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Redactioneel

Het afgelopen half jaar maakte de redactie een aantal veranderingen door waarvan ik u graag op de hoogte wil stellen. Allereerst nam Sarah Willemsen afscheid als hoofdredacteur van het Tijdschrift voor Mediterrane Archeologie. Zij zal nog wel actief blijven binnen de redactie. Hierbij wil ik Sarah van harte bedanken voor haar (nog steeds) onvermoeibare inzet voor TMA. Daarnaast vertrokken er twee redactieleden (Frits Heinrich en Darya van Tienhoven) en kwamen er twee nieuwe redactieleden bij (Theo Verlaan en Remco Bronkhorst). Ook het tijdschrift zelf zal van gedaante veranderen. Zowel de website als het tijdschrift krijgt binnenkort een nieuwe lay-out, gebaseerd op een speciaal voor TMA ontworpen huisstijl.

Het belangrijkste blijft echter de inhoud van het tijdschrift. Voldoende kopij van niveau is nodig om het tijdschrift aantrekkelijk te maken voor onze lezers. Enerzijds voert de redactie hierin een actief beleid door themanummers samen te stellen onder gastredacteurschap van ter zake deskundigen. Anderzijds is de redactie afhankelijk van wat ze aan nieuwe artikelen krijgt aangeboden. De redactie van TMA is daarom altijd geïnteresseerd in bijdragen van nieuwe auteurs, zowel van gevestigde archeologen als van jonge onderzoekers. Kijk op onze website voor meer informatie (www.mediterrane-archeologie.nl).

TMA 46 is een goed gevuld nummer geworden; het bevat zes artikelen en daarnaast diverse recensies van boeken en tentoonstellingen. Het thema van deze uitgave van TMA is 'Architectuur als bron in de archeologie'. De aanleiding voor dit thema is het recent verschenen proefschrift van Elisabeth van 't Lindenhout, tevens gastredactrice van dit nummer. Van 't Lindenhout is als docent verbonden aan de Rijksuniversiteit Groningen, waar zij in 2010 promoveerde op het proefschrift 'Bouwen in Latium in de archaische periode'. In haar proefschrift geeft zij een overzicht en een analyse van de architectuur in Latium en benadrukt zij het belang van het gebruik van architectuur als bron in de archeologie. Dit uitgangspunt, waarbij eerst de architectuur zorgvuldig wordt geanalyseerd, alvorens te komen tot een reconstructie, vormt de rode draad van dit themanummer. Op 7 oktober 2011 organiseerde TMA een symposium met hetzelfde thema. De artikelen zijn een bewerking van de lezingen die tijdens het symposium zijn gehouden. Hierbij willen wij als redactie Elisabeth en de auteurs van harte bedanken voor hun inzet. Een verdere introductie van het thema laten wij over aan onze gastredactrice.

Tanja van Loon

Ostia's Insula IV ii: the nexus between built form and social organisation

Hanna Stöger

Ostia, the harbour city of Rome, is one of the few ancient cities that offers well-preserved architectural remains allowing us to explore the complexity of past urban life. Despite wide-ranging interest in Ostia's built environment, the city's spatial organisation has remained a neglected field of research. This study focuses on the spatial organisation of one of Ostia's city blocks, the little studied Insula IV ii. Most of Ostia's *insulae* (city blocks) came to light in the large-scale excavations of the late 1930s/early 1940s. Since then they have been studied from a wide range of perspectives.¹ Space Syntax' methods of spatial analysis add a new perspective to the current *insula* discussion.² These techniques not only provide evidence for the complex spatial organisation of these neighbourhoods, but also investigate the 'active role' of spatial characteristics. According to the concepts of Space Syntax the spatial structure of the built environment embodies knowledge of social relations,³ whereby space not only assumes a physical location but encodes and communicates social meaning. A better understanding of the spatial organisation should therefore allow us to gain insight into the neighbourhood as a lived space.

Insula IV ii serves as a case study; the number of inter-linked courtyards make this city block very suitable for

spatial analysis. The Space Syntax analysis of Insula IV ii builds on an earlier conducted archaeological assessment of the architectural remains by the author. From the thorough study of the standing architectural structures it could be established that all extant buildings were in use during the early 3rd century AD.⁴ A simultaneously existing spatial association like this is a crucial prerequisite for spatial analysis.⁵

Insula IV ii: location and description

Located on the southern *cardo maximus* (the main north-south axis), near the Porta Laurentina, but still inside the Late Republican city walls, Insula IV ii enjoyed the relative proximity to the city centre, and was close to the city gate with its connection to the extra-mural areas of Ostia and beyond. Placed at the intersection between the *cardo* and the *Via della Caupona*, a side road south off the *cardo*, the Insula appears well positioned within the urban street network (see fig. 1). Towards the east the Insula is delimited by the triangular area of the *Campo della Magna Mater*, one of Ostia's main sanctuaries. It was dedicated to Cybele, the great mother goddess. The Insula covers a total area of 7321 m² comprising 14 buildings, characterised by a diversity of land-uses: it represents a built environment that potentially



Figure 1. The location of Insula IV ii, adjacent to the Campo della Magna Mater (author).

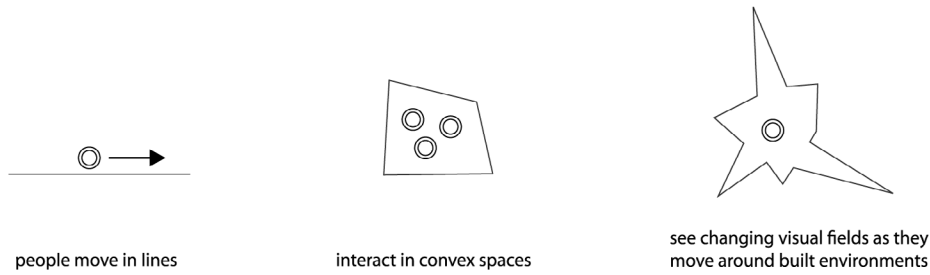


Figure 2. The human geometry of Space Syntax (after Hillier and Vaughan 2007).

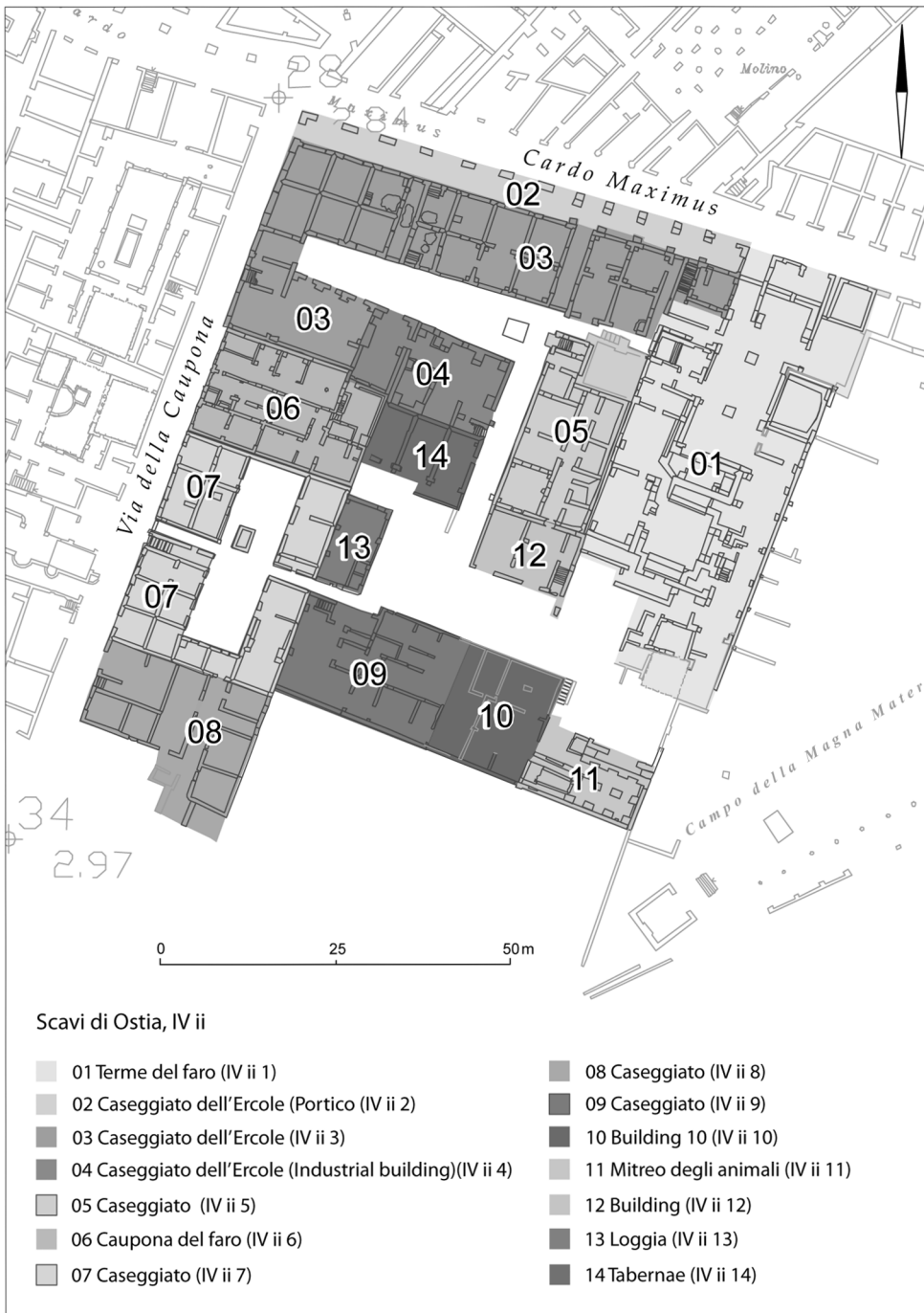


Figure 3. Insula IV ii comprising 14 individual buildings (author).

accommodated commercial (shops and storage), industrial (workshops and small scale production), recreational (baths and inns), sacred (*mithraeum*), and communal (open courtyards, entrance passages and portico), as well as

habitation (ground floor and upstairs dwellings) within its confines. These spaces were not only linked functionally, but also through a spatial relationship provided by shared common courtyards.

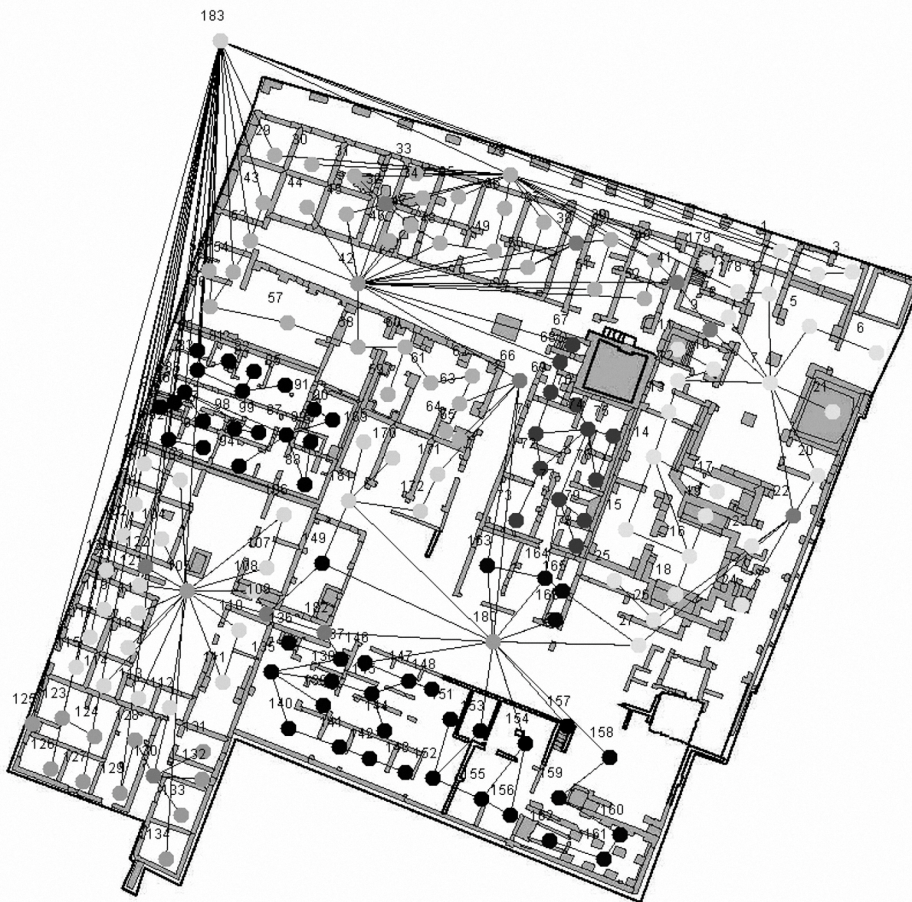


Figure 4. *Insula IV ii*, topological graph for the total configuration (183 spaces) (author).

A number of spatial characteristics are readily apparent: commercial space was predominantly located along the street frontage. Industrial space in contrast reached deeper into the *Insula*, with the narrow end of the plot along the street front. The southernmost corner of the *Insula*, the area least accessible, was dedicated to the *Mitreo degli animali*, a cult room serving a group of followers devoted to the cult of Mithras. Several buildings provided dwelling units at ground floor level, while the majority of the habitation spaces were located on the upper floors. The diversity of land-use might have allowed the residents to remain within the boundary of the *Insula* for most day-to-day activities, while the generously proportioned internal courtyards could have functioned as common areas. The spaciousness of the open areas, which cover about 20 % of the *Insula*'s total terrain, points not only to a generous attitude towards space, but also indicates that numerous activities could have taken place simultaneously within the courtyards.

A three-way Space Syntax approach to *Insula IV ii*

Space Syntax concepts have been explained in detail in studies of Pompeian houses and Ostia's *medianum* apartments (ground-floor apartments organised around a central room) and therefore require little comment, still the basic principles should be introduced.⁶ Space Syntax is built on two formal ideas that reflect the objectivity of space and our

intuitive engagement with it. Firstly, space is an intrinsic aspect of all human activities. Secondly, 'human space' is not about the properties of individual space, but about the interrelations between the many spaces that make up the layout of a building or a city, the configuration of space.⁷ According to Space Syntax all human activities have a necessary spatial geometry: movement is linear, interaction requires a convex space in which all points can see all others, and from any point in space we see a variably shaped visual field (see fig. 2).⁸

The Space Syntax analyses applied here explore the *Insula* through its three principal spatial aspects:⁹ its one-dimensional structure (lines of movement), its convex or two-dimensional organisation (rooms and buildings), and its visual fields.¹⁰ The three-way-approach assures that each type of analysis relates to one aspect of how inhabitants and visitors experienced and used the *Insula*'s buildings, courtyards and passages. All buildings within the *Insula* have been analysed twice, individually and collectively, forming the *Insula*'s total configuration. However, only a small section of the analysis will be reproduced here, concentrating on the *Insula*'s total spatial configuration examined as one single spatial entity. This should allow us to reach a better understanding of the functioning of the *Insula*'s collective spatial structure.

The *Insula* consists of 14 buildings (see fig. 3), which constitute a total of 183 individual spaces, including the outside

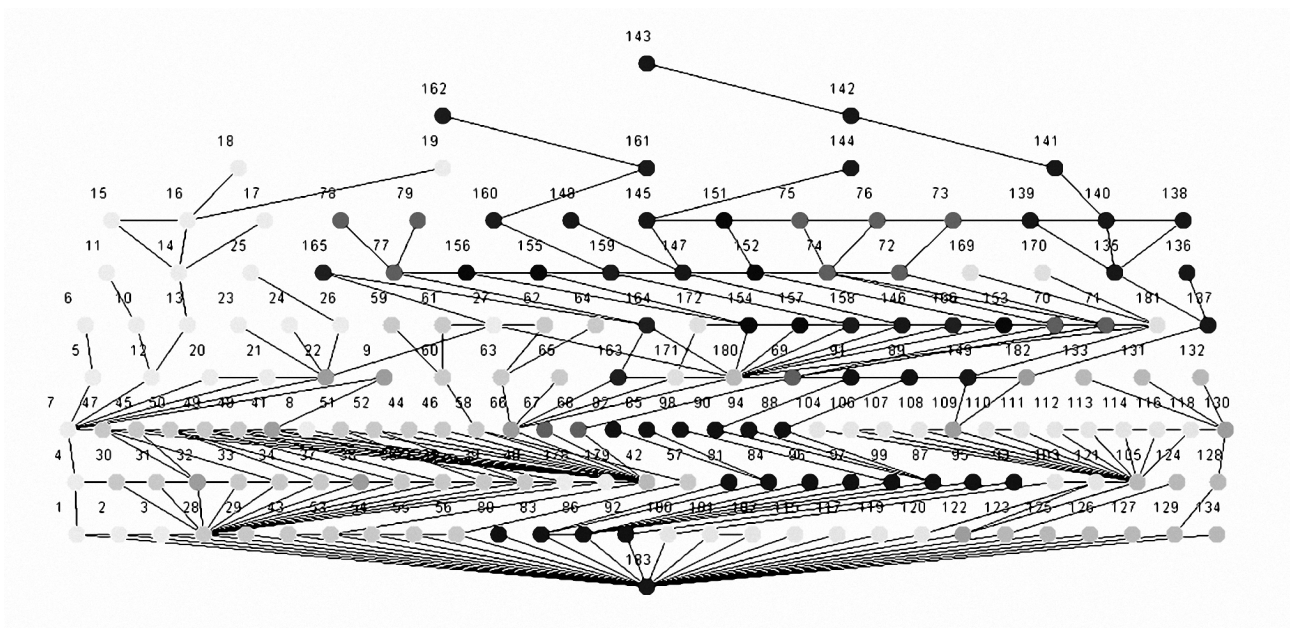


Figure 5. *Insula IV ii, J-graph for the total configuration (183 spaces) justified with respect to the outside (183 = outside carrier; 42, 105 and 180 = courtyards, 28 = portico) (author).*

Table 1. *The Insula's 'hotspots': the circulation spaces with highest levels of local and global integration potential (RRA 500-650 = high, 650-950 = moderate, 950+ = low).*

Building	Room/function	No.	Depth	RRA (MRRR 0.937)	Global interaction potential	Local interaction potential	Control Values	Potential presence availability
IV ii 2	Portico	28	1.0	0.622	High	High	7.652	High
IV ii 3	Courtyard	42	2.0	0.558	High	High	7.699	High
IV ii 6	Corridor	86	1.0	0.733	Moderate	Moderate	4.035	Moderate
IV ii 7	Courtyard	105	2.0	0.703	Moderate	High	9.416	Mod/High
common	Southern courtyard	180	4.0	0.617	High	High	5.783	High
common	Outside carrier	183	0.0	0.562	High	High	165.386	High

carrier space (Ostia's street network) counting as one space. The internal courtyards and passages are of particular interest since they served as 'commons' which were held in shared use by all buildings within the Insula. These spaces acted as major integrators and distributors channelling movement into, and within the Insula, and were essential for providing access to the buildings that were not connected to the exterior public space.

A reading from access maps and spatial values

Access Analysis is a promising starting point for most syntactical analyses.¹¹ A graph structure (j-graph) based on the Insula's total ground plan was produced, using the outside space as the route of the graph (see fig. 4). The graph is a visual representation of the topological connections between all spaces (rooms and open spaces) and enables us to calculate spatial values (control and integration) for comparative quantitative assessment. *Control Values* are calculated for a particular space and its immediate neighbouring spaces, and are therefore considered to be a local spatial value. In contrast, *Integration* (Real Relative Asymmetry, RRA)¹² deals

with a certain space and its relationship to all other spaces within the system, and hence represents a global value. Since these measures respond to the local and global properties they help in assessing the potential of different spaces for interaction between the Insula's residents and visitors.

The Insula's graph structure can be described as a broad multiple-entry graph with 28 spaces directly connected to the outside space, and with a total of 10 depth-steps, measured from the outside carrier to the topologically most remote spaces. The analytical strategy chosen was to identify the potential 'hotspots' for interaction within the Insula's spatial configuration. From the total configuration (see fig. 5) a number of spaces emerge as the areas with the highest levels of integration and control potential. Interesting insights can be gained by correlating these spaces. The areas where we find positive correlation between local and global integration potential might point to those spaces by which the Insula was functionally defined (see Table 1). Within the total configuration these spaces are most notably dedicated to movement and interaction forming the Insula's interface with visitors: portico 28 and courtyard 42 of the *Caseggiato*

Table 2. *The Insula's most segregated spaces with lowest global and local interaction potential.*

Building	Room/function	No.	Depth	RRA (MRRA 0.937)	Global interaction potential	Local interaction potential	Control Values	Potential Presence availability
IV ii 1	Heated pool	18	8.0	1.693	Low	Low	0.250	Low
IV ii 1	Heated pool	19	8.0	1.693	Low	Low	0.250	Low
IV ii 9	Room	143	10.0	1.851	Low	Low	0.500	Low
IV ii 11	Cult room	162	9.0	1.605	Low	Low	0.500	Low

dell'Ercole, as well as the outside carrier space 183. Together with the inner courtyards (105 and 180) these spaces provide the Insula's principal movement system.

It is worth noting that all spaces which serve a common use are located in the shallower, well integrated parts of the Insula, relatively close to the outside space, mostly 1 to 2 step-depths and not more than 4 step-depths away from the outside carrier space. In contrast, all spaces that are residential or more private in nature are located in the deeper, less integrated portion of the Insula, at 5 to 10 depth-steps away from the public outside space. This suggests that through its collective structure the Insula was able to generate one feature common to most types of domestic architecture: it incorporates the elementary relation between the inhabitant/resident and the visitor.¹³ This means that the inhabitant is in the deeper, often less integrated parts and interfaces with the visitor through the shallower, often well-integrated parts of the Insula. If we take this observation a step further we might be able to suggest that at the collective level the Insula still upheld an inherently domestic structure, while at an individual level a number of buildings had lost their elementary inhabitant/visitor dynamic. This observation becomes more significant when considered within the wider context of the Insula's evolving configuration. In the course of its development the Insula experienced the loss of the *domus*, which constituted the standard domestic building and served as the urban 'base-unit' at least until the early Trajanic period. Collectively however, the Insula seems to have retained some characteristics reminiscent of *domus* architecture, like inner courtyards and a structured access to public space.

Next to the Insula's most integrated spaces, the most segregated spaces are equally able to instruct about the functioning of the configuration (see Table 2 and fig. 5). As listed in Table 2 below, the Terme del Faro's heated pools (18 and 19) rank very high on the list of the most segregated spaces within the Insula. The heated pools are located eight depth-steps away from the outside space and can only be reached after a sequence of rooms has been crossed; their secluded position seems to be related to their function and affords higher levels of privacy than other rooms. Two other rooms come into view from the assessment of the collective structure: 143 and 162. Unsurprisingly, the *mithraeum's* cult room 162 emerges as one of the most segregated rooms within the entire Insula, superseded only by room 143, which is part of Building IV ii 9. The most segregated space (143) belongs to a range of rooms that also includes 141

and 142. The group is noteworthy since it seems to form a *medianum* apartment located at the Insula's southernmost edge.¹⁴ Facing south, unobstructed by direct neighbours, these rooms must have provided an excellent dwelling-unit, appealing to the upper end of the rental market. Its secluded location might have even enhanced the value of the apartment since its 'remoteness' provided higher levels of privacy than any other ground floor dwellings available within the Insula.

The inner courtyards (42, 180 and 105) play a significant role in channelling movement within the Insula. The southern courtyard 180 is the only one directly connected to all other courts by means of passage corridors. The presence of three courtyards could potentially engender a sense of fragmentation within the Insula, however this seems balanced by the fact that the southern courtyard acted as a centre for the entire layout. Moreover, the different route options offered by the various passages and courtyards might have helped in counteracting disintegration since the routes unite the Insula through movement. The wide range of movement choices enabled those who used the Insula, both residents and visitors, to explore the spaces in different ways, generating routes according to specific functional requirements, or simply to stroll through the Insula and go wherever their fancy may take them. One circulation path is of particular interest since it completely encircled the baths and its associated buildings without passing through outside space, and could therefore run independently of visitor relations. The loop interconnects the baths with the southern courtyard, and leading back again into the baths through the central passage and the eastern part of the *Caseggiato dell'Ercole*, creating a 'spatial Insula' within the Insula (see fig. 6).

The Insula's movement structure

To place these observations on more objective grounds we need to examine the dynamics of the Insula's internal space structure. This requires a shift from built spaces to open spaces, thus moving to courtyards and passages. In addition, we need to select Space Syntax tools suited to capture movement. A good glance at the Insula's internal space structure already shows that it is distinctly broken up into convex spaces (the courtyards), and into lines (entrance corridors and passages) which interlink the convex spaces (see fig. 6).

Before turning to the Insula's internal space structure we should consider Hillier's findings about the City of London's space structure.¹⁵ Hillier identified constant spatial properties within the small-scale complexes of the City of London

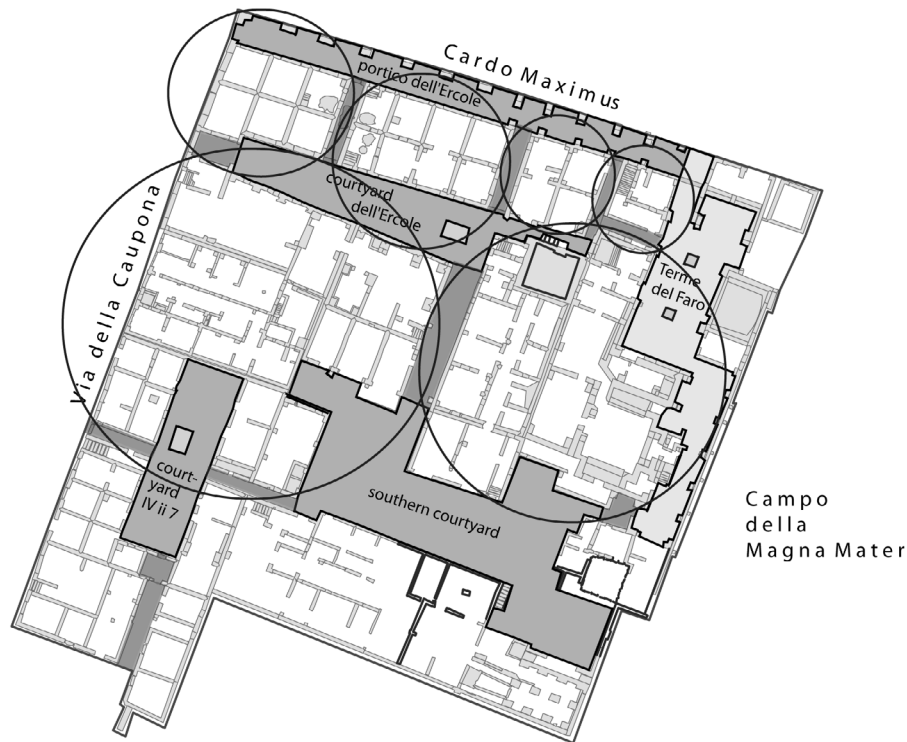


Figure 6. Internal space structure and route choices (selection) within the Insula (author).

which seem to explain how the supposedly labyrinthine back areas of the City proved to be highly intelligible for those who navigated its spaces. The first property relates to the prevailing movement patterns in which he identified a persistent 'two-line-logic'.¹⁶ In a similar but less intricate way, there is also a 'two-line logic' to movement within the Insula. If one enters the Insula through one of the passage corridors that can be seen from the *cardo maximus*, the next line will take a visitor either out of the back area by leaving the courtyard through the exit on the Via della Caupona, or further into the Insula to some significant spatial event like the next large courtyard, i.e. the southern courtyard. From there another line would take visitors out of the Insula by passing through Building IV ii 7, reaching the Via della Caupona. This means that wherever one goes within the Insula, there is usually a point from which one can see the point of departure, i.e. the entry into the Insula, and where the next point of aim might be. Hillier contends that this spatial technique has the effect that the back areas become normally and naturally used for movement as part of the urban space pattern, and he adds that there is no inhibition or sense of territorial intrusion in these areas.¹⁷

The ideas are compelling and should be put to the test. To start with, the Insula's line structure and its visual fields have been examined using specific Space Syntax tools designed to capture movement. These tools link spatial and visual properties (axial analysis and visibility graph analysis, VGA).¹⁸ The analysis identified the most integrated visual lines calculated for axial integration on the basis of the longest visual lines. The fewest lines, based on an analytical minimum of lines, embody the Insula's potential route matrix (see fig. 7);

the latter identifies the Insula's most likely paths of movement. Clearly, the southern courtyard comes into view as the converging zone for visual lines from all directions, marking the courtyard as the prime space for movement and social encounter. The second most integrated line connects from the portico through to the southern courtyard. This line represents the axial connection between outside public space (*cardo maximus*) and the very centre of the Insula. The line proves to be consistent and seems to form part of the 'two-line-logic' which appears to be a constant component of the Insula's space structure. The line's counterpart is found in the longest axial line which connects from the Via della Caupona through Building IV ii 7 and all across the southern courtyard. Together these two lines form the Insula's visual base structure and seem to constitute the starting point for the 'two-line-logic'. Both lines remained preserved and respected throughout the Insula's development.

Concluding Remarks

In terms of the human use of space the Space Syntax results point out that the Insula was able to draw people in from the street space. However, most importantly, by promoting accessibility to the back part, i.e. the southern courtyard, the Insula's space structure helped to sustain activities in the back areas. This is even more interesting because the Insula had clearly defined its commercial front towards the outside through the *Caseggiato dell'Ercole*,¹⁹ with its portico taking up almost the entire length of the Insula along the *cardo maximus*. As the spatial organisation of the southern courtyard demonstrates, a lively environment of unforced co-presence is not only dependent on the line structure and

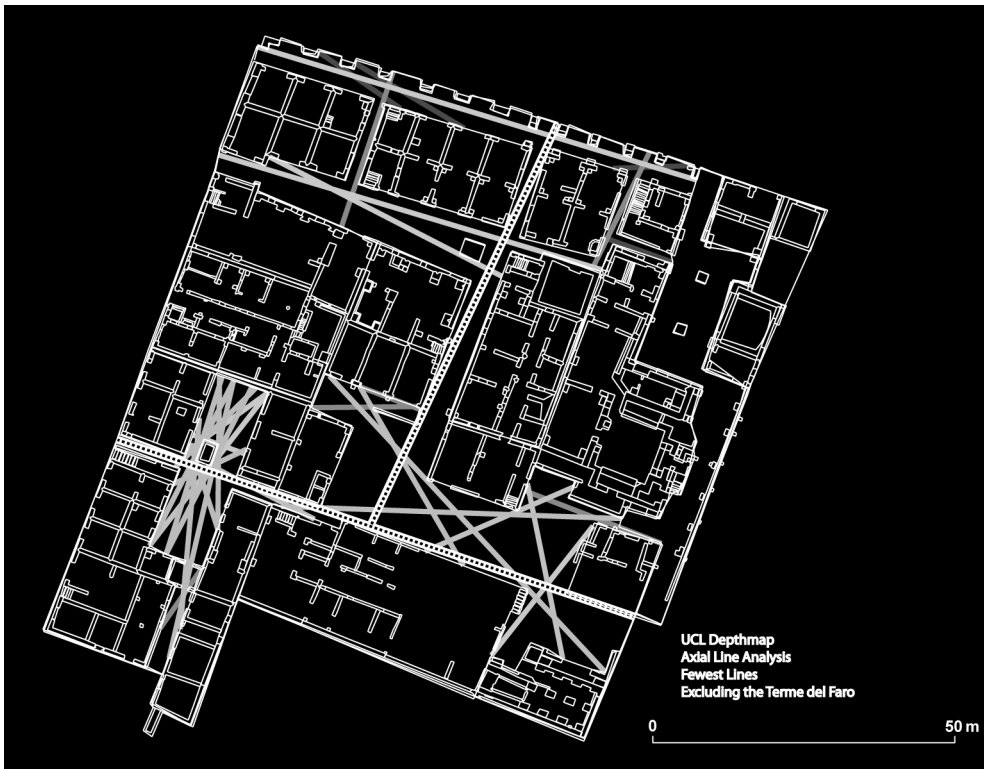


Figure 7. The Insula's route matrix reflects the most likely paths of movement, identified by Axial Analysis (Space Syntax) (author).

the open spaces which constitute the movement spaces, but also requires that the buildings relate to the open spaces by opening onto the spaces, and hence interface in a manner to encourage co-presence.

With regard to the Insula's quality as lived space, spatial tools were able to make a valuable contribution to show that space was designed to promote encounter and to privilege integration over segregation, which ultimately makes for a better and safer neighbourhood, not only in early 3rd century Ostia. The Insula's integrating capacity seems the key to its long period of occupation. Although composed of individual buildings, the Insula's space structure, its courtyards and passages were essentially collective and shared by the buildings that composed the group. Furthermore, its collective space structure seems to have prevented fragmentation into highly individualised luxury architecture, which occurred in most neighbouring *insulae*.

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About the author

Hanna graduated from the University of Malta in Archaeology and Classics (BA honours) in 1999. From 2001 to 2002 she followed a Masters Programme at the University of Leiden and graduated in 2002 (cum laude). Hanna remained in Leiden and started her PhD research in 2004 (part-time) and defended her dissertation in December 2011. The topic of her PhD research was: Rethinking Ostia: A Spatial Enquiry into the Urban Society of Rome's Imperial Port-Town. Since September 2012 she is a post-doctoral researcher with the EU-funded project "Archeo-Landscapes" and a part-time lecturer.

Endnotes

- 1 Packer 1971; Scaliarini-Corlatta 1995; Gering 2002; DeLaine 2004; on Pompeian *insulae* see Laurence 2007 and Jones and Robinson 2007.
- 2 See Smith 2010 for a comparative archaeological study of neighbourhoods in ancient cities.
- 3 Hillier and Hanson 1984: 184-185.
- 4 The spatial analysis builds on a thorough archaeological examination of all buildings which constitute Insula IV ii. The extensive archaeological survey was conducted by the author as part of her PhD research between 2004 and 2010.
- 5 Earliest levels of occupation have been dated to the Late Republican and Early Imperial periods, while the Insula enjoyed a long period of occupation until 4th to the 5th centuries AD.
- 6 Grahame 2000: 24-36 and DeLaine 2004: 157-158.
- 7 Hillier and Vaughan 2007.
- 8 Hillier and Vaughan 2007.
- 9 See Hanson 1998: 38.
- 10 On the theoretical underpinnings of Space Syntax analysis see Hillier and Hanson 1984: 143-175; on isovists and visibility graph analysis see Turner *et al.* 2001.
- 11 See Hillier and Hanson 1984; Hanson 1998; see also Grahame 2000, 29-36 for a user-friendly explanation of Access Analysis.
- 12 Hillier and Hanson 1984.
- 13 Hillier and Hanson 1984: 183-184.
- 14 The so-called *medianum* apartments consist of ranges of rooms grouped around a hall or wide corridor. See DeLaine 2004 for a Space Syntax assessment of Ostia's *medianum* apartments.
- 15 See Hillier's 'cities as movement economies' for different ways of urban spatial structuring (2007: 111-137).
- 16 On the 'two-line logic' see Hillier 2007:116-119.
- 17 Hillier 2007: 116-118.
- 18 The graphs and analyses have been produced with Depthmap 7.12.00d; developed at the VR centre for Built Environment, Bartlett, University College London.
- 19 See Davis 2009: 89-104 on buildings with combined commercial and residential uses and their shared attributes of urban location and architectural organization.