Rethinking Ostia : a spatial enquiry into the urban society of Rome's imperial port-town

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2 – Roman Urban Studies beyond Ostia

This chapter aims to widen the research perspective and bring into the discussion studies in the field of Roman urbanism which developed outside of Ostia, notably in Pompeii. The intention is to take account of the advances made elsewhere, and to learn from the strengths and weaknesses of these earlier studies. A number of works concerned with Roman urban development will be critically examined. These have been selected for their pioneering work and outstanding contribution to the study of the Roman city. They all share a marked concern with urban space. These works will be discussed at some length, thoroughly examining the methods of analyses as well as the results achieved. This is done not only to appraise and contextualise these works, but also to engage with a wider theoretical discussion and to place Ostia within debates about the Roman city.

Roman urban theory comprises a wide field, ranging from ideal-type economic models to the study of individual houses and households. The sheer number of Roman urban studies is impressive, reflecting not only different theoretical approaches but also the confusion in the general theory of the ancient city that pervades the discussion of ancient urbanism.[1] Economic theories in general, and the Weber-Finley consumer-city model in particular as opposed to a 'producer city',[2] dominated the ancient urban discourse into the late 20th century.[3] Almost habitually these economic theories have been taken for a theory of the city itself.[4] As part of the same debate, alternatives to the consumer city have been formulated, addressing urban production, urban services and the role of cities as processors and organisers.[5] Yet again, these approaches sought to explain the economic function of the city by reconciling models of consumer and producer cities, but failed to offer a theory to explain the nature of the ancient city. Consequently researchers have been asking whether theories of Roman urbanism matter at all.[6] Some decided to disregard urban theory altogether and above all dispense with economic models, since these do not provide useful ways of conceptualising the phenomenon of Roman urbanism.[7] As Grahame argued, such abstract concepts bear no reference to the physical reality of the ancient city; instead they separate function from form by conceptualizing 'urban form' as the location rather than the outcome of economic activity.[8] Recently, a more coherent picture of the ancient city has been portrayed in Zanker and Neudecker's *Lebenswelten* (lifeworlds and mentality),[9] discussing the ancient retail and rental markets in combination with aspects of cult and community.[10]

By the 1990s the general paradigm shift from modernism to postmodernism was reflected in the fields of archaeology and urban studies.[11] As a result the economic hold on urban research seemed to have waned, judging by the increasing number of studies that left behind the constrictive framework of economic models and the 'consumer city' debate and instead explored the experiential and phenomenological aspects of the ancient city. Still, escaping economic ties did not seem to occur without difficulties, as Laurence's work demonstrates, and hence a study specifically defined to redress the theoretical balance still seems to carry an economic

1. As stated by Whittaker (1995: 9).
2. Capogrossi Colognesi (2004); Finley (1981); Weber (1958, 1976).
3. Cf. Whittaker (1990, 1995); cf. Mattingly (1997).
4. Grahame (1997: 152).
5. Engels (1990); Hopkins (1980); Jongman (1988).
6. Parkins (1997); Whittaker (1995); Grahame (1997); Mattingly (1997).
7. Whittaker (1995: 9); Grahame (1997: 161).
8. Grahame (1997: 152).
9. *Lebenswelten* can be translated as lifeworlds, or ways of life and mentalities.
10. Neudecker and Zanker (2005).
11. MacKay (1997: 275).

bias.[12] In Laurence's work, although presented with a social twist and with much declared distancing from economic models, the continued use of essentially economic definitions of Roman urbanism comes as a surprise.[13] It might have been an oversight owing to the lack of alternative terminology available in the field of urbanism, or just another sign of the irredeemable confusion that permeates the theory of Roman urbanism. All in all, when considering the amount of critique levelled at the ancient city debate, it seems difficult to imagine that any study could ever address all conceptual difficulties inherent in the urban discussion, and at the same time present a novel approach to the ancient city. Nonetheless a much praised recent reassessment of Weber's work by the Italian legal scholar Capogrossi Colognesi might prompt researchers once more to re-engage with the Weber-Finley model,[14] or re-evaluate Weber's ideal type economic concepts, which after all are at the root of the consumer city debate. As much as new approaches influence the theoretical discussion, a re-appraisal of Weber's work could equally inform and reshape the consumer city debate.

However, any such endeavour is beyond the scope of this study and is better left to ancient historians. Instead, this study looks into some of the approaches that moved the debate 'beyond the Consumer City'. The studies examined pursue a common interest: all focus on the relationship between the physical fabric of the Roman city and the social activities and societal processes taking place within the built environment. Drawing on Social Theory, these studies are based on the assumption of a mutual relationship between space and society. The studies under discussion form part of the recent wave of Pompeian research that has become a paradigm of Roman urbanism in its own right.[15] The scholarly advances made in Pompeian studies have turned the town into a useful source of comparison within the wider debate on urbanism, hence studies concerned with other Roman cities, such as Ostia, should benefit from the "Pompeian Renaissance".

2.1 ZANKER: THE CONCEPT OF TOWNSCAPES (STADTBILDER)

Paul Zanker's contribution to Pompeian research marks the beginning of a series of studies with a new focus on social and political questions and away from descriptive art-history and archaeological topography. Zanker relates the physical shape of the city to social and cultural changes throughout its history. The strength of Zanker's thesis is his concept of the 'townscape' (Stadtbild) which reflects changes in the attitudes and interests of the city's population through time.[16] For the period between the early second century BC and the destruction of Pompeii, Zanker identifies four different concepts of urbanisation that left their mark on the town.[17] From these townscapes he reconstructs three historical aggregates: The Hellenised Samnite city of the 2nd century BC, the period of rapid change following the founding of the Roman colonia in 80 BC and the new townscape of the early Empire.[18] Zanker contends that in the Hellenised Oscan city of the second century BC there was little concern for civic pride, with only piecemeal construction of Greek-style buildings for leisure and entertainment around the theatre quarters, and commercial structures, basilica and market at the *forum*. Zanker argues that unhindered by political or ideological constraints the city's leading families consumed their wealth in the form of lavish town houses that were strongly influenced by Hellenistic prototypes. Roman 'civic' ideology came along with the founding of the Roman colonia in 80 BC. This inevitably brought a change of direction, resulting in the construction of new public buildings and further development of the *forum* area in response to political demands. From the Augustan period onwards the concern for civic pride intensified as the leading families of Pompeii competed with each other to demonstrate their loyalty to the emperor and the imperial order. This was expressed through the construction of buildings in the *forum* specifically dedicated to the emperor and the imperial family.[19]

12. Laurence (1994: 141), see also Laurence (2007: 190).
13. Laurence (1994: 133-141), cf. Foss (1996: 352).
14. Capogrossi Colognesi (2004); Deininger (2005).
15. The only exception is Kaiser's assessment of Empurias in Spain (2000).
16. Grahame (1997: 157).
17. Zanker (1998: 3-5).
18. Zanker (1998: 27-124).
19. Zanker (1998: 78-106); see also Grahame for a brief

2.1.1 The impact of townscapes on the inhabitants

Zanker states that townscapes have a wealth of information to offer on the many anonymous and in part contradictory interests, which find their materialization in the built environment of the city. This is most indicative where urban growth or change was organic and not the purposeful creation of a single autocratic ruler or the result of an ideological programme.[20] According to Zanker the consecutive Pompeian townscapes reflect a largely self-regulating process through which the inhabitants produce a configuration that becomes an unintended self-portrait of their society. He adds that once a cityscape has been established, the effect on the mental outlook of its inhabitants cannot be underestimated.[21] Zanker draws on Kevin Lynch's concepts of urban imagery and place legibility, which provide a methodological outline to assess a city's degree of 'imageability'. The latter is defined as the quality of a physical object that gives an observer a strong, vivid image. A highly 'image-able' city creates a positive city experience, whereby the degree of 'imageability' is dependent on the intelligible composition of distinct parts, typical landmarks and clarity of direction regarding the street network.[22] Despite Lynch's influence, Zanker is far from any formal and systematic assessment of the strength of Pompeii's urban imagery. Zanker remains descriptive and suggestive, neglecting the analytical side of Lynch's approach. Still, Zanker's work reflects a heightened awareness of the influential power of the urban environment on the inhabitants, which according to him can be experienced as socially integrative, stabilizing or even arousing feelings of irritation or insecurity.[23] He reminds us that we only need to think of the antithetical vistas of late Republican and Augustan Rome or the decaying public buildings in the city centres of the Late Empire to understand that cityscapes constitute an integral part of the culture of each period.[24]

2.1.2 Urban space as a reflection of society

Zanker's 'townscape' concept relates to urban space as a visible reflection of society.[25] By definition this would reduce the built environment to a passive component only able to mirror the society that produced it. Still, as stated above, Zanker acknowledges the effect of the built environment on the inhabitants, once a cityscape has been established. In this way Zanker seems to deny the impact of the building process and progress, as well as the daily negotiations that are part of incremental changes of the city, and on the whole seems to neglect the 'city in flux'. While Zanker's approach makes allowance for the visual power of architecture, it does not go far enough in explaining the impact of architecture on social relationships. This is not to suggest that Zanker's concept of townscapes is wrong in implying that society shapes urban space to meet its needs and to reflect its conditions and aspirations. However, the concept of urban space as a reflection of society only addresses one side of the role of architecture and identity formation, while the reciprocal relationship between built environment and society remains neglected.

2.1.3 The overall organisation of the city

Zanker is one of the early proponents in Classical Archaeology to investigate the city's total appearance in a particular historic period. He seeks to interpret the city's entire physical and aesthetic configuration and tries to understand how the city's layout, architecture and visual imagery work in conjunction with the daily lives of the inhabitants.[26] His work contributes to a better understanding of the city in total. This holistic approach is clearly outlined in an earlier paper in which Zanker discusses how urban architecture can be studied as an historical source.[27] While he expresses concern about architectural structures and how little they can tell about their function as inhabited space and the activities that

summary (1997: 157-158).
20. Zanker (1998: 28); cf. Zanker (1988).
21. Zanker (1998: 28).
22. Lynch (1960: 9-13).
23. See also Favro (1996) and Haselberger (2000).
24. Zanker (1998: 28); cf. Zanker (1988a); Favro (1996) juxtaposes the city images of Republican Rome and Augustan Rome through fictitious city walks; see Chapter Seven this volume on streets and movement.
25. The visual aspect of the city is even stronger expressed in the original German term '*Stadtbild*'.
26. Zanker (1988: 28).
27. Zanker (1992: 259-260).

took place therein,[28] he argues that information can be gained from a close investigation of public buildings and their changes from a long-term perspective, including the emergence of new buildings during a certain period, the degree of decoration in connection to specific buildings and the abandonment or appropriation of specific buildings during a particular phase. He stresses that it is "crucial for such approaches to overcome the genre-specific direction of previous research, i.e. we pose questions not only about the individual building types or location and street arrangement, but also about the integration of the building into the overall organisation of a city. Only when we succeed in viewing the different buildings co-existing in space and time and their arrangement as a unity, and begin to consider them in relation to their users, will public space be comprehensible as the stage for a specific kind of public [sphere] (Őffentlichkeit)."[29] This means that Zanker conceptually pioneered a 'configurational approach' to the ancient city, perceiving the city as a unity. However, his case studies remain selective and hence a practical application of his 'holistic approach' is still wanting, or has at least partially been taken up by other scholars pursuing similar objectives. Several of them will be discussed in the following sections of this chapter.

2.2 WALLACE-HADRILL: HOUSES AND ROMAN SOCIETY

Wallace-Hadrill's contribution to Roman urbanism lies in his deep understanding of the societal relevance of private dwellings. His work is generally considered to be an offspring of Zanker's approach.[30] While Zanker was concerned with townscapes, Wallace-Hadrill's research focuses on the ways in which domestic architecture and decoration could be used in constructing the social identity of the inhabitants.[31] By directly addressing social structure and the Roman house, Wallace-Hadrill departs from Zanker's work and opens new perspectives by engaging to a much greater depth with the close ties between domestic architecture and Roman society. To appreciate better where Wallace-Hadrill's methodology reaches beyond Zanker's, this assessment partly draws on a direct comparison between both approaches. First and foremost, the two scholars seem to be schooled by two different currents. Zanker seems to be influenced by the school of thought focusing on the idea of "the public sphere" (die Öffentlichkeit) as defined by Habermas.[32] Wallace-Hadrill appears to represent, or rather 'wrestle' with another tradition centred on the idea of 'separate spheres' of private and public, developed in the study of eighteenth- and nineteenth-century Britain.[33] Both discourses developed in terms specific to the rise of the 19th century nation state, and although distinct, both depended on an idea of the modern industrial economy as requiring means of creating and expressing public opinion to establish a politically stable environment in which long-distance trade could flourish.[34] As far as the commercial outlooks of 19th century society were concerned, it may not have differed so much from Roman society, although the strategies of communication and opinion-making must have been distinctly different.[35] Wallace-Hadrill draws upon the Pompeian domus and its language of luxury as a key means of communication and opinion making. In doing so Wallace-Hadrill appears to be very much in line with the scholarly tradition of English

28. This concern has been expressed many times and has been shared by archaeologists and anthropologists alike; see Donley-Reid (1990) and Allison (1999).
29. Zanker (1992: 260).
30. Parslow (1999: 10.25).
31. This assessment focuses on Wallace-Hadrill's publication of 1994 on houses and society in Pompeii and Herculaneum which combines four articles published between 1988 and 1991, including the article on the social structure of the Roman house (1988), see Heinrich for a review of Wallace-Hadrill (2000: 302-303).
32. Habermas defines the 'public sphere' as a discursive space in which private individuals and government authorities could meet and have rational-critical debates about public matters. These discussions happen in coffee houses, cafes, public squares as well as in the media, in letters, books, drama and art. According to Habermas the modern public sphere is providing a space for a commerce or traffic in ideas among private citizens and hence acts as the locus for the development of public opinion; see for example Davis (1997: 397-426) reconsidering Habermas.
33. See Cooper for a critical discussion of the public-private binary and the analytical weakness of the discourse itself (2007: 19-20).
34. Cooper (2007: 19-20), see also Davis (1997).
35. Cooper (2007: 19-21).

classicists, sharing their interests in class values and class divisions,[36] and one could assume that through this he might have developed a keen eye for class distinction in Roman society. Zanker's outlook on the other hand is shaped by critical social theory as formulated by the Frankfurt School.[37]

2.2.1 Systems of spatial differentiation

Wallace-Hadrill's work is based on a number of principles, which in turn are solidly rooted in a thorough study of ancient literary sources as well as an in-depth study of the archaeological evidence. Firstly, his unit of study is the Roman house as a social unit. He argues that Roman domestic architecture and design were driven by the exigencies of Roman social life, thus houses represent valuable documents of that social life.[38] Secondly, he contends that Roman domestic architecture was 'obsessively concerned' with the distinction of social rank, not only between neighbouring buildings, but also within the social space inside the house.[39] Acknowledging the contributions of anthropology to the better understanding of how domestic space is shaped and the social and cultural significance it holds, Wallace-Hadrill argues that if differentiation within houses is a universal need, variation is found along cultural-specific lines or axes. He maintains that in Roman houses gender and age are not represented as axes of differentiation, making a typical female or male space, or space for children and elderly practically undetectable. In contrast, he identifies rank as the prevailing spatial differentiator within the Roman house.[40]

At the core of Wallace-Hadrill's argument lies Vitruvius' chapter on the social properties of domestic architecture (vi.5), which seems imbued with keen social awareness.[41] When translated into architecture, as described by Vitruvius, Roman social sensibility appears to result in a spatial distinction between private and public, which is not at all clearly defined but full of ambiguity. It is precisely this ambiguous relationship between public and private which Wallace-Hadrill understands as the in-built structure of the Roman house. Hence he clearly distances himself from any antithetical understanding of public and private in terms of excluding polarities.[42] Instead, he approaches the system of spatial differentiation along two contrasting axes, where the axis from public to private is intersected by another axis moving on a scale from grand to humble. Accordingly, domestic space can be found along these axes at various degrees of either scale. Thus an area within a Roman house can be public and grand or private and grand, as well as private and humble or also public and humble (see Fig. 2.1).[43] Hence the third salient principle of Wallace-Hadrill's research lies in his full appreciation of the 'ambivalent association' between public and private spaces, together with his ability to devise a method for a systematic study of this particular relational structure of Roman houses.

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36. A recent opinion poll (Guardian/ICM poll 2007) showed that Britain remains a nation dominated by class division, with a huge majority certain that their social standing determines the way they are judged by others.
37. Habermas (1962, 1989 trans.) and Adorno's and Horkheimer's *Dialectic of Enlightenment* (2002 transl., 1st published 1947) are examples of works published by members of the Frankfurt School. Zanker's work has been also influenced by Mitscherlich who addressed the 'inhospitality' of today's cities (1965). Mitscherlich's work intersects with the Frankfurt School's core concerns.
38. Wallace-Hadrill (1988: 47).
39. Wallace-Hadrill (1988: 52).
40. Wallace-Hadrill (1988: 50-52).
41. This statement draws on Vitruvius *De Architectura* vi. 5: Vitruvius does not only speak about a distinction of private and public within domestic space, but also about 'correctness of decor', defining what is considered to be appropriate architecture for citizens of different social rank and specific professions. Thus lawyers and orators should have spacious rooms to accommodate meetings, while the most prominent citizens, those holding magistracies should have spaces outfitted in a manner not dissimilar to the magnificence of public works, for in the homes of these people both public deliberation and private judgments and arbitrations are carried out; see Vitruvius *De Architectura* vi, 5 (translation Rowland and Howe (1991: 80-81).
42. More recent research has moved beyond the 'private-public dichotomy'; the private-public discussion is also not relevant for the study presented here.
43. Wallace-Hadrill (1988: 54-58).

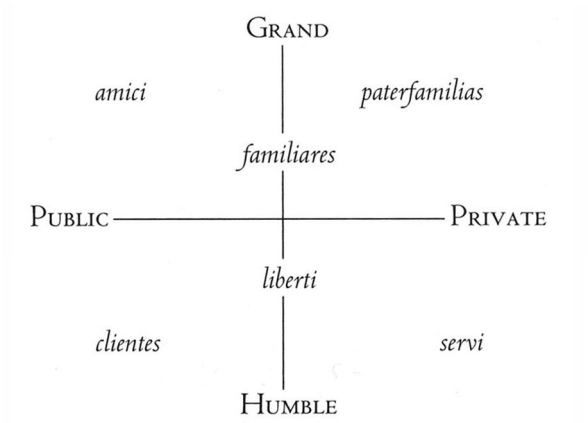

Fig. 2.1 – Axes of spatial differentiation in Roman domestic space (source Wallace-Hadrill 1994: 38)

2.2.2 Methodology: sampling Pompeii and Herculaneum

Prior to Wallace-Hadrill, Zanker had already demonstrated how the language of architecture and decoration was deployed in the construction of social standing. Zanker observed that despite their variety in the shape of living space, quite a few Pompeian houses (or rather their owners), obstinately insisted on the inclusion of a peristyle-courtyard even into the smallest of house-plans. After having convincingly demonstrated in previous work that villa architecture influenced town houses,[44] Zanker concluded that architectural forms and decorative elements seemed to serve the same purpose, namely to support their owners in striving for the illusion of inhabiting a villa, and thus suggesting a fairly lavish lifestyle. In support of his argument, Zanker sampled suitable houses from areas distributed over the entire city-plan of Pompeii, including the odd example from Herculaneum. For easy comparison, he displayed the houses under discussion in a series of 14 ground plans rendered at the same scale.[45] While their seemingly random grouping into comparative ground plans gives the impression that they represent an unbiased cross-section of Pompeian houses, still the houses remain a deliberate selection to prove Zanker's case.

In contrast to Zanker, Wallace-Hadrill's stated intent was to properly isolate a well-balanced sample of all Pompeian houses regardless of their bearing on the argument. To reach such a representative cross section he sampled a total of 234 houses composed of three groups of adjacent blocks (*insulae*) for comparison and control. These groups are located in different areas of Pompeii, reflecting different periods of excavation, as well as uneven conditions of preservation and states of publication.[46] In addition, Wallace-Hadrill included a group of blocks from Herculaneum, firstly to add a level of data control and secondly to make his data-set more widely representative by including aspects of another town for comparison.

2.2.3 Data assessment and interpretation

The complete sample provided Wallace-Hadrill with a range of information suitable for statistical analysis. Based on their quantitative assessment he grouped the houses into four categories, calculating their total plot size and the number of rooms (quartile 1-4);[47] and subsequently examining them with regard to their size, function, architecture and above all wall paintings.[48] From the size of houses and the number of rooms Wallace-Hadrill inferred a direct link to social status; while the varying sizes of houses and their distribution patterns were taken to reflect social contrast within a block. All in all, Wallace-Hadrill demonstrated how the basic structures of the Roman house are determined by the astonishingly public nature of domestic life. Furthermore he illustrated that the architectural forms and decorations imply a social code, which draws constantly on references to public and non-domestic architecture.[49] However, in the light of other studies of Roman domestic architecture and more recent Pompeian studies, Wallace-Hadrill's concepts of public/private as well as his ideas about the influence of public architecture

44. Zanker (1979), Wallace-Hadrill (1994: 169).
45. Zanker (1998: 194-196).

46. Pompeii: 7 *insulae* from the so-called scavi nuovi in Regio I, VI-XII, 8 *insulae* from Regio VI, IX-XVI, Herculaneum III-VI; see Wallace-Hadrill (1994: 67-71).
47. Quartile 1: 10-45 m2, quartile 2: 50-170 m2, quartile 3: 175-345 m2, quartile 4: 350-3000 m2; see Wallace-Hadrill (1994: 81, table 4.2).
48. Wallace-Hadrill (1994: 80-82).
49. Wallace-Hadrill (1994: 18-25).

on Roman domestic houses need to be qualified and required to take notice of other influences.[50] Within the scope of this thesis, a further clarification of the concepts of private and public is not important.

2.2.4 The social language of decoration

Complementing his sociological interpretation of domestic built structures, Wallace-Hadrill applied a 'systematic contextual approach' to the use and development of the four Pompeian styles of wall-painting.[51] To this end he examined the wall paintings within their particular spatial setting in relation to the entire house and all its decorations. According to Wallace-Hadrill, art-historians have fundamentally misunderstood Pompeian wall-paintings by treating the four styles as independent entities and by deliberately selecting the best examples of each style according to aesthetic criteria.[52] His working hypothesis was that decorations function to discriminate and to render the house fit for the pattern of social activity within it.[53] He adds that the language of private decoration draws on the idiom of public life and thus reflects on the reception function of the house and its interaction with visitors from the outside.[54] Such an approach, however, allows only a narrow spectrum of activities and possible experiences within the house,[55] and exhibits a bias towards the public function of the house, while contextual artefact studies have shown that reception spaces were also used for domestic activities.[56]

Wallace-Hadrill started his analysis by subjecting the wall decorations of his sample areas to a somewhat coarse quantitative assessment, establishing their absence or presence and the extent of decorations in relation to individual rooms within particular houses. He then attempted to find criteria to approach questions of quality, which he admitted was difficult to achieve.[57] Recognising their specific importance he selected two outstanding features for closer investigation: one being mythological paintings of the Imperial period (fourth Pompeian style), formally constructed in a Hellenizing idiom, and the other being polychrome marble floor mosaics. Wallace-Hadrill sees their significance in their close connection with the luxury world of the Roman elite and their relatively restricted diffusion. Still, their sufficient frequency of occurrence and varied range of elaboration allowed closer examination and tentative comparison,[58] hence qualitative inferences from their patterns of occurrence seemed achievable and informative.[59] While the general analysis concerned the total sample size, Wallace-Hadrill limited the examination of decorations pertaining to the fourth style to Region I. The total data set however was examined to shed light on four specific themes: the pattern of diffusion of decorative features, the relationship of decoration to social and economic activity, changes over time, and the relationship between different social levels.[60]

The outcome of Wallace-Hadrill's statistical analysis shows that 59 percent of the houses contained at least one decorated room.[61] Moreover, a predictable correlation between house size and richness of decorations could be traced, quite expected since both operated as status markers. Nonetheless, decorations did not always increase in proportion to the number of rooms, nor was there a clear division between grand and richly decorated houses on the one side or undecorated houses on the other side.[62] However, decorations of the first and second Pompeian Style were primarily found in the large houses (quartile 3 and 4). Wallace-Hadrill therefore infers that the decorations of the Republican period may be considered to be luxury objects which

50. Dickmann offers a critique of Wallace-Hadrill's concepts, considering them too static and not flexible enough to include other persons than the house-owner; and also not able to include different occasions in which the same space can be experienced differently (1999: 44-48).
51. Matching his own dataset, Wallace-Hadrill's assessment of decoration is based on the official inventory "Pitture e Pavimenti di Pompei" (Brangatini and De Vos *et al*. (1981, 1983/1986), cf. Heinrich (2000: 302-303) for a review of Wallace-Hadrill's work.
52. Cf. Tanner's review of Wallace-Hadrill (1995: 217).
53. Wallace-Hadrill (1994: 149).
54. Wallace-Hadrill (1994: 149).
55. Dickmann (1999: 45).
56. Allison (2007: 269-279); see also Van Krimpen-Winkel (2009: 72).
57. Wallace-Hadrill (1994: 150).
58. Wallace-Hadrill (1994: 150-151).
59. Wallace-Hadrill (1994: 152-154).
60. Wallace-Hadrill (1994: 151).
61. Wallace-Hadrill (1994: 151).
62. Wallace-Hadrill (1994: 151-154).

only the elite could afford.[63] Conversely the larger diffusion of the fourth style (mythological paintings) across all house types during the imperial period indicates that these wall paintings were no longer a privilege of the elite but could range from rich to poor.[64] Wallace-Hadrill adds that in the fourth style the decoration of even modest houses draws on the same repertoire as the grand houses. He infers that in this way they may have imported something of the lifestyle of the successful into the home of the poorer groups. Wallace-Hadrill holds that this spread was prompted by the increased prosperity of the Early Imperial period and driven by emulation, not only by internal competition within a circle of elites but also by the aggressive competition from outside the elite. Here he refers to members of socially suppressed groups, particularly ex-slaves whom he considers being equally keen and successful in penetrating the elite and claiming their own place in Roman society.

2.2.5 The Roman power-house

Wallace-Hadrill's thoroughgoing textual and archaeological analyses, as well as his interpretations, have greatly enhanced our understanding of the social structure of Roman domestic space and its societal meaning. Moreover he reminds us that Roman houses not only present a reflection of social realities, but are in themselves one of the means by which the Romans 'constructed their social world'.[65] Within this context, Roman houses played a vital part in establishing their owners' claim to a position in society. Wallace-Hadrill's definition of the Roman domus of the elite as a "power-house" could not have been more to the point. Assessing the built structures and decorations in tandem led him to detect a system of spatial differentiation which he understands as the direct product of Roman social relations, connected with the social system of patronage and clientele.[66] Thus, for Wallace-Hadrill the house became the focus where the network of social contacts that provided the basis for the owner's activities outside the house was generated and set in motion. Consequently, the dominant concern in articulating domestic space was to provide a suitable context for the differentiation of public activities from those of a more private nature, and for activities along the full social spectrum.[67]

Wallace Hadrill's insights into the social language of Roman domestic architecture greatly increased our awareness of the ambivalent nature of the public and private spheres played out within the context of the Roman house. Although Ostia's domestic architecture is not so much in the centre of this thesis, still, some of Wallace-Hadrill's observations and interpretations offer analogies that could be applied to achieve a better understanding of the spatial organisation of some of Ostia's guild houses, in particular those which follow the architectural language of the domus.

The following critical examination concerns Grahame's spatial assessment of Pompeii's domus of Region VI, offering yet another approach to Pompeian domestic architecture and its relationship with Roman society. While Wallace-Hadrill's work largely incorporates the cultural and archaeological context of Pompeian houses,[68] as well as a keen eye, not to say a bias, for class distinction, Grahame's study concentrates on spatial theory and methodology, almost at the loss of Pompeii's cultural context. Nonetheless it provides a challenging contribution to Roman urban studies. In line with Wallace-Hadrill,

63. Heinrich considers Wallace-Hadrill's sample areas not as large enough to reach such strong conclusions. Moreover he points to other studies focused on the first and second Pompeian style, which have shown that even those decorations were found across all house sizes (2000: 203, note 5). While Heinrich's critique seems justified, at the same time it does not make Wallace-Hadrill's research any less important; sample sizes are always difficult topic in archaeological research and they never seem large or mixed enough.

64. Wallace-Hadrill (1994: 196).

65. Wallace-Hadrill (1994: 61).

66. Wallace-Hadrill (1994: 12); see Allison (2007) for a different interpretation of domestic space in Pompeii. Allison's detailed artefact study identified household objects such as storage vessels and loom weights widely distributed within Pompeii's atrium houses. Allison's study suggests that most parts of Pompeii's atrium houses were used for everyday household activities. Hence her conclusions do not fit particularly well with Wallace-Hadrill's concern for status and public display.

67. Tanner (1995: 217).

68. See Tanner's critique on Wallace-Hadrill's under developed cultural analysis which he sees as neglecting the function of the Roman domus as a primary site for the pursuit of cultural practices derived from the Greek World (1995: 217).

the fundamental argument of Grahame's study is that the underlying social structure of Pompeii can be analysed through a study of its domestic architecture.

2.3 GRAHAME: READING SPACE – A SALLY ON THE ROMAN DOMUS

Grahame's syntactical approach to the Pompeian domus, printed in 2000, was preceded by an earlier published critical assessment of Roman urban theory and subsequent call for a radical change of direction in studies of Roman urbanism.[69] Grahame claims that his approach to the built environment of Pompeii promotes a methodology that moves towards a better understanding of the social processes which were responsible for the creation and transformation of spatial forms.[70]

2.3.1 Theoretical framework

Grahame proclaims his study to be a lengthy critique of Goffman's 'dramaturgical analogy'.[71] While the study concentrates on Goffman's model, he engages little with Goffman's writings, instead he take a critical stance and follows Gidden's social theory, and in particular Giddens' comments on Goffman.[72] However, despite all efforts, Grahame's theoretical underpinnings do not fully convince and have been even dismissed as overly ambitious and partly irrelevant.[73] Moreover, despite a prevailing positive attitude towards interdisciplinary approaches, Grahame has been accused of drawing on the ideas of a number of anthropological, sociological and philosophical thinkers who, it is alleged, have only marginal significance for the study of Roman domestic architecture.[74]

Goffman's model understands social life as being analogous to drama with individuals playing their roles.[75] Grahame disapproves of the 'dramaturgical approach', criticising its negative bearing on the role of built space. According to Grahame, Goffman's model completely disregards the active and dynamic role of architecture and demotes buildings to mere containers for human activities. Grahame argues that by extending the dramaturgical model to buildings, they would be reduced to a mere 'theatre' or stage coming to life only with their actors, while they remain meaningless in the absence of the protagonists. In fact, the difficulty of deducing meaning from architectural structures alone, when any other kind of information about social practice and activities within the buildings is lacking, has led to pessimistic views among archaeologists. Grahame refers to Donley-Reid who claims that 'the walls will tell me nothing'.[76] Donley-Reid is not the only archaeologist who is hesitant about inferring meaning from built structures. Some others, like Allison, might admit that such investigations may lead to an understanding of the cultural patterning of space, but seems doubtful that such studies can provide information about those who built and used the spaces.[77] Others again, foremost Barrett, argue that the significance of buildings only emerges as containers of situated practices and does not encode some original meaning.[78]

Leaving behind any of these concerns, Grahame regards buildings to be among the largest artefacts created by society and thus for this very reason they cannot be meaningless.[79] While this is at best a circular argument not contributing much to the discussion, Grahame's expanded search for meaning in architecture appears on the whole also a bit lost and remains cruising around concepts like social structure, identity, political life, all of them too large to be dealt with easily.[80] Within the framework of this assessment it seems sufficient to state that Grahame's

69. Grahame (2000; 1997: 156-162).
70. Grahame (1997: 157-160).
71. Grahame (2000: 1), Goffman's dramaturgical analogy conceptualises social action in terms of 'performances' given by social actors to audiences.
72. Goffman (1959; 1963); Giddens (1984); Grahame (2000: 6-9).
73. George (2002: 239).
74. George (2002: 239).
75. Goffman (1959, 1963), see also Lawrence and Low (1990: 480).
76. Grahame (2000: 1); Donley Reid (1990: 115).
77. Allison (1999: 4).
78. Barrett (1994: 92).
79. Grahame (2000: 1).
80. Cf. George (2002: 239).

aim was to offer an alternative conceptualisation of built space. Other than under Geoffman's concept of 'dramaturgical analogy', Grahame conceives architecture as being an integral part of society and thus should be understood as an instrument that helped create and recreate society. For this reason architectural remains ought to encode a wealth of social information, and therefore, he claims that suitable methods need to be devised to 'decode' buildings.[81]

2.3.2 Searching for a methodology

Grahame's quest for a methodology starts by suggesting that we can perceive architecturally divided space as having properties analogous to those of written texts. He argues that if we want to understand anything that is written we first need to know the language. He aims to achieve a similar understanding by comparing speech and writing with social interaction and architecture. He reasons that in both cases the transient acts of speech or social encounter are preserved accordingly, as either writing or architecture. He argues further that by analogy the act of detecting a spatial activity might be counted as equivalent to the act of reading; consequently he equates movement to reading. From a short digression to Saussurian linguistics he links up with structuralism and finally arrives at Hillier and Hanson's Space Syntax theory.[82] The latter provides him with a ready-to-use method to reconstruct potential movement through space.[83]

Grahame does not offer yet another account of Space Syntax theory; neither does he critically examine other archaeological case studies in terms of the method's suitability for archaeological application.[84] Instead, he takes the reader through the difficult terrain of applied Space Syntax in an almost handbook-like manner and thus offers a truly useful contribution by presenting both theory and method fairly accessibly even to those unfamiliar with the complexity of the theory.[85] With regard to his own case-study he only selects Access Analysis, a topological method which allows him to represent, quantify and interpret the spatial configuration of buildings or settlements.[86]

2.3.3 Case-study: Pompeii and access analysis

Using a sample of 144 Pompeian houses, Grahame's study aimed at a comparison between the conventional views of domestic space based on Roman literary sources and one derived from access analysis. Determined to ensure statistical validity in terms of numbers and variation of house-types, he decided on a large sample area with continuous groups of houses forming *insulae*.[87] In a process of elimination, Pompeii's Region VI emerged as the most suitable area, despite its poor state of preservation and the poverty of recording owing to 19th century excavation. Next he established suitable base-maps relying on a combined use of the maps produced by the Corpus Topographicum Pompeianum (CTP) project and Eschebach's earlier plan. Given that doorways are the crucial element in Grahame's applied Access Analysis, the CTP maps seemed ideal for Grahame's analysis since they systematically mark all doorways that were open or blocked during antiquity.[88]

2.3.4 Data analysis and interpretation

Access Analysis enabled Grahame to compare house-plans of different layouts with each other.[89] He extended the analysis by adding spatial values which allowed him to arrive at estimates for potential social encounter for any room within the configuration of the house.[90] The results of his statistical examination

81. Grahame (2000: 23).
82. Space Syntax refers to a set of theories and techniques for the analysis of spatial configurations. It was pioneered by Bill Hillier, Julienne Hanson and colleagues at the The Bartlett, University College London; see Chapter Three this study for a brief introduction to Space Syntax.
83. Grahame (2000: 24).
84. See Chapter Three in this study; see also Thaler (2006: 324-326) for a brief overview of Space Syntax applications in archaeology; see Cutting (2003) for a critical assessment of Space Syntax applied to prehistoric settlements.
85. Grahame (2000: 29-36); George (2002: 239).
86. Grahame (2000: 29).
87. Grahame (2000: 38-39).
88. Grahame (2000: 39).
89. See Grahame's Appendix One providing houseplans and access maps (2000: 101-171).
90. Grahame (2000: 4, 56-73); see Chapter Four this volume on Space Syntax tools and techniques.

led him to conclude that the Pompeian house-plans were highly contingent, whereby the large variety in layouts is understood as the result of factors that operated locally rather than following a common set of rules.[91] These findings seem to challenge Wallace-Hadrill's and Zanker's earlier studies of Pompeian houses, which suggest more standardized, often idealised house-plans, where similar layouts of houses are seen to support comparable patterns of social life.[92] By analysing how dissimilar house-plans shaped interaction differently, Grahame claimed to identify a trend in the social patterns generated by different physical parameters.[93] He noted that the smallest houses usually produced a scattered pattern of interaction, while in slightly larger houses, when there was a courtyard present, interaction was centralised, with encounters converging towards the courtyard. Then again, in houses with multiple courtyards, the patterns of interaction became more segregated as competing spaces for encounter were available. From these findings Grahame concluded that the houses engendered a variety of social patterns in place of fairly standardised patterns of interaction.[94] He relies on his own interpretative framework to be able to translate these results into indicators for social factors. He postulates that such varied social patterns suggest the formation of heterogeneous social identities, which in turn seem to be rooted in the collective identity of a household. Being aware of the apparent opposition between individuality and collective identity he seeks to reconcile these contradictory poles by conceiving of the house as the locus for social hierarchy. Consequently he argues that within this hierarchy each person may hold a specific position and thus maintain a sense of individuality, while at the same time each house seemed to have engendered and contained a defined social hierarchy invested with localized power. He added that the competition necessary to create and sustain hierarchies between houses seems to have produced a mixture of houses of different sizes and diverse spatial organisations, which together form the heterogeneous urban mosaic of Pompeii.[95]

2.3.5 Reading space and beyond

Grahame's rigorous spatial analysis of 144 house plans remains unparalleled in Pompeian research. On the one hand his analysis makes a lucid case for the potential usefulness of Space Syntax applications in archaeology and the need for interdisciplinary approaches.[96] On the other hand, Grahame's study gives ample reason for serious criticism mounted against his neglect of cultural context, and his over reliance on base-maps to the detriment of much needed archaeological investigation, all factors which ultimately compromise the results of his analysis. When it comes to Grahame's interpretations, these are often reduced to descriptions of the statistical results without giving significance to them. Then again he seeks to explain his results within his own interpretative framework, which seems an intricate concoction of hypothesis over hypothesis, and thus defies the analytical rigor he had applied to the analysis in the first place. At times when careful observations would have sufficed, his results do not seem to warrant the exhaustive method of spatial analysis. A case in point is the pattern of distribution of the courtyard houses within Region VI. A simple look at the street layout and its effect on the size and shape of plots would have helped to explain why certain wedge-shaped plots located at the periphery of the city quarters did not permit the construction of multiple or even single courtyard houses.[97] On the whole Grahame's potential contribution to the better understanding of Roman houses and society seemed to be negatively impacted by his over-reliance on theoretical explanation to the exclusion of the cultural context from which the archaeological evidence is derived.[98] This is not to say that his theoretical explications have no value in their own right. In fact, his comprehensible guide to Access Analysis has proved useful to many archaeologists applying

91. Grahame (2000: 4, 88-89).
92. Grahame (2000: 91); in contrast see Wallace-Hadrill (1994).
93. Grahame (2000: 4).
94. See Robinson (1997) for a different model of urban structure in Pompeii. Robinson argued that elite houses were separated form one another, perhaps indicating that the elite house owners controlled the neighbourhoods directly surrounding them.
95. Grahame (2000, 4-5).
96. See George (2002: 239).
97. Grahame (2000: 83-84).
98. George (2002: 239).

spatial analysis to archaeological contexts and in this regard he made a truly valuable contribution. Grahame however was not the first scholar to apply Space Syntax to the built environment of Pompeii. Prior to him, Laurence in his study of space and society applied selected tools of spatial analysis to examine the degree of integration between the street network and Pompeian houses. The following section will give a brief account of Laurence's work and will examine to what extent his engagement with the built environment of Pompeii enhances our understanding of Roman urbanism.

2.4 LAURENCE: SPACE AND SOCIETY

Contrary to the 'house-based' studies above, Laurence's work focused on the spatial organisation of Roman cities. Laurence's work, first published in 1994,[99] is one of the broadest and most challenging studies of Roman Pompeii achieved by a single author.[100] The study concentrates on the mutual relationship between urban space and society. In its theoretical outlook it responds to the main currents, which had influenced Pompeian research as well as the study of Roman urban history in the early 1990s. Above all it developed when the authority of the Weber-Finley conception of the ancient economy had reached its end.[101] Still, the influence of the consumer-city debate is felt throughout the book. Coinciding with the waning dominance of economic models, Pompeii underwent an extensive re-evaluation as an object of study as well as a source of evidence. Zanker's and Wallace-Hadrill's research, as discussed above, are early examples of this new engagement with an already well-known site. Once the city's vast scope for methodological and theoretical studies had been realised, it became necessary to reconsider how to better use the wealth of data the city makes available.[102] Even more so since an increased interest in the social meaning of the ancient city took over, where previously a concern for the ancient economy had been the focal point. Thus the need arose to examine the archaeological data in terms of the underlying social use and significance. This led to literary sources gaining new importance as they were seen to shed light on the 'social rhythms' that underlie material culture.[103]

2.4.1 The 'Spatial Turn' and Pompeii's physical and social contexts

Laurence's work appears largely affected by the 'Spatial Turn' which resulted from the expanding critical debates on the social production of space and human spatiality, attracting the attention of nearly every field in the social sciences and humanities. All spatial disciplines such as geography, architecture, and urban studies, as well as archaeology, have benefitted from the increased interest in 'space' and the widened scope of the spatial debates.[104] The theoretical underpinning of Laurence's study is the inherent mutual relationship between urban space and the activities carried out by the society living within the city. Laurence states that all behaviour has a spatial aspect to it, and adds that all people are born into a spatial world.[105] Throughout his book Laurence analyses urban activities within their spatial and in part temporal contexts. To explore the spatial nature of the ancient city his study draws a synthesis of ancient texts and material culture. Laurence considers ancient texts as representations of practice and thus uses textual interpretations to shed light on the spatial dynamics he observes. His main focus is on the implications of the mutual relationship between urban space and urban society and he claims that by using this specific relationship he will be able to establish a more coherent and encompassing view of the Roman city than has been presented by those using the literary texts only.[106] As the studies discussed before, also Laurence's work constructs a

99. Laurence's second edition published in (2007) has two additional chapters, while other chapters have been expanded and restructured.
100. Cf. Dobbins and Foss' (2007) edited volume which brings together a large number of authors presenting their recent approaches to Pompeii.
101. Laurence (2007: xiii, 10).
102. Raper's (1977) thesis, to be discussed shortly, was ahead of its time and its significance was only appreciated in much later studies Kaiser (2000) and Robinson (1997).
103. Wallace-Hadrill (1988: 48); Laurence (2007: 7-8); see McIntosh (2007: 1) for a review of Laurence.
104. Cf. Soja (2001: 1.6).
105. Laurence (2007: 10).
106. Laurence (2007: 11).

similar foundational argument: the underlying social structure of Pompeii can be analysed through a study of its urban space.[107]

2.4.2 Positivist geography, Space Syntax and Pompeian society

Laurence's book comprises eleven chapters, all of which have a clearly defined spatial direction, while nine chapters explore different aspects of urban space in Pompeii.[108] All of them draw upon concepts of urban geography and architectural studies to map the spatial organisation of Pompeian society,[109] whereas chapters six and seven reach beyond the levels of qualitative description and illustration, and incorporate quantitative methods of spatial analysis derived from Space Syntax and mathematical geography. Since Laurence's analytical approach provides also his most compelling work, these two chapters are of specific interest to this discussion. Although praised for being innovative, Laurence's approach received considerable criticism: stating that the results did not seem to warrant the methodological sophistication,[110] and that the spatial dynamics identified by painstaking analysis seem more than obvious and could be observed by the careful viewer without verification through quantitative and statistical means.[111]

This is a well-known argument, which has been repeatedly used against spatial analysis techniques. In defence of Laurence it needs to be stated that Space Syntax devices are first and foremost contrived as tools to visually and syntactically explore a delimited spatial environment.[112] Thus once these emergent spatial patterns have been made visible, they often appear obvious and almost self-evident. This does not however mean that they would have been detected had it not been for these sophisticated means of analysis. Furthermore, spatial patterning that is self-evident benefits from being subjected to a scientific presentation of quantification and reproducible patterning. Such tools can assist a creative mind like Laurence to identify spatial patterns which then need to be translated into social meaning. Hence what should be critically addressed is not the inappropriateness of the analytical methods or whether the methods themselves determine what could and should be studied, it is rather that Laurence's theoretical explanations fall short in describing the techniques sufficiently.[113] Returning to the methods themselves, Space Syntax and mathematical geography, both tend to conceptualize space exclusively as form or geometry. In line with this conceptualisation Laurence's analysis aptly focuses on configuration and arrangement of physical space, and typically involves statistical description, mapping and correlation of varying spatial patterns, expecting that fundamental and common patterns inherent to these spatial forms might emerge.[114] In the following section some examples will be introduced to explain Laurence's approach; in addition, a short outline of Laurence's chapters six and seven will be presented.[115]

2.4.3 Street activity and public interaction and the 'Production of Space'

Laurence's work deals with a different understanding of public and private spheres than Wallace-Hadrill, who had focused on the Roman houses and how their owners constructed their social world through the means of domestic architecture. Laurence steps outside the Roman houses and is interested in what is happening at the intersection between houses and streets. His chapters six and seven try to explain patterns of urban design and social activity at the intersection of private and public space, i.e., house-

107. See Small's review of Laurence (1996: 430).
108. The second edition (2007) includes two added chapters: chapter 8 considers the possibility of urban land rent and discusses differing property values within the city. Chapter 10 examines the experience of a child becoming an adult, relating this development to the social and spatial structure of the city.
109.See Ulrich's review (1997: 383) of Laurence (1994); see also George's (1995) review of Laurence (1994).
110. Tanner (1995: 218).
111. Ulrich (1997: 383-384).
112. Hillier and Hanson (1984).
113. Laurence (2007: 127-127); see also the review by George (1995).
114. See Soja (2001: 1.3) expressing a critical view of Space Syntax and general mathematical geography and their search for formal orderliness and empirical regularity.
115. This brief review of Laurence's chapters 6 and 7 follows George (1995); Laurence (2007: 127-127).

fronts and the streets that define them.[116] In practical term, his approach centres on doorways in regard to location and frequency of occurrence. In addition, he relates the number and distribution of doorways and the total of graffiti (election notices) to the presumed intensity of activity in a street, i.e. a high number of doors reflects greatest use of street frontage. Laurence applies a formula to the streets and doors, comparing the length of streets with the number of doorways to obtain the occurrence of doors throughout the urban grid. As might be expected, activity is strongest along the great thoroughfares that run between the gates and frame the economic and political core, the *forum* with Region VII, which integrates the city, while other regions were more residential, hence saw less public activity.[117]

Laurence extends this type of analysis in his next chapter, on the production of space,[118] by looking at the connection between the houses within the *insulae* and the streets themselves. He seeks to identify the 'spatial generators' which led to the patterns in doorways and levels of activity he identified in chapter six. He is interested in discovering those local factors which influence the general patterns. Quite rightly he starts off with the grid plan of the street network, identifying the urban grid as one of the determining factors.[119] He thus calculates the percentage of doorways on each side of *insula* blocks in proportion to their length, as a means of determining the *insula*'s dominant facades. He then examines the prevailing location of dominant facades, and in most instances establishes a directional focus towards the access routes leading from the city gates to the centre. Laurence takes this pattern as indication that 'the social relationship to cause the Pompeian spatial configuration was the relationship between inhabitant and people from outside the city'.[120] Other areas however seemed to be affected by a different social relationship; hence Laurence tries to identify the variables which were generating these different patterns. He concentrates on Regions VI and VII, where no clear directional focus could be identified. These regions are near the *forum*, where centrality might play a role, and also the areas have quite different street plans: a regular orthogonal grid defines Region VI, while Region VII has a highly irregular street arrangement. After having assessed the street pattern and the position within the urban grid, Laurence concludes that these are only partially determinate.[121] Hence the question of what was generating this pattern was not fully answered. Consequently he expands his search and turns to the internal structuring of the *insula* blocks to examine whether this would have been another factor influencing Pompeii's spatial configuration. Therefore Laurence seeks a methodology which takes the street patterns as well as the internal structuring of *insulae* blocks into account. By way of demonstration, giving a single example, he applies Space Syntax's Access Analysis to a house-plan.[122] This method of analysis allows him to translate two-dimensional house-plans into relational graphs, whereby all spaces within the structure (building) are defined and justified with regard to the exterior. That is, the study looks at the spatial structure of houses adjoining the streets from the point of view of a person in the street.[123] These so-called j-graphs (justified graph) while being a visual aid to identify structural relationships, also offer Laurence a means of quantitative assessment, based on the calculation of numerical indicators for all spaces within a

116. For critical comments on Laurence's approach see Heinrich (2000), Ulrich (1997), Foss (1996), Small (1996), George (1995), Tanner (1995) and Walthew (1996) for a chapter-by-chapter outline of Laurence (1994).
117. Foss (1996: 352), George (1995).
118. Laurence (1994: 104) and (2007: 117) respectively.
119. See Hillier's (1996b: 149; 2007: 111-137) chapter 4 on cities as movement economies with new insights into the structure of urban grids and the way these structures relate to urban function. See also Hillier and Penn *et al*. (1993) formulating the 'Movement Economy of Cities', claiming that the urban grid itself is the main generator of patterns of movement.
120. Laurence (2007: 122); and (1994: 102) respectively.
121. It seems that there are methodological problems since Laurence worked with one data set, and hence created a circular argument. An independent analysis of the street grid and an independent analysis of the land-use along those streets would lead to two datasets which could then be compared.
122. Laurence (2007: 126-131; 1994: 115-119); the House of the Vettii is used to demonstrate access analysis. See George (1995) for an instructive summary of Laurence's approach; see Hillier and Hanson (1984: 143-241); see Bafna (2003), for a short and more accessible introduction to Space Syntax, see also the section on Space Syntax and Archaeology in Chapter Three of this thesis.
123. Laurence (2007: 127).

given spatial configuration. In turn these numerical results provide a basis for measuring the degree of integration (or separation) between the street and a building within an *insula*. From these statistical results Laurence attempts to reach conclusions concerning the spatial logic through the patterns of doorway occurrence at Pompeii. He detects a system of inverse relationships between the number of doorways and the degree of integration or segregation of buildings and the street front: low occurrence of doors goes along with buildings spatially segregated from the street, while a high occurrence of doors points to shallow buildings, integrated with the street front. These relationships also correlate with property size; lower occurrence of doors reflects larger plot-sizes. Thus Laurence establishes that the properties in Region 6 were considerably larger than in Region 7. In addition, in Region 7 more properties are found that lacked depth, thus these buildings were directly integrated with the street. Finally, his analysis leads him to conclude that property can only be separated from the street in areas where the density of use is not very high. Thus, Region 7 (east of the *forum*) is shown to be a unique locus in the town and one of particularly intense activity, because of which there was pressure to use street frontage to maximum effect.[124] Laurence concludes that the spatial logic that generates patterns in Pompeii stems from the amount of activity and the density of development in an area.[125] Hence these findings conform very well to the principles of the movement economy as defined by Hillier.[126]

2.4.4 What can be learnt from Laurence's encounter with space?

Regrettably Laurence explains his methodological approach very briefly and only in terms specific to Space Syntax, which tends to alienate less space-inclined readers. This has been clearly expressed in various critical reactions to Laurence's 1st edition; the 2007 publication acerbates further this general dissatisfaction. The 2nd edition still fails to supplement the lack of theoretical explications concerning Space Syntax and does not add any substantial information to communicate better the results of the analysis, let alone to explain the inferred social meaning. Sadly, Laurence's use of Space Syntax does not serve spatial theory too well, but rather leaves even the most sympathetic reader with a good deal of apprehension, fearing that the spatial methods applied might have even narrowed the interpretive scope of an otherwise wider contextual analysis. One wonders whether those factors which Laurence vaguely identifies as the generative source of a 'social logic', were actually not a cause but a consequence of other, often unseen and unexamined, social and spatial processes.[127]

It is tempting to suggest that if Laurence had gone all the way and had detached his spatial analysis completely from Pompeii's social and cultural context, and had designed his study as a purely theoretical exercise to test the method, it might have proved spatial analysis more useful. By the same token, Laurence's conclusions concerning Pompeii's social meaning could have gained from a more experimental and explorative approach testing a wider range of spatial determinants. Above all his study of activity related to street fronts would have benefited from a syntactical analysis of the street network, which would have enabled him to compare his results against activity patterns generated by the street network itself. A combined syntactical analysis integrating Access Analysis and a connectivity analysis would have still allowed him to confront his results with what has been established through archaeological and historical analysis. Instead Laurence presents an ill-defined approach somewhere in between, neither embracing the full complexity of Space Syntax theory nor engaging sufficiently with the cultural and archaeological context of the areas studied.

Furthermore, the way in which Laurence's study is presented does not allow for a proper assessment based on the results of his spatial analysis. Firstly he does not make the analysis data available, and secondly he does not offer good enough maps to enable the reader to examine the validity of the study's results. Interestingly enough, although numerous

124. Laurence (2007: 130-133).
125. Laurence (2007: 132) and (1994: 121) respectively.
126. See Chapters Seven and Eight in this study on Ostia's streets and land-use related to the streets.

127. Cf. Soja (2001: 1.3).

schematic maps and tables supplement Laurence's text, both editions fail to provide a detailed map of Pompeii. Thus the individual buildings composing *insulae*, whose spatial configurations are analysed in chapter seven, remain topographically unreferenced unless one is to consult better-illustrated books on Pompeii. The same applies to the numerous streets, which are constantly referred to with regard to occurrence of door openings; again no single map provides information on the location of those streets.

Repeating again what has been said against Laurence's use of formal spatial analysis is not meant to suggest that there is no value in such an effort. Laurence started off with the initial claim that the underlying social structure of Pompeii can be analysed through a study of its urban space.[128] He devotedly took on the task of demonstrating how urban space can be analysed and succeeded in identifying possible factors which might have played a role in generating social activity. Despite all the shortcomings, his pioneering work has proved to be highly influential and gave rise to a number of new studies engaging with Pompeii's urban space and Space Syntax techniques. Grahame's study follows in Laurence's footsteps, although in a more rigorous way.[129] Anderson's work combines methods of GIS and Space Syntax to attempt a functional account of Pompeian domestic space, by revealing the functional uses of architectural space and the social relationships patterned by those spaces.[130]

So far, four different social approaches to Pompeian urban space have been examined, each looking at the city's spatial organisation from a new perspective, applying a different resolution, from individual houses to neighbourhoods and streets, and finally to the entire city as a unit of study. The last assessment presented here concerns Kaiser's analysis of the use of space in the Roman city of Empúries, Spain. However, before leaving Pompeii we should draw our attention to the work which builds the bridge between studies of urban space in Pompeii and Kaiser's work in Empúries. The connection between these studies has its origins in a thesis of the 1970s when Richard Raper, then a geography student, conducted his analysis of the urban structure of Pompeii based on a socio-economic examination of land-use.[131]

2.5 RAPER: THESIS AND ITS IMPACT

Raper cast his eye on Pompeii in the 1970s. Slightly earlier, systematic research had already started with Eschebach's town plan, providing information on the function of each Pompeian building, categorised into 12 classifications of land use. Raper, realising the analytical potential of Pompeii's intact site plan combined with an already established classification of land use, set out to study the urban structure of Pompeii through the function of all buildings across the site. His work is credited as being the turning point in the development of urban research in Pompeii.[132] Raper's techniques found little following, but his conclusions gained wide acceptance for Roman urban sites.[133]

2.5.1 Raper's legacy

A brief outline of Raper's methodology is presented in the next subsection.[134] This is done because Raper's method is part and parcel of his conclusions and in this way has specific significance for Kaiser's 'Urban Dialogue'. Consequently, Kaiser not only challenges Raper's conclusions but critically examines the technical aspects of Raper's approach to demonstrate that Raper's method was not suited for identifying the patterns of urban structure he had initially attempted to seek. As a result, Kaiser modifies and extends Raper's techniques for his own analysis of urban space in Empúries.[135]

128. Laurence (1994: 19; 2007: 19).
129. Grahame (2000).
130. Anderson (2005: 146); see also Fridell Antler and Weilguni's preliminary analysis of Pompeii's networks of streets, applying Space Syntax to investigate the method's analytical ability, and to analyse the potential for movement and social activities within Pompeii's public space (2003: 31-39); see also van Nes (2009).
131. Raper (1977: 189-221).
132. Robinson (1997: 135); Kaiser (2000: 8).
133. Kaiser (2000: 7).
134. Raper (1977: 207-208, figs. 4, 5a and 5b, tables 1-2); Kaiser (2000: 42).
135. Goodman (2001: 6).

Raper's work is synonymous with the straightforwardness of his analytical techniques and the apparent logic of his conclusions. While his methodological approach gained admiration for being innovative and scientific, the value of his theoretical argument appears less appreciated. Thus before looking at Raper's methodology, and to slightly redress the balance, the initial argument of his analysis should be reiterated. Raper wrote: "*In the analysis of land use for Pompeii, the contention is that the distribution of man over space is not haphazard but that man locates by the social activities he creates and sustains through culture.*"[136] Hence Raper's approach to Pompeii's town plan suggests a socio-cultural bias, and the method devised was a test for the clustering or dispersion of structures over urban space occasioned by social/cultural factors.

Raper employed a grid of uniform size, placed over the study area to count the frequency of objects of interest within each grid cell. The data-set comes from Pompeii's town plan and Eschebach's earlier achieved land-use analysis. Taking advantage of Eschebach's map, in which one of the 12 designated categories of land use was assigned to every excavated space in the city, Raper placed a grid over Eschebach's map, dividing the site into regular squares corresponding to 100 x 100 m on the ground at Pompeii. To further increase resolution he placed an overlay equivalent to one of the 100 x 100 m squares and subdivided the superimposed grid into squares each representing 1 sqm on the ground. This enabled him to record all categories of land use present within the 100 x 100 m square. Counting the number of squares with the same use enabled him to obtain percentile land use data. To arrive at data for the entire city he summed-up the percentages per grid which he then divided by the total number of grids needed to cover all Pompeii. Only 39 squares are representative of the city as the excavated sample had to exceed 70 % to qualify for analysis.[137] Each category of land use in turn could be isolated, and its distribution and relationships studied. By looking for the degree of variation from the mean distribution of each land use category, Raper established that there was no significant variation in land use in most parts of the city. Thus he concluded that there was no evidence for patterning, excluding the noted exception of a concentration of public buildings around the *forum* and clustered commercial use along access roads. Raper's results suggest that Pompeii's urban land use was consistent in its diversification, with no evidence for structuring.[138] Raper's conclusion is an expression of absolute confidence in his method of analysis, even more so since he had actually expected space to be structured according to social factors as his foundational statement betrays. Kaiser rightly calls Raper's conclusions 'contra-intuitive',[139] and not only seriously questions them but takes on the challenge to disprove them as we shall see in the following section.

136. Raper (1977: 201).
137. Raper (1977: 208).

2.6 KAISER: THE URBAN DIALOGUE

The approaches to the Roman city discussed above concentrate on the extensive remains of Pompeii, and, with the exception of Zanker's work, all make use of strong data sets applying statistical analysis. Outside Pompeii, such intensive studies have been less easy to pursue, since few other Roman cities are as fully-preserved or extensively excavated.[140] Thus Kaiser's work on Empúries is a powerful case study to demonstrate that other ancient cities besides Pompeii are able of providing suitable data for statistical analysis, and in this sense the study has specific significance for similar work in Ostia. At the same time, the advances made in Pompeian research have been most beneficial to our general understanding of all Roman cities and have influenced and inspired research in other Roman sites, such as Kaiser's study of Roman Empúries.[141]

Kaiser's 'Urban Dialogue' perceives the Roman city as a social phenomenon. His attention turns to the site of Empúries (Roman Emporiae) to examine the city's built environment as an expression of Roman

138. Raper (1977: 216-217); Kaiser (2000: 42).
139. Kaiser (2000: 2).
140. See Goodman's review (2001: 4) of Kaiser (2000).
141. Empúries is located on the Spanish Mediterranean coast, about 100 km north of Barcelona and about 50 km south of the French border. Empúries is the Catalan spelling for the name of the site, it is also known by the Castilian Spanish name of 'Ampurias', see Kaiser (2000: 2).

urbanism. By means of an intensive analysis of the arrangement of space, applying GIS-based statistical analysis, Kaiser seeks to gain an understanding of the city's underlying social meaning as it was experienced by ancient inhabitants and visitors. As suggested by Goodman, perhaps Laurence's data-driven approach to Pompeii has been most significant for the genesis of Kaiser's work in Empúries.[142] Both works draw on Space Syntax, and both rely on the combined evidence of written sources and the past built environment. Both studies argue that urban space was deliberately arranged to reflect and reproduce a Roman social system. However, Kaiser makes a specific case and sets out to contest the so-called Raper thesis. The latter claims that Roman urban space was largely unstructured. Following its acceptance for Pompeii, Raper's thesis was projected to other Roman urban sites and became the paradigm for the use of space in Roman cities.

Kaiser understands Roman society to be very hierarchical and finds it is difficult to accept that in a society where even a seat in a theatre was charged with social meaning the location of buildings and activities within a city could be devoid of meaning.[143] Kaiser claims that the only way to effectively challenge Raper's conclusion is by conducting a similar analysis at another Roman city. At the same time Kaiser had to acknowledge that as far as Pompeii was concerned, Robinson's study of the Pompeian elite domus had already partly disproved Raper's conclusions.[144] Thus moving away from Pompeii and Herculaneum, the traditional focal point for developing models of Roman urbanism, allowed Kaiser to gain a fresh perspective.[145]

2.6.1 Empúries - a case study for spatial analysis

The site of Empúries consists of three interlinked centres of activity. The city started as a Greek trading settlement (Palaiapolis), founded in the sixth century BC, on a small island just off-shore. Quickly the settlement spread to the mainland (Neapolis). During the Second Punic War the Greek city was an important base for Roman military activity and the Roman military fort, built west of the Greek settlement, grew into a Roman city. By the beginning of the first century AD the Roman and Greek parts were combined, destroying the walls that separated them. After a brief period of prosperity, the city quickly declined and much of it was abandoned at the end of the first century AD,[146] never to be reoccupied, while the original Greek trading post (Palaiapolis) has remained occupied up to the present day.[147]

Empúries proves to be a well-suited choice for an investigation into Roman urban space. Firstly, the site's early yet final abandonment preserves it in its first century AD form. Auspiciously, early excavators in the joint Greek-Roman sections decided not to remove the first-century AD layers, despite their keen interest in earlier phases. Thus all visible buildings and streets of Empúries are closely contemporary, and can meaningfully be studied as a group.[148] Secondly, the site has been subject to almost continuous professional excavation throughout the twentieth century, producing excellent stratigraphic records. Almost the entire mainland Greek settlement (Neapolis) and around ten percent of the adjoining regularly-planned Roman city have been uncovered. Above all, the completeness of the plan of Neapolis makes it very well suited for investigating the distribution of different structures across the city.[149]

2.6.2 Kaiser's advanced methodology

In line with Zanker, Wallace-Hadrill, Grahame and Laurence, Kaiser's study examined the use of space to identify insights into the social system that created the urban form of the past city. Other than these earlier Pompeian studies of urban space, Kaiser pioneers GIS techniques to examine intra-site

142. Goodman (2001: 4).
143. Kaiser (2000: 2); in support of his argument Kaiser refers to a number of ancient sources which recount incidents of conflict in theatres when these customs of restricted seating were challenged and subverted (Juv. i.147; Mart. ii.29; Suet. Aug. xiv).
144. Robinson (1997: 143).
145. Kaiser (2000: 2).
146. A possible explanation for the decline could be that the Emperor Vespasian's extension of Roman rights, previously enjoyed only by the few selected *municipia*, to all towns in Spain, led to an erosion of Empúries's special status (Kaiser 2000: 14).
147. Kaiser (2000: 2).
148. Goodman (2001: 5); Kaiser (2000: 15).
149. Goodman (2001: 5).

social phenomena. Kaiser turned to enhanced and alternative techniques, better suited to identify the more subtle patterns of the use of space at Empúries. His analysis concentrates on patterns for dispersion or clustering of buildings of similar use, the nature of streets, as well as visibility, to examine whether these factors played a role in the distribution of land-use.

Unlike Raper, Kaiser could not avail himself of land-use data already established, thus prior to his analysis he had to group the different elements of Empúries's urban fabric into categories. He based his categories on the usage of space rather than building typologies, relying on function rather than form. This allowed him to group the distribution of buildings with similar function together and compare across the site. Any system of categories implies problems of lumping or splitting. To overcome these technical hitches Kaiser assigned four levels of use to each space (internal or external), moving hierarchically from general (public vs. private) to specific (storage, dining).[150] In selecting his own categories, Kaiser followed the structure of Vitruvius' 10 books, dedicated to different genres (types of architecture, materials, rendering etc.). According to Kaiser the internal order of the books reveals much about how Vitruvius and presumably other Romans mentally categorized uses of urban space.[151] Hence Kaiser presumes that these categories should be reflected in the spatial organisation of the city. His hypothesis is that there should be meaningful patterns in the distribution of structures across the site and that these intra-site patterns are meant to represent the underlying 'social structure' of Emporitan urban society.[152]

Having defined his categories, Kaiser created a referential database of the structures at Empúries, assigning functions to them, and linking the database to a digital site plan.[153] Using GIS programmes, which are still rarely applied to urban sites of the Classical period, allowed him to process and to manipulate his data. Similar to Raper's grid analysis, Kaiser used 'quadrat analysis' for measuring associations between structures of a similar function.[154] Quadrat analysis gave him the advantage of using point data, a simpler method than the area data used by Raper.[155] This type of analysis was undertaken for Neapolis only, since only this part of the site is almost completely excavated.[156] A further modification to Raper's approach concerned the applied grid size.[157] This was necessary since weak patterns can be obscured when the size of the grid cell is too large, while strong patterns can be weakened by fragmentation when grid cells are too small.[158] In any case, according to Kaiser, Raper's 100-m square grid was too large and had no relevance to ancient Pompeian spatial concepts. Within Raper's grid each square covers a number of *insulae*, therefore variation within individual *insulae* would not be detected. For this reason Kaiser selected his grid size by averaging the areas of each of the *insulae* in Neapolis, producing a 30 x 30 m grid.[159] Still, this adapted grid posed an arbitrary placement without correspondence to any particular *insulae*, thus Kaiser used the *insulae* themselves as units of measurement for a second run of quadrat analysis. With the help of these modified techniques Kaiser was in fact able to identify patterns in the use of space, most notably that no *insula* contained more than one elite house, and that these houses were consistently divided from one another by non-elite houses and streets,[160] suggesting that *insula*-blocks played a role in the

150. Kaiser (2000: 18-21).
151. Kaiser (2000: 19).
152. Kaiser (2000: 18).
153. Kaiser used the database module available in the GIS programme Idrisi 2.0 for Windows. He created an individual entry for each space, recording the space's categories of use following his designed hierarchy of use. The complete database contained 1050 individual entries (2000: 18-19).
154. See Shennan for general principles of quantitive approaches to archaeological data, see especially chapter 7 on the Chi-Squared Test and Measures of Association (1997: 104-106).
155. See Kaiser (2000: 43) for a detailed description of quadrat analysis.
156. Kaiser (2000: 43) accepts that not enough of the Roman city has been excavated to make this type of analysis feasible.
157. See above 2.5.1 for a description of Raper's techniques to measure spatial distribution.
158. Kaiser (2000: 42) draws on observations made for Roman Silchester (Bates 1983); Bates' study also found Raper's methods inappropriate to detect ancient patterns.
159. Kaiser (2000: 43).
160. Goodman (2001: 6); cf. Robinson (1997) identified a spatial patterning in the distribution of elite houses in Pompeii and argued that they were separated from another, perhaps indicating that the elite houses controlled the neighbourhoods directly surrounding them.

organisation of space at the site.[161]

Kaiser's urban dialogue continued by examining the nature of the streets. In this way it opens up new perspectives for analysis, shifting the focus from the physical form of the built environment to spaces for movement and interaction. Kaiser investigated various aspects of the street network, such as the degree of orthogonal planning, the width of streets, accessibility from outside the city, the proportion of different structures fronting onto them, and the degree of intensity of social interaction along them.[162] The techniques employed reach from circuit analysis, comparing observed and expected values of different categories of land-use located along street fronts,[163] to Space Syntax methods.[164] Finally, Kaiser applied GIS to calculate the area visible from a given point in order to model the visual field which can be commanded from various vantage points in relation to buildings and public space. The central question which Kaiser aimed to answer was whether or not buildings destined for similar uses were positioned along streets with comparable attributes and descriptive statistics. In cases were associations existed, Kaiser assumed that the particular variable being measured had significance to the ancient inhabitants and that it influenced the selection of a certain street as the location for a structure with a particular use.[165]

2.6.3 The 'Urban Dialogue' and Space Syntax

Kaiser's use of Space Syntax statistics is of great interest to this study of Ostia. The successful application to the built urban environment of Empúries makes these tools even more promising for investigating Ostia's urban space. Kaiser's approach integrates a number of Space Syntax's statistical methods. These methods were developed within the framework of Space Syntax theory, and first formulated in Hillier's and Hanson's *The Social Logic of Space*. The theory conceives built space as being determined by two kinds of relationships: the interaction among the occupants (insiders) and between occupants and outsiders.[166] This duality represents a relationship of inequality, which confers 'social power' on built space by way of including or excluding people from certain spaces. Space Syntax acknowledges that architecture is imbued with social power, whereby the integration-segregation dimension emerges as the primary spatial dimension on which cities, or buildings. are organised. Aspects of the integration-segregation dimension have been at the core of the studies previously discussed, explored as private and public spheres in Wallace-Hadrill's approach, or the visitor/residents dynamic in Laurence. Space Syntax developed methods of describing and analysing space in such a way as to make its social origins and consequences a part of that description.[167] Thus relations between these two points of view (insider vs. outsider) can be investigated by analysing spatial interaction both from points inside the system and from outside.[168] Social norms thus are thought to be transferred into the organisation of space; and, as Kaiser and other proponents of Space Syntax claim, by deciphering the patterns of inclusion and exclusion one can begin to understand the underlying social system.[169]

Kaiser started with 'Depth' analysis, which describes and calculates statistical values for urban street networks by counting the number of streets one needs to pass along to reach a destination from any point of origin.[170] This method helps to describe the streets in terms of their implicit resident-to-resident and resident-to-non-resident relations and thus might reveal attitudes between them. Starting from outside the city any street which would be easy to reach has a low depth, while streets with a high depth would have required a number of streets to be passed along before reaching the street of destination. Therefore interaction with non-residents takes place at well integrated places of shallow depth, while those buildings or places the residents did not want

161. Kaiser (2000: 45-46).
162. Goodman (2001: 7).
163. Kaiser (2000: 47-48, 76 appendix D).
164. Kaiser (2000: 48-53).
165. Kaiser (2000: 47).
166. Hillier and Hanson (1984: 15).
167. Hillier and Hanson (1984: 82).
168. Hillier and Hanson (1984: 15-16).
169. Kaiser (2000: 8).
170. Hillier and Hanson (1984: 104).

outsiders to find, would have been located along streets with higher depths.[171] Having established the depth values for the streets, Kaiser correlated these with the results of his previous analysis concerning the distribution of different categories of land-use along street fronts.[172] To increase the significance of his statistics he further included Space Syntax's test for 'real relative asymmetry', which calculates how integrated or segregated a particular street is from the rest of all streets within the network.[173] These results were again correlated with the various land-uses located along the street-fronts. Yet another test was added, the so-called E-value or 'control statistic', a method for testing how much a street controls access to other streets.[174] This test is rooted in the principle that a road which is intersected by many other roads, is more likely to be travelled on as it facilitates movement to many destinations. Hence control statistics describe whether or not a street eases or impedes movement within the city. Once again Kaiser compared the results of the control statistics to the locations of the categories of land-use, and identified a strong correlation between commercial use and streets with high control values. Kaiser's results seem to conform to the principles of the 'movement economy', which are central to Space Syntax and will be discussed in more detail in our Chapter Six (on streets). In any case, one of the most consistent relationships in urban systems is the one between the degree of integration of a street and the amount of pedestrian movement carried by that street: the more integrated the street, the busier it will be, and the more segregated it is the quieter it will be.[175]

Through these various investigations Kaiser reveals a number of interesting correspondences between the nature of a street and the function of the buildings located along its frontage. Some of Kaiser's conclusions confirm principles of Roman spatial organisation which are already established, while others offer new insights. Although not surprising, but interesting in terms of the combined statistical back-up, Kaiser establishes that a concentration of public, religious and commercial spaces were located on streets that had characteristics that made them easily accessible from the outside, and at the same time they were highly integrated thus also easily accessible from the inside. These streets also had high control values, indicating that they were central to movement. In terms of private domestic buildings he could establish that these were located at a medium depth, not too deep as to be difficult to reach and not too shallow as to have been easily accessible from outside. In term of elite buildings Kaiser's analysis could ascertain that they were also located along streets where there was a higher degree of social activity; however, although these residences are found on streets with mid-range depth, they remained generally inaccessible to wheeled transport. Industrial use was generally located along less integrated streets suggesting that ease of transport was no priority for selecting these locations.

Clearly Kaiser's study was able to demonstrate that space in the Roman city of Empúries was highly structured. The definition of new patterns was above all a question of applying appropriate methodologies. By means of Kaiser's combined analysis, urban patterns emerged and these patterns have been interpreted as representing the social norm of the constituents of the city. Kaiser stresses that the physical forms which resulted from these social norms were the consequences of a dialogue between all constituents who used the city. These include the elite, the non-elite, the non-residents and the divine constituents. Thus much of urban space seems to be organised in lines of communication, not simply in terms of clustering.

2.6.4 The extended 'Urban Dialogue'

The real test for Kaiser's methods and results will be once they can be matched at other Roman urban sites.[176] Roman Delos might be a potential candidate owing to the good quality of its site maps and

171. Kaiser (2000: 48).
172. Kaiser (2000: 48-49).
173. Kaiser (2000: 49-53); see Hillier and Hanson (1984: 108-112).
174. Kaiser (2000: 52-53); see Hillier and Hanson (1984: 109).
175. Hillier (1996a), see also Conroy Dalton and Hanson (2010: 208).
176. See Goodman's review of Kaiser (2001: 7).

archaeological record.[177] Roman Ostia is certainly another applicant for testing a selected number of Kaiser's techniques. Still, Ostia might prove to be difficult since its excavated area covers only one third of the site. In addition, Ostia's long period of occupation makes it almost impossible to establish contemporary structural relationships over the entire site for any one period of its use. Hence Space Syntax methods need to be adapted to the specific problems of the site, and also to the research questions one wants to investigate. Furthermore, Kaiser's categories of land-use seem to be problematic, as his own analysis has shown. They might not be transferrable to other sites, but need adaptation to meet the specific character of other cities. Any form of 'categorisation' is inevitable open to debate: Kaiser's categories reflect a number of inconsistencies and do not account for dual or multi-purpose use of space.[178] This might be one of the reasons why his tests could not produce valuable statistics when trying to identify patterns in the location of space devoted to administrative, educational, and entertainment functions. These problems are related to the weak definition of such spaces and the resulting difficulty in identifying them in the archaeological record. In contrast, other land-use categories such as public use and commercial use produced the strongest and most consistent patterns, and conform to spatial patterns known from other Roman cities, where commercial and public use are also found mainly along the most important access roads leading into the city.

Admittedly, these patterns confirm those detected earlier by Raper in Pompeii. This simple fact would have allowed Kaiser for once to give credit to Raper's work. Kaiser fails to acknowledge Raper's pioneering efforts and does not take into consideration that his thesis was conducted as long as 30 years ago, primarily as a spatial exercise applying methods of modern urban geography to ancient cities. Raper's article forms part of a published volume representing work within the interest of David Clarke's version of New Archaeology.[179] Bringing together several spatial studies at particular scales and in particular contexts, the volume sought to stimulate new directions in interdisciplinary approaches, injecting ideas from New Geography into New Archaeology. Considering the unassuming circumstances of Raper's work, hinging Kaiser's Urban Dialogue explicitly on Raper's thesis of 30 years back appears out of proportion. By posing such a challenge to Raper's thesis Kaiser unnecessarily diminishes his own efforts.

Nevertheless, some of Kaiser's methods should be tested in Ostia. Ostia's guild seats (*scholae*) and their location within the street network would certainly benefit from gauging their location in terms of depth and integration considered from within the city and from outside. However, while the spatial principles still apply, Space Syntax analytical tools have advanced since Kaiser's work,[180] as will be shown in Chapters Six, Seven and Eight of this study, where Space Syntax software for spatial analysis has been applied to Ostia's built and non-built environment.

2.7 CONCLUDING REMARKS

Three of the discussed studies have been guided in their spatial investigations by Space Syntax theory and methods. The merits of the methods as well as the difficulties of applying the techniques to past urban space have been extensively discussed and illustrated. In sum, however, the advantages offered by a more rigorous, analysis-driven approach to past built space seem to outweigh the difficulties which arise when a methodology is followed which has its origin in empirical studies of today's urban environment. When applied with caution, Space Syntax methods and techniques can lead to new insights into the past urban space which would not have been available by archaeological investigation only. To gain a better insight into Space Syntax methods and theories the following chapter will introduce the main theoretical principles, and look briefly into a number of other archaeological case studies applying Space Syntax.

177. Trümper (1998).
178. Goodman (2001).
179. Clarke (1977) published posthumously; see also Hodder's preface to Clarke (1977).

180. Kaiser's 2011 publication on Roman streets was not available to the author when this chapter was written.