



Universiteit
Leiden
The Netherlands

Clubs and Lounges at Roman Ostia: The Spatial Organisation of a Boomtown Phenomenon (Space Syntax Applied to the Study of Second Century AD 'Guild Buildings' at a Roman Port Town)

Stöger, J.J.; Koch, D.; Marcus, L.; Steen, J.

Citation

Stöger, J. J. (2009). Clubs and Lounges at Roman Ostia: The Spatial Organisation of a Boomtown Phenomenon (Space Syntax Applied to the Study of Second Century AD 'Guild Buildings' at a Roman Port Town). *Proceedings Of The 7Th International Space Syntax Symposium*, 108.1-108.12. Retrieved from <https://hdl.handle.net/1887/14297>

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/14297>

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

Clubs and Lounges at Roman Ostia Ref 108

The Spatial Organisation of a Boomtown Phenomenon (Space Syntax Applied to the Study of Second Century AD 'Guild Buildings' at a Roman Port Town)

Hanna Stoeger

University of Leiden, Faculty of Archaeology, Leiden, Netherlands

h.stoeger@arch.leidenuniv.nl

Keywords

spatial configuration; spatial analysis; architectural theory; Roman Ostia

Abstract

Ostia, the harbour city of Rome, widely understood as ancient 'boomtown', offers one of the few archaeological sites, where the full complexity of Roman urban life can be explored. Despite extensive scholarly interest in Ostia's built environment, the city's spatial organisation has remained a neglected field, with only limited attention given to Space Syntax. To partly redress the balance, this study presents the results of a formal spatial analysis, applying Space Syntax methods to the spatial organisation of Ostia's guild buildings (scholae). These were constructed in the second century AD to accommodate the activities performed by Ostia's guilds, the so-called collegia. The latter were commercial, religious and social associations, organised on the basis of voluntary membership, such as clubs and private societies. Being an important driving element within the dynamic boomtown setting, the guilds potentially promoted their premises as prime locations for social interaction. A coherent sample of guild houses, all built within a period of 20 years, has been chosen for closer spatial analysis. The study applies an integrated approach to these buildings, combining aspects of Space Syntax at individual building level and at town plan level. The analysis sets out to contrast and compare the buildings and their supposed 'integrative' role as evidenced by ancient literary sources. To establish whether the architectural structures match the ascribed qualities, the guild buildings' internal spatial organisation and their integration within the city's street system have been assessed. Starting with a configurational analysis of building-plans, comparing integration values for continuous interior spaces at individual building level and across the sample, the analysis has been performed twice: including and excluding exterior space to gauge the buildings' relationship to the exterior. These results have been compared to the integration values obtained from an axial analysis of Ostia's street network, using Depthmap analysis tools. Finally, visual and quantitative tools offered by UCL Depthmap (convex analysis, step depth, isovists and agent analysis) have highlighted significant spatial and visual patterns experienced by Ostia's guild members and their visitors in the second century AD, but not immediately open to visual inspection by the archaeologists studying the buildings. The Space Syntax analysis brought interesting results: Firstly, integrative qualities are confirmed for all buildings, since they were strongly affected by their relationship to the exterior. Secondly, their external and internal structuring have proved to be more differentiated than previously thought, suggesting situational responses related to specific locations within the urban grid. The paper presents an aspect of my PhD research on Ostia in the second century AD, its society and urban infrastructure.

1. Introduction

Ostia, the harbour city of ancient Rome, offers one of the few archaeological sites, where the full complexity of Roman urban life can be explored. Although Ostia has been attracting wide-ranging scholarly interest, the city's spatial organisation has not received much attention. This study examines the spatial properties of Ostia's built environment, concentrating on the towns' guild buildings. Constructed in the second century AD, the guild buildings served as club-houses, accommodating the activities performed by the guilds, the so-called collegia. The guild buildings

played an important role within Ostia's second century AD society, marking those hot-spots within the city, which offered platforms for social and economic activities and sustained a greater social dialogue than most other places.

Second century AD Ostia was a rapidly expanding town with a vital and varied urban landscape. The vast expansion was connected to the construction of the imperial ports, which increased the city's trading activities and prompted an enormous influx of people from all over the empire, outnumbering and almost eclipsing the local population. For this specific period Ostia's urban development has been largely understood as a boom town phenomenon (Heinzelmann 2002, 2005). The guilds were an important driving element within this dynamic urban setting. They were private and voluntary associations of members pursuing common goals of a commercial, religious or social nature. Their members belonged to the classes below the three upper-class orders of senators, knights and decurions, thus constituting the part of Roman society which was not entitled to hold a public office (Bollmann 1998).

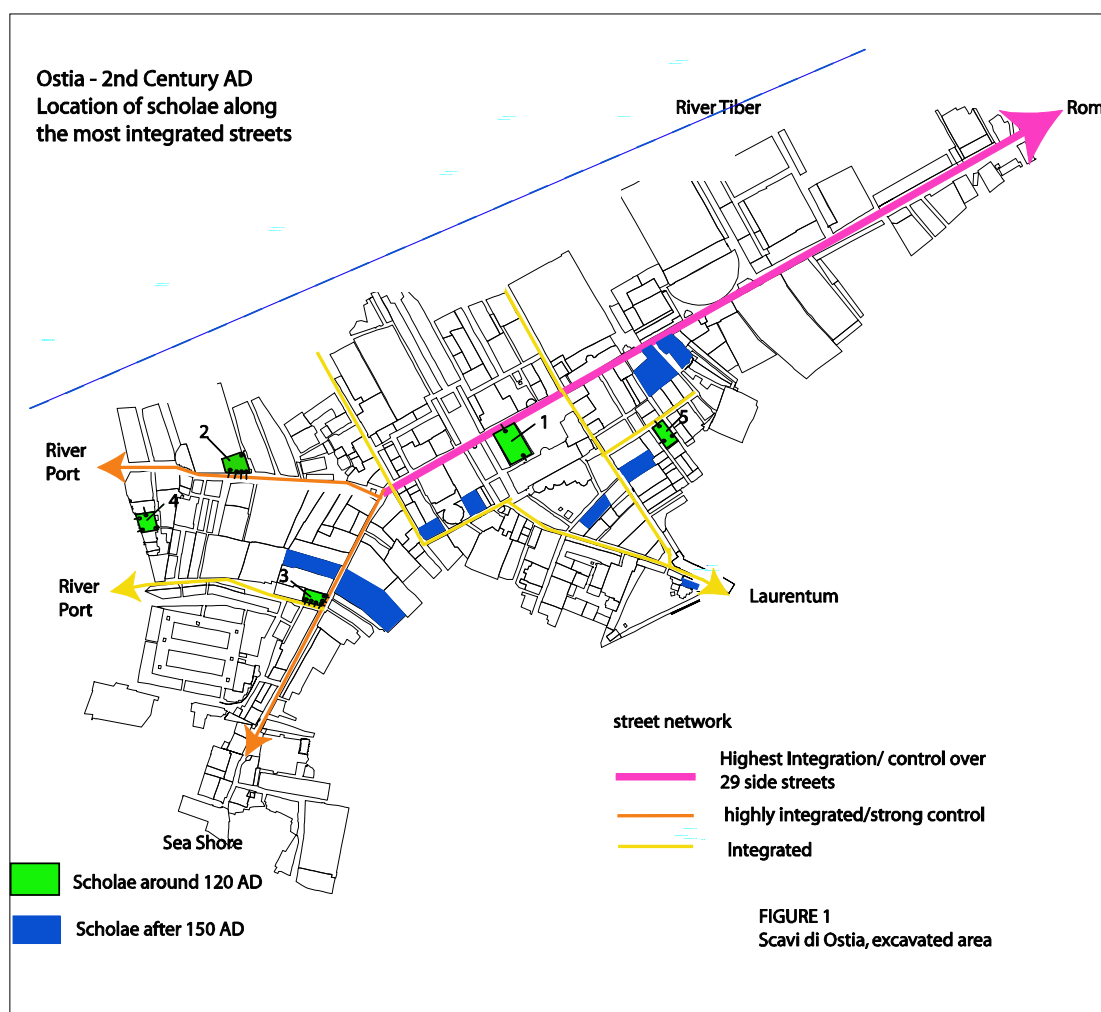


Figure 1

Ostia in the second century AD (excavated areas only), location of guild buildings (scholae) along the most integrated streets.

In Ostia, inscriptions bear witness to about 60 different guilds and their activities (Chevallier 1986, 153-157), while only about 20 guild buildings could be so far archaeologically identified. Many guilds were directly or indirectly connected to Ostia's port activities, whereas others were linked to services required by the city's permanent and transient population. We find professional guilds of ship builders, rope makers, builders and carpenters, as well as religious associations dedicated to various cults. The guilds not only dealt with the religious, but also with the social needs and wants of Ostia's

population. In one way or other the guilds covered almost every aspect of the town's life, involving a considerable proportion of the population. The complexity of guilds and their extent of involvement compares well to networks in various senses: functional, social and spatial (cf. Hillier 2006). As social networks the guilds provided interaction between individuals, groups and institutions (cf. Remus 1996); while on a functional level they offered a flow of commercial services, communication and man-power. As spatial networks they became visible as buildings linked by continuous space.

This paper is focussed on the spatial aspects of Ostia's guild buildings. The guilds seem remarkable since in addition to their functional role, they also had the property to be reflexive, thus directing a major part of their activities at reproducing their own social and spatial structure (cf. Zanker 1994, cf. Steuernagel 2005). This might have had interesting spatial implications for the guild buildings, the *scholae*. After all, these buildings provided the preliminary conditions for social interaction – and one might expect that the architectural language chosen would favour interaction and integration over segregation and exclusion.

To understand and appreciate better how the guilds utilised, shaped and negotiated space, this paper explores the spatial properties of Ostia's *scholae* within the framework of Space Syntax theory and methods. To this end this study examines whether the spatial organisation of Ostia's guild buildings matches their presumed integrative role as has been suggested by previous scholarly investigations, which have been largely based on ancient literary sources and an intuitive approach to space.

At Ostia formal spatial analysis has so far received limited attention. DeLaine (2004) successfully applied methods of Space Syntax to a group of selected house-plans, while Newsome (2005) conducted a preliminary analysis of the street-network. This study applies an integrated spatial approach to a small but coherent sample of guild buildings, combining aspects of Space Syntax at individual building level and at town plan level. As the guild buildings selected for analysis are located in various parts of the city (Figure 1), the significance of their trans-spatial distribution will be discussed in context with the street network.

2. A coherent sample for analysis

The sample chosen for formal spatial analysis comprises five guild houses, dated to the first half of the 2nd century AD, all built within a period of no more than 20 years, including the earliest known *schola* from Ostia (Table 1). Although the small sample size does not allow for a strictly quantitative assessment, still a comparative examination between the individual *scholae* can be achieved. The Space Syntax method for spatial analysis used here has been well explained elsewhere in studies applied to Pompeian houses (Grahame 2000) and more accessible and relevant to this study, Ostia's medianum apartments (DeLaine 2004). The method therefore requires little comment. General trends and problems in the archaeological application of Space Syntax methodology have also been discussed in other works (see Thaler 2005, 324-326). Still, some methodological difficulties call for attention, foremost those linked to the definition of analytical units.

Casa dei Triclini	I, xii, 1	c. AD 120	Decumanus/Forum
Aula e Tempio dei Mensores	I, xix, 1-3	c. AD 112	Via della Foce
Domus di Marte	III, ii, 5	c. AD 127	Decumans (west)
Domus accanto al Serapeo	III, xvii, 3	AD 123-126	Via del Serapide
Caseggiato dei Lottatori	V, iii, 1	c. AD 120	Via della Fortuna Annonaria

Table 1

Five selected guild buildings forming the sample for analysis

To begin with, the lack of a clear definition of what a guild building should look like, makes the spatial assessment of guild buildings difficult and challenging. In addition, most individual rooms and spaces comprising a *schola* have never been identified and specified. Any attempt to label these spaces by attributing the available terminology, mainly derived from Roman domestic architecture, could be misleading and might even exacerbate the problem due to an emphasis on habitation and residence implied by domestic terminology.

Ostia's *scholae* are characterised by dissimilar architectural layout and varied structures, their architectural flexibility making it hard to identify them (Bollmann 1998). Ultimately they can only be identified as guild buildings when confirmed by epigraphy, which alone gives certainty (Bollmann 1998, Slater 2000). Still, regardless of their architectural variety, the functional role of guild buildings seems almost common to all guilds. Above all, these buildings had to provide suitable premises to house the activities organised by the guilds: offering room for banquets, presenting spaces dedicated to cult and religion, as well as supplying areas for formal and informal encounter. To be clear, any room which provides sufficient shelter could fulfil these criteria, moreover functional neutrality seems implied by the variety of layouts and lack of formal architectural language.

By definition Space Syntax is well equipped for a comparison between different layouts since it does not attach any functional labels to spaces, but treats buildings as structured patterns of movement and encounter (Grahame 2000, 40). Such a value-free characterisation allows one to determine each architectural unit for analysis independent of extraneous factors like function or use; it also permits one to take the entire spatial organisation into account, not only the identified spaces (DeLaine 2004, 158).

3. Scholae architecture – a reading from access maps and spatial values

Two analysis tools have been used for a configuration assessment of the guild buildings, access diagrams (j-graphs) and spatial values. The spatial values applied comprise two independent Space Syntax measures: control values and real relative asymmetry (RRA). These measures respond to the buildings' local and global spatial properties and help in assessing the potential of different building layouts for interaction between the different groups who used the building: the inhabitants (the guild's members) and those visiting the buildings.

Hence, access data offer indications about those spaces potentially destined for interaction and those, which were more likely to have provided privacy. Ideally, the spatial values of various specific spaces typical of all *scholae* should be compared to investigate whether similar patterns emerge, or whether pattern variation can be detected. However, the small sample size does not support a strictly formal quantitative evaluation; still, valuable deductions have been made from a comparison between the different spaces present within each individual *schola*, as well as a comparison across the sample between selected spaces common to most *scholae*.

3.1. Correlation between Control Values and Real Relative Asymmetry (RRA)

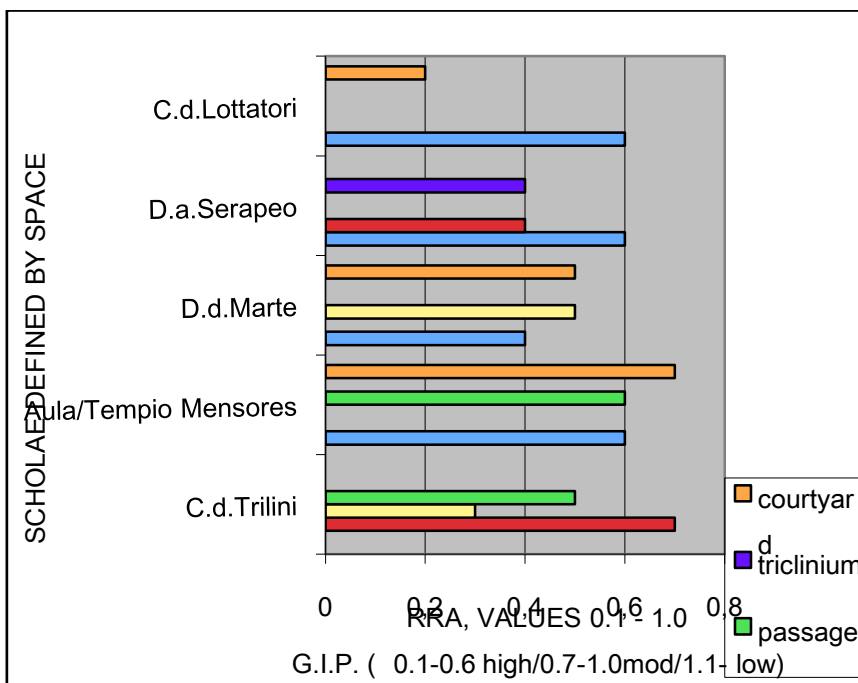
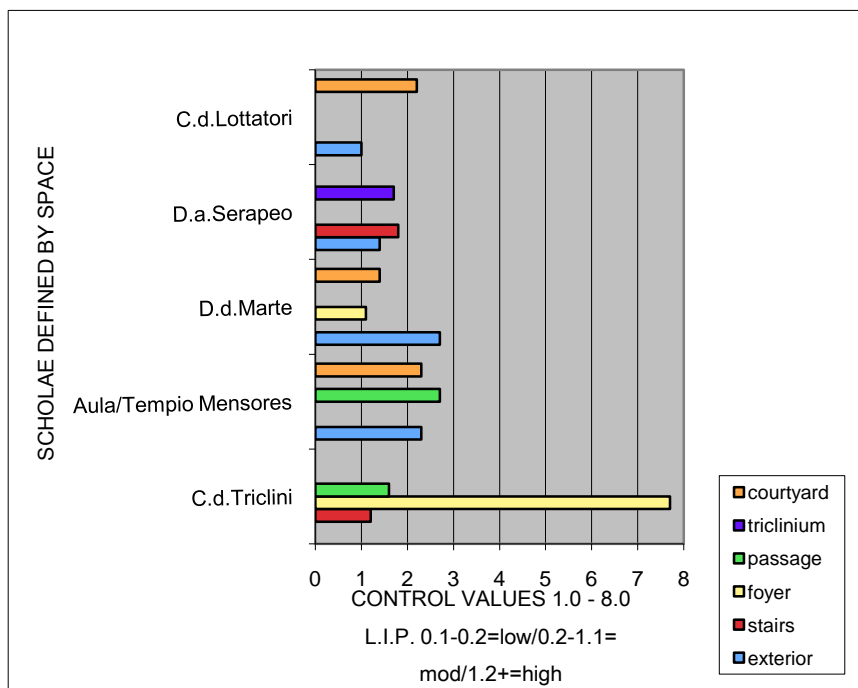
Name of Guild Bldg.	Potential Function	Nr.	RRA* ¹	C.V.* ²	Nb.* ³	L.I.P.* ⁴	G.I.P.* ⁵	Pr. Av.* ⁶
<i>C. dei Triclini</i>	Foyer	3	0.27	7.7	11	high	high	high
I, xii, 1	Passage	15	0.46	1.55	4	high	high	high
	Portico	8	0.49	2.25	5	high	high	high
<i>Aulae e Tempio</i>	Outside	ex	0.571	2.33	5	high	high	high
<i>dei Mensores</i>	Courtyard	1	0.701	2.25	4	high	high	high
I, xix, 1-3	Passage	2	0.631	2.66	4	high	high	high
<i>Domus di Marte</i>	Outside	ex	0.377	2.666	6	high	high	high
III, ii, 5	Courtyard	2	0.527	1.416	4	high	high	high
	Foyer	1	0.527	1.083	3	high	high	high
<i>Domus accanto</i>	Stairs	st	0.382	1.83	4	high	high	high
<i>al Serapeo</i>	Outside	ex	0.594	1.41	4	high	high	high
III, xvii, 3	Triclinium	A	0.382	1.712	6	high	high	high
<i>Caseggiato d. Lottatori</i>	Courtyard	2	0.196	2.166	5	high	high	high
	Outside	ex	0.588	1.033	3	mod	high	M/h
V, iii, 1	Undefined	5	0.588	1.166	3	high	mod	M/h

*¹ real relative asymmetry; *² control value; *³ number of neighbours; *⁴ local integration potential; *⁵ global integration potential; *⁶ presence availability

Table 2

Access data for spaces with high local and global integration potential, thus high presence availability potential

By correlating the *scholae's* controlling spaces, identified by control values in excess of 1, with those spaces with very low RRA values, interesting insights have been gained on those locales where most interaction took place. As DeLaine's study of Ostia's medianum houses has already shown, the area in which we would expect the highest consistency between local and global interaction potential might point to those spaces by which buildings are functionally defined (cf. DeLaine 2004, 158). Within the guild buildings these spaces are most notably movement related spaces, such as passages, foyers, courtyards and corridors, and above all the exterior carrier space, the city's street network (Tables 2-4).



Tables 3 and 4

Correlation between high control values C.V. and low R.R.A. values, selected spaces show consistence between high local and global control

Access data reveal that four of the studied *scholae* attribute high local and high global integration potential to the outside carrier – hence the exterior defines these guild buildings. These buildings take full advantage of their location by maximizing their street fronts and making their buildings as permeable as possible, thus promoting social encounter at the interface between *scholae* and public domain.

Next to the exterior space, other spaces indicative of high presence availability might offer further insights into the buildings' attitude towards visitors and outsiders. In this regard it is interesting to note that despite their obvious outward direction, the *scholae* rarely link their internal spaces of high presence availability (courtyards, porticoes, passages etc.) directly to the outside. Instead, entrance corridors intercept between the outside and the internal spaces, keeping the building's internal communication at flow and at the same time at least one topological step away from the public space. This seems to signify a slight tension between the internal system and the exterior, which required constant renegotiation with the public space (Hillier and Hanson 1984, 20). This slight spatial incongruence present within *schola* architecture has been ascribed to their semi-public and ambivalent nature (Steuernagel 2005, 80), allowing visual access on the one hand and restricting physical access on the other. Concrete examples of this somewhat conflicting spatial relationship can be observed in most guild buildings.

3.2. The interior-exterior relationship

Following Hanson's introduction to the study of houses (Hanson 1998, 28-36), a further level of analysis, gauging the interior-exterior relationship, has been included into the spatial assessment of Ostia's guild buildings (Table 5). Hanson's difference factor quantifies the degree of configurational differentiation among a building's integration values. The calculation is based on each building's RRA measures, using the highest, the lowest and the mean RRA measures. Difference factors closer to 0 indicate differentiated and structured spaces, while values closer to 1 indicate homogenised spaces. Within the sample investigated, the lowest values have been calculated for the spaces of the *Domus accanto al Serapeo* (DF 0.39/0.34), while the highest values have been calculated for the *Caseggiato dei Lottatori* (DF 0.86/0.87), indicating the most homogenised spaces.

Difference Factor	Site-Ref.	DF	DF
Guild seat		External excl.	External incl.
1.) <i>Casa dei Triclini</i>	I, xii, 1	0.67	0.68
2.) <i>Aula e Tempio dei Mensores</i>	I, xix, 1-3	0.75	0.70
3.) <i>Domus dei Marte</i>	III, ii, 5	0.70	0.88
4.) <i>Domus accanto al Serapeo</i>	III, xvii, 3	0.39	0.34
5.) <i>Caseggiato dei Lottatori</i>	V, iii, 1	0.86	0.87

Table 5

Difference factor (see Hanson 1998, 31, fig. 1.12)

Since the total sample is not large enough, the difference factor did not seem to add a significant new dimension to the already calculated spatial values. It appears difficult to assess whether the insights gained from the difference factor warrant the tedious method of calculation. However, Hanson warns us that in dealing with space configuration as opposed to the more recognizable features of buildings such as shape, geometry or room adjacency, we are dealing with a subtlety which cannot simply be left to intuition (Hanson 1998, 32).

3.3. The role of specific rooms

Additional to the analysis of individual configurations, a comparison between particular spaces common to all *scholae* appears to be informative to understand better the room's specific role related to *scholae* activities. One particular room, although present in slight variations, can be found in all *scholae* under discussion: a *tablinum* (reception room/study). This type of room is

reminiscent of domestic architecture, where it held a prominent position opposite the building's main entrance, serving as the main reception room. The access data listed in (Table 6) provide indication about the *tablinum*'s degree of accessibility from the exterior, as well as its integration within the *schola* configuration. The *Casa dei Triclini* and the *Caseggiato di Lottatori* follow most closely traditional domestic architecture, with the *tablinum*-style rooms characterised by moderate local and low global integration potential thus low to moderate presence availability. This allows for the possibility of segregation, which predestines these rooms for specific use, potentially of a cultic or ritual nature, reserving access to specific people. Then again, the *Domus accanto al Serapeo* and the *Domus di Marte* imply a centralising function for their variation of the *tablinum*-style room. These rooms privilege interaction between guild members and visitors, while allowing the possibility of segregation in the surrounding rooms. The aula of the *schola* of the *mensores* remains singular; with moderate levels of global and local integration, this space neither privileges interaction nor segregation, but might lend itself to multi-purpose use. Already this limited comparison of only five different *scholae* produces a more varied pattern of use than realised in previous descriptions of *scholae* spaces (cf. Steuernagel 2005).

Name	Reference	No	RRA* ¹	C.V.* ²	Nb.* ³	L.I.P.* ⁴	G.I.P.* ⁵	Pr. Av.* ⁶
C. dei Triclini	I, xii, 1	A	0.91	0.25	1	mod	low	mod/low
Aula e Tempio dei Mensores	I, xix, 1-3	A	0.96	0.53	2	mod	mod	mod
Domus di Marte	III, ii, 5	A	0.75	1.08	3	high	mod	high/mod
Domus accanto al Serapeo	III, xvii, 3	A	0.38	1.71	6	high	high	high
Caseggiato d. Lottatori	V, iii, 1	A	0.78	0.53	3	mod	low	mod/low

*¹ real relative asymmetry; *² control value; *³ number of neighbouring spaces; *⁴ local integration potential; *⁵ global integration potential; *⁶ presence availability

Table 6

Access data for the *tablinum*-type space

4. A spotlight on the *Casa dei Triclini*

The *Casa dei Triclini* (Figure 2) appears like the textbook version of guild buildings, drawing on traditional *domus* architecture. Significantly it features four spaces of consistently high local and global interaction potential (3, 9, 8, 15). These are the spaces forming the porticoes designed to facilitate a flow of movement and casual encounter, providing the highest potential for presence availability. No space other than the porticoes had to be crossed to reach any room within the system. Furthermore none of the other rooms lined up along the porticoes were connected to any other room. Hence these rooms remained relatively segregated with moderate local and low global interaction potentials. The access diagram reflects a typical tree-like spatial structure branching out from centralizing spaces. In terms of their functionality such spatial configurations allow for a synchronous yet independent organisation of activities. Each room, possibly selected according to the degree of privacy required, could be used to hold smaller meetings, with none of the activities interfering with each other. This particular spatial formation seems well suited for any hierarchically structured organization where members have been divided into sub-groups, as it is evidenced by the *collegium*'s album dated 198 AD (CIL 14,4569), stating 331 members grouped into 16 *decuria* (divisions) (Bollmann 1998, 286, n. 297; Egelhaaf-Gaiser 2002, 136). One could think of many independent activities taking place within the *schola*, where the guild of the builders could wine and dine potential clients, negotiate contracts and carry out their devotional duties to the emperor and to their protective deities as well as enjoy the club-like atmosphere amongst members.

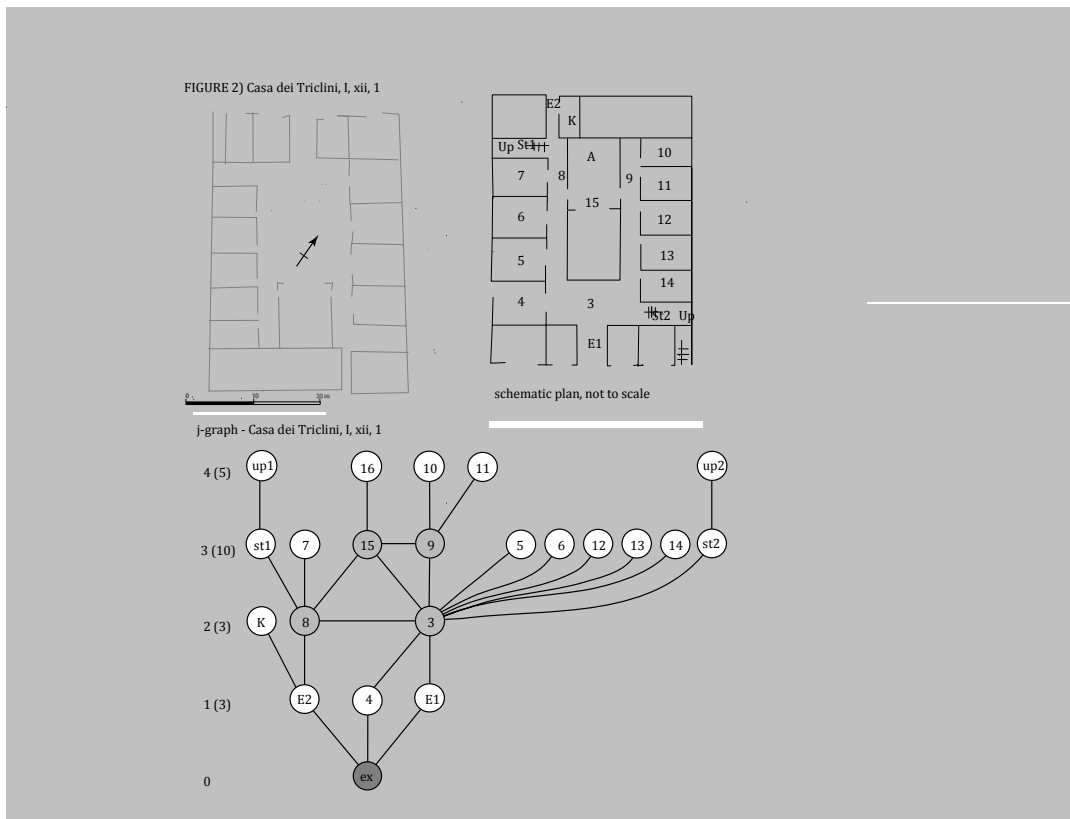


Figure 2

Casa dei Triclini, I, xii, 1; access analysis (corridor space 3 not strictly convex, extends to meet spaces 8 and 9)

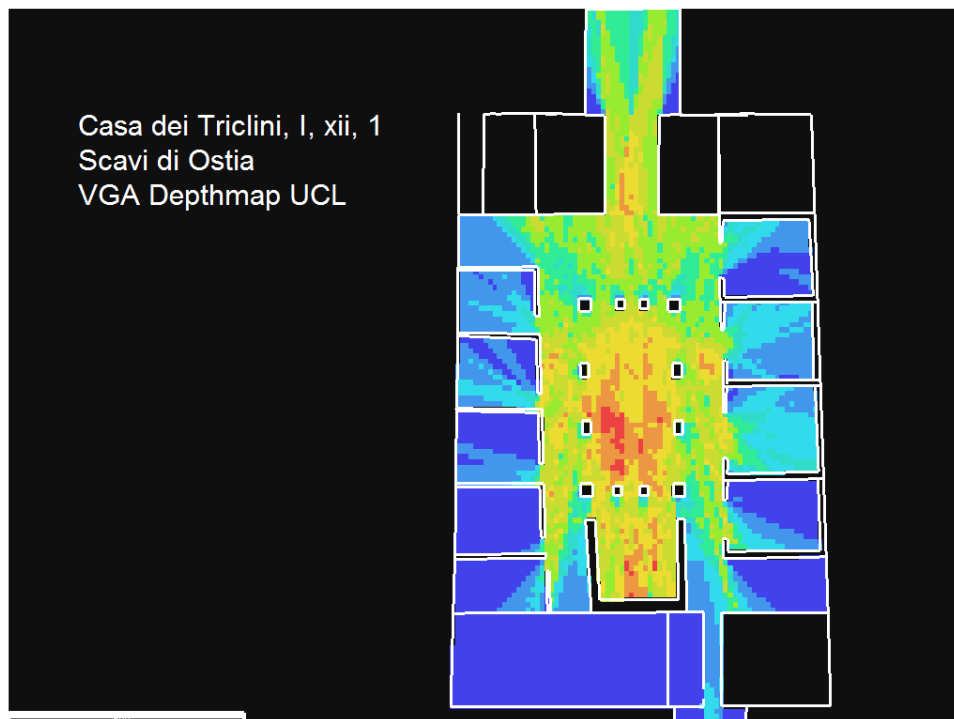


Figure 3

Casa dei Triclini, Visual Graph Analysis revealed differentiated visual access between both ranges of rooms located along the eastern and western side of the inner courtyard. Wide central door opening allow for better visual access along the eastern range, while narrow doors, placed at the end of the wall, restrict visual access along the western range, thus promoting more privacy (DepthMap, UCL, VGA)

Complementary to its spatial organisation, distinct material characteristics expressed in room size and choice of building materials augment the schola. Firstly, the foyer (4) offers the most generous spatial dimensions, providing ample room for encounter upon entering the building. Secondly, the choices of floor materials suggest a cautious structuring of space, creating a distinction between the rooms highly frequented as opposed to those less open to general use. The porticoed corridors, including the foyer (4), feature *opus spicatum* floors (terracotta tiles laid in herring bone pattern), a well-suited pavement for areas of high wear and tear. Here the choice of material underlines the intended dedication to intense use. *Opus spicatum* was also placed in all eastern rooms, later furnished with walled *triclinia* (three couches typically found in dining rooms). In contrast, the rooms comprising the western range were paved with mosaic floors to further enhance the degree of privacy already maintained by their specific door arrangements (Figure 3).

Contrary to the coarse *opus spicatum*, the passage space (15) marking the transition zone between the atrium-style inner courtyard and the cult room (A), was clearly set apart by the use of precious marble flooring. A further material hierarchy is indicated by the polychrome mosaics placed in the tablinum-style cult room (A). The white marble mosaic tesserae used within the inner courtyard space are more difficult to relate to a potential function of the space. Egelhaaf-Gaiser suggests that the inner courtyard served as meeting place for the entire congregation of guild members (2002, 136). This seems to conflict with the choice of white mosaic flooring and the central water pipes. These materials imply an area dedicated to water catchments, ventilation and lighting. In fact, without any windows on the outer walls the central courtyard remains the only source of air and light. The reflecting quality of the white mosaic tesserae seems to enhance the latter function. The various floor materials used in the *Casa dei Triclini* have not been studied in depth; stratigraphic excavation data are lacking thus secure dates have not been established (s. Bollmann 1998, 286). Clearly some of the floor materials date to successive later phases, however, there is no reason to assume that these interventions were prompted by a change of use. These interventions rather seem to provide evidence for continued use, during which consecutive changes emphasize the longevity of the *schola* and its activities as observable social practice.

5. The trans-spatial distribution of *scholae*

The location of Ostia's identified *scholae* is well-documented in Ostian studies (Meiggs 1973, 324-327, Hermansen 1983, Zanker 1994, 273, Bollmann 1998, Steuernagel 2005, 79). From their citywide distribution pattern it becomes obvious that there is no clustering, which might have been expected since these buildings fulfill comparable functions. One only needs to think of today's banking districts, where functionally similar buildings are clustered to reinforce each other in an additive way. Single landmarks on the other hand are likely to be weak references by themselves (Lynch 1960). Their preferred location along Ostia's major thoroughfares and access roads has been interpreted as alluding to status and striving for association with the public buildings of the city centre, the *forum* area (Bollmann 1998, 195-199). Following Lynch's concept of place legibility, the image strength of a building rises when it coincides with a concentration of associations. Hence creating public associations could have been a powerful motif for several *collegia*, successfully put into effect by those *scholae* seeking the vicinity of the city centre. Still, the location of choice might have been moderated by the realities of available urban space, as well as the *collegium's* financial standing. In other cases the locality of certain guild seats seems dictated by proximity to their professional field, e.g. *Aula e Tempio dei Mensores*, located next to storage facilities possibly used to store grain. Others again opted for closeness to their particular temple of worship, e.g. *Domus accanto al Serapeo* located next to the temple of Serapis.

Despite their broad distribution within the city, certain areas were almost devoid of *scholae*, in particular those north of the *decumanus*, the main street (Bollmann 1998, 196), where the prevailing large-scale development consisting of warehouses and public buildings possibly prevented disintegration into smaller plot-size development. In fact, those *scholae* found north of the *decumanus* and its continuation the Via della Foce, never reached the depth of the urban plot that conventionally characterizes the *domus* (cf. Mar 1991). Instead their layout is shallow, often not extending further into the *insulae* (block) than the front row of *tabernae* (shops and inns) would permit (e.g. *Aula del Gruppo die Marte e Venere*, *Aula e Tempio dei Mensores*, *Mitreo Sacello* close

to the Porta Romana). A different picture is offered by those *scholae* located south of the *decumanus*. Here they appear to conform to the ideal of the plot size laid down by the original property divisions, when the land outside Ostia's *castrum* was divided into fairly regular land parcels (Mar 1991). In exceptional cases, property parcels could be joined back to back and alongside each other, allowing the creation of large *scholae* like the *Schola del Traiano*, along the western *decumanus*. This in itself is an unconcealed statement of good financial standing. Similar assumptions can be made for other *scholae* who managed to secure a prime location along Ostia's major access routes. Since accessibility within the city's street network seemed to have been a decisive factor for the location of *scholae*, Space Syntax might add some insights beyond the generally held attractor functions attributed to the forum and the major access roads.

6. Space Syntax and Ostia's street network

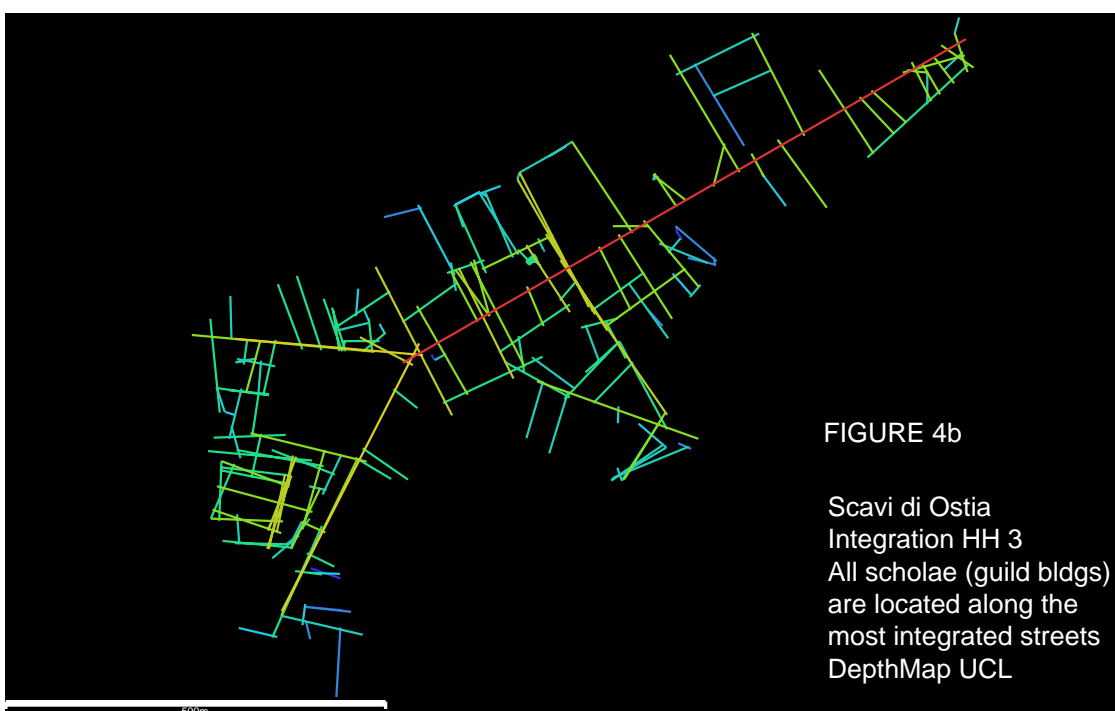


Figure 4

Ostia – street network, axial analysis (DepthMap UCL)

A syntactical assessment of Ostia's street network using UCL's Depthmap applications for spatial

analysis has produced axial graphs (Figure 4), indicating a hierarchy of integration within the configuration of the street system (Stöger in work, cf. Newsome 2005). However the results remain preliminary since the street network can only be partially assessed reducing the analysis to the excavated areas. Nonetheless the city gates as well as the natural limits imposed by the river course and the coastline indicate boundaries and allow for a confined system suitable for analysis. Within the street configuration the main access roads, the eastern and western decumanus, the south section of the cardo maximus, and the Via della Foce between the forum and the river harbour clearly emerge as the most integrated streets. These streets are related to each other within the system. They form a network and can be interpreted as streets that would have facilitated the intelligible movement through a system that follows 'globalising rules' (Hillier 1993, 63). These are the streets, which would be most likely to be used by everybody, visitors and transient population as well as by the local population, since they direct movement to the centre from possible places of arrival and departure.

When looking at the spatial distribution of Ostia's guild seats, Hillier's model of cities as movement economy (1996) comes to mind. Hillier understands movement as the fundamental correlate of spatial configuration. He claims that the urban grid is the most powerful single determinant of urban movement. Thus the urban grid prioritises certain locations. All journeys from side street origins to side street destinations pass through one or more segments of the main street, making the main street a better location for movement seeking land use, while other type of land use like residential use, might have sought to minimise the possible interference of through movement and seek a location away from main streets and thorough fares (Hillier 1996).

Ostia's *scholae* fit well into this system, they seem to strive for movement seeking positions along the main roads and seem to occupy street-corners, selecting corners at intersection between main and side road as one of their preferred location (e.g. *Domus di Marte*). This also brings us to mind Hillier and Hanson's traditional corner shop-model (1984, 176-177), which exploits the basic potential of its structure and its location by maximizing the potential for accidental visitors at its interface.

7. Conclusion

The spatial assessment of Ostia's *scholae*, using spatial values (control and RRA values) has been able to capture the guild buildings as structures, which are spatially defined by the exterior, and thus seem to have the potential to encourage interaction and communication with the public domain. Clearly, Space Syntax tools have helped to identify spatial characteristics which would not have been visible to careful observations only.

References

- Bollmann, B. 1998. *Römische Vereinshäuser: Untersuchungen zu den Scholae der römischen Berufs-, Kult- und Augustalen-Kollegien in Italien*. Mainz: Philipp von Zabern.
- Calza, G. (ed.). 1953. *Scavi di Ostia: Topographia Generale*. Roma: La Libreria dello Stato.
- Chevallier, R. 1986. *Ostie antique: Ville e Port*. Paris.
- DeLaine, J. 2004. Designing for a market: 'medianum' apartments at Ostia. *Journal of Roman Archaeology* 17: 147-176.
- Egelhaaf-Gaiser, U. 2002. Religionsaesthetic und Raumordnung am Beispiel der Vereinsgebäude von Ostia. In *Religiöse Vereine in der römischen Antike: Untersuchungen zu Organisation, Ritual und Raumordnung*, ed. U. Egelhaaf-Gaiser and A. Schäfer, 123-172. Tübingen: Mohr Siebeck.
- Grahame, M. 2000. *Reading Space: Social Interaction and Identity in the Houses of Roman Pompeii: A syntactical approach to the analysis and interpretation of built space*. Oxford: Archaeopress.
- Hanson, J. 1998. *Decoding Homes and Houses*. Cambridge and New York: Cambridge University Press.
- Heinzelmann, M. 2002. Bauboom und urbanistische Defizite - zur städtebaulichen Entwicklung Ostias im 2. Jh. In *Ostia e Portus: Nelle Loro Relazioni con Roma*, ed. C. Bruun and A. Galina-Zevi, 103-121. Roma: Institutum Romanum Finlandiae.
- Heinzelmann, M. 2005. Die vermietete Stadt. In *Lebenswelten: Bilder und Räume in der römischen Stadt der Kaiserzeit*, ed. P. Zanker and R. Neudecker, 113-128. Wiesbaden: Dr. Ludwig Reichert Verlag.

- Hermansen, G. 1982. *Ostia: Aspects of Roman City Life*. Edmonton Alberta, Canada: The University of Alberta Press.
- Hillier, B. and Hanson, J. 1984. *The Social Logic of Space*. Cambridge and New York: Cambridge University Press.
- Hillier, B. 1996. Cities as movement economies. *Urban Design International* 1(1): 41-60.
- Hillier, B. 2006. Cities as Networks. (abstract of an invited paper) *Wolfram Science conference*, Washington, 15th – 18th June 2006, <http://www.wolframscience.com/conference/2006/presentations/hillier.html> (accessed 02.02.2008).
- Lynch, K. 1960. *The Image of the City*. The MIT Press.
- Mar, R. 1991. "La formazione dello spazio urbano nella Citta di Ostia", in *Mitteilungen des Deutschen Archäologischen Instituts Römische Abteilung*, 81-109. Mainz am Rhein: Verlag Philipp von Zabern.
- Meiggs, R. 1973. *Roman Ostia*. Oxford: Clarendon Press.
- Newsome, D. 2005. *Ostia Antica. Spatial Structure and Social Dynamics: A preliminary discussion of the spatiality of urban identities in a major Roman port*. Unpublished M.A.-Thesis, University of York.
- Remus, H. 1996. Voluntary association and networks, in *Voluntary Associations in the Graeco-Roman World*, ed. J. S. Kloppenborg and S.G. Wilson, 146-175. London and New York: Routledge.
- Slater, W. J. 2000. The scholae of Roman collegia. *Journal of Roman Archaeology* 13: 493-497.
- Steuernagel, D. 2005. Öffentliche und private Aspekte von Vereinskulten am Beispiel von Ostia, In *Lebenswelten: Bilder und Räume in der römischen Stadt der Kaiserzeit*, ed. P. Zanker and R. Neudecker, 73-80. Wiesbaden: Dr. Ludwig Reichert Verlag.
- Stöger, H. (in print). Roma Ostia: Space Syntax and the Domestication of Space, In *Proceedings of the CAA2007*. Berlin: DAI.
- Thaler, U. 2005. Narrative and Syntax: new perspectives on the Late Bronze Age palace of Pylos, Greece, In *5th International Space Syntax Symposium, Proceedings*, ed. A. v. Nes, 323-339. Delft: TU Delft.
- Zanker, P., 1994. Veränderungen im öffentlichen Raum der Italischen Städte der Kaiserzeit, In *L'Italie D'Auguste A Diocletien, 259-283*. Trieste: Ecole Francaise de Rome, Palais Farnese.