each day in order to earn a living.

Working-class homes, as charted in this study, often have wide, open fronts integrating commercialized zones of their residence (VII.4.23-25). Such spaces demonstrate a kind of liminal zone between interior and exterior, home and city, that is often absent in wealthy houses. Scholarship has long understood elite homes to be a mix of public and private in that they adopt performative architecture intended to be seen by both the public passers-by and the friends and clients invited in, and that they controlled access to the private parts of their residences through carefully negotiated rhythms of space.[385] It has now been revealed that homes of the non-elite also engage with the public, but they do so through the commercial shop-fronts that frame many of their homes, not through a narrow doorway designed to control a flow of visitors. Of course, not all middle- and lower-class homes preserve such evidence, and when they do not, one must imagine a different form of engagement with their surroundings. Such more strictly residential properties often penetrate their *insula* deeply, setting off their habitations from the sensory experience of the street, especially visible in the eastern neighborhood discussed in Chapter Three.[386] The variety of these types of homes revealed in this study has often been assumed to be a detriment to their collected study, but it is through a recognition and consideration of their variety that this project has brought to the fore their value for reconstructing the character of domestic space at Pompeii. Many *atrium* houses

[385] The nature of this divide has recently been explored in Tuori and Nissin 2015.
[386] Helmer and Chicoine 2013 argue for the intentional construction of built environments to direct or obstruct acoustic effects from the broader environment.

communicate roughly the same things, but non-elite homes tell many different stories, albeit in a language scholars are only just beginning to speak.

Non-elite homes speak to adaptability. The preceding chapters have analyzed their prevalence throughout the city, a prevalence that obtains in almost all regions of Pompeii except the southwest. Much of the land there was given over to monumental public, civic buildings, such as the temples and sanctuaries in and around the forum, a grand basilica hall, or the impressive forum baths. But elsewhere, non-elite spaces were common, spanning the architectural spectrum; they include one-room shop houses along main arteries, which took advantage of frequently trafficked areas along prominent thoroughfares, and sprawling, 32-room combined *caupona*-houses (VI.9.1) tucked away at the city's edges. And of course, non-elite homes achieved a multitude of forms in between these extremes. They might be shallow, wide constructions, claiming the edge of an *insula* otherwise dominated by *atrium* houses (V.2.f), or narrow, twisting spaces squeezed between two other, larger properties (VI.16.12). Some were simple, squared constructions that almost approach a type of embryonic *atrium* design, with a central hall and rooms in front and behind. Others presented no entrance vestibule, but rather opened directly to their main room, eschewing the fixed control of movement or sightlines. Public and private spaces—the latter generally understood in Roman houses as corresponding to dining, sleeping, and garden rooms—are often intermixed, with convenience and personal choice supplanting rules dictating where each room should be (as at V.2.f). Moreover, the non-elite homes revealed in this study demonstrate a wide range of commercial investment, from no apparent interest (when the door is narrow, no counter or commercial shelving is evident, and finds indicate typical domestic activities),

to addresses given over entirely to commerce on their ground floor, in which a stairway above indicates a separate lofted habitation space. Wherever non-elite residences are found, their strength lies in their ability to flexibly adapt architectural forms to their surroundings; on main streets and back alleys, wedged between wealthy urban mansions, or clinging to bath houses and commercial intersections, these homes found purchase wherever opportunity arose.

One of the most interesting revelations of this study is how well the architecture of non-elite houses corresponds to ancient conceptions of status. It has been a long-standing assumption that one can examine extant architecture and infer from it the rough social position of its occupant. The analyses presented here have confirmed this to be the case and demonstrated that the correspondence holds for the working classes as well. Known occupants of specific addresses, the witnesses in the tablets of Caecilius Iucundus, presented in detail in Chapter Four, evidence social rankings commensurate with the style and decoration of their homes. Those who rank lowest on the self-attested records of social position have the most architecturally humble dwellings (V.2.f and IX.1.28), and those who rank higher have homes closer in design to the elite *atrium* type (IX.2.15-16). The fact that such residents were nonetheless able to provide surety as witnesses to substantial financial transactions indicates that even non-elite members of Pompeian society had access to varying levels of social credit. Such relative privilege is not unilaterally the case, as residents of smaller shop-houses would likely not have enjoyed the degrees of local power, wealth, or influence of someone like Titus Dentatius Panthera, but it nevertheless reveals the wide social spectrum in which non-elite men and women operated. Although living below the upper crust of local society, these individuals

were invested in shaping visually and architecturally their social and economic situations. The correspondence of self-attested status and domestic architectural choices can also help determine the likely occupants of a house, when there are multiple names from which to choose. The house at IX.2.15-16, here argued to be Panthera's, has sometimes been thought to belong to one of the more influential, wealthier families at Pompeii. Such an interpretation would contradict the close correspondence attested by the socioeconomic records of Caecilius Iucundus and their connections to known addresses with the architectural and decorative choices employed by the occupants of those houses. That Panthera's house comes so close to participating in the architectural language of the elite, but ultimately falls short of doing so, demonstrates just how carefully the non-elites at Pompeii could negotiate their architectural displays of status, a concern prevalent in the ancient Roman mindset.

This study has further revealed the ability of non-elite dwellings to inform us about their urban surroundings. Houses like those of Panthera (IX.2.15-16) or Thesmus (IX.1.28) not only illuminate the variable nature of the Pompeian non-elite home, but also engage with their neighborhoods through electoral *programmata*, urging local support for a political candidate and thereby connecting the occupant to his or her choice for elected office.[387] Non-elite spaces, and thereby non-elite individuals, could thus participate in shaping elections at Pompeii, and one can begin to see how named elite members of the city may have influenced neighborhood sentiments through the intermediaries of their clients, regardless of how humble the latter's homes may be. Conversely, it can now be

[387] See the discussion of houses IX.2.15-16 and IX.1.28 in Chapter Four above. The many electoral notices around these homes, while not necessarily indicative of the name of home owner or occupant, denote his acceptance that such promotional material be attached to his residence.

seen how the working-class members of neighborhoods were themselves able to guide the electoral process that would have shaped their political landscape as well.

Neighborhoods (Re)conceptualized

In addition to concentrating on individual domiciles, the neighborhoods of non-elite Pompeians have also been brought to the fore at last. It is precisely the study of non-elite residences—and the avoidance of elite houses—that has provided an important key for identifying the likely neighborhoods at Pompeii. Previous work at the site has spoken about neighborhoods generally and abstractly, or used single features in the urban armature like fountains to argue for their presence and extents.[388] This project, however, provides the first city-wide GIS analysis of all non-elite spaces to illuminate statistically significant clusters of such dwellings, exposing their sizes, composition, and positions with a much higher degree of confidence. Serendipitously, the locations of neighborhoods attested in the present study correspond precisely to hypotheses about the locations of ancient Pompeian *vici*, bolstering the validity of each claim, as both studies arrived at the same locations independently.[389] The collocation of *vicus* and non-elite neighborhood aligns well with what is known about *vici* elsewhere (at Rome especially), namely that they were often largely composed of a core of middle- and lower-class members of the city, and that they centered on compital shrines and prominent intersections for the performance of local cult practice.[390] Again, this is not to say that

[388] Laurence 1994, 38ff; Zanker 1998; Jones 2003; Kaiser 2011; Ciarallo et al. 2012; Owens 2013; Ball and Dobbins 2017, 29.
[389] Ling 1990 provides one of the only spatial considerations of the *vici*. The methods employed in the current project produced results that nearly mirror Ling's own suggestion, despite being drawn from entirely different methods and data.
[390] Whittaker 1990; Wallace-Hadrill 2003.

only working-class Pompeians lived in such neighborhoods; every type of civic and residential structure could be found within their borders, but at their core is an intensification of non-elite domestic presence. Such a correspondence further implicates non-elite domiciles as integral participants in Pompeian politics and may help locate any *vici* in the city for which no inscriptional evidence otherwise survives.[391] Such a revelation runs counter to the assumptions of scholars who believe the political role of the middle and lower classes to be untraceable in epigraphic evidence;[392] the association of *vici* with their working-class cores and their position as administrative districts that elected their own magistrates (*vicomagistri*) make it clear that they were active participants in the shaping of Pompeii's political landscape.

The neighborhoods exposed by this study echo the variety of non-elite residences themselves. Some (e.g. the northwestern and southern neighborhoods) seem to represent something akin to vocation-based quarters, with inns and taverns present at the liminal neighborhoods by gates, and an intensely commercialized shopping district in the center of the city. Others (e.g. the eastern and northeastern neighborhoods) reject commercialization and demonstrate an intensification of local cult identity, hand-in-hand with larger, more strictly residential properties.[393] Three neighborhoods are located very close to a prominent gate, one sits along the *cardo* just between the two *decumani*, and two others appear far from the city center. Their composition varies greatly. Some have a roughly 1:1 ratio of non-patterned spaces and peripheral properties, while others have 16

[391] The northern and southern neighborhoods discussed in Chapter Three have provided no inscriptional evidence naming their associated *vici*, but it is entirely possible that such *programmata* have been lost, or not yet revealed due to the unexcavated areas of the city. See ongoing work by the Pompeii Archaeological Research Project: Porta Stabia for further belief that the southern neighborhood in Chapter Three should be treated as a "sub-elite" zone of the city. http://classics.uc.edu/pompeii/index.php/home.html

[392] See especially Revell 2012, 61-62.

[393] Saunders 1985 explores the natural processes of a city which encourage the presence or absence of commercialized zones and the consequences of those zones on their surroundings.

times as many primarily residential units as those designed to facilitate commerce. Most neighborhoods demonstrate easy access to points of leisure throughout Pompeii and seem to be sited to take productive advantage of through-routes, increasing their visibility to and degree of interaction with anyone moving through their parts of the city. While the size and complexity of the dwellings within these neighborhoods can vary, one can note general features that contribute to the overall character of some. For example, the central neighborhood has an abundance of small shop-houses and a smattering of long narrow properties that penetrate the block, but comparatively few large dwellings with more open floor plans. The eastern neighborhood, on the contrary, is mostly comprised of more regular, open plans that all penetrate the block, perhaps responding to a regularized, unified development of this region in the later years of Pompeii's growth.[394]

It is from these considerations of neighborhoods that a new definition of the term emerges for the city of Pompeii. Instead of relying only on spatial proximity and probable face-to-face interaction as a means of understanding neighborhoods, or shared access to certain features in the urban environment, the neighborhoods of Pompeii unite statistical evaluations, encoded expressions of status, and historical indicators of shared identity. Pompeii's *vici*, and thus neighborhoods, were organically developed zones characterized by distinct property types of working-class people and spatially defined by statistical realities, not by proximity to certain urban features. Such proximity clearly influenced how the neighborhoods would have been experienced by their occupants and the people moving through them, but their core working-class character seems to be what most reliably allows them to be identified in the archaeological record based on the spatial statistics of the present study. The collocation of *vici* and neighborhoods not only

[394] Nappo 1994; 2007.

demonstrates the validity of the current model for identifying such intra-urban zones of social production and reproduction, but it also allows the construction of a new history of their peoples. Since it is known that the *vicus* began as an informal grouping of working-class people who shared kinship, ethnic, or vocational ties,[395] and it is now possible to identify the locations of these *vici*, one can now investigate what their material records say about their development. The name of the *Vicus Saliniensis*, near the Herculaneum Gate, for example, indicates an association with the fish-salting industry.[396] Upon further investigation, might the people of this northwestern neighborhood, then, show evidence of having come from families employed in related businesses, or reveal connections with other concerns of that industry through their buying and selling practices, the candidates their voting district supports, and the material remains of their houses and shops? The concentration of inns and taverns in the area, many of which contained *urceus* serving vessels, at the very least, indicates the zone had become invested in providing culinary services to both its residents and the many people passing into and out of the city through the Heruculaneum Gate, so it is not difficult to imagine that some of these industries may have specialized in the sale or production of similar foodstuffs.[397] Now that it is clear what to look for within these neighborhoods, many new avenues of inquiry are available.

The discussion of neighborhoods in the present study represents only a beginning, albeit a promising one. It is through the neighborhoods that it is possible to interrogate the potential of different "quarters" of Pompeii more closely than as abstract entities which

[395] See Whittaker 1990; Wallace-Hadrill 2003.
[396] Maiuri 1959, 79; Castren 1975, 79-82.
[397] The *urceus* was a small serving/storage vessel traditionally associated with products of the fish salting and processing industry, and made their way to inns, taverns and restaurants around the Mediterranean. Many such have been traced to Pompeii, which is otherwise known as a famous producer of quality fish sauces. Lucius Umbricius Scaurus, a wealthy Pompeian known as a producer of fish sauces and associated condiments, lived elsewhere at Pompeii (VII.16.12-16), but precisely where his products were manufactured and sold is yet unknown. Curtis 1984; Pliny *Naturalis Historiae* 31.95.

may or may not have existed. Instead, Pompeii can now be understood to have discrete intra-urban zones of diversified residential, social and commercial investment that can form the building blocks of further investigations into the social landscape of the city. Now that the spatial parameters which circumscribe their locations can be recognized, far more detailed examinations of their diachronic character and history of development can proceed. Further, it is now possible to interrogate the precise nature of their diverse social integration, both within each neighborhood and between each neighborhood and its broader urban context. These neighborhoods were nothing close to homogenous, neither within the spectrum of non-elite residents nor beyond it. Instead, they incorporate every stratum of Pompeian society, orbiting around a non-elite core. Also, new studies may begin to examine how specific elite *atrium* houses may have served as spatial and social touchstones within their non-elite neighborhoods, responding to the needs of particular types of clients characterized by the distinct social characters of each neighborhood. Conversely, and so as not to impose a top-down avenue of production or control, it is now possible to see which working-class members of the city drove what sorts of economic production, electoral programs, and how they transcend purely non-elite contexts to influence and guide social and commercial considerations beyond their specific houses.

The Urban Environment: Between Hierarchy and Heterarchy

Just as the individual houses inform the composition of the neighborhoods, so do they also contribute to the novel interpretation of the wider city that results from this study. Previous examinations of Pompeii's urban fabric have either failed to demonstrate significant variation in property types across the city or have produced results that are far

too broad and general.[398] These shortcomings arise from two primary, related complications: wide, generalized units of study such as the *regio,*[399] and a lack of technology capable of examining the city at a sufficiently detailed resolution. The present study utilizes fine-grained spatio-statistical tools in GIS to circumvent these problems and tease out a great deal of variation within Pompeii's urban fabric. By choosing non-elite houses as the point of entry, these examinations show not only that there were distinct neighborhoods within the city, but also that there was a band centered approximately 500m distant from the forum in which most of these properties found purchase, as discussed in Chapter Two. Very few non-elite spaces were closer than 200m to the city's forum, and though most were not exceptionally close to city gates, those that were clustered tightly together, forming three of the six neighborhoods discussed above. The GIS analysis enables tests of all non-elite spaces for degrees of access to points in Pompeii's armature such as baths and prominent intersections, revealing that despite their low status, these spaces did not tend to be shunted off to the dark corners of the city. Instead, most were within 200m from points of leisure and notable intersections, providing them easy access to these integral junctures on the road network. Examining non-elite houses in a GIS platform has provided an opportunity to test for correlations in their area and complexity, although surprisingly, no definitive patterns emerged. Besides a general increase in complexity as non-elite dwellings grew larger, there was no correlation between distance from any of the mapped urban nodes throughout the city and their size or degree of internal architectural differentiation.

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[398] Raper 1977; Laurence 1997.

[399] See discussion in Chapter One, footnote 97, especially as it influences our understanding of Robinson 1997 in light of the modern invention of the *regii.*

The results of these methods indicate a fundamental spatial negotiation of Pompeii that falls somewhere between issues of hierarchical and heterarchical constructions of the urban environment.[400] While it may be tempting to focus on issues of social status along a single spectrum, from poor to rich, low class to high, such ideas only illuminate a single aspect of how Pompeii's urban character was shaped. Similarly, if an examination of the city were only to test if certain properties were engaged in different modes of production, the nuance of status might be lost. Instead, the present investigation constructs a view of Pompeii that navigates between and unites hierarchical and heterarchical arrangements throughout the totality of the town. Beyond facile divisions of elite and non-elite, this consideration demonstrates not only the differing spatial degrees of status architecture as it can be read through housing, but also how these spatial zones themselves differed from each other. There is not one gradient of diversification that shaped Pompeii's urban fabric, but multiple overlapping and mutually informative coordinate systems that effect heterarchical diversification within the full range of working-class properties and reveal hierarchical motivations that may have guided the siting of property throughout the city.

Broader Considerations and Applications of the Model

The model and methodological choices employed here are designed specifically to enable a nuanced reading of Pompeii, but the potential impact of this project reaches far beyond a single Campanian town. Any city (ancient or otherwise), any urban environment with a significant portion of its plan excavated (or revealed through remote sensing) would reward application of a similar approach that utilizes the newest iterations

[400] Mehrer 2002.

of geospatial technology to detect unrecognized patterns in its composition. By selecting the entire body of Pompeian architectural evidence for rigorous interrogation through such methods, this project proves that scholarship need not rely on sampling to produce nuanced pictures of a region's or town's characteristics that have never before been recognized. The underlying premise is simple: empirically observable features can be quantified, tabulated, and assigned measurements, qualities, and categories that can then inform statistical measurements that accurately reflect realities on the ground. How one then interprets such realities at other sites will vary depending on the investigative goals and the attendant historical, cultural, and archaeological considerations.

By focusing on the full set of physical evidence presented by the standing architecture, the model is able to move beyond constraints imposed by more heavily artifactual studies at Pompeii, where the nature of their excavation and preservation hinders their interpretive value. Of course, one of the governing principles of this model is that it is possible to recognize status architecture in Pompeian homes. Therefore, applications of this model elsewhere will need to modify precisely what features are indicative of the patterns they wish to test. At sites with better documentation of artifactual data, for example, this model might be better able to reconstruct patterns of production, use, and disposal; if a site preserves evidentiary indications of religious cult distribution, as at Ostia or Dura Europos, the model can be adapted to interrogate and reconstruct the shifting spatial nature of devotional practices. Such examinations can tease out information regarding the social, economic, and political diversity that are otherwise difficult to identify, and more broadly, enhance our academic ability to interrogate and understand the ongoing process of urban formation and reformation

in the Roman world and beyond.

Due to the extensive nature of their recording, a site such as Olynthus in northern Greece represents an attractive case for applications of this model in large urban environments. Olynthus has received a great deal of urban investigation, most notably by Nicholas Cahill's categorization and discussion of the houses throughout the city.[401] Even though it was not sealed as thoroughly as Pompeii at the time of its destruction in the 4th century BCE, its houses nevertheless have been academic treasure troves for the study of artifact distribution within domestic contexts. The houses at Olynthus, interestingly, actually do seem to largely embody a standard type, unlike those at Pompeii (despite the urgings of centuries' worth of discourse). Therefore, if the current model were to be adapted for a site like Olynthus, it could not use the same architectural indications of social practice, in part due to Olynthus' markedly different building history. Every society produces its own social space,[402] and the houses of Olynthus undoubtedly encode some of those social values either in their architecture, decoration, or artifactual assemblages.[403] As such, the patterns revealed at Olynthus by a study like the present one would produce entirely different results, but of course, that is one of the strengths of the model.

Many of the tests employed here at Pompeii arose as a necessary compromise to circumvent one of the most persistent issues in the study of non-elite spaces. Because the academic architectural vocabulary of Roman houses is tailored to the elite, it is difficult

[401] Cahill 2002.
[402] Lefebvre 1991.
[403] Included in Cahill's discussion are some indicators of wealth present within the Olynthus houses, most notably their size and the quality of their wall and floor decoration.

to plot the presence or absence of common room types or architectural features within homes of the working classes. The words for such rooms or features do not yet exist as a functional ontological category, at least not to the degree to which they do in elite spaces. Perhaps they should not; it is the emphasis on such words and the resultant dismissal of the homes that do not reward their application that has created the very disconnect in Pompeian studies this project has endeavored to address. Due to the absence of such terms, this study selected quantifiable features empirically attested in the urban landscape, or born directly from measurements of the non-elite middle- and lower-class homes surveyed. The difficulty in finding useful words to quantify and qualify such homes and their constructed elements mirrors the challenge in identifying such homes in the first place and makes it even more onerous to attempt to discuss them as a comprehensive group. GIS offers the beginnings of a solution to these problems by assembling a series of observable spatial and measurable realities both within and without the home, encoding them into analytic tools capable of revealing and relating their patterns at multiple scales, but this project also illuminates the many avenues of inquiry that remain to be examined.

The GIS document presented here has already utilized non-elite dwellings to reveal a great deal about the city, its neighborhoods, and the relationship between status and home, but it must be expanded to incorporate many other urban features of Pompeii. To name only a few, future iterations of this digital framework should map *atrium* houses in much the same way, as well as temples, civic buildings, fountains, benches, crosswalks, workshops, and markets. Excluding such features from the present project is, in part, due to a need to keep the size of the GIS dataset manageable, but it also responds

to the need to correct for deep-rooted imbalances in the scholarship surrounding Pompeian domestic studies as discussed in Chapter One.

A particularly attractive line of future study would be to return the decorative ensembles to their domestic contexts within the digital model, and thereby begin examining aesthetic patterns throughout the city. Such a tack would allow for mathematical and spatial relationships between art, status, and architecture to be mapped across Pompeii. Further, this study has focused on only one period of Pompeii's urban history: its end. A diachronic approach is more than merited, and would be particularly fruitful when applied to the neighborhoods revealed by this study. It is known that the *vicus* as a purely administrative label is a later concept; originally each of these zones likely corresponded to ethnic or kinship groups, tradesmen with shared socioeconomic concerns, and intra-urban cult factions. Particular features within the urban plan may have encouraged or discouraged increased clustering of such groups, such as well-trafficked intersections, quieter, less bustling sectors of the city, local agreements between craftsmen to isolate noise, smell, and air pollution, or even the presence of specially-minded political elites who may have had an interest in promoting the concerns of certain families, industries, and religious affiliations on a larger scale. How did the *Vicus Urbulanensis* take shape? Was it constructed all at once to house an influx of a particular ethnic or regional group? Was the southern neighborhood always so invested in commercial enterprise, or did it develop over time as the economic advantages provided by the Porta Stabia were recognized by its residents? Now that it is clear precisely which houses demand further investigation as members of a neighborhood, further study of these particular zones of Pompeii's final layout can proceed.

Part of the goal in foregrounding middle- and lower-class homes has been to demonstrate their potential as a highly rewarding dataset for the study of domestic situations at Pompeii. But beyond such aspirations, the preceding discussions have also resulted in changing how one should understand the neighborhoods and the city itself. Pompeii, like any city, was an organism, and examinations of its character need to account for the mutually informative nature of its components. The houses at Pompeii, like those of any city, help determine the locations and social compositions of its neighborhoods, but features within the city's armature itself, such as gates, crossroads, and main thoroughfares help determine where those houses were most likely to find purchase. The people who lived in and around these homes shaped the social, economic, and political character of their neighborhoods, neighborhoods that in turn contribute to the shifting mosaic of attitudes throughout the city. These reciprocal relationships at all three levels of investigation take on a particular shape at Pompeii in a single space and time. If one were to consider broader potential inferences about the nature of communities throughout the Italian peninsula or the wider Roman Empire, one should not anticipate the same patterns as seen at Pompeii. Instead, one should expect that nowhere were systems of social production and architectural embodiment absent, and by allowing each level of a city's composition to inform our understanding of its constituent parts, studies such as this one may reveal entirely new insights into the architectural and social features of housing, neighborhoods, and cities more broadly writ. There is no such thing as a typical Roman city, or a typical city at all. All cultures, epochs, and geographies produce cities of near infinite diversity. Pompeii nonetheless differs from what might be observed elsewhere in the Roman world due to the long history of its physical, ethnic, and commercial

development, its role as a port city mediating between Campania's hinterland and the wider Mediterranean, and its late transformation into a Roman colony. A city like Cosa, for example, laid out as a colony from its inception in the 3rd century BCE, followed largely strict orthogonal design and incorporated planned housing for its *decuriones* from the outset. The neighborhoods discussed in the preceding chapters are the product of influences specific to Pompeii, but nonetheless respond to the kinds of social, political, economic, and topographic motors which would produce different results in other cities. The three levels of urban articulation explored in the above chapters, nonetheless, must be acknowledged as successive building blocks of urban life that produce each other in all directions, both vertically and horizontally, overlapping in their definitions and their influences to create a situation that is uniquely Pompeian.

It is difficult to organize a discussion of Pompeian houses that is not overshadowed by the tradition of Vitruvius and the *atrium* house terminology. Wealthy residences have left little room for non-elite domiciles in the academic conversation, so the present study has largely avoided examinations of *atrium* houses in order to ensure that non-elite spaces have their turn in the spotlight. By thus focusing the discussion, this study demonstrates how informative examinations of middle- and lower-class spaces alone can be, and puts the lie to any assumptions that non-elite architecture has little voice.

Non-elite, working-class homes at Pompeii need to be given back this voice; it evidently had an impact on the ancient realities of urban life commensurate with the presence of the non-elite people throughout the city. It is through the study of non-elite homes that it is at last possible to strike a more representative balance: there was no

true “Pompeian” or “Roman House,” as it is so commonly presented, but instead a dynamic and varied set of architectural experiments that adapted well to the stimuli of their surroundings, influenced the composition and character of their neighborhoods, and communicated carefully negotiated ideas of status both within and beyond individual strata of Roman society. Until recently, the academic tradition has assumed that the architectural language of Pompeian houses was one in which the rich are eloquent and the poor are “dumb.”[404] The less socially privileged residents of Pompeii deserve a chance to speak, and it can now be seen that they, together with their homes and neighborhoods, have quite a lot to say.

[404] See Introduction, footnote 1.

Appendix I: Index of Potential Non-Elite Residences

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.i.1,10	Peripheral	1	1	5	93	3.98	729.12	28.08	98.76	137.16
I.i.2	Peripheral	1	1	3	84	2.52	715.21	41.99	98.68	123.25
I.i.3-5	NPS	1	1	11	258	6.69	699.73	57.46	84.52	107.77
I.i.6-9	NPS	1	1	10	63	6.75	668.49	88.71	76.58	76.53
I.ii.1,30-32	Peripheral	1	2	6	106	4.47	638.21	118.99	46.31	46.25
I.ii.12-14	Peripheral	1	2	5	76	4.40	556.70	200.50	27.60	35.26
I.ii.15	NPS	1	2	7	39	4.89	559.92	197.28	52.12	44.87
I.ii.16	NPS	1	2	8	227	4.07	578.57	178.63	82.15	68.48
I.ii.22, 24-26	NPS	1	2	12	79	5.19	635.43	121.77	117.01	101.82
I.ii.23	Peripheral	1	2	4	94	3.95	654.02	120.58	132.70	117.51
I.iii.9-10	Peripheral	1	3	8	59	4.01	463.04	294.16	57.43	128.92
I.iii.20-22	NPS	1	3	15	84	3.36	499.15	299.01	84.82	133.77
I.iii.24	NPS	1	3	14	61	3.93	543.59	281.36	129.26	125.98
I.iii.27-30	NPS	1	3	22	224	5.64	540.52	216.68	107.39	104.11
I.iii.4-8	NPS	1	3	26	31	1.37	492.90	264.30	50.62	99.06
I.iv.11	Peripheral	1	4	6	33	1.34	459.12	412.06	76.03	52.98
I.iv.12-18	NPS	1	4	15	147	5.06	463.77	437.51	50.58	27.53
I.iv.26-27	Peripheral	1	4	5	84	4.19	548.86	432.35	114.69	109.11
I.v.1	NPS	1	5	4	34	2.62	671.00	86.20	79.09	79.04
I.v.2	NPS	1	5	15	28	2.88	694.47	77.69	102.57	102.51
I.vi.13-14	NPS	1	6	16	44	1.15	576.87	332.48	162.54	137.12
I.vi.15	NPS	1	6	11	27	1.47	600.65	334.12	186.32	160.90
I.vii.13-14	NPS	1	7	6	23	1.59	710.13	295.59	295.80	292.52
I.vii.15-17	NPS	1	7	17	63	2.91	689.76	275.22	275.43	272.15
I.vii.18	NPS	1	7	5	131	4.69	683.73	271.34	269.40	266.11
I.vii.2-4	NPS	1	7	11	41	2.39	702.05	383.28	267.87	262.29
I.vii.5	NPS	1	7	6	53	3.17	720.90	379.23	286.72	281.15
I.viii.10	NPS	1	8	9	184	6.79	788.80	374.26	374.47	349.05
I.viii.12	NPS	1	8	5	110	5.13	778.30	363.76	363.97	360.69
I.viii.13	NPS	1	8	8	253	5.79	772.32	357.78	357.99	354.71
I.viii.14	NPS	1	8	11	63	3.88	753.01	338.47	338.68	335.40
I.viii.15	NPS	1	8	7	75	4.43	734.15	319.61	319.82	316.54
I.viii.7-9	NPS	1	8	12	37	3.78	803.83	389.28	389.50	364.08
I.ix.11-12	NPS	1	9	16	45	2.29	833.46	417.27	299.22	415.85
I.ix.3-4	NPS	1	9	12	39	2.46	847.71	521.78	284.96	407.96
I.ix.8	NPS	1	9	12	44	2.32	848.38	478.40	284.30	430.77
I.ix.9-10	NPS	1	9	17	28	2.90	847.69	452.00	284.99	430.08
I.x.1	NPS	1	10	8	40	3.62	652.82	265.79	238.49	235.21
I.x.12	NPS	1	10	1	141	3.88	613.49	198.95	201.46	195.88
I.x.18	NPS	1	10	9	109	5.87	646.59	253.77	232.26	228.98

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.x.2-3	NPS	1	10	7	69	4.63	636.47	271.80	222.13	218.85
I.xi.1	Peripheral	1	11	14	79	3.46	906.84	530.77	239.47	467.09
I.xi.13	NPS	1	11	7	94	4.75	880.73	435.41	251.94	463.12
I.xi.16	NPS	1	11	10	134	3.31	897.51	489.23	235.16	457.76
I.xi.17	NPS	1	11	8	29	1.42	901.38	508.52	231.30	461.62
I.xi.4-5	NPS	1	11	16	98	4.64	929.07	507.16	215.87	489.32
I.xi.9, 15	NPS	1	11	20	29	1.41	910.45	469.00	222.22	492.84
I.xii.10-13	NPS	1	12	15	28	2.88	941.88	386.66	190.80	524.26
I.xii.1-2	NPS	1	12	16	56	4.10	971.58	499.38	208.08	531.83
I.xii.15	NPS	1	12	10	141	4.51	958.20	437.32	174.48	540.59
I.xii.16	NPS	1	12	8	100	6.13	961.68	462.71	171.42	544.06
I.xii.6	NPS	1	12	13	119	3.52	994.85	468.32	177.02	577.24
I.xii.7	NPS	1	12	10	78	4.34	989.02	439.48	148.19	571.41
I.xii.8	NPS	1	12	14	165	4.78	980.59	392.55	152.09	562.97
I.xii.9, 14	NPS	1	12	8	70	3.66	956.26	403.68	176.42	538.64
I.xiii.1	NPS	1	13	12	160	6.07	1034.27	484.14	192.84	616.65
I.xiii.10	NPS	1	13	3	33	2.66	1046.53	346.59	86.15	628.91
I.xiii.11	NPS	1	13	11	218	5.20	1032.20	359.25	100.48	614.59
I.xiii.15	NPS	1	13	2	48	2.22	1027.55	435.42	144.12	609.94
I.xiii.16	NPS	1	13	7	28	1.45	1031.79	449.21	157.92	614.17
I.xiii.3	Peripheral	1	13	7	62	2.91	1069.94	416.76	202.21	630.19
I.xiii.4-5	NPS	1	13	14	12	2.89	1077.99	476.71	185.42	638.24
I.xiii.7	NPS	1	13	10	65	3.80	1062.00	444.64	153.35	644.39
I.xiii.8	NPS	1	13	9	60	2.97	1057.62	427.47	136.18	640.01
I.xiv.3	NPS	1	14	9	57	3.05	1014.64	268.57	103.32	597.03
I.xiv.6-7	NPS	1	14	10	113	5.05	1014.08	320.30	113.98	596.46
I.xiv.8-9	NPS	1	14	11	107	2.96	995.23	325.19	137.44	577.62
I.xvi.3	NPS	1	16	7	69	2.77	872.53	357.67	257.60	454.92
I.xvi.4	NPS	1	16	11	91	2.41	854.04	340.35	274.28	436.42
I.xvii.2-3	NPS	1	17	10	52	2.13	828.55	374.66	304.13	410.93
I.xx.4	NPS	1	20	11	154	4.33	962.38	122.60	122.68	544.76
I.xxi.3-4	NPS	1	21	3	193	4.97	914.71	176.24	173.82	497.10
I.xxi.5	NPS	1	21	5	87	3.28	930.23	170.74	159.70	512.61
II.i.1-2	NPS	2	1	16	63	1.93	1105.42	436.95	182.02	687.81
II.i.3-7	NPS	2	1	14	160	4.24	1135.63	449.45	174.35	718.02
II.ii.4	NPS	2	2	15	65	2.84	1207.59	377.50	113.88	621.58
II.iii.4-5	NPS	2	3	18	94	3.95	1274.50	310.58	46.97	653.85
II.viii.4-5	NPS	2	8	12	62	1.95	1032.19	73.34	42.78	614.58
III.iv.2-3	NPS	3	4	25	39	3.67	1125.24	370.43	159.22	485.79
III.iv.b	NPS	3	4	9	29	2.84	1129.49	357.16	197.94	514.89
IV.v.1-2	NPS	4	5	8	324	6.82	880.57	357.63	286.01	172.29
V.i.13	Peripheral	5	1	7	172	5.27	509.85	312.48	175.08	161.34
V.ii.13	Peripheral	5	2	3	46	3.39	659.65	311.12	62.75	48.63

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
V.ii.14-16	NPS	5	2	16	164	6.58	671.91	293.79	75.01	46.44
V.ii.17-20	Peripheral	5	2	12	82	1.70	694.87	313.59	97.98	26.63
V.ii.2	Peripheral	5	2	2	159	4.25	577.58	320.90	23.54	106.87
V.ii.b-c	NPS	5	2	3	183	5.11	573.11	325.38	82.48	102.39
V.ii.d	NPS	5	2	9	152	6.21	586.71	311.78	97.44	115.99
V.ii.f	NPS	5	2	9	244	5.40	573.62	342.63	157.78	131.19
V.iii.10	NPS	5	3	8	123	4.84	794.74	262.49	197.85	86.46
V.iii.6	NPS	5	3	6	400	4.22	761.11	322.72	164.59	52.83
V.iii.7	NPS	5	3	8	129	4.73	773.95	315.82	177.40	65.67
V.iii.9	NPS	5	3	6	238	3.97	799.73	283.97	202.83	91.44
V.iv.10	NPS	5	4	6	533	3.99	863.21	314.95	266.32	154.93
V.iv.12-13	NPS	5	4	14	520	3.70	870.29	263.18	273.40	162.01
V.iv.3-4	NPS	5	4	11	191	1.66	834.97	328.64	239.52	126.69
V.iv.5	NPS	5	4	4	743	7.31	840.35	351.36	245.22	132.07
V.iv.9	NPS	5	4	9	285	6.36	855.92	330.47	259.03	147.64
V.iv.b	NPS	5	4	8	408	5.70	834.32	266.81	237.43	126.04
VI.i.13, 22	NPS	6	1	5	56	4.10	610.44	152.66	340.81	68.02
VI.i.14-21	Peripheral	6	1	12	583	4.77	584.75	178.34	315.12	42.34
VI.i.2-4	NPS	6	1	15	299	7.09	713.54	49.56	443.91	171.12
VI.i.5	Peripheral	6	1	7	311	4.79	688.42	74.67	418.79	146.00
VI.ii.12	NPS	6	2	11	189	6.13	590.25	172.84	320.62	51.26
VI.ii.13	NPS	6	2	7	108	4.43	607.26	155.84	337.63	64.84
VI.ii.14	NPS	6	2	9	84	5.01	623.46	139.63	353.83	81.05
VI.ii.18-19	NPS	6	2	17	260	8.08	701.56	148.75	431.92	159.14
VI.ii.23-24	NPS	6	2	9	130	3.36	622.66	140.43	353.03	88.42
VI.ii.27	NPS	6	2	6	323	5.12	562.74	200.35	293.11	75.75
VI.ii.28	NPS	6	2	15	224	4.61	550.12	212.97	280.49	60.71
VI.ii.29	NPS	6	2	5	133	3.32	532.85	230.25	263.21	63.05
VI.ii.7-8	Peripheral	6	2	7	192	4.43	540.33	222.76	270.70	31.05
VI.ii.9-10	NPS	6	2	10	186	6.19	557.12	205.98	287.48	31.06
VI.iii.10-11	Peripheral	6	3	8	157	4.29	391.01	372.09	121.38	75.03
VI.iii.12-13, 22	Peripheral	6	3	5	463	4.28	378.59	384.50	108.96	62.61
VI.iii.14-15	Peripheral	6	3	5	209	6.37	370.04	393.06	100.41	54.06
VI.iii.16-20	Peripheral	6	3	8	428	5.93	348.56	414.54	78.92	32.58
VI.iii.21	NPS	6	3	7	345	6.60	359.54	403.56	89.91	43.56
VI.iii.23-24	Peripheral	6	3	4	525	4.68	385.73	377.37	116.09	69.75
VI.iv.11-12	NPS	6	4	8	417	5.63	316.61	270.50	75.09	34.18
VI.iv.1-4	Peripheral	6	4	10	504	6.15	344.45	293.45	74.82	28.47
VI.iv.5	Peripheral	6	4	2	299	5.32	326.96	287.16	58.43	17.53
VI.v.12-13	NPS	6	5	7	227	2.03	474.41	288.68	204.78	70.63
VI.v.8, 20	NPS	6	5	13	294	5.37	550.83	212.27	290.51	121.23
VI.vii.15	NPS	6	7	8	180	5.15	493.98	269.11	247.30	191.16
VI.vii.8-14	NPS	6	7	11	99	5.38	454.26	332.83	206.82	203.70

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VI.viii.9-10, 12-14	Peripheral	6	8	10	117	4.96	282.22	427.63	30.12	31.66
VI.viii.11	Peripheral	6	8	2	140	5.19	269.91	434.41	24.38	19.35
VI.ix.1, 14	NPS	6	9	32	188	6.15	639.85	212.03	394.82	194.19
VI.x.1-2, 19	NPS	6	10	17	647	8.14	401.85	292.53	156.82	151.29
VI.x.3-5	NPS	6	10	10	32	2.73	385.88	300.52	140.85	135.32
VI.xi.11-12	NPS	6	11	15	350	5.74	513.81	161.52	268.78	143.67
VI.xi.1-3	NPS	6	11	12	182	3.42	629.13	149.46	384.11	131.62
VI.xi.14	NPS	6	11	9	220	5.69	554.33	145.90	309.30	128.06
VI.xi.18-20	NPS	6	11	12	299	3.55	627.23	118.48	382.20	100.64
VI.xi.4, 17	NPS	6	11	17	110	4.38	598.62	145.39	353.59	127.55
VI.xi.5,15-16	NPS	6	11	18	431	7.02	573.43	157.22	328.40	139.38
VI.xi.6, 13	NPS	6	11	13	150	6.89	545.05	165.40	300.02	147.56
VI.xi.7	NPS	6	11	4	100	3.83	534.69	185.83	289.67	167.99
VI.xiii.10-11	NPS	6	13	8	208	3.73	327.73	354.26	150.10	142.98
VI.xiv.27	NPS	6	14	9	423	7.83	454.45	336.47	151.09	137.35
VI.xiv.33-34	NPS	6	14	17	383	7.45	424.39	303.68	183.88	170.14
VI.xiv.35-36	Peripheral	6	14	4	382	6.28	394.85	284.54	203.02	189.28
VI.xiv.37	NPS	6	14	9	249	4.37	389.02	299.40	188.17	174.43
VI.xiv.39	NPS	6	14	11	52	3.18	395.18	343.73	143.83	130.09
VI.xiv.40	NPS	6	14	14	195	4.94	391.95	358.34	129.22	115.48
VI.xiv.4-7	NPS	6	14	11	377	5.93	370.08	430.17	107.75	100.63
VI.xiv.8-9	NPS	6	14	7	181	2.85	392.72	441.86	85.11	77.99
VI.xv.13-15	NPS	6	15	13	329	7.19	593.84	63.43	436.05	45.59
VI.xv.16-18	NPS	6	15	9	228	5.07	620.21	56.15	462.42	38.31
VI.xv.19-20	NPS	6	15	13	417	4.51	620.03	86.40	462.24	68.56
VI.xv.21	Peripheral	6	15	5	407	6.46	597.44	93.43	439.65	75.59
VI.xv.22	NPS	6	15	7	518	6.07	584.76	97.59	426.96	79.75
VI.xv.6	NPS	6	15	12	290	5.85	508.90	136.45	351.11	103.95
VI.xv.7-8	NPS	6	15	12	139	2.60	524.33	121.02	366.54	88.52
VI.xv.9	NPS	6	15	8	358	6.08	547.77	97.59	389.98	65.09
VI.xvi.10	Peripheral	6	16	6	120	6.29	460.24	214.28	273.28	181.78
VI.xvi.11	Peripheral	6	16	8	294	5.36	463.04	203.38	284.18	170.88
VI.xvi.12	Peripheral	6	16	5	190	4.45	464.11	195.00	292.56	162.50
VI.xvi.1-2	NPS	6	16	8	231	5.55	428.60	273.91	213.65	199.91
VI.xvi.13-14	Peripheral	6	16	4	78	6.09	473.61	185.01	302.55	152.51
VI.xvi.15-17	NPS	6	16	11	143	5.77	480.22	165.14	322.43	132.64
VI.xvi.18	Peripheral	6	16	6	480	5.95	505.15	140.20	347.36	107.70
VI.xvi.21-24	Peripheral	6	16	5	109	6.60	588.20	57.16	430.40	24.66
VI.xvi.25	Peripheral	6	16	1	238	5.46	578.60	66.75	420.81	34.25
VI.xvi.28	NPS	6	16	9	385	5.47	512.62	132.74	354.82	100.24

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VI.xvi.32-33	NPS	6	16	7	257	5.74	454.43	190.92	296.64	158.42
VI.xvi.3-4	NPS	6	16	3	260	5.71	459.36	279.51	208.05	194.31
VI.xvi.34-35	NPS	6	16	9	160	4.85	439.53	205.83	281.74	173.33
VI.xvi.36-37	NPS	6	16	10	267	6.10	440.75	222.78	264.78	190.28
VI.xvi.39-40	Peripheral	6	16	6	340	3.74	404.70	265.76	221.81	208.07
VI.xvi.5	Peripheral	6	16	3	236	6.50	460.65	264.77	222.79	209.05
VI.xvi.8-9	Peripheral	6	16	3	121	4.89	473.01	231.83	255.74	199.33
VI.xvii.1-4	NPS	6	17	25	88	6.53	709.20	53.90	439.57	166.78
VI.xvii.31	Peripheral	6	17	4	178	1.72	428.30	334.80	158.66	112.32
VI.xvii.5-6	NPS	6	17	5	192	6.09	674.27	88.83	404.64	131.85
VI.xvii.7	Peripheral	6	17	1	164	5.40	664.89	98.20	395.26	122.47
VI.xvii.8	Peripheral	6	17	2	130	4.71	655.46	107.64	385.83	113.04
VII.i.18	Peripheral	7	1	1	133	6.00	428.92	581.83	9.96	116.79
VII.i.19	Peripheral	7	1	3	242	4.93	430.08	589.52	11.12	124.48
VII.i.20-22	NPS	7	1	8	695	7.27	428.31	608.98	27.62	143.94
VII.i.23	Peripheral	7	1	1	90	4.03	436.40	623.05	41.70	158.01
VII.i.27	Peripheral	7	1	4	174	5.81	433.21	657.55	62.96	192.51
VII.i.28-30	Peripheral	7	1	3	200	5.96	435.34	668.50	73.91	203.46
VII.i.31	Peripheral	7	1	3	144	4.48	436.29	679.41	84.83	214.37
VII.i.32-35	Peripheral	7	1	7	154	5.57	437.57	512.89	100.66	230.20
VII.i.44-45	NPS	7	1	8	446	6.18	365.03	643.00	41.81	177.96
VII.ii.13-15	NPS	7	2	14	238	4.48	431.01	580.97	38.22	107.14
VII.ii.24-26	NPS	7	2	14	72	5.41	286.87	612.34	183.25	183.84
VII.ii.47-49	NPS	7	2	15	228	7.61	366.56	641.35	102.67	167.53
VII.iii.10	Peripheral	7	3	3	78	4.34	425.56	483.15	52.27	45.16
VII.iii.11-17	NPS	7	3	27	96	5.48	436.77	504.55	41.06	33.95
VII.iii.1-3, 38-40	Peripheral	7	3	16	146	5.09	348.71	474.96	129.12	122.00
VII.iii.18	Peripheral	7	3	2	301	5.74	455.80	513.83	19.24	40.00
VII.iii.19	Peripheral	7	3	1	167	4.16	454.13	522.80	20.30	48.98
VII.iii.20	Peripheral	7	3	1	292	4.94	453.31	530.52	21.12	56.70
VII.iii.21	Peripheral	7	3	6	231	4.03	443.85	536.64	29.03	62.82
VII.iii.22-23	Peripheral	7	3	10	796	8.70	445.10	555.22	27.77	81.40
VII.iii.24-25	NPS	7	3	13	185	4.51	415.84	542.15	57.19	68.33
VII.iii.26-27	Peripheral	7	3	2	94	6.34	393.24	543.37	79.73	77.47
VII.iii.30-32	NPS	7	3	12	177	7.49	346.28	513.30	128.48	124.43
VII.iii.8	Peripheral	7	3	11	182	3.98	401.24	488.92	75.78	69.48
VII.iii.9	Peripheral	7	3	5	358	6.08	415.22	480.14	62.61	55.50
VII.iv.21-22	NPS	7	4	7	424	7.82	145.77	471.23	78.33	121.18

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VII.iv.23-25	NPS	7	4	12	308	4.81	169.64	491.65	77.52	132.31
VII.iv.9-12	NPS	7	4	11	65	9.52	166.79	452.58	47.35	83.77
VII.vi.10-15	NPS	7	6	13	271	6.05	259.28	322.74	18.56	56.70
VII.vii.16	NPS	7	7	10	242	5.92	107.34	260.85	80.78	91.56
VII.vii.17, 23	NPS	7	7	19	223	5.13	120.01	279.39	62.23	104.23
VII.vii.20-22	NPS	7	7	7	392	7.36	143.31	294.74	46.89	127.52
VII.ix.28	Peripheral	7	9	2	132	6.02	193.43	518.89	126.00	192.19
VII.ix.29-32	Peripheral	7	9	5	220	5.17	204.69	530.15	137.25	203.45
VII.ix.33-34	Peripheral	7	9	7	184	5.66	193.85	519.31	126.41	192.61
VII.ix.35-37	Peripheral	7	9	2	157	6.11	186.04	511.51	141.55	184.80
VII.ix.38-39	NPS	7	9	6	294	6.26	180.10	505.56	128.69	178.86
VII.ix.53-56	Peripheral	7	9	5	238	6.95	170.48	495.94	163.82	169.24
VII.ix.57	Peripheral	7	9	3	299	6.66	166.22	491.68	176.00	164.98
VII.ix.58	Peripheral	7	9	5	665	8.03	160.68	486.14	184.26	159.44
VII.x.7	Peripheral	7	10	4	105	5.24	196.04	521.51	148.83	194.81
VII.x.9-12	NPS	7	10	13	204	3.23	232.10	557.56	112.78	230.86
VII.xi.11-15	NPS	7	11	21	1078	4.44	331.88	619.53	30.24	154.49
VII.xi.2-5	NPS	7	11	7	1260	4.75	258.98	584.44	85.90	210.07
VII.xi.9-10	NPS	7	11	15	218	5.71	309.32	634.78	57.05	181.30
VII.xii.10	Peripheral	7	12	7	597	5.65	282.64	608.10	154.49	188.08
VII.xii.11	Peripheral	7	12	9	343	6.62	294.61	620.08	131.97	195.56
VII.xii.12	Peripheral	7	12	4	422	6.34	310.10	635.56	135.96	191.58
VII.xii.13	Peripheral	7	12	2	203	3.23	323.33	648.80	130.64	196.90
VII.xii.14	Peripheral	7	12	7	314	3.46	330.19	655.65	110.82	216.72
VII.xii.15	Peripheral	7	12	3	222	5.67	339.85	665.32	95.59	231.75
VII.xii.17, 21	NPS	7	12	11	285	6.36	323.49	648.95	78.69	214.85
VII.xii.18-20	NPS	7	12	10	188	5.04	340.30	660.99	59.79	195.95
VII.xii.30-33	NPS	7	12	9	227	3.56	223.99	549.46	145.48	222.76
VII.xii.5	Peripheral	7	12	3	180	7.44	249.52	574.98	180.67	248.28
VII.xii.6-7	Peripheral	7	12	3	130	7.40	264.39	589.85	174.93	206.33
VII.xii.8-9	Peripheral	7	12	2	184	3.96	281.73	607.19	166.62	188.99
VII.xiii.19-21	Peripheral	7	13	5	285	5.00	161.30	486.77	183.57	160.07
VII.xv.11	NPS	7	15	10	352	6.13	132.95	232.57	109.05	117.17
VII.xv.3	NPS	7	15	10	554	7.17	157.65	167.81	155.09	158.89
VII.xv.6-7	NPS	7	15	10	322	4.70	113.02	212.45	129.17	114.25
VII.xvi.5-6	Peripheral	7	16	2	186	5.07	229.50	95.96	90.39	230.74
VII.xvi.7-8	Peripheral	7	16	3	468	7.80	221.42	104.04	98.47	222.66

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VII.xvi.9	Peripheral	7	16	2	197	5.46	222.49	102.97	97.40	223.73
VIII.ii.36-37	NPS	8	2	19	236	3.99	419.86	337.34	64.22	131.94
VIII.iii.10-12	Peripheral	8	3	9	228	4.06	171.26	418.84	167.79	187.05
VIII.iii.14-15	NPS	8	3	22	86	4.96	271.52	355.60	110.36	215.69
VIII.iii.20-22	NPS	8	3	11	184	4.52	246.95	297.95	46.42	262.73
VIII.iii.23-24	NPS	8	3	18	310	6.10	236.76	322.51	71.45	252.55
VIII.iii.25-27	NPS	8	3	16	311	4.79	212.54	298.90	47.85	228.33
VIII.iv.25	Peripheral	8	4	3	58	4.03	419.37	388.58	43.41	76.46
VIII.iv.26-28	NPS	8	4	17	156	5.53	397.01	368.27	37.58	96.77
VIII.iv.31-33	NPS	8	4	6	90	4.85	368.37	388.83	32.00	100.26
VIII.iv.34	NPS	8	4	8	154	4.94	364.72	392.48	31.50	74.82
VIII.iv.35-38	NPS	8	4	11	268	4.21	357.77	399.43	30.26	46.53
VIII.iv.39	Peripheral	8	4	4	173	2.92	354.47	402.73	26.98	30.46
VIII.iv.40	Peripheral	8	4	3	381	6.68	350.48	406.72	28.78	21.25
VIII.v.17-20	Peripheral	8	5	7	209	5.31	232.86	524.34	124.53	134.23
VIII.v.21	Peripheral	8	5	4	105	4.48	230.82	526.38	110.31	136.27
VIII.v.22-23	Peripheral	8	5	4	640	4.24	235.04	522.16	98.84	132.05
VIII.v.24-26	NPS	8	5	14	96	5.49	249.82	507.38	99.69	117.28
VIII.v.39	NPS	8	5	9	60	3.95	277.82	479.38	106.58	115.07
VIII.vi.4	NPS	8	6	13	67	4.68	367.80	389.40	53.83	91.01
VIII.vi.6	NPS	8	6	11	200	7.05	314.84	442.36	91.69	118.96
VIII.vi.6b	NPS	8	6	7	249	6.32	338.23	418.97	86.57	128.28
VIII.vii.1-4	Peripheral	8	7	9	103	5.28	695.01	62.18	51.02	103.05
VIII.vii.5-6	Peripheral	8	7	16	238	5.47	677.98	79.22	48.20	86.02
VIII.vii.7-8	Peripheral	8	7	11	690	7.25	663.11	94.09	28.32	71.15
VIII.vii.9-15	Peripheral	8	7	21	422	4.25	623.26	133.94	28.58	31.30
IX.i.1-2, 34	Peripheral	9	1	4	90	4.05	462.99	579.72	30.80	114.68
IX.i.14-16	Peripheral	9	1	4	59	2.99	456.74	483.22	22.56	18.18
IX.i.17-19	NPS	9	1	8	22	3.28	475.03	481.23	40.86	35.28
IX.i.25-27	NPS	9	1	9	22	1.65	549.51	466.18	115.33	109.76
IX.i.28	NPS	9	1	7	24	1.55	555.39	490.99	120.70	115.64
IX.i.3,33	NPS	9	1	11	97	4.67	475.22	568.60	35.10	103.56
IX.i.4-5	NPS	9	1	4	151	6.24	485.17	556.03	45.04	90.99
IX.i.6-8	NPS	9	1	12	35	2.59	477.46	534.65	37.65	69.61
IX.i.9	Peripheral	9	1	4	32	2.71	466.04	521.27	28.27	56.23
IX.ii.1, 28-29	Peripheral	9	2	11	95	3.93	482.03	525.90	100.88	217.19
IX.ii.12	Peripheral	9	2	5	144	4.47	471.06	596.18	38.87	131.14

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
IX.ii.13	NPS	9	2	2	56	2.06	492.26	591.80	52.13	126.76
IX.ii.15-16	NPS	9	2	14	108	3.69	537.46	588.70	97.33	123.66
IX.ii.2	Peripheral	9	2	1	43	3.50	466.40	523.02	103.76	220.07
IX.ii.22	Peripheral	9	2	2	78	4.33	548.62	538.33	115.85	204.76
IX.ii.23	Peripheral	9	2	2	138	5.87	540.68	538.09	115.60	205.01
IX.ii.24	NPS	9	2	6	49	3.27	529.70	549.10	131.06	194.00
IX.ii.25	Peripheral	9	2	2	60	3.96	520.91	530.13	112.10	212.96
IX.ii.3	Peripheral	9	2	1	87	2.47	465.50	674.81	93.46	209.77
IX.ii.4	NPS	9	2	7	84	3.35	478.71	662.82	81.47	197.78
IX.ii.5	Peripheral	9	2	8	54	4.17	478.94	650.99	69.63	185.95
IX.ii.6-11	NPS	9	2	27	184	3.95	478.69	619.94	59.72	154.90
IX.iii.10-12	NPS	9	3	8	293	4.03	484.49	490.57	80.15	211.17
IX.iii.1-2	NPS	9	3	11	297	7.13	487.30	421.76	19.05	142.36
IX.iii.13	NPS	9	3	6	593	3.47	504.10	493.16	80.23	213.76
IX.iii.17,19-20	NPS	9	3	19	742	5.91	555.41	499.91	74.48	159.68
IX.iii.18	Peripheral	9	3	3	338	4.59	548.05	510.98	90.59	170.76
IX.iii.23	NPS	9	3	11	309	4.36	541.63	434.64	20.02	155.24
IX.iii.25	NPS	9	3	5	94	6.31	510.23	429.46	18.35	150.06
IX.iii.3	Peripheral	9	3	2	89	5.68	473.35	432.09	28.29	152.69
IX.iii.4	Peripheral	9	3	2	28	1.46	472.82	440.00	36.97	160.60
IX.iii.6	Peripheral	9	3	2	105	6.75	469.45	460.36	56.81	180.96
IX.iii.7	Peripheral	9	3	1	359	6.48	473.44	470.56	64.38	191.16
IX.iii.8	Peripheral	9	3	1	411	7.57	473.01	476.68	70.36	197.28
IX.iii.9	Peripheral	9	3	1	126	4.79	469.40	482.18	77.05	202.78
IX.v.18-21	NPS	9	5	19	332	4.21	609.69	411.53	21.91	98.59
IX.v.4	NPS	9	5	7	159	4.86	625.89	359.12	37.03	82.39
IX.v.5-7, 17	NPS	9	5	21	263	5.68	636.33	380.50	47.80	71.95
IX.vi.d-e	NPS	9	6	7	216	5.74	624.55	516.25	108.69	174.24
IX.vii.21-23	NPS	9	7	11	252	6.76	598.65	548.48	131.45	178.69
IX.ix.11	NPS	9	9	9	206	5.34	817.45	478.14	233.79	137.92
IX.ix.1-2	NPS	9	9	11	127	5.44	795.54	403.84	210.01	87.26
IX.ix.12-13, e	NPS	9	9	22	506	5.45	804.37	516.53	220.70	159.66
IX.ix.6-7, 10	NPS	9	9	14	349	5.34	831.12	425.68	241.53	122.84
IX.ix.8-9	NPS	9	9	7	195	5.49	848.95	397.94	259.69	140.67
IX.ix.b-c	NPS	9	9	13	405	5.33	792.50	451.58	208.84	111.36
IX.ix.f	NPS	9	9	4	386	3.12	777.11	496.23	193.44	156.00
IX.ix.g	NPS	9	9	5	300	6.65	774.45	507.24	190.78	167.01
IX.xiv.c	NPS	9	14	10	170	5.88	917.53	403.37	333.86	209.24

Appendix II: Index of Potential Neighborhoods

Northwestern Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VI.i.13, 22	NPS	6	1	5	181	2.85	610.44	152.66	340.81	68.02
VI.i.14-21	Peripheral	6	1	12	253	5.79	584.75	178.34	315.12	42.34
VI.i.2-4	NPS	6	1	15	377	5.93	713.54	49.56	443.91	171.12
VI.i.5	Peripheral	6	1	7	110	5.13	688.42	74.67	418.79	146.00
VI.ii.12	NPS	6	2	11	200	5.96	590.25	172.84	320.62	51.26
VI.ii.13	NPS	6	2	7	144	4.48	607.26	155.84	337.63	64.84
VI.ii.14	NPS	6	2	9	154	5.57	623.46	139.63	353.83	81.05
VI.ii.18-19	NPS	6	2	17	446	6.18	701.56	148.75	431.92	159.14
VI.ii.23-24	NPS	6	2	9	238	4.48	622.66	140.43	353.03	88.42
VI.ii.27	NPS	6	2	6	72	5.41	562.74	200.35	293.11	75.75
VI.ii.28	NPS	6	2	15	228	7.61	550.12	212.97	280.49	60.71
VI.ii.29	NPS	6	2	5	78	4.34	532.85	230.25	263.21	63.05
VI.ii.7-8	Peripheral	6	2	7	141	4.51	540.33	222.76	270.70	31.05
VI.ii.9-10	NPS	6	2	10	174	5.81	557.12	205.98	287.48	31.06
VI.v.12-13	NPS	6	5	7	167	4.16	474.41	288.68	204.78	70.63
VI.v.8, 20	NPS	6	5	13	301	5.74	550.83	212.27	290.51	121.23
VI.xvii.1-4	NPS	6	17	25	695	7.27	709.20	53.90	439.57	166.78
VI.xvii.5-6	NPS	6	17	5	90	4.03	674.27	88.83	404.64	131.85
VI.xvii.7	Peripheral	6	17	1	29	1.41	664.89	98.20	395.26	122.47
VI.xvii.8	Peripheral	6	17	2	28	2.88	655.46	107.64	385.83	113.04

Northern Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
V.i.13	Peripheral	5	1	7	131	4.69	509.85	312.48	175.08	161.34
VI.xi.11-12	NPS	6	11	15	358	6.08	513.81	161.52	268.78	143.67
VI.xi.1-3	NPS	6	11	12	417	4.51	629.13	149.46	384.11	131.62
VI.xi.14	NPS	6	11	9	120	6.29	554.33	145.90	309.30	128.06
VI.xi.18-20	NPS	6	11	12	294	5.36	627.23	118.48	382.20	100.64
VI.xi.4, 17	NPS	6	11	17	407	6.46	598.62	145.39	353.59	127.55
VI.xi.5,15-16	NPS	6	11	18	518	6.07	573.43	157.22	328.40	139.38
VI.xi.6, 13	NPS	6	11	13	290	5.85	545.05	165.40	300.02	147.56
VI.xi.7	NPS	6	11	4	139	2.60	534.69	185.83	289.67	167.99
VI.xiv.27	NPS	6	14	9	143	5.77	454.45	336.47	151.09	137.35
VI.xiv.33-34	NPS	6	14	17	480	5.95	424.39	303.68	183.88	170.14
VI.xiv.35-36	Peripheral	6	14	4	63	3.88	394.85	284.54	203.02	189.28
VI.xiv.37	NPS	6	14	9	109	6.60	389.02	299.40	188.17	174.43
VI.xv.13-15	NPS	6	15	13	267	6.10	593.84	63.43	436.05	45.59

Address	Type	Regio	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VI.xv.16-18	NPS	6	15	9	340	3.74	620.21	56.15	462.42	38.31
VI.xv.19-20	NPS	6	15	13	236	6.50	620.03	86.40	462.24	68.56
VI.xv.21	Peripheral	6	15	5	75	4.43	597.44	93.43	439.65	75.59
VI.xv.22	NPS	6	15	7	121	4.89	584.76	97.59	426.96	79.75
VI.xv.6	NPS	6	15	12	257	5.74	508.90	136.45	351.11	103.95
VI.xv.7-8	NPS	6	15	12	260	5.71	524.33	121.02	366.54	88.52
VI.xv.9	NPS	6	15	8	160	4.85	547.77	97.59	389.98	65.09
VI.xvi.10	Peripheral	6	16	6	141	3.88	460.24	214.28	273.28	181.78
VI.xvi.11	Peripheral	6	16	8	109	5.87	463.04	203.38	284.18	170.88
VI.xvi.12	Peripheral	6	16	5	69	4.63	464.11	195.00	292.56	162.50
VI.xvi.1-2	NPS	6	16	8	88	6.53	428.60	273.91	213.65	199.91
VI.xvi.13-14	Peripheral	6	16	4	79	3.46	473.61	185.01	302.55	152.51
VI.xvi.15-17	NPS	6	16	11	192	6.09	480.22	165.14	322.43	132.64
VI.xvi.18	Peripheral	6	16	6	94	4.75	505.15	140.20	347.36	107.70
VI.xvi.21-24	Peripheral	6	16	5	134	3.31	588.20	57.16	430.40	24.66
VI.xvi.25	Peripheral	6	16	1	29	1.42	578.60	66.75	420.81	34.25
VI.xvi.28	NPS	6	16	9	164	5.40	512.62	132.74	354.82	100.24
VI.xvi.32-33	NPS	6	16	7	130	4.71	454.43	190.92	296.64	158.42
VI.xvi.3-4	NPS	6	16	3	178	1.72	459.36	279.51	208.05	194.31
VI.xvi.34-35	NPS	6	16	9	133	6.00	439.53	205.83	281.74	173.33
VI.xvi.36-37	NPS	6	16	10	242	4.93	440.75	222.78	264.78	190.28
VI.xvi.39-40	Peripheral	6	16	6	98	4.64	404.70	265.76	221.81	208.07
VI.xvi.5	Peripheral	6	16	3	37	3.78	460.65	264.77	222.79	209.05
VI.xvi.8-9	Peripheral	6	16	3	40	3.62	473.01	231.83	255.74	199.33

Central Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VII.i.18	Peripheral	7	1	1	28	1.45	428.92	581.83	9.96	116.79
VII.i.19	Peripheral	7	1	3	62	2.91	430.08	589.52	11.12	124.48
VII.i.20-22	NPS	7	1	8	185	4.51	428.31	608.98	27.62	143.94
VII.i.23	Peripheral	7	1	1	12	2.89	436.40	623.05	41.70	158.01
VII.i.27	Peripheral	7	1	4	65	3.80	433.21	657.55	62.96	192.51
VII.i.28-30	Peripheral	7	1	3	60	2.97	435.34	668.50	73.91	203.46
VII.i.31	Peripheral	7	1	3	57	3.05	436.29	679.41	84.83	214.37
VII.i.32-35	Peripheral	7	1	7	113	5.05	437.57	512.89	100.66	230.20
VII.i.44-45	NPS	7	1	8	94	6.34	365.03	643.00	41.81	177.96
VII.ii.13-15	NPS	7	2	14	294	6.26	431.01	580.97	38.22	107.14
VII.ii.47-49	NPS	7	2	15	299	6.66	366.56	641.35	102.67	167.53
VII.iii.10	Peripheral	7	3	3	59	2.99	425.56	483.15	52.27	45.16
VII.iii.11-17	NPS	7	3	27	665	8.03	436.77	504.55	41.06	33.95
VII.iii.18	Peripheral	7	3	2	22	3.28	455.80	513.83	19.24	40.00

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
VII.iii.19	Peripheral	7	3	1	22	1.65	454.13	522.80	20.30	48.98
VII.iii.20	Peripheral	7	3	1	24	1.55	453.31	530.52	21.12	56.70
VII.iii.21	Peripheral	7	3	6	97	4.67	443.85	536.64	29.03	62.82
VII.iii.22-23	Peripheral	7	3	10	151	6.24	445.10	555.22	27.77	81.40
VII.iii.24-25	NPS	7	3	13	271	6.05	415.84	542.15	57.19	68.33
VII.iii.26-27	Peripheral	7	3	2	35	2.59	393.24	543.37	79.73	77.47
VII.iii.8	Peripheral	7	3	11	216	5.74	401.24	488.92	75.78	69.48
VII.iii.9	Peripheral	7	3	5	90	4.05	415.22	480.14	62.61	55.50
VII.ix.28	Peripheral	7	9	2	32	2.71	193.43	518.89	126.00	192.19
VII.ix.29-32	Peripheral	7	9	5	95	3.93	204.69	530.15	137.25	203.45
VII.ix.33-34	Peripheral	7	9	7	144	4.47	193.85	519.31	126.41	192.61
VII.ix.35-37	Peripheral	7	9	2	56	2.06	186.04	511.51	141.55	184.80
VII.ix.38-39	NPS	7	9	6	204	3.23	180.10	505.56	128.69	178.86
VII.ix.53-56	Peripheral	7	9	5	108	3.69	170.48	495.94	163.82	169.24
VII.ix.57	Peripheral	7	9	3	43	3.50	166.22	491.68	176.00	164.98
VII.ix.58	Peripheral	7	9	5	78	4.33	160.68	486.14	184.26	159.44
VII.x.7	Peripheral	7	10	4	107	2.96	196.04	521.51	148.83	194.81
VII.x.9-12	NPS	7	10	13	177	7.49	232.10	557.56	112.78	230.86
VII.xi.11-15	NPS	7	11	21	424	7.82	331.88	619.53	30.24	154.49
VII.xi.2-5	NPS	7	11	7	182	3.98	258.98	584.44	85.90	210.07
VII.xi.9-10	NPS	7	11	15	358	6.08	309.32	634.78	57.05	181.30
VII.xii.10	Peripheral	7	12	7	154	4.33	282.64	608.10	154.49	188.08
VII.xii.11	Peripheral	7	12	9	193	4.97	294.61	620.08	131.97	195.56
VII.xii.12	Peripheral	7	12	4	87	3.28	310.10	635.56	135.96	191.58
VII.xii.13	Peripheral	7	12	2	63	1.93	323.33	648.80	130.64	196.90
VII.xii.14	Peripheral	7	12	7	160	4.24	330.19	655.65	110.82	216.72
VII.xii.15	Peripheral	7	12	3	65	2.84	339.85	665.32	95.59	231.75
VII.xii.17, 21	NPS	7	12	11	308	4.81	323.49	648.95	78.69	214.85
VII.xii.18-20	NPS	7	12	10	65	9.52	340.30	660.99	59.79	195.95
VII.xii.30-33	NPS	7	12	9	132	6.02	223.99	549.46	145.48	222.76
VII.xii.5	Peripheral	7	12	3	69	2.77	249.52	574.98	180.67	248.28
VII.xii.6-7	Peripheral	7	12	3	91	2.41	264.39	589.85	174.93	206.33
VII.xii.8-9	Peripheral	7	12	2	52	2.13	281.73	607.19	166.62	188.99
IX.i.1-2, 34	Peripheral	9	1	4	84	3.36	462.99	579.72	30.80	114.68
IX.i.3,33	NPS	9	1	11	188	6.15	475.22	568.60	35.10	103.56
IX.i.4-5	NPS	9	1	4	227	2.03	485.17	556.03	45.04	90.99
IX.i.6-8	NPS	9	1	12	294	5.37	477.46	534.65	37.65	69.61
IX.i.9	Peripheral	9	1	4	59	4.01	466.04	521.27	28.27	56.23

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
IX.ii.1, 28-29	Peripheral	9	2	11	224	5.64	482.03	525.90	100.88	217.19
IX.ii.12	Peripheral	9	2	5	84	4.19	471.06	596.18	38.87	131.14
IX.ii.13	NPS	9	2	2	32	2.73	492.26	591.80	52.13	126.76
IX.ii.15-16	NPS	9	2	14	350	5.74	537.46	588.70	97.33	123.66
IX.ii.22	Peripheral	9	2	2	39	2.46	548.62	538.33	115.85	204.76
IX.ii.23	Peripheral	9	2	2	45	2.29	540.68	538.09	115.60	205.01
IX.ii.24	NPS	9	2	6	182	3.42	529.70	549.10	131.06	194.00
IX.ii.25	Peripheral	9	2	2	44	2.32	520.91	530.13	112.10	212.96
IX.ii.3	Peripheral	9	2	1	33	1.34	465.50	674.81	93.46	209.77
IX.ii.4	NPS	9	2	7	117	4.96	478.71	662.82	81.47	197.78
IX.ii.5	Peripheral	9	2	8	147	5.06	478.94	650.99	69.63	185.95
IX.ii.6-11	NPS	9	2	27	647	8.14	478.69	619.94	59.72	154.90
IX.iii.10-12	NPS	9	3	8	299	3.55	484.49	490.57	80.15	211.17
IX.iii.1-2	NPS	9	3	11	220	5.69	487.30	421.76	19.05	142.36
IX.iii.13	NPS	9	3	6	110	4.38	504.10	493.16	80.23	213.76
IX.iii.17,19-20	NPS	9	3	19	431	7.02	555.41	499.91	74.48	159.68
IX.iii.18	Peripheral	9	3	3	63	2.91	548.05	510.98	90.59	170.76
IX.iii.23	NPS	9	3	11	150	6.89	541.63	434.64	20.02	155.24
IX.iii.25	NPS	9	3	5	100	3.83	510.23	429.46	18.35	150.06
IX.iii.3	Peripheral	9	3	2	28	2.90	473.35	432.09	28.29	152.69
IX.iii.4	Peripheral	9	3	2	34	2.62	472.82	440.00	36.97	160.60
IX.iii.6	Peripheral	9	3	2	28	2.88	469.45	460.36	56.81	180.96
IX.iii.7	Peripheral	9	3	1	44	1.15	473.44	470.56	64.38	191.16
IX.iii.8	Peripheral	9	3	1	27	1.47	473.01	476.68	70.36	197.28
IX.iii.9	Peripheral	9	3	1	23	1.59	469.40	482.18	77.05	202.78
IX.vi.d-e	NPS	9	6	7	103	5.28	624.55	516.25	108.69	174.24
IX.vii.21-23	NPS	9	7	11	238	5.47	598.65	548.48	131.45	178.69

Southern Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.i.1,10	Peripheral	1	1	5	93	3.98	729.12	28.08	98.76	137.16
I.i.2	Peripheral	1	1	3	84	2.52	715.21	41.99	98.68	123.25
I.i.3-5	NPS	1	1	11	338	4.59	699.73	57.46	84.52	107.77
I.i.6-9	NPS	1	1	10	309	4.36	668.49	88.71	76.58	76.53
I.ii.1,30-32	Peripheral	1	2	6	106	4.47	638.21	118.99	46.31	46.25
I.ii.12-14	Peripheral	1	2	5	76	4.40	556.70	200.50	27.60	35.26
I.ii.15	NPS	1	2	7	129	4.73	559.92	197.28	52.12	44.87
I.ii.16	NPS	1	2	8	238	3.97	578.57	178.63	82.15	68.48
I.ii.22, 24-26	NPS	1	2	12	533	3.99	635.43	121.77	117.01	101.82
I.ii.23	Peripheral	1	2	4	39	4.89	654.02	120.58	132.70	117.51
I.ii.9-10	Peripheral	1	3	8	227	4.07	463.04	294.16	57.43	128.92

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.iii.20-22	NPS	1	3	15	352	6.13	499.15	299.01	84.82	133.77
I.iii.24	NPS	1	3	14	285	6.36	543.59	281.36	129.26	125.98
I.iii.27-30	NPS	1	3	22	554	7.17	540.52	216.68	107.39	104.11
I.iii.4-8	NPS	1	3	26	743	7.31	492.90	264.30	50.62	99.06
I.v.1	NPS	1	5	4	56	4.10	671.00	86.20	79.09	79.04
I.v.2	NPS	1	5	15	583	4.77	694.47	77.69	102.57	102.51
VIII.vii.1-4	Peripheral	8	7	9	293	4.03	695.01	62.18	51.02	103.05
VIII.vii.5-6	Peripheral	8	7	16	297	7.13	677.98	79.22	48.20	86.02
VIII.vii.7-8	Peripheral	8	7	11	593	3.47	663.11	94.09	28.32	71.15
VIII.vii.9-15	Peripheral	8	7	21	742	5.91	623.26	133.94	28.58	31.30

Eastern Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.ix.11-12	NPS	1	9	16	428	5.93	833.46	417.27	299.22	415.85
I.ix.3-4	NPS	1	9	12	463	4.28	847.71	521.78	284.96	407.96
I.ix.8	NPS	1	9	12	209	6.37	848.38	478.40	284.30	430.77
I.ix.9-10	NPS	1	9	17	381	6.68	847.69	452.00	284.99	430.08
I.xi.1	Peripheral	1	11	14	258	6.69	906.84	530.77	239.47	467.09
I.xi.13	NPS	1	11	7	126	4.79	880.73	435.41	251.94	463.12
I.xi.16	NPS	1	11	10	206	5.34	897.51	489.23	235.16	457.76
I.xi.17	NPS	1	11	8	127	5.44	901.38	508.52	231.30	461.62
I.xi.4-5	NPS	1	11	16	359	6.48	929.07	507.16	215.87	489.32
I.xi.9, 15	NPS	1	11	20	411	7.57	910.45	469.00	222.22	492.84
I.xii.10-13	NPS	1	12	15	300	6.65	941.88	386.66	190.80	524.26
I.xii.1-2	NPS	1	12	16	506	5.45	971.58	499.38	208.08	531.83
I.xii.15	NPS	1	12	10	332	4.21	958.20	437.32	174.48	540.59
I.xii.16	NPS	1	12	8	159	4.86	961.68	462.71	171.42	544.06
I.xii.6	NPS	1	12	13	349	5.34	994.85	468.32	177.02	577.24
I.xii.7	NPS	1	12	10	195	5.49	989.02	439.48	148.19	571.41
I.xii.8	NPS	1	12	14	405	5.33	980.59	392.55	152.09	562.97
I.xii.9, 14	NPS	1	12	8	386	3.12	956.26	403.68	176.42	538.64
I.xiii.1	NPS	1	13	12	263	5.68	1034.27	484.14	192.84	616.65
I.xiii.10	NPS	1	13	3	46	3.39	1046.53	346.59	86.15	628.91
I.xiii.11	NPS	1	13	11	164	6.58	1032.20	359.25	100.48	614.59
I.xiii.15	NPS	1	13	2	82	1.70	1027.55	435.42	144.12	609.94
I.xiii.16	NPS	1	13	7	159	4.25	1031.79	449.21	157.92	614.17
I.xiii.3	Peripheral	1	13	7	63	6.75	1069.94	416.76	202.21	630.19
I.xiii.4-5	NPS	1	13	14	252	6.76	1077.99	476.71	185.42	638.24
I.xiii.7	NPS	1	13	10	170	5.88	1062.00	444.64	153.35	644.39

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
I.xiii.8	NPS	1	13	9	172	5.27	1057.62	427.47	136.18	640.01
I.xiv.6-7	NPS	1	14	10	152	6.21	1014.08	320.30	113.98	596.46
I.xiv.8-9	NPS	1	14	11	244	5.40	995.23	325.19	137.44	577.62
I.xvi.3	NPS	1	16	7	123	4.84	872.53	357.67	257.60	454.92
I.xvi.4	NPS	1	16	11	400	4.22	854.04	340.35	274.28	436.42
I.xvii.2-3	NPS	1	17	10	209	5.31	828.55	374.66	304.13	410.93
II.i.1-2	NPS	2	1	16	345	6.60	1105.42	436.95	182.02	687.81
II.i.3-7	NPS	2	1	14	525	4.68	1135.63	449.45	174.35	718.02

Northeastern Neighborhood

Address	Type	*Regio*	Insula	Rooms	Square Meters	Complexity	Forum Distance	Gate Distance	Leisure Distance	Intersection Distance
V.ii.13	Peripheral	5	2	3	53	3.17	659.65	311.12	62.75	48.63
V.ii.17-20	Peripheral	5	2	12	184	6.79	694.87	313.59	97.98	26.63
V.ii.14-16	NPS	5	2	16	382	6.28	671.91	293.79	75.01	46.44
IX.ix.1-2	NPS	9	9	11	322	4.70	795.54	403.84	210.01	87.26
IX.ix.11	NPS	9	9	9	186	5.07	817.45	478.14	233.79	137.92
IX.ix.12-13, e	NPS	9	9	22	468	7.80	804.37	516.53	220.70	159.66
V.iii.7	NPS	5	3	8	236	3.99	773.95	315.82	177.40	65.67
V.iii.10	NPS	5	3	8	228	4.06	794.74	262.49	197.85	86.46
V.iii.9	NPS	5	3	6	86	4.96	799.73	283.97	202.83	91.44
V.iv.b	NPS	5	4	8	184	4.52	834.32	266.81	237.43	126.04
V.iv.12-13	NPS	5	4	14	310	6.10	870.29	263.18	273.40	162.01
V.iv.3-4	NPS	5	4	11	311	4.79	834.97	328.64	239.52	126.69
V.iv.5	NPS	5	4	4	58	4.03	840.35	351.36	245.22	132.07
V.iv.9	NPS	5	4	9	156	5.53	855.92	330.47	259.03	147.64
V.iv.10	NPS	5	4	6	90	4.85	863.21	314.95	266.32	154.93
IV.v.1-2	NPS	4	5	8	154	4.94	880.57	357.63	286.01	172.29
V.iii.6	NPS	5	3	6	105	4.48	761.11	322.72	164.59	52.83
IX.ix.6-7, 10	NPS	9	9	14	640	4.24	831.12	425.68	241.53	122.84
IX.ix.8-9	NPS	9	9	7	96	5.49	848.95	397.94	259.69	140.67
IX.ix.f	NPS	9	9	4	60	3.95	777.11	496.23	193.44	156.00
IX.ix.g	NPS	9	9	5	67	4.68	774.45	507.24	190.78	167.01
IX.ix.b-c	NPS	9	9	13	200	7.05	792.50	451.58	208.84	111.36

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