

# **Delos: Investigating the notion of privacy within the ancient Greek house**

**Thesis submitted for the degree of  
Doctor of Philosophy  
at the University of Leicester**

**by**

**Samantha Burke BA (Hons) (Liverpool), MSc (Leicester)  
School of Archaeological Studies  
University of Leicester**

**July 2000**

# Abstract

Understanding the social organisation of past societies, such as ancient Greek civilization, continues to prove intriguing. The limitations of literary evidence can mean that archaeological remains, for example housing, can aid in improving knowledge of such topics.

One of the difficulties in studying Greek housing is the low level of surviving buildings. House remains on Delos are uniquely preserved with extensive elevated walls and other architectural features, and as such provide a means of understanding use of house space and privacy.

In order to rigorously investigate these concepts, this study combines traditional field observations and written evidence with quantitative mathematical and CAD analysis. Surveys of the ruins at Delos carried out for this work reveal deliberate use of architecture to impact upon everyday life. For example, ground floor windows are constructed in ways that allow occupants external visibility whilst views into the house are curtailed.

Measurements of standing remains from Delos are used to partially reconstruct houses, allowing examination of visual accessibility along sight lines both into and within buildings. This shows that despite apparent open plan design of many ground floors, visibility was often very restricted by both architectural constraints and poor illumination.

Ground plans are used to produce statistical representations of interior house space, analysing spatial syntax between rooms, and between the interior and exterior of the house. The methods employed here prove useful in simplifying complicated building layouts for a given construction snapshot. However, the adaptation of room spaces on Delos is sufficiently dynamic through time that multiple interpretations are often unresolvable other than by using qualitative judgement.

Combining multiple methodologies in studying Greek housing allows improved insights into aspects of privacy. Issues such as multiple occupation, temporal and adaptive use of house space are beginning to reveal some of the complex nuances of ancient home life.



# Acknowledgements

My thanks go to the following who've assisted during this odyssey:

The Humanities Research Board of the British Academy who funded the initial three years of this research. Staff at the British School at Athens who arranged special permission for the fieldwork undertaken during May and June of 1997. The French School and their Delian colleagues whose hospitality was unsurpassed during our time on the island. The Hellenic Society, London, who gave me special dispensation to borrow precious volumes of excavation materials during their annual 'closed time' in 1996.

Lin for her unending enthusiasm and inspiration throughout. I wish I knew where she got it from.

I also wish to thank other colleagues at Leicester, particularly friends in Ancient History who supported my studies, and provided many a lucrative distraction through concurrent employment. Clive Ruggles for his time and advice regarding mathematical modelling during the early Leicester years of this research. Most of which soared way above my head, and stayed there. I don't do stats. More recently, colleagues in the FMCC at the university of Newcastle upon Tyne for allowing the traitorous archaeologist in their midst to take study time. It'd probably surprise a few of them at just how interesting some people find broken down walls.

On a personal level, I need to thank the people who've stuck by me throughout. You know who you are. And if I'd known what I know now at the outset, I'd probably still have fallen for it. And whinged as much.

My parents for always being there, though it still feels like that's way too far away.

Correspondents who've helped keep me sane, though I've wandered from that path a little. You've made me both laugh and cry at what you've written, and that's helped keep a little of the human in me alive. UTM continues to be the 'brains of the outfit' and has lent me the wisdom of many words, both ancient and modern. This thesis would have turned out far better if I could hold a torch to her gift of writing. She often despairs of me, for many a good reason.

Lastly, and most importantly, my love and thanks go to Rob for sharing Delos (and some unforgettable French vocab) with me. He's been there throughout, and that sometimes in itself presents more of a mystery than the Delian houses. He deserves far more than I could ever pay him for ;-)

x

# Table of Contents

<b>Abstract</b>	<b>i</b>
<b>Acknowledgements</b>	<b>ii</b>
<b>Table of Contents</b>	<b>iii</b>
<b>Table of Figures</b>	<b>ix</b>
<b>Chapter 1 Introduction</b>	<b>1</b>
1.1 Delos and the study of ancient Greek housing	1
1.2 Thesis Objectives	3
1.3 Thesis Structure	4
<b>Chapter 2 Greek House Form</b>	<b>6</b>
2.1 Introduction	6
2.2 Source evidence	7
2.2.1 Literature	7
2.2.1.1 Vitruvius' double courtyard house	9
2.2.1.2 'Classical Period' housing	11
2.2.1.3 Roman and Roman-style housing	12
2.2.2 Archaeology	12
2.2.2.1 Fifth century houses: Athens	12
2.2.2.2 Fourth century houses: Olynthos	14
2.2.2.3 Third century houses: Priene	14
2.2.2.4 Second and first century houses: Delos	15
2.2.3 House plans: evolution or adaptation ?	18
2.2.3.1 Multiple occupancy housing	19
2.2.4 Athenian painted pottery – depictions of houses	19
2.3 Conclusions	22
<b>Chapter 3 Privacy</b>	<b>24</b>
3.1 Concepts and interpretations	24
3.1.1 Personal space and crowding	25
3.1.2 Past-present	26
3.1.3 Privacy and house space	27
3.1.3.1 Vertical privacy	29
3.1.3.2 Archaeological invisible separators	29
3.2 Critique of scholarship: privacy and Greek houses	30
3.2.1 Exterior views	30
3.2.2 Views into the house	31
3.2.3 Internal room arrangements	32
3.2.4 Privacy: knowledge versus physical factors	36
3.3 Course of study: measurable features	37
3.3.1 House layout and proxemics	37
3.3.1.1 Remote rooms — more private?	37
3.3.2 Visual accessibility	38
3.4 Discussion	38



<b>Chapter 4</b>	<b>Case Study: Delos</b>	<b>40</b>
4.1	Introduction	40
4.2	Delos' site	40
4.3	Island layout	43
4.4	Site preservation, excavation and fieldwork	43
4.4.1	Site preservation	43
4.4.2	Excavation strategy and coverage	45
4.4.2.1	Ongoing investigations	47
4.4.2.2	Field survey: the Theatre Quarter houses	48
4.4.2.3	General survey outside the Theatre Quarter	49
4.4.2.4	Recent building alterations	49
4.4.2.4.1	Flooring	49
4.4.2.4.2	Walls	50
4.4.2.5	Survey accuracy	51
4.5	Island history and site development	52
4.5.1	Early and Archaic history	52
4.5.2	The Atto-Delian confederation	52
4.5.3	Delian Independence, 314-166 BC	53
4.5.4	The second Athenian domination, 169-69 BC	53
4.5.5	Invasion and destruction, 88 and 69 BC	54
4.5.6	Delos AD	54
4.5.7	Architectural indicators of history	55
4.6	The population of Delos	58
4.6.1	Constituent nationalities	59
4.6.1.1	Slaves and freedmen	60
4.6.2	Population estimates	61
4.6.3	The impact of population levels on housing	62
4.6.4	Household members	64
4.7	Discussion	65
<b>Chapter 5</b>	<b>Town and Country</b>	<b>66</b>
5.1	Introduction	66
5.2	Comparative Town Planning	66
5.2.1	Olynthos	67
5.2.2	Priene	69
5.2.3	Rhodes	70
5.2.4	Delos	71
5.3	Ancient tourism	72
5.4	Commerce and Industry	74
5.4.1	Commercial zoning	75
5.4.2	Transport and movement of goods	75
5.4.3	Production and Manufacture	76
5.4.3.1	Household production	76
5.4.3.2	Industrial production	77
5.4.3.2.1	Mills/olive crushers	77
5.4.3.2.2	IV C	77
5.4.4	Household and industrial production combined	79
5.4.4.1	Dyeworks III N	79



5.4.4.1.1	III U	80
5.4.4.2	Presses	80
5.4.5	Later (site) re-use	80
5.4.5.1	Pressing floors	80
5.4.5.2	Foundry	82
5.4.5.3	Potter's workshop	82
5.4.6	Shops	82
5.4.6.1	House links	83
5.4.7	Discussion	84
5.5	Farming and agricultural processing	85
5.5.1	Estate location	86
5.5.2	Produce	86
5.5.3	Lessees	89
5.6	Conclusions	90
<b>Chapter 6</b>	<b>The Use of House Space</b>	<b>92</b>
6.1	Introduction	92
6.2	Theatre Quarter background	93
6.2.1	Insula I	96
6.2.2	Insula II	96
6.2.3	Insula III	97
6.2.4	Insula IV	98
6.2.5	Insula VI	98
6.2.6	Insula VIII	99
6.3	Plan analysis and interpretation	100
6.3.1	Labelling conventions	100
6.3.2	Plan features	103
6.3.2.1	Walls	103
6.3.2.1.1	Construction materials	103
6.3.2.1.2	Features	103
6.3.2.1.3	Phasing	104
6.3.2.2	Flooring	104
6.3.2.3	'Water' features	104
6.3.2.4	Elevated features	105
6.3.3	House delineation	105
6.3.3.1	The division of space into rooms	106
6.3.3.2	Room identifications	106
6.3.3.2.1	Vestibules/hallways	107
6.3.3.2.2	Courtyards	107
6.3.3.2.3	Latrines	107
6.3.3.2.4	Bath suites	107
6.3.3.2.5	'Wet rooms'	107
6.3.3.2.6	Stairwells	107
6.3.3.2.7	Exedras	107
6.3.3.2.8	Three-room suites	108
6.3.4	Small finds evidence	108
6.4	Household requirements	109
6.5	Dynamic space	109

6.5.1	Architectural anomalies	110
6.5.2	Property division and amalgamation	112
6.5.3	Inter-house links	113
6.5.3.1	Open doorways	115
6.5.3.2	Blocked doorways	116
6.5.3.3	Room to shop conversions	118
6.5.3.4	Shared facilities	118
6.5.4	House development	120
6.5.5	Implications	120
6.6	Single and multiple occupancy of houses	121
6.6.1	Multi-occupation housing on Delos	122
6.6.2	House layout	122
6.6.2.1	Rooms for rent	124
6.6.2.2	Separate suites	124
6.6.2.2.1	VI H	126
6.6.2.2.2	III Y	126
6.6.2.2.3	II D	126
6.6.2.3	Independent floors	129
6.6.2.3.1	II D	130
6.6.2.3.2	VI H	130
6.7	Gendered house space	131
6.7.1	Literary Evidence	132
6.7.2	Archaeological evidence	134
6.7.2.1	Male house space	134
6.7.2.2	Female house space	134
6.7.3	Evidence from the Delian houses	136
6.7.4	Conclusions	138
6.8	Water provision	138
6.8.1	Household water features	139
6.8.1.1	Wells	140
6.8.1.2	Wells within walls	140
6.8.1.3	Cisterns	140
6.8.1.4	Latrines	141
6.8.1.5	Baths	141
6.8.1.6	Drainage	142
6.8.1.7	Upper floors	142
6.8.2	Public water supplies	142
6.8.3	Shops and industrial instalments	143
6.9	Décor	143
6.9.1	Flooring	143
6.9.1.1	Materials	144
6.9.1.2	Designs	145
6.9.2	Wall decoration	148
6.10	Upper floors	151
6.10.1	Mosaics	152
6.10.2	Wall painting	152
6.11	Discussion	153
6.12	Upper Floors	153

6.12.1	Upper floor construction	154
6.12.1.1	Collapsed materials	154
6.12.2	Decoration	156
6.12.3	Roofing	156
6.12.4	Discussion	157
6.13	"Living in Delos. Building history of the Hellenistic houses and changes in living culture."	158
6.13.1	The development of Delian house form	159
6.13.2	The 'canonical normal house'	159
6.13.3	Upgrading	160
6.13.4	Social influence	160
6.13.5	Site	161
6.13.6	Use of house space	162
6.13.6.1	Dynamic space	163
6.13.6.2	Multiple occupancy	163
6.13.6.3	Upper floor	163
6.13.7	Relative Chronologies	164
6.13.8	Appendix information	164
6.13.9	Information specific to the Theatre Quarter	165
6.13.10	Overall Evaluation	166
6.14	Housing outside the Theatre Quarter	167
6.15	The use of house space	168
6.15.1	Cooking	169
6.15.2	Sleeping quarters	169
6.15.3	Work rooms	170
6.15.4	Store rooms	170
6.15.5	Courtyard	171
6.15.6	Three-room suites	171
6.15.7	Andron equivalents: rooms for entertaining	172
6.15.8	Upper floor rooms	172
6.16	Conclusions	173
<b>Chapter 7</b>	<b>Access Analysis</b>	<b>174</b>
7.1	Introduction	174
7.2	Graph construction	175
7.2.1	Problems encountered during graph construction	177
7.2.2	Layout Patterns	178
7.3	Control space calculations	180
7.3.1	Method	181
7.3.2	Results	182
7.3.3	Implications for upper floors	182
7.4	Relative Asymmetry calculations	183
7.4.1	Results	184
7.4.2	Linking control status and Relative Asymmetry	184
7.4.3	Linking Control Space and RRA calculations to Privacy	187
7.5	Conclusions	188
<b>Chapter 8</b>	<b>Sight Line Analysis</b>	<b>190</b>
8.1	Introduction	190



8.2	Architectural boundaries: walls and doors	191
8.2.1	Windows	191
8.3	Sight lines and views	196
8.3.1	Investigating visual accessibility through house reconstructions: CAD methodology	197
8.3.2	Views into the house	199
8.3.2.1	Directed views	200
8.3.2.2	Houses with multiple street entrances	201
8.3.2.3	Floor levels	201
8.3.3	Lines of sight within the house	203
8.3.3.1	Courtyard space and pillar placement	205
8.3.3.1.1	House VI N	205
8.3.3.2	Interconnecting rooms	207
8.3.3.3	Views within rooms: door alignment and partitions	209
8.3.3.4	Interior ground floor windows - House III K	209
8.3.3.5	House VI I	212
8.3.3.6	House VI N	212
8.3.4	Views out of the house and overlooking	212
8.3.4.1	Door alignment	212
8.3.4.1.1	Exterior ground floor windows - House IV B	212
8.3.4.2	Upper floor windows	215
8.3.4.3	Floor levels - Houses VI M and N	217
8.3.4.4	Upper floors	218
8.3.4.5	Adjacent houses and roof heights	218
8.3.5	Light	221
8.3.5.1	Lamps and wall niches	222
8.4	Conclusions	223
<b>Chapter 9</b>	<b>Conclusions</b>	<b>225</b>
9.1	The Delian houses: Greek or Roman?	225
9.2	Multiple occupancy	226
9.3	Temporality of use	226
9.4	CAD modelling	227
<b>Appendix 1</b>	<b>House Plans and Fieldwork Notes</b>	<b>228</b>
<b>Appendix 2</b>	<b>Access Analysis Calculations</b>	<b>276</b>
<b>Appendix 3</b>	<b>CAD Methodology</b>	<b>319</b>
A3.1	Plan preparation	319
A3.2	Model construction	320
A3.3	Flooring areas: courtyards, impluvia and rooms	321
A3.3.1	Walls	321
A3.3.2	Block features: sills and stylobate flagging	321
A3.3.3	Pillars	322
A3.3.4	Doors and windows	322
<b>Bibliography</b>		<b>324</b>

# Table of Figures

Figure 1: Map of the Aegean showing the location of Delos at the centre of the Cyclades	3
Figure 2: Plan of Vitruvius' Greek house	10
Figure 3: Plan of conventional fifth century house	10
Figure 4: Plan of imaginary fifth century house	10
Figure 5: Reconstructed third century <i>patrician domus</i>	13
Figure 6: Vitruvian plan of a typical Roman house	13
Figure 7: House on the North Slope of the Areopagus, Athens	13
Figure 8: Characteristic Olynthian house plan	13
Figure 9: Plan of a house at Priene	13
Figure 10: Plan of Dolphin House	16
Figure 11: Composite plan showing common features found within Delian houses	16
Figure 12: Delian house plans	16
Figure 13: Vase scene showing house porch and doorway approach	21
Figure 14: Vase scene showing roofing and interior-exterior space	21
Figure 15: Vase scene showing water vessels and well coping	21
Figure 16: Vase scene showing roof and window features	21
Figure 17: Vase scene showing double window	21
Figure 18: Vase scene showing arrow slit window and interior door	21
Figure 19: House at Dystos, Euboea, with narrow entrance and staggered interior doorways	34
Figure 20: Plan of Trident House, Theatre Quarter II A, showing the axial view from the main entrance	34
Figure 21: Map of the island of Delos showing the position of the town	41
Figure 22: Map of Delos town	41
Figure 23: View from part way up Mount Cynthus north-west towards the sanctuary of Apollo	42
Figure 24: View inland from the west shore, across the Theatre Quarter to Mount Cynthus	42
Figure 25: View north through the sanctuary	42
Figure 26: The theatre on Delos	44
Figure 27: View from the theatre north-west across the Theatre Quarter	44
Figure 28: Warehouse and shop remains along the western shore	44
Figure 29: Schematic map of Delos showing excavated areas and ruins not yet explored	46
Figure 30: Wall repairs	46
Figure 31: Reduction in wall height	46
Figure 32: Hill House showing fire damage to walls	57
Figure 33: Plan of the Agora of the Italians	57
Figure 34: Comparison of town layouts and road routes	68
Figure 35: Plan of STR 7 showing circular arrangement of flagstones	78
Figure 36: Plan of IV C	78



Figure 37: Stylised plan of the Theatre Quarter showing the position of shops and industrial installations	78
Figure 38: Dyeworks plans III N and III U	78
Figure 39: Marble press and collection jars within III O	81
Figure 40: Storage jars in III O	81
Figure 41: Hellenistic shop	81
Figure 42: Plan of III A with adjoining shops (TR 5, 7, 9 and 11)	81
Figure 43: The Temple Estates on Delos	87
Figure 44: Sketch of imaginary farm to the south of Delos; includes farm enclosure, terracing, animal pens and ploughing	88
Figure 45: Sketch showing the development of the Theatre Quarter	94
Figure 46: A comparison of layout between the North Quarter and Theatre Quarter insulae	94
Figure 47: Sketch of the Theatre Quarter showing the position of roads in relation to the insulae	95
Figure 48: Sketch of the Theatre Quarter showing the position of Insula I	96
Figure 49: Sketch of the Theatre Quarter showing the position and house labels of Insula II	96
Figure 50: Sketch of the Theatre Quarter showing the position and house labels of Insula III	97
Figure 51: Sketch of the Theatre Quarter showing the position and house labels of Insula IV	98
Figure 52: Sketch of the Theatre Quarter showing the position and house labels of Insula VI	98
Figure 53: Sketch of the Theatre Quarter showing the position of Insula VIII	99
Figure 54: Insulae II, IV and VI ground plans	101
Figure 55: Insula III ground plan	102
Figure 56: Wall abutments between house II D and adjacent shops (STR 1 and Rd1 7)	111
Figure 57: Double wall feature between houses II E and F	111
Figure 58: Unusual wall alignments between house IV C and adjoining properties	111
Figure 59: Property amalgamation within houses II B and C	111
Figure 60: House III RS, an amalgamation of two smaller properties (R and S)	111
Figure 61: Property development at Priene	114
Figure 62: Division of house space from the Areopagus, Athens	114
Figure 63: Open doorway access between houses III G and H	114
Figure 64: Blocked doorway opening in VI d's exterior wall, viewed from within Insula III	117
Figure 65: Houses VI L, M and N showing open doorway access and the position of blocked doorways	117
Figure 66: Wells positioned within walls	119
Figure 67: Well positioned beneath the wall of shop TR 10 and the adjacent alley	119
Figure 68: Stylised map of Delos showing the main residential areas excavated	123
Figure 69: Houses at Priene showing separate ground floor suites	123
Figure 70: Theatre Quarter houses with multiple ground floor suites	125
Figure 71: Plan of the House of Q. Tullius, Stadium Quarter	127
Figure 72: Plan of Lake House	127
Figure 73: Plan of the House of the Vetii, Pompeii	127
Figure 74: Delos' hotel complex	127
Figure 75: Shop entrance	127



Figure 76: Paths within IV B	147
Figure 77: Surviving wall decoration within VI Fd	147
Figure 78: Extant wall decoration within VI li	149
Figure 79: Wall decoration scheme	149
Figure 80: Upper floor wall debris (within VI Hi); poros blocks with polychrome and incised plaster decoration	155
Figure 81: Mosaic orientation within house VI I	155
Figure 82: Cover and pan tiles found within the Inopos Quarter.	155
Figure 83: Graph construction	176
Figure 84: Ambiguities with graph construction	176
Figure 85: Two hypothetical building plans with identical patterns of access and justified graph	179
Figure 86: Stylised Delian house layout showing common features	179
Figure 87: The 'shallowest' and 'deepest' forms of access graphs	179
Figure 88: Control space calculations	179
Figure 89: Mean Depth and Relative Asymmetry calculations	185
Figure 90 Graph showing the height of surviving windows within the Theatre Quarter insulae	193
Figure 91: Sketch illustrating differences between interior and exterior floor levels	193
Figure 92: VI Ni window	194
Figure 93: Sketched sight lines within house III M showing the maximum extent of vision possible looking in from the street door, with interior doors open	194
Figure 94: CAD reconstruction methodology	198
Figure 95: Directed views into the house: II A, Trident House	202
Figure 96: Views in from House IV B street entrances	202
Figure 97: Floor levels – IV B	204
Figure 98: House of Tritons reconstruction featuring courtyard walls	204
Figure 99: CAD images of VI N	206
Figure 100: House plans showing possible movement between interconnecting rooms	208
Figure 101: Interior partition placement within VI Ai	208
Figure 102: CAD images of III K.	209
Figure 103: CAD images of VI I	211
Figure 104: VI Ni window, view across courtyard into room f, beyond	213
Figure 105: Plan of IV B showing window placement	213
Figure 106: IV B window placement, and detail	214
Figure 107: View from IV B window across to House II A	214
Figure 108: View from IV Bg window across Road 3 to House VI D	216
Figure 109: Window between houses VI N and O	216
Figure 110: View from VI M courtyard to VI N	216
Figure 111: View from VI Na through VI M	216
Figure 112: Excavation hut stairs	220
Figure 113: Hermes House, courtyard view to room g	220

## CORRIGENDA

1.ii.3 = page 1, paragraph 2, line 3; 1.ii.-3 = page 1, paragraph 2, 3rd line from end

8.ii.5 an ] and

8.ii.6 try and ] try to

14, heading 2.2.2.2: Fourth century ]

Fourth-century

14, heading 2.2.2.3: Third century ] Third-century

17.i.2 as ] as in

38.ii.3 visually ] visual

61.iii.9 *delete* states

66.i.7 duel ] dual

66.ii.4 *delete* and

70.iii.3 fourth ] fourth-

80.iv.2 *delete* sited

84.ii.9 its] it

90.iv.4 an ] and

121.ii.2 this ] this is

129.i.10 room off ] room

150.ii.6 Pompeian ] Pompeian

156.iii.-3 *delete full point*

160.ii.5 investment ] investment in

161.ii.-1 the a ] the

162.iv.4 other ] Other

162.iv.6 and ] an

162.iv.7 between ] between them

163..ii.-3 an ] and

166.iii.5 back Each ] back. Each

167.ii.5 ends ] end

172.ii.2 form ] from

**“Palaeontology and archaeology and other skulduggery were not subjects that interested wizards. Things are buried for a reason, they considered. There’s no point in wondering what it was. Don’t go digging things up in case they won’t let you bury them again.”**

**Terry Pratchett, *The Last Continent*.**



# Chapter One

## Introduction

### 1.1 Delos and the study of ancient Greek housing

Ancient Greek temple complexes strewn with statuary, altars and treasuries continue to impress travellers from all over the world. By comparison, little extant domestic architecture survives. Built from mudbrick atop stone lower layers, house walls generally only stand to a maximum of several low courses. In contrast, the island of Delos (Figure 1) holds unique and extensive remains of private houses (dating to the first and second centuries BC) within its Hellenistic town. Built of stone, the walls stand to above first floor height, though their preservation varies across the site. Early excavators on the island focused their exploration on public buildings surrounding the agora, and on richly decorated houses containing marble courtyard pillars, painted wall plaster and fine mosaic flooring. Areas of the island's insula block housing were also uncovered, and due to their preservation provide an unequalled opportunity to research the form and use of the buildings.

Surviving walls hold painted and incised plaster decoration, windows, wall niches, beam holes indicating the placement of ceilings to mezzanine or upper floors and traces of stair flights. Elevated features, both in their current form and using survey data, can be reconstructed to *known* heights enabling the partial rebuilding of the houses to a more complete form than the present site allows. Elsewhere, poor site preservation limits the study of Greek housing material to ground plans and floor level features only.

Current knowledge about Greek housing originates from sites containing the most extensive information such as Olynthos, dating to the fourth century BC, though house remains there stand to below knee height. Where consideration is given to elevated features, particularly in the form of building reconstructions, these are usually invented or inappropriately based on Roman examples from Pompeii or Herculaneum.

Due to the paucity of archaeological data, great emphasis is placed on source literature for information regarding the form and use of the ancient Greek house. Expected features derived from descriptions of Greek-style houses (e.g. from Vitruvius; Section 2.2.1.1) are mapped to excavated remains and used in their interpretation, with little consideration of their validity. Social agendas are thought to have directly influenced house construction with the private house reflecting a physical manifestation of household/community separation. Notions of privacy are attributed to overall house design being isolated, insular, and inward-facing. In addition, separate provision for women of the household in the form of 'women's quarters' are sought, often thought to have been placed upstairs and are therefore conveniently lost from the archaeological record.

Small finds evidence is used to inform the identification of room or activity placement within the house, linking building form and function. However, this is often done with little consideration of the context in which the items are found. Resulting identifications are directly linked to contemporary ideas where rooms within the house have specific functions. Past evidence is often viewed in such terms of contemporary translation, here mirroring experience of our own housing in terms of identifiable room spaces, and also the occupation of houses by a single household only.

The importance of understanding Greek houses stems from the information archaeological evidence reveals, and should facilitate interpretation of what is there rather than what is expected. The Delian examples enable the direct use of archaeology as an interpretative tool into investigating the form and use of the ancient Greek houses. Its spectacular standing remains provide unparalleled information, particularly in reference to the upper floors of the house. The site enables reconstructions which are fact rather than fiction, moving away from the limitations of ground plan study carried out at comparative sites where remains are less well preserved. These reconstruction models can be used to investigate house's spatial and visual accessibility, linking house form and layout to opportunities for privacy within it.



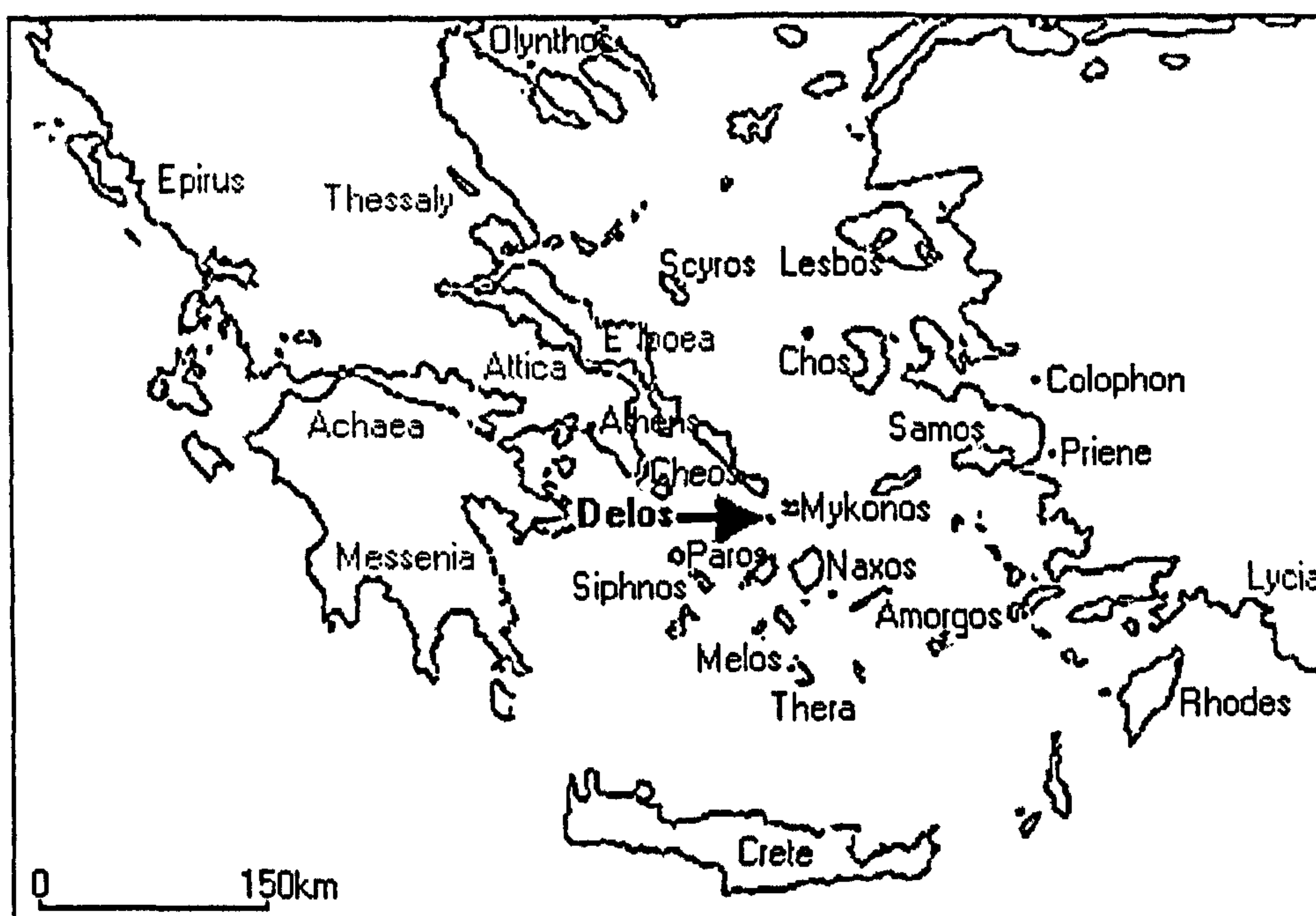


Figure 1: Map of the Aegean showing the location of Delos at the centre of the Cyclades  
(Adapted from Hopper 1979: 202-3, Figures III-IV)

## 1.2 Thesis Objectives

The main objective of this work is an investigation of privacy within the ancient Greek house through the detailed exploration of a case study: Delos' Theatre Quarter houses. Secondly, this work provides an interpretation of the form and use of the houses through the development of site data into computer models. This thesis aims to address established views of use of house space through the combination of literary, archaeological and derived statistical data. The alliance of archaeological and computer analyses to produce factual models of lost structures has received little attention to date with regard to ancient Greek houses due to the paucity of standing remains at excavated sites. This work aims to demonstrate the merits of using Computer Aided Design (CAD) modelling as an interpretative tool to spatially represent measured survey data, in conjunction with more traditional methods of archaeological interpretation.

This thesis sets out to achieve the following:

1. To address the notion of privacy within the ancient Greek house through relating theoretical information to spatial layout and visual accessibility



2. To make a detailed interpretation of a case study area: the Theatre Quarter houses of Delos as living and working space
3. To analyse the applicability and value of statistical access analysis to Greek houses by calculating indices of permeability (and spatial privacy) from the case study ground plans
4. To create 3D partial building reconstructions, automated view sheds and sight line models to investigate spatial and visual privacy and house layout

## **1.3 Thesis Structure**

The layout of this thesis is intended to progress from general information, covering house form and theoretical notions of privacy, to specific details of the case study interpretation. It develops plans analysis into 3D modelling, moving from ground level to elevated form data and focuses on the importance of archaeological evidence throughout.

**Chapter 2** explores the layout of the Greek house. It investigates information of house features provided by source literature and Athenian painted pottery, and excavated data from housing sites across Greece. It illustrates the main architectural features found within the ancient Greek house and places the Delian insulae in an adaptive architectural context.

**Chapter 3** introduces notions of privacy. It considers both past and present concepts of privacy and relates these to housing in terms of architectural and other barriers. It includes a critique of the scholarship published linking privacy and ancient Greek housing and sets out aspects of analysis possible with the field survey data.

**Chapter 4** provides background information about the case study area. It covers the site's archaeological preservation and excavation, and details the fieldwork undertaken in preparation for the following IT analysis. A brief history of island events is provided and includes an overview of the island's population.

**Chapter 5** links Delos' urban and city structures. It details the development of the town and considers the impact of tourists and visitors at times of festivals and markets. An overview of evidence for commercial activity within the Theatre Quarter explores houses which combine both industrial and residential areas. The temple estates of Apollo to the

south of Delos and on neighbouring Rheneia link trade and production with the island's urban centres and housing.

**Chapter 6** investigates evidence for the use of space within the case study houses of the Theatre Quarter through the combination of extant site information and published excavation report material. This informs the conclusions on the interaction of the house's occupants with the surrounding built environment.

**Chapter 7** details the methodology and interpretative validity of access analysis by applying established statistical analysis to the case study houses. It considers the suitability of the method to the Delian structures, and links the results to both house layout and notions of privacy.

**Chapter 8** develops the investigation into privacy from ground plan layout and traced lines of sight to the creation of three dimensional CAD house models. These models are used to explore visual and spatial accessibility within the Delian houses. It links the results to aspects of privacy, and details what information the case study houses provide in respect of this.

**Chapter 9** contains the conclusions of this study covering themes of temporality and multiple occupancy, the Greek-Roman nature of the Delian houses, and the applicability of CAD as an interpretative tool within archaeology.



# Chapter Two

## Greek House Form

### 2.1 Introduction

A small but growing body of archaeological data for ancient Greek housing survives to the present day. Domestic structures were usually built of mud brick walls atop stone lower courses. The former have perished and left little more than low walls and ground level features for the archaeologist to uncover. The Delian houses provide an outstanding exception to this. Constructed largely of stone, their walls stand tall of five metres high in places, and offer unique and unparalleled evidence for house form from the ancient Greek world.

Contrasting with primary site evidence, text book ground plans of how ancient houses are *expected* to look stem from a combination of abstract architectural features mentioned in fifth century Classical texts, and the Roman architect Vitruvius' prescriptive house plan (dating to the C1st BC, see Section 2.2.1.1). The 'typical' Greek house form is considered to have a single street door with vestibule hallway leading to a central courtyard around and onto which the other ground floor rooms faced inwards. The residence is laid out in an axial, almost symmetrical arrangement, with separate spatial provision made for men and women, either as distinct ground floor suites or women's quarters mirroring those of the men, but upstairs.

Contemporary scholarship perpetuates these simplistic and composite ideals despite there being no archaeological evidence or direct contemporary literary evidence to support them (Rider 1964: 218). Often, these inaccurate architectural 'norms' continue to influence the reading of the social past through its physical remains.

This chapter offers an overview of ancient Greek house form and places the Delian case study houses within an adaptive architectural framework. It examines housing examples from the fifth century BC to the first centuries AD, moving away from delineated date



and shape categories (into which plans either fit or do not) to explore tangible structures, and what information can be derived from their layout.

## 2.2 Source evidence

Most primary source evidence for Classical Greek housing is archaeological. Nevett (1999: 29) comments on the general failure of modern scholars to use archaeology as an independent source of information, though this is likely due to the limits of its remains. Additional information is provided by forensic oratory, drama (mostly from the third and fourth centuries BC) and stylised depictions of house features on Athenian painted pottery. Literary evidence tends to be Athenian or Athenian-oriented, while archaeological evidence mostly originates from outside Athens. There is no direct tie between these written descriptions and the houses excavated, and heavy reliance on architectural information taken directly from source literature continues.

### 2.2.1 Literature

Drama features domestic architecture in reference to household concerns, particularly the social ideals surrounding women. These include their spatial separation, cloistering within the house, and the comic element of women misbehaving in their husbands absence (see Section 6.7 for a discussion of 'gendered' house space). House references are often used as place settings for characters, either within plays or as scene-setting amidst reported household misdemeanours and inheritance issues taken to court. Though sometimes referring to specific named residences, these snippets also provide more general information regarding the layout and use of interior house space.

House elements mentioned are separate and secured areas for women, the use of upper floors and roof space, and the importance of household security by means of lockable doors both on women's quarters and the 'master' bedroom. As well as being spatially separated by gender, division of the house was also reported as being into family rooms and rooms used for entertainment, with guest rooms being placed away from those used by the family (Eur. *Alc.* 546-50). However, little information can be gleaned as to where rooms or suites of rooms were placed in relation to one another within the house. Aristophanes provides snippets of information regarding the layout of the house where



neighbours knock at the back door (Ar. *Eccl.* 314) and roof space is used (indicating that at least part of it was flat) (Men. *Samia* 238-246) where people stand and look from it (Eur. *Phoen.* 91), or call to passers by from (Dem. *Orations* 60).

More detailed architectural information is found in Xenophon's *Oeconomicus* and *Memorabilia* which discuss both economic, social and physical functions of the ancient house. The *Oeconomicus* is the earliest philosophical treatise which focuses on the *oikos* and is both normative and idealised. It is also the only extant text which focuses attention on the house as an economic unit, combining (Athenian) public legislation as well as private concern (Pomeroy 1994: 33ff.). The *Memorabilia* suggests that a practical house is also a beautiful one (*Mem.* III, viii.9-10), oriented and constructed to maximise the effects of heat and light via climactic change. South-facing aspects are considered favourable, with rooms built higher than the rest of the house to make the most of the winter sun while remaining shaded in summer (*Mem.* III, viii.9, *Oec.* 4). Examples of this type of construction can be seen in Delos' Rhodian peristyles of Mask House and the Theatre Quarter's House of the Trident. Security is also an issue, the house must be constructed to store belongings safely: store rooms are referred to as safeguarding the household's most valuable blankets and utensils (Xen. *Oec.* 3).

Information from literary sources is thought to have reflected differing concerns between the fifth and fourth centuries BC. Pomeroy (1994: 32) suggests that fifth century literature reflects communal concerns, with a focus change in the fourth century towards the private world and the individual. Politics, religion and other society concerns are all likely to have affected topics featured in contemporary literature, during both the fifth and fourth centuries, and beyond. It is idealistic and too simplistic to try and relate these everyday considerations to extant source material directly. Dramatic performances aspired to win competitions and so alluded to situations and circumstances to which the audience could relate. In doing so, everyday occurrences within family and household life featured alongside the fantastic and extraordinary. Matching surviving archaeology to this and other types of literature is a near impossible task, as there are unlikely to be many direct connections between the two. Gardner *et al.* (1898) provide an appropriate summary of this by emphasising that Classical literature did not try to preserve 'typical' information for the sake of modern social historians.



### 2.2.1.1 Vitruvius' double courtyard house

Book VI of Vitruvius' *De Architectura* contains descriptions of the physical proportions, exposure, and use of rooms within 'typical' Greek and Roman houses. Their descriptions have been interpolated into ground plans. The Greek house Vitruvius describes (Figure 2) is entered via a narrow entrance from the road (A), with stables to one side (B) and doorkeeper's rooms to the other (C). This narrow hallway is closed from the courtyard by inner doors. The front peristyle courtyard (D) is surrounded by the men's apartments and rooms used for dining and entertaining guests (Morgan 1960 :187). Guest apartments (E) are placed between this and the back courtyard, the women's quarters, *gunaikontes* (F). Here were the rooms for everyday use, family dining rooms and slave quarters. The area surrounding this second courtyard also includes the family rooms, contrasted with the more elaborate men's apartments, *andrones*, at the front. Rider (1964: 218) tells us, however, that such two-courtyard models are *not* supported through excavation evidence or with contemporary literary references and Jameson (1990: 98-100) also finds no evidence for such spatial separation through architectural remains. Dinsmoor (1975: 325) considers that Vitruvius' description applies to late Greek houses with more luxurious additions, a second and larger peristyle courtyard and rooms for guest entertainment and accommodation. The plan is certainly not one of the everyday three- or four-room household discovered in Athens, the majority of the Olynthian houses, or Pompeii's insula accommodation.

We must remember, however, that it is likely that Vitruvius wrote centuries after the construction of the Greek style of house he describes, and as a Roman rather than Greek architect. In addition, the style of housing described may have borne little resemblance to 'real' Greek houses. His work also includes gender distinctions which would have been alien to his own experience of housing. Gardner suggests that inconsistencies regarding the interpretation of Greek housing sites persist, and expresses the clear need for a reconsideration of the question of expected or idealised plans. He names the misinterpretation of Vitruvius' work as one of the chief sources of the prevalent erroneous conceptions (Gardner 1901: 302). Site and source information continue to be combined to create 'typical' or example house plans modelled on Vitruvius' work. An example of this can be seen within Harris' architectural sourcebook where he uses



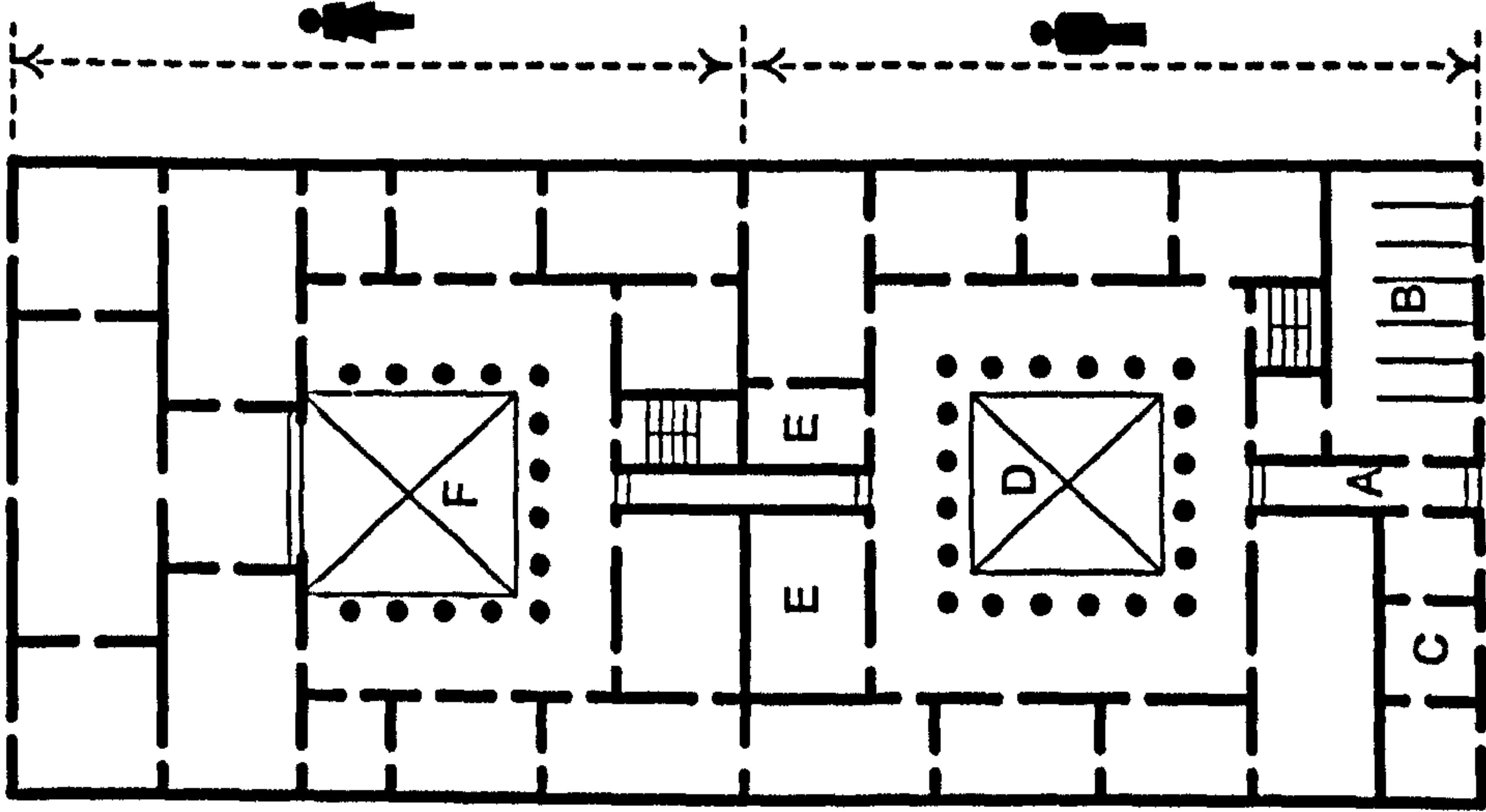


Figure 2: Plan of Vitruvius' Greek house  
(Adapted from Morgan 1960: 186)

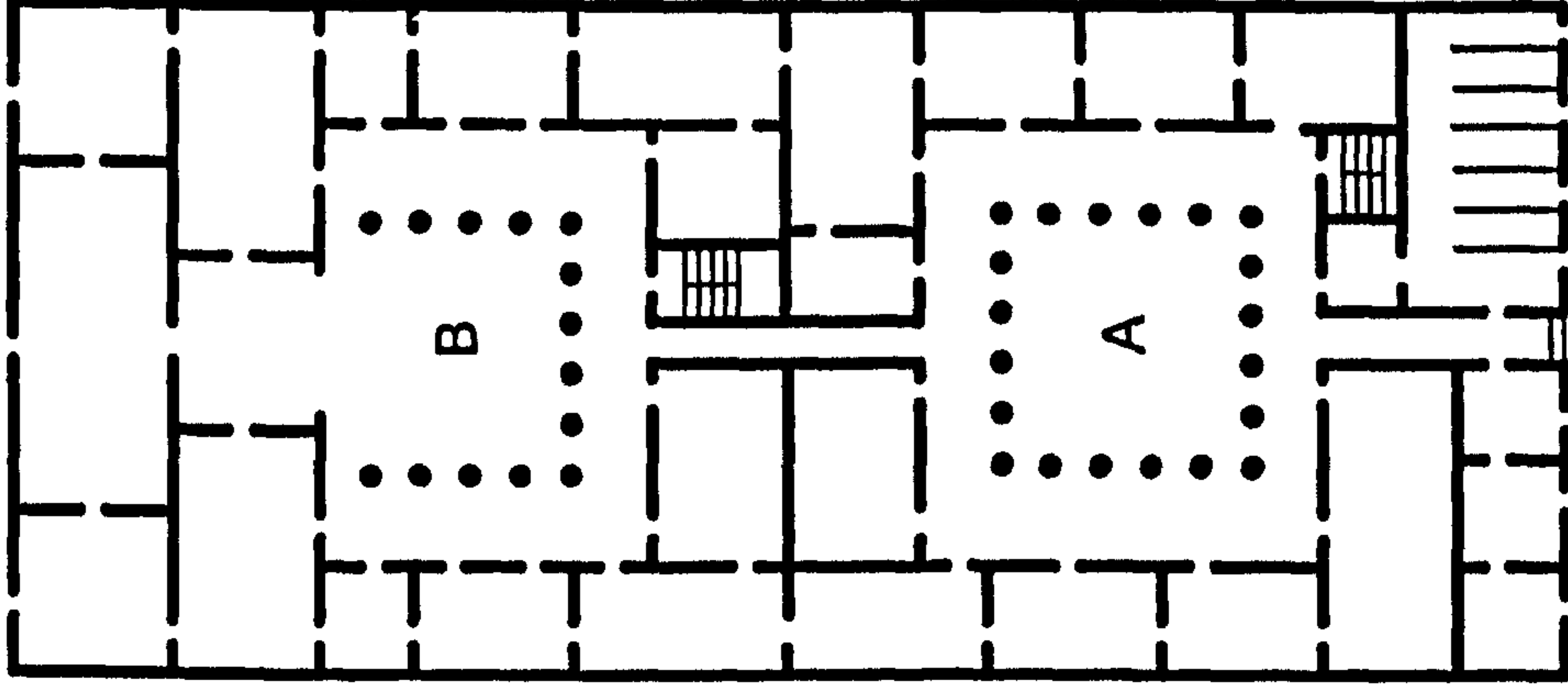


Figure 3: Plan of conventional fifth century house  
(After Rider 1964: 217, Fig. 35)

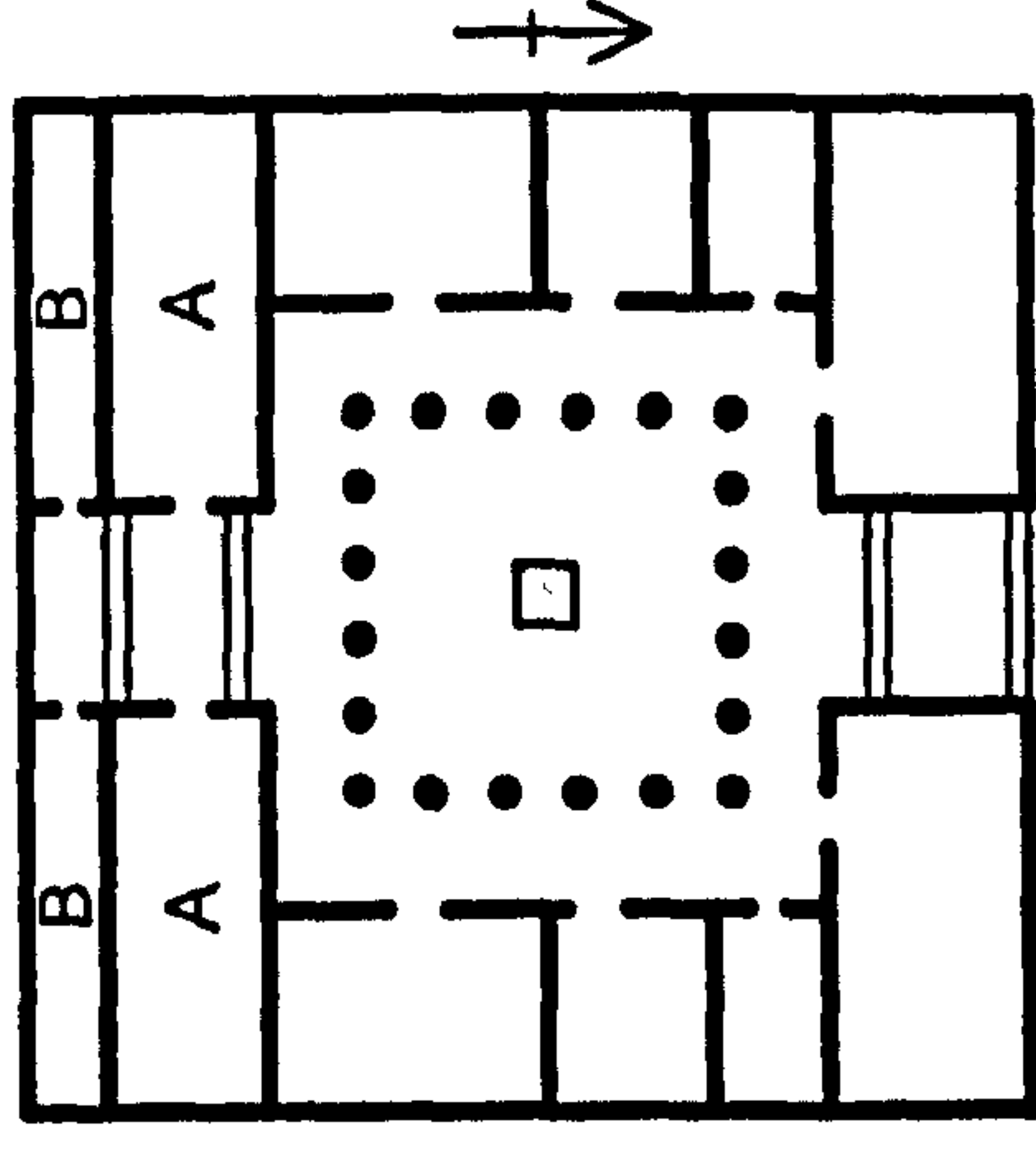


Figure 4: Plan of imaginary fifth century house  
After Rider (1964: 237, Fig. 40)

Vitruvius' layout to illustrate typical features but also states that house design varied according to the wealth of the owner as well as the period in which it was built (Harris 1977). A more profitable method of analysis would seek to interpret what archaeology presents, rather than looking for what is expected in literary sources.

The following sections take a brief look at prescriptive plans for both Greek and Roman houses.

### 2.2.1.2 'Classical Period' housing

Jameson (1990: 97) remarks that no examples of Vitruvian house plans date from the Classical era and Rider (1964: 210) considers the house remains from this period (here representing the sixth to mid-fourth centuries BC) are too scanty to construct a 'normal type' of ground plan. She illustrates the common features they include with a 'conventional fifth century house' (Figure 3), almost identical to that prescribed by Vitruvius. The house has an open arrangement with rooms surrounding two courtyards. The first, *andronitis*, the male courtyard (A), being reached via a long, narrow passageway, entered directly from the street. The second, the *gunaikontis*, female courtyard (B), is entered via a door at the back of the first. This contrasts with Rider's 'imaginary C5th house' (Figure 4) constructed from features mentioned within contemporary literary evidence.

This composite imaginary house is entered via a vestibule hallway from the street which leads through to a courtyard (with back entrance) around which the rest of the ground floor rooms are placed in a radial arrangement. Rider (1964: 229-232) mentions that the south side of the courtyard would be used as an *exedra* where possible because of its aspect, and a corridor or passageway in front of, and linking, the rooms positioned opposite the front door form a covered *pastas* area. The women's rooms here (B) are placed *behind* that of the men (A) and separated from them by a door in the same way as the vestibule is separated from the courtyard. The two suites of rooms can be equated with Vitruvius' double courtyard arrangement, providing spatial separation for men and women within the house, and the women's quarters being accessed via those of the men.



### 2.2.1.3 Roman and Roman-style housing

The 'normal form' of Roman houses is illustrated by Clarke's (1991: 3) plan of a third century *patrician domus* (Figure 5). Vitruvius' plan of a 'typical' Roman house mirrors this but with the addition of a second, peristyle courtyard at the back (Figure 6). Both plans contain axial room arrangements, leading from the entranceway (*fauces*) through the hallway (*atrium*) to the dining room (*tablinum*) on the far side of it. Architecturally framed and orchestrated views are arranged from the street entrance to see far into the house, encouraging passers by to look in. Late developments in Roman houses saw the addition of a peristyle garden, concurrent with the expansion of house space into a second courtyard, where land permitted. Daniels' (1995: 85) study of the Romano-African houses of Volubilis, North Africa, sees the second courtyard not only as representing restriction by means of seclusion, but freedom too.

## 2.2.2 Archaeology

In contrast with the above template-style plans, information taken directly from excavated sites provides a closer, and more informative comparison of house form and layout. Composite plans here take on a different role, representing not prescriptive features but those common to, and in some cases specific to, the housing from a particular site. Each site considered below differs in locale, geographical situation (e.g. hilltop site, island), chronology and development (Section 5.2). It is likely that its housing, and other buildings, would be adapted to suit its environment, available space, and the site itself.

The following sections contain descriptive information regarding house layout from sites across Greece dating from the fifth to second and first centuries BC. They can be compared and contrasted, both with one another and the prescriptive plans (above) to investigate differences in house form both geographically and temporally.

### 2.2.2.1 Fifth century houses: Athens

Houses from the north slope of the Areopagus (Figure 7) provide examples of units from (insula) block housing. They were in a poor state of preservation when excavated, and whether they extended to the upper storeys remains conjectural (Walker 1983: 84). Their street doors open onto a courtyard area from which the other ground floor rooms open.



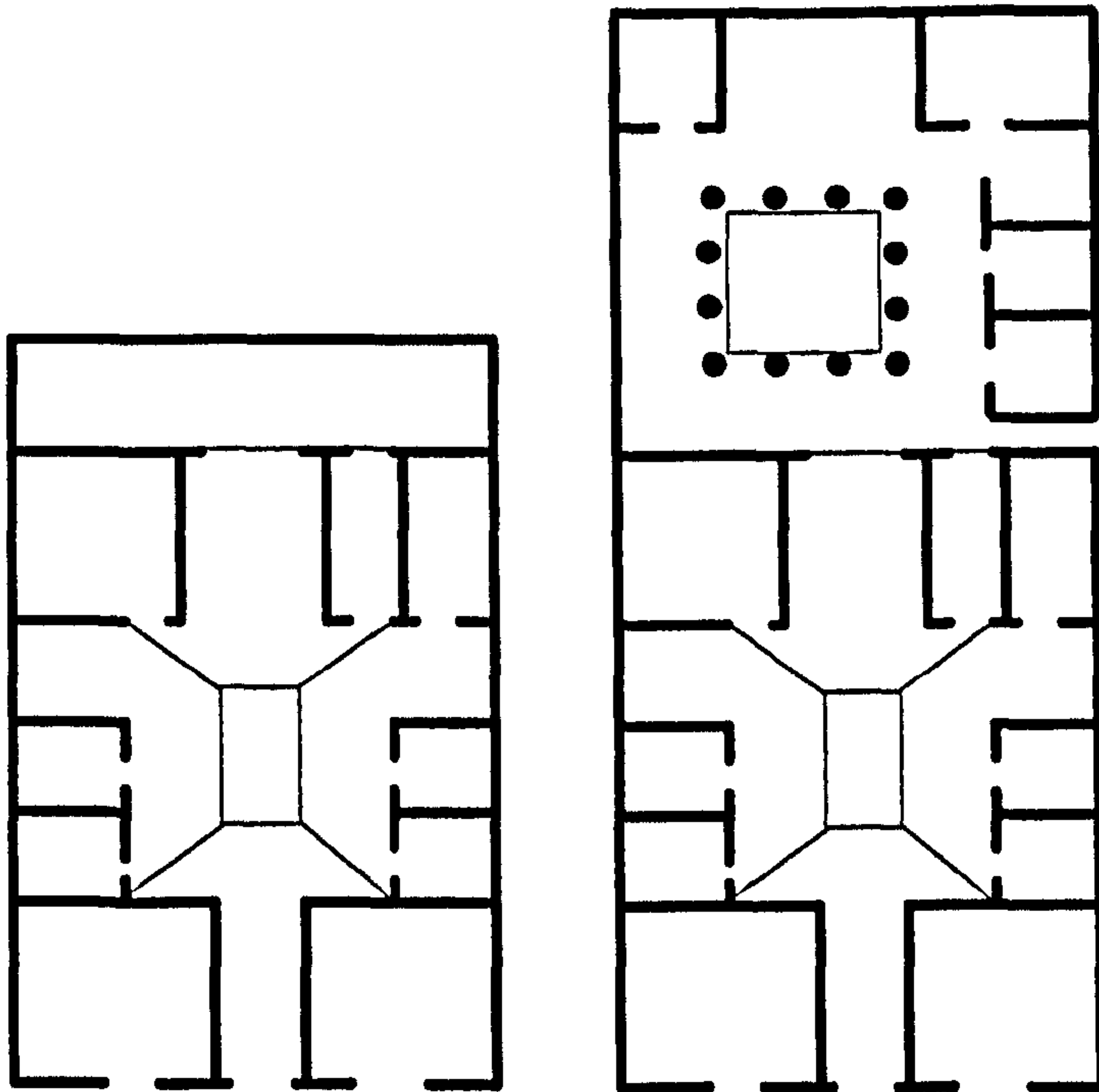


Figure 5: Reconstructed third century *patrician domus* (Clarke 1991: 3, Fig. 1)

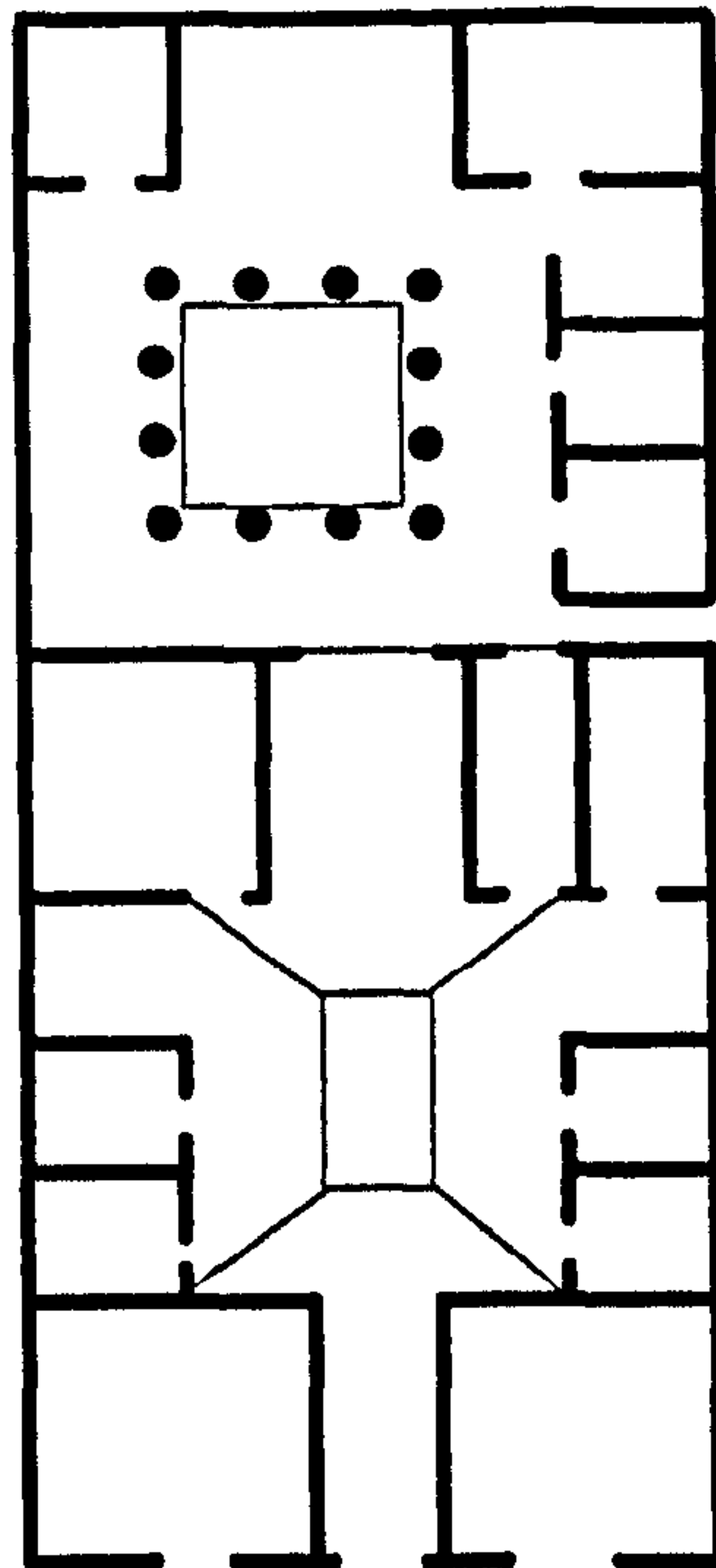


Figure 6: Vitruvian plan of a typical Roman house (Adapted from Morgan 1960: 178)

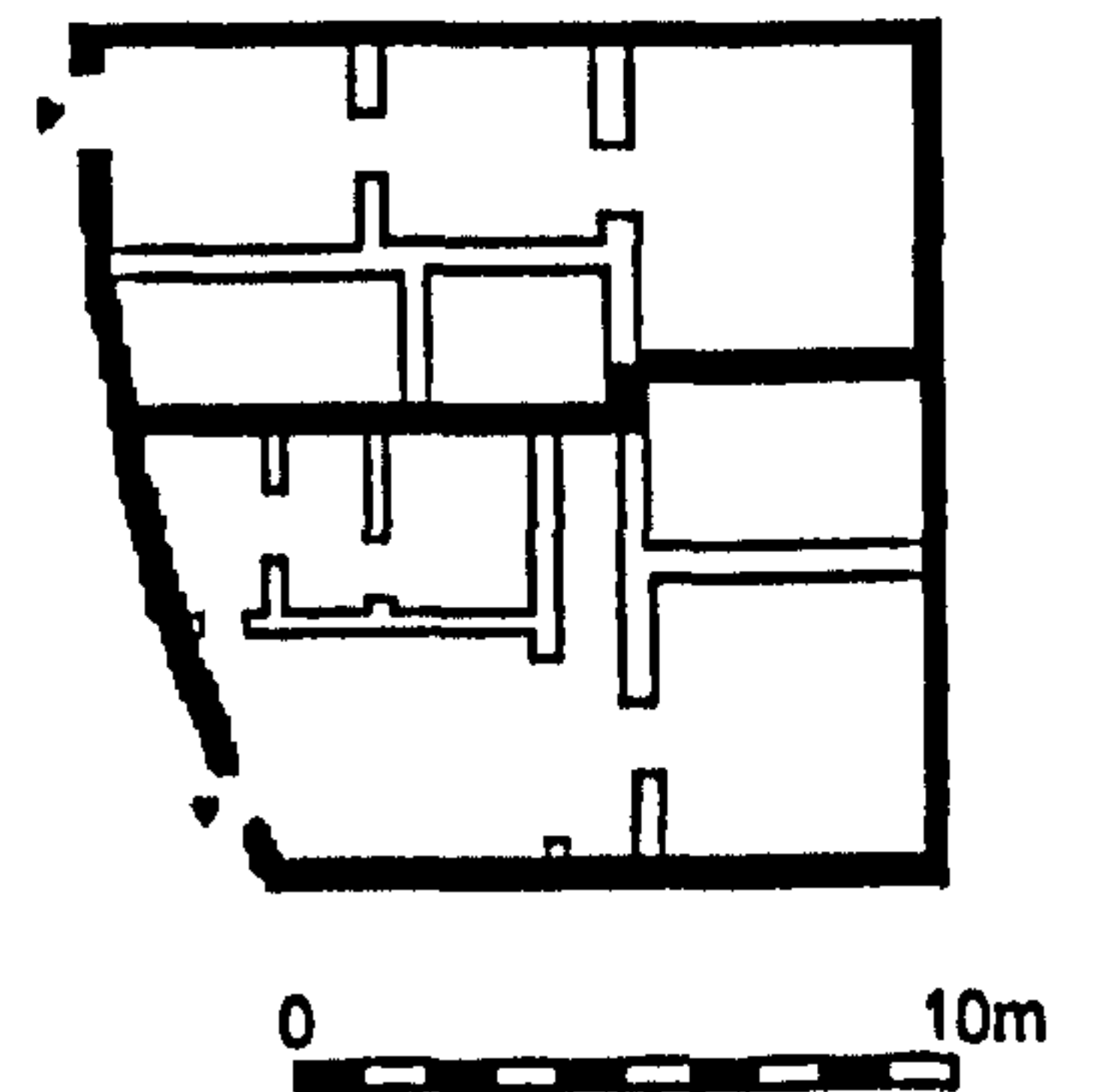


Figure 7: House on the North Slope of the Areopagus, Athens (After Walker 1983: 87 Fig. 6.2a)

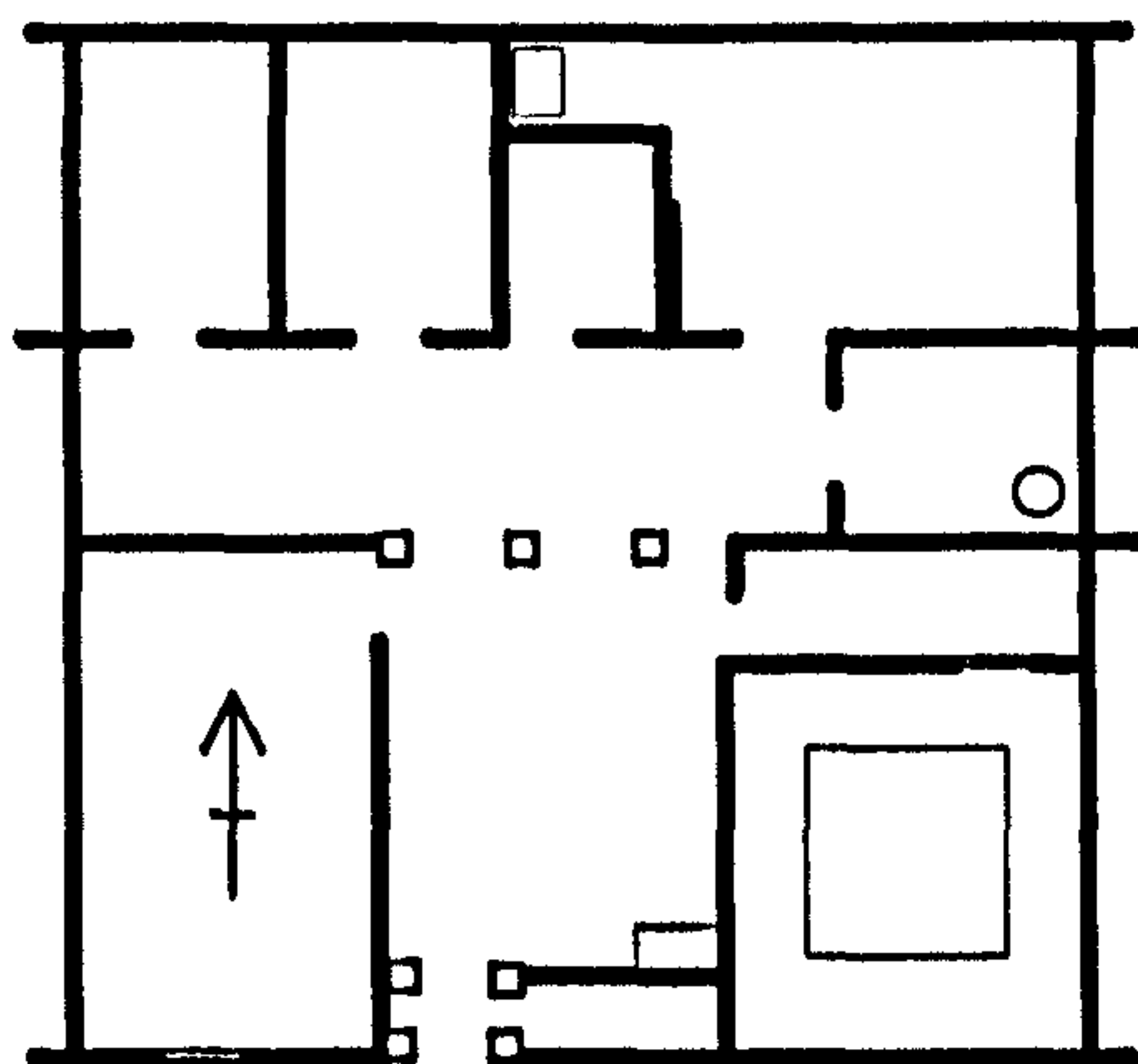


Figure 8: Characteristic Olynthian house plan (Adapted from Robinson *et al.* 1938: 142, Fig. 5. Scale 1:400)

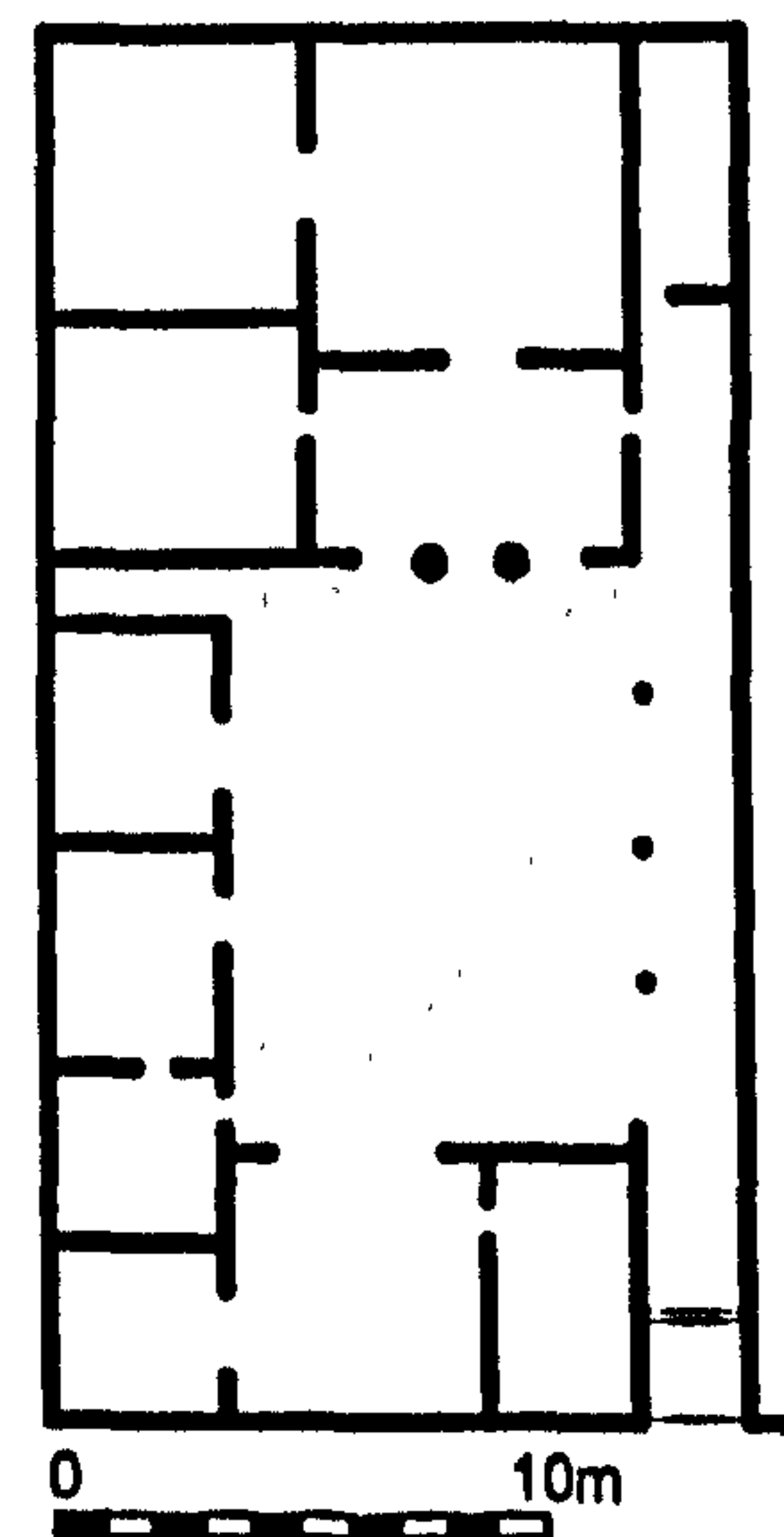


Figure 9: Plan of a house at Priene (Adapted from McKay 1988: 1368, Fig. 3)

Several rooms interconnect while others are 'procedural' in layout, placed one behind the other. Walker (1983: 91) comments that the internal sub-divisions of these houses make it difficult to interpret where re-occupation has significantly changed their original plans and features of their plans suggest property division (Section 6.5.2).

#### 2.2.2.2 Fourth century houses: Olynthos

House A vii 4 (Figure 8) represents the 'normal Olynthian house' encompassing common features found within houses across the excavated site. That it is regular in layout is largely dictated by the constraints of the square city block in which it was placed and forms a striking contrast with the irregular Delian houses. Occupying a square plot within a city block, the houses' street entrance opens directly onto the courtyard, which forms the central area of the lower part of the house. Archaeological evidence for upper floors is evident from stair bases, stone blocks set against courtyard walls (Cahill 1991: 127). The house is almost divided into two by a cross wall (here running left to right). The upper part of the house contains the main living rooms; the preferred location of *andron*, kitchen and bathroom. The kitchen suite is the main room, generally one of the largest within the upper part of the house. Smaller areas containing a flue and bathroom were situated to one side of it. The *andron* complex was the most elaborately decorated within the house, and an anteroom restricts direct access to it from the courtyard. The ends of the *pastas* were usually partitioned off into small rooms (Robinson *et al.* 1938: 142-3), though were distinguished by their position rather than their functions (Cahill 1991: 206).

#### 2.2.2.3 Third century houses: Priene

The example house from Priene, (Figure 9) also has a single street entrance and rooms arranged around a centrally-placed courtyard though here a long and narrow vestibule hallway separates the courtyard from the main street door. Pairs of interconnecting rooms surround the courtyard and include an *exedra*, *distyle in antis* *pastas* and four-room suite. Lawrence (1996: 186) considers the Priene house proper to consist of four rooms, a *prodomos* porch and *megaron* forming the main axis with a subsidiary room opening from each. The entrance passageway is positioned to one side of the house and may also be colonnaded. Low buildings on the other side of the court (smaller rooms) for storage or slaves' quarters are often separated from the main rooms by a passageway.



#### 2.2.2.4 Second and first century houses: Delos

Paris produced the first plan of the Delian house, for the House of the Dolphins in 1883 (Laidlaw 1933: 237, Paris 1884: 475ff.) (Figure 10). It is one of the largest and most elaborate houses uncovered on the island to date, containing blue marble columns, rich wall paintings and lavish courtyard mosaics. It includes features common to the preceding plans, as well as an additional exterior covered walkway and altars. The entrance leads through a vestibule hallway onto the peristyle courtyard beyond. Rooms and suites of rooms surround the courtyard area on three sides.

A plan similar in intent to Rider's 'imaginary house' but one that encompassed all the main features of the Delian houses would look similar to Figure 11. A single street entrance leads into a vestibule off which the latrine is situated, linked via drainage channels to the street outside. The centrally-placed courtyard contains well and/or cistern water access and the rest of the ground floor rooms lead off from it while some interconnect. Depending on the shape and size of the building plot, rooms are grouped on two, three or four sides of the courtyard. Lean-to coverings feature, so too peristyle courtyards with impluvia, courtyards with incomplete peristyles and open courtyards without walkway coverings. Each house usually contains a three-room suite; a large room leading directly from the courtyard with two smaller ancillary rooms behind it. Interior stairs vary in position though are usually sited across the courtyard from the entrance. Shops, where present, usually flank the main entrance and face onto the street.

Comparing the Delian houses within those from other Greek sites, McKay (1988: 1369) comments that many Hellenistic houses recall old style Athenian houses. In agreement with this Lawrence (1996: 187, 247) considers that the Delian houses reflected their fifth century predecessors though provided more accommodation, and were built from higher quality materials and with superior workmanship while Dinsmoor (1975: 322) suggests that the island's housing reflects that from Priene. The majority of the houses on the island encompass an amalgam of architectural styles and constructions. Dinsmoor (1975: 324) equates the irregularity in house ground plan to be caused by a lack of structured city plan. None follow the Vitruvian two-courtyard plan contain two peristyles or typically contain rooms grouped into two spatially distinct areas (Chamonard 1922: 102).



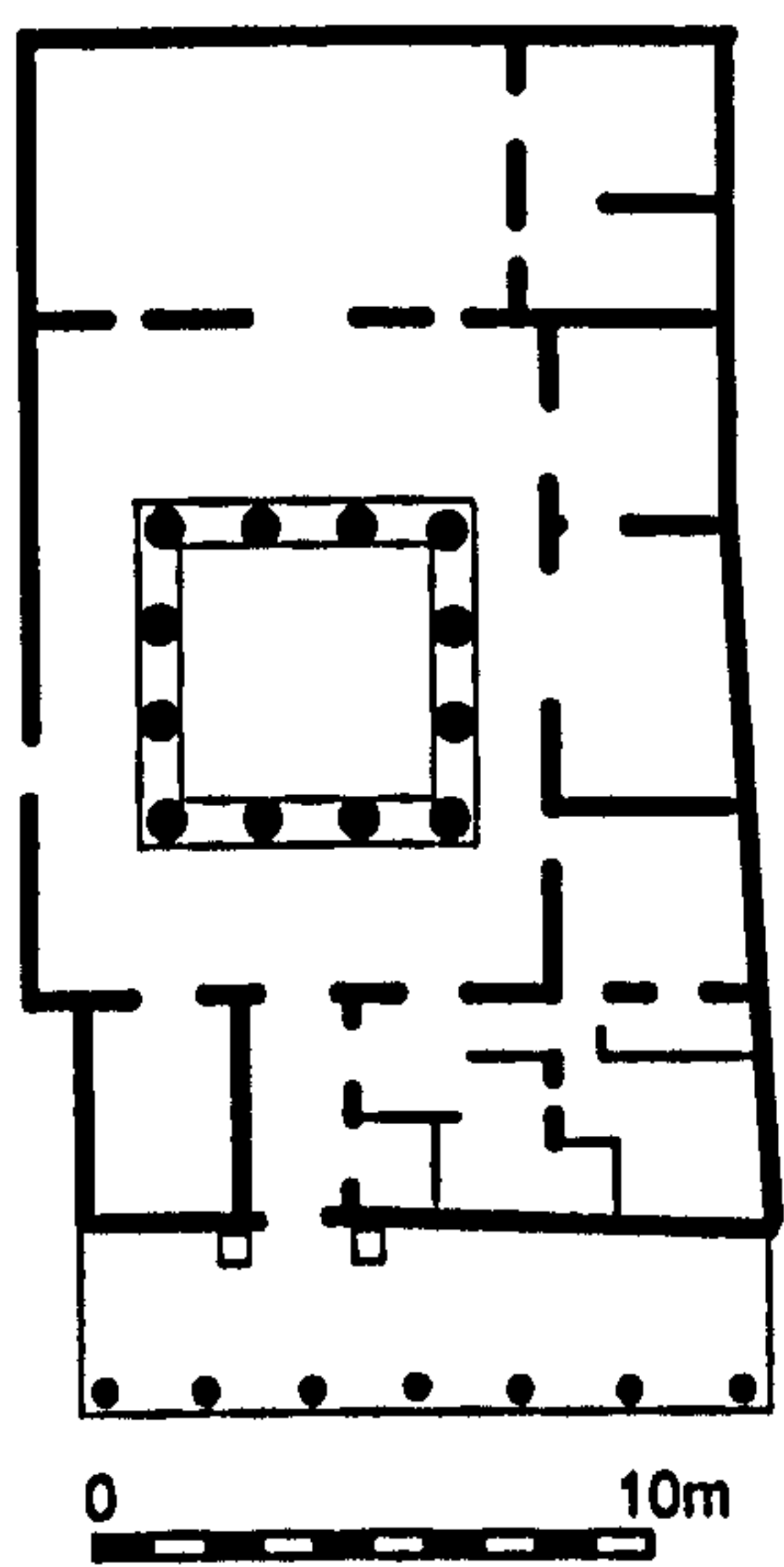


Figure 10: Plan of Dolphin House  
(Based on Chamonard 1924, Pl. XXIII-XXVI, rectified plan (after 1904 season))

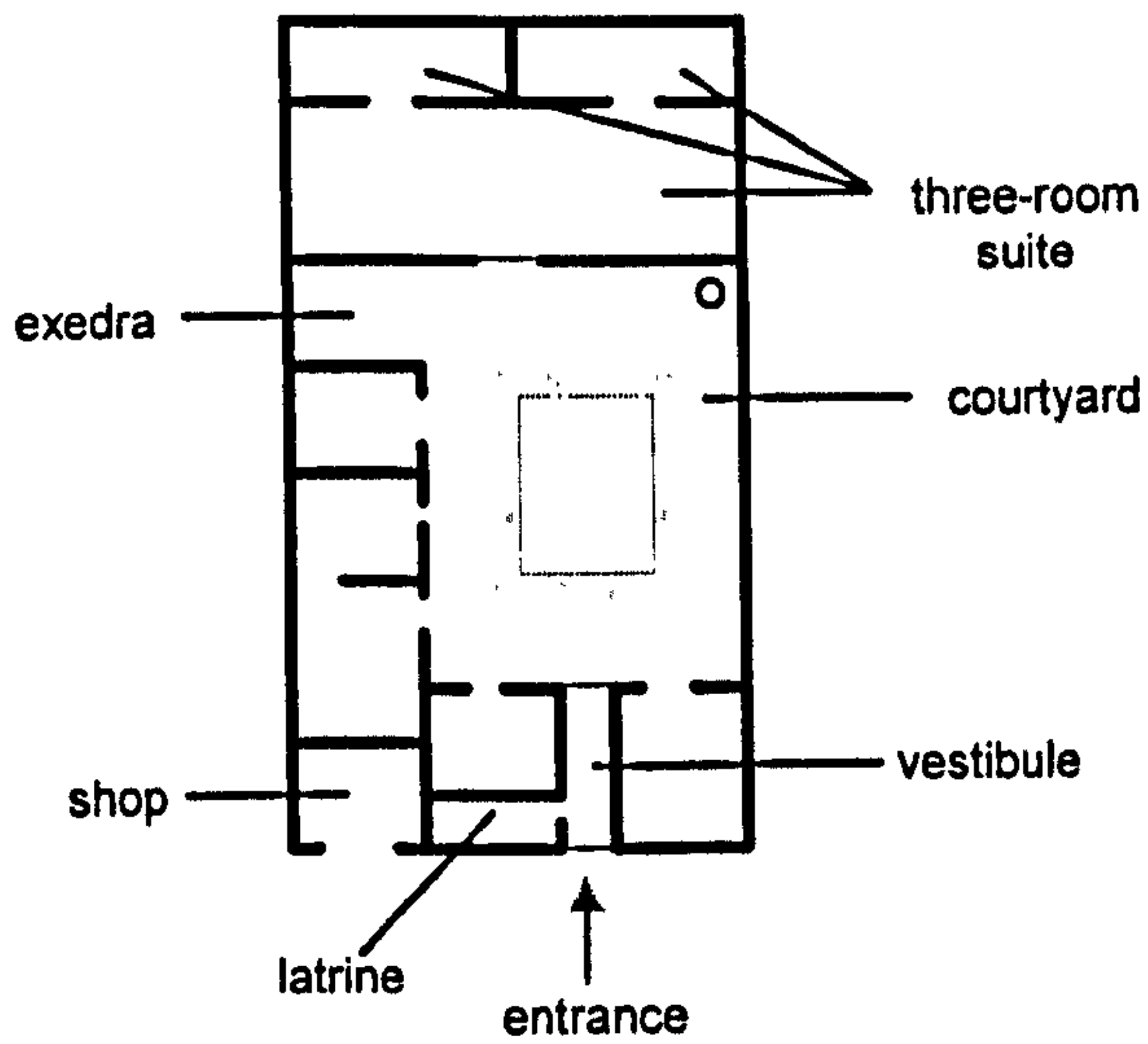


Figure 11: Composite plan showing common features found within Delian houses

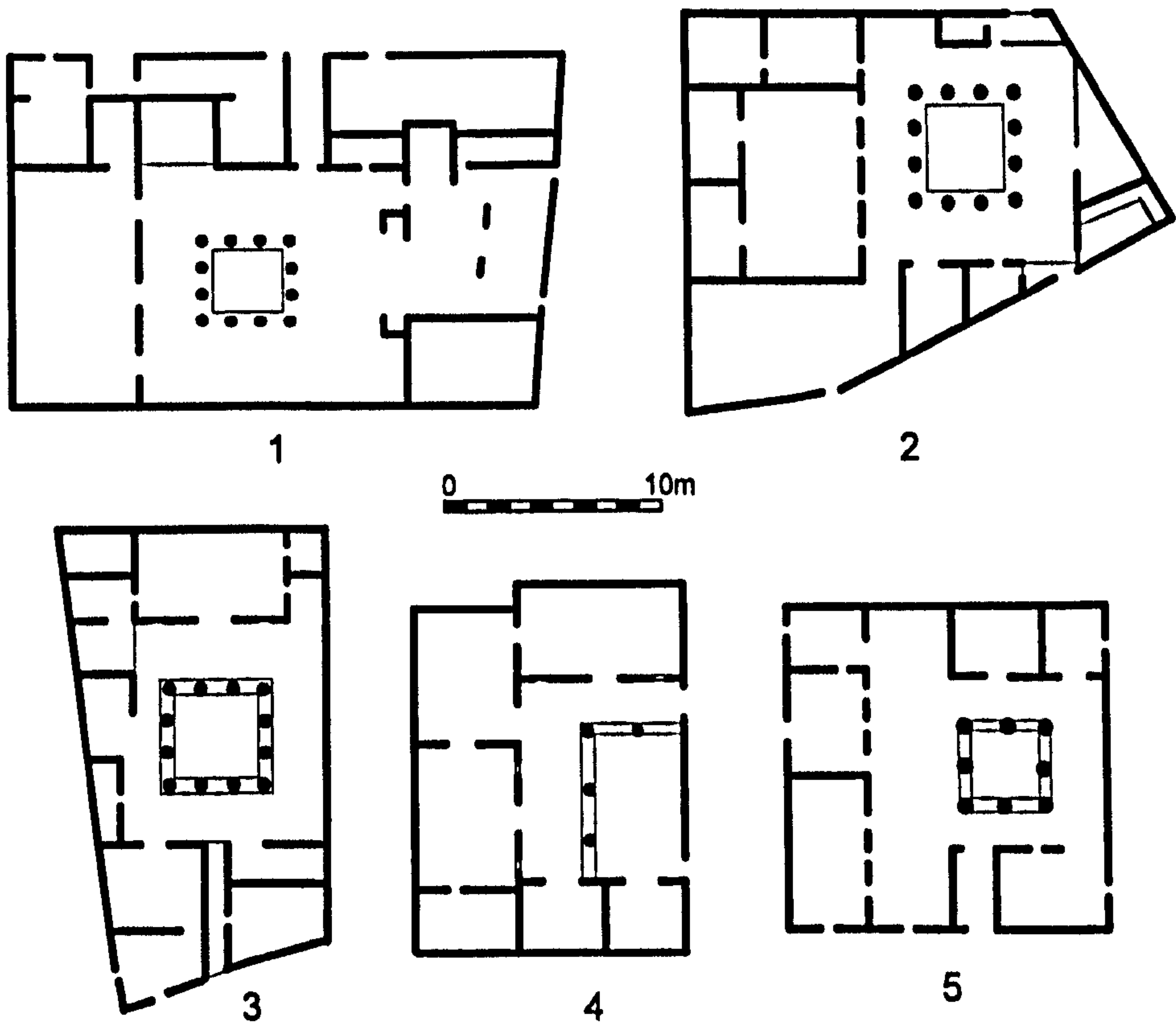


Figure 12: Delian house plans

1	Diadumene House	2	Lake House
3	Trident House	4	Inopos House
5	Hill House		

(McKay 1988: 1369, Fig. 4)

For some no firm distinction can be made between the vestibule and courtyard areas, with the street door opening directly onto the courtyard as the houses at Olynthos.

Similarities can be found between single Delian examples (Figure 12) and those from Olynthos, Athens and Priene predating them, including Hill House and farm plans almost identical to the 'typical' Olynthian layout, and Roman Pompeii and Herculaneum post-dating their construction. Fyfe (1936:145) considers the Delian house plans to be distinctive and characteristic. Each differs, though they contain similar features and as Laidlaw (1933: 243) states, their ground plans are conditioned by the restriction on space each building has. Lawrence (1957: 249) considers that the Delian houses themselves may have influenced later house form, and says the Italian community of businessmen at Delos may have been largely responsible for the Roman adoption of Hellenistic type architectural elements. Similarly, Robinson (1930: 35) suggests that these houses were of a type combined with Etruscan atrium forms to form two-courtyard houses such as examples of which have been excavated at Pompeii and Oust.

Nevett (1999: 165) suggests that Delos' houses represented the wealth of its city, encompassing complex mosaic floors, painted frescoes, peristyles and double storeys. She mentions that though they reveal no double courtyard pattern the role of their courtyard space was different to that from earlier single courtyard houses with little opportunity for its traditional focus as a locus for domestic activity. Her focus stays with the island's more elaborate residences, as do earlier literary references, including Diadumene, Lake, Trident, Inopos and Hill houses (Dinsmoor 1975: 324, McKay 1988: 1369 and Rider 1964: 250-254). This selection contains houses with fine mosaics (Trident House and House of the Masks), sculpture (Diadumene House), which are grand in style, or those that occupy an entire insula block on their own (Hill and Lake Houses). The smaller three- and four-room residences of the crowded Theatre Quarter insulae, which would provide a more direct example i.e. with Athenian evidence from the Areopagus houses, rarely receive mention, though their larger, more elaborately-decorated neighbours (House of the Trident, the House of Dionysus and House of Cleopatra) do. Houses TQ II E and F form an exception, and are flagged in relation to STR7, identified as the well room for houses D and E by Lawrence (1996: 185) who also



labels dining rooms in each (1996: 187, Fig. 323). Both houses have peristyle courtyards and are amongst the largest of the island's excavated insula residences.

### 2.2.3 House plans: evolution or adaptation ?

The above plans show similar features across each of the Greek sites considered. Street entrances typically open into a hallway area or directly into a central courtyard space which contain well access and sometimes pillared walkways. Rooms opening onto the courtyard interconnect or are arranged in suites. Factors influencing house layout are likely due to the location of the building, site orientation and purpose, available building space, the environment and building re-occupation, or a combination of these. Additional influences such as trends in construction or structural adaptations made on account of the occupier's taste or 'fashion' preferences are less easy to attribute. Building space ultimately dictated the layout of each house with the width of plots directly affecting the position of rooms placed around the central courtyard. Wider plots allowed space for radial arrangements of rooms whereas more narrow strips of land made it necessary to place one room directly behind the other. However, the fact that near-identical house plans to those within insula residences are also found where space was *not* an issue (i.e. where single residences occupied an entire house block) suggest that there was more to house design and layout than restrictions on space or plot size alone. An example of this can be seen in Delos' Lake House (Figure 72) which has a similar plan as the island's Theatre Quarter insulae.

The sites compared each reveal evidence of architectural change and adaptation within their housing, through the amalgamation and division of adjacent properties. Evidence for this can be seen in blocked doorways placed between houses, shops and houses, and houses and the surrounding street. Comparing these with the 'normative' plans, the only double-courtyard houses excavated to date are those where house adjacent house plots have been combined to form a single, larger property, and the resulting two courtyard spaces become part of the same architectural unit (Section 6.5).

These features suggest an adaptive use of building and house space, where the structure and layout of both individual and block houses were affected by constraints of the site on which they were built. Similarities in house form across both locations and time periods

point towards a general commonality in structure rather than evolution and notable change. I suggest that this is in response to climactic and environmental issues as opposed to the continuation of an architectural legacy. The open courtyard area within ancient Greek houses was the main provision of heat and light within the household. This was also a common feature of houses within other cultures living in warm climates (Nevett 1997: 96ff.). Rooms used the most often were oriented, in terms of aspect, to receive seasonal maximums of daylight and variations in temperature. Constructions of thick walls both retain heat in winter, and remain cool during summer. Whitewashed exterior walls reflect heat and outward-facing windows were small in size and placed high for reasons of security. These simple features continue in modern Greek settlements today and maximise both the benefits of, and negate the disadvantages of, the Mediterranean climate.

#### **2.2.3.1 Multiple occupancy housing**

Delos' housing provides conclusive archaeological evidence for the multiple occupancy of single residences. Indicative features include the division of space into distinct suites of rooms, and the independent occupation of the upper floors, evidenced by external stairs. Scholars have rarely considered the possibility of multiple occupancy within a single residence. Section 6.6.1 explores this with specific reference to Delos' Theatre Quarter insulae, and considers the impact of multiple occupancy on the house's occupiers.

Progressing from ground plans to elevated features, Athenian painted pottery holds stylised depictions of architectural features. These illustrations include indications of space inside or outside houses or within rooms or outdoor courtyard space. While the provenance of the pottery retains its Athenian focus, the house elements illustrated correlate directly with the standing remains of the later Delian houses.

#### **2.2.4 Athenian painted pottery – depictions of houses**

Athenian red and black figure painted pottery holds examples of household scenes which focus on women's domestic chores and men at *symposia*. Stylistic architectural features and ephemera provide indicators of placement and activity within the house. Boardman (1974: 206) considers that architecture portrayed on black figure ware is elaborate, but



not consistent. Perhaps inspired by development work on Athens' water supply constructions of new fountains with columnar façades of the type shown on the vases were erected. Little other architecture is shown on black figure ware. Columns, mostly Doric order, either with or without entablature, represent house porches (including those shown on wedding scenes), the proximity of a temple, or the halls of Hades, (Boardman 1974: 207) e.g. Figure 13 illustrating a wedding procession; columns and architrave frame a doorway from which a woman looks out.

Few scenes of domestic life are portrayed on black figure ware and none much before the mid fifth century. These included women at ease, in the women's quarter at looms or spinning (Boardman 1974: 206). Scenes of women exterior to the house, collecting water from fountains were popular after c530 (Boardman 1975: 221) though corresponding red figure fountain house scenes were seldom seen after c500. Women are shown carrying water vessels (*hydria*) and fountain houses are depicted with multiple columns and elaborate architraves and/or roofing.

Red figure ware features architecture both domestic and monumental more summarily than in black figure with, at most, a token column and a strip of Doric entablature representing a building (Boardman 1975: 217). Figure 14 shows roofing of cover and pan tiles above a door which a women carrying a lamp approaches, and a man hammers on it outside. The flooring represented in this scene also indicates the interior/exterior house division. Pictures of women spinning, weaving and working wool appeared after 500 with wool baskets with splaying sides being found as regular items of furniture. Scenes of private ablutions become common subjects especially at the beginning of the fifth century, and many scenes contain a large bowl with either a youth or girl stood beside it; bathing scenes of women, or women and clothing (including either boots or sandals) were also popular (Boardman 1974: 210). Figure 15 shows a woman with water vessel and rope, the scene also features well coping similar to that found throughout the Theatre Quarter insulae courtyards, providing an access point to the household's water supply.

Household images focus on symposia scenes, with men reclining across couches, supported by cushions and surrounded with tables of food and attendants. These scenes are thought to represent the interior of the *andron* where couches set along the walls



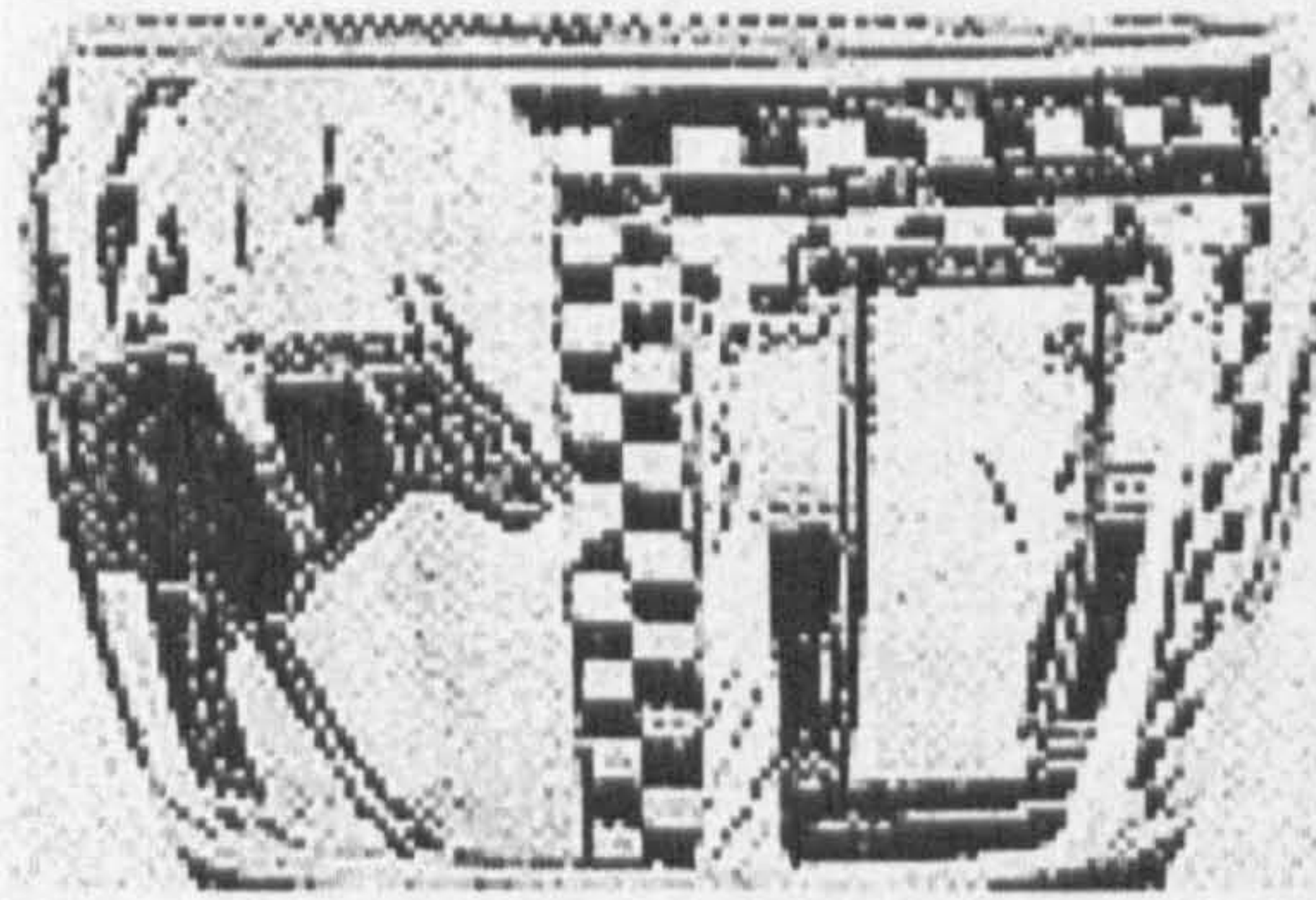


Figure 13: Vase scene showing house porch and doorway approach  
(Boardman 1975: 72, Fig. 77)

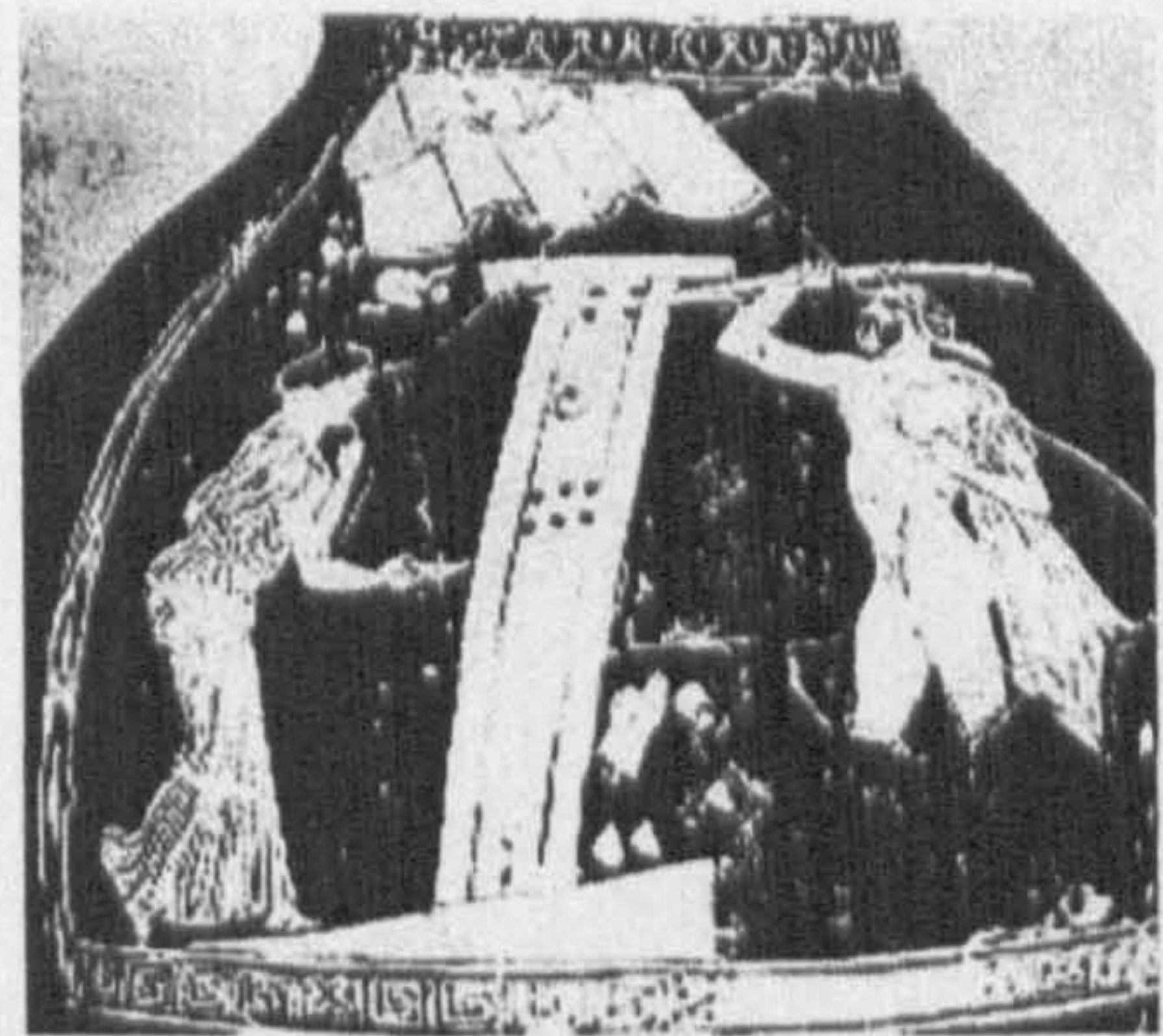


Figure 14: Vase scene showing roofing and interior - exterior house space  
(Hoepfner and Schwander 1986: 57, Fig. 41)



Figure 15: Vase scene showing water vessels and well coping  
(Hoepfner and Schwander 1986: 183, Fig. 183)



Figure 16: Vase scene showing roof and window features  
(Hoepfner and Schwander 1986: 261, Fig. 259)

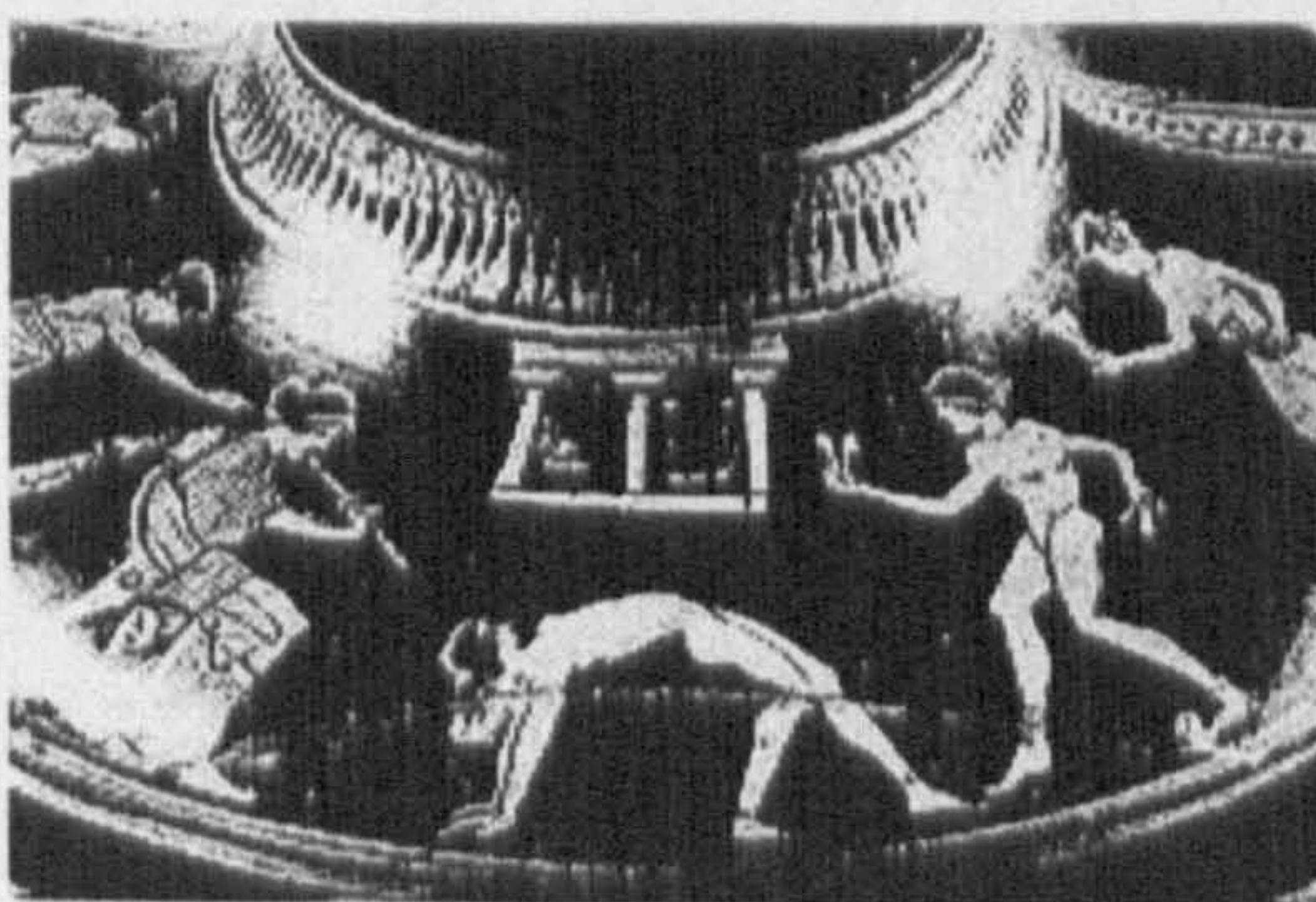


Figure 17: Vase scene showing double window  
(Hoepfner and Schwander 1986: 261, Fig. 260)

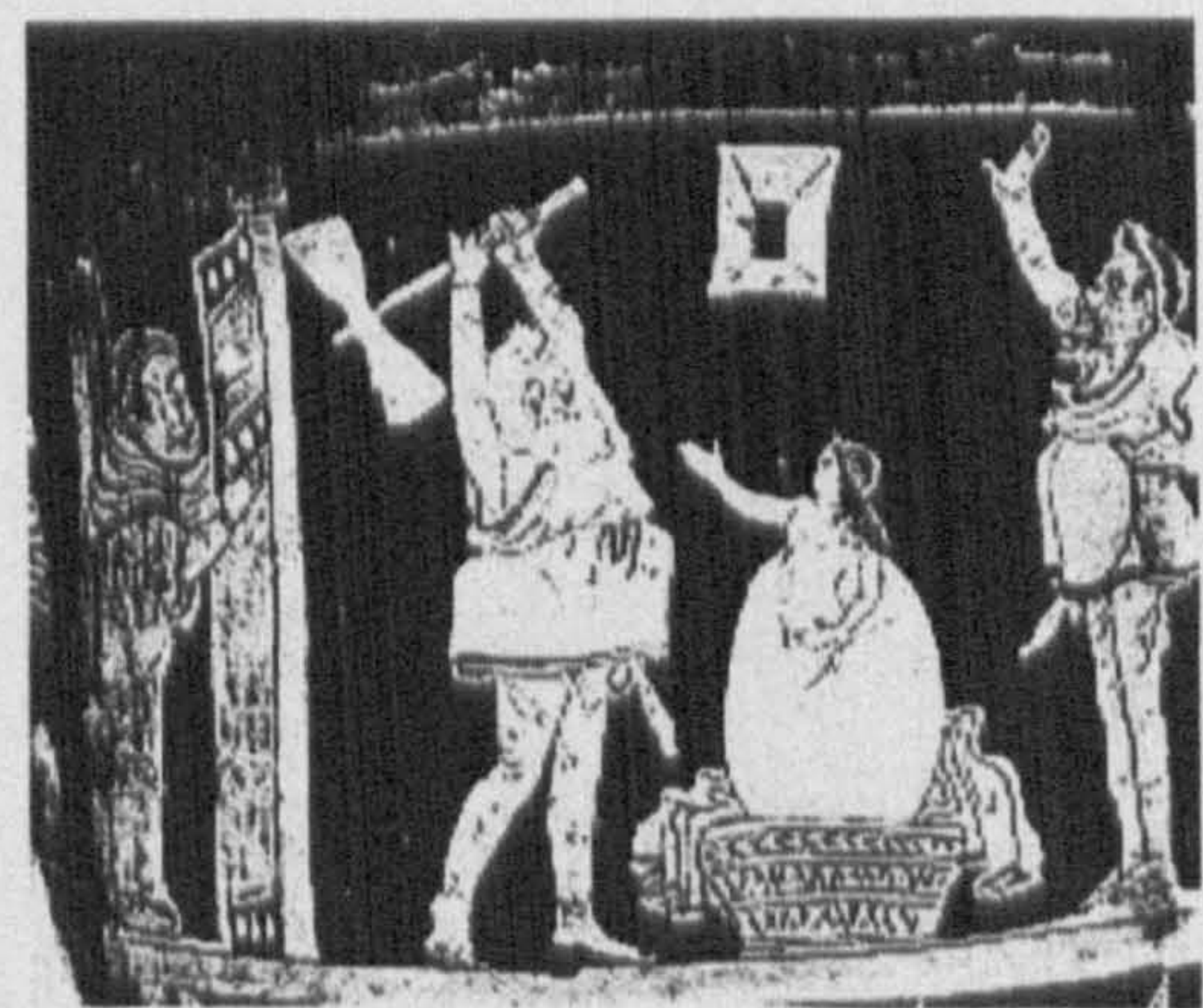


Figure 18: Vase scene showing arrow slit window and interior door  
(Hoepfner and Schwander 1986: 261, Fig. 260)



feature next to three-legged and side tables, basins for foot washing and lamp stands, with lyres, baskets, pipes and instrument cases adorning the walls (Boardman 1975: 219). Red figure symposium scenes are also set outside and show revellers moving from house to house (Boardman 1975: 218).

These scenes, however, show us nothing of house plan or layout. The most informative illustrations of house architecture include windows and doorways from Hoepfner and Schwander (1986). Figure 16 shows a door with its upper half opening as a window and the thin column (with wide capital) and seated figure suggests that this represents an interior scene. Figure 17 and Figure 18 show flute players and dancers/acrobats in the foreground with double windows (pillars and architrave) in the background and a theatrical scene with a female figure looking out of a half-open door. This second scene is the more important of the two as it contains an arrow-slit window placed high in the wall; similar to those within TQ IVB.

## 2.3 Conclusions

A comparison of houses from Athens, Priene and Olynthos reveals common plan features and similarities in form. ‘Courtyard houses’ are a feature of each site, with interior outdoor space open to the sky surrounded by rooms and suites of rooms which open inwards onto it. These similarities in layout are equally likely to reflect corresponding town planning histories (Section 5.2) and environmental issues common across mainland Greece and its islands. ‘Divisive’ town plans limit individual buildings to like-sized plots. Houses raised in rows, with common roof heights further restrict interior room arrangements as weight-bearing supporting structures need to be uniformly sited. In comparison, ‘additive’ plans provided the opportunity of free space in which to develop though construction may still have been restrained by road location, underlying topography or neighbouring buildings. Radial room arrangements occur where plots of land are wide enough to accommodate them, and where they are not, rooms are restricted to fewer sides of the courtyard, or are arranged one behind the other. Limitations on ground floor space forced expansion upwards, though building materials often dictated the possibility and support of upper floors.

Property division, amalgamation and resulting architectural changes in the use of space is common across all of the sites considered, and is explored in more detail within Section 6.5.2.

The Delian residences contain features attributed to both Greek and Roman housing, forming a type of 'hybrid' in design. Views into each house are narrow and restricted, contrasting with directed lines of sight within Roman properties. Space permitting, interior rooms are arranged around courtyard space radially, rather than following axial paths with one room leading through to the next favoured within the Roman house (Section 8.3.2). In summary, without labels, it would be difficult to distinguish which of the plans in Figures 6-11 were Delian, and which were from other Greek (or Roman) sites. This emphasises the continuation and adaptation of house features from the fifth century BC onwards.



# Chapter Three

## Privacy

This chapter links concepts of privacy with house architecture and household organisation. It questions whether modern notions of privacy and personal space were relevant in classical antiquity, and investigates literary references which may illuminate the issue of privacy in Greek housing. The following overview forms a reflective background which is later expanded and developed through the exploration of house reconstructions (Chapter 8). It concludes with evidence that suggests there were opportunities for privacy within the ancient Greek house as demonstrated by the standing remains of the case study houses on Delos.

### 3.1 Concepts and interpretations

Privacy is widely considered to be linked to levels of wanted and unwanted interaction between people, resulting in the selective control over interpersonal communication (Sanders 1990: 50). The Oxford English Dictionary (Simpson *et al.* 1989) defines privacy as being the condition of being withdrawn from the society of others, the absence or avoidance of publicity, seclusion and concealment and equates privacy with private or retired places, places of retreat and private apartments. Key issues associated with it are the elements of choice and control, over both the proxemics of physical space and the acquisition of knowledge about people. Rapoport (1980: 296-7) labels privacy as an aspect of the organisation of communication and discusses different mechanisms (termed 'privacy filters') that are used in order to achieve it. These involve physical, temporal, social and psychological measures which range from spatial distancing and separation to the internalisation of personal feelings. Such measures tie privacy to aspects of accessibility, both physically to individuals, and also to information about them. These encompass both measurable and immeasurable variables ranging from physical proximity, distancing and sight to factors such as sound, smell, and behaviour.

Considerations of privacy now, as perhaps also in the past, affect the circumstances under which people encounter each other and the control of space for personal use. Houses provide loci for encounters for household members, visitors and guests. Building structure and the internal arrangement of rooms in combination with boundary controls such as doors provide settings which allow both meetings and separation, governed by both location and time.

### **3.1.1 Personal space and crowding**

Concepts of personal space, territories and crowding differ between cultures and these can also affect the association of privacy with inter-personal encounters within a house or other built environment. Notions of privacy are fundamentally linked to individuals and their feelings, and distance from others. It is unlikely that ideas of 'own' space (like those in more modern cultures) were prevalent within classical antiquity, due to the number of people present within each household, and restricted house space (Section 4.5.4). With few rooms in total, and each likely to have been multifunctional, there would be little opportunity for the allocation of separate rooms for occupants of the house. The modern equivalent of a children's bedroom, dedicated space for the youngsters of the household to occupy, is likely to have been rare in all but the most spacious of houses. An equivalent of a 'master bedroom' area that was reserved for the dominant husband and wife partnership within the household is perhaps more likely though by no means certain.

Concepts of crowding are directly linked by the size of the space and the number of people within it, and their relationships to one another. Family members or close friends are likely to be comfortable in closer proximity to one another than strangers or people less well known. In support of this Rodaway (1994: 60) suggests that interpersonal contact is generally more frequent within the house environment, and spaces there much smaller, though without a sense of crowding. In direct contrast, he also points out that lounge rooms, where guests and visitors are entertained, are often the largest room in the house, though this may be mainly to impress.

Exterior to the house, the physical structuring of a neighbourhood greatly influences the social encounters of the people living within it. Delos' town, as other modern and likely past Mediterranean settlements, consisted of narrow, winding streets with house doors



and windows opening directly onto them. Houses were compact and built close together, and people could be easily seen within the streets surrounding them. With shops and taverns scattered throughout the town, spontaneous encounters are even more likely to have occurred (Jackle 1976: 54). This indicates frequent person-to-person interaction both within the house, and outside it.

### 3.1.2 Past-present

In the context of comparison, each society should be studied in its own terms (Westin 1984: 60) and issues arising from cross-cultural comparisons are further complicated when dealing with past societies, when limited evidence remains regarding issues concerning the everyday lives of its people. What *does* remain, through either literary or epigraphic sources represents patchy information from only a small section of society, often biased and incomplete, and laden with gender and status prejudices. Modern concerns and interpretations, including those regarding concepts of privacy and associated family life may bear little relevance in regard to the social realities of the past.

Surviving material culture is therefore of prime importance in the interpretation and study of ancient sites. It is rare that directly relative epigraphic or literary evidence is also discovered. Building plans are often the only extant remains from a site available for physical analysis though the case study site of Delos provides the additional information of spectacular standing remains too. Here especially the lack of evidence both from the site's inhabitants and associated literary sources places increased importance on the architectural and archaeological remains of the island's buildings.

As a social construct privacy is unlikely to have any physical manifestation (whether now, or within a past society), and questions its cultural relativity (Schoeman 1984: 6). Sanders (1990: 50), however, considers that privacy, reflected through choices between isolation and interaction and aspects of select inter-personal communication, *was* reflected in the built environment with transitions between one space and another becoming of the utmost importance.

### 3.1.3 Privacy and house space

Relating privacy to building form, Rapoport (1969: 60) considers privacy to be one of the more important factors governing constructed space. Sanders (1990: 44) considers the form of built environment to be intrinsically linked with its inhabitants, human behaviour influencing the organisation of the built environment, and the built environment influencing behaviour; with each being able to modify the other. The physical structure of the house separates household from surrounding community, forming the focus of household and family life, the forum for guest entertainment, and also perhaps household production. Indicators of privacy, or private areas from the physical construction or layout of the house can be suggested as having been closeable areas, remote rooms, and areas of restricted access. Physical separation can be achieved either through distancing; the position of rooms in relation to one another; or the placement of barriers and screens. Door, partition and window placement all play an important part with regard to boundary control within the house. Other boundaries can be expressed through changes within the house such as differences in floor levels, wall textures, height or decoration.

Private areas of the house, as we would understand them to be, may simply have been those behind closed doors, or rooms to which only the closest of visitors and friends were taken. Though sensibilities and preferences regarding the self and body are certain to contrast greatly between ancient and modern times, activities involving exposure of the body such as washing, dressing and the fulfilment of sexual relationships are, and most likely *were*, appropriately carried out away from the gaze of others. Mechanisms of physical separation and seclusion would therefore be required with door and screen placement allowing degrees of separation within house confines.

As well as physical structure and layout, aspects of vision and hearing can also be directed by built space. Who and what could be seen and heard from where, and when, may have affected activities and their location within the house. Views into and within the house were directed by architectural structures, barrier placement and lighting. Given the collapsed remains of Delos' houses it is impossible to model the 'auditory geography' (Rodaway 1994: 84ff) and soundscapes of the buildings. Roofs, doors (and furniture) are missing which would have masked and affected the transfer of noise between rooms.



Unlike with sight line construction, we have no way of knowing the extent of or level of intrusion of noise on these buildings.

Moore (1978: 73) points out that the only structural sound barriers that are really effective are features which fit snugly into their surrounds. Partial noise reduction is possible by the structure of the building itself, some sound being absorbed whatever construction materials are used. Rooms surrounding the courtyard and the upper floors acted as barriers to exterior noise, partially masking hubbub from road and alley networks, and perhaps neighbouring properties. Thickness of walls is an advantage here but not necessarily the doors (and surround fittings) as we are unable to say for certain which doorways once contained doors, and which didn't. Suggestions can be made as to which rooms could be closed via surviving sill stones and rubble thresholds indicating their removal. The reduction of internal (building) noise can be further facilitated by screening areas from the source of the noise, and reduction in noise carriage achieved by partial enclosure or screening areas (Moore 1978: 61). Sound from rooms more than one space away from the courtyard, or interior rooms whose doorways were not aligned with adjacent spaces, was less likely to be carried than from rooms opening directly onto the courtyard.

Courtyard space open to the sky would increase the likelihood of the house being affected by noise levels within the surrounding neighbourhood and streets and small, high windows, helped to focus both sound and vision inwards. It is likely that people occupying one house could hear neighbours talking within adjacent courtyards as well as noise from their domestic animals. Bruneau *et al.* (1996: 64) considers that occupants would have been unable to avoid hearing noise from their neighbours due to the proximity of housing, or their physical presence, with windows facing onto the courtyard from upper floors, especially where the two floors were independent. Upstairs rooms may have been quieter though the noise from these rooms would have carried to those below, and vice versa. The location of insulae would also add to their noise 'pollution'. They were surrounded by roads and in a position between the port, theatre and agora most likely busy with people requiring access to shops, commercial premises and as through-traffic to other areas of the island, both elsewhere in the Theatre Quarter and further afield.



### **3.1.3.1 Vertical privacy**

Privacy may also have been achieved through the use of vertical space within the house, particularly the occupation of upper floor rooms (Section 6.12). First floor rooms were lighter and airier than their ground floor counterparts, and also enabled distancing from industrial or household activities which were carried out on the ground floor. Adjacent houses with differing roof heights or differing numbers of floors would have provided opportunities for overlooking, particularly down onto courtyard spaces from upper floor windows, and roof areas. An example of this lies within the residences of Insula II, standing at the top of the Theatre Quarter's underlying double slope, and adjacent to the theatre itself. Each of the insula block's (six) houses have upper storeys and five contained peristyle courtyards. It is likely that the location and vertical height of these houses would have allowed them to overlook residences (and thoroughfares) sited further down the slope, both towards the shore (Insula III) and towards the agora (Insula VI). Overlooking may also have been possible within the insula itself, with the western part of house E placed a storey in height above the corresponding area in house C (Section 8.3.4.5). The resulting observation is likely to have impacted on the people being watched, if they were aware of it, and may have influenced their use of their courtyard space if it was a frequent occurrence.

### **3.1.3.2 Archaeological invisible separators**

In addition to architectural barriers, it is likely that the ancient Greek house also contained archaeologically invisible separators that also may have affected opportunities for privacy within the house. Sanders (1990: 50ff.) considers that indicators of place also included differences in floor levels, changes in direction, decoration (texture and lighting) and scent via, for instance, the burning of incense. It is likely that as observers, we are unable to read or interpret the original meaning of such signals and cannot know what, if anything, was meant by their original placement and intention. This type of indicator may have included decoration, distinguishing the entertainment room where guests would be invited from others on the ground floor, or from the focus of family work or worship. Ephemera such as plants and curtains, now lost, would have created further interior barriers. Plants grown within the courtyard would provide welcome shade while also



forming a screen behind which people could work. Curtains placed across doorways would form further barriers, while continuing to allow light and air in.

People within the house may have created further separators through their behaviour or clothing. An example of this is women of the household working within the courtyard while male visitors were present. Though in close spatial proximity to the men, women could remain inconspicuous by enveloping themselves in a covering of clothing, including veiling their faces. Working in a corner of courtyard, or sitting with their backs to the central courtyard space would separate them from the men present, and not draw attention to their presence. It is likely this was commonplace within small houses, or within those where both household and industrial/commercial activity took place. Sustained spatial separation between women of the household and male non-kinsmen would have been impossible, while social distance needed to be upheld.

As stage settings for the lives of their occupiers, the physical remains of houses can be studied to investigate what opportunities for privacy they contained, though the identification of apparent 'private' space may have had a different function entirely. Scholarship linking the physical structure of the house to the privacy of its occupants focuses on the exterior view of the house, views into it and the internal arrangement of rooms.

## **3.2 Critique of scholarship: privacy and Greek houses**

This section explores specific literary references linking privacy to ancient Greek houses. Information regarding the physical structure of the house divides into three main categories: its exterior façade, views into it, and the internal arrangement of rooms in relation to one another. A fourth category relates concepts of privacy to the occupants of the house.

### **3.2.1 Exterior views**

Classical scholars have often equated the dichotomies of public and private with community and household, considering 'private' space to have been within the house's physical boundaries (Cohen 1991: 72, Moore 1984: 133). In this instance the street door separating the household from the surrounding community formed the house's most

important boundary, both spatially and conceptually. Many ancient Greek houses, including those on Delos, were structurally oriented towards their interior, being composed of suites of rooms facing and opening inwards onto a central courtyard area which provided the house with secluded exterior space, light and ventilation (Chapter 2). Though being overlooked from adjacent properties was possible where roof heights or the number of floors differed, Nevett (1997: 91) considers that the very layout of the outdoor enclosed courtyard indicates that it was an essentially private area. Jameson (1990: 97) considers the major aim of the Greek house was to be invisible to the outside world. Houses typically had a simple exterior façade (McKay 1988: 1370) with a single street door, and ground floor windows, where present, were placed high in the wall, restricting views into it (Dinsmoor 1975: 322). Nevett (1992: 106) considers these features as revealing a concern for privacy by the house's occupants, expressed through its physical structure. These features are also very practical in terms of security and may have been equally favoured for this reason, rather than reflecting an active choice to establish additional physical barriers between interior house space and the surrounding community.

### **3.2.2 Views into the house**

Narrow entrances minimised views into the house from the street and beyond, and were often angled or staggered to direct views onto a blank wall (Daniels 1995: 84, Lawrence 1957: 240) or into the vestibule hallway, but no further. The house's interior could only be seen from within, or at the transition point between the vestibule hallway and the courtyard beyond. Nevett (1997: 91) mentions how such frequent blocking of sight lines between the street and the house interior occurred within fourth century Olynthian houses and that this sight line restriction was a consistent feature of spatial organisation within houses across the Greek mainland and Greece's western colonies (Nevett 1992: 107). Gardner and Jevons (1898: 35) consider that Greek houses were designed to be looked at from within, rather than from without. Evidence from the Delian insula houses supports this.



### 3.2.3 Internal room arrangements

Interior walls separated rooms from one another and the central courtyard, and partition walls were erected to further subdivide room space (Jameson 1990: 97). In addition to visual and auditory barriers created by room divisions and door placement, Sanders (1990) discusses the establishment of additional *invisible* boundaries which include reach and scent zones, in his work on Early Bronze Age Myrtos. He considers that areas held highly private within the house would have been marked with some form of regulatory device, and were placed away from main circulation areas (Sanders 1990: 68). Here, in relation to separation, seclusion and perhaps isolation, rooms placed at the back of the house, furthest from, and out of sight (and hearing range) of the street door or courtyard are suggested to have been the most private.

Walker (1983: 84) considers that privacy was a prerogative of the rich in Classical times, implying that only the wealthiest citizens would have been able to afford spacious houses, and that these were necessary if their occupants were to be afforded any degree of privacy. In agreement with this Nevett (1992: 32) suggests that the capability for increased isolation is likely to correspond with more wealthy status. More rooms would increase the possibility for places that could be spatially discrete, separate and out of sight of others, though who occupied them, when, and for what reason, would also have had direct influence on this (Chapter 6). Wealthier households may also have employed 'doorkeepers' whose responsibility it was to admit guests and turn away unwanted callers.

Restricted household space and the immediate proximity of people to one another would have provided limited opportunity for personal privacy as we understand it. Gardner and Jevons (1898: 33) suggest that ancient Greeks were adapted to lives far less private than ours where seclusion could only be possible for a few hours at a time. Moore (1984: 165) emphasises how small house space constantly occupied by people would have provided little or practically no occasion for the loneliness of abandonment,

“Instead the individual is smothered with human company to the point of where a modern westerner wonders why he or she does not suffocate emotionally.”

The layout of rooms in relation to one another would have affected accessibility within the house. Though door leaves would not have been present within all rooms, doorways



that were directly aligned e.g. across courtyard space, or in the direct line of sight from the street door would increase the likelihood of a person within them being watched from elsewhere within the house. Walker (1983: 85) suggests that the interior doors of Classical Athenian houses were purposely staggered making it difficult to see into more than one room at a time, proposing that views within the house were reduced whether doors were present or not. She cites the Dystos House in Euboea as an example within which the narrow entrance and staggered room entrances strictly control interior views (Figure 19).

Nevett reinforces Walker's point by suggesting rooms were deliberately arranged so as to promote opportunities for privacy. Her work on the houses at Olynthos identifies a further example of this where privacy for the house owner and invited guest was possible once inside the andron where an anteroom separated it from the courtyard (Nevett 1995: 94, 1999: 72). This formed a spatial as well as a shielding visual and aural separator. Sanders also suggests that the placement of rooms in relation to one another may have facilitated their use. He considers that separated back rooms were likely to be associated with sexual intimacy, food preparation and long-term storage (Sanders 1990: 68). Rauh (1993: 207), referring to Lake House, Delos, suggests that conditions within back rooms were conducive to privacy:

‘The distance of these rooms from the interior court, the degree to which they fan out from the court, and the narrowness of the intervening passageways all suggest that these rooms were extremely dark. *They would appear to have been designed for privacy*’ (my emphasis)

Laidlaw (1933: 242) suggests that room size was also an issue, with the smallest rooms within the house found upstairs and therefore furthest from the entrance and open courtyard area, being used as bedrooms and private rooms.

The exterior façade, the directed view inward and the interior arrangement of Greek houses are considered to have been deliberate so as to ensure the privacy of their occupants. The provision of a secluded interior space was ordered so that there was minimal opportunity for observation from outside the house. The establishment of the Greek household in conceptual opposition and relative seclusion from the surrounding community places different emphasis on the house from that of the Roman house which



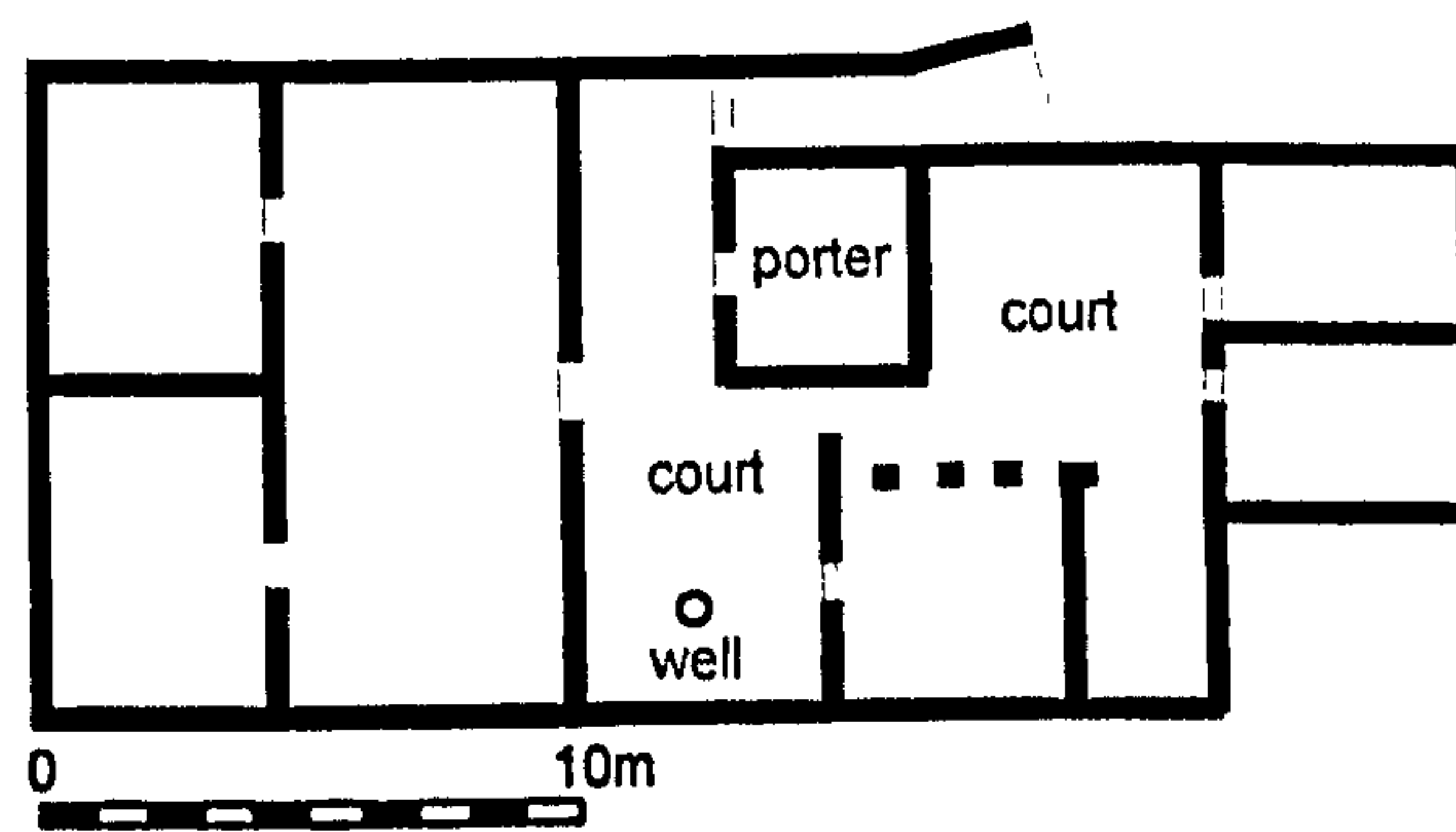


Figure 19: House at Dystos, Euboea, with narrow entrance and staggered interior doorways  
(Adapted from Walker 1983: 89, Fig. 6.4a)

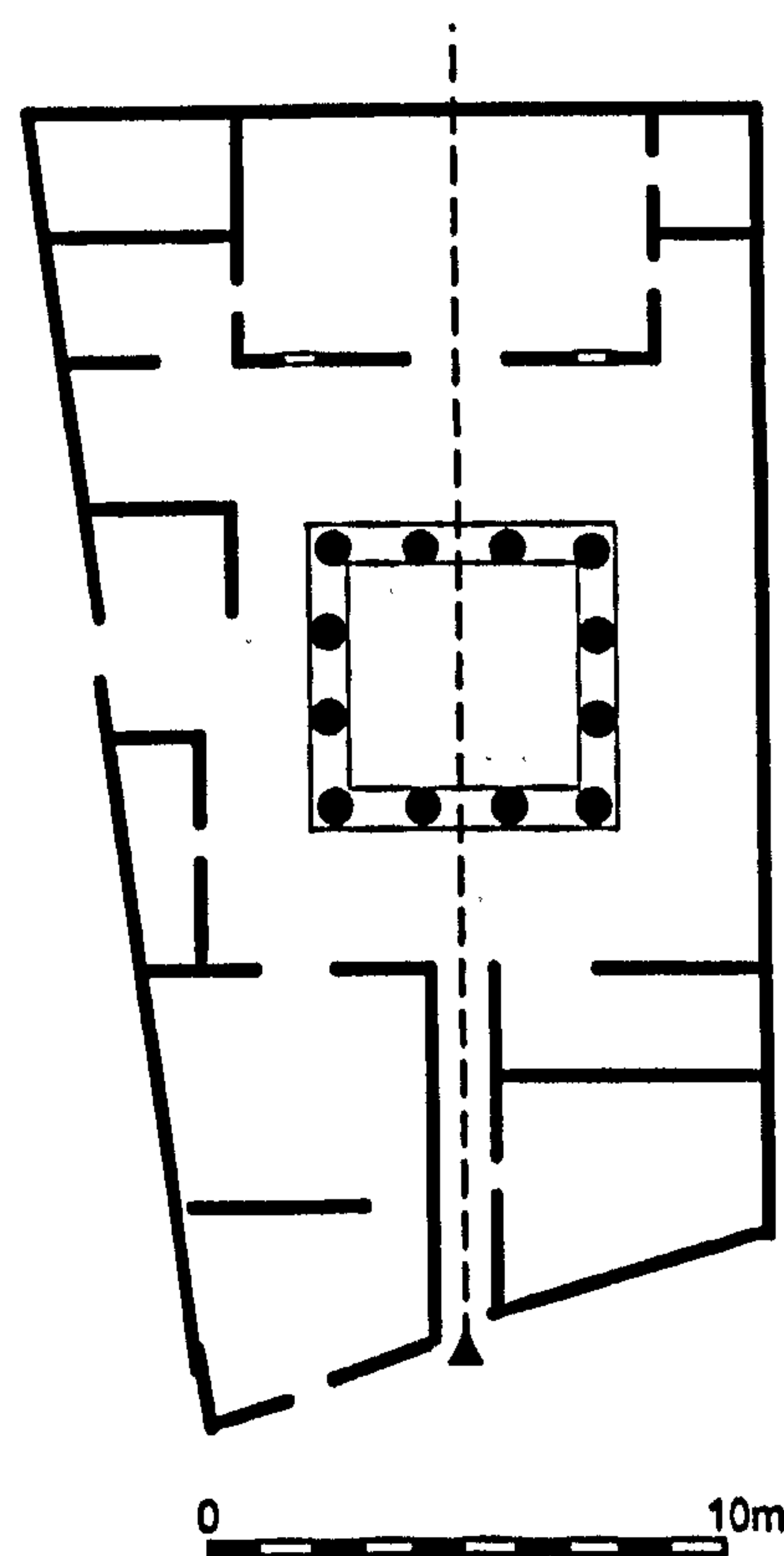


Figure 20: Plan of Trident House, Theatre Quarter II A, showing the axial view from the main entrance.  
The house's main mosaics are shaded gray  
(Adapted from Wallace-Hadrill 1994: 46, Fig. 3.12 and 1998: 84, Fig. 14)

is attributed a personal as well as social function (Lawrence 1987: 117). Some parts of Roman houses were considered to be in no way private (Clarke 1991: 2, Wallace-Hadrill 1994: 118) as they were constantly penetrated by the outside world. Social standing, receiving clients and status roles played an important part in the quotidian life of the Roman household and power over this control increased the status of the master of the house. The Roman house was spatially oriented to invite views into it and its interior laid out to include areas which were both visible and invisible, which would be seen (or not) by guests and clients. It was the *degree* of access a person was given to the house that affected what room they were led into, and whether or not they were received into family rooms or others kept for entertaining.

The linear alignment of rooms and manipulation of interior views to create visual axes guided views from the street outside into the house. This is similar to Roman houses though views in from the surrounding street were narrow. In contrast, visual accessibility through the length of the house was specifically engineered to give the impression of the maximum interior space, drawing the viewer's gaze through the *atrium* hallway and along the peristyle and beyond.

“The Greek house is concerned with creating a world of privacy, of excluding the inquisitive passer by; the Roman house invites him in and puts its occupants on conspicuous show.” (Wallace-Hadrill 1994: 45)

Wallace-Hadrill (1988: 84) considers that no attempt at symmetrical framing of views was made from the main entrance of a Greek house with the standard position of the *andron* being placed to one side rather than directly opposite the entrance. His mention of Delos' houses opposes this where the andron was placed on the entrance axis to the house 'on display to the world', revealing Italian influence and a layout similar to Roman houses (Wallace-Hadrill 1998: 84). Delos' Triton and Trident houses are flagged as exemplars of this and he considers them to be Roman in form on account of their axial alignment (Figure 20).

Access to few of Delos' larger houses (e.g. VI I, Dionysus House) allows the viewer to see across the interior ground floor space, across the courtyard to rooms beyond and/or along one side of the peristyle. It is possible that the ground floor of these houses was semi-public with residential areas upstairs though just as likely the interior views now



possible would have been restricted in reality by the darkening effect of peristyle on interior rooms.

### **3.2.4 Privacy: knowledge versus physical factors**

In addition to physical boundaries and separators affecting privacy, concepts of privacy affected by knowledge; about individuals, their families, friends and associates, and/or their affairs; may also have influenced the household.

Cohen (1991: 83) discusses two main areas of privacy - physical intrusions and the control over information. His focus on Classical Athens reveals how concepts and concerns of neighbourhood and the 'politics of reputation' affected the everyday life of its people with the neighbourhood serving as a fundamental axis of privacy (Cohen 1991: 86). What could be known about the person, including what could be seen and/or heard of them would have been particularly important when household as well as street space was at a premium and frequent interpersonal contact was inevitable. Gardner (1989: 55) suggests that public knowledge about the household and its affairs were to be kept quiet and Moore (1984: 140) hints that neighbour's knowledge of household affairs, gained from overhearing or overlooking could be detrimental to its occupants. Architecture can only influence these by providing visual and aural barriers and areas of spatial separation.

Importantly, Moore (1984: 164) emphasises how surviving Classical source literature does not include themes such as loneliness or the absence of friendship though he considers loneliness could certainly exist in such communities. Literary sources may not refer to such (personal) issues because they were subjects not written about, not appropriate to be recorded, or simply not a concern of the author, or his (and more rarely, 'her') time. Literary evidence from the Greek world regarding guardian (ownership), and control over house space and people (especially women) therein reveals the importance of the physical as well as cognisant separation of house and community. The immediate neighbourhood was a close community more socially involved than just the placement of buildings and people. Here the distinction can be made between private and privately-*occupied* or protected space versus privacy as we know it.

### **3.3 Course of study: measurable features**

#### **3.3.1 House layout and proxemics**

The arrangement of rooms and distances between fixed architectural boundaries would have affected the use of space within houses, as would the size and alignment of rooms, and the number of doors each contained. Lawrence (1987: 172) suggests that the physical structure and arrangement of the ancient house formed more than built space:

“It is apparent that space and boundaries around dwelling units, and the internal organisation of rooms serve either as borders representing the symbolic and judicial definitions of different spaces, or as physical barriers which can regulate visibility and accessibility between spaces...”

The central courtyard area would be constantly in use as ‘crossing’ space, linking the ground floor rooms, providing access to the entrance and maybe also to upper floor(s) and also acting as the main encounter space within the house.

Narrow corridor-like rooms are likely to have been used as transition or movement spaces as opposed to activity areas. Some rooms were too narrow for two people to pass at a time, indicating a transition rather than a static movement space. Rooms with multiple doorways encompass limited space for the placement of furniture if access in and out of them is not to be affected. Conversely they require more effort if they are to be closed off with multiple doors to shut. Rooms with single, closeable doorways are more easily secluded. The majority of doors (as now) were designed for a single person to pass through at a time (unless, for instance, public or other such large building). The area of small rooms may also have been important given the resulting physical (distance) proximity to people once inside it.

##### **3.3.1.1 Remote rooms — more private?**

There are a minimum number of rooms which can be considered isolated from the rest of the house in which they are situated, in terms of accessibility from other areas within the house, and from the building’s exterior. Rooms positioned furthest from the street entrance provide more opportunity for privacy on account of their position, and the reduced likelihood of direct lines of sight into them and carriage of sound either to or from them. Within multi-storey houses of single household occupation, the upper floor rooms were usually furthest from the house’s entrance.



A detailed study of the placement of rooms follows in Chapter 7 where numerical analysis (based on ground plans) investigates the accessibility of rooms, both in relation to one another within the house, and in relation to the house's surrounding exterior space.

### 3.3.2 Visual accessibility

In addition to forming the basis of layout analysis, ground plans also form the basis of sight line analysis (Chapter 8) which investigates which areas of the house could be seen from a given standpoint. It is also used to study directed views into the house, visually accessibility within it, and opportunities for views out onto neighbouring properties, encompassing aspects of accessibility via separation, seclusion, distances, angles, and directed or restricted lines of sight.

## 3.4 Discussion

Literary evidence associating privacy with Greek houses focuses on the structure and interior layout of houses, which can also be directly associated with concerns for security. Small windows placed high in exterior walls, for example, prevent access into the house from the road onto which they open. Similarly, Pompeiian windows were placed high above ground floor level, and were narrow and slit-like for reasons of security (Adam 1994: 304). These correspond with examples of arrow slit windows on Delos, found within IV B and Hill house. Of the few examples of ground floor windows placed low in exterior walls, II Ab was provided with the additional security of an iron window grill. Narrow and directed views into the houses also reflect the wish to keep the interior, its occupants and contents away from exterior gaze.

Wallace-Hadrill (1997: 141) considers that architectural division alone cannot create necessary degrees of privacy within a house. Interior room arrangements may have dictated which areas could be seen, and from where, though the use of artificial light and placement of doorway barriers were equally important. Moore (1984: 276) suggests that the availability of privacy depended on the possible *use* of room space which would also have been influenced by the scheduling of activities. There would have been limited opportunity for personal privacy within the Greek house due to the continual number of

people present and limited household space available. Door and screen placement would have allowed privacy within these confines.

Westin (1984: 60) considers privacy

“...crucial in those societies where communal life makes solitude or intimacy impossible within the living areas.”

and explains how he considers there to be a modern increase in both physical and psychological opportunities for privacy (Westin 1984: 69). With most rooms opening directly off the central courtyard space, it would have been difficult to be *very* private or remote within the confines of the ground floor, suggesting that *physical* privacy in the modern sense may not have been a major concern for the house's occupants. Conversely, physical privacy may have been sought within rooms on the *upper* floors of houses, where present. Thus privacy in our sense may have been something of a luxury, a prerogative of the wealthy, and an indicator of status. The detailed analysis of architectural remains can reveal spatial and visual *opportunities* within the ancient house for privacy as we understand it, and where there may have been the potential for its expression in the past.



# Chapter Four

## Case Study: Delos

### 4.1 Introduction

This chapter provides background information on the case study site of Delos. It covers the island's archaeological preservation and details the measured survey fieldwork undertaken to collect data for the subsequent analysis. The island's history is briefly reviewed and consideration is given to Delos' constituent population. Population as a factor which influenced the island's housing is discussed, and architectural indicators of building modification link extant remains with events in antiquity.

### 4.2 Delos' site

Delos is situated at the centre of the Cyclades, halfway between mainland Greece and Ionia, with Chios, Samos and Rhodes to its east, and Crete to the south (Figure 1). Located midway between mainland Greece and Asia Minor, it is a pivotal point on the east-west sailing routes between Athens and Asia Minor (Reger 1994: 20). The island's sacred harbour is sheltered by small rocks in the channel separating it from the neighbouring island of Rheneia (Figure 21). The island's geographical location encouraged its development as a trading centre.

The island's wealth and fame centred on the cult of Apollo, Artemis and Leto and the sanctuary buildings (Figure 22 and Figure 23). It forms a narrow strip of land 1300m wide and 5km long with Mount Cynthus at its centre, reaching 112m in height and contrasting with the surrounding flat land. The island's shores have been shaped by strong winds and currents, and bays; cliffs and rugged landscape still feature along its northern shore and southern peninsula. Gourni bay lies to the north east, Fourni to the south and Skardhana to the north west, with the sacred harbour of antiquity lying almost in centre of the middle of the western shore (Figure 24). Flat plains extend inland from here almost across to the far side of the island.

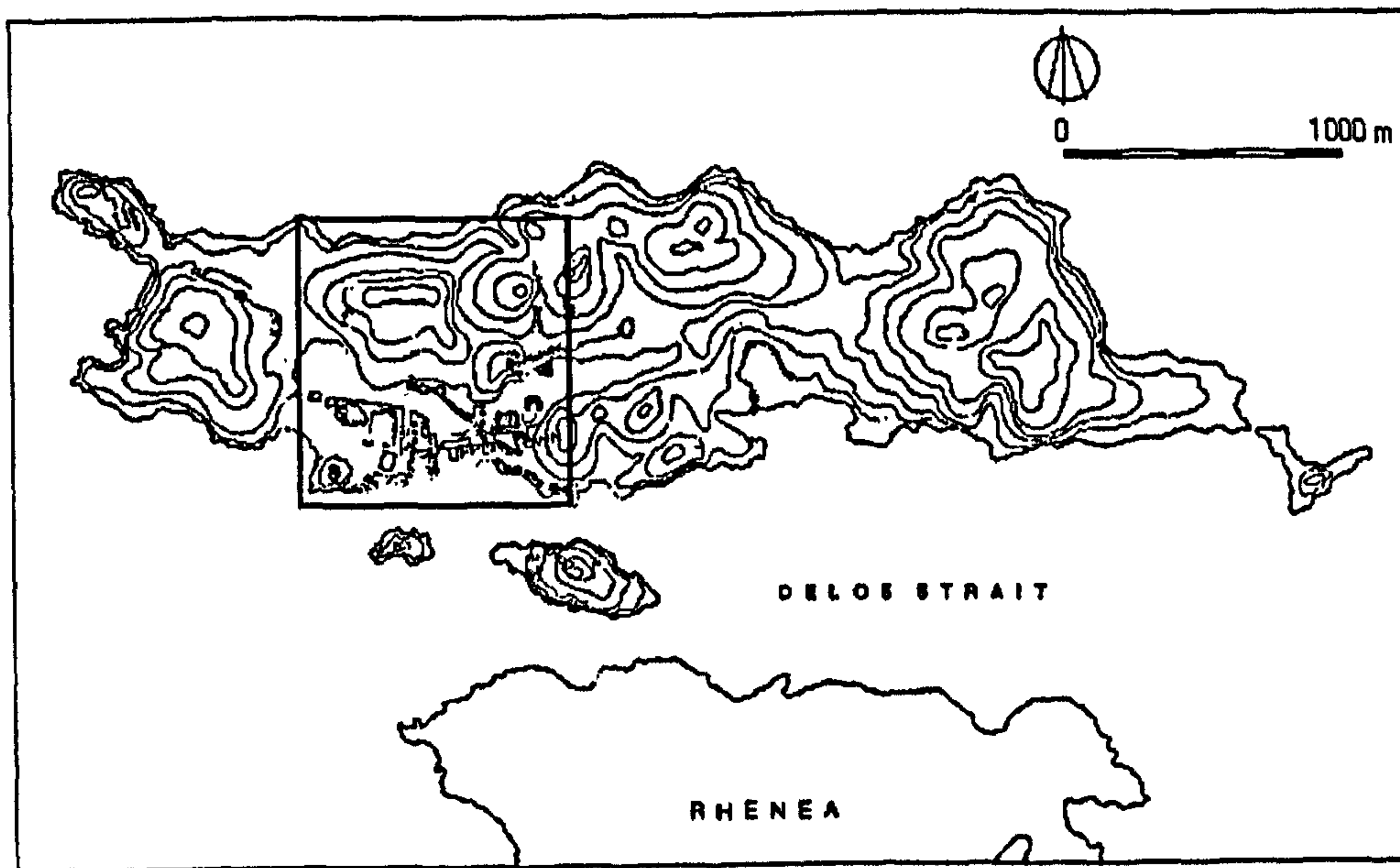


Figure 21: Map of the island of Delos showing the position of the town  
(Adapted from Zaphiropoulou, 1993: 7)

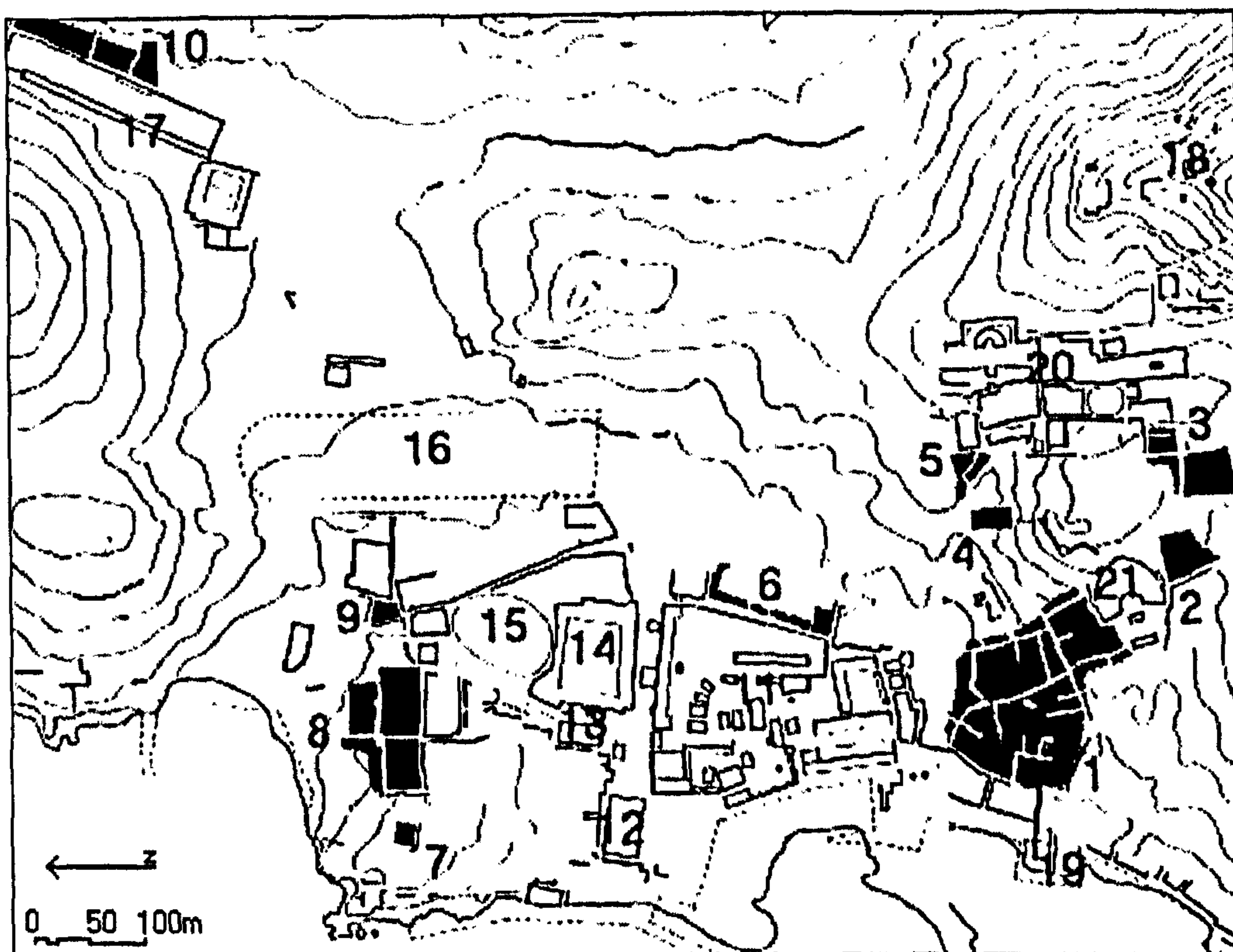


Figure 22: Map of Delos town  
(After Bruneau *et al.* 1996: 18-19)

Key:

- |                           |                          |                                |
|---------------------------|--------------------------|--------------------------------|
| 1 Theatre Quarter         | 8 Ilot of the Comedians  | 15 Sacred Lake                 |
| 2 Hotel                   | 9 Lake House             | 16 Stadium                     |
| 3 Dolphin and Mask Houses | 10 Stadium Quarter       | 17 Gymnasium                   |
| 4 Hermes House            | 11 Agora                 | 18 Mount Cynthus               |
| 5 Inopos Quarter          | 12 Hypostyle Hall        | 19 Merchant's Quarter          |
| 6 Kerdon House            | 13 Granite Monument      | 20 Terrace of the Foreign gods |
| 7 Hill House              | 14 Agora of the Italians | 21 Theatre                     |





Figure 23: View from part way up Mount Cynthus northwest towards the sanctuary of Apollo



Figure 24: View inland from the west shore, across the Theatre Quarter to Mount Cynthus



Figure 25: View north through the sanctuary



### 4.3 Island layout

The sanctuary of Apollo is sited on low, plains land (coastal plain) next to the harbour and was the town's focal point and civic centre. A marble gateway leads into the sanctuary and there is a sacred way lined with dedicatory bases and temples, treasuries and altars (Figure 25). The Minoe fountain is situated on the north side of the sanctuary and the larger sanctuary site is bordered by porticoes and palaestras. Add-on development evolved from here, apparently with little planning. It was not possible to locate larger public buildings near the city centre on account of the terrain and available space. The theatre (Figure 26) was placed in a hollow to the south and the stadium to the north. Main roads radiated from the centre to other parts of the city, and residential areas developed on gently sloping land fanning out from the city centre.

To the north and west of the sanctuary lies the Hypostyle Hall and granite palaestras, the lion terrace and Letoon, sacred lake, Diadumenos and Lake houses. The Stadium Quarter lies further inland towards the east. The Theatre Quarter area (Figure 27) is situated to the east and south of the sanctuary. It is the main excavated residential area on the island and borders the ancient theatre. The Hermes house, the Inopos gorge and Inopos quarter houses are located on the northern outskirts of this area. On the ascending slopes of Mt Cynthus are the Mask and Dolphin houses and further up its slopes sanctuaries of the foreign gods. There is a grotto to Apollo part way up and temples to Athena and Zeus on its summit. The island's western shore houses the site's commercial sector and the water's edge is bordered with shops, warehouses and the ancient landing dock which is still in use today.

## 4.4 Site preservation, excavation and fieldwork

### 4.4.1 Site preservation

The remarkable preservation of Delos' buildings is largely due to the extensive use of stone for their construction. Preserved houses, temples, agoras, shops, a stadium and theatre adorn the present-day site. Pavement and floor flagging, low wall courses, sculpted altars, dedications and column drums have survived looting and stand within the agora and its surrounding area. Mono- and polychrome mosaics continue to ornament floors, accompanied by painted and incised stucco wall decoration.





Figure 26: The theatre on Delos



Figure 27: View from the theatre northwest across the Theatre Quarter



Figure 28: Warehouse and shop remains along the western shore

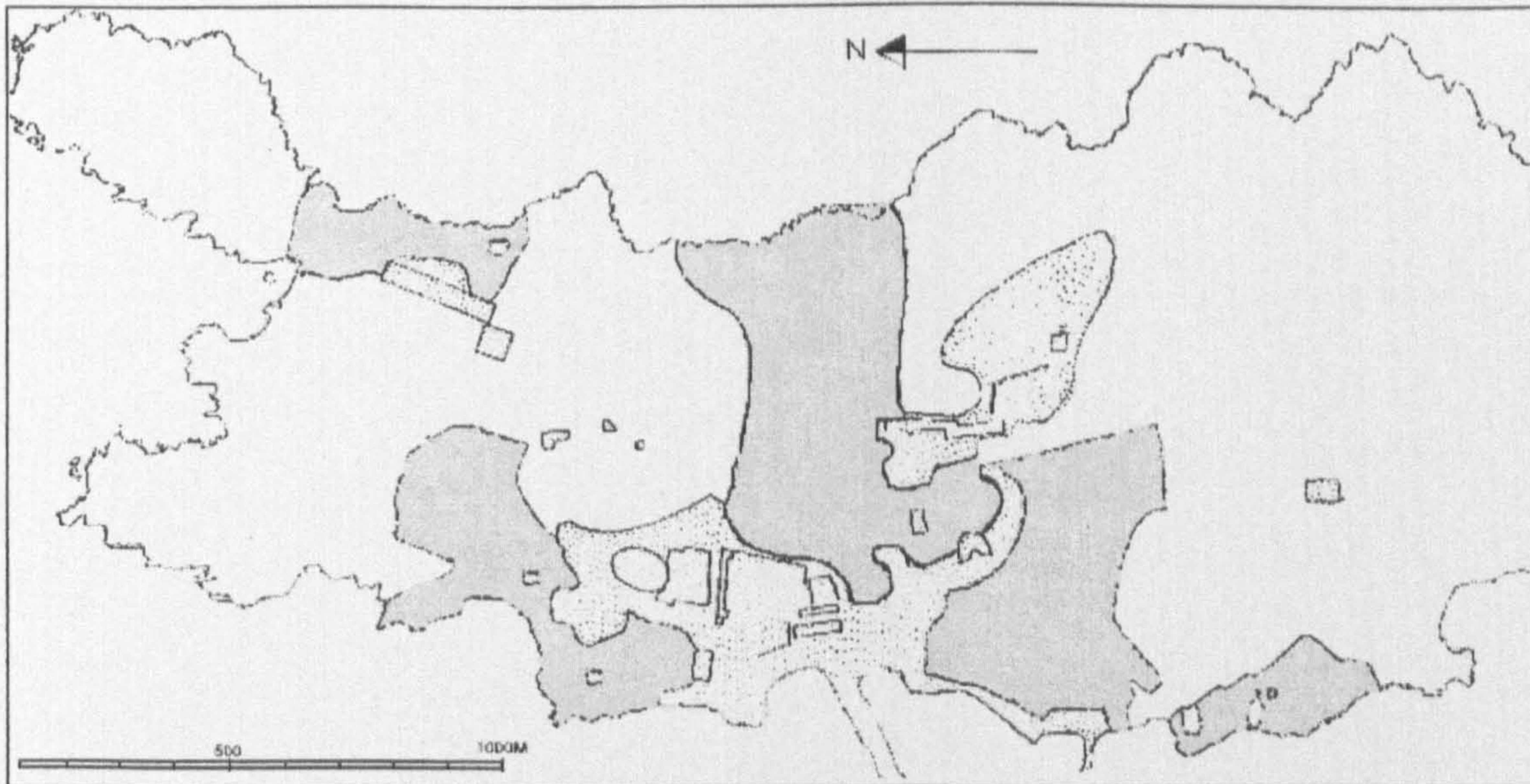


Rises in sea level since the time the island was occupied by its Greco-Roman inhabitants reveals the outlines of now-submerged warehouses and mooring points along its west shoreline (Bruneau *et al.* 1996: 12) (Figure 28). Inland, the preservation of the island's housing remains unparalleled across the ancient Greek world. House walls vary from standing to above first floor height while others survive in foundation, revealing different phases of building development both within individual buildings and on a larger scale, across the site. Their constituent materials reveal the range of stone used in construction and illustrate subsequent building techniques. The walls are pierced with windows, light wells and storage niches. Flooring materials range from beaten earth to mosaic (both decorated and plain), granite bedrock and marble chips and pot sherds set in mortar. Both peristyle and lean-to courtyard columns survive, a few *in situ* (that have been re-erected) and others as fallen piles of drums. Several reveal fixture holdings for architrave supports and adduction pipes from upper storeys. Doorway jambs and lintels also feature, so too threshold stones with wear marks from door leaves. Stone staircases survive, while traces of wooden upper flights can be discerned, in places, within remaining wall plaster. Decorative elements ornament walls in the form of painted and incised stucco work. Drainage channels survive beneath and within the houses and their surrounding streets, and numerous sherds of both roof and drainage piping were cleared from house interiors when they were excavated. Altars and well copings stand in place, and larger pieces of stone furniture such as presses and tables (legs and tops) remain close to their original locations, too heavy to have been moved far.

#### **4.4.2 Excavation strategy and coverage**

Only select areas of Delos have been excavated to date. Rough terrain covers a large part of the island, and farms were located to the south of the ancient city: much of the ancient site remains beneath the surface. Views from Mt Cynthus reveal traces of extensive road systems and buildings beneath the soil, stretching across the island from the Theatre Quarter in the west to the Stadium Quarter along the east coast. The case study Theatre Quarter excavations only just touch on insula blocks outside those cleared (I and VIII) and hundreds of other houses await uncovering. Figure 29 shows the extent of the excavated site, and also areas of ruins not yet explored, on the west shore (between the Hypostyle Hall and the Ilot of the Comedians), to the south of the





Key:

- Excavated areas
  Unexplored regions where traces of ancient constructions are visible

Figure 29: Schematic map of Delos showing excavated areas and ruins not yet explored  
(After Bruneau 1968: 640, Fig. 1)

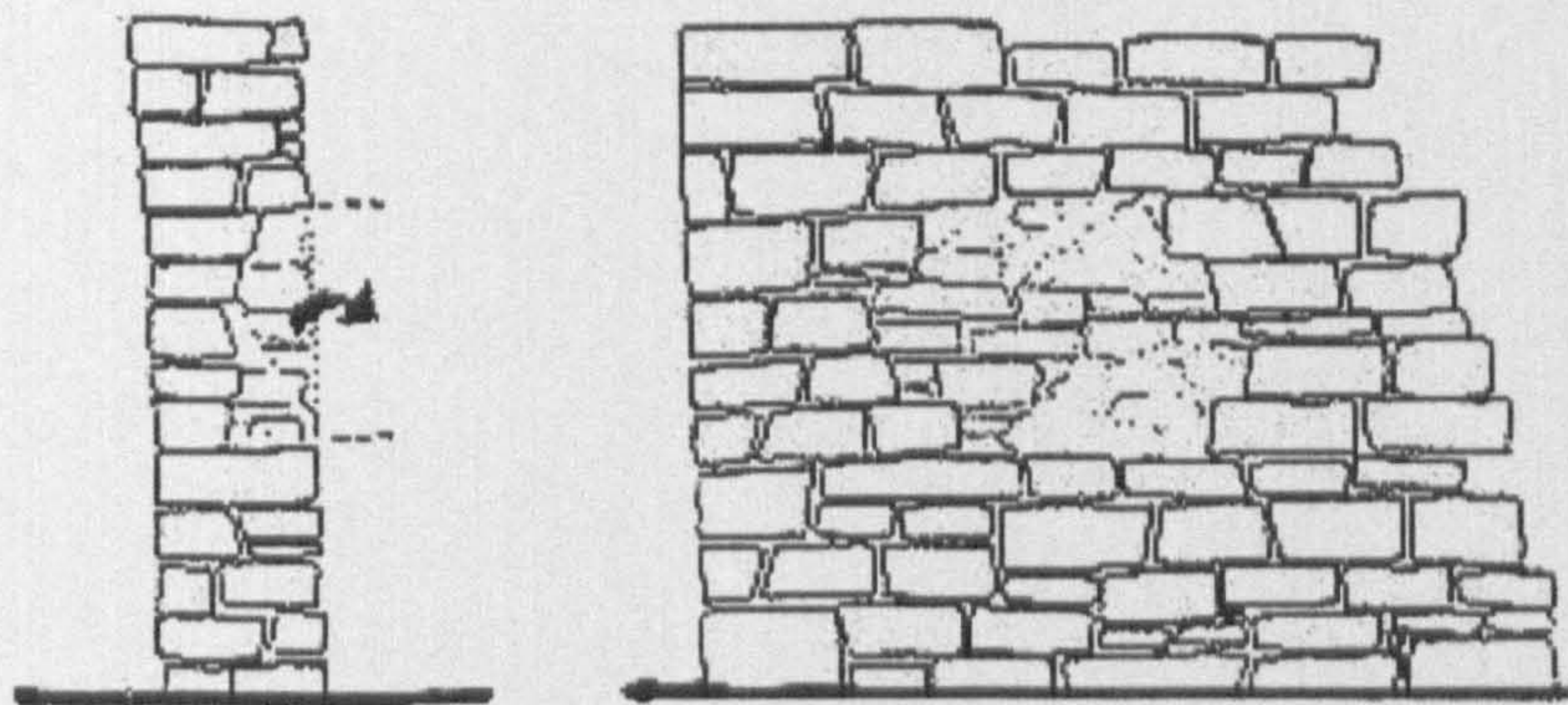


Figure 30: Wall repairs  
(Fraisie 1983: 894 Fig. 18)

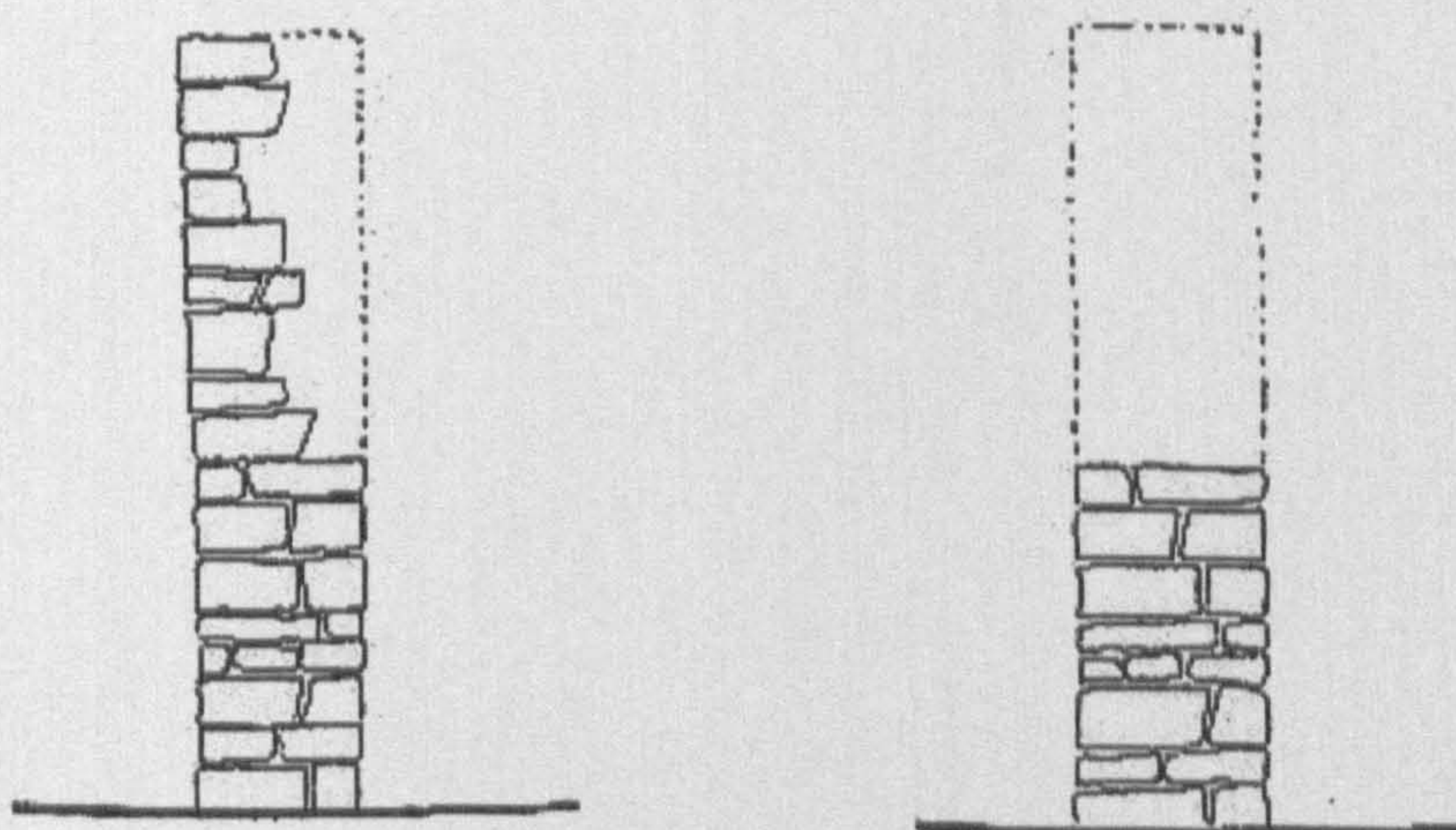


Figure 31: Reduction in wall height  
(Fraisie 1983: 894 Fig. 19)



Theatre Quarter (inland from the Quartier du Marchands) and to the east of the sanctuary.

To date the French School's excavations on the island have focused on its public areas: the agora, temple sites, stadium and theatre. The houses uncovered were unearthed as the archaeologists homed in on their marble column drums (Chamonard 1922: 9), found protruding from the ground when they first visited the island. As a result, some of the island's richest houses were uncovered before the excavated areas were widened to encompass areas surrounding these grand abodes.

The theatre was the first feature explored within the case study area, giving its name to the environs. The rooms along its north wall (Road 1) and Insula II followed shortly after. The excavators then traced Theatre Road along to Trident House, II A; and from there alongside neighbouring houses until they reached further parallel roads; distinguishing then the groups of houses which lay between them (Chamonard 1922: 19). Theatre Road was then followed along to its junction with Road 5, uncovering Insulae II-IV and VI. Only edges of insulae I and VIII, adjacent to the main study area have been uncovered, and offer a tantalising glimpse of further houses yet to be discovered beneath the surrounding hills and spoil heaps. The island also holds features elsewhere which are still to be investigated; the north west coast where floor levels of fine mosaic emerge from the cliff face and break onto the shore below, and wall sections emerging from the cliff face adjacent with the shoreline of Skardhana Bay. To my knowledge these features remain unmapped.

#### 4.4.2.1 Ongoing Investigations

Excavation continues on the island by members and associates of the *École Française d'Athènes* during annual summer field seasons. Finds, reports and resulting interpretations are published in the annual *Bulletin de Correspondence Hellénique*. Recent work has favoured more detailed investigation of features already uncovered and includes the farm buildings to the south of the island (Brunet 1988), excavation within the agora, the pressing floor within Road 4 of the Theatre Quarter (Bruneau *et al.* 1981), and the oilworks (III O) within the Theatre Quarter (Brun *et al.* 1997).



#### 4.4.2.2 Field survey: the Theatre Quarter houses

Fieldwork for this research project was carried out on Delos between mid May and early June, 1997<sup>1</sup>. The aim was to undertake a systematic and detailed study of all houses within the Theatre Quarter, and gather sufficient measured survey information to facilitate computer imaging of a select sample of the houses. The buildings chosen for detailed survey were those which are best preserved - Insulae II, IV and VI, each of these blocks having walls which survive to a much greater height than insula III. All houses and shops were surveyed within these areas, with a few exceptions: rooms II Bt and VI Hj (gated and locked to prevent tourist access) and house II A to which access was unavailable due to restoration work on the courtyard mosaics being carried out by the Greek Archaeological Service. House K within Insula III was also surveyed in detail, because of its significant wall heights, multiple staircases, and low ground floor windows.

Using the published site plans for reference, (Chamonard 1922, Plates III-VI and V-VI) the architectural features of each house were measured and inconsistencies between site and plan evidence noted. Discrepancies included wall, door, window and niche placement and occurrence. Heights were recorded using measuring tapes and calculated from clinometer readings where features stood higher than could be reached by hand.

The survey focused on the following elevated standing remains within each house:

*Sill stones*; steps into/out of the houses and between rooms and courtyards – sill heights and floor levels varied on either side of doorway thresholds

*Wall heights*; within each room of each house. Notes were made on the position of blocked openings and extant decoration.

*Window and niche heights*; dimensions and positions where reachable; estimated measurements were recorded where they were not.

*Stair heights* and direction of rise.

Details of features from different building phases were also recorded, where identifiable. The surrounding roads and shops were also studied and step height measurements and direction recorded. Insula III and the shops along Road 5 were

---

<sup>1</sup> see Acknowledgements



surveyed in less detail. As the walls were lower (most below head height) only the height of the highest wall within each house was measured. Other architectural features were noted as above.

The survey measurements, in combination with the house ground plans, have been used to create the CAD reconstructions in Chapter 8.

#### **4.4.2.3 General survey outside the Theatre Quarter**

All other accessible excavated houses on the island were visited for comparison with the Theatre Quarter insulae. Though detailed survey was not carried out within them, notes were made on their layout and decoration, and any special features. These houses included the remains of Insulae I and VIII, the Stadium Quarter insulae, Skardhana, Lake, Hermes, Hill, Kerdon, Diadumene, Fourni, Dolphin and Mask Houses, the Ilot of the Comedians, Inopos Quarter Houses and the area of the Poseidoniastes of Beirut. Particular attention was paid to Hermes House which has been part-reconstructed, the ground floor roofed and the first floor colonnade re-erected.

Dolphin and Mask houses remain closed to visitor access though special permission was gained from the staff and guards on site to allow a brief visit within Dolphin House, the flooring and décor of which is better preserved than within the Theatre Quarter insulae. Additional buildings and areas visited include the Merchant Quarter warehouses and shops, the main agora, Agora of the Italians and its surrounds, the terrace of lions, stadium, terrace of the foreign gods and the nymphaeum and temple remains on Mt Cynthus.

#### **4.4.2.4 Recent building alterations**

It became clear during fieldwork that a number of *recent* changes have been made to Delos' standing remains. These were carefully noted where observed within the Theatre Quarter as they had the potential to influence (and skew) later analyses that were based on the measured survey data collected. They included the following:

##### **4.4.2.4.1 Flooring**

Many house floors have been overlaid with concrete, so masking the original flooring beneath. The coverage and depth of the concrete is not uniform, either within individual rooms or houses, and uncut rock continues to protrude from it (*see ground*



*plans*). These drastic measures were presumably taken to protect the site from further erosion or to enable the removal of excavated material through the buildings themselves with minimum damage to features already uncovered.

#### 4.4.2.4.2 Walls

Wall repairs and extensions have been made using excavated site material in combination with modern day (i.e. twentieth century) concrete and cement, to secure the stability of the buildings. The modern repair materials are easily distinguishable from the ancient earth mortar used in construction because of their colour, wear and texture.

Tiles have been added to earth walls forming angled rain 'run-offs' in an attempt to protect the best preserved of them from further weathering while larger areas of unstable earth mortar walls e.g. within the Ilot of the Comedians, have been covered with scaffolding and planks.

Partial wall restoration has also been carried out in respect of the stone walls across the site. Fraisse (1983: 892-6) reporting on the work of the French School on Delos in 1982, 'The restoration of the walls' details the methodologies employed to restructure some collapsed walls. Plaster and the original material of the wall were used to reconstruct and make repairs where possible, and concrete used to provide further structural stability. Fraisse mentions the characteristic situations in which rebuilding or removal of materials was undertaken which include measures to counter variable height collapse due to damaged fill material. When either loose stonework was encountered at the top or on one face of the wall, the broken material was removed to prevent further collapse, and stretches of wall re-cemented to their known original height (Figure 30).

Partly collapsed walls, with either vertical faults or damage to one face were also secured with cement (Fraisse 1983: 895). The most significant of the alterations involves walls where there was extensive collapse of materials on one side. If the remaining material was less than 0.25m in width, it was completely removed down to a secure level, preventing risk of further collapse (Fraisse 1983: 896). The overall wall height was therefore reduced. Figure 31 shows the extent of the alterations that have been made to some of the site's standing remains.



Where it was evident that the walls being surveyed had been rebuilt, measurements were taken to the height of the original stonework and the extent of extensions above this noted. Significant rebuilding has also been undertaken to roof porches and rooms used to cover and protect the fine mosaic pavements within Trident, Mask and Dolphin Houses, now closed to tourist access. Elsewhere, walls of poros (*shown on the plans*) have been dismantled and their constituent blocks stacked elsewhere on the site.

Site material has also been re-used (perhaps from dismantled walls?) to block doorways restricting access for site visitors into house II A (h) and VI I (b). Elsewhere, nails and cement outline the original extents of areas of wall plaster, now crumbled away, presumably in an attempt to help keep the fragile decoration *in situ*.

#### 4.4.2.5 Survey accuracy

The measured survey undertaken used the published ground plans for the site as a base map to which to tie elevation measurements. Consequently, any errors in the plans resulting from the initial surveying of the site would have been perpetuated. In addition to presenting extensive house information, the plans also hold 'spot height' measurements, though it is often unclear as to the exact points on the ground these refer to. There are only a few of these measurements per house and therefore they do not cover all measurements needed for associated computer re-constructions. For these reasons the spot height measurements were not included in the measured survey undertaken.

In addition to human error (both in measuring and estimation), altered floor levels and wall heights resulting from recent site changes impact on any analysis based on measured building survey. Concrete-covered floors are now at a level *above* that of the underlying material, and engaged connecting wall measurements correspondingly *lower*. In addition to this, walls reduced in height to ensure their structural stability (Figure 30 and Figure 31) stand at heights lower than that at which they were uncovered. However, for the sight line analysis and CAD modelling contained herein, the resulting measurements of a few centimetres' difference from true has little effect on the extent of vision possible within rooms of the houses, or into houses from the outside.



## 4.5 Island history and site development

Steeped in legend as the birthplace of Apollo and his sister Artemis, Delos was one of the most revered and respected sanctuaries throughout Greek antiquity. The following sections trace the history of Delos from its early beginnings through to the present day. Here, evidence from the island's housing for the looting of materials and later site re-use is investigated, and questions of whether associated archaeological evidence can be directly linked to known historic events are explored.

### 4.5.1 Early and Archaic history

The earliest traces of occupation on Delos date to the third millennium BC though occupation on the island first flourished during Mycenaean times, 1580-1200 BC, when the expanding town spread over the plain and settlements developed around the ancient harbour site on the west coast (Bruneau *et al.* 1965: 15ff.). Delos was home to Ionian settlers between 1000 and 700 when it is suggested that the transport of pilgrims and visitors to the island also brought trade goods, securing the development of the site as a commercial port. Abundant ceramic finds to the south of the sanctuary also suggest that there was considerable development on the island during geometric times (Bruneau *et al.* 1965: 17).

It is thought that the Naxians were among the first Ionians to impose their superiority over the island (Bruneau 1995: 17) and from the end of the 7<sup>th</sup> century BC brought a multitude of offerings and erected buildings at Apollo's sanctuary. Athens' influence over the island was first attested at the start of the sixth century during Peisistratos' rule. He pursued a vigorous foreign policy to secure control of the Cyclades and its associated seaways (Laidlaw 1933:57) and ordered the building of Delos' archaic temple to Apollo. He 'purified' the island in 540 BC by ordering all tombs in view of the temple removed.

### 4.5.2 The Atto-Dellan confederation

The first Athenian (maritime) League was founded in 478. Its treasury of common levies was held at Delos. Located midway between Athens and the Asia Minor coast, Delos had a good harbour, was politically insignificant at this time, and remained an ancient centre of Ionian culture and religion based upon the cult of Apollo. The island was once again the centre of an Ionian 'amphictyony' though this time under direct Athenian influence with Athenian magistrates assuming responsibility for her



sanctuary. Delos maintained the league's treasury until it was transferred to Athens in 456 BC.

After the plague of the second Peloponnesian War, the Athenians decreed a second purification of Delos in 426/5 BC (Bruneau *et al.* 1965: 17). Births and deaths were outlawed on the island and graves were exhumed to a common necropolis site on neighbouring Rheneia. Purification was achieved by total expulsion of native Delian people from the island in 422. After this time Delos saw a new period of prosperity. Athenian influence dwindled after the Peloponnesian War ended with Spartan victory. Athenian domination of Delos continued throughout the fourth century though by its end, Athenian sea power had collapsed and the Macedonians had supremacy over many Greek city states.

### **4.5.3 Delian Independence, 314-166 BC**

Delian independence was declared in 314 and the island recovered control of its sanctuaries and their territories. The Delian people were allowed to return to their island by intervention of the Delphic oracle. The island was now governed by local rulers, entered a confederation with the Ptolemaic dynasty at the start of the third century. Apollo's sanctuary was honoured by Hellenistic kings wanting to influence Athenian control by providing offerings and erecting temples and other buildings at the site (Laidlaw 1933: 94). Numerous foreigners installed themselves on Delos during this time - Italians, Egyptians, inhabitants of Tyre, Sidon, Aratos and Ascalon - gradually changing the religious constitution of the island and trading opportunities increasing.

### **4.5.4 The second Athenian domination, 169-69 BC**

The Roman Senate gave Delos to Athens in 167, returning the island to Athenian control. The Senate expelled the Delian people and Athens sent her own colonists to replace them (Laidlaw 1933: 128). For a time the island remained little more than an Athenian colony under Rome's direct supervision. The Senate declared Delos a free port which immediately affected Rhodes' commercial supremacy. Religious interests gave way to commercial ones and Delos became the emporium of the Mediterranean world. As a Roman-Italian colony it was the focus for trans-mediterranean slave, corn and luxury trade routes. Rauh (1993: 1) considers the island to have become the earliest and largest Roman commercial settlement in the Greek world.



Italian associations predominated on the island, both professionally and religiously. Multi-national banks developed alongside large-scale harbour trade all fuelled by Delos' central Mediterranean location. Foreign cults took root and flourished as conspicuous consumption increased and Delos prospered as a result of the growing demand for trade goods from the Eastern Mediterranean. Romans continued to control the Athenian administration of the island as Delos remained dependent on, and closely linked to Rome.

#### **4.5.5 Invasion and destruction, 88 and 69 BC**

Amidst a time of Cycladic prosperity war raged between Rome and the king of Pontus. Under the influence of the numerous Italians on the island, Delos took a politically independent stance against Mithridates, Athens' ally. Considered a Roman naval centre (Laidlaw 1933: 267), Delos was sacked and razed by Mithridates' troops during the autumn of 88 BC. The fleet destroyed the harbour and looted the temple. Rauh (1993: 68) reports that twenty thousand Romans and Italians on the island and its environs were killed, and the surviving women and children enslaved.

Delos was marked for attack a second time in 69 BC, by pirates of Athenodorus, an ally of Mithridates. The attack destroyed whatever had survived from the incursion of 88 and greatly contributed to the island's final ruin. The Triarius wall was built in haste during 66 BC as a fortification wall and defensive perimeter around the surviving village, cutting across business structures and private housing (Rauh 1993: 69). It enclosed the sanctuary and Theatre Quarter areas and was built from whatever materials came to hand. A Roman presence continued on the island though it dropped dramatically after the Mithridatic war and later pirate attacks. Delos ceased to be a strategic trading centre with direct links between Italy and the orient. Her earlier central position within east-west trade in slaves and luxury goods declined into extinction (Rauh 1993: 74).

#### **4.5.6 Delos AD**

By the second century AD Delos was all but abandoned. Athens put the island up for sale during the third century but found no buyers. The area covered by settlement shrank in the first centuries of the Christian era to an area to the north of the town and the lower part of Theatre Quarter to the south. By the end of the third century, a small settlement had been established and many small early Christian basilicas existed on



the island. Buildings were converted to Christian use and earlier incursions provided plentiful building material.

Delos was occupied without interruption through to the sixth century. In 727 the island was pillaged by troops of the iconoclast emperor Leo the Isaurian, in 763 by Slavs and in 821 by Cretan Saracens. Deserted and laid waste, the small island then passed into Venetian hands. In 1329 it was settled for a short time by a band of Maltese Knights of St John. In 1566 it became occupied by Turks and was used as a base for pirates. Used extensively as a supply of building material, Delos' ancient architecture was pillaged, crushed and its supply of bronze cramps looted for melting down.

Delos' remains have been reported by Italian travellers from the thirteenth century onwards and systematic excavations of its city started in 1873. The islands of Delos and Rheneia are today owned by Mykonos who lease their pasture for grazing and cultivation. Delos is currently occupied by a handful of guards, shepherds and museum staff. It is visited each summer by French School excavators and continues to be marvelled at by a stream of tourists during the summer season.

#### **4.5.7 Architectural indicators of history**

While it remains extremely difficult to link archaeological evidence firmly with known historic events, Delos' extant architecture provides insight into the events in the island's past. Centuries of successive re-building and the removal of construction materials has left the site greatly changed. Irrespective of this, the Delian houses retain evidence of widespread architectural alteration, fire damage, re-occupation, ancient graffiti and looting of materials.

Mosaic *emblema* panels have been cut and lifted from several houses (Trident House, Inopos B, Fourni House, and three panels from the House of the Comedians). Their removal is not an indication of hurried abandonment though, as valuable items, the panels may have been lifted by their owners for re-location to another house, or later removed. Rubble thresholds indicate where sill stones have been taken while other marble remaining on site is too weighty to have been easily transported (e.g. column drums and table tops). Evidence of marble re-use includes a theatre seat embedded in the courtyard wall of house II C (Theatre Quarter) and column drums embedded within the Triarius Wall.



Evidence of the island's private wealth can be seen within excavated residential quarters where investment in house architecture is revealed through the use of coloured marbles, figural wall paintings and fine mosaics. Spectacular finds have come to light in the destruction layers of houses (e.g. house north of the Ilot of the Bronzes; Siebert 1976: 809ff.) compared with the few finds found within houses that were abandoned (e.g. Ilot of the Comedians) (Bruneau 1968: 682). Precious vessels and small finds have been uncovered where elsewhere only a few discarded/broken examples have been unearthed. Small finds include a coin hoard of 650 legionary denarii (struck between 99 and 34 BC) that were found hidden within two blocks at the base of a courtyard wall of house II F within the Theatre Quarter (Bruneau 1968: 682, Chamonard 1922: 36). Hidden at a height above the original floor level of the house, the building was presumably already ruined when they were placed within the wall for later retrieval.

The most poignant evidence for the destruction on Delos is the red-tinted fire-damaged stonework (Figure 32). Examples of fire damage can be seen in both houses and non-residential buildings across the site, and also along roads, on building exteriors. Whether burnt wall plaster (now lost) would have revealed more examples of fire damage, is not certain. The presence/absence of burnt layers reveal that not all of the houses on the island were raised. Bruneau (1968: 687) notes that areas of fire damage are located *above* the current floor level suggesting that perhaps a layer of floor covering has been lost or removed between the time of destruction and excavation. Numerous traces of fire damage have been found within the Theatre Quarter (within I K, II A, III A, G, H, and VI A). The most significant of these is the red coloration of the walls and scorched rubble, gneiss paving and the decoloration of surviving stucco. Marble well paving within Insula I is charred and smoke damaged remains of roof tiles and wooden stairs were found within Dionysus house, VI I.

Abandoned houses were later re-used for shelter. Chamonard suggests that examples of graffiti found within them date from a time when the houses were already abandoned. Examples within the House of Dionysus are found c2m above floor level; their author would have had to stand on a prop in order to be able to reach this height. The presence of blocked doors within and between shops and houses give clear indication of architectural change and adaptation, though it remains unclear whether these were in place at the time of abandonment, or were constructed as a result of it.





Figure 32: Hill House showing fire damage to walls

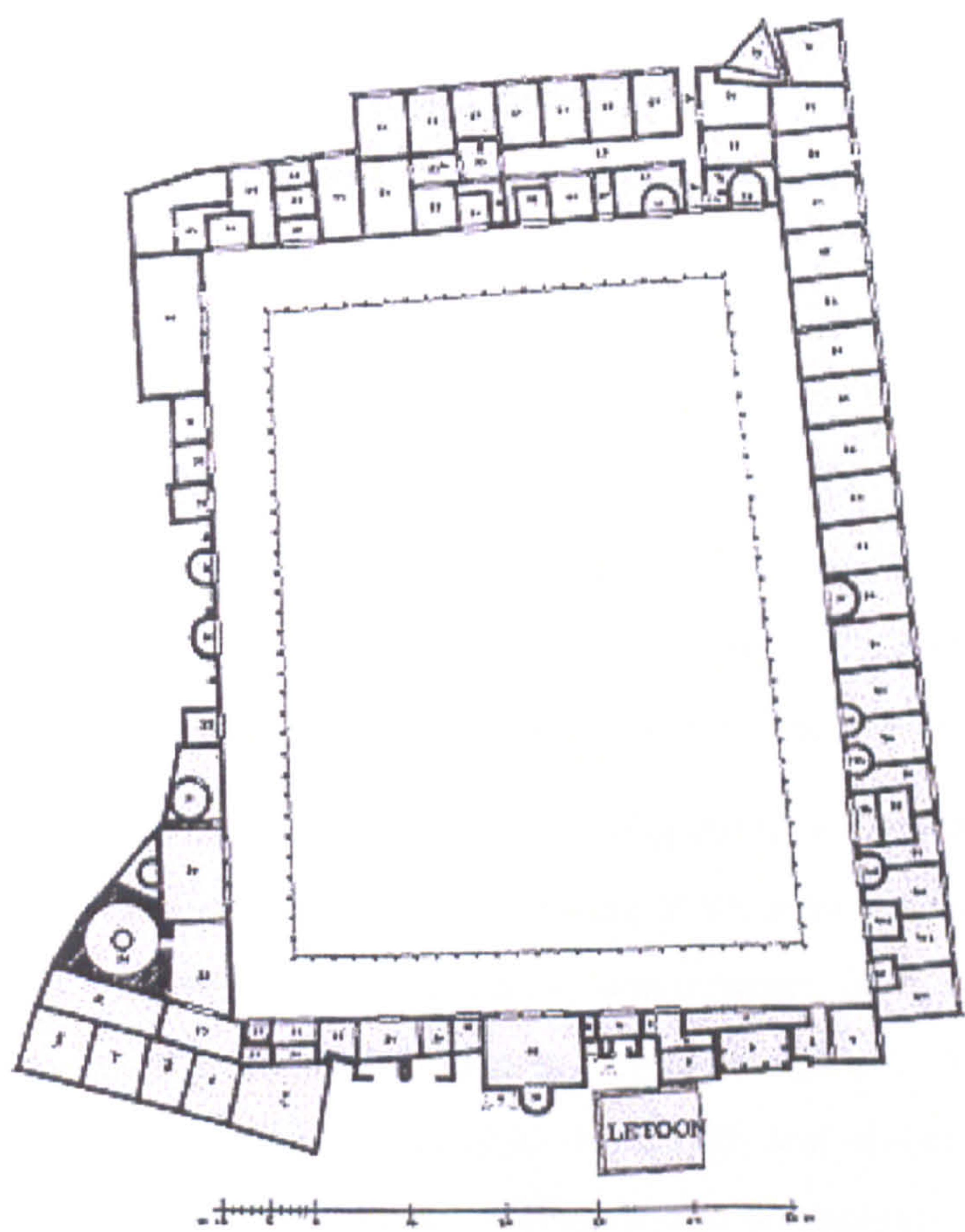


Figure 33: Plan of the Agora of the Italians  
Scale measures 50m total length. (Bruneau 1987: 332 Fig. 5)



Bruneau (1968: 685) proposes that Delos' archaeological evidence points towards the progressive abandonment of the island as opposed to its brutal destruction. The peripheral areas of the site which were completely abandoned are among the best preserved suggesting the most devastating destruction was not as a direct result of Mithridates' soldiers or Athenodorus' pirates. Bruneau adds that the partial destruction of the site in 88 and 69 was secondary in consequence to the departure of the island's merchants and its shift in commerce (Bruneau 1968: 689). Administrative records dating to after 69 BC show that the island was still inhabited at that time, supporting the idea of a more partial and progressive decline rather than an all-encompassing destructive attack (Bruneau 1968: 690) in which all of the island's inhabitants either fled or were removed. Lapalus (1939: 100) suggests that some of the island's buildings and sanctuaries were abandoned *before* the invasion of 88 BC making it difficult to measure the extent of the damage resulting from the raid.

## 4.6 The population of Delos

Delos was a cosmopolitan centre of the ancient Greek world, with a mixed population of native permanent and temporary residents, traders, merchants and visitors. Inhabitants were drawn from across mainland Greece and its islands, and further afield into Europe and the East. The island was associated with trade from early times and merchants later settled there initially linked to the island through markets and trade routes. Rauh (1993: 26) considers the emergence of Delos' large resident alien community related to the island's commercial growth and Rostovtzeff (1986: 790) suggests that interest in the site was fuelled by material prosperity and business. Foreign banks were established and new religions introduced, starting with maritime or patron gods linked to associations within which trade flourished.

Groups of settlers organised themselves religiously as well as ethically, according to commerce, homeland and religion. Among them were the Poseidoniastai of Berytos worshipping Berytian Baal and Italian worshippers of Hermes, Apollo, Poseidon, Roman Apollo, Neptune and the Lares Compitales (Rauh 1993: 29). The building of headquarters and club houses attested the wealth and status of foreign colonies who also financed temples and shrines within Apollo's sanctuary (Rauh 1993: 28). Profits associated with money lending, for both private and maritime loans, made banking



popular throughout all levels of society (Rauh 1993: 256) and promoted the popularity of Delos.

#### 4.6.1 Constituent nationalities

Between the third and first centuries BC, trade associations on the island became less religious and more mercantile. The Greeks on the island at this time were mainly Athenians, and Italian Romans were the strongest population element there. The island's Athenian element diminished, giving way to other Greeks and settlers from Italy, Egypt, Syria, Phoenicia and Palestine. The island also became a focus for Palestinian and Arabian merchants, and a focal point for the Italian slave trade with previous festivals shifting in emphasis to become similar to international trade fairs.

Epigraphic evidence from temple records contain lists of Delian inhabitants including lessees of sacred houses and people borrowing from temple funds. Reference to constituent nationalities resident on and working from Delos include people from disparate Mediterranean regions. Of these there were three main groups: Italians, Orientals and Athenians (Bruneau *et al.* 1996: 49, Le Dinarhet 1986a: 77). Funerary inscriptions from the Rhenian necropolis provide an indication of the population mix at Delos between 170 and 130 BC (Le Dinarhet 1986a: 77):

- 44.3% Oriental (Syrian, Egyptian, Cyprian)
- 26.9% Italian (or those dependent on Italian masters)
- 10.4% Athenian
- 9.5% originating from Asia Minor
- 5.6% from the Aegean islands

Rauh (1993: 1) regards Delos as having been the earliest and largest Roman settlement in the Greek world and Roman-Italian fraternities represented the largest ethnic contingent on the island (Rauh 1993: 29). Island inscriptions contain the earliest and the highest concentration of Roman and Italian family names found outside Rome (Rauh 1993: 236), featuring in temple documents as early as 200 BC. Italians are thought to have started investing in the island once it fell under Athenian domination (Hatzfeld 1912: 102). Temple accounts of 259 BC mention artisans from south Italy and later dedications (after 150 BC) confirm that Romans and foreign traders became permanent residents (Laidlaw 1933: 201).

As the number of Italians on Delos grew, associations were formed by them which included collegiates associated with Mercury, Apollo and Neptune, and the agora of



the Competaliaetae was constructed as both a meeting place and temple (Laidlaw 1933: 202). Not all Italians living on Delos were merchants; labourers and entertainers are also mentioned among their number. Many were probably bankers though Laidlaw (1933: 210) stresses that the 'professions and callings' of the majority of the Delian Italians are unknown.

Other nationalities also erected large agoras in the vicinity of the sanctuary, intersecting major routes across the island. Of these the 'Agora of the Italians' was the biggest and most elaborate: the largest monument on the island (Figure 33). It was erected and dedicated at the end of the second century/start of the first century BC, at a time contemporary with the construction of the Theatre Quarter houses (Lapalus 1939: 97). It forms a trapezoidal portico surrounding a large central court (approx. 50 x 75m), closed on all sides by walls, with access to the centre via three alley ways. The central court area is surrounded by exedras, semi-circular niches (the equivalent to small rooms) facing inwards, containing a bath complex in the north west angle, latrines to the west, and shops along the sides to the south and bordering the complex and the sanctuary of Apollo. Numerous small finds of jars and sculptures were discovered within the complex's shops and workshops. Rauh (1993: 82-3) suggests that the exterior façade of c40 shops and offices may have had a separate function from the building's interior, perhaps being linked to the island's slave trade as access into the central court area was too narrow for the movement of bulk goods.

#### 4.6.1.1 Slaves and freedmen

Rauh (1993: 340) considers that the majority of Delos' resident Roman population were of slave origin, working as agents for Italian associations and aristocracy. He suggests that there would have been a huge servile stratum of society with slaves and freedmen conducting trade on the behalf of their patrons at a local level (Rauh 1993: 232). Patrons may have visited seasonally to oversee their monetary and business affairs though this suggests they were far removed, both geographically and in terms of responsibility, from important and lucrative business. Rauh's assumption therefore seems to be too simplistic, though trusted freedmen and associates may well have overseen trade and other business on behalf of colleagues. Developing Rauh's evaluation, Bruneau *et al.* (1996: 83) suggest that the island's farms may have been occupied by slaves and an overseer, with the owners perhaps living closer to hand, within the city.



Slavery undoubtedly played an important role in the island's economy (Rostovtzeff 1986: 794) with slave labour an important part of the constituent population (Reger 1994: 51). Rauh (1993: 4) considers that many of the island's temple estates were slave-driven and that slaves also worked in the towns' numerous workshops with a large number of the islands richer inhabitants owning many slaves.

Rostovtzeff (1986: 798) suggests that the shopkeeper freedmen and artisans of Delos probably had a low standard of living as local art and manufactured products were of poor quality and better goods were imported or made by foreign artists. This situation would have fuelled antagonism within local trading markets; Delos is thought to have had direct links with the Sicilian slave revolts of 130 BC (Bruneau *et al.* 1996: 54, Rauh 1993: 51).

#### **4.6.2 Population estimates**

Estimates of population figures for Delos vary considerably through different periods within the island's history. Though no sound evidence for population levels date from Archaic or Classical times, figures have been estimated from the time of the island's independence, 314-166 BC, onwards. Bruneau *et al.* (1996: 38) think it likely that the native Delians made up less than half of the island's estimated population (25,000) housed within the island's residential zones, though it is not clear what multiplying factors for either household members or areas of housing he uses. Population figures from Bruneau *et al.* (1996: 48) reveal the small proportion of native islanders amongst the population and stresses states that any estimated or calculated figures would have varied with sailing season trade. Reger (1994: 51) estimates a local population of 20,000 at the end of the period of Athenian domination, 169-69 BC. The largest population estimate is provided by Déonna (1948: 15) which peaks at a population of around 50,000 at the time of the island's greatest prosperity, 110-88 BC, immediately prior to its invasion and sacking. In contrast, Rauh (1993: 3) equals Reger's 9-10,000 or fewer inhabitants prior to their expulsion, indicating a considerable fall *before* the island's sacking. These estimates vary considerably though the methodologies used to reach them are not always clear, or indeed specified.

The following population estimates based on archaeological and epigraphic evidence are more likely to be representative. Le Dinarhet (1986a: 74) proposes a population of 25-30,000 for the years 130-70 BC, linking his figures to the number of dated



funerary stelai excavated at the Rhenian necropolis. Roussel (1931: 441) estimates an island population of 5,000 based upon scaling figures from the ephebic list of 119/1 BC to represent male voting age and eligibility. This figure is later supported by a study of the sanctuary administrative records, with a population of 1,200 Delian male adults during the first part of second century (Bruneau *et al.* 1996: 46).

As a vibrant trade centre with an active business community, host to panhellenic festivals and both local and international markets, it is not surprising that Delos' population was high. Though estimates of the number of island inhabitants vary considerably, it is likely in its heyday that Delos housed tens of thousands of people, a combination of temporary, visiting, or permanent residents. On a small island (5km long x 1300m wide) where only a small proportion of the terrain was suitable for building, this represents a huge number. In comparison with its Cycladic neighbours Reger (1994: 85) thinks it likely that Delos would have seemed crowded even in early Hellenistic times.

#### **4.6.3 The impact of population levels on housing**

Large numbers of people require corresponding residential provision. The duration of the stay on the island would affect the *type* of accommodation required: extensive temporary and short-term accommodation were needed, in addition to the dwellings required for the permanent population. A large proportion of the island's accommodation would need to include or encompass slave lodgings though it is unlikely that in any but the wealthiest of houses that a specific share of house space was made for this.

Delos' town developed around the port, sanctuary and precinct areas and spread to cover the majority of low-lying land across the centre of the island, reaching between the ancient shoreline on the eastern shore to the bay of Ghourna on the west coast. Later housing, including that of the north quarter, reached across/up the hillside overlooking Apollo's sanctuary. Area plans of the Theatre Quarter show houses and shops filling every available building space within its *insulae*. Roads and alleyways are narrow and winding, with only the main thoroughfares paved and wide enough for more than two people to pass each other. Maximum use made of the available building land means that floors were placed on different height levels according to whether areas of underlying rock (granite outcrop) could be levelled.



Little remaining evidence links owner-occupier residents to particular houses with certainty. Inscriptions provide the few attributed name and date links within the Theatre Quarter. These include the Cleopatra House which was inhabited by an Athenian couple (attributed from statuary evidence) and Trident House constructed by a Syrian, containing Rhodian peristyle with sculptured bulls of Hadad and Atargatean lions (Bruneau 1968: 665). The courtyard mosaic of Dolphin House contains the signature of its mosaicist, Asklepiades of Aratos, and its vestibule mosaic with the Tanit symbol showing Phoenician links (Bruneau 1968: 666).

The Hermes House, situated on the lower western slopes of Mt Cynthus, contains lavish statuary decoration from which its occupants, members of the Paconian family, have been identified. Resident at the time of the island's slave trade, this old Etruscan family represented the cream of Delian society and as traders were part of the largest cluster of Italian family members on the island (Rauh 1993: 223). Rauh (1993: 195ff.) identifies certain examples of Roman-Italian residences across the island including the house of Q. Tullius, within the Stadium Quarter, (NE of the island) from a statue base inscription. Tullius was a prominent member of the Roman-Italian community though it is not clear whether he resided at the house or whether it was perhaps inhabited by his freedmen. An exterior shrine of Lares Compitales confirms his Roman-Italian background (Rauh 1993: 203) and Rauh notes that an additional twenty-five houses across the island featured similar shrines, including the Hermes, Dolphin, and Fourni Houses.

Inscriptional evidence from commercial property also offers clues as to their occupiers. Figures incised into the stucco wall covering within shop TR49, (Roman numbers and letters; Chamonard 1922: 213) suggest to Déonna (1948: 52) that the premises were occupied by an Italian trader.

It is possible that immigrants settling on Delos either occupying (and perhaps redecorating) existing properties, expanding them or building anew, introduced architectural styles and decoration from their respective homelands. This would be particularly apparent if new residences were constructed, hence providing a blank canvas for layout and decoration. Despite knowing that Delos housed a broad diversity of nationalities, a homogeneity of form and decorative styles can be seen throughout the island's housing, ranging from the smallest to the most elaborate residences.



#### 4.6.4 Household members

The 'nuclear family' of two parents and 2.5 children is a modern western concept. The constituent household members of an ancient Greek house would have been considerably different. Gallant (1991: 12) stresses that historians take for granted ancient families were nuclear, neglecting slaves, freedmen and labourers within any population or *per capita* household estimates. He reflects that the dynamics of ancient lifecycles are often overlooked and the assumption made that households were independent of wider social and economic units. It is likely that the Delian houses contained a wider range of people than the western 'norm', and in greater numbers.

Though numerical estimates are much debated, it is thought that the Classical household would have supported many slaves as well as immediate family members, elderly relatives and wards. Ault (1994: 42) suggests that the ancient 'nuclear' or extended family averaged five individuals per household while Hoepfner and Schwander (1986: 321) suggest households including slaves numbered ten individuals per house. It is considered that even the poorest of households would have kept a slave. Household constitution may have changed in later centuries. Evidence for household lifecycles within Athenian times comes from forensic oratory (Gallant 1991: 16), though the evidence it provides focuses more on kinship and inheritance issues than the specifics (number/people) of household composition. Associated philosophical writings are pre- versus de-scriptive, oriented towards political as opposed to contrasting social spheres.

The most revealing Delian source of information regarding household members stems from epigraphic evidence. Bruneau *et al.* (1996: 46) note that genealogies accompanying administrative records within the 314-167 BC period note three or four children per household; mentioned to be not of adult age and therefore not recorded in records. From this evidence alone it is likely that the Delos houses would have accommodated larger families compared to the modern 'average' though the houses themselves were not, as perhaps might be expected, proportionally bigger. Levels of infant mortality are likely to have been higher, thus encouraging families to produce more children in order to safeguard property and assets through lawful inheritance.

Gallant (Gallant 1991: 12, 27) considers the ancient household lifecycle was twenty-four years, based on obligations regarding sibling marriages. He considers that horizontal extension of multiple domestic units would have been commonplace, and



the majority of the population would have practised neolocal residence. With regards to household members, the ownership of slaves would have fluctuated in response to household lifecycle changes and the percentage of households owning slaves was fluid. Changes in this would alter in direct correspondence with individual fortunes though it is suggested that the majority of households would have invested in slaves where they could (Gallant 1991: 31, 33).

## 4.7 Discussion

Hellenistic Delos housed a rich cross-section of people, diverse in both ethnicity and culture. A corresponding mixture of styles, fashions and influences are echoed in the island's architecture, from the dedicatory through to the domestic. Despite foreign influence in decoration and architectural embellishments, courtyard-style houses predominate, thought to be influenced by both spatial and environmental conditions / restrictions. The majority of the island's houses date to the mid second century BC and many are considered Roman in layout (Nevett *pers. comm.*). This is hardly surprising given the importance of the predominantly Italian residents.



# Chapter Five

## Town and Country

### 5.1 Introduction

This chapter discusses the relationships between the urban areas of Delos and its city centre. It details the physical development of the city, comparing and contrasting it with the sites of Olynthos, Priene and Rhodes. Consideration is given to the island's manufacture and slave trade, covering the influx and impact of visitors to its festivals and markets. Archaeological evidence for industrial activity sites areas of production integrated with residential premises. This informs a later discussion of the impact such dual function would have had on the use of house space, and the everyday lives of the building's occupants. The role of farming and agricultural processing in the island's trade economy is then examined, linking Delos and the neighbouring island of Rheneia through the temple estates of Apollo. The following sections provide background information which ties the island's physical layout and development to its mercantile economy, civic architecture and people.

### 5.2 Comparative Town Planning

Grid plan towns with standard-sized house plots feature throughout the Greek world (Cahill 1991: 220). Hoepfner and Schwandner (1986: 1-2, 247-56) distinguish between two types of grid-planned cities with 'additive' and 'divisive' categories of planning. The first is formed when small blocks are placed side by side; these are and added to until a grid structure is built up. The second, 'divisive' form becomes a grid structure through the subdivision of its original plot. Although many sites developed from a standardised chess-board design, others including Delos are more complex, encompassing both areas of planned and regular layout and also more piecemeal construction. Building across challenging Greek terrain also made it a necessity to take advantage of the topography as



well as being limited by it, both for defensibility and ease of communication across the site.

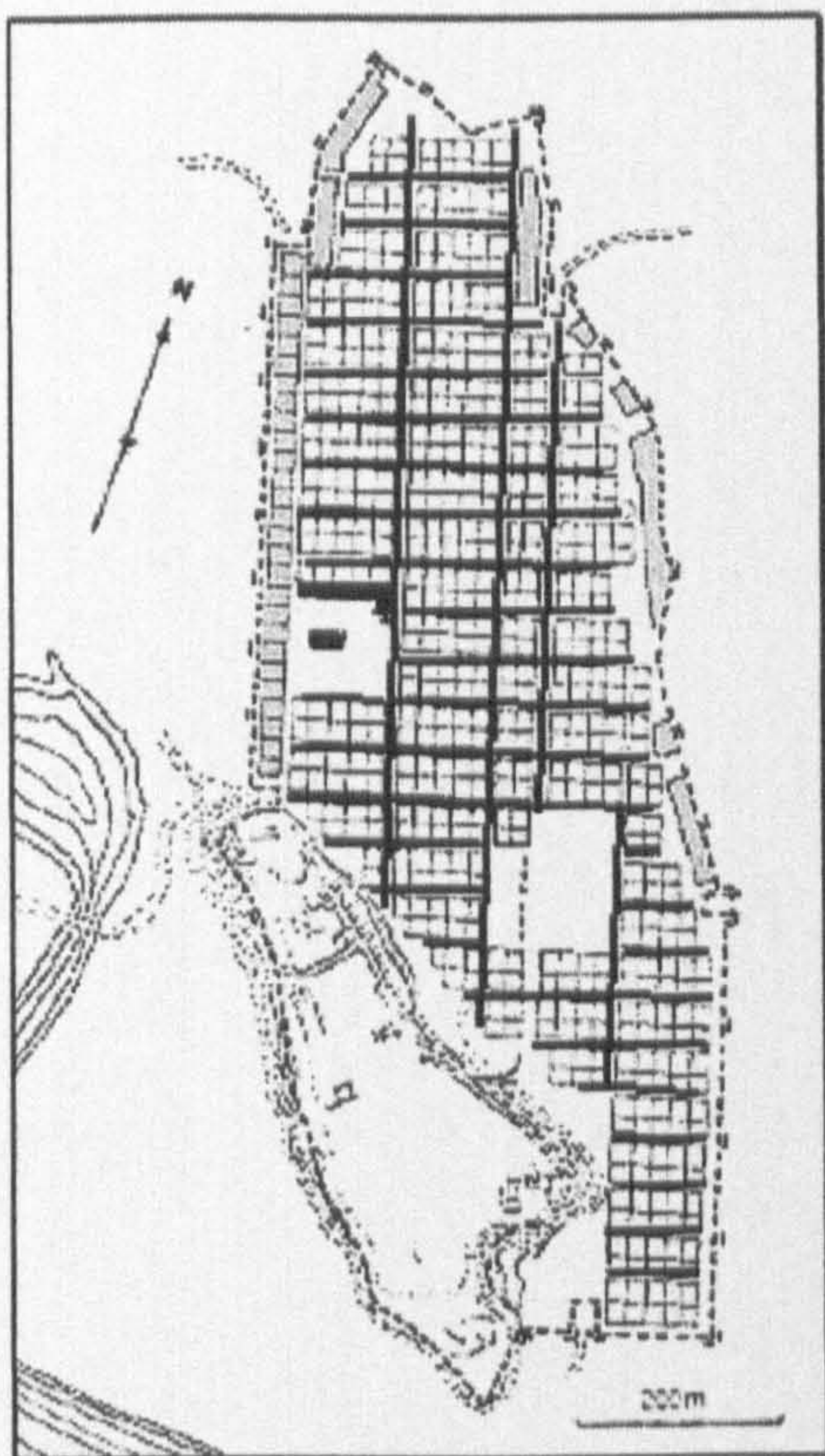
It is generally accepted that from Hellenistic times onwards urbanisation and town developed in response to changing political, social and economic developments, coming to depend on financial contributions from wealthy powers (Owens 1992: 9, 28). The community of the ancient city is considered to have been expressed through its public places and spaces (Owens 1992: 153). The agora formed the central political, social, religious and economic focus of the city, an open space at its centre around which administrative, service and residential buildings accumulated. Where possible, buildings were grouped according to function; for example theatres were sited in natural hollows along with entertainment structures nearby (Owens 1992: 155). As sites expanded large amounts of land were given to residential exploitation and expanding populations. Insula-style housing developed to accommodate the maximum number of people within a limited space and crowding grew to a level exceeding that of modern cities (Gardner *et al.* 1898: 46).

The sites of Olynthos, Priene and Rhodes dating to the fourth, late fourth, and third centuries BC respectively are often compared to Delos in respect of their town planning and layout (Figure 34). Though these sites date from an earlier 'Classical' era, there are common features between them in overall city planning and the arrangement of their buildings and amenities as a result the terrain on which they are built. A brief overview of the planning of these sites follows, and precedes the section on Delian development, revealing similarities between each of the towns.

### 5.2.1 Olynthos

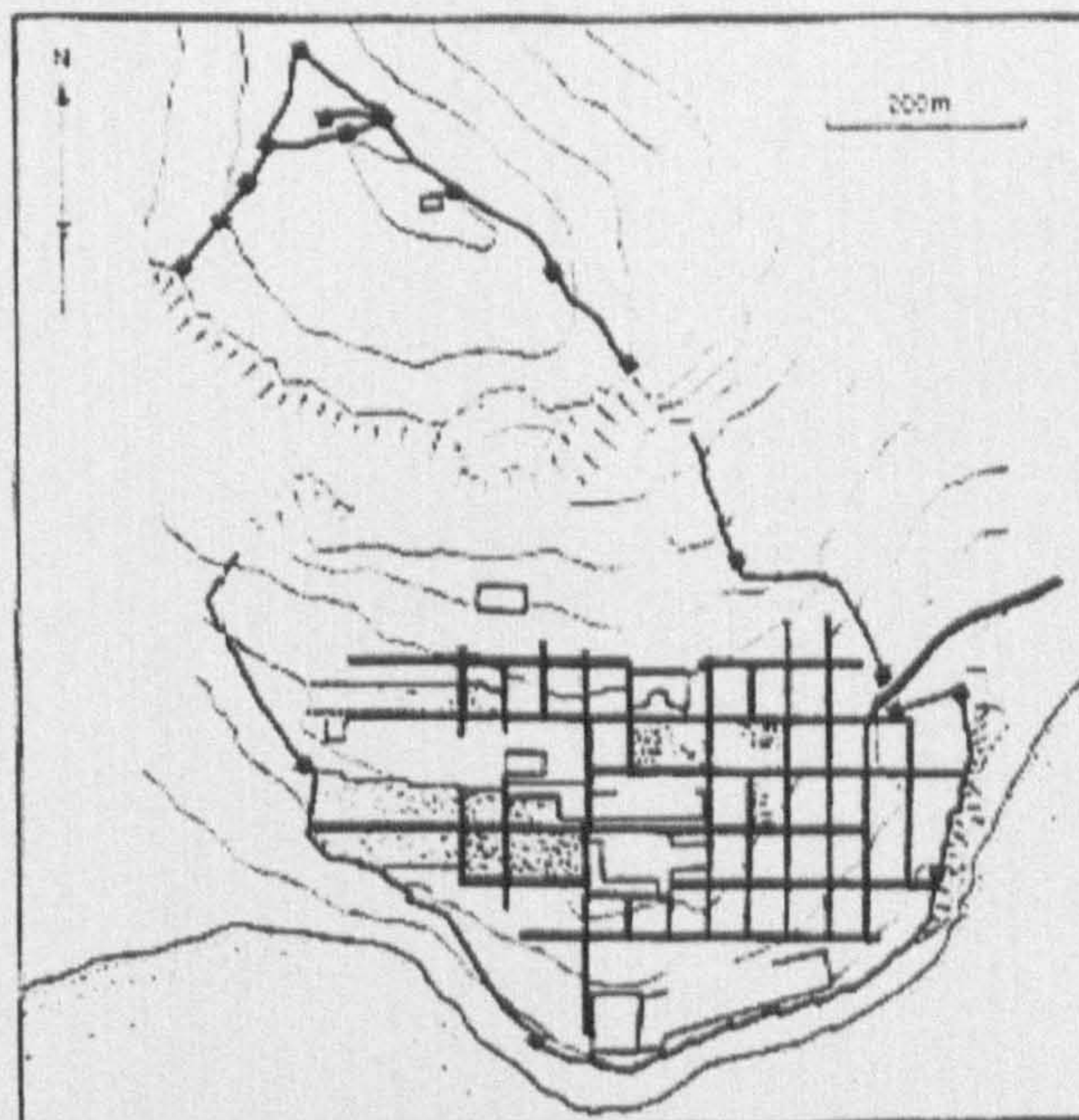
Olynthos is built on two flat-topped hills. The south hill, holding the earliest settlement is smaller and steeper sided than the north (Cahill 1991: 105). Houses were also built to the east of the hills on a narrow ridge extending south, known as the 'Villa Section' and east spur hill. The south hill, probably occupied from the seventh century onwards, retains a final phase grid pattern with two north-south streets running along the east and west sides of the hill. Public buildings are located at the north end of the hill forming a type of civic centre (Cahill 1991: 106). The north hill, not inhabited until 432 BC, is orthogonal in





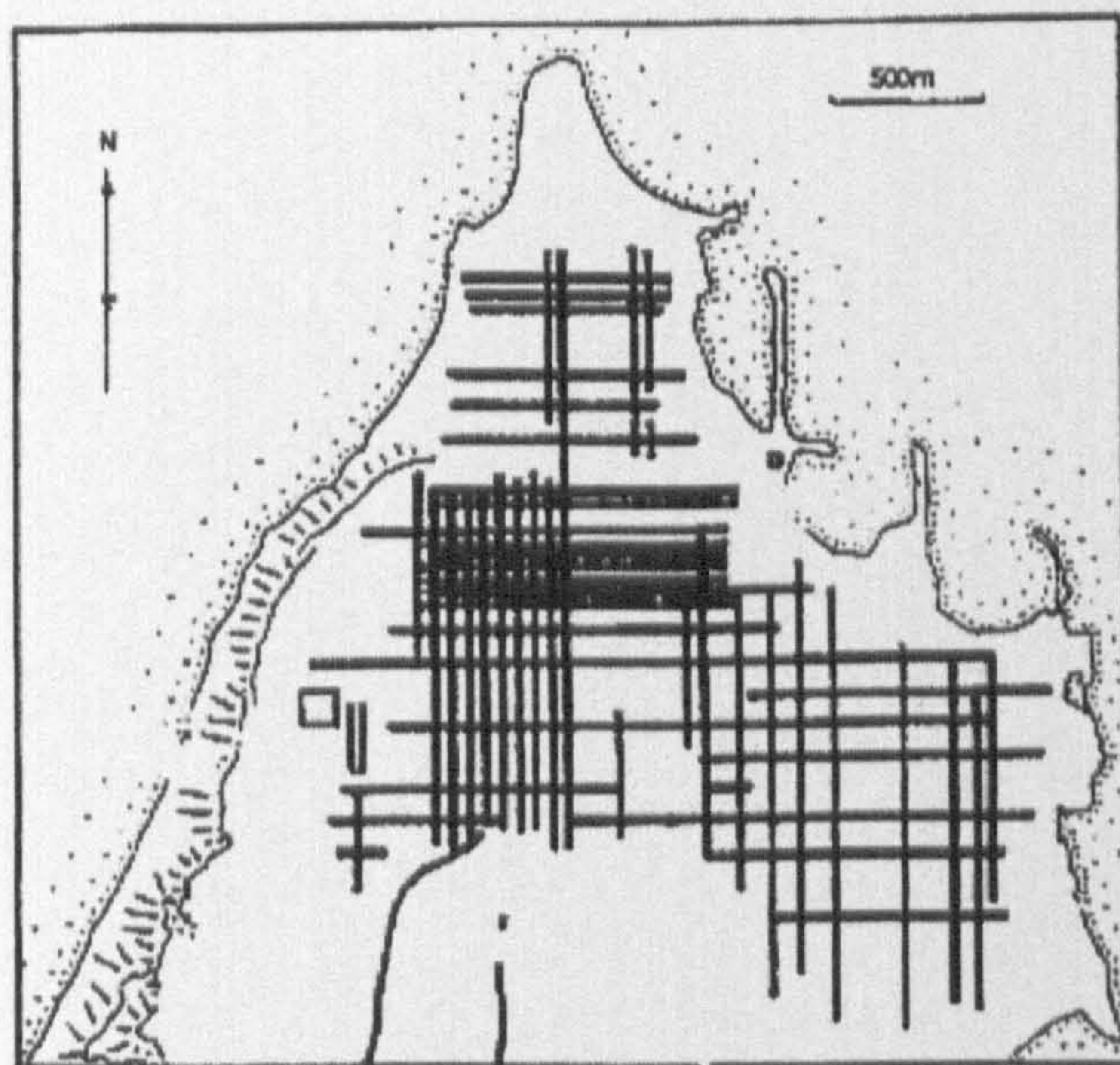
**Olynthus**

(Adapted from Hoepfner and Shwander 1986: 31, Fig. 22)



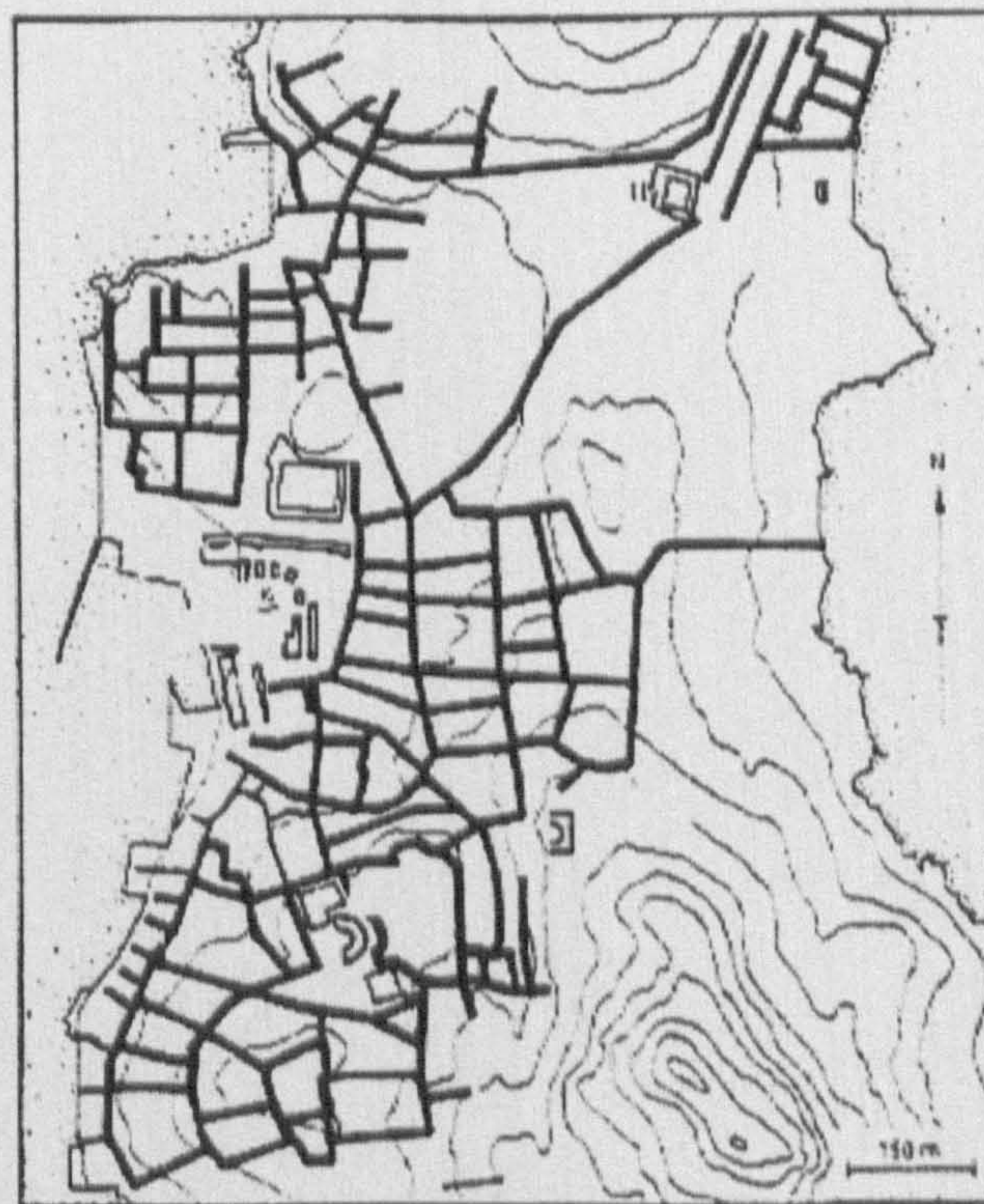
**Priene**

(Adapted from Owens 1992: 65, Fig. 18)



**Rhodes**

(Adapted from Owens 1992: 58, Fig. 15)



**Delos**

(Adapted from Owens 1992: 23, Fig. 5)

Figure 34: Comparison of town layouts and road routes



plan, and its entire area is filled with blocks of houses, grouped in two rows of five. Shorter blocks are placed to the east of the hill following the underlying topography. Rubble foundations indicate that each housing block was built contemporaneously as a single unit, most likely sharing a common number of floors and continuous roofs except where stepped flooring was needed between adjacent properties (Robinson *et al.* 1938: 37).

The city of Olynthos is constructed of a regular system of straight streets, which intersect at right angles and enclose blocks of approximately the same size. Three avenues run north-south and thirteen streets run east-west, all c5 metres wide. The orientation of its buildings are dictated by the hill on which they are built with its houses oriented along the hill's main axis.

### 5.2.2 Priene

The town (re-founded) relocated to a rocky spur of Mt Mycale just before 350 BC, the silting of the river at its original location having lead to the move. A more compact site than Delos, the main site at Priene is divided into three areas, the acropolis plateau (at c100m altitude) holding the theatre and temple of Athena, middle ground containing the main town and agora, and the lower area of the stadium and gymnasium. Cook (1962: 182) suggests the site was defensive given the height of the citadel rock, and the original ruler may have intended to maintain a garrison there. Though the site retains a grid structure layout, Owens (1992: 66) considers that the site is not suited to it and Ward-Perkins (1974: 15) says its orthogonal plan is applied to a 'highly improbable site'. The town was carefully situated across the underlying steep hill-slope and takes advantage of the land where possible (Cook 1962: 182).

The land is terraced with four main east-west parallels traversing the site and cutting across the contours of the underlying hill. North-south movement across the site was difficult due to the slope of the land (Martin 1982: 114, Fyfe 1936: 168). The land levels slightly towards the main gate to the east, and transverse divisions across the main roads divide the city into rectangular insula blocks with narrow transverse streets, in places reduced to flights of steps (Owens 1992: 66, Ward-Perkins 1974: 117). The town's residential buildings are situated all round the public quarters and accommodated an



estimated 4.5-5,000 inhabitants (Cook 1962: 182, Martin 1982:113). Its insula blocks each contain between four and eight houses, though the houses themselves are irregular in layout, compared to the insulae of Delos' North Quarter (Section 6.2). The rows of small shops bordering the town's main avenues were a new feature (Cook 1962: 183).

### 5.2.3 Rhodes

The city of Rhodes was created in 408 BC by the amalgamation of three neighbouring communities into a single, larger city enclosing a fortified area (approximately a mile square) on the north tip of the island (Owens 1992: 57). Its town plan is 'divisive' in layout and comprises a regular grid of streets in east-west axial alignment. The grids are each divided into smaller, rectangular housing blocks by narrower streets (approx. 3.3m wide). Every sixth street was approx. 4.6m wide, and considered a main street. Along the transverse axis was also found evidence of a boulevard 10m wide, considered by Cook (1962: 141) to be a distinct feature of the original plan. The city's public buildings are grouped by function indicating a form of planned monumentality for the site. The area around the stadium and temple of Apollo (at the foot of the acropolis) was originally reserved for leisure activities with a gymnasium and odeon.

Extensive terracing exploited the visual richness of the site, similar in shape to that of an ancient theatre; though this led to problems of flooding from the surrounding hills. The example of Rhodes was followed by the construction of several fourth century and Hellenistic towns, including Priene.

These sites provide examples of cities making optimum use of their underlying topography to maximise the space available for building. Natural terracing is utilised both for dividing sites into distinct areas, civic and residential, as well as optimising defences. Contours of hill sites are followed, with buildings and building blocks arranged along them. Where the land allows, grid pattern layouts are used to fit the maximum number of (residential) buildings within a space and regular street patterns are laid out to permit ease of communication between them.

Combining these features, Delos city ranges across a diverse geographic environment - plains, terraced land, shorelines and hill tops to the lower slopes of its mountain. The agora and civic centre are sited across a low-lying plain while its residential areas range



from the Theatre Quarter built atop haphazard granite outcrops to the more regularly-planned and gently sloping North Quarter.

#### **5.2.4 Delos**

Site development began in the sixth century BC and flourished under later Athenian and Roman influence. The island's focus was the sanctuary of Apollo located on the low-lying plain adjacent to the harbour on the west coast. Construction grew up around these areas and spread inland both north- and eastwards and to the lower slopes of Mount Cynthus. Due to restrictions imposed by the natural terrain, the theatre was placed to the south, in a natural hollow, and the gymnasium, hippodrome and stadium to the north. The island's civic centre developed around the sanctuary and commercial activity was attracted to the agora and harbour with shops and houses, including that of the Theatre Quarter, developing along the roads linking these and other routes across the island. New residential zones were constructed across the island after 166 BC, following Rome's declaration of the island as a free port. A huge influx of residents and visitors, both traders and businessmen alike, meant the demand for accommodation and commercial establishments soared. Residential areas grew up to the north of the sanctuary, (the area of the Ilot of the Comedians), along the north west shore, the Stadium Quarter, and towards Fourni Bay in the south (Bruneau 1996: 38-39). These later areas of housing are more regular in overall layout than the Theatre Quarter, though nowhere on the island is the housing of standard-sized blocks as is that of Olynthos. The end of Delos' splendour after the incursions of 88 and 69 BC (Section 4.4.5) saw many of its residential quarters deserted and its population congregating around the port and sanctuary areas. Late occupation sites came full circle and were based around the extents of the old town.

Delos gives the overall impression of a site developed with little co-ordinated planning in comparison with the organised arrangements of Olynthos, Rhodes and Priene. The piecemeal addition of sanctuaries and new housing areas adds to the overall discontinuity of the site plan, though individual areas are themselves more regular and grid-like in design.



### 5.3 Ancient tourism

This section investigates aspects of tourism and visitor activity on the island. As the focus of Cycladic and trans-Mediterranean trade, Delos attracted large numbers of visitors to its festivals and markets. Royal festivals financed by private benefactors, took place alongside religious festivities (Ringwood 1933: 457) which were held throughout the year.

<b>Delian month</b>	<b>Modern equivalent</b>
Lénaiôn	January-February
Hiéros	February-March
Galaxiôn	March-April
Artémisiôn	April-May
Targéliôn	May-June
Panémos	June-July
Hékatombaiôn	July-August
Métageitniôn	August-September
Bouphoniôn	September – October
Apatouriôn	October-November
Arésiôn	November-December
Posideôn	December-January

Among the island’s festivals was the Delia/Appollonia, held during the month of Hiéros which was considered a sacred time on account of associations with Apollo. The festival drew deputisations from Athens which attested to its importance. Closely associated with the Dionysia, celebrations included processions, choral contests, sacrifices and banquets (Ringwood 1933: 453). The summer months were dedicated to ceremonies in honour of the goddesses Artemis, Leto (Apollo’s sister and mother), Hera and Demeter. Festivals continued through autumn-winter months and included the Poseideia which included boat races held in honour of personifications of Poseidon. The religious calendar also included agricultural festivals for grain and other planted food. Guettel Cole (1988: 896) notes that changes were made in established festivals to accommodate changing political policy while the island continued to support a diversity of cults, including those worshipping Egyptian, Phoenician and Syrian gods (Bruneau *et al.* 1996: 28). Athens changed the island’s festival calendar before 176 BC, with the celebration of the Dionysia and Appollonia continuing in the theatre (Bruneau *et al.* 1996: 62), out with other gatherings located at the gymnasium and stadium.



Each festival included elaborate processions before sacrifice, gymnastic competitions, drama and banqueting closed the festivities (Ringwood 1933: 454). Merchandise associated with the celebrations were sold on the sea front, accompanying fairs held under the protection of the honoured god(s) (Ringwood 1933: 457). Festival and market days saw an influx of thousands of people to the small island, swelling its population and impacting on its resources and accommodation (Reger 1994: 55).

Visitors depended on sailing for transport and Delos' resident population relied on the sailing season for local trade in foodstuffs (Bruneau *et al.* 1996: 48). Trade sailing was only possible during summer months due to weather restrictions, and Aegean traffic was largely halted between October and the spring to accommodate this (Reger 1994: 54). Reger (1994: 55) also mentions that in addition to traders or celebrants, instances of more than a thousand troops visiting the island or its neighbours were frequent, putting a strain on the local economy and forcing huge price rises.

Fluctuations in the availability of trade goods would have been further exacerbated by harvest dates. Though the terrain was hostile to vegetation (Déonna 1946: 154), Delos developed its polyculture and traded its olives, oil, wine, cereal, vegetables, wood, charcoal, oil, fish, fowl, honey, cattle, oxen, sheep and goats. Hopper (1979: 190) considers the island's main interest to have laid in food supplies, especially corn and the island became one of the largest cereal markets in the Mediterranean. Bruneau *et al.* (1996: 92-3) think that the island's agriculture wasn't sufficient to provide for its population or the associated sanctuary demands. In contrast Reger (1994: 4) considers it to have been largely independent of trade networks, taking on the role of regional trade centre to accommodate neighbouring trading islands as a necessity.

Delos was famed for its metalworking (gold, silver and bronze) during antiquity (Déonna 1948: 74) and artisans relied on imported materials for goods manufacture (Homolle 1884: 79). However, it remains impossible to measure local production against levels of goods imported (Bruneau *et al.* 1996: 94). Trading taxes represented a significant income for the island. Excavated houses have yielded an abundance of ceramics, including dozens of stamped amphorae from Rhodes, Cos, Knidos and from Italy indicating just some of the island's mercantile partners (Bruneau *et al.* 1996: 107-8). Imports from the



Cyclades included clothing, construction materials (poros, marble, terracotta) and architectural features with vases and metals originating from further afield (Déonna 1948: 172-4).

The islands' slave trade is thought to have developed after 166 when Rome bestowed free port on Delos (Hopper 1979: 191, Rauh 1993: 2). According to Strabo (XIV, 5.2), Delos was able to deal in tens of thousands of slave in a day. The Agora of the Italians (Section 4.5.1) has been identified as the location for a slave market (Bruneau 1985: 557, 1987: 336, Rauh 1993: 83), with its large central courtyard and narrow access points. It has also been identified as a market area for the display of trade goods (Bruneau 1985: 558), a sporting arena or combined bath and entertainment complex. Series of shops surrounding its exterior, facing onto the agora attest its role within the island's economy.

The following section focuses on indications of industrial processes provided by architectural and fixed features elements within the Theatre Quarter, and considers their use in relation to the town's Hellenistic occupation. Links between residential and commercial use of case study house space are examined to provide valuable information about house use and re-use.

## **5.4 Commerce and Industry**

Delos developed into a successful panhellenic commercial, banking and trading centre during Hellenistic times. The manufacture, sale, import and export of goods helped create and sustain the island as a wealthy emporium. Associated trade and industry supplied residents and visitors with food, drink, entertainment, clothing and luxury goods. Petracos (1995: 55) mentions similar site production for visitors, both transitory and those resident for longer periods at Oropos, an earlier fourth century BC sanctuary site. Such an environment would have influenced those living and working on the island and a favourable environment for production and sale developed. The mixed and far-reaching business opportunities may have affected the use of housing (and other building) space as a result with business meetings taking place within the home and household materials or personnel being given over to an expanding commercial enterprise. It is likely that of the houses identified not all were solely intended for family use, perhaps leaning more



towards a Roman way of using domestic space than 'traditional Greek' where division between house and *polis* usually stopped at the front door.

Resident merchants on Delos grouped together through their background, trade and nationality to form business and residential associations, often in combination (Rauh 1993: 340). Amongst the associations that held trading and cult status on the island were establishments such as the Poseidoniasts from Beirut, professional merchants, ship owners and warehouse owners (Picard 1920: 272) who installed and developed a combined residential, religious and commercial complex bordering the main agora. Rauh (1993: 219ff.) also mentions groups of freedmen and businessmen establishing themselves in areas such as Hermes House and the House of the Comedians complex. These buildings included both residential areas, offices and courtyards for meetings. Evidence for the combination of industrial production and residential activity has also been found within the insula housing of the island.

#### **5.4.1 Commercial zoning**

The Theatre Quarter borders both the island's agora (to its north) and the port and the 'Merchants' Commercial Quarter (to its west) (Figure 22). Insula III, facing the Commercial Quarter across Road 5 contains the most evidence for industrial activity within the excavated local insulae. It contains units given over entirely to industry, houses where residential and industrial areas are combined as well as the majority of shops, positioned facing the length of Road 5. Elsewhere shops and industrial areas are listed along the Granite Palaestra and Agora of the Italians situated off the agora and at Fourni house, to the far south of the island.

#### **5.4.2 Transport and movement of goods**

The Theatre Quarter is in prime position for the immediate transport and storage of goods from the warehouses along the shore and the shops facing them (Ardaillon 1896: 439), since it is positioned on the main route inland. However, it is also only half an hour's walk to the far side of the island, to the Stadium Quarter, (or Gourni in the opposite direction) so the transport of materials would have been relatively easy across the island, especially with draught and pack animals or carts used to transport heavy or bulky loads. The two main roads within the Theatre Quarter, Theatre Road and Road 5 are paved,



suggesting these were the ones used most extensively. These roads also contain areas of steps along their lengths, preventing the passage of carts along them. The other roads and alleys are beaten earth though and partially flagged, across the width of the drains situated beneath them. Several houses have stairs and thresholds which jut into the surrounding road (including III K and VI K) further reducing their width. Animals with panniers may have been used for transport and though the roads vary in width, most could accommodate a maximum of two people passing along them at any one time, with junctions providing possible passing space.

### **5.4.3 Production and Manufacture**

Extant site remains can only give us a brief glimpse of the range and extent of industrial use of some of the Theatre Quarter buildings, both shops, houses and buildings where residence and production were combined.

#### **5.4.3.1 Household production**

Little direct evidence for any type of household production survives in the archaeological record. Vase and stove fragments were found within each house excavated (Chamonard 1922: 223) though this is expected for any occupied house where food preparation and storage is undertaken. Loom rooms, which may have been storage areas for loom weights, central to the household production of cloth, are identified during excavation by the discovery of loom weights, as examples from Olynthos reveal (Robinson *et al.* 1938: 209). Though loom weights were found in many of the rooms excavated, no loom rooms have been identified from the case study area on Delos because of the paucity of recorded finds associated with its excavation. If, however, as at Olynthos, evidence for weaving had been found within every house it would remain virtually impossible to make a distinction between looms used for household production and those used for trade or sale. Without individual household accounts we have no way of knowing how much cloth was produced, for whom or for what purpose. Nevett (1999: 172) suggests, however, that due to the economy of the island, less domestic production took place within houses as residents used farm goods produced locally (on the Delian and Rheneian estates) and imported goods.



### 5.4.3.2 Industrial production

Units used for solely commercial or industrial purpose may have had no on-site residence, with workers or owners living nearby. For buildings reaching upwards of two storeys, there may have been provision for residence or storage of goods on the upper floor(s). Site evidence of permanent fixtures include pressing tables, circular patterns of flagstones (mill or crusher placement) and tanks (pottery workshops, dyeworks). These have been found in houses, shops and in buildings of only apparent industrial purpose.

#### 5.4.3.2.1 Mills/olive crushers

Identified by circle of coarse blocks or flag stones (c2.5m in diameter) positioned in the floor. These are possible placements for mills (Chamonard 1922: 211), or fittings for trapeta or other rotary olive crushers, intended for draught animals to power the mills built on them. Six examples have been found within the Theatre Quarter, all within buildings identified as shops, STR 7 (Figure 35), Rd5 10, TR 27b, 33 and 41b).

#### 5.4.3.2.2 IV C

Site evidence from house IV C, comprising a courtyard and three rooms (Figure 36), point towards it being some form of industrial installation as opposed to solely a residence. The sill stone to area b indicates an outwardly-opening door, perhaps acting as a form of 'lock up', some form of storage facility, or providing exterior access an upper floor. This door opens directly off Road 2 into a sunken tank (c0.25m below the level of adjoining courtyard a) and was presumably used for the direct loading or off-loading of goods from the road. Drainage channels from b to the road outside open just above street level and lead to the street drain in STR, drainage from the courtyard, a, leading to that of Theatre Road at the base of the insula block. Rd2 7 may once have part of this unit, perhaps explaining the now-reduced dimensions of area c, or IV C once also covering additional adjoining shops (STR 11, 13 and 15 or Rd3 6). Sill stone evidence reveals huge double doors (now lost) once stood between areas a and d and would have masked the 2.62m drop in floor level between the two areas. The rich flooring in a and the cistern beneath it reveal the unit as also having house features, and may have been some form of industrial or commercial attachment to neighbouring IV B to which there is a high, though open doorway.



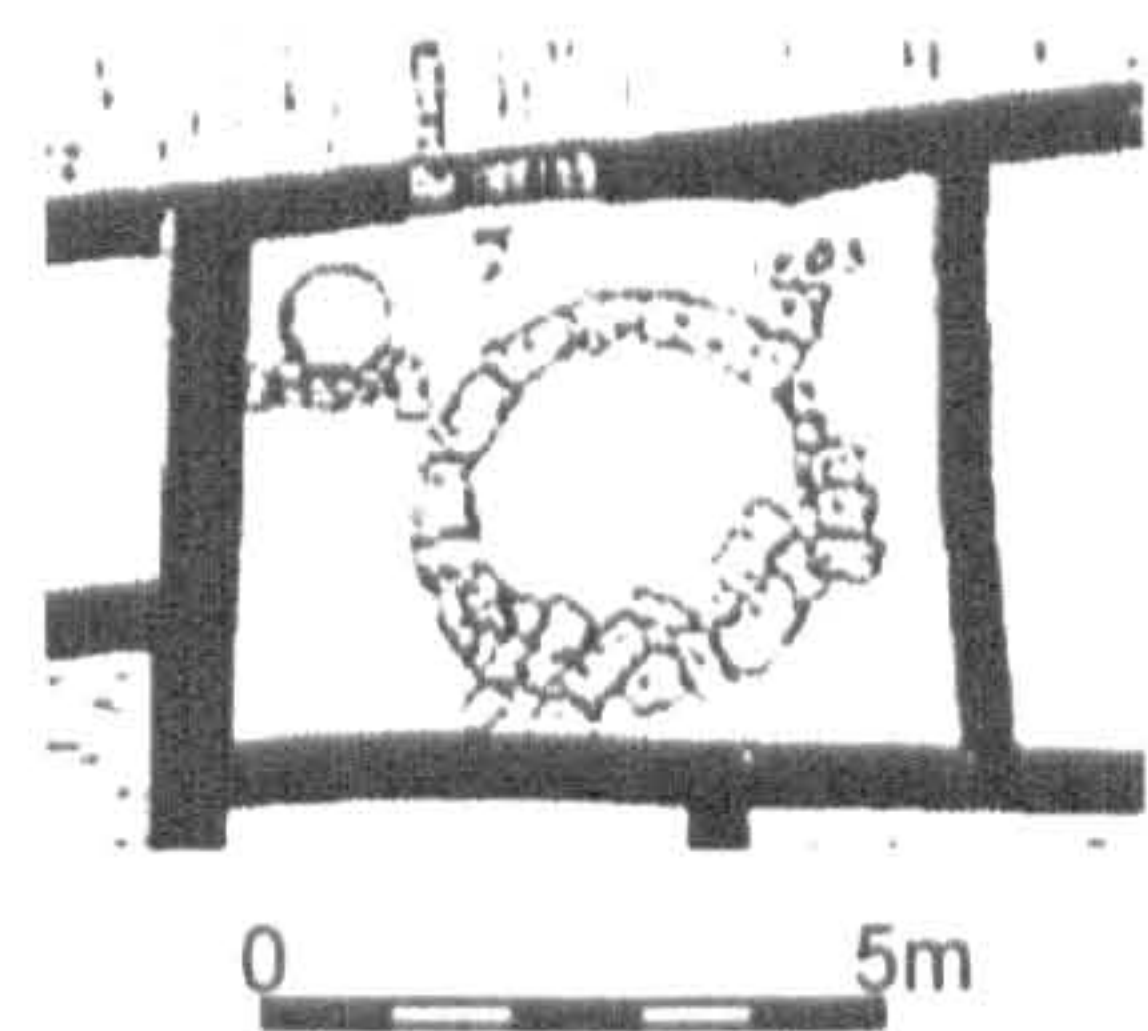


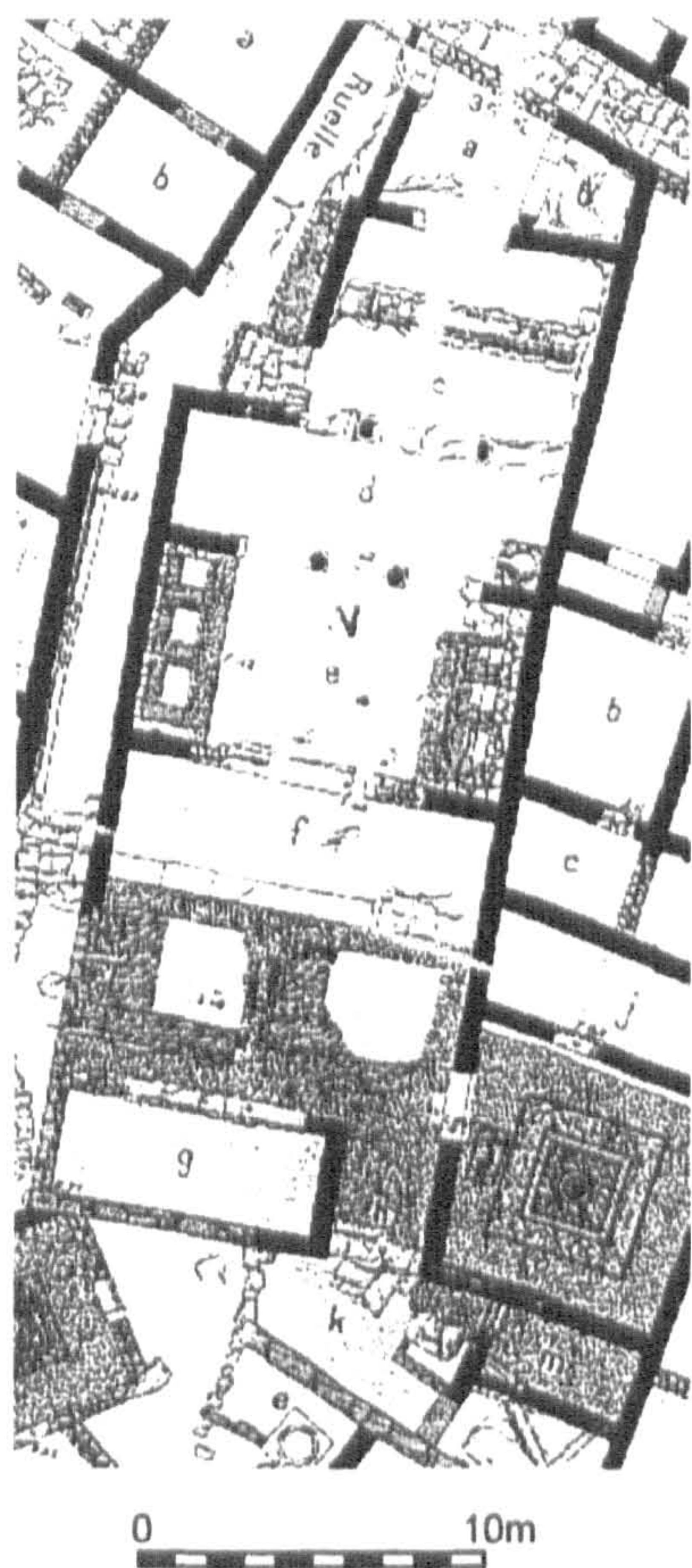
Figure 35: Plan of STR 7 showing circular arrangement of flagstones (Chamonard 1922 Plates III-IV)



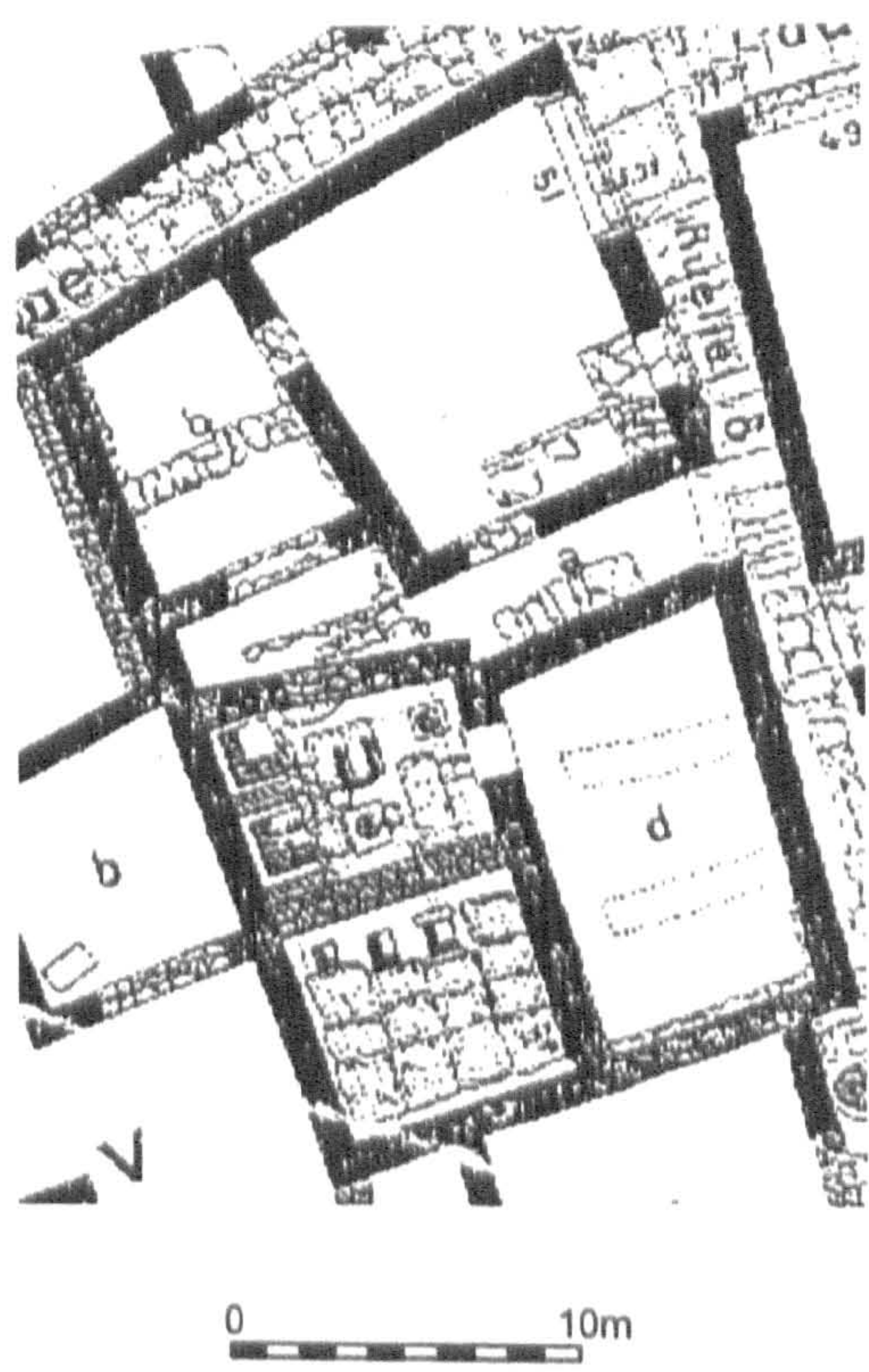
Figure 36: Plan of IV C (Chamonard 1922 Plates III-IV)



Figure 37: Stylised plan of the Theatre Quarter showing the position of shops and industrial installations. Shops (black) and houses containing industrial installations (grey).



III N



III U

Figure 38: Dyeworks plans III N and III U (Chamonard 1922 Plates V-VI)



#### 5.4.4 Household and industrial production combined

Laurence (1995: 65) reminds us that houses, particularly Roman examples were often more than just houses, used as residences as well as places of work and entertainment. Buildings combining residential and commercial purpose (Figure 37) may have set aside ground floor rooms as workshop premises with residential areas positioned upstairs. Examples of this type of arrangement have been identified at Herculaneum, Akroteri and Pompeii (e.g. House of the Balcony). However, it is equally likely, given the dominance of courtyard space within the Delian houses, that the courtyard would have been used for industrial activities rather than setting aside a special area for them. In turn this would ensure the maximum light being available for working and the central position within the house ensuring the ease of movement of both goods and people between a secure place for storage and the street door for transport away. Within houses of ground floor construction only, a more fluid use of space would be needed to combine household and other activities.

##### 5.4.4.1 Dyeworks III N

House III N was identified as a dyeworks by the canalisation of room c (no through-flow/drainage out, so the assumption is it was a dye vat) and the six tanks holding evidence of dyes in e (Figure 38). It is described as a house of 'curious disposition' by Bruneau *et. al.* (1965: 160) as it also contains a richly decorated 'andron' and anteroom, exedra, reception room and latrines and contains fine blue marble sculpture. The entrance to the building is not directly off Theatre Road but from adjoining alley γ. Room b forms an anomaly at the entrance to the dyeing area, as being placed directly opposite the entrance, it forms an exedra in plan and contains a large marble threshold sill and marble pillar surrounds. The blocked door between k and alley θ showing there was access to this unit at one time from Road 6 and remains of a rubble massif in alley γ outside may indicate the base of stairs (now lost) leading to an upper floor. 'House' features feature at the current back of the complex (once the front?) as visitors now have to cross through the activity areas (areas of drainage channels and tanks, c and e) to reach the large exedra (g) and room i with its *opus vermiculatum* threshold mosaics and ancillary room (j).



#### 5.4.4.1.1 III U

This house was identified as a dyeworks by dyel tanks in c and drainage tanks (4) at the back of the complex separate from the cistern (Figure 38). Stairs to an upper floor in alley δ 51 (adjoining b) indicate a shop arrangement or possible residential area above that of the commercial on the ground floor.

Tanks similar to those within both III N and III U have also been found within Rd1 1 (referred to elsewhere within this work as II Bc) (Chamonard 1922: 214) which may indicate its use as a shop or industrial complex, later attached to the adjacent house, II B.

#### 5.4.4.2 Presses

III O contains a large marble press (over a metre in diameter) and sunken storage jars used for collecting press product, found *in situ* (Chamonard 1922: 96) (Figure 39 and Figure 40). Press weights were found elsewhere in the building (in d). It was identified as a perfumery by Farnaux (1997 *pers. comm.*) though it was identified as having been have used for wine or oil production by Brun *et al.* (1997).

This evidence contrasts Delos with Pompeii, where residential areas did not contain separate commercial establishments though workshops, fulleries and bakeries were sited found within houses (Wallace-Hadrill 1994: 123).

### 5.4.5 Later (site) re-use

Installations also survive that indicate the transformation and re-use of house space after site abandonment:

#### 5.4.5.1 Pressing floors

A late installation of a pressing floor at the junction of Roads 5 and 6 is thought to date to the imperial era (Bruneau *et al.* 1981:150). Its placement was not possible during the Theatre Quarter's occupation as it completely blocks the route between the two roads (Bruneau *et al.* 1981: 145). Identified as a wine and oil press (Bruneau *et al.* 1981: 127) the development of the pressing floor is modelled from the annexation and change in Rd 5 shop 2. A similar pressing floor can be found in III I f/g though it is uncertain if this is a later development or was in place at the time of house occupation. The pressing floor of





Figure 39: Marble press and collection jars within III O  
(Scale bar (*right*) measures 0.50m total length)



Figure 40: Storage jars in III O  
(Scale bar (*right*) measures 0.50m total length)

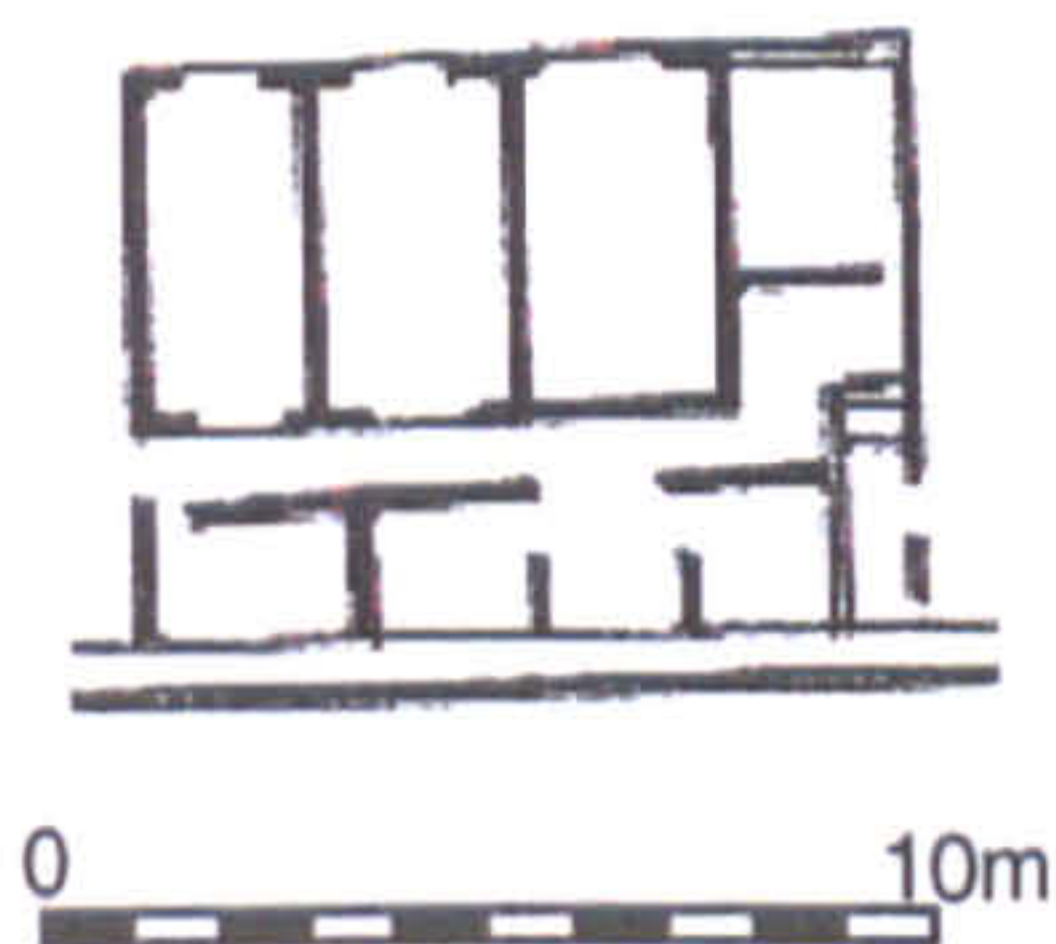


Figure 41: Hellenistic shop.  
(from Bruneau 1965, Plan 1)

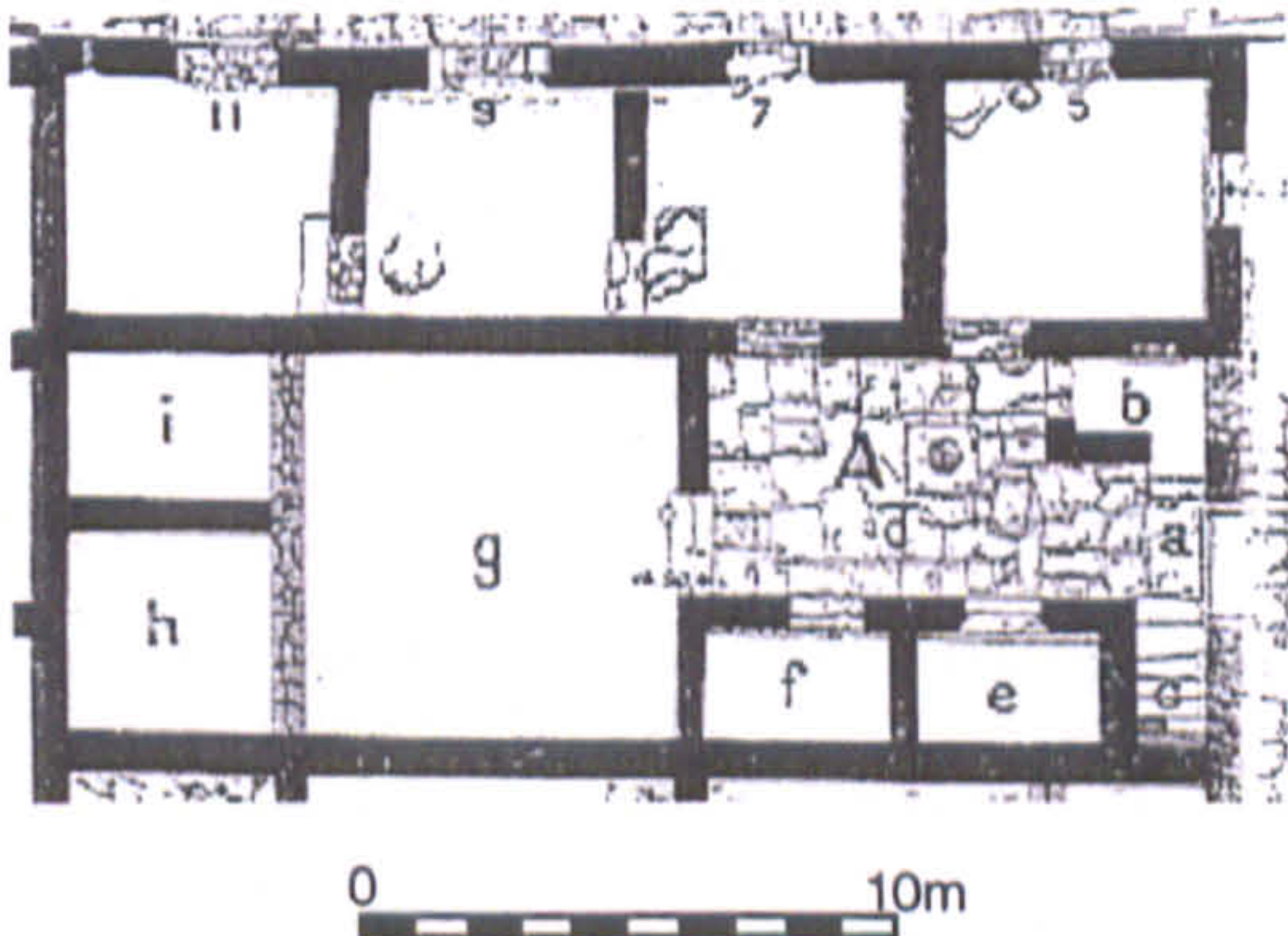


Figure 42: Plan of III A with adjoining shops (TR 5, 7, 9 and 11)  
(Chamonard 1922 Plates V-VI)



hydraulic plaster (with spout) is positioned at the top of the steps between areas f and g and the collecting tank beneath it.

#### **5.4.5.2 Foundry**

Numerous bronze scoria were found in VI Lg though no evidence remains of any associated metalworking installations. An oven/kiln remains in the courtyard of adjacent house N, and the two may have been linked.

#### **5.4.5.3 Potter's workshop**

VI Bg was identified by the kiln remains in one corner of the room, and the remains of a tank (lined with hydraulic plaster) in the other (for clay storage?) (Chamonard 1922: 214). This room also contained a large number of terracotta objects including large-scale statuettes, vases and lamps. Room g may have been open to the sky if the oven was to be used for firing unless there was a flue incorporated into the room (no evidence). It seems unlikely that a room at the back of the house with minimal light and ventilation would be used for pottery working. Dating of these features is uncertain and may indicate re-occupation of the house or its transformation from original residential purpose.

### **5.4.6 Shops**

Single-room units identified by their wide doorways opening directly onto the surrounding street. Chamonard (1924: 265) suggests their façades were closed by folding doors or shutters, with two large panels closing one on the other, hinged or secured by bolts. Split thresholds were common with either single and double door arrangements, one leading directly onto the stairs to the upper floor, the other to the ground floor area of the shop. Few shops have a back room (Chamonard 1922: 66) though it was common for there to be partial or full upper floors for storage or sleeping, indicated by beam holes in the walls for a mezzanine floor. Shops were rarely supplied directly with water (via a well, TR 10, 27, 42, 45 and Rd5 facing 10) though there are examples of exterior drainage indicating the use of water on the upper floors. The shops are of variable dimensions, some containing sunken storage jars (including TR4 and 14), presses, bowls (Rd5 10), mortars (TR4 and 5, STR1, Rd2 2) table legs and tops (TR41), though it is likely any extant portable items have been moved out of context. The storage jars



probably indicate trade in liquid commodities, though not exactly *what* was sold, in a similar fashion to sunken counter-top jars from the Roman sites of Pompeii, Herculaneum and Ostia (Adam 1994: 321). Some of the table tops found also held measuring channels for liquids.

The majority of the Theatre Quarter shops are to be found on roads surrounding and between the insulae for maximum accessibility to passers-by between the commercial shoreline, agora area and the theatre (Figure 37). Shops are also to be found associated with individual houses e.g. Diadumene House, and are not restricted to being placed along the edge of insulae. Over eighty shops have been counted within the Theatre Quarter by French School excavators (Bruneau *et al.* 1996: 105), the most numerous from any area on the island. Shops are also positioned around the island's main agora and a complex identified as a 'Hellenistic shop' by Bruneau *et al.* (1965, plan 1) (Figure 41) located in the Sanctuary of Apollo. It is a large construction (approximately twenty by fifteen metres in size) and appears to contain a series of single-room units fronting a corridor and collection of smaller rooms placed behind them.

#### 5.4.6.1 House links

Several shops have doors adjoining adjacent houses. III A provides an example of a series of interconnected shops leading off a small house and courtyard area (Figure 42). It was probably a small residence combined with commercial properties and interests. It may also have functioned as a place of storage for the attached premises. Spatial proximity does not necessarily indicate functional links between shops and houses, shop areas simply form another unit sharing party/common walls within the insula block. However, open doorway access between shops and neighbouring houses *does* indicate functional links between the two. It is possible the owner of the house was also proprietor of the shop, supplied goods for sale, or oversaw associated slaves or freedmen who ran the enterprise on his behalf. Relationships between shops and houses are likely to have changed very rapidly over time.

Houses and shops with interconnecting doors could also potentially function as separate units and changes in associations between adjacent shops and houses can be seen in the doorways between them being blocked. The only examples of windows positioned



between shops and neighbouring houses within the case study area is that of shop Rd 1 7 and adjacent house II D (room g). No doorway (blocked or otherwise) divides the premises and it can be assumed the height of the windows (1.74 and 2.01m above ground level) were used for illumination of the house rather than any possible observation between the two.

House and shop complexes were also combined elsewhere on the island. The Fourni House, situated towards the south of the island from the Theatre Quarter, provides such an example. It is a building of vast proportions and built across three different levels up the hillside. A series of shops fronts the complex on lower level and run parallel to the road. Other shops front the building on the ground floor, one containing a reservoir and a small courtyard. The upper level includes numerous small service rooms possibly used for farm workers or slaves. Seal House, sited north of Ilot of the House of Comedians, combines residential and commercial areas within the bounds of the building. The ground floor has been identified as work space and an area for commercial storage; its is simply decorated and several rooms are crammed with amphorae, far more than the number needed for domestic use, perhaps being linked to trade in wine (Rauh 1993: 216). In contrast the upper floor was richly decorated and identified as an office and residence suggests the house was owned by Italian bankers or traders and their associates. The discovery of in excess of fourteen thousand ring seals secured its identity as being part of a commercial enterprise (Rauh 1993: 217).

#### 5.4.7 Discussion

Bruneau (1968: 700) suggests that evidence for industry across the site dates to *after* the abandonment and the destruction of neighbouring buildings. Evidence from the Theatre Quarter houses reveal areas for industrial process alongside highly decorated rooms, the latter suggesting either residential or entertaining purposes. Without scientific dating we are unable to say for certain whether both areas were used concurrently. Given the nature of the Hellenistic town, and range of available evidence, it is highly likely that at least some of the Theatre Quarter buildings identified as houses were used for residential as well as commercial and/or industrial activity in addition to household production.



Delos' farm economy is next considered. Epigraphic evidence locates the island's temple estates and details agricultural produce and the labourers associated with them.

## 5.5 Farming and agricultural processing

Exceptional epigraphic evidence survives from the treasury accounts of the Delian Temple of Apollo, its farming estates situated on Delos and the neighbouring islands of Rheneia and Mykonos. Daily and monthly accounts kept by temple officials (*hieropoioi*) survive from 314 to 140 BC and beyond (including those from the *Hiera Syngraphe* stele found near Colossus) though no private leases, if there were any, survive with which to compare the temple accounts. Information is recorded for estates dealing with animal husbandry and crops, the Sacred Lake (a temple fishing ground), a manufacturing quarter, orchard (*Kerameia* and *Phytalia* estates respectively), grazing areas (Kent 1948: 254) and gardens situated at the edge of the city (Le Dinahet 1986: 72). Records include rents (and changes therein), renewal agreements and dates, price fluctuations, and inventories of buildings, animals, vines and trees for both estates and isolated farms.

Though not all identifiable estates have records surviving, extant information provides us with a unique insight into ancient farming on Delos and its surrounding islands. In combination with archaeological evidence from rural structures and field boundaries the intensity of past land use can be investigated. These records also indicate the position of temple estates in relation to the Theatre Quarter and larger city, identify the range of animals and crops raised on the farms, and provide information regarding inhabitants (lessees, guarantors and bankers) living and trading on the island. This ties in with work on commercial enterprise supported by the island's inhabitants, and the movement and supply of trade and market goods between the farms, port and inhabited quarters. Only a partial picture of the farming estates can be gained, however, as only temple-owned items from the landholdings are listed (Kent 1948: 291). Personal property, slaves and privately-owned animals from which a fuller picture of the agricultural establishments could be gained are therefore missing from the records.



### 5.5.1 Estate location

The majority of the Delian estates are positioned to the south of the island. It appears that maximum exploitation of the terrain was made in placing them, with flat land for grazing (the *Leimon* estate on the east coast, and *Korakiai* to the west) and terracing for vines (the *Phoinikes* estate to the east) (Figure 43).

Re-organisation of temple administration c290 BC reveals additional properties added to the list of temple estates (Kent 1948: 286). Further new properties appear in the temple records after 166 BC (increasing the number of estates from ten to sixteen) indicating possible subdivisions in existing plots or new land being acquired (Kent 1948: 318). As Delos' prosperous city expanded during the mid-second century there was an increased need for new building and a consequential reduction in agricultural land, both private and sacred. It is likely that under these circumstances land previously given over to farming was developed and built up with houses (Kent 1948: 252). Five estates bordering the inhabited quarters (*Phytalia*, *Kerameion*, *Ghlastropi*, *Lykoneion* and *Sosimacheia*) indicate such a possible change, though their placement is not assured.

Each of the Delian estates are listed as containing main farm buildings (Kent 1948: 299ff.), each divided between habitation and work areas (Bruneau *et al.* 1996: 81) as well as store and work houses. Epigraphic evidence reveals the names of lessees occupying such estate houses though it remains virtually impossible to match houses and their inhabitants. Other buildings listed are store houses - granaries, bake and mill houses - and animal shelters (for sheep and cattle). Osborne (1985: 126) considers the farm buildings themselves to have been places of temporary residence, perhaps at times of harvesting, storage or pressing. The buildings were isolated within plots of land and may have been multi-purpose, (e.g. Figure 44) depending on the time within the agricultural season (Osborne 1985: 126).

### 5.5.2 Produce

The main produce from the temple estates was livestock (sheep and cattle), grain, grapes and figs, though few estates produced all of these. Delian estates where production details survive include those dealing in livestock (*Leimon* and *Soloe-Korakiai*) and those combining animal husbandry with grain and vine production (*Phoinikes* and



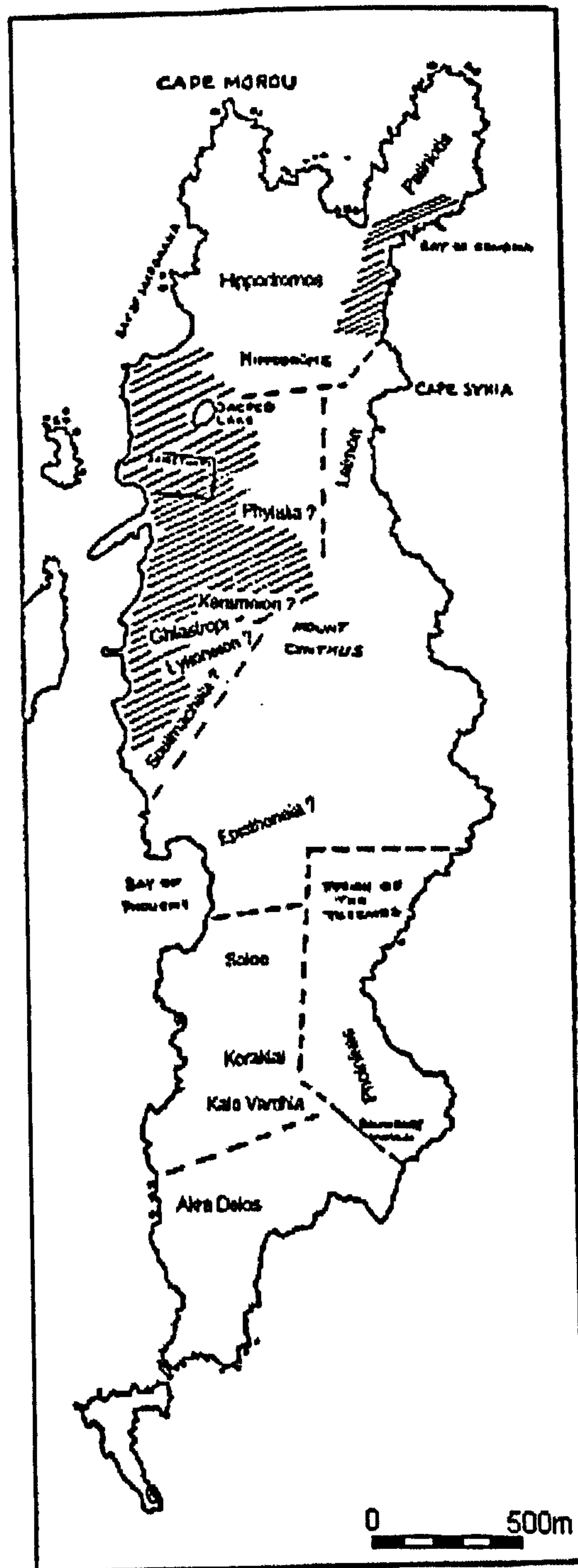


Figure 43: The Temple Estates on Delos.  
(Adapted from Kent 1948: 253, Fig. 5).

Estate names are indicated in lower case letters, those with uncertain placement are followed by question marks.

The shaded areas represent the main areas of habitation on the island, surrounding the sanctuary and Sacred Lake, and the Stadium Quarter (*top right*).



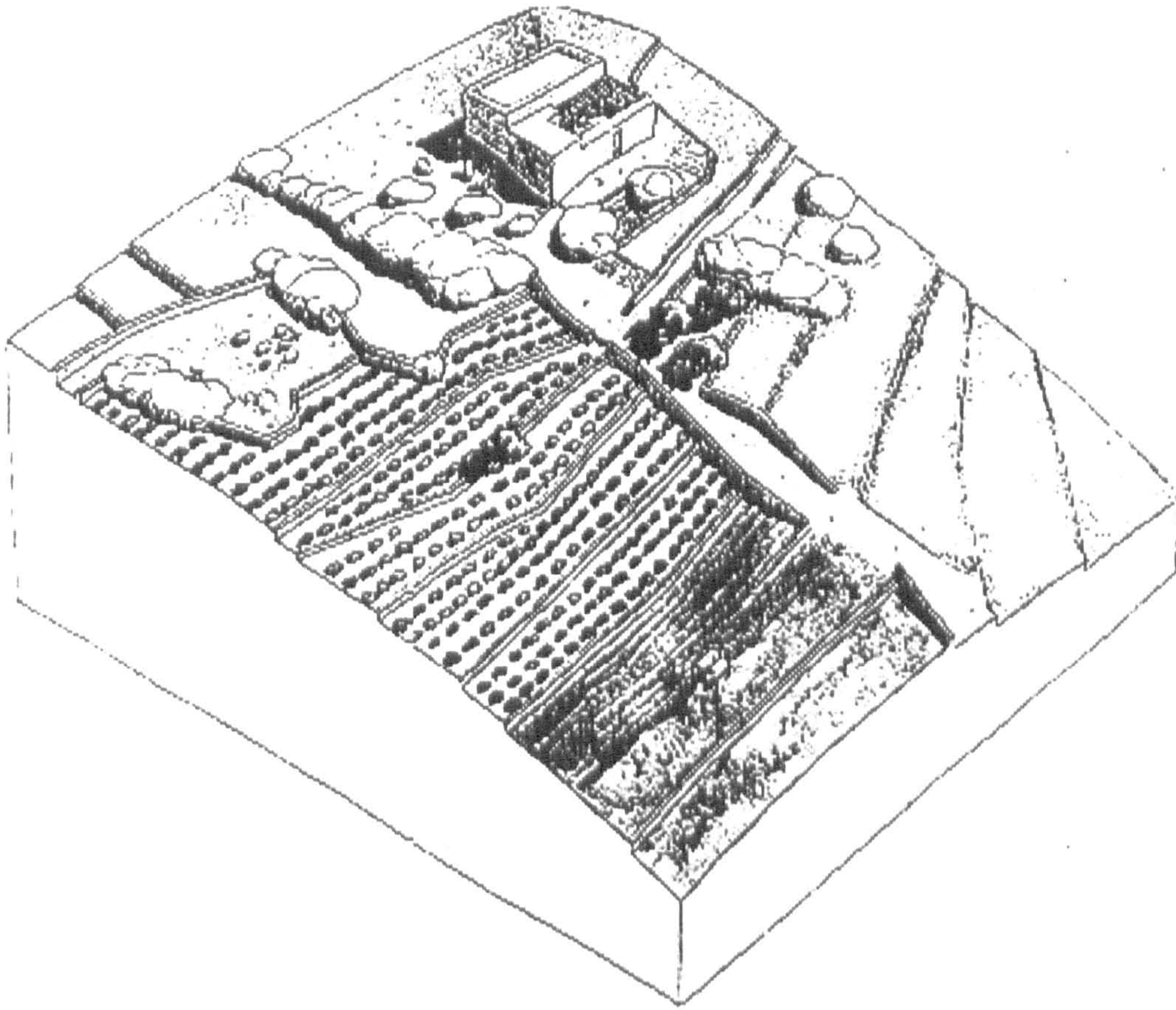


Figure 44: Sketch of imaginary farm to the south of Delos; includes farm enclosure, terracing, animal pens and ploughing  
(Bruneau *et al.* 1996: 93)



*Hippodromos*). In addition, the *Hippodromos* estate (to the north of the island) is recorded as having bred horses for races held at the nearby Hippodrome (Kent 1948: 255). The *Kerameion* estate is listed as a manufacturing establishment, possibly a potter's quarter, with attached garden (Kent 1948: 301). Neighbouring Rheneian estates, larger than those on Delos, concentrated more on vine production, in excess of 16,000 vines being listed in records dating from 350 BC (Kent 1948: 291).

Movement of goods from these estates would have been by means of animal-drawn carts, towards the market and port area on the island's west coast. It is likely that an exchange of goods took place between Delos, Rheneia and the temple estates on nearby Mykonos, with Delos acting as a regional exchange centre for its neighbours (Reger 1994: 4, 52). This is supported by Brunet's (1990: 680) consideration of local farm produce, with Delos producing relatively few cereals in comparison to other crops, though its farm complexes contained equipment with which to mill and crush grain.

Reger (1994: 101) considers that production from the temple estates and farms could feed the majority of Delos' population and considers the Cyclades to have been nearly self-sufficient in grain. Delos' status as a free port (after 166 BC) may have acted to draw additional trade to the area, reducing the need for a reliance on distant supplies.

### 5.5.3 Lessees

Delos held a large resident alien community, spurred on by the island's growing economic importance. Kent (1948: 319) notes that most of the later named estate lessees recorded were Athenian and a large number of them were known to have held positions of civil responsibility in Delian public affairs. Understood to be men of considerable wealth and social standing, possibly merchants, he goes on to suggest, and this argument is accepted by Osborne, that they may have invested in land holdings as a secondary business to provide them with additional income (Kent 1948: 266, Osborne 1985: 125). Kent (1948: 314) emphasises the prosperity of the aforementioned landholders:

"Delos was inhabited, not by a native population whose interests centred chiefly in the sanctuary of Apollo and in a moderately prosperous trade, but by a motley throng of foreigners whose chief purpose of residence in the island was to make as much profit as possible from the commercial advantages of a free port."



Reger (1994: 60) notes that the estate leases include foreigners as contractors as well as those wishing to rent or buy property:

“The success of these foreigners in obtaining Delian guarantors bespeaks close ties of either wealth and friendship or – perhaps more likely – intermarriage and more distant kinship.”

The estates themselves are generally considered to have been worked largely by slave labour (Kent 1948: 280, Osborne 1985: 125, Rauh 1993: 4) and Bruneau suggests that slaves or overseers may have occupied the farm buildings while the estate owners held residence in the city (Bruneau *et al.* 1996: 83).

While Kent (1948: 313) believes Delos to be unlike other sites either island or mainland in terms of land or trade, it is clear its unique status within the Aegean was bolstered by its agricultural production.

## 5.6 Conclusions

Delos was a site of piecemeal planning and organic development. Its town was developed across a geographically disperse area and its constituent buildings were constructed at different times. Consecutive building on top of the same foundations and material re-use with buildings erected to fill in the gaps and maximise the space available. The island contains areas of regular layout and design as well as those which are uneven and appear unplanned. Areas of housing in particular are compact, with the maximum number of houses fitted into the available space providing accommodation for the maximum number of people possible.

Placing housing around the agora and adjacent to the Merchant's Quarter on the western shore ensured the ease of movement of trade goods to where they were needed, as well as promoting the integration of residence and industrial activity. Given the compact nature of the site, workers and their local accommodation were never far from their places of work or trade. The island does not feature a specific area in which its industries were located. Industrial and processing installations were placed within shops and houses, leading to domestic/familial associations being directly linked to and serving the needs of the population (Déonna 1948: 86) for which the processes were not always specialised. This also distributes the areas of industry and commerce, evident throughout the Theatre



quarter within shop placement, containing mill sites and sunken vessels indicating trade in grain and liquid. Farming estates were also close to city and ensured a short journey from the nearest harbour for the transport of crops to market.

The influx of tourists and merchants to the island bolstered its trading economy, bringing more money to the temple's coffers, and the pockets of resident businessmen. Trade goods made locally by artisans or imported via Aegean and Cycladic sailing routes underpinned the economy, all of which impacted on the lucrative service industries established and maintained for visitors.



# Chapter Six

## The Use of House Space

### 6.1 Introduction

This chapter investigates the use of house space within the Theatre Quarter insulae through the combination and interpretation of house plans and elevated site remains. It begins by tracing the development of the Theatre Quarter area. A detailed study of the area's published plans follows; including the division of space into houses, rooms and shops; and focuses on indicators of room identification or function. Evidence for property division and amalgamation is then considered which demonstrates the dynamic nature of house form and the range of architectural adaptations made during the phase of Hellenistic occupation. Changes in layout and accessibility are apparent through blocked doorways positioned between and within houses, and between houses and adjacent shops.

Focus then turns to the division of interior house space into suites of rooms, exploring evidence for the multiple occupancy of single houses. The possibility that the provision of separate accommodation was influenced by, or reflected gender considerations within the household is also examined. A study of the provision and collection of water within the houses adds valuable social detail and links with the use of the upper floor rooms. A further interpretative section deals with the combination of house and industrial and commercial building space, reinferring the adaptive and dynamic nature of the properties investigated.

A study of extant and recorded floor and wall decoration links ground level and elevated features and provides a more comprehensive picture of interior house decoration than current site remains allow. The theme of multiple occupancy is continued through a study of archaeological and architectural evidence for the presence and use of upper floors.

The chapter concludes with a detailed analysis of what information the Theatre Quarter insulae provide regarding the use of their house space. Matching the occupants' projected requirements to the archaeological evidence indicates the



flexible use of house space as influenced by building layout as well as temporal and environmental factors.

## 6.2 Theatre Quarter background

The Theatre Quarter is the largest residential district on Delos, located between the agora and the theatre (Figure 22). The plan of the area is crowded and irregular, consisting of a series of insula blocks surrounded and intercut by narrow roads and alleys. The Theatre Quarter is built on a double slope, reaching down from Mt Cynthus and towards the island's sanctuary to its north. The underlying topography is composed of granite which outcrops across the site. It is the oldest of the residential areas on the island, re-established during the island's time of independence with the majority its houses dating from the mid second to mid first centuries BC.

Occupied for c150 years many of the houses contain evidence of structural alteration (Chamonard 1922: 67). Though indicators for the site's previous occupation differ across the insulae, early floor levels and pits within buildings (Bruneau 1968: 669) and sunken walls below excavated floor levels reveal that the Hellenistic town was not the first development on the Theatre Quarter site.

Chamonard (1922: 69) considers it natural that the areas near the port and the sanctuary should be the first to develop and were inhabited first. Early shoreline shops and warehouses were later replaced by public buildings as the site developed to deal with more traffic. The main residential area developed inland along the line of the road linking the theatre (built during the third century BC) with the commercial port areas. Space between the shore and theatre was progressively inhabited, starting at the northern end of Insula III and expanding both north and eastwards inland as well as southwards along the coast (Figure 45). The developing insula blocks followed the topography of the underlying hill but without a regular plan. Houses were added one to another in the style of 'mushroom growth', covering all available free terrain.

The Theatre Quarter streets are narrow, crooked, and have drains running along their lengths. Road 5 and Theatre Road form the main routes between the port and theatre areas and are the only two paved roads within the area. Shops appeared along the edges of thoroughfares hoping to attract passing trade. Road systems similar to that of the Theatre Quarter can be found elsewhere on the island within the Lake, Skardhana and Inopos Quarters, reflecting the use of beasts of burden for transport. The roads are



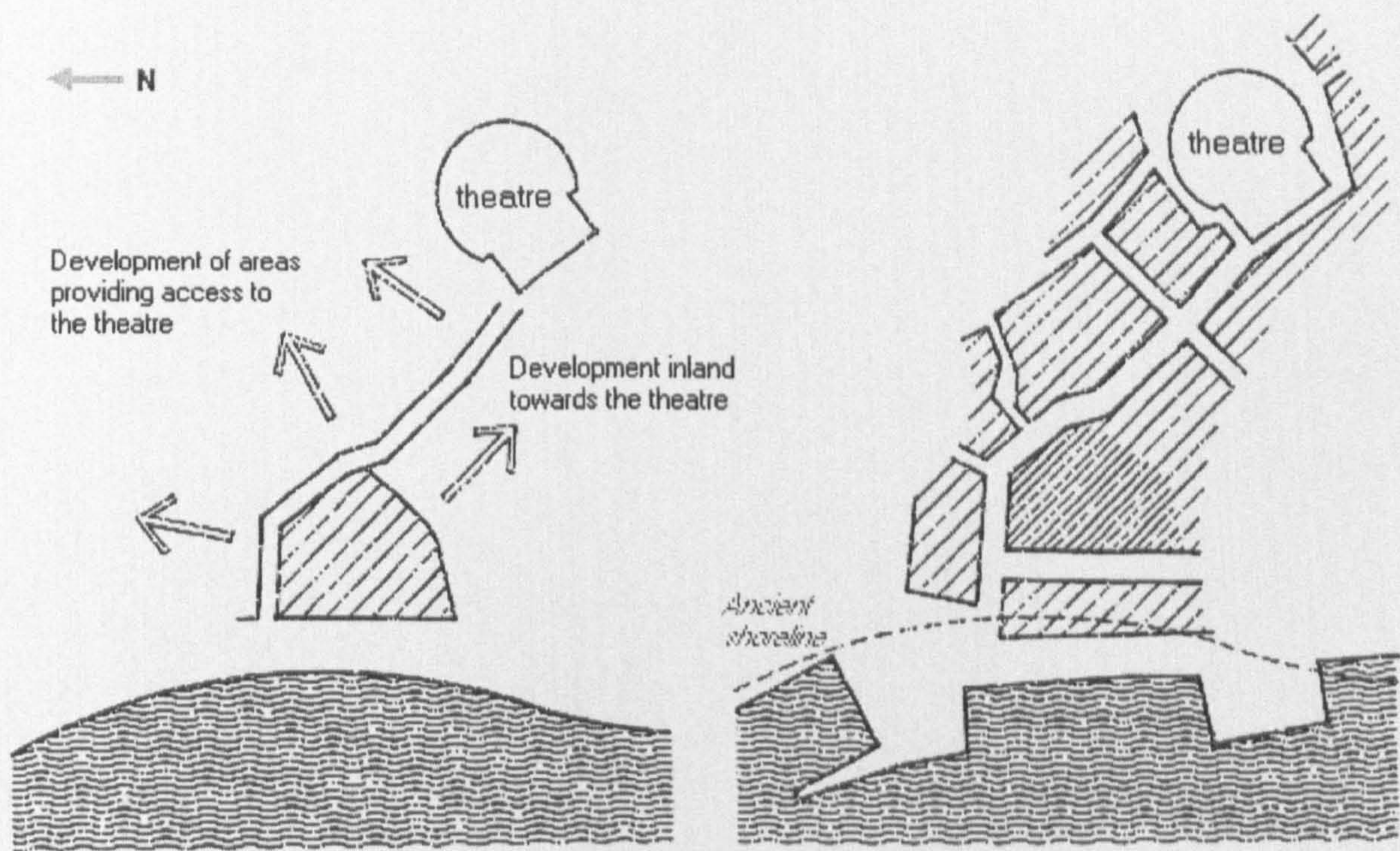


Figure 45: Sketch showing the development of the Theatre Quarter.  
(Adapted from Bruneau et al. 1996: 36)

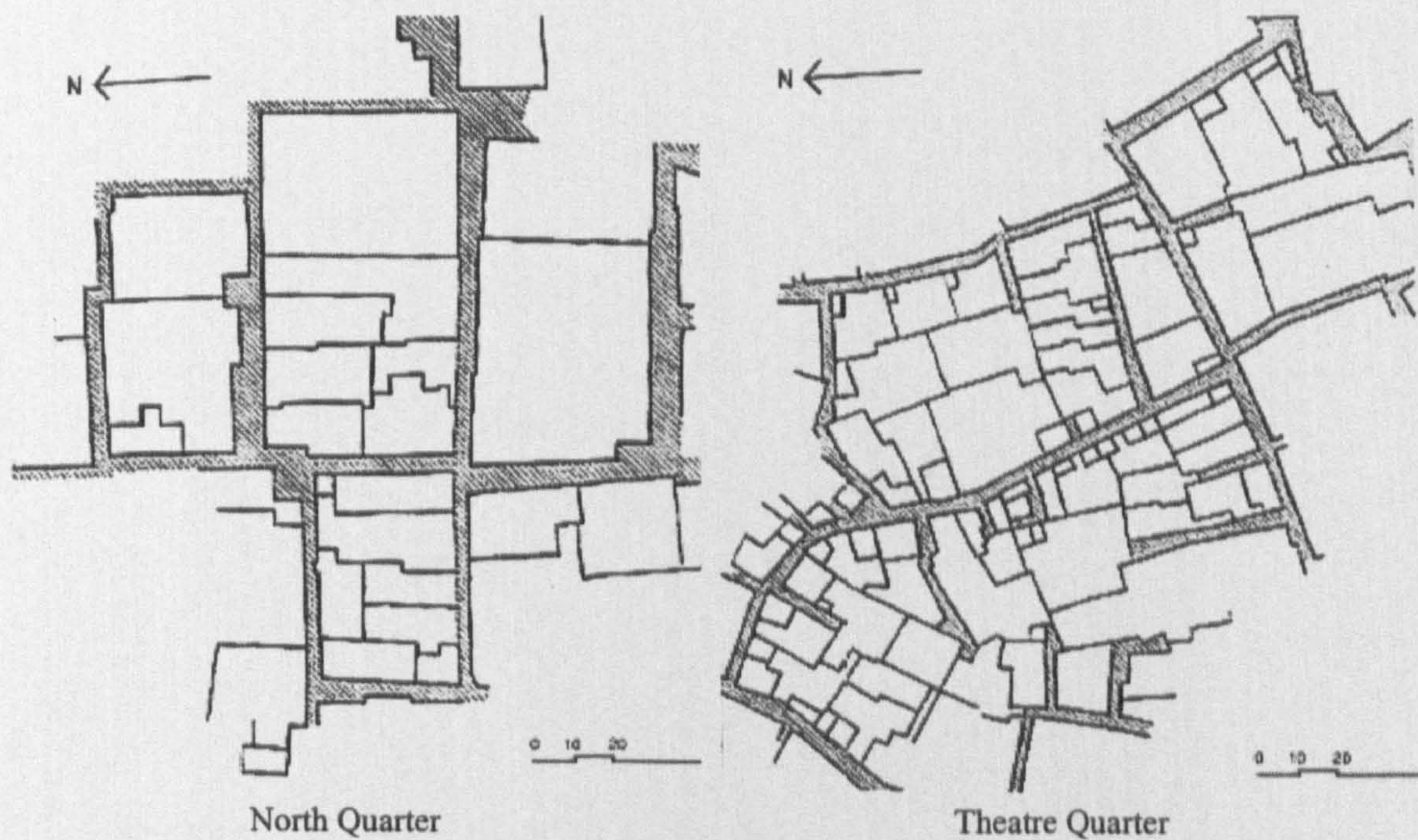


Figure 46: A comparison of layout between the North Quarter and Theatre Quarter insulae.  
(Bruneau et al. 1996: 65)



too narrow, and in some cases stepped, to permit the movement of wheeled vehicles, though roads elsewhere around the agora and sanctuary are wider to accommodate greater volumes of traffic.

The irregularity of the Theatre Quarter's house and street plan is accentuated by the slope in its bedrock (Martin 1982: 237), providing little possibility for spacious planning or layout. Both insula blocks and individual houses are extremely uneven in shape with informal and asymmetric room arrangements, contrasting with the grid plan of buildings from the island's North Quarter (Figure 46). The later North Quarter insulae are more regular and grid-like in their arrangement suggesting an overall plan was envisaged for the area at the time of their construction in comparison with the piecemeal 'agglomerative' construction of the Theatre Quarter.

Three complete insula blocks of the Theatre Quarter, II, IV and VI, have been excavated along with twenty houses of a fourth, Insula III. These form the case study material analysed within the following chapters. Insulae I and VIII, adjacent to, though outlying the others, have also been partially uncovered:

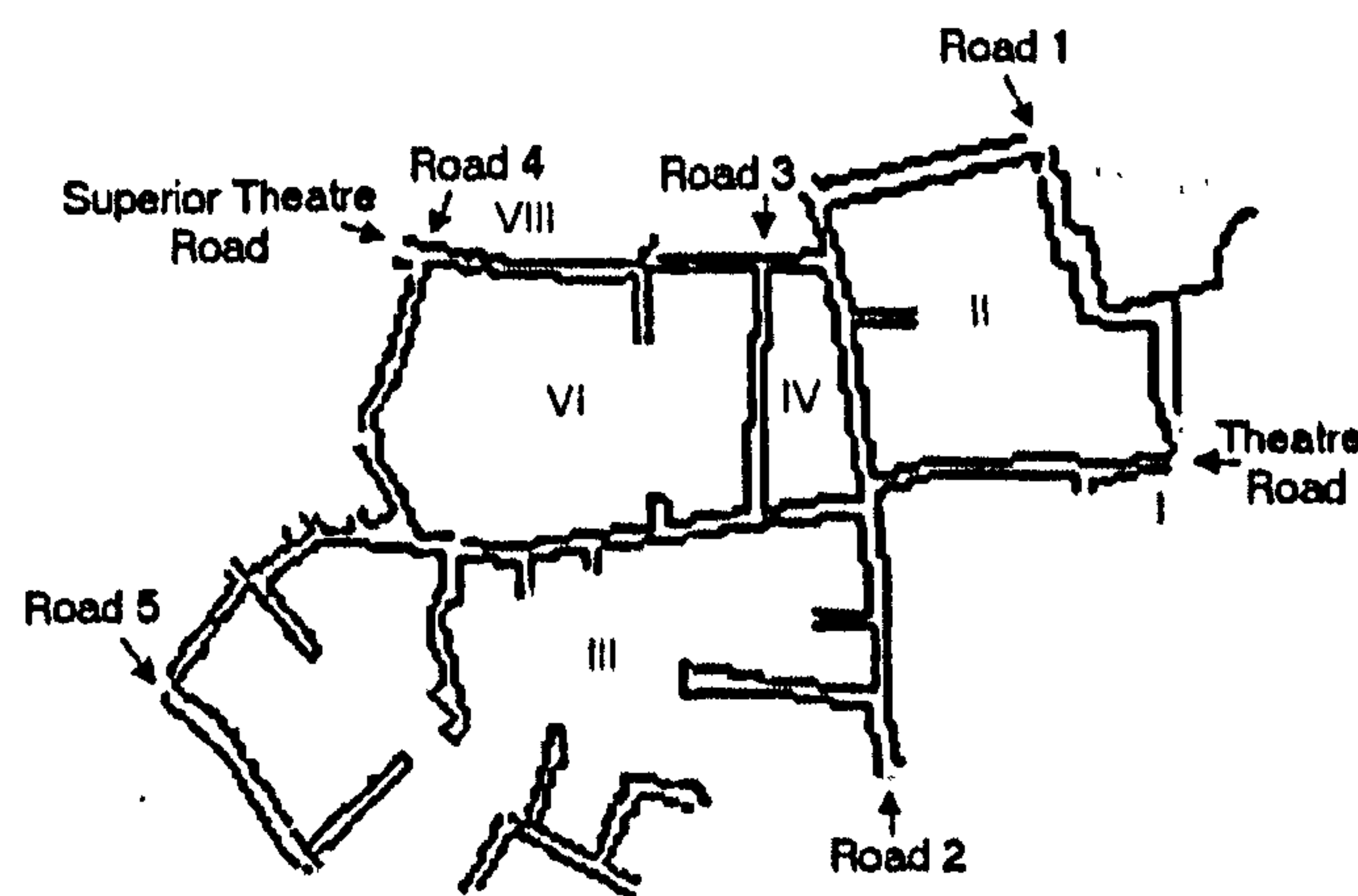


Figure 47: Sketch of the Theatre Quarter showing the position of roads in relation to the insulae.

Each insula contains examples of blocked doorways and changes in access within and between the houses. Shop conversions to house entrances and rooms, and vice versa, feature along main thoroughfares indicating the varied adaptation of house space and similarities between each house block. The following paragraphs provide a brief overview of each of the Theatre Quarter insulae, covering their layout and suggested development as evident through their constituent buildings:



### 6.2.1 Insula I

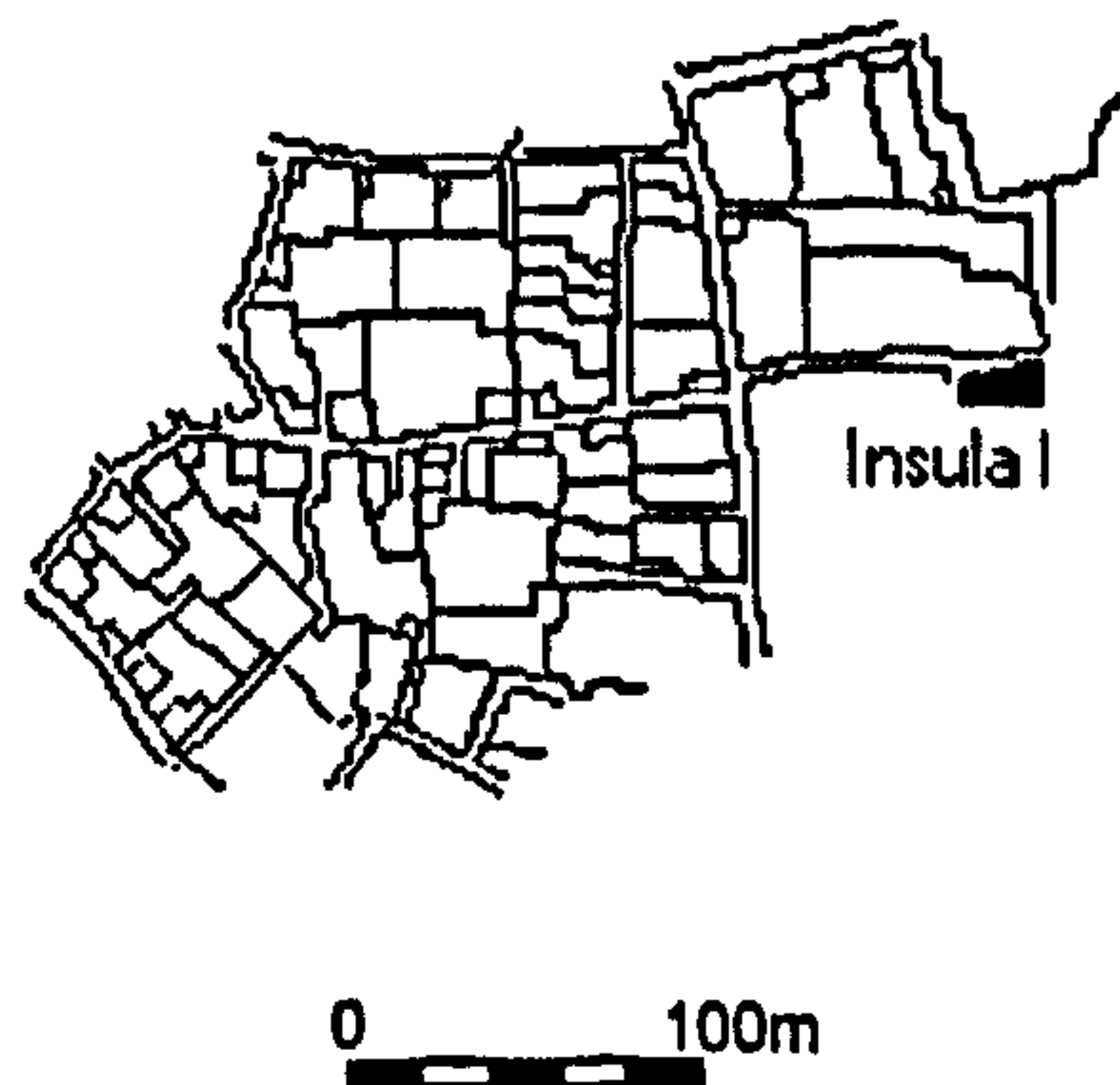


Figure 48: Sketch of the Theatre Quarter showing the position of Insula I.

Only partially excavated; this block is bound by Theatre Road to its east, and Road 2 to its north. Its extent towards the west isn't yet known, and may continue along Road 2 towards the shore, opposite Insula III (houses A-C). A single house from this block has been excavated, at the time of the theatre's discovery in 1893. Located opposite II B its double threshold street door opens directly onto the courtyard area and retains evidence of fire damage - its well coping was found entirely charred (Chamonard 1922: 26). The walls of the house are poorly conserved and hold evidence of having been destroyed and rebuilt at different times (Chamonard 1896: 315).

### 6.2.2 Insula II

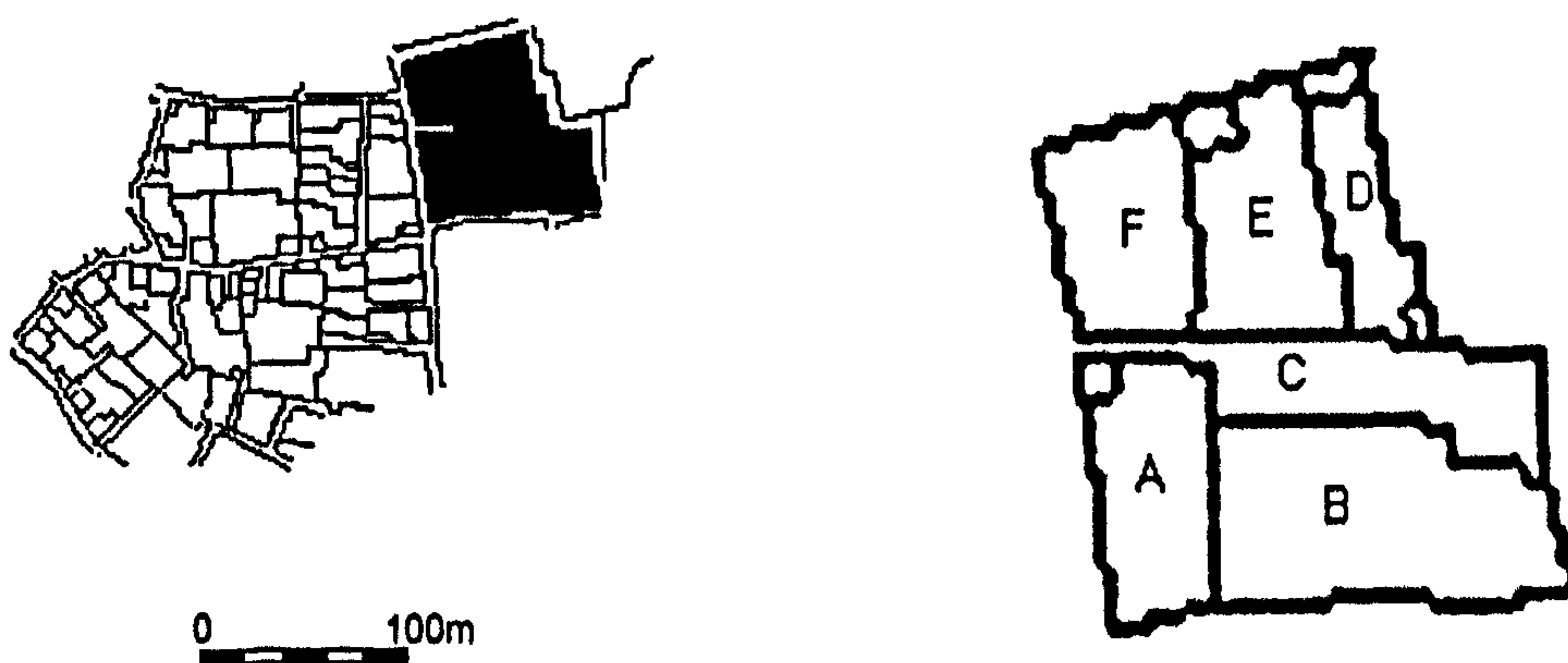


Figure 49: Sketch of the Theatre Quarter showing the position and house labels of Insula II.

Located adjacent to the theatre, this block comprises of 6 houses and 5 shops. It is bound by Theatre Road and Superior Theatre Road to its west and east, and by Roads 1 and 2 to its south and north. The insula block covers an area of similar proportions to that of Insula VI, though containing only six houses verses Insula VI's fifteen. This insula contains only houses with peristyle courtyards and reveals the most evidence about the reshaping and re-organising of house interiors. Construction work within



houses B, E and F was interrupted and the re-use of peristyle materials within their courtyards is apparent. No ancient foundation walls feature within the houses and the block provides little evidence for its occupation beyond the dates of the site's ruins (Chamonard 1922: 27).

### 6.2.3 Insula III

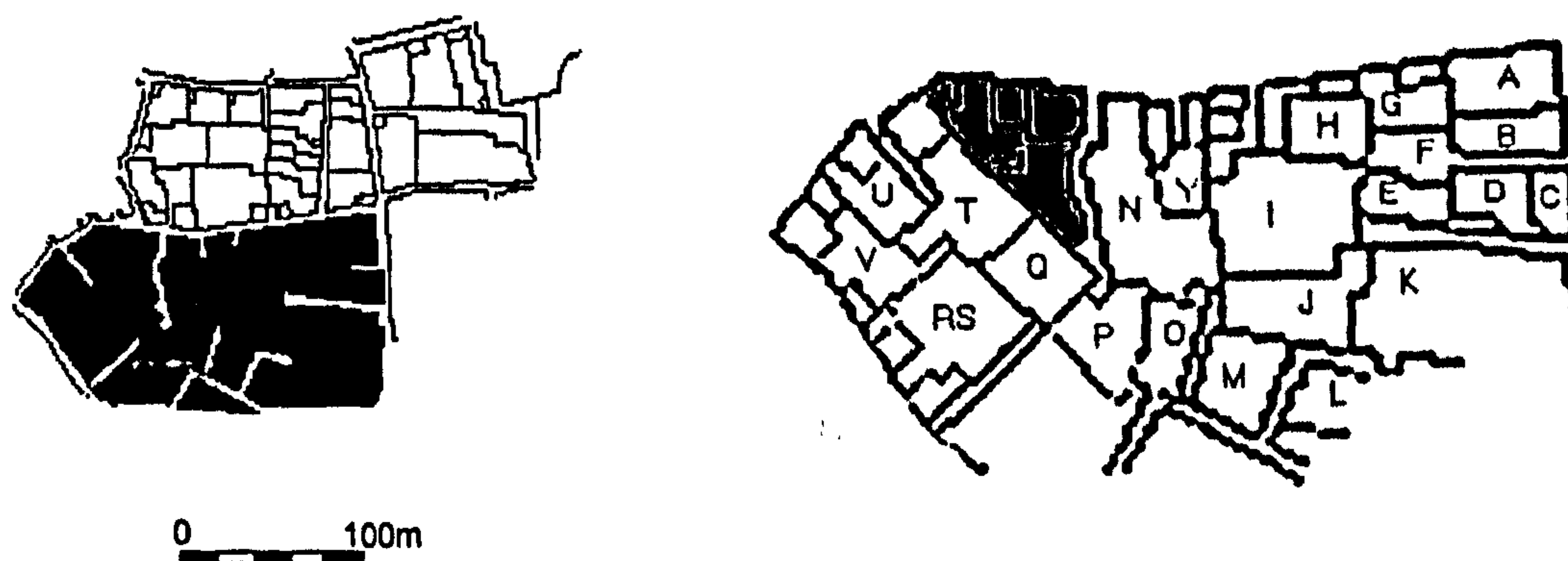


Figure 50: Sketch of the Theatre Quarter showing the position and house labels of Insula III.

This block, the earliest to develop within the Theatre Quarter, contains 24 houses and c30 shops. It is limited to the east by Theatre Road, Road 2 in the south and by Roads 5 and 6 along its north and west edges. Roads 2 and 6 are not cleared to completion, nor houses K and L, and the confusing extent of area P's plans affects the clarity of the insula plan along its western and southern edges. The insula is a deep block of houses in different orientations, many of their entrances being reached via alleyways. Houses A-N form a large rectangular block of buildings, houses O-U forming a second group, placed at an acute angle to the others. The land between the two areas forms a triangle in which house X and a collection of shops are sited (*above*).

This insula is different in character to those east of Theatre Road (II, IV and VI). For the most part it contains the residence of shopkeepers or small householders (Chamonard 1922: 37). Shops facing along both Theatre Road and Road 5 attest to this. The block contains only two peristyle houses - III I, Cleopatra House; of lesser proportions than other peristyle houses on the island; and III J, a cramped and awkward imitation. Foundation walls found below G and H provide evidence for the site's early occupation, so too archaic pot sherds found in its excavation rubble containing funerary ware similar to that of the Rhenian necropolis. Other ceramic ware found in the northern part of this insula dates back to the seventh century indicating that it was utilised since that time.



### 6.2.4 Insula IV

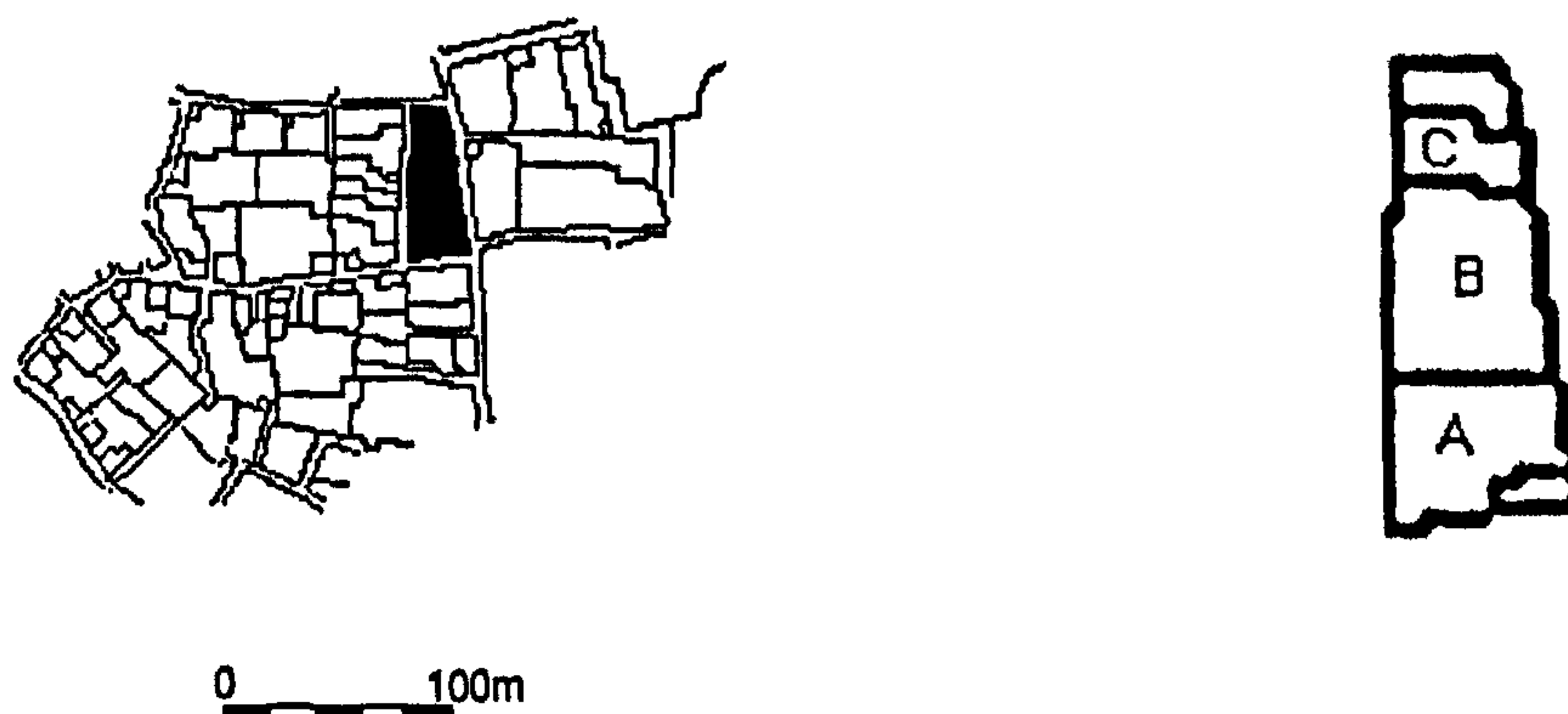


Figure 51: Sketch of the Theatre Quarter showing the position and house labels of Insula IV.

The smallest of the excavated insulae, this block contains 3 houses and 6 shops. It is bounded by Theatre Road to its west, Superior Theatre Road to its east, Road 3 to its north and Road 2 to its south. House B covers almost half the area of the insula, and is the only one of the three houses with a peristyle courtyard. Its two vestibules permit access to the residence from both Roads 2 and 3. Similar to Insula II, this block contains examples of interior building modification but no trace of earlier site occupation were found, suggesting perhaps the upper part of the area (to the east of Theatre Road) existed from the beginning of the Hellenistic Period onwards.

### 6.2.5 Insula VI

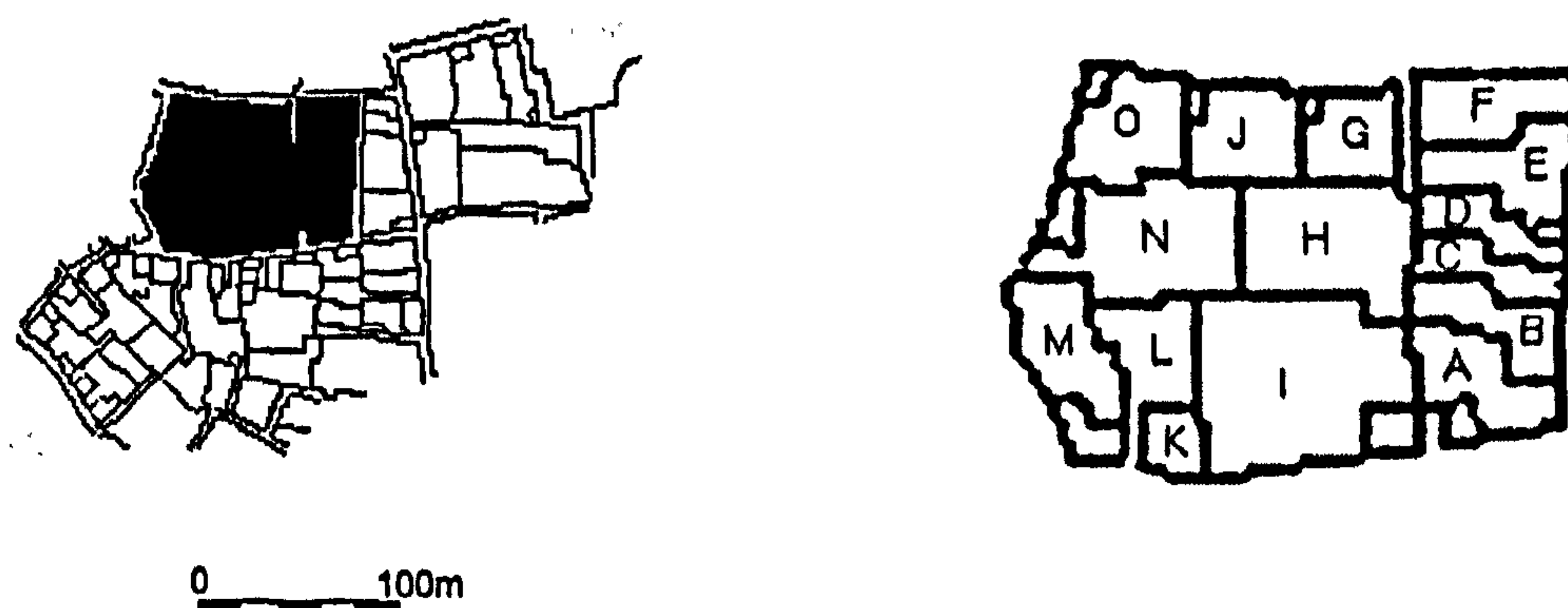


Figure 52: Sketch of the Theatre Quarter showing the position and house labels of Insula VI.

This block consists of 15 houses and *c*12 shops, bound by Road 4 in the north, Road 3 to the south, Theatre Road along its western edge and Superior Theatre Road to its east. It contains the largest variety of houses within the Theatre Quarter, from four-roomed house K to neighbouring I, the House of Dionysus, with twelve ground floor rooms, peristyle courtyard and a rich impluvium mosaic.

The insula is clearly divided into two groups of houses, A-F and G-O, separated by an east-west wall almost 20m in length. It is likely the two areas developed separately,



possibly houses G-O before A-F (*above*) as construction developed from Road 5 inland towards the theatre and its surrounding area. Houses A and F at both the top and the bottom of the first group are the most spacious, and those in between have one room placed behind the other, small courtyards and no peristyles, similar to narrow strip-like houses. The courtyards of B-F are aligned and it is possible these houses were originally developed as a single unit with a common roof level. With the exception of K, the majority of the houses within the G-O group are large, containing numerous ground floor rooms with courtyard types ranging from lean-to's to peripteral peristyles. The double wall feature between K and L suggests that K was a later addition to the block. Houses L-N at the northern end of the block contain both blocked and open doorways within their common walls suggesting extensive links between them. Numerous examples of interior modifications remain and traces of previous occupation have been dated prior to the Hellenistic town.

### 6.2.6 Insula VIII

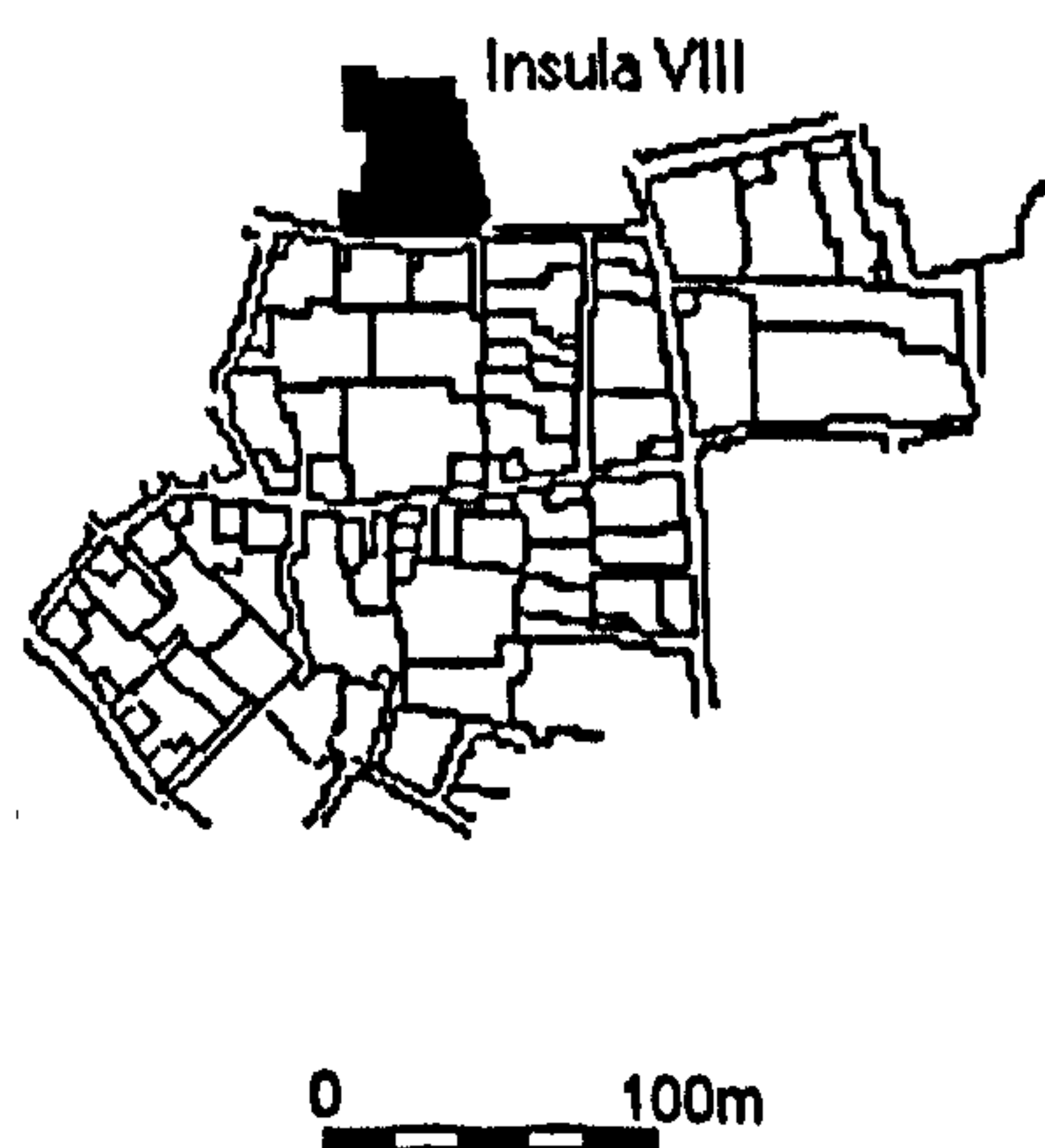


Figure 53: Sketch of the Theatre Quarter showing the position of Insula VIII.

Only partially cleared, several houses from this block have been excavated bordering Superior Theatre Road and Road 4 though its limits to the north and east are not yet known. The houses excavated adjacent to Superior Theatre Road are similar in layout to the other Theatre Quarter insula, with vestibules, courtyards, three-room suites and upper floors (Daux 1959). Vast shops of regular plan border both Theatre Road and Road 4 within this insula, pointing to its extensive commercial enterprise.

This information indicates that the Theatre Quarter was an area of extensive change and development, as reflected in the area's housing. The following sections provide an in-depth study of the house ground plans, and combines them with standing remains to provide an interpretation of the use of the site's domestic space.



## 6.3 Plan analysis and interpretation

The published site plans for the Theatre Quarter (Figure 54 and Figure 55) provide a wealth of information including both ground level and elevated house features. They show the area within the Theatre Quarter excavated by the French School at Athens between 1893 and 1906, covering the main case study houses, three complete insula blocks (II, IV and VI), and twenty houses of a fourth (Insula III). Additional insulae bordering these, to the north-east and south, remain largely uncovered, so too large areas of housing to the immediate south.

Details illustrated on the plans cover the position of walls (including those surviving only in foundation) and wall abutments, doorways and blocked openings. The plan keys include ‘recent walls’ (*murs recent*), indicating simple phasing noted during the excavations, and also the presence of ‘low walls’ (*murs bas*). Differences in construction and flooring materials are also shown, as are water and adduction features. Pillar placement and accompanying stylobate paving is included as well as sill stones, well coping, presses, and sunken storage jars. The presence of uncut rock indicates the difficulty faced in levelling the underlying granite bedrock, or perhaps in some cases indicates areas that were under construction when last in use. Spot height measurements illustrate the significant differences in height across the housing area. Above ground level extant stairs, the position of windows and niches within surviving walls and the placement of drainage channels from roofs and/or upper floors are indicated.

### 6.3.1 Labelling conventions

I have followed the plans labelling adopted by Chamonard throughout (1922: iv), except when explicitly stated otherwise. The insula blocks and surrounding roads were the first features to be explored and were labelled according to their position in regard of the theatre. The first road uncovered within the area, ending at the theatre’s stage building is the *Rue du Théâtre*, (herein termed ‘Theatre Road’ and abbreviated to ‘TR’). Running parallel to this, the *Rue supérieur du Théâtre* (herein termed ‘Superior Theatre Road’ and abbreviated to ‘STR’) originates at the theatre ramp. Odd-numbered insulae (I and III) are situated to the west of Theatre Road and the even numbers (II, IV, VI and VIII) to the east. Other roads (1-6) are numbered in an





Figure 54: Insulae II, IV and VI ground plans (Chamonard 1922: Plates III-IV)



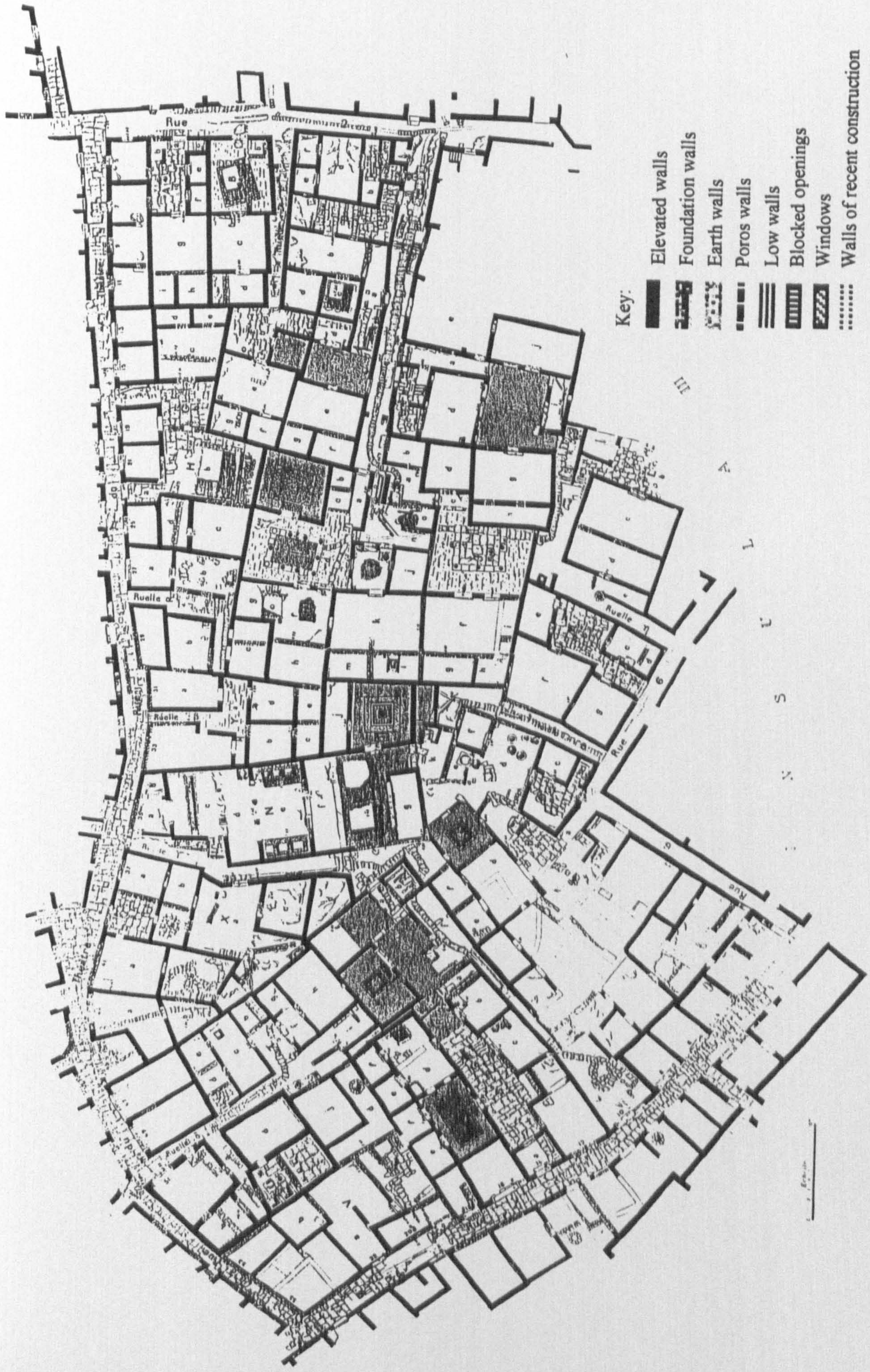


Figure 55: Insula ground plan (Chamonard 1922: Plates V-VI)



east-west direction from the theatre towards the agora. Alleyways within insula blocks are identified by Greek lower case letters,  $\alpha$  to  $\eta$ .

Exterior doorways are numbered in sequence (starting at 1 at the end of the street nearest Theatre Road) to the left and right along the roads onto which they open. A series of Roman numerals distinguishes the separate insula blocks (II, III, IV etc.), capital letters the housing units, and small letters the rooms within them e.g. following this convention VI Bc represents Insula VI, house B, room c.

## **6.3.2 Plan features**

The ground plans (and their keys) provide the following details:

### **6.3.2.1 Walls**

#### **6.3.2.1.1 Construction materials**

- stone composite; uneven stone courses bound with earth mortar
- earth; stone composite lower courses topped with earth (mortar) and coated in plaster to produce an even outer facing
- poros<sup>1</sup>; used in double or single facings for interior partitions

#### **6.3.2.1.2 Features**

- wall abutments
- double walls
- buttresses; additional support for upper floors, not engaged with nearby walls suggesting they were later features

Some of the houses contain visibly thicker walls in comparison to those surrounding them (e.g. III U compared with neighbouring T and V). This may have been for the purpose of upper floor or roofing support though may also simply represent differences in construction practice. As uniform building material was used across the site, wall thickness cannot be used as an indicator, however basic, of house height, because thicker walls can represent taller houses, and thinner walls, shorter.

The walls also contain details of the following:

- doorways; positions (and change in position of)

---

<sup>1</sup> Light, permeable rock, similar to volcanic stone; following the convention of the excavation report (Chamonard 1924: 236)



- sill stones (including double threshold sills) showing rebates and hinge holes for door leaves, indicating on which side the doors originally opened
- blocked openings

#### 6.3.2.1.3 Phasing

The presence of foundation and ancient walls within the Theatre Quarter insulae reveal the previous occupation of this area, though Trümper's analysis reveals the difficulty in identifying exactly *when* new phases of building took place (Section 6.13). It is possible some of these footings were used for the development of the Hellenistic town buildings and emphasises its multi-phase occupation. The recent walls (to the south of III P) reveal later occupation and developments.

#### 6.3.2.2 Flooring

Distinctions between the following materials are made:

- uncut rock
- beaten earth
- paving/flagging
- marble and stone chips set in mortar
- mosaic work, including *emblema* and threshold mosaics, rich *opus tessellatum* and *opus vermiculatum* work, geometric and figural designs

Combinations of flooring materials are also used, both within rooms and courtyard areas, especially within peristyle houses.

#### 6.3.2.3 'Water' features

The following adduction and drainage features are shown:

- wells, including those positioned within and beneath walls
- impluvia
- cisterns
- latrines
- upper floor/roof drainage channels cut into walls and emptying into the street drain below
- under floor street drains and interior drainage channels (with direction of flow marked with arrows)



### 6.3.2.4 Elevated features

In addition to ground plan information on flooring, walls (irrespective of extant height) and doors, the following elevated features are also recorded on the site plans:

- pillars and pilasters
- wall niches
- windows
- stairs

And, within houses, the position of:

- tanks
- altars
- well coping
- presses and pressing floors
- bath tubs and
- sunken (storage) vessels

### 6.3.3 House delineation

The division of the site into house units by Chamonard is also followed (1922: Plates III-IV and V-VI), though I have made an exception of houses III S and III R. These are grouped to form a single unit, III RS, for the purpose of spatial analysis (Chapter 7) since access to III R can only be achieved through the central courtyard area of III S. Areas III K, and III P to date have only been partially excavated. Their plans remain incomplete and internal structures remain unclear, both from the ground plans and fieldwork observations.

The walls are those surviving in elevation when the site was excavated, both in stone (combinations of granite, gneiss, marble and blueschist), poros, and stone and compacted earth composites. Ancient walls and wall foundations on the site indicate the presence of structures earlier than the layout of these buildings and therefore predating the housing.

Doors which could be opened at the time of site abandonment appear as gaps in the walls where they are situated. Open doorway access, (or previous blocked access which is now open) *between* houses is also shown in this way. Blocked openings are of particular importance as boundary indicators revealing once-open access between



rooms, houses or between houses and attached shops. Rapid change, contingent on the immediate needs and circumstance of the people occupying the houses, is evident through these features. The plans show ground floor rooms only, though the position of staircases, both interior and exterior, and internal stairwells, are marked, revealing the presence of one (or more) upper floors and /or direct access to the roof.

Though the site plans are divided into housing units, the lack of associated finds evidence means it is impossible to assign housing status (in the sense of domestic residence) with certainty to all the marked buildings<sup>2</sup> and ‘housing’ may therefore not be an appropriate category anyway. One- and two-room units leading directly from the street are *not* marked as houses and are considered to have been shops or storage areas, facing onto the roads rather than onto the smaller alleyways within the Theatre Quarter. In making this distinction between house and shop by size and street frontage, however, it is possible that some housing units have been overlooked.

In the same way, some of the larger units labelled as being houses may have been areas of purely commercial activity or later site re-use, e.g. VI B identified as a potter’s workshop (Chamonard 1922: 53) with remains of a clay pit and oven, or III N with presses and dyeworks. Without further associated finds evidence it is impossible to say for sure. For the purpose of the analysis undertaken here, the shop units linked to larger building units (either directly or by closed openings) are understood as part of/attached to houses with which they are linked. I have taken the access between them to indicate some form of functional as well as physical link.

### **6.3.3.1 The division of space into rooms**

The rooms labelled are (enclosed) areas which are accessible through their own doorways. This delineation is in agreement with Wallace-Hadrill’s (1994: 79) definition of a room though he excludes latrines (here labelled as separate rooms), cupboards and storerooms, considering them too small to be considered separate rooms in their own right. Anomalies regarding labelling and discrepancies in room identification are covered within Appendix 1 on a house-by-house basis.

### **6.3.3.2 Room identifications**

The following areas can be identified from the ground plans:

---

<sup>2</sup> Analogous problems found by Nevett at Olynthos (1992, 1995)



**6.3.3.2.1 Vestibules/hallways**

Transitional areas between the house entrance and the courtyard. Usually paved, these areas would have been roofed over and occasionally feature a door sill at the entrance to the courtyard indicating the ability to isolate this space from the rest of the house's interior.

**6.3.3.2.2 Courtyards**

Paved areas originally open to the sky, situated centrally with regard to the other ground floor rooms. A single courtyard area is found within each house, some containing columns or pilasters for lean-to shelters or peristyles.

**6.3.3.2.3 Latrines**

Identified by the L-shaped drain within them and featuring marble chip inlay (waterproof) flooring. Usually positioned in a room or recess leading directly from the vestibule or adjacent to the building's entrance, connecting to the nearest street drain, though examples are also found at the base of, and below, stairs, and elsewhere against exterior walls.

**6.3.3.2.4 Bath suites**

Identified by terracotta bath tubs surviving *in situ* (e.g. II Ei/j). The rooms in which the tubs are sited hold waterproof flooring the same as for latrines and also contain hydraulic wall plaster for additional waterproofing.

**6.3.3.2.5 'Wet rooms'**

Rooms containing waterproof flooring but lacking the L-shaped drainage channels of latrines. These areas were also linked to the house's exterior sewer by a piping system and some contain under floor 'through drainage'.

**6.3.3.2.6 Stairwells**

Flights of stone stairs remain *in situ*; found both exterior to the house, at the back of the courtyard or in rooms leading from it. Rooms in which stone flights remain are identified as being 'stairwells'.

**6.3.3.2.7 Exedras**

Open-sided rooms (wide entrances) adjacent to the courtyard with no apparent door sill or other method of closure, usually richly decorated with mosaics. Though some exedras retain sill stones difficulties arise in their certain identification where no sill



stone features are present to mark/distinguish the area from the adjoining courtyard. There is also the difficulty of distinguishing between an exedra and a room with a single wide doorway for which no sill stone survives. It is possible that more ephemeral (and archaeologically invisible) means (e.g. wooden partitions or tapestries) were used to close or perhaps partially close these areas. It is also possible though, and likely given the favourable climate, that these areas were left open at all times.

#### **6.3.3.2.8 Three-room suites**

Groups of rooms comprising one large room with two smaller ancillary rooms (approximately half the size of the large) leading directly off it. These suites cover the largest ground floor area within each house and are usually rectangular in overall plan. The subsidiary rooms are positioned behind the front room so the larger room has to be crossed in order to reach them. The sole example of the reversal of this layout, where the two subsidiary rooms are placed *in front* of the main room behind can be seen in III T. The main room of the suite usually has three doors (or a door flanked by two windows) leading onto the courtyard.

Additional room identifications can be made using information provided by the site's elevated features. Once-present wooden flights of stairs can be placed where their position and rise remains imprinted in surviving wall plaster (e.g. VI Ne) and the position of sill stones at the start of flights e.g. VI G.

#### **6.3.4 Small finds evidence**

There is limited association of small finds evidence with the Theatre Quarter houses and the items discovered do not facilitate further direct room identification. Chamonard (1922: 217ff) lists sculpture, ceramics (figurines), stoves, vases and money which were found during the area's excavation. Mobile domestic objects were the most numerous of all finds and included tables, bowls, rollers, crushers, mills, grinding stones and measures. Personal items of jewellery, ivory, bone and small bronze items were also uncovered. Most portable objects would have been removed when the site was abandoned and those remaining would have been those discarded or broken when the houses were last occupied. In some instances, objects are too heavy to have been removed, e.g. table tops and a large marble bath tub currently situated within the Merchant's Quarter.



## 6.4 Household requirements

The identification of insula units as houses means that many daily household activities (as well as those which were time- or occasion-specific) would take place within them. At the most basic level, a house provides shelter and security from the elements and surrounding area for its occupants, a physical barrier distinguishing what lies inside and outside it. It provides an area in which its occupants can sleep, wash, eat, dress and entertain in relative seclusion. The physical space *needed* by occupants would depend on what they were doing; a minimum amount of space would actually be required for ‘accommodation’ in its broadest sense, floor space for sleeping, storage, and an area in which to prepare food and wash/dress. Even the smallest of family groups would require access to washing and toilet facilities, a place to dress and sleep, somewhere to process and cook food, somewhere to eat it, storage space, and somewhere to work or accommodate visitors or guests.

Combining archaeological and small finds evidence, there are few rooms within the case study houses which can be identified as having being function-specific. The analysis within the following six sections combine to provide detailed interpretation of the use of house space within the Theatre Quarter, and enables the suggestion of likely locations for household activities in reference to house layout.

## 6.5 Dynamic space

The Theatre Quarter houses were the focus of rapid architectural change which is indicated by their ground plans and standing remains. Floor plans reveal evidence for the amalgamation of house plots and changes in access both between and within shops and adjacent houses. Blocked doorways, double wall constructions and wall abutments reveal alterations and developments in house form, and changes in room access during the buildings’ occupation.

With an estimated town occupation of c100-150 years (Laidlaw 1933: 239) any developments in building layout would have taken place within a maximum span of three to four generations, assuming the buildings were occupied continuously for this time. The ever-increasing need for accommodation combined with rapid town expansion is likely to have affected both the position and development of private architecture on the island. I suggest that changes to house space consequently occurred within a relatively short space of time, and it was unlikely that room



function or access would remain the same throughout a building's occupation, by one household, let alone more. Changes in household status, constitution, or the level of commercial activity undertaken within it would lead to consequent adaptation of the building's physical space. Though architectural restructuring would not necessarily follow, rapid changes in circumstance would favour a fluid use of space to accommodate changing needs and constituent household members. The fact that a large proportion of the construction of Insula II remains incomplete reveals that the development of architectural space remained in a state of flux up to and throughout the time of site abandonment.

### **6.5.1 Architectural anomalies**

Unusual plan features including double walls, wall abutments and sealed rooms provide supporting evidence for the expansion and division of the Theatre Quarter houses (Figure 56 - Figure 58). Wall abutments are indicated on the plans by white lines, though they do not necessarily indicate the construction of late or additional walls. Chamonard (1924: 243) considers these to have been the result of poor construction techniques and notes that perpendicular walls were rarely joined. Adjoining walls were rarely engaged throughout their height, and often only by several centimetres of material at their tops (Chamonard 1924: 243) which was also the case for supporting and party walls. The position of some wall abutments, though, suggest the addition of later walls to a building, or e.g. shop-to-room conversions. An example of this can be seen at the corner of Road 1 and STR where two shops were later added onto the adjacent house, II D (Figure 56).

Double wall features further suggest the subsequent or concurrent building of neighbouring properties, or, perhaps less likely, the need to support different height roofing between adjacent rooms. Figure 57 illustrates the double wall in position between houses II E and F. Other examples can be seen between III Q and III RS and between VI H and VI I.

The later addition of a wall may mean that it was not able to join/engage to existing structures so had to be built alongside them, the wall then appearing to be double. In addition, some walls that did not engage were placed diagonally from one another, indicating successive phases of building constructions and architectural change. IV C and the shops immediately adjacent to it provide a clear example of this (Figure 58).



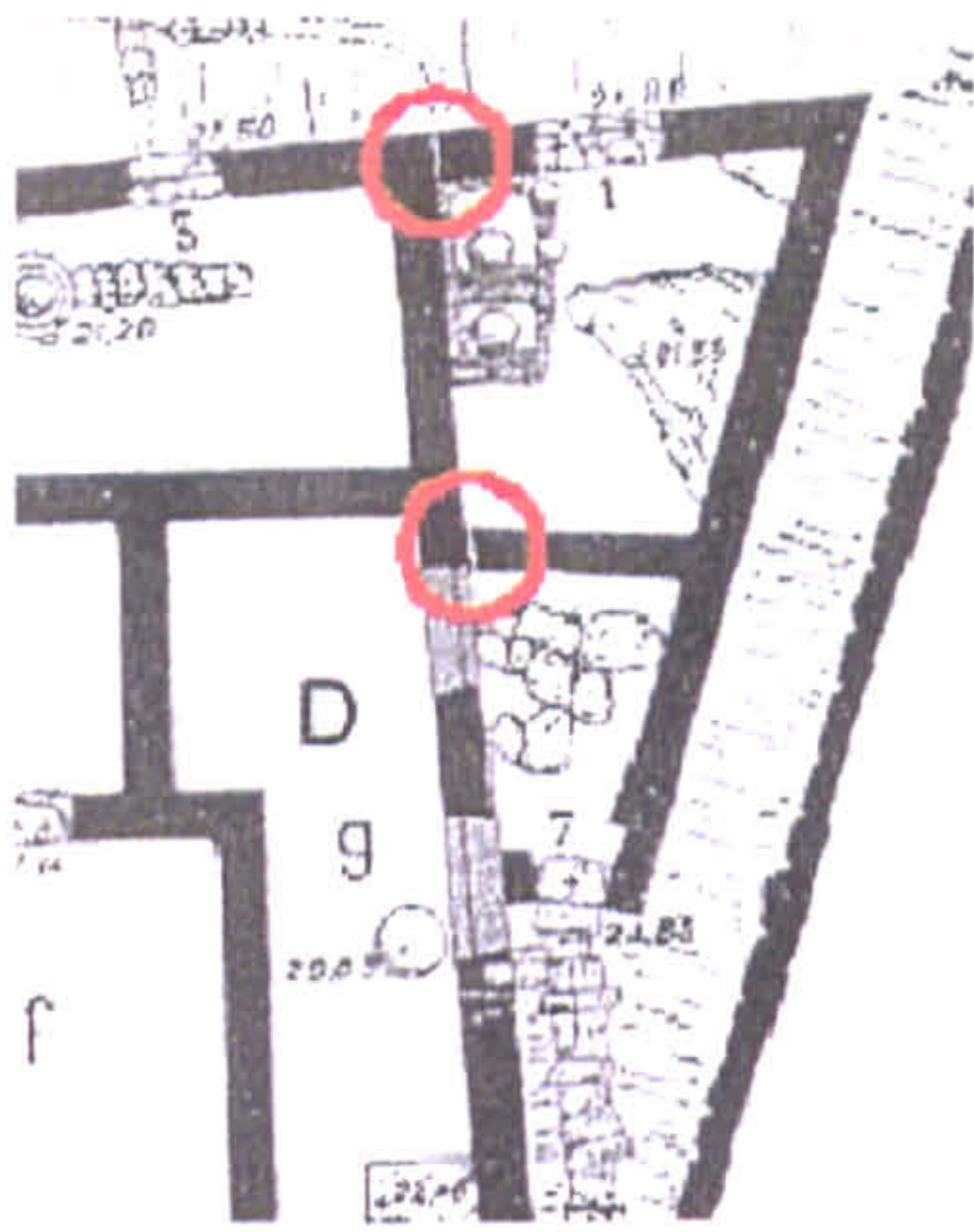


Figure 56: Wall abutments between house II D and adjacent shops (STR 1 and Rd1 7)

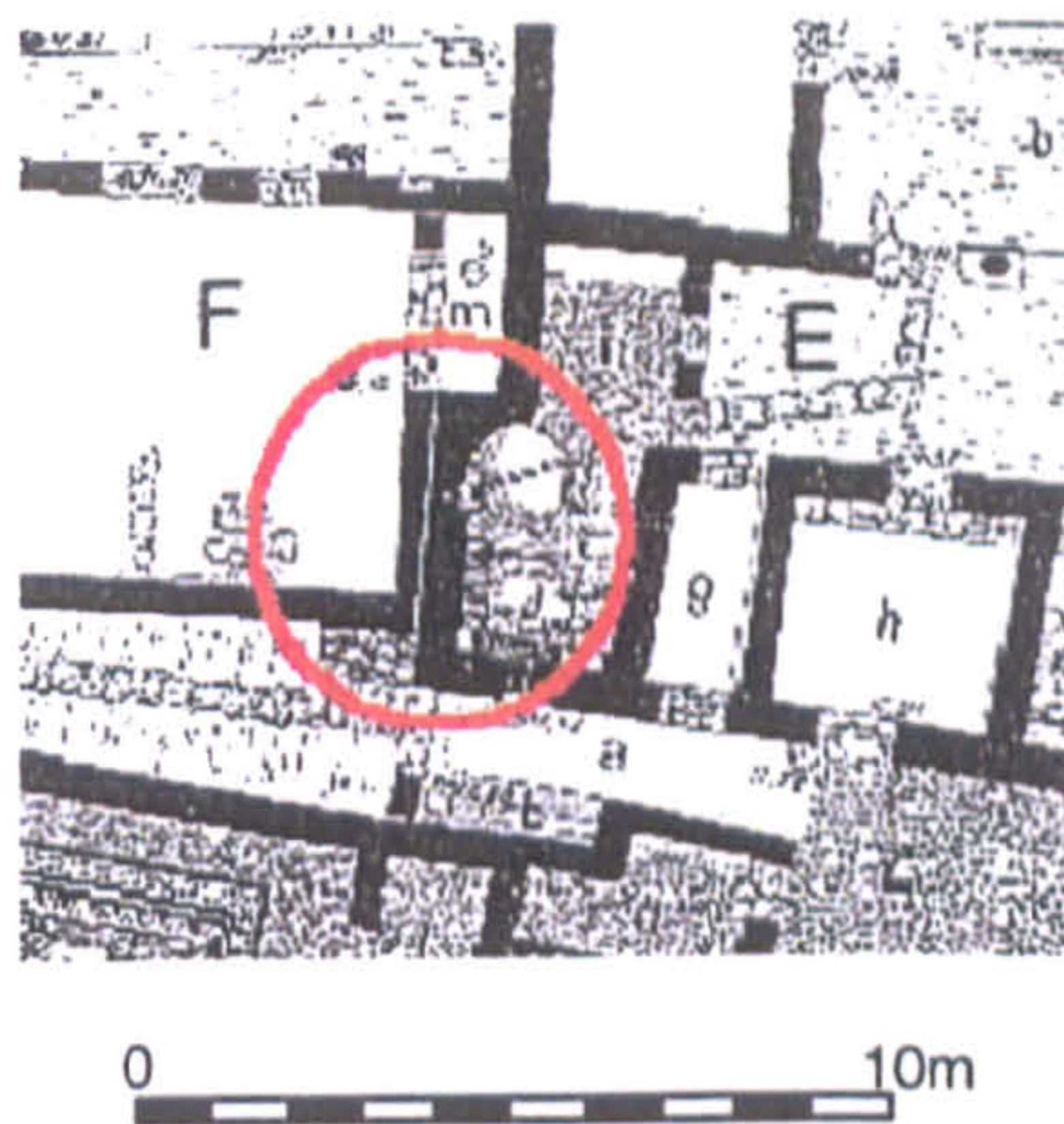


Figure 57: Double wall feature between houses II E and F.

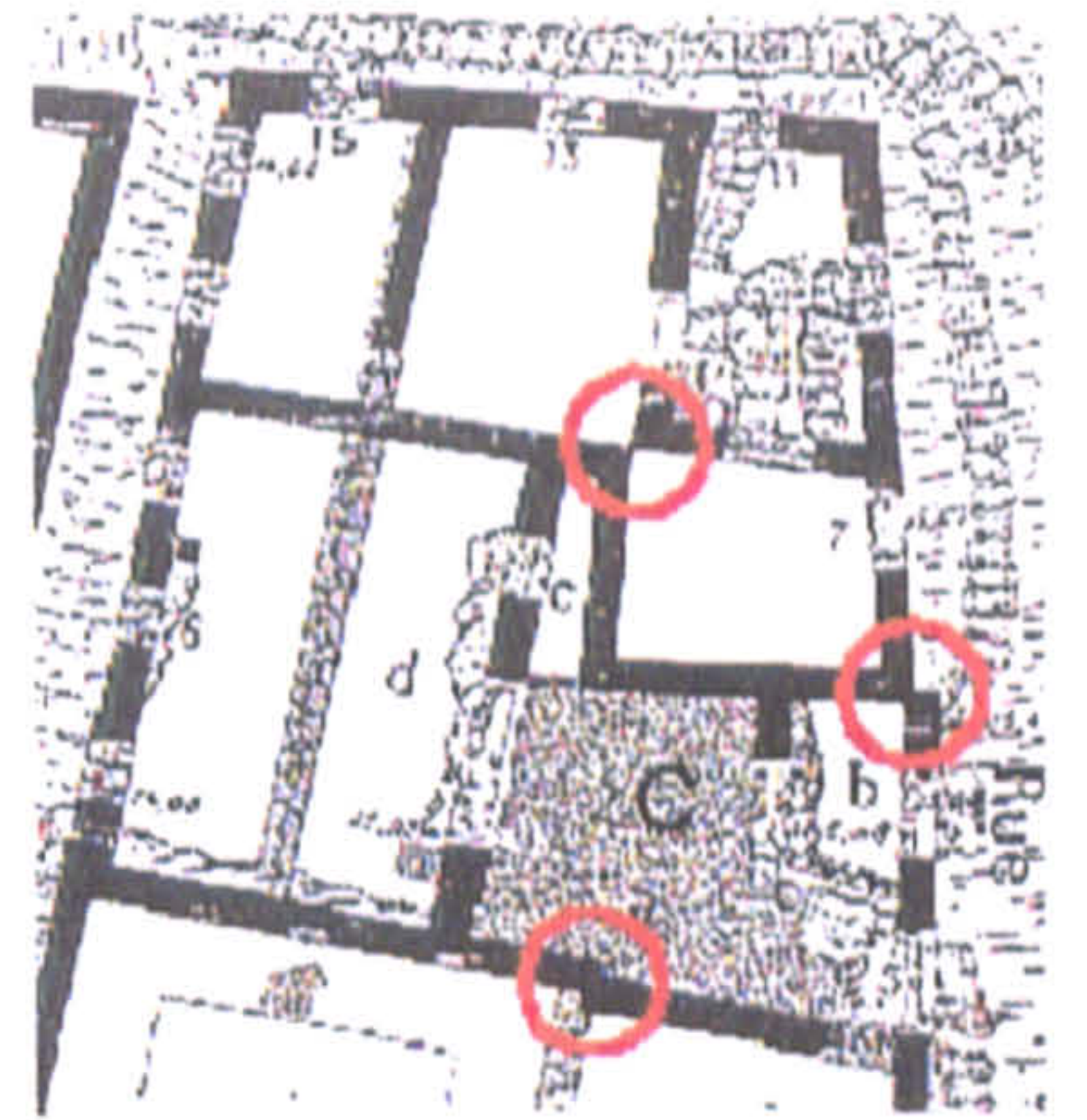


Figure 58: Unusual wall alignments between house IV C and adjoining properties.



Figure 59: Property amalgamation within houses II B and C. Shaded areas show earlier independent properties.



Figure 60: House III RS, an amalgamation of two smaller properties (R and S) (Chamonard 1922 Plates V-VI)



### 6.5.2 Property division and amalgamation

Three Theatre Quarter houses appear to be the product of combining smaller properties, perhaps the result of simple extension of household property or the acquisition of additional space for renting or commercial use. Houses II B and II C (Figure 59) are such conglomerates, the result of combining two smaller houses into one larger. II B has the appearance of several houses being bought or otherwise acquired with the intent of turning them into a single luxurious residence. Rooms a-i (hatched) were previously a separate self-contained unit (containing well, cistern and latrines) with an upper storey, indicated by the dual entrance from Road 1. The peristyle courtyard, k, remains incomplete and contains column drums, peristyle flags and a part-dug cistern. A narrow doorway onto Theatre Road was cut in its wall, for the movement of such building materials. Area j forms stairs down between the two areas (and perhaps an additional stairwell for the upper floor). Hughes (*pers. comm.*) considers it unusual that a house so close to the theatre, and adjacent to II A, the richest decorated within the Theatre Quarter, should be one of the last in the area to be developed, though its incomplete courtyard suggests new work as opposed to the renewal of old.

Neighbouring II C shows similar evidence of property amalgamation. Here the distinction between the previous smaller properties is less clear though I suggest rooms a-h (hatched) had previously functioned as a separate unit, containing latrines, wet room, well and a courtyard with lean-to roofing. Rooms f and l contain extensive rock outcropping, the latter made virtually impassable by its extent combined with the narrowness of remaining space. The other end of the structure contains two latrines (in o and s) and, similar to the courtyard in II B, an incomplete cistern (in r). The massif in qr may have been the base for an internal staircase to an upper floor though evidence for this from the standing remains is inconclusive.

Doorway access was created between these two houses (II B n-o to II C t). The inclusion of room II Bh into house C and the annexation of space within B using poros as opposed to stone walling (rooms f-h) indicate stages of change within these properties. Though the final destination of the plans remains unclear, particularly within house C, these houses represent space that was far from static and fixed.



Chamonard (1922: 40) suggests that rooms III I i-m also once formed a separate and smaller house. The *opus segmentatum* flooring and infilled wells within i suggesting courtyard space support his identification, though the original access point to the property is unclear, and may have involved areas a or p within the current III I area.

House III RS (Figure 60) provides a further possible example of property amalgamation. It is otherwise unusual for a single house to have two courtyard areas, and two three-room suites (S d-f and R d-f) with access to water in both areas, Sb and Rc. Chamonard (1922: 48) considers the six-step flight of stairs between the two (linking a 1.2m difference in floor levels) as a service passageway and this in conjunction with the small windows placed high in the wall between Rd and Sd provide strong evidence for properties which have been joined.

Analogous evidence for architectural changes comes from sites including Classical Athens and Priene. Figure 61 shows the development of a house at Priene from the fourth century through Hellenistic to late Hellenistic/Roman times. The first consists of two simple suites of rooms around a courtyard. A peristyle and additional rooms are then added to the to the eventual amalgamation with an adjacent property to form a double courtyard house. The reverse of this is seen in the house from the Areopagus in Athens where a larger property that has been later divided into two smaller residences (Figure 62). The arrows indicate the likely division into two properties, perhaps by a blocked doorway. Evidence for house amalgamations also come from the housing blocks at Olynthos (Robinson *et al.* 1938) where adjacent otherwise-regularly planned houses have combined to create a single, larger residence.

### 6.5.3 Inter-house links

This section scrutinizes access links *between* houses in the case study area. The Theatre Quarter plans reveal an extensive series of access links between neighbouring residences in addition to those imposed by the sharing of party or common walls.

It is possible that access changes observed in house layout occurred if (and when) the buildings were re-occupied after initial site abandonment. If this is the case, there is no way of discovering a clear chronology of changes within each building. What we can say with certainty, however, is that there would have been at least two phases of building occupation, indicated by blocked openings which would have been open at some earlier time. If a residence was re-inhabited after site abandonment, I consider it



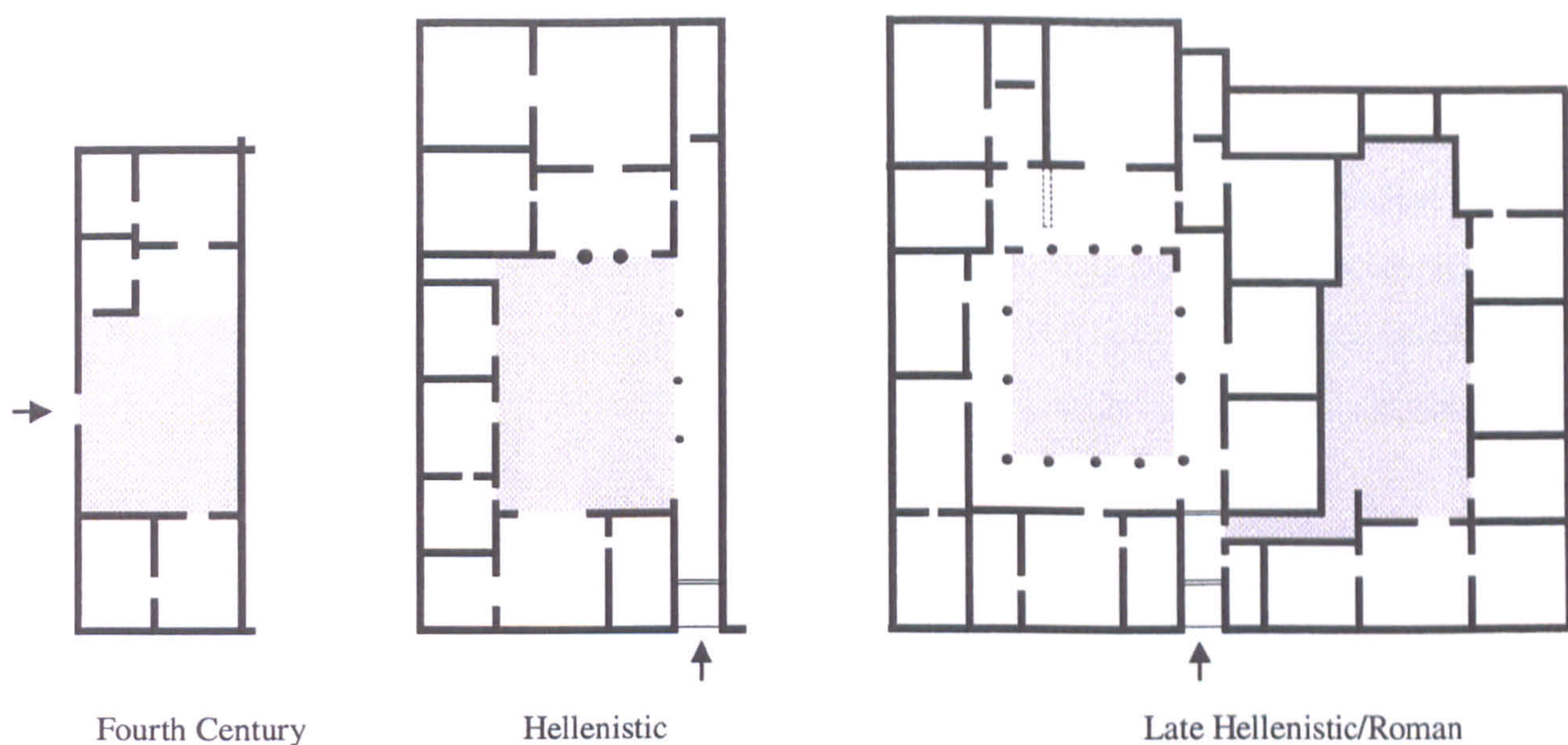


Figure 61: Property development at Priene  
(After Hoepfner and Schwandner 1986: 186 Fig. 186)

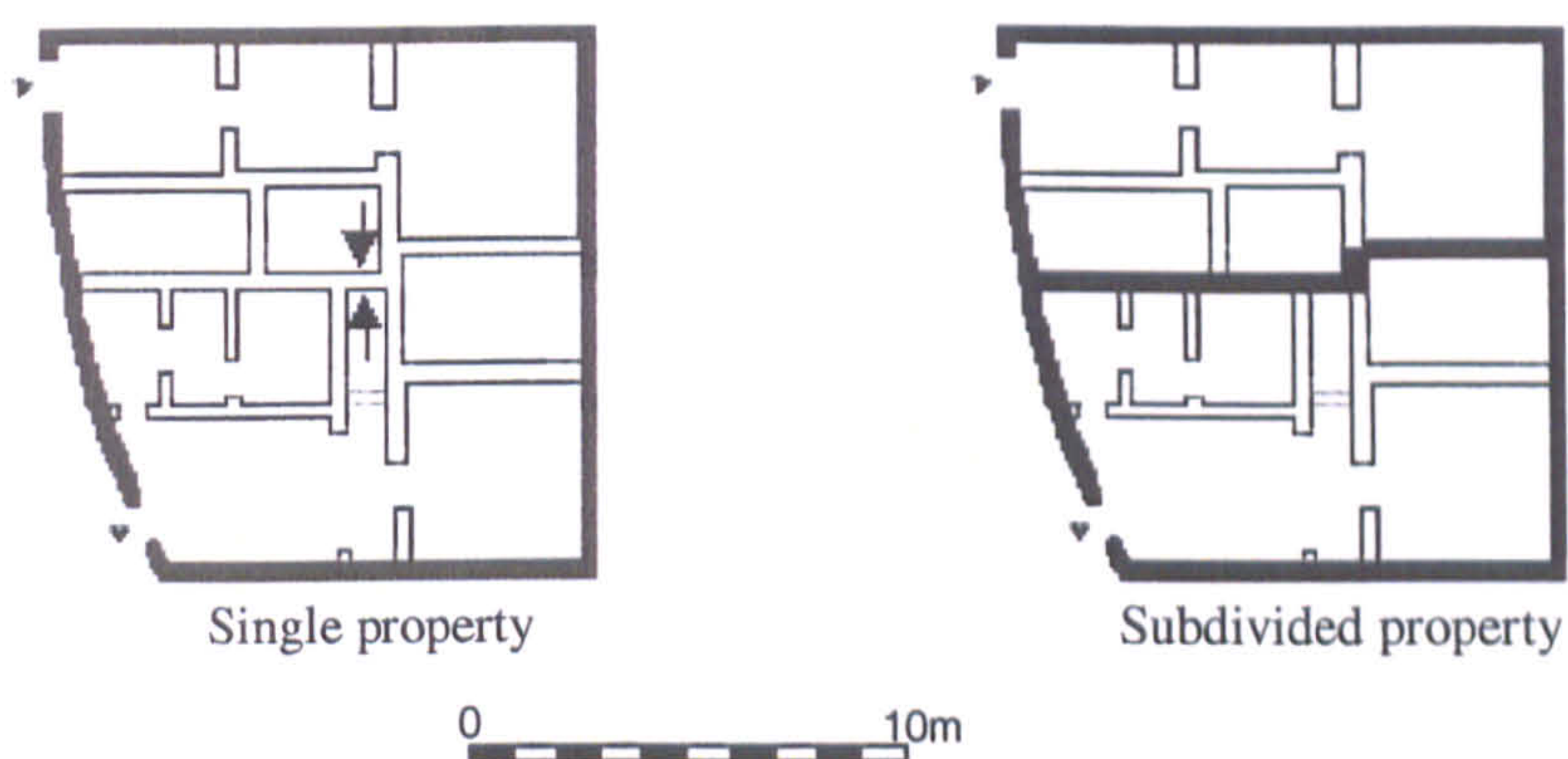


Figure 62: Division of house space from the Areopagus, Athens.  
(Adapted from Walker 1983: 87 Figure 6.2a)



Figure 63: Open doorway access between houses III G and H



likely that the new occupants would make the least possible changes to the building's fabric in order to use it, particularly if their use of it was only temporary.

Architectural links via door and window placement between pairs of houses would have affected inter-personal links as well as inter-spatial ones, at both individual and household level. It is unlikely that such open or even occasional access would have been tolerated if it was unwanted, and prevented if it was. From the site's standing remains we can only speculate as to the effect these features may have had on the original occupants of the house and their neighbours.

In terms of the features and plans, it appears that the original function of each house within these linked pairs was as a separate/self-contained residence. Given the current level of archaeological analysis there is no way of knowing when links between neighbouring properties were established, only that they were in place at the time of building abandonment. The pairs of grouped residences we now see may not have functioned that way at all.

#### **6.5.3.1 Open doorways**

The case study insulae contain four examples of open doorway access between adjacent properties. Each pairing shows a significant difference in floor level on either side of the common doorway, ranging from an increase of c0.70m (III G to H) to c2.20m (VI M to N). Interior stairs would have been needed in order to facilitate movement between the pairs of properties, indicating that access between them was more complex than annexing additional rooms to either property.

In both III G-H and VI M-N no traces of sill stones remain within the 'shared' doorways, suggesting there may not have been a door placed there as a barrier, or it has been removed. In addition to this the survival of plaster (coarse red 'undercoat') within the II D-E opening suggests it is unlikely there would have been a door present in the gap in the wall, as the plaster would have obstructed its supports and closure. Open access between these buildings may have been more a long-term feature than an architectural alteration through later site re-use though Chamonard (1922: 32) suggests that the door between II D and E was probably opened at a later date while Jameson (1990: 100) notes that combining houses to form a two-court residence (such as these wealthy Delian properties) was rare.



It is possible areas III G and H (Figure 63) were of shared commercial use or commercial combined with residential. Both have a small suite of rooms opening from the courtyards (Gc-e and H c-d); no traces of an upper story were found. G and H between them are fronted on Theatre Road by five shops (TR13, 15, 19, 21 and 25). Shop TR19 opens directly onto Gb (courtyard) indicating that G had a definite functional link with it. There is a large cistern in Hb and apparent drainage in vestibule Ga, perhaps indicating shared amenities between the two units. The unusual wall construction between TR25 and Hd may also indicate a change in the layout of this area.

### 6.5.3.2 Blocked doorways

Blocked openings represent the clearest evidence of architectural change within these houses via doorway placement. Chamonard (1924: 242) describes these features as being interior modifications and expansion at the time of house occupation. Blocked doorways have been found within rooms and between them, and also mark changes in access where both open and blocked doorways feature within the same room, within common walls between houses and *within* houses and shops. In a few instances the blockage of doorways prevents any access to an area, hence totally isolating it e.g. shop STR7.

The blocked openings are visible now that the wall plaster previously covering them has fallen away, as shown in Figure 64. If the fill material was painted over when it was first put into position, the doorways beneath would be invisible to an observer. When a number of blocked doors appear within the same house we have no way of knowing whether the change in their access is contemporaneous or not. Despite indicating changes in access these blocked doorways can only be equated with earlier and later phases within the building, i.e. an earlier phase with these doors open and the late when they are closed.

The blocked doorway between II D and E indicates that room Ed was once part of house D. Following the party walls between the two properties, and the 'reduced' plan of II D it can be suggested that both Ed and c were once part of neighbouring property.

Houses VI L, M and N (Figure 65) contain a series of unusual links suggesting they once had close associations. In addition to the open doorway access between M and N





Figure 64: Blocked doorway opening in VI d's exterior wall, viewed from within Insula III.  
The arrows indicate the edges of the blocked door.

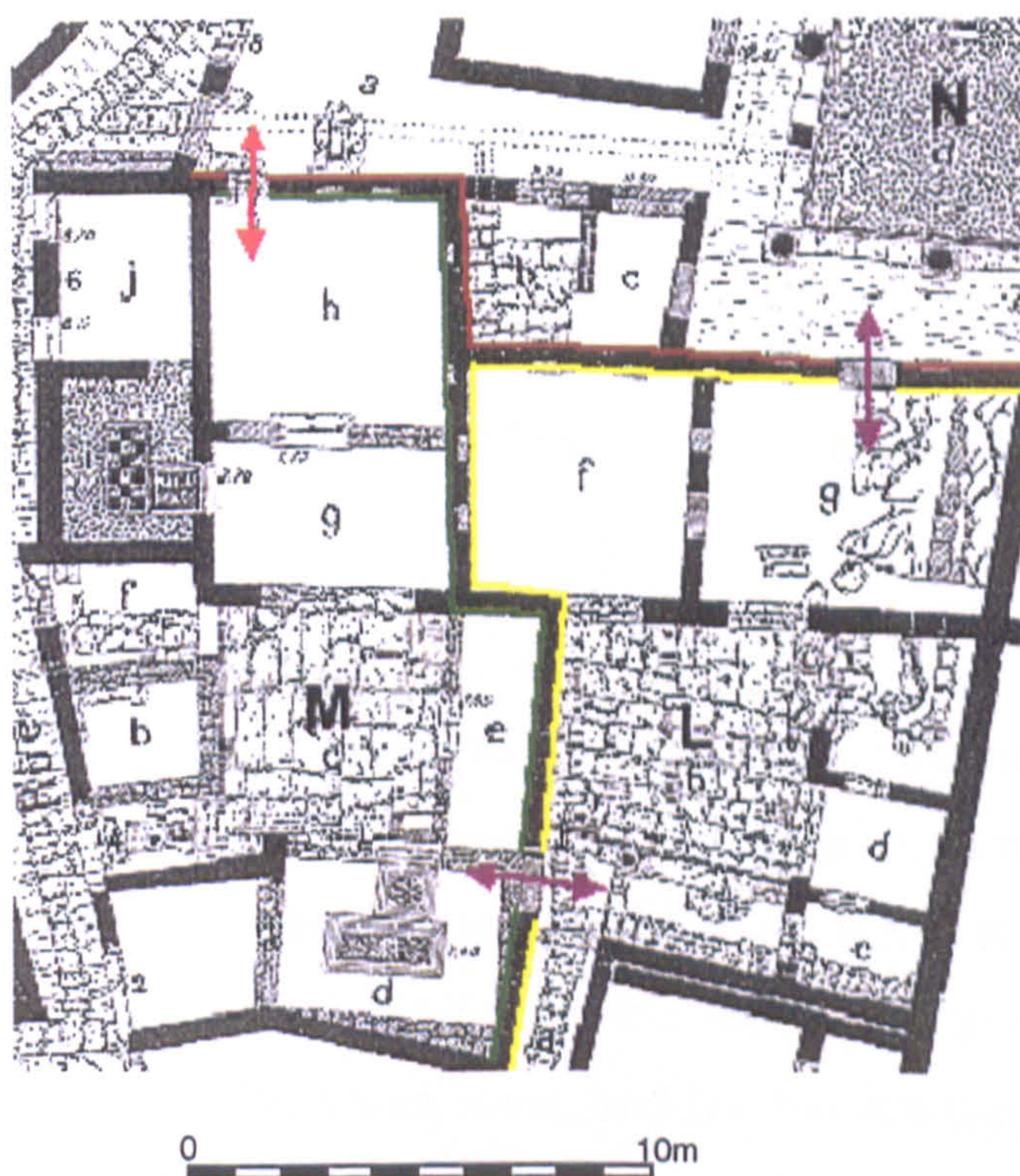


Figure 65: Houses VI L, M and N showing open doorway access and the position of blocked doorways.



there are blocked doorways between the courtyard of N and house L and between the vestibule/courtyard area in L and neighbouring M. The access between N and L suggests perhaps that Lg was once a room on the fourth side of N's courtyard. The blocked doorway between L and M is more unusual in that it aligns partly with the wall between two rooms within M (d and e). It is unlikely such access would have been possible straight onto the richest decorated room within M, at any time, indicating that further change had taken place within this house since the doorway was closed.

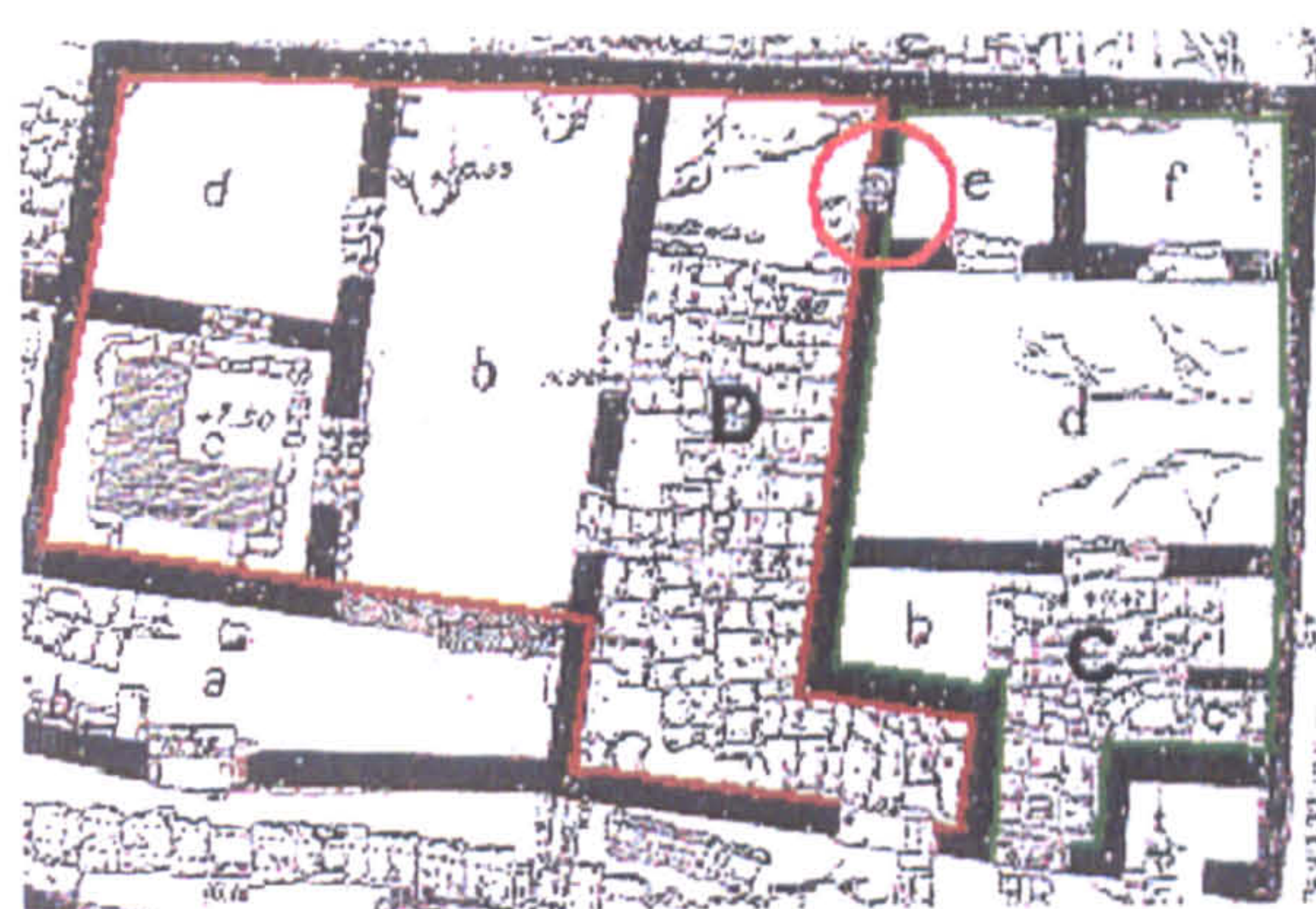
### 6.5.3.3 Room to shop conversions

Blocked doorways also occur between houses and shops (e.g. within IV A, VI G and VI I). Closed access between the two may indicate a break in the link between the house occupants and those responsible for working in or overseeing the adjacent shop, or the sale (and therefore separation from the owner's house) of once-rented space. VI Ie provides an example of this, with access to room f now blocked and opening onto Theatre Road as a shop. Wallace-Hadrill (1994: 73) also mentions this situation occurring in Pompeii with traces of blocked doorways remaining visible where front rooms of houses have been transformed and opened into shops. Shops are rarely decorated and those that are reveal close house associations and changes in function from rooms to shop units e.g. Rd2 7 and Rd4 2. Also evident are examples of changes in spatial use *within* shop units themselves, indicated by blocked doorways leading to changes in access between areas (e.g. TR 37, 41 and 43). Blocked doorways are found here between the front and back rooms of these shops (a and b), once connected and closed at a later date. If rented out, such space may have changed purpose/function quite often.

### 6.5.3.4 Shared facilities

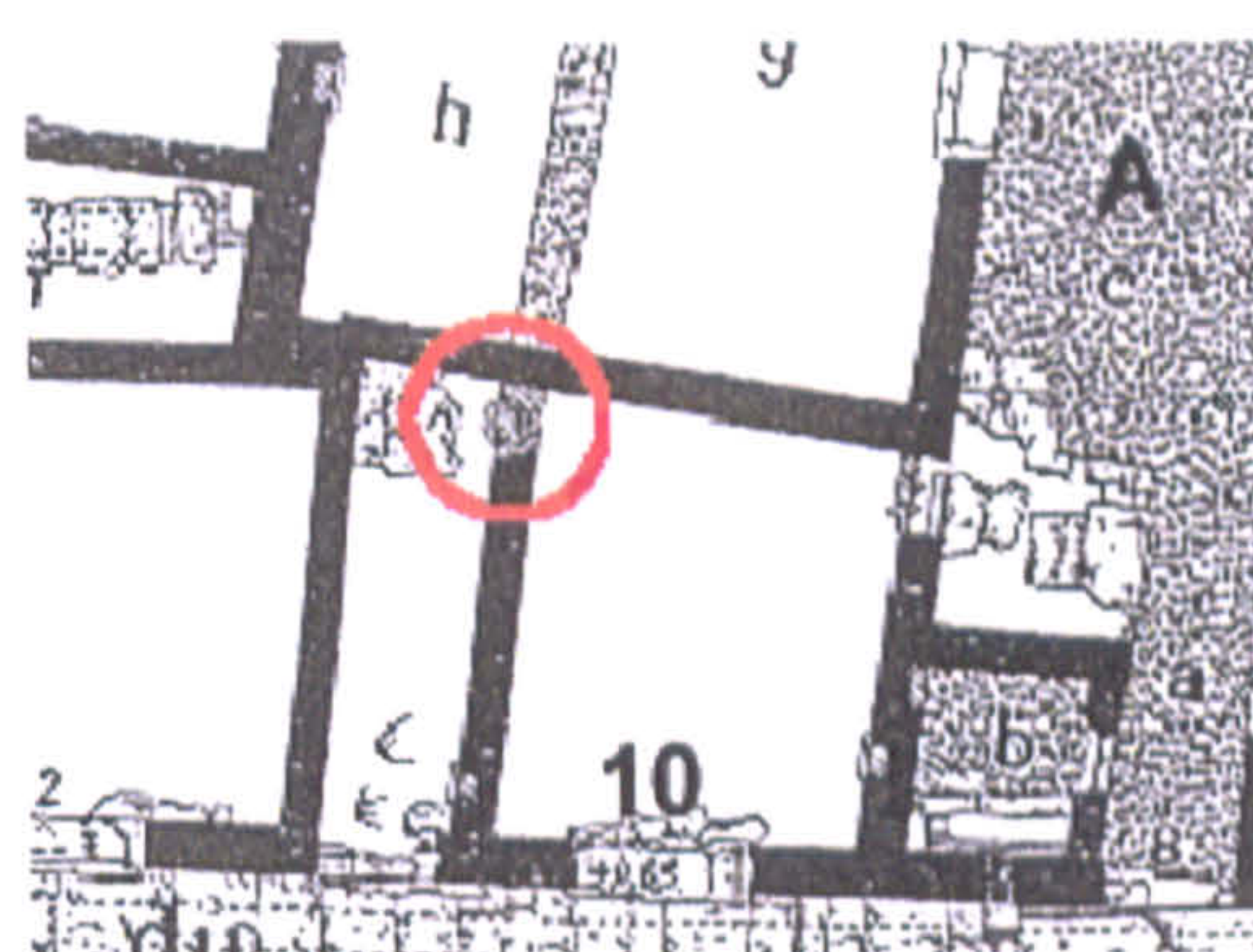
Examples survive of wells positioned *beneath* party walls, indicating that they were constructed over the earlier well sites and providing more evidence for change in house form. Access to the water beneath is gained via openings at the base of the wall, reached from either side. Houses III C and D have such a well positioned in a back wall between them, between Ce, a back room, and Da, the courtyard (Figure 66a). D also had a large cistern though for C the well under the wall represents their only access to water. The position of such facilities does not necessarily indicate any social





0 10m

a) between III C and III D



0 10m

b) between shop TR10 and adjacent alley

Figure 66: Wells positioned within walls



Figure 67: Well positioned beneath the wall of shop TR 10 and the adjacent alley



link between the two households, merely that both had access to the same fresh water. The hole within the wall would most probably have been covered (even with e.g. a large flag stone) when not in use. This is particularly important as this may have been one of III C's most private rooms, furthest from the street entrance and from its courtyard area.

A similar arrangement of a well positioned beneath a wall can be seen between shop TR10 (accessible from house VI A) and an adjacent alley (Figure 66b and Figure 67). It is likely that this facility would have been available for 'public' use, via the alley, as well as by the occupants of the house and shop.

#### **6.5.4 House development**

Individual rooms were also the focus of architectural change, through the inclusion of blocked doorways, and transformations between shops and rooms, particularly house vestibules. An example of this is room VI Cc containing a blocked doorway immediately adjacent to the house entrance and open doorway access at the end of the room furthest from it. This shows a movement of the doorway access into this room, though both entrances may have been open at one point.

The conversion of shops into vestibule areas (e.g. II Ec, VI Jc and Na) is indicated by the shape and dimensions of the hallway space. Shops are usually broad and deep, with wide entrances facing onto the street. In comparison, house vestibules are long and narrow, often with latrine areas leading from them, and adjoin a courtyard area, making the distinction between the two clear at the entrance to a house. Transformations between shops and entryways may have taken place as houses acquired adjacent commercial property or change in access to, or use of, the property developed. The adaptation of shop space in this way is not always straightforward to interpret as e.g. house III RS where indications of access points to the property other than via the current shop space (Rd5 14) remain illusive. In reverse, evidence for house rooms having been changed into shop space (e.g. Rd2 7 and Rd4 2) is also apparent where the shop contains rich decorative wall plaster in place of the usual whitewashed, plain walls (Chamonard 1924: 359).

#### **6.5.5 Implications**

This section demonstrates that not all the Theatre Quarter houses were spatially insular or isolated from neighbouring properties. The discovery of both open and



closed doorways and communal amenities between adjacent plots supports this, and indicates the scope of architectural development and change both within and between these houses. Blocked doorways reveal the importance of control over accessibility and changes to it made during the site's occupation. Indicators of the occupation of individual houses by more than one household also remain, and are detailed in the following section.

## **6.6 Single and multiple occupancy of houses**

In our culture the word 'house' conjures up the image of a unit of accommodation for a single family, even though this patently not always the case. In the ancient Greek world domestic house buildings could be occupied by many different kinds of social groups though studies of ancient housing regularly make the assumption that they contained single family units. Rarely have scholars considered the possibility of multiple occupancy within a single residence. Literary and epigraphic sources provide evidence of extended families, tenants, lodgers and groups of associated businessmen and women (prostitutes) living within the same house. This indicates that a dwelling was often the co-residence of people other than the family unit.

The following sections investigate evidence for individual Theatre Quarter houses as having been occupied by more than one household.

Examples of situations in which housing space may have been shared include:

- the division of family property into separate areas (suites or floors) through partible inheritance to accommodate distinct filial households
- rented (temporary) accommodation or perhaps poorer quality housing where amenities were shared
- a change in use of house space e.g. the sale of a floor or transformation of the building into rented accommodation (or part rented, part owner occupied)
- the occupation of a house by members of a business association

Rauh (1993: 219ff) mentions freedmen, banking and other professional associations sharing building complexes that included both residential areas and rooms and courtyards for meetings or offices e.g. on Delos, Hermes House, the Establishment of the Poseidoniastes of Beirut and the House of the Comedians complex.



### 6.6.1 Multi-occupation housing on Delos

At the height of the island's prosperity, during the Hellenistic period, Delos was home to a large resident population (Section 4.5). Permanent (long-term) housing was needed for these people and also more temporary accommodation for the large seasonal influx of visitors for markets, festivals and games. It is likely that this need was at least partly met by short-term rented accommodation via 'private sector' rented rooms or suites of rooms. Differences between long term or permanent and temporary residence are likely to have been in the facilities each provided. Ancient temporary residence may have been more akin to modern *pension* accommodation in Greece where sleeping and washing facilities are provided for the paying guest or tourist, and meals are taken outside the apartment. At any one time the island held a diverse cross-section of society, from short-term visitors, through slaves and freedmen to wealthy merchants and their business associates. The range of accommodation, both temporary and permanent, is likely to have reflected the island's inhabitants.

Figure 68 shows the position of the residential areas excavated on the island, including both isolated and insula housing. Multiple occupancy dwellings would have formed part of the available accommodation, alongside single household properties, rooms for rent, guest-houses and inns. Not all the island's residents could have afforded a house in which to live, and so may have chosen to base their homes or businesses elsewhere, favouring temporary accommodation on Delos. Seasonal commercial fluctuations could also have led to owners leaving their Delian properties, with perhaps a slave or freedman remaining as overseer of its security and upkeep. 'Short-term' visitors may have stayed several months and a number may have returned to Delos regularly, their movements being more transient. Multiple occupancy houses, alongside other types of accommodation would have been used by both permanent and visiting residents though a distinction between long and short term use is virtually impossible to ascertain from the archaeological record.

### 6.6.2 House layout

Suggested architectural indicators for multiple occupancy houses are the division of ground floor space into distinct groups of rooms (which has also been attributed to gender specific areas, see Section 6.7), and the division of the property into independent ground and upper floors. Where there was communal house space, amenities (access to fresh water, latrines) may have been shared out of necessity, and



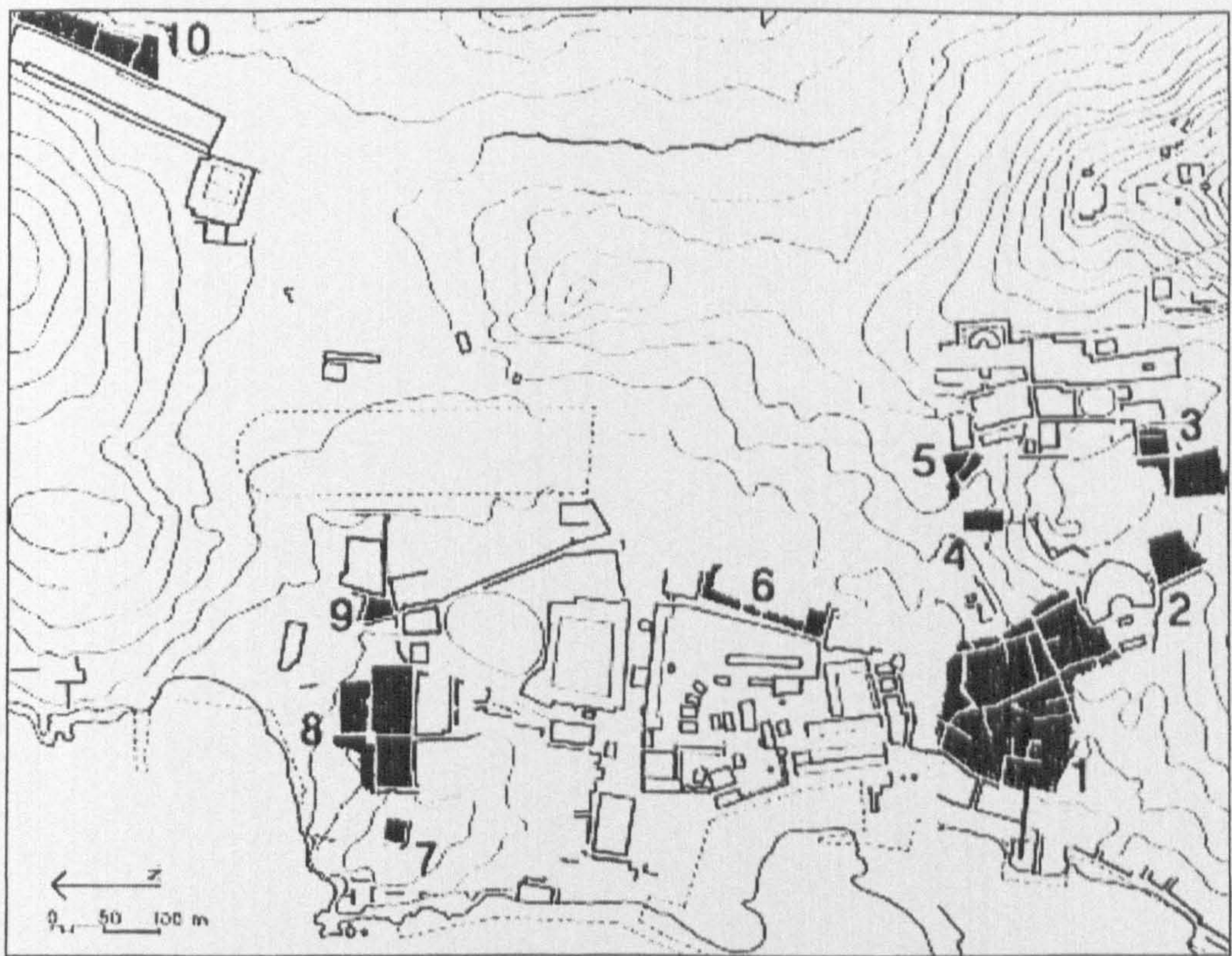


Figure 68: Stylised map of Delos showing the main residential areas excavated.  
(Adapted from Bruneau *et al.* 1996: 19)

Key:

- |   |  |
|---|--|
| 1 Theatre Quarter insulae                       | 6 Kerdon House   |
| 2 Hotel complex                                 | 7 Hill house   |
| 3 Mask and Dolphin houses                       | 8 North Quarter  |
| 4 Inopos Quarter and Hermes house               | 9 Lake house   |
| 5 Kerdon house (and others bordering the agora) | 10 Stadium Quarter (including the house of Q. Tullius) |

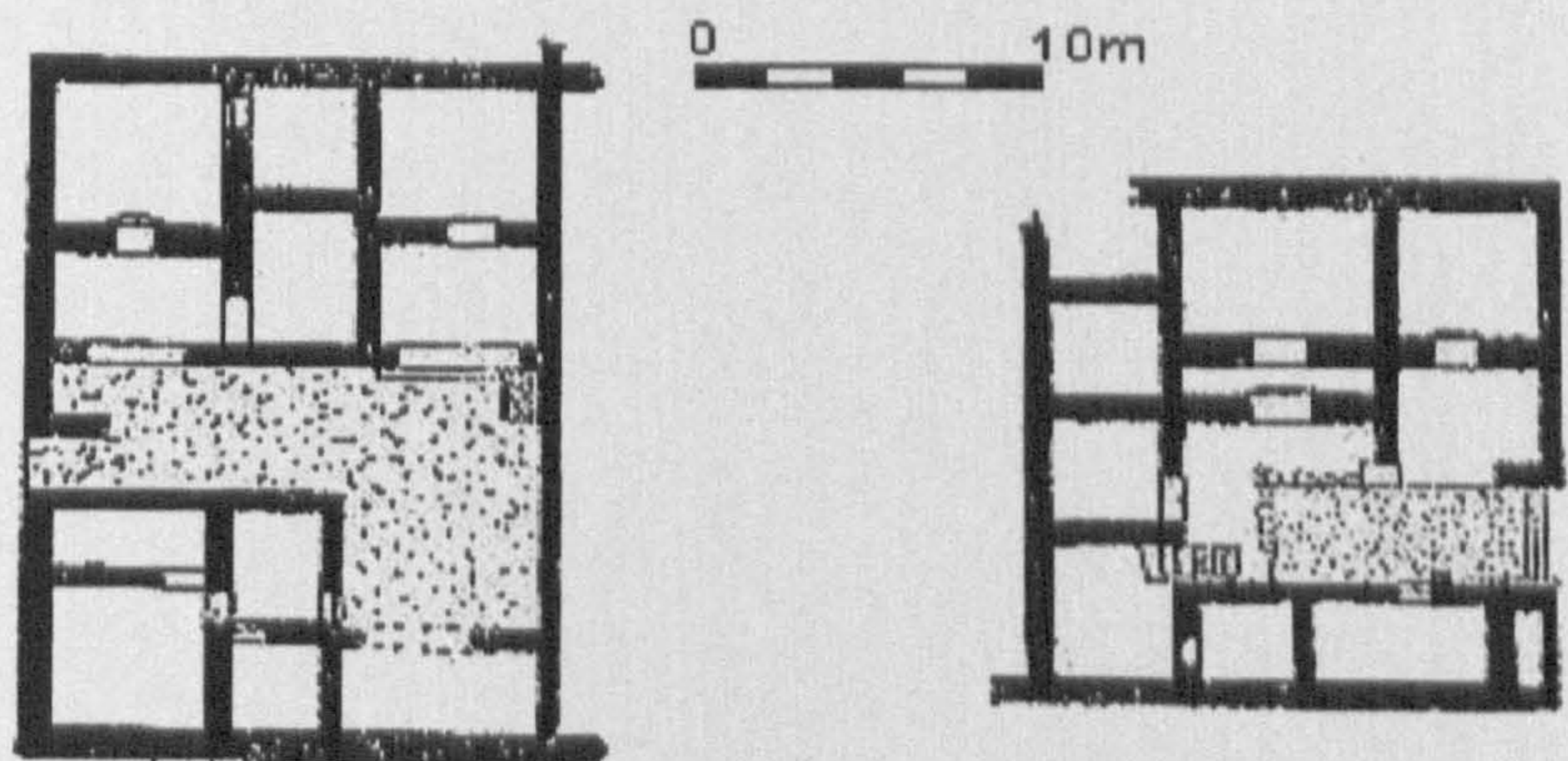


Figure 69: Houses at Priene showing separate ground floor suites  
(Rider 1964:244, Fig. 45)



were most likely to be positioned in common areas off the courtyard or vestibule. Very few of the case study houses have two sets of latrines or wells, and where present these indicate an amalgamation of two previously separate properties (Section 6.5.2).

Security would have been an important issue within houses of shared occupancy. Access to the household's stored goods, and any items in other rooms (e.g. guests) or suites would be possible by anyone present within the house. It is likely that lockable chests which would have been large and heavy were used to store household goods and valuables. Upper floors (where present) would have been more secure than open ground floor areas which had direct easier access from the (street) area outside. In addition to this, an omni-present slave or household member acting as a doorkeeper would be able to keep a beady eye on guests or lessees.

#### **6.6.2.1 Rooms for rent**

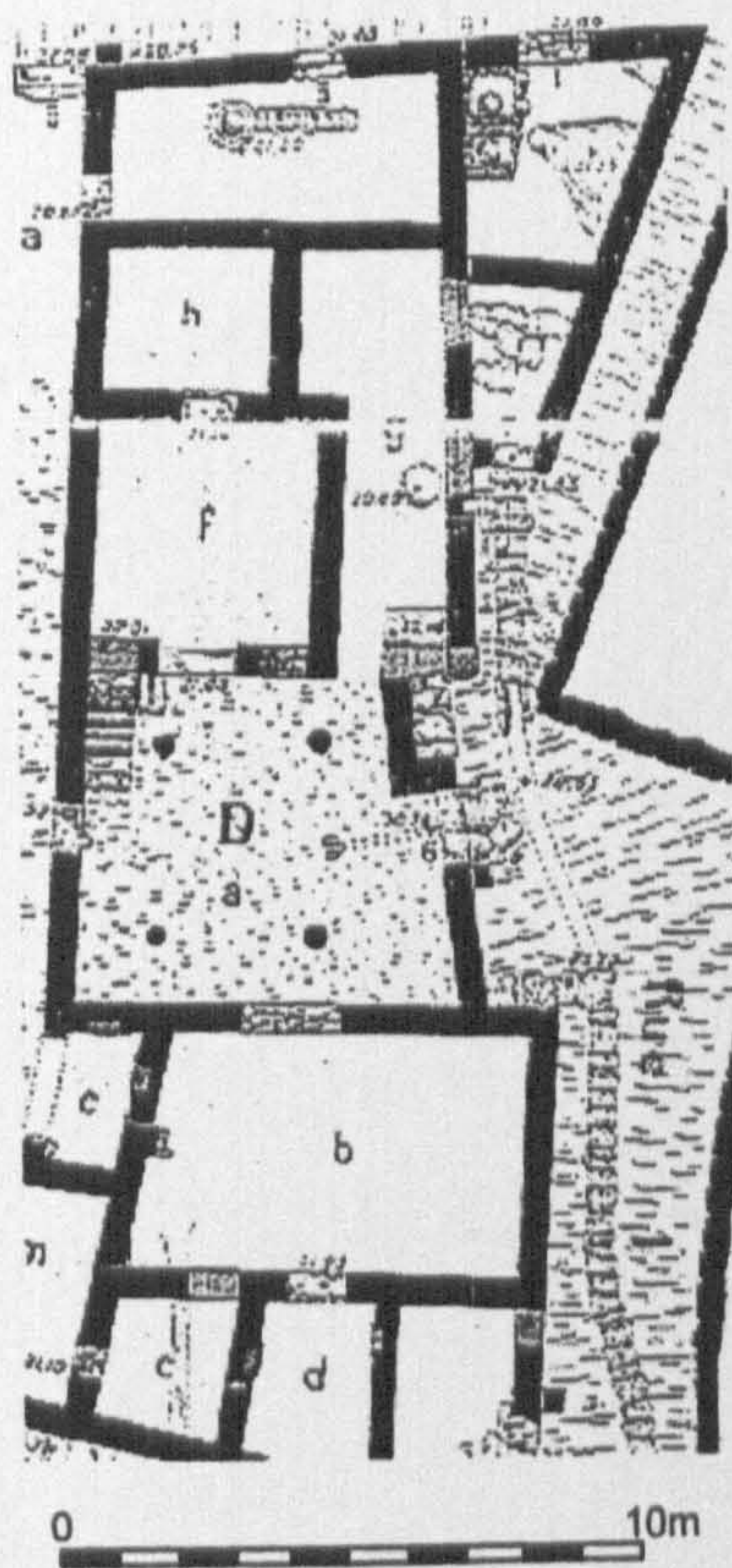
Rooms not containing fixed feature elements remain almost impossible to identify, either as household or rented space, as they look no different from any other on the ground plans. Smaller residences consisting of only a few rooms may have been less likely to hire space out, though conversely this may have depended on the additional income letting would bring. We have no secure way of knowing if this was the case.

Couples, families or household groups may have been accommodated within the restricting space of a single room or a two-room suite. Given Delos' cosmopolitan nature it is likely that some rooms (or suites of rooms) would have been rented out, either by short or long-term arrangements.

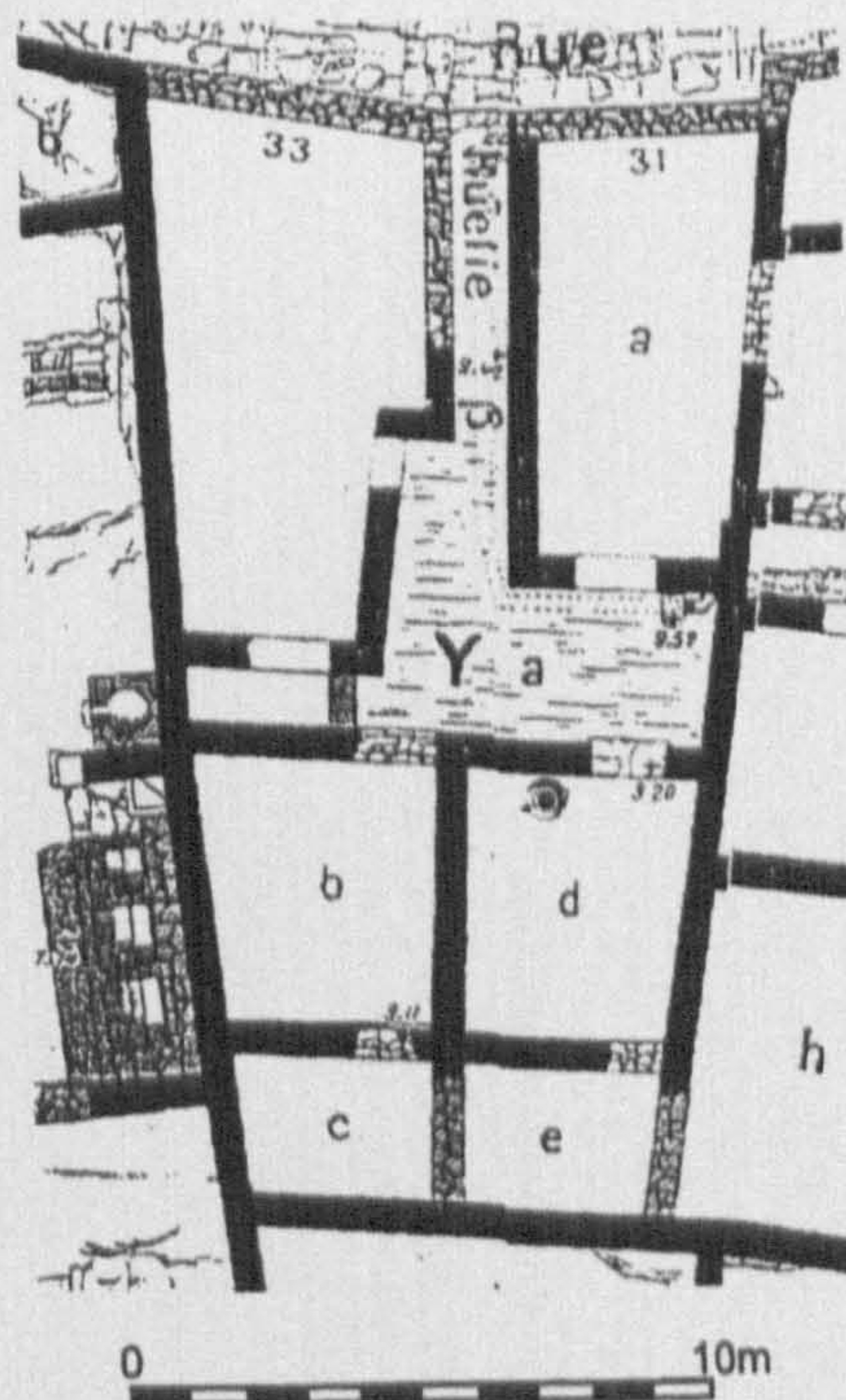
#### **6.6.2.2 Separate suites**

Figure 69 shows houses from Priene within which ground floor rooms are divided into separate suites across different sides of the courtyard. Many of the Theatre Quarter houses contain a two- or three-room ground floor suite. For those houses of ground floor construction only these interconnected rooms/suites often form the majority of the house space and so are unlikely to indicate utilisation other than that used by the owner and their family (e.g. III B, III H, VI C and VI D). It could be suggested that houses with *more* than one of these suites may have been used for different purposes, though such examples deserve individual attention for their interpretation (Figure 70):

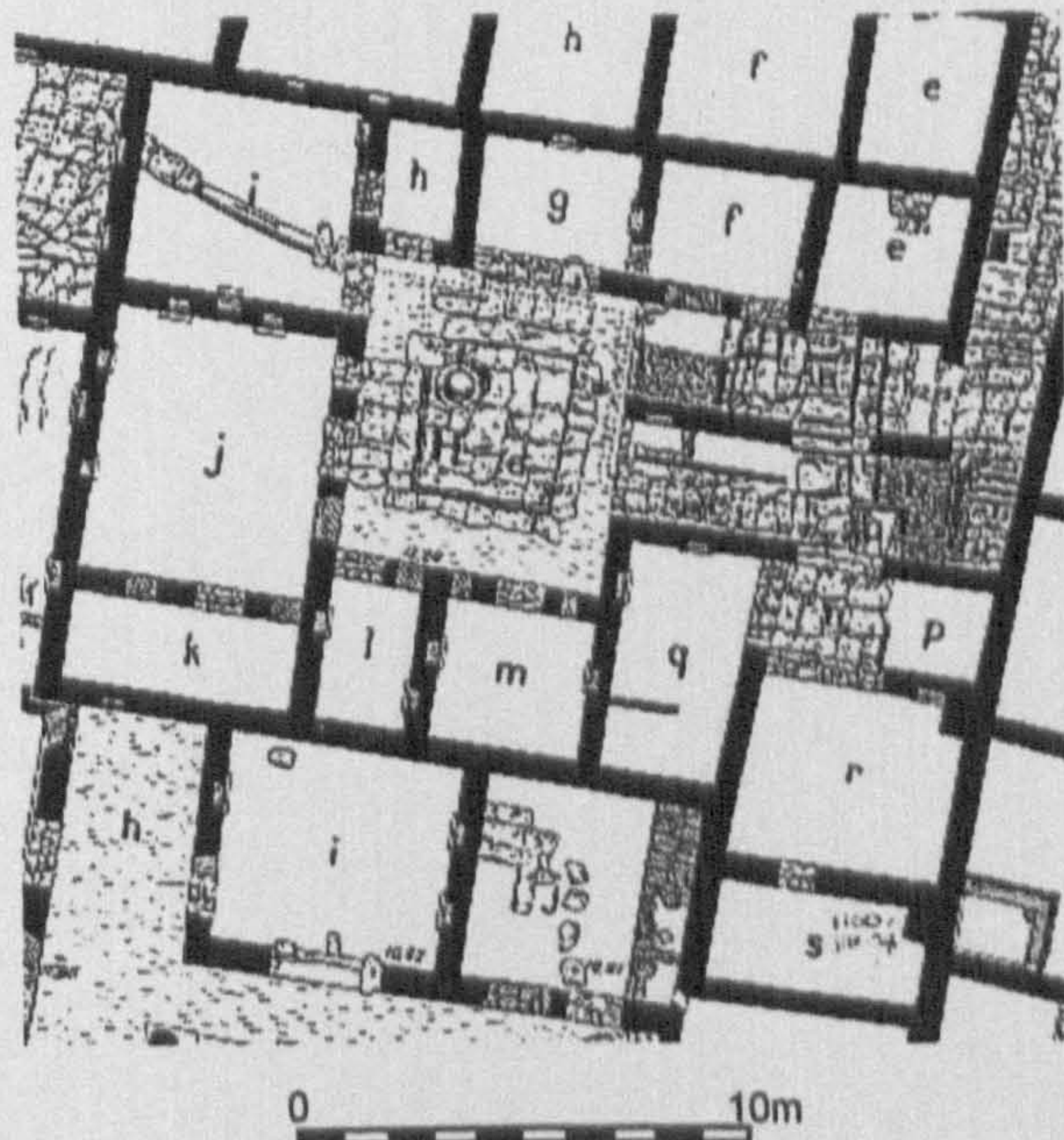




II D



III Y



VI H

Figure 70: Theatre Quarter houses with multiple ground floor suites (Chamonard 1922 Plates III-IV and V-VI)



#### 6.6.2.2.1 VI H

Two distinct groups of rooms surround the courtyard areas, rooms f-m grouped around the main courtyard, d, and rooms o-s around a second courtyard area, n. A corridor lies between the two areas and leads (via stairs) to the house's entrance. The latrines (b) are positioned at the bottom of the interior stairs, potentially accessible from both areas. Chamonard (1922: 57) suggests that the house's 'clumsy reshaping' indicates its provision for family or relatives. Without its latrines and well amenities being shared, the smaller residence would have no direct access to water or toilet facilities.

Contrasting with VI H, *equal* access to a common area suggests that separate suites were intended from the start to have been occupied and used separately, e.g. III Y and II D:

#### 6.6.2.2.2 III Y

Two two-room suites (b-c and d-e) lead off a secluded courtyard area (a), accessed from Theatre Road by a small alleyway, β. Area d contains a capped well and the courtyard shows evidence of under-floor drainage (originating in TR 27b, further south along the road). The two suites may have been used as independent rented accommodation or have been linked to shops 31 and 33 on the street side of the courtyard. No extant remains suggest there were upper floor rooms above either of these suites.

#### 6.6.2.2.3 II D

This house contains two groups of rooms (f to h) and (b-d) placed on opposite sides of its courtyard. Room c was once part of the b-d suite but its doorway was blocked and the room later became accessible only from neighbouring house II E. The house contains no evidence of latrines and its well is in g, accessed directly off the courtyard.

Insula houses elsewhere on the island, within the Stadium Quarter (Delos' east coast) and independent houses such as Lake House are also noted for containing such groups of rooms. The House of Q. Tullius (Figure 71) (named after a dedicatory statue found within it), Stadium Quarter IC, positioned directly opposite the island's stadium is one of two certain examples of a Roman-Italian residence on Delos (Rauh 1993: 195). Its three-room suite is here identified as an *oecus major* with two inferior service rooms



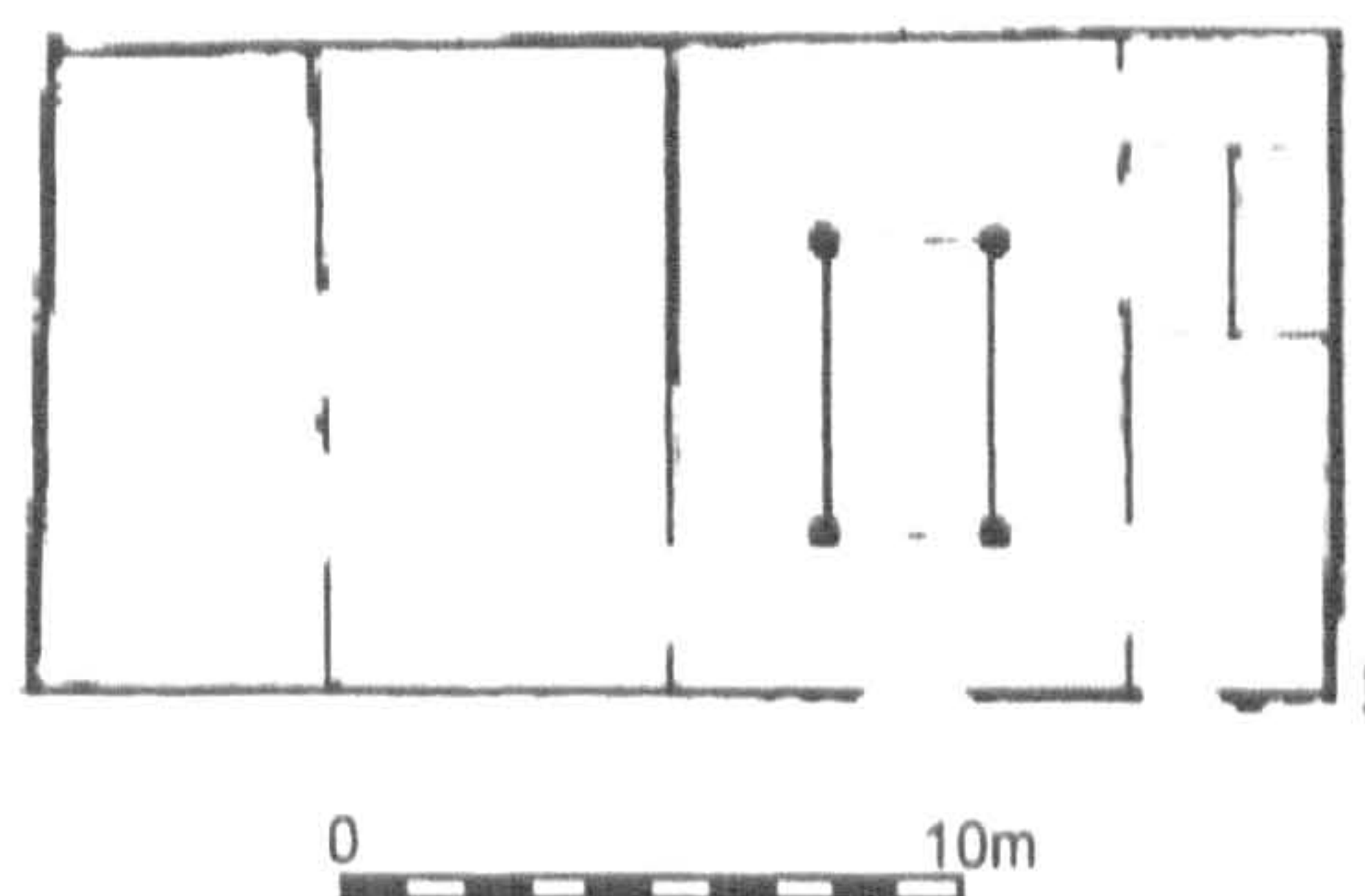


Figure 71: Plan of the house of Q. Tullius, Stadium Quarter.  
(Bruneau 1965, Plan III)

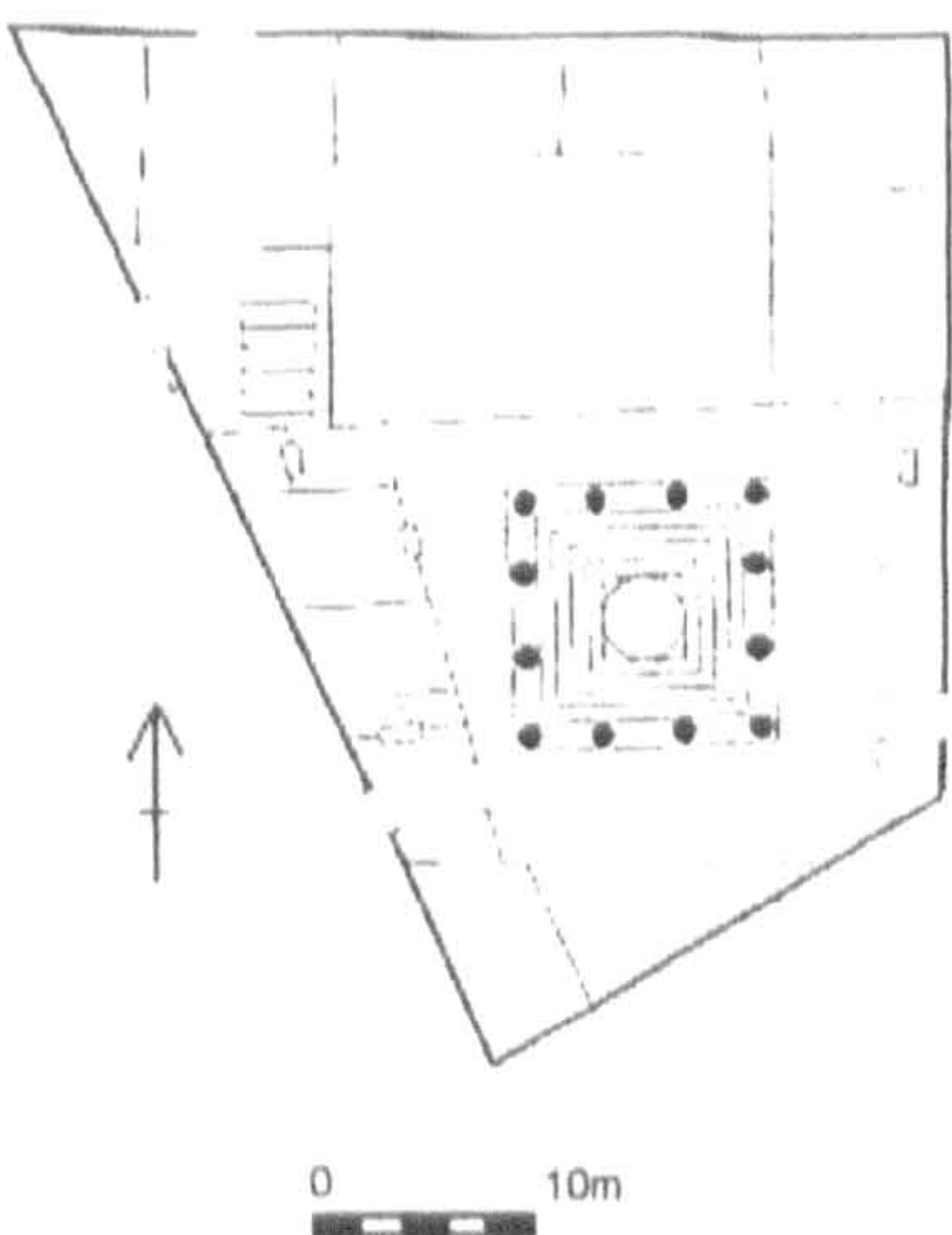


Figure 72: Plan of Lake House  
(Rauh 1993: 207, Plan V)

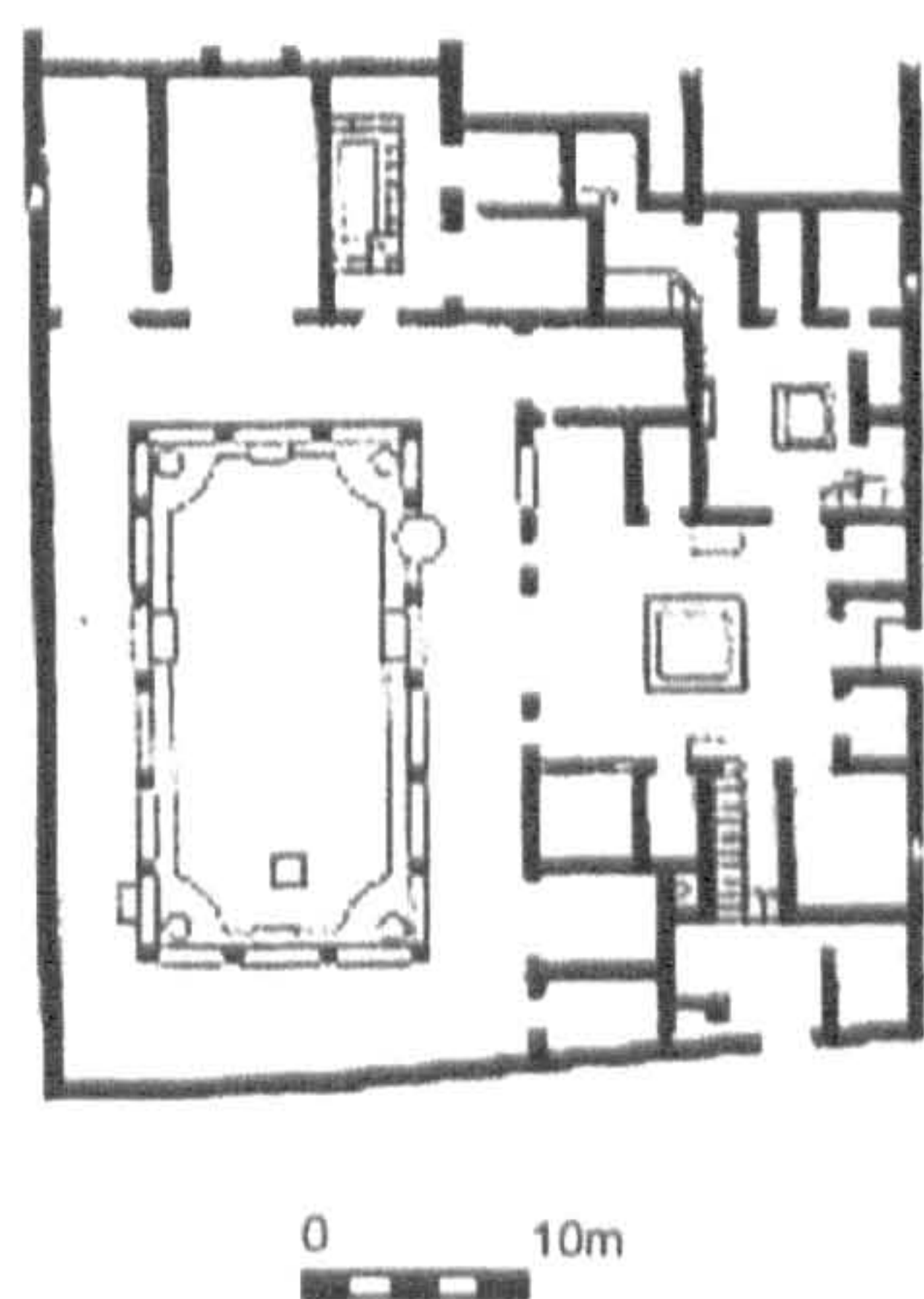


Figure 73: Plan of the House of the Vetii, Pompeii  
(Adapted from Wallace-Hadrill 1998: 79 Fig. 10)



Figure 74: Delos' hotel complex  
(Bruneau 1965, Plan V)

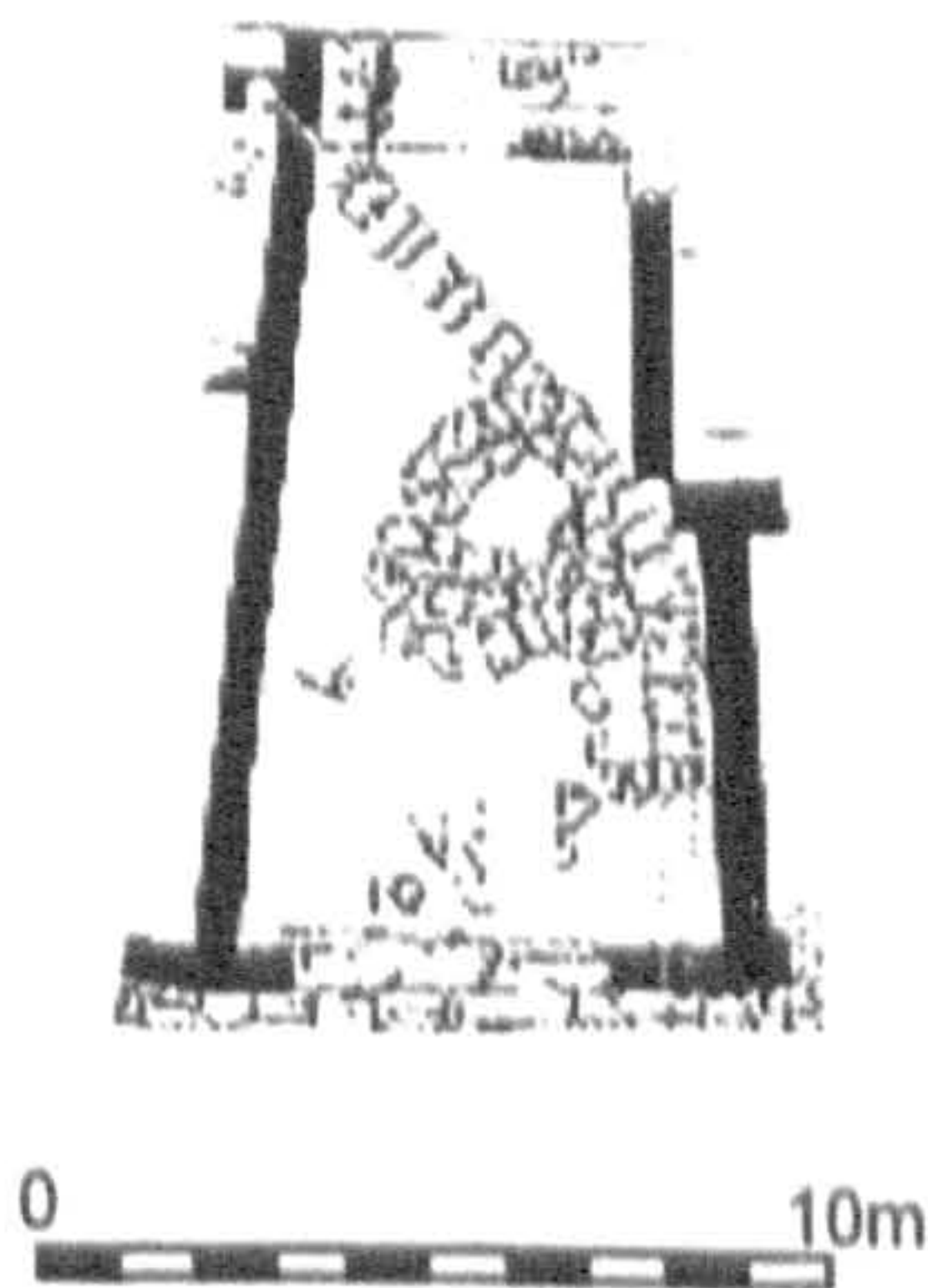


Figure 75: Shop entrance  
(Chamonard 1922: Plates III-IV)



behind it (1993:197). A stairwell leading off from the entrance indicates the house had at least a partial upper floor and note is made of repeated re-modelling between this house and adjoining property, ID. Rauh (1993: 199-200) suggests this house (IC) may have been a seasonal residence, 'hardly palatial and situated in a remote part of the island'.

Lake House (Figure 72), contains a suite of rooms separated from the rest of the ground floor by a single door, with independent access to it from the house's exterior. Chamonard (1922: 163) points out that these rooms have all the facilities needed for a small house, a well, cistern and perhaps latrines; and questions whether its proprietor was the same as for the rest of the house. He suggests these rooms may have been used as visitor's apartments with the occupants joining the rest of the household for meals, but also suggests that they may represent women's quarters (Chamonard 1924: 424-5). With independent access to the surrounding roads, it is perhaps more likely that this suite may have been used as rented accommodation.

In contrast, Rauh (1993: 209ff.) considers Lake House *not* to have been a private residence and to have supported a larger population of people than a single household. He suggests the building, similar to TQ III K and IV B may have been semi-public because of the open nature of its ground floor (with two entrances positioned directly opposite each other), open access to a sumptuously-decorated courtyard, the privacy of the interior suite of rooms, and because of its extensive water provision (two wells, a cistern and an impluvium). He proposes its use as a brothel or *taberna deversoria* (Rauh 1993: 213) with the phallic apotropaic symbols at its western doorway pointing the way to services provided within!

The House of the Vetii, Pompeii, contains a similar example of a separate suite of rooms, though there without the direct access to the building's exterior (Figure 73). Here, the distinct suite of rooms comprises of a cubiculum/triclinium and a secluded courtyard. Wallace-Hadrill (1988: 58) comments that this and other similar examples of secluded areas are assumed to be the realm of women within the household though there is nothing to suggest this area was not set aside for the owner or master of the house. To reach the suite one has to pass through the entrance to the house and cross the main courtyard; it is perhaps then more likely that this was private space as opposed to guest quarters and it would have been an honour to be invited here (Wallace-Hadrill 1998: 59).



The complex identified as Delos' hotel is situated directly adjacent to the theatre, and in close proximity to the port and Theatre and Merchant's Quarters and provides more persuasive evidence of a multiple occupancy building (Figure 74). Its attribution (listed by Bruneau as being 'unsure' (1965: 157)) is based on its extensive suites linked by a series of steps and split level corridors. A reception room with counter has been uncovered directly off the marble-surround entrance, and a wide flight of interior stairs, positioned directly to the left of the entrance lead to an upper floor. The extent of the upper floor is unknown though the wide interior stairs suggest they were intended for simultaneous multiple person access. It also features a huge central courtyard cistern, (and second cistern in a room off directly off this), a wide *exedra* and large latrines. If not a hotel complex, its appearance certainly suggests its intention as a multiple-occupancy establishment. Field observation of its spacious suites and remnants of rich wall decoration in conjunction with its location adjacent to the theatre suggests *if* used as rented accommodation, it may have catered for a high class of clientele.

#### 6.6.2.3 Independent floors

The clearest indication of multiple occupancy within a single building is its division into independent floors where exterior stairs give direct and exclusive access to the upper story. Such division suggests the occupation of the building by two (or more) separate groups of people as there are no internal ground floor stairs to provide interior upper floor access. I consider it highly unlikely that people living downstairs would cross out into the street to reach their upstairs rooms. Grahame (1997: 177-178) states (in reference to Roman housing) that it was possible for rentable apartments to have been accessed via internal stairs, though this seems less likely as the ground floor rooms would have to be crossed in order to reach them.

The division of a single house into separate floors may take place either at the time of its construction or by the later addition or extension of the upper (gallery) floor. If a two-story house was divided this way e.g. for reasons of partible inheritance, then presumably interior stair access would be altered to reflect the changes in occupation. The ground floor would retain direct access to amenities such as wells, cisterns and latrines, though drainage piping from upper floors indicates water usage was not limited solely to the ground floor. McKay (1988: 1369) considers it likely that, if resident in a subdivided property, the owner would retain use of the ground floor



rooms, using its facilities and making the most of shade afforded by the peristyle courtyard. However, upper floor occupation would avoid the dust and heat of the ground floor, and the owner would be able keep an eye on his tenants below, retaining gallery and roof space for his own use. Wallace-Hadrill (1994: 132) stresses the fact that multiple occupancy and usage does not necessarily provide any information about ownership, merely that two groups of people inhabited one building. As well as shared owner-occupied houses, it is equally likely that these houses were wholly rented and the owner lived elsewhere.

The Theatre Quarter contains seven examples of houses with proven independent upper floors (II B and D, III K, VI G, H and O). Three of these (II B, IV C and VI O) have ‘double threshold’ entrances with one door leading to the ground floor rooms and the other leading directly onto the stairs to the upper floor, similar in arrangement to some shop entrances, (Figure 75). Examples of this arrangement can also be seen with shops (e.g. Road 5, 6, 8, 10, 12, 16, and 45) and within houses at other sites, e.g. Olynthos where the stairway to House Av10 leads directly from the street to the upper story rooms, considered to have been occupied by a separate family (Robinson *et al.* 1938: 115). Two Theatre Quarter houses combine house space between separate suites of rooms as well as separate floors as illustrated in Figure 70.

#### 6.6.2.3.1 II D

Exterior stairs (to the right of the house entrance on Road 1) and stairs within the courtyard, both lead to the upper floor. It would be unusual if both interior and exterior stairs lead to the same upper floor space; I therefore suggest that they gave access to *different* upper floor areas. The division of the ground floor into separate suites does not necessarily mean the suites were used by more than one group of people occupying the ground floor. The interior stairs may have provided the ground floor occupiers with access to their own upper floor area, and the external stairs to upper floor accommodation/storage, or separate accommodation above room g and/or the adjacent shops (Rd 1 7 and STR 1).

#### 6.6.2.3.2 VI H

Exterior stairs in the alley between this house and houses VI D-F lead directly to an upper floor. The wall buttresses in rooms r and s are *not* engaged (as indicated on the plan), suggesting their later addition to the superstructure and perhaps the later



addition or extension of an upper floor to this house. The extent of the first floor is unknown but may run clockwise above the smaller suite of rooms (above p, r, (s), and q, the wall separating a and b acting as a support).

These examples indicate the likelihood that more people than single families or households were accommodated within individual buildings or insula units. However, though separate suites of rooms within a single house can be observed from studying ground plans and the site as it is, these do not provide us with firm evidence of their independent or differentiated use. They may well have been used for guests, or as separate, perhaps rented accommodation.

It is also likely that we are missing many more examples of multiple occupancy houses than those currently evident. This is with particular reference to single rooms for rent whose status as such remain undetectable, and access to upper floors via wooden stairs. Larger buildings, identified as houses (elsewhere in this study as well as in the supporting literature) may have been used as more elaborate hotel-type complexes, renting space on a room by room basis. Where the size and shape of land plots have radically affected the internal arrangement of houses, resulting separation or isolation of rooms may, be nothing more than a result of simple spatial logistics.

Delos' archaeological and architectural legacy provides us with direct evidence for the multiple occupancy of housing. Source information supports this, and independent (exterior) access to house upper floors provide us with tangible physical evidence. Interior stairs placed adjacent to the street doors (e.g. II A Trident House and VI I Dionysus House) may also have permitted independent use of the upper storeys, accessed from just inside the house's entrance.

The following section examines evidence for the provision of separate accommodation within individual houses for men and women, and whether evidence of this survives within the Theatre Quarter houses.

## **6.7 Gendered house space**

Ancient literary sources suggest that Greek houses were divided into separate quarters to accommodate men and women (Section 6.7.1). This was achieved via spatially distinct suites of ground floor rooms, lockable rooms, or the women of the household occupying the upper floor of the house. 'Male' house space is identified as being the



*andron*, or dining room, where guests and visitors were entertained and ‘female’ house pace, *gunaikontes* (or ‘women’s’ quarters’) is identified as being or including the loom room in which the women of the household would spend the majority of their time. Modern scholarship perpetuates the search for the provision of separate accommodation for men and women, fuelled by mention of it in ancient texts. This section investigates arguments regarding the provision of and use of ‘gendered’ house space and questions whether the Theatre Quarter houses provide any evidence of this.

### 6.7.1 Literary Evidence

Information from source literature is laced with male bias regarding women and their role within the household and society. Foley (1981:128) notes how prose text tended to emphasise women’s confinement while drama often gave the women of the household a more public and often controversial role. It was a stated ideal that women should be closeted within the house, particularly from non-kinsmen, with gossip and ill renown following those who did not adhere to this (Eur. *Daug.* 649-656, echoed more recently by Pomeroy 1975: 79). Theophrastus goes so far as to accuse women of being prostitutes if they opened the door to their house themselves (*Char.* XXVIII). Women out of doors were a clear concern to their male counterparts and were assumed to be scheming and up to no good.

As Blundell (1995: 139) suggests, given the importance placed on women’s separation, even the smallest of homes (without a slave) may have had a separate room for women to use. Foley (1981: 130) supports this idea by emphasising that respectable women, at least ideally, were confined as much as possible to the interior of the house (and the women’s quarters within it), in contrast with the men of the household who spent relatively little time indoors. There were few reasons considered legitimate for women to leave the bounds of the house though women may regularly and often have exploited all of them. These included following religious observances, fetching water (Herod. *V.*12) (Blundell 1995: 163) visiting neighbours and relations (Aris. *Eccl.* 446-450, Dem. *Oration* LV 23-4), and even helping friends in childbirth (Aris. *Eccl.* 528). Dillon *et al.* (1994: 374) considers that many lower class women would have undertaken paid employment outside the house, and would therefore only have been confined to it by their domestic duties. Domestic chores would have been time-consuming, further contributing to the idea that women out of doors were up to no good and neglecting their household duties (Blundell 1995: 136). We know of



women taking jobs in agriculture or on farms (Ar. *Peace* 536, *Ach.* 478, *Wasps* 497), selling *woven* goods at market (Ar. *Frogs* 1347-1351, *Lys* 458-9) and baking commercially (Ar. *Wasps* 1388). Poor families in particular may have relied on the income from these types of employment.

Much use is made of a passage in Lysias (1.9-10) regarding Euphiletos' Athenian house when his wife moved to sleep downstairs in order to be able to tend to their baby during the night. The internal arrangement of his two-story house is applied as a template to *all* Greek houses, though it was Athenian, and therefore not a direct reflection of the rest of the Greek world, as Chamonard (1922: 165) reminds us. It is unclear from the passage whether other female members of Euphiletos' household also slept upstairs, or whether everyone within the household slept on the upper floor, perhaps for reasons of security or privacy. The description of Euphiletos' house may therefore be telling us more about the particular circumstances of Euphiletos than about any genera; male-female division. Modern scholars continue to express these ideas based on such ancient source information and their attitudes are exemplified by Pomeroy (1975: 80):

"The separation of the sexes was expressed in private architecture by the provision of separate quarters for men and women. Women usually inhabited the more remote rooms, away from the street and from the public areas of the house. If the house had two stories, the wife along with female slaves lived upstairs."

Further discussion covers the likelihood of such spatial distinctions with upper floors *more likely* to have been used by women (Kent 1948: 296, Zimmern 1966: 182). In contrast, Rider (1964: 234-5) suggests women retired to their own rooms when they wished though they used the courtyard the freely rest of the time. This is more practical than Pomeroy's suggestion where light restrictions alone would make working (particularly weaving) within remote rooms virtually impossible. It is likely that there were *preferred* areas of the house in which domestic chores were undertaken, and this may have been influenced by the need for drawing water (from the courtyard) and its use e.g. within 'wet rooms' where there was drainage facilities and waterproofed flooring.

Many rooms give no direct evidence for them being restricted to, or favoured by, either women's *or* men's use. Most domestic finds which may have indicated where items were either stored or used, were removed when the houses were originally abandoned. Where remaining, small finds are scattered throughout the house and who



used what space (and why) cannot easily be deduced from the remaining distribution of artefacts (Foxhall 2000: 492).

## 6.7.2 Archaeological evidence

### 6.7.2.1 Male house space

The *andron*, or ‘men’s dining room’, is identified through its rich mosaic flooring, door placement, and wall decoration (Section 6.9). Both Walker and Nevett (1983 and 1995 respectively) stress its placement near to the entrance and street door to the house. This means that the dining room could be reached by guests without having to cross the rest of the ground floor first. Other accounts place the andron opposite and in direct line of sight from the entrance (Laloux 1888: 247, Wallace-Hadrill (in specific reference to the Delian houses) 1994: 45)). The only ties between *androne*s and gender-specific activities originates in literature rather than archaeology, with the dining room as the focus for dinner parties/*symposia*. There is also no direct evidence which states that these rooms were for the exclusive use of the men of the household. Also, if these rooms *were* the realm of the men within the family, house ground plans provide no identifiable equivalent for women’s quarters.

The majority of the Theatre Quarter houses contain one (or more) rooms decorated with mosaic flooring and wall painting, likely used for receiving and entertaining guests but it is unlikely that it would be used only for that.

### 6.7.2.2 Female house space

Contrasting with andron identification, ‘female’ house space is attributed on the location of small finds evidence rather than room allocation. In particular, loom rooms are identified as ‘women’s quarters’, and contrast with the elaborately-decorated male dining rooms. Weaving was mostly women’s work and the position of a loom is not necessarily indicative of women’s work space, simply of weaving, and the room may have been chosen because of the available light by which to work. It is also likely that spindle whorl and loom weight finds indicate storage space for weaving equipment, and were not necessarily the place in which they were used.

Where small finds evidence for women’s quarters is missing, they are assumed to have been upstairs in the house, and therefore conveniently lost from the archaeological record. However, not all houses *had* upper floors. Any separate accommodation allocated to women within these houses would have had to have been



on the ground floor. References to women looking out of windows (Section 6.7.1) indicate their use of the upper floor within the house, as the height of ground floor windows above floor level meant they were too high above floor level to be seen out of. The connection between women looking out of windows and ‘women’s quarters’ being upstairs is likely therefore to have been no more than a description of people looking out of the windows in a two-story house.

Robinson *et al.* (1938: 169) suggests that even if the upper stories of houses *were* used exclusively by women, they could only have been rigidly secluded from the ground floor as galleries opened onto the courtyard just a few feet below. A dual division of house space between men and women’s rooms is shown in Walker’s (1983: 87ff.) discussion of the use of house space (Section 2.2.2.1). She indicates the workroom, kitchen, storeroom and courtyard as being used by women, the andron and other court by men. Interestingly, the work room (keyed as female space) can only be accessed from the *male* courtyard area. Walker proposes interesting questions with regard to gender divisions within house space, e.g. where was the loom room in relation to the andron? and could the women’s quarter’s be reached (directly) via an exterior door? She rightly stresses how much interpretation and analysis still depends on the identification of rooms (Walker 1983: 91) though rooms may have been without a specific identification to be translated.

Given the average small house size, and paucity of secure evidence for gender separation of rooms or suites of rooms, it seems highly likely that all household members would have used all the available room space. Scheduling of activities, e.g. particularly when guests or visitors were present, seems more likely than strict divisions which would be virtually unworkable (Nevett 1992: 40). Robinson *et al.* (1938: 172) also emphasise that, particularly within small houses, a duality of separate spaces was impractical, though certain rooms were more *likely* to have been occupied by women versus being exclusively being used by them;

“...in smaller houses the word *gynaecontis* probably merely denoted the more private rooms or part of the house inhabited particularly, but not exclusively, by the women.”

If separate accommodation *was* confirmed, and the social ideal of female seclusion upheld, with only women, children and slaves, or other family members present, why would women closet themselves within one or two rooms within the house? They could not be seen unless by other people within the building and, in this instance, I



suggest it is more likely they made full use of the house and its facilities. For example, Demosthenes (XLV.55) mentions the wife of the house lunching in the courtyard with children and low-status dependants in the absence of her husband.

For the women of the household to remain out of sight would therefore mean staying within a single room (or small suite of rooms, if they interconnected) as movement across the courtyard, or upstairs equivalent – a walkway - would risk being seen. If not just confined to the house but to rooms within it, Walker emphasises how women would have lived in cramped and dreary quarters (Walker 1983: 82). Cohen (1991: 84) also considers that the restriction of women's movement is often exaggerated and gives too narrow a picture and sexual segregation within the house may have been little more than an upper class ideal (Blundell 1995: 135).

Nevett (1995: 363-4) considers that the room arrangement within ancient Greek houses was more complicated than a simple male-female division of space and gender considerations formed only one possible aspect pertaining to the use of rooms therein. She goes on to consider that areas of the house referred to as 'women's quarters' were merely those parts of the house men were not admitted to when visiting others being used by women of house though not necessarily to the exclusion of other family members (Nevett 1995: 373).

Though the dichotomy of interior house space is seldom challenged, there is scarce consideration of the influence of the layout of the houses occupied. At the time of construction, grouped suites of rooms may have maximised the available space around a courtyard, and divided the space accordingly. Similarly, single rooms may have been grouped or separated to allow the position of a vestibule or entrance to be sited, and, however first arranged, house space may later have been adapted by its inhabitants to suite their changing needs. In terms of interpreting house layout, secure room identification is limited to areas which are highly decorated, and likely to have been used for receiving guests.

### **6.7.3 Evidence from the Delian houses**

Laidlaw's (1933: 241) early account of Delos states that there were no traces of women's quarters in any of the houses and Robinson *et al.* (1938:169) state that none of the Delian houses have separate apartments. In contrast, Chamonard (1922: 176) says there was distinction made between men and women's apartments, though the



women carried out their ordinary work within the courtyard, as opposed to in separate rooms. He identifies men's rooms as being dining rooms and family rooms, and the *prosta* porch as the female equivalent of the *exedra* for open-air dining and entertaining (1922: 169), perhaps indicating that women were not confined to the upper floor of the house. Chamonard goes on to consider the *prosta* porch as having been the equivalent of the male *exedra*, though used for women to work in, instead of conversing (1922: 176).

Room VI Ne (stairwell) contains the Theatre Quarter's sole surviving example of a door sill indicating that the original door was closed on the stair/upper floor side rather than the courtyard, i.e. by whomever was upstairs. We could conjecture that this provides evidence for women's quarters upstairs, though equally it may have been a simple security measure for the household, securing both themselves and their valuables upstairs during the night, or again, an indicator of multiple occupancy. (Section 6.6).

Following generally accepted *andron* identifications, the French School's excavation reports identify a sole example on the island, room G on the ground floor or Hermes House (Bruneau 1965: 134). However, in the majority of the case study houses there is one room, which is set apart from others in the house by its mosaic flooring more elaborate wall painting. Though these do not conform to the expected *andron* identification in terms of doorway placement for couch sills, it can be suggested that these would have been used for guests and visitors.

It is possible that the nature of Delos as a trading, religious and commercial site would result in there being relatively few family residences in comparison to commercial or business properties and consequently less women resided on the site as a whole. Simple binary division in itself is insufficient to substantiate the divisions often made of Greek houses based on gendered considerations. Even if groups of rooms *were* divided by gender and not perhaps by the multiple occupancy of the building, the courtyard would have to be crossed in order for guests to reach the dining room and also for e.g. water to have been fetched, to reach the stores or cooking facilities. The seclusion of room groups for practical reasons, e.g. access in and out of the house, strongly suggests that this was not the case.



### 6.7.4 Conclusions

Gender division is often restricted to the study of women and therefore to only half of any household. I suggest the problems associated with the division of gendered space for men are similar to those for women in that there would have been minimal space or opportunity for their separate accommodation. The Delian houses contain separate suites of rooms, able to be closed from the inside and therefore securing them from the rest of the house. We have no sure way of knowing who used what room, and when, or if the physical separation of men and women was as real to the daily lives of the inhabitants as the continuing academic search for it appears to indicate. Here, the search for function-specific areas has extended to the gender-specific too and modern scholars perpetuate ideas favouring fixed male-female spatial divisions (Pomeroy 1975: 79, Pope 1976: 95). Some houses were physically too small to have contained two separate areas or suites of rooms. Perhaps in this instance the gendered division of space could be seen more as a prerogative of the rich, as Walker considers it (1983: 84). It is also an important point to remember that not all houses *had* upper floors.

The stated ideal of seclusion and separation for the womenfolk from non-kinsmen and guests in reality may have been little more than an ideal. Women may well have retired from the courtyard or to behind cover (partial/full) when guests arrived, but to suggest they spent the majority of their times in a separate area of the house I believe is too simplistic and restricting. The ideal of the seclusion of women in reality was little afforded by the structure and nature of the housing (Blundell 1995: 163, Cohen 1989: 3) Questions of house space being organised according to the gender of the house's occupants provides a clear example of how (scant) literary evidence has been previously taken at face value, and the archaeological evidence poorly matched to it. The strict binary opposition suggested by male-female gender division is sustained in modern literature. I think that gendered spatial division is an idealised conception to fit with an idealised role of women in society at the time, and too little evidence has come down to us to be able to say more than this.

## 6.8 Water provision

Access to (drinking) water was as much a necessity for the ancient inhabitants of Delos as it is today. This was obtained from public wells, fountains and cisterns. The majority of the island's houses had private water supplies, wells for freshly-drawn



water and cisterns for rainwater collection and storage. Latrines were positioned within hallways or in rooms adjacent to them, and each was connected to the nearest street drain for the disposal of waste water and effluence by drainage pipes. Further adduction pipes from upper floor and roofs transported additional waste water to these drains and can still be seen within wall recesses and footings.

An extensive sequence of interior and street drains spanned residential areas, leading from latrines, courtyard impluvia, tiled flooring areas and upper storeys. The drains were formed from lengths of lined piping buried beneath street and house flagging. The direction of slope, and consequent flow is indicated by arrows on the ground plans sloping down towards the shoreline where they emptied.

In addition to drinking, water was also necessary for washing, food preparation, laundry and cleaning houses (washing sealed floors). Though the majority of houses had their own wells for freshly-drawn water, seasonal fluctuations and changes in water table levels would mean they too would need additional supplies. Public wells and cisterns provided additional sources. Several Theatre Quarter houses had access to a water supply common with their immediate neighbours. Others have access to wells which could also be reached from the surrounding street.

### **6.8.1 Household water features**

All bar three of the houses within the Theatre Quarter (III F, III G and VI G) have direct access to water supplies, via wells, cisterns or a combination of the two. Multiple occurrences of both wells and cisterns feature within amalgamated adjacent properties or within room spaces that have been changed from shops into house space.

A clear distinction can be made between freshly-drawn and collected water. Fresh water was drawn from wells sunk within the house and was suitable for drinking and food preparation. Collected water was in the form of rain, gathered via the roof of the house and channelled to the storage cistern below the courtyard. It was likely this water was used to do laundry, ('industrial' process within the house) and also to wash the floors. Rain falling directly onto the courtyard was directed straight outside the house to the nearest street drain and not to cistern storage, as having first fallen onto the ground, it was unsuitable for drinking. It may have been used to clean the impluvium and courtyard floor though, so too rooms with tile and mosaic floors (Chamonard 1924: 352), perhaps used for dining e.g. II Bt. Debris was prevented



from falling into under-courtyard cisterns via the placement of grills within connecting drainage channels, e.g. within VI Hd.

#### 6.8.1.1 Wells

Drawing fresh water to fulfil the needs of the household must have been a time-consuming and laborious daily task. Many pitchers would need to be filled in order to provide sufficient water for the household's daily drinking, cooking, washing and laundry. There was no fixed placement but wells were usually sited within the courtyard of the house and were accessible from all rooms (Chamonard 1924: 326). Wells are found between pillars, in the angles of impluviate courtyards or near the centre of impluvia. A wide range of well copings survive, crowning the well openings, from the very decorative with sculpted figures down to simple stone surrounds (Chamonard 1924: 346). Many still hold wear marks from ropes that were originally used to lower vessels in to draw water. The courtyard well within house III J remains in service for Delos' current inhabitants.

#### 6.8.1.2 Wells within walls

The Theatre Quarter contains two examples of wells positioned between pairs of adjacent houses. It is likely the sharing of water supplies would have been more widespread than these examples indicate. Facilities *within* one house may have been used by neighbours but we have no way of telling whether this was the case, or under what circumstances these sorts of arrangements were made. The sharing of common supplies may also have led to strained relationships between houses (Chamonard 1924: 325) particularly if the common water supply was the only link between two separate households, or rented properties. Elsewhere wells feature within walls of individual houses, and access to these supplies is sited *above* ground level. Houses II B, III K and III M within the Theatre Quarter and Lake House provide such examples.

#### 6.8.1.3 Cisterns

All Delos' cisterns were supplied by rain water (Chamonard 1924: 344). Terracing methods/arrangements for water collection from house or peristyle roofs is unknown, but perhaps sloping roofs lead to down-pipes with funnelled openings. The usual position for household cisterns is in the centre of the courtyard. Each cistern was hollowed out from the bedrock, and lined with waterproofing hydraulic plaster to help prevent water loss via seepage into the surrounding ground. Cisterns also feature in



other rooms within the house (including III Dc, III Rd and VI Fg), their vaulting supported by wooden and stone beams (Chamonard 1924: 331-2). This may indicate further changes in layout from original house plans, or accessibility to suitable ground in which to sink the cistern pits. Hydria fragments have been found within cisterns, and bronze vessels found within domestic wells, assumed to have been used for drawing water (Chamonard 1924: 354).

#### 6.8.1.4 Latrines

Twenty-eight latrines survive within the Theatre Quarter, (identified by their 'L'-shaped drainage channels). Their connection with street drains necessitated their placement as close as possible to the exterior of the house, within vestibules or in rooms leading directly from them. The accompanying lack of sill stones or other door fixture marks indicates that the latrines were without permanent door fixtures though may have been closed or at least part-closed or covered by partitions or drapery hangings. House III B contains the only example of a latrine with door pivot placement, indicating that the area (b, adjacent to the front door of the house) was closeable with a door (Chamonard 1922: 183). No door sill rebates have been found elsewhere. It is thought the latrine drainage channels were originally covered in wooden planking in which holes were cut, allowing possible multi-person use of the facilities at a single time if the rooms were long enough (Chamonard 1922: 185). Delos' household latrines are analogous in layout to the island's public facilities, e.g. those at the Agora of the Italians.

Perhaps surprisingly, some of the richest houses within the Theatre Quarter are those *without* evidence of latrines, (including Trident, Cleopatra and Dionysus Houses, II A, III I and VI I respectively). This may indicate a preference here for the use of upper floor latrine facilities of which no archaeological evidence remains. Chamonard attributes ground floor drainage channels within these houses as being linked to upper floor latrines, with the evacuation of waste via a descending pipe or two latrines in the room above II Ag and the suggestion of latrine facilities in the room directly above the wide drainage channel within VI Im (Chamonard 1922: 189).

#### 6.8.1.5 Baths

II Ei/j contains the sole example of a fixed bath tub within the Theatre Quarter, though it is possible that portable terracotta tubs were used elsewhere, within other



rooms with tiled or sealed floors ('wet rooms'). Examples of tubs found *in situ* (Hermes house; House of the Comedians complex, Inopos quarter) are placed in rooms adjacent to entrance of house, and therefore the nearest drain, presumably for practical reasons of water disposal. Evidence for bathing elsewhere on the island includes the Agora of the Italians which contained a Roman bath complex.

#### **6.8.1.6 Drainage**

Evidence for water adduction survives both in under floor and street drains, and as 'down pipes' buried within the depth of house and shop walls. The original piping was surrounded in pottery or lead and some hold traces of lime concrete or linings of lead sheeting (Chamonard 1924: 354). The piping was held in place by nails and wooden pegs (TR 45, II Bi), opening into the street drain through footings at the base of the wall. Drainage piping can be found within exterior walls of houses, within the corners of rooms, and also fixed down peristyle columns (e.g. III Id). This directed waste water from upper floors to the street drain and rain for collection in the cistern beneath the courtyard.

#### **6.8.1.7 Upper floors**

Water provision for upper floor rooms, particularly where the first storey was independent of the ground floor, was as important as for the ground floor. Direct access to fresh (well) water was impossible within upper storey apartments and water intended to be used there would have to be carried. This would be the case both for water used in upstairs apartments for washing or to support an entire household, though perhaps in the latter instance, a cistern or tank may have been used for water storage. There would also need to be an outlet for water disposal, and evidence for this can be seen where adduction piping is embedded within exterior walls, linking directly to covered street drains below.

### **6.8.2 Public water supplies**

For houses without their own water supplies, additional household needs and visitors to the site, water was available from public supplies at the Theatre and Inopos Quarter cisterns, the Minoe fountain in the agora, and public wells (e.g. STR 3 and adjacent to TR10). Each of these areas is within ten minutes walk from the Theatre Quarter insulae.



Water from sources exterior to the house is likely to have been collected and carried via panniers on pack animals or in jars on the heads of (slave) women. It is possible that water drawn from e.g. wells or cisterns within rooms (vs courtyards) within the house was also used within that space, and so both water and user could remain out of sight from the rest of the house. This, in turn, is extremely limiting and water used e.g. in wet rooms would have to be carried there from source.

### **6.8.3 Shops and industrial instalments**

Several shops within the Theatre Quarter contain wells, (TR10, 27b, 28, 32, 40a, 40b and 45) though Chamonard (1924: 325) stresses that there was usually no direct water supply access to shops.

## **6.9 Décor**

This section details the mosaics and wall paintings contained within the Theatre Quarter houses. Reports published close to the time of the site's excavation contain invaluable photographic and textual information of decoration which has since been lost through weathering and destruction. Elements of floor and wall decoration link ground level and elevated features to provide a more comprehensive picture of the interior decoration of the Theatre Quarter houses than the current site allows.

The choice of flooring materials and their location indicates a consideration for practical issues as well as decorative ones, and can also provide pointers as to locations for e.g. guest entertainment within each house. Mosaic flooring provides additional evidence for interior architectural changes to those evident through property division (Section 6.5.2). Linking ground plan information and wall decoration enables us to investigate whether rooms containing rich mosaic flooring also held polychrome wall paintings, and whether this indicates a (decorative) hierarchy of rooms within each house.

### **6.9.1 Flooring**

Some rooms within the Theatre Quarter contain no traces of pavement, appearing as empty white space on the ground plans. It is possible that these areas never held flooring or it has been removed or destroyed, or perhaps its constituent materials were re-used for new mosaics (Chamonard 1924: 391). In contrast, other houses indicate



the investment in decorative materials used throughout the house, e.g. Trident House where each room is paved in mosaic.

### 6.9.1.1 Materials

Materials from preserved areas of pavement include gneiss paving, tile, marble chips set in mortar, mosaics of all materials and diverse rock types. Their application ranges from uniform floor covering to fine detailed mosaic. Gneiss paving was the most frequently used flooring material and was common in vestibule, courtyard and latrine areas. Examples of it as floor covering were rarely found within ground floor rooms and no evidence of its use in upper storeys survives, likely due to the weight of the stone involved. Circular patterns of paving stones indicate the position of *mills* (Section 5.4.3.2.1), showing where industrial or commercial premises (e.g. TR33 and STR7) were sited in relation to residences.

After gneiss, the most frequently-used flooring material was (white) marble fragments set in mortar, *opus segmentatum* (Chamonard 1924: 395). This was used in vestibules, courtyards and especially in *exedrae* and *oeci*. It was rarely used within rooms and latrines, and was most often used without embellishment. Surviving examples show the use of coloured mortars (pink/red) or its application as a border for more finely detailed (central) *opus tessellatum* work. This form of fine mosaic covering was composed from a series of regularly-fitting cubes placed directly into a cement bedding. *Outlines of patterns can be seen indicated by lead strips*. This mosaic technique was relatively new at the time of the Delian pavements (Bruneau 1974: 4). It was of excellent quality and was usually applied within central panels, *emblema*. Mainly geometric designs, and rare for monochrome. Numerous examples of *o. tessellatum* were found in debris from upper floors including designs of posts, meanders, checks, cubes and flowers. *Opus vermiculatum* mosaic work was composed of tiny tesserae, often only a few millimetres in diameter; shaped so cement between pieces was barely visible. It was reserved for the execution of the finest detail e.g. VI I *emblema* panel of the fine features of Dionysus.

Mosaic flooring of tile or pot pieces provided a more economic use of material and was sometimes composed of re-used material e.g. amphora fragments. Large and uneven inclusions of stone materials were combined with burnt clay mortar to produced flooring of pink coloration. This method of floor covering was limited to red



and white due to its constituent parts, and was used in geometric designs within modest houses or the domestic areas of wealthier ones (Bruneau 1974: 3).

Flooring materials provide different levels of durability. Stone and sealed floors were hard-wearing and waterproof, particularly suited to the outdoor space of the courtyard where they could be swept clean and would be unaffected by rainfall. Similarly, interior sealed floors e.g. within dining rooms or area of food preparation could easily be washed or swept down and kept clean. Unsealed floors, i.e. those of beaten earth, feature most predominantly under the cover of peristyle walkways (e.g. III I Cleopatra House, III J, VI N, VI I Dionysus house) where they would not be immediately vulnerable to rain.

### 6.9.1.2 Designs

Flooring designs range from plain, monochrome coverings to carpets of polychrome perspective cubes and rich figural panels. There are repeated examples of wave patterns, sea motifs, vases and branch/wreath compositions, and Dionysus riding on the back of a leopard or tiger. Bruneau (1974: 39) considers the recurrence of these motifs striking given the number of extant mosaics surviving though due to paucity of other eastern Mediterranean examples, Westgate (1995: 121) emphasises how we are unable to say if these designs were ‘in fashion’ at the time or were favourites of Delos’ inhabitants.

Entrances and threshold mosaics served apotropaic functions, protecting those entering and leaving the room or house and also preventing evil spirits from entering (Westgate 1995: 205). Seven examples of threshold mosaics have been found within the case study houses: within IIA at the two entrances into the courtyard (via a (dolphin and anchor design) and h (trident design)), Ni (dolphins and anchors), Qe (plant rosette), Sd (anchor), VI Md and i (plant rosette). The threshold mosaics within III Ie, aligned with the doorway does not contain a figural motif but shows differentiation from the rest of the *opus segmentatum* border. The threshold mosaics within III Ni, and Qe, are aligned with the centre of the mosaic panels rather than the entrances/doorways into the two rooms. This perhaps indicates the movement or change in the position of interior walls or partitions within the house since they were first laid. It is unlikely investment in rich polychrome mosaic would be undertaken if



the panels were then to be laid off-centre or masked from view by adjacent architecture.

Examples of *opus tessellatum* central motif panels ('carpet' mosaics) surrounded by marble chip borders can be found in five of the case study houses (II Ad (impluvium and pastas walkway), i, j, and k, III Ie, III Pc, III Sd, IVB e and g). Bruneau (1974: 40) compares this style of central panel decoration to the appearance of hanging a framed picture on a wall. Some of the island's central emblema panels have been cut and lifted (Bruneau 1968: 681), including mosaics from IIA, Trident house and Inopos Quarter Bf, Fourni House, Triton House and three houses within the House of the Comedians complex.

Only two figured mosaics have been found within the Theatre Quarter. The first, a panathenaic vase holding a chariot racing scene, palm branch and wreath in II Ai. The composition, perhaps chosen as an invocation for good fortune (Westgate 1995: 205), was oriented towards the back of the room suggesting it was intended to be viewed from this side. Westgate (1995: 192-4) indicates that the orientation of this mosaic reflects alterations in the original design of the room, as figural panels were oriented so they could be seen the 'right' way up from the doorway. It is unlikely this room would have been an earlier entryway into the house as there is no evidence of a blocked doorway within the exterior wall, and the room is unusually wide for an entrance, unless it was an earlier shop conversion. The second figured mosaic features Dionysus riding on the back of a panther and forms the central courtyard panel within VI I, oriented to face the north part of the house and room f. Containing many tesserae measuring less than a millimetre in diameter it is technically the finest mosaic on Delos (Bruneau 1974: 21).

Westgate (1995: 185, 205) considers that the primary use for mosaics was ostentation particularly within public areas of the house where guests were likely to be entertained or visitors would pass through. This form of expenditure was intended to impress, and be seen. It is also possible that this decoration was put to other uses. Differences in flooring materials between rooms may indicate or highlight a specific/preferred path or route to be taken, e.g. to the *andron*. A possible example of this is within IV B, (Figure 76) where the courtyard is paved in *opus segmentatum* on three sides, and retains a covering of beaten earth on the fourth. From either street entrance, the walkways of sealed flooring leads to the *exedra* (e) and room g, both



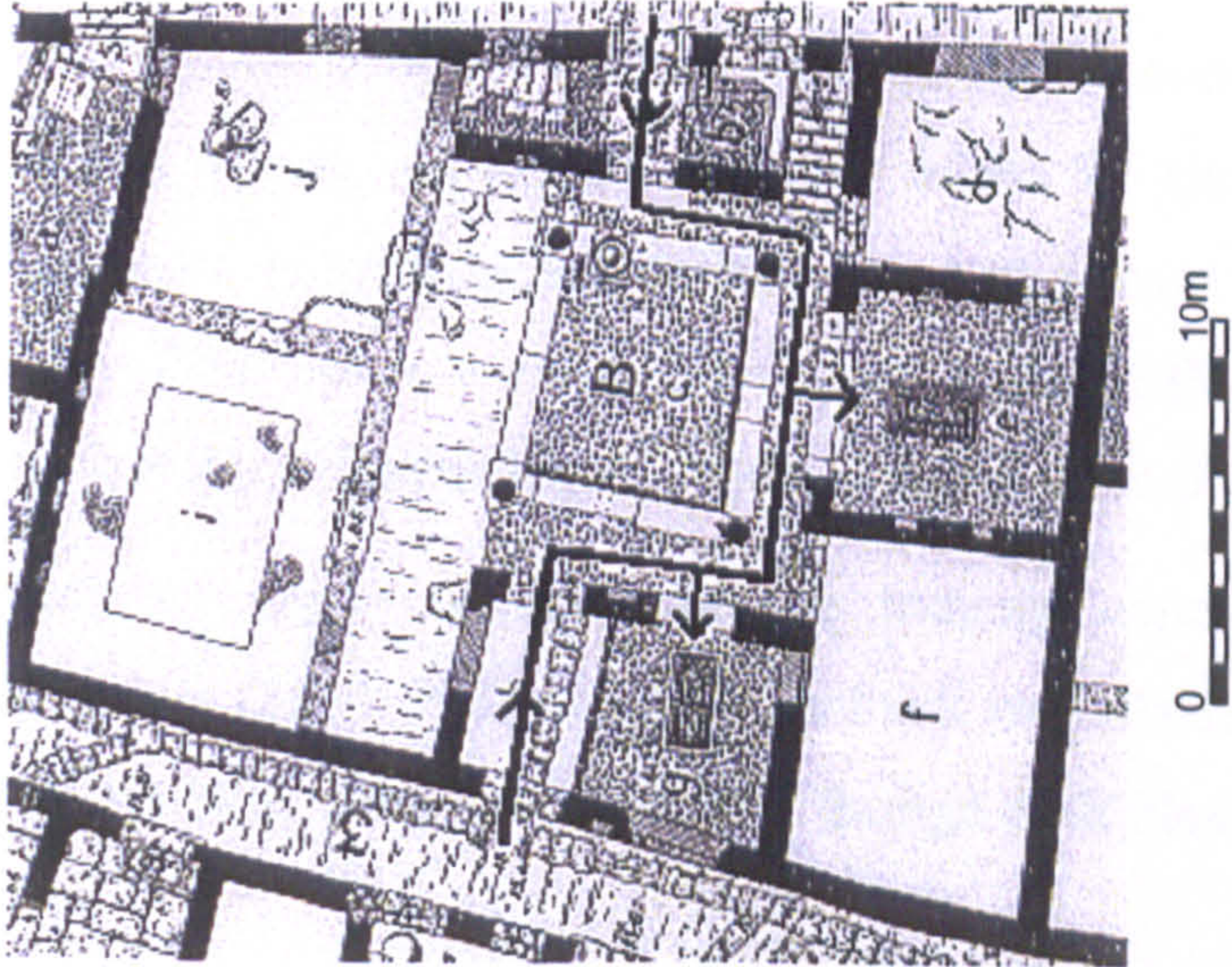
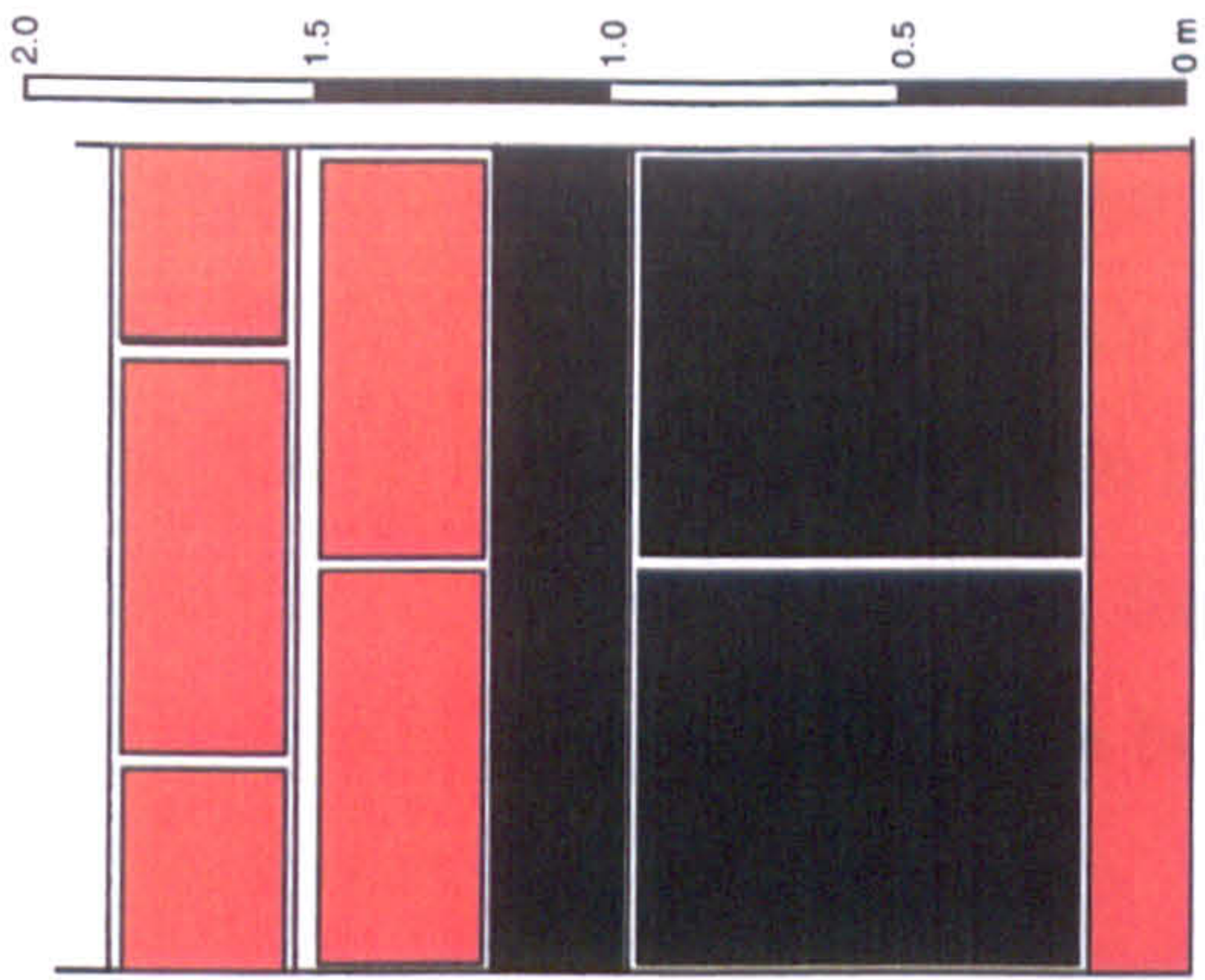


Figure 76: Paths within IV B  
(Chamonard 1922, Plates III-IV)



Figure 77: Surviving wall decoration within VI Fd  
(Scale bar measures 0.50m total length, *left*)





decorated with mosaic flooring with central panels. It can be suggested that guests or visitors to this may have reached either room by following either path. Similarly, Westgate (1995: 206) suggests visitors would have been directed around the decorated part of the courtyard to reach the anteroom/andron complex within houses at Olynthos, with the *pastas* walkway forming an additional anteroom. In this way, movement around the house may have been directed and accentuated by a hierarchy of wall decoration.

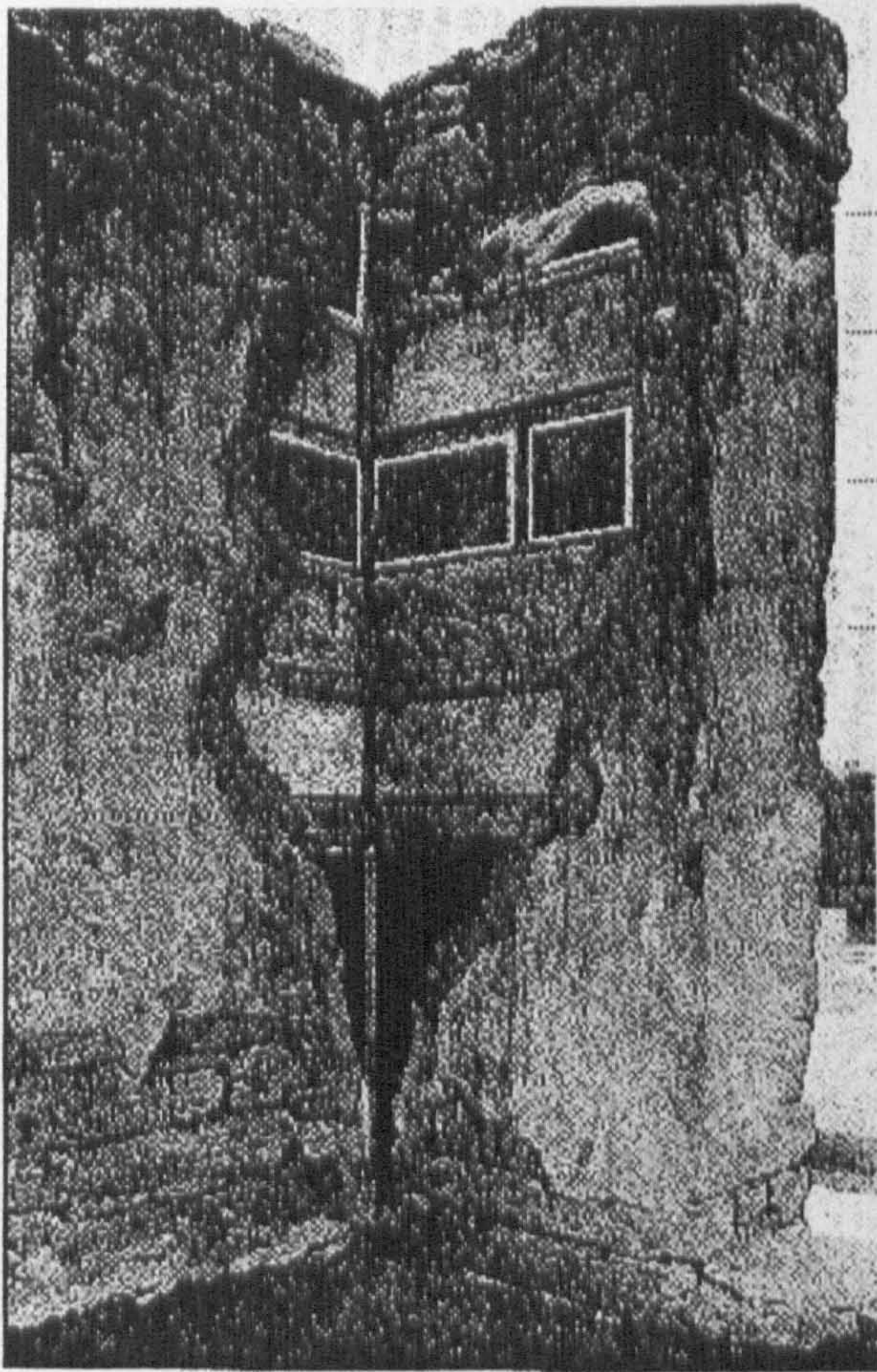
Elsewhere, mosaic detail can also help in the identification of rooms and andron suites in particular. Robinson *et al.* (1938: 60) identify these areas by strips of mosaic placed around the edge of the room, considering these to mark the position of couches within it. Robinson *et al.* (1938: 172) mentions that none of the Delian houses contained andron flooring platform though *oeci* such as VI Md are marked by a plain cement border, here forming a poorly preserved platform standing c7cm above the centre of the floor (Robinson *et al.* 1938: 181), (0.90-0.95m wide). In contrast to this Lawrence (1996: 187) considered it customary for the dining room floor to be placed on a single level with couch placement delineated by the mosaic flooring (e.g.'s II Aj, III Ie, III Ni, III Qe, III RSd and VI Md and i). Patterns of mosaic flooring within androns were designed to be concentric and so viewed from anywhere within the room (Westgate 1995: 191) as couches would be arranged around the walls to face inwards. Following this, room II Bt with its polychrome mosaic of rich perspective cubes could be identified as a possible andron.

### 6.9.2 Wall decoration

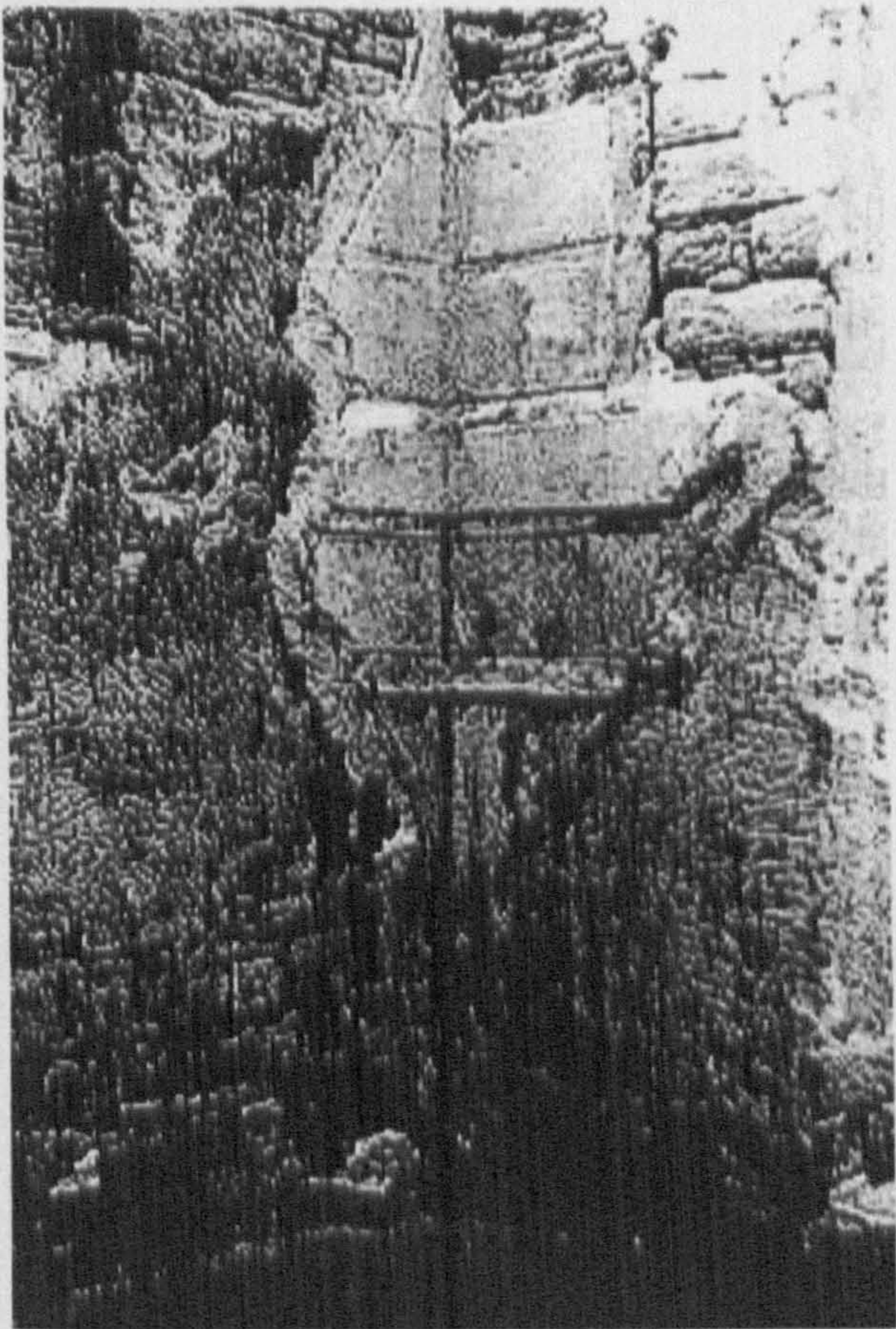
Of the four hundred rooms uncovered on Delos, Bruneau *et al.* (1996: 72) estimates that 70% have decorated wall covering. Areas of coarse base layer plaster mixed with shards of pottery and tile are abundant across the site. Small areas of fine top layer plaster survive, with incised details. Areas of vibrant colour and painted designs are preserved in locations away from direct sunlight (Figure 77), though much of the detail has been bleached by the sun and exposure to the elements (Figure 78).

Successive layers of thick plaster indicate repeated re-decoration of houses. Chamonard (1924: 387) attributes the thick wall plaster also as covering irregularities of construction workmanship below though thick plaster layers can also be seen on





(Chamonard 1924: 374, Fig. 230)



Corresponding fieldwork photograph, 1997.

Figure 78: Extant wall decoration within VI Ii

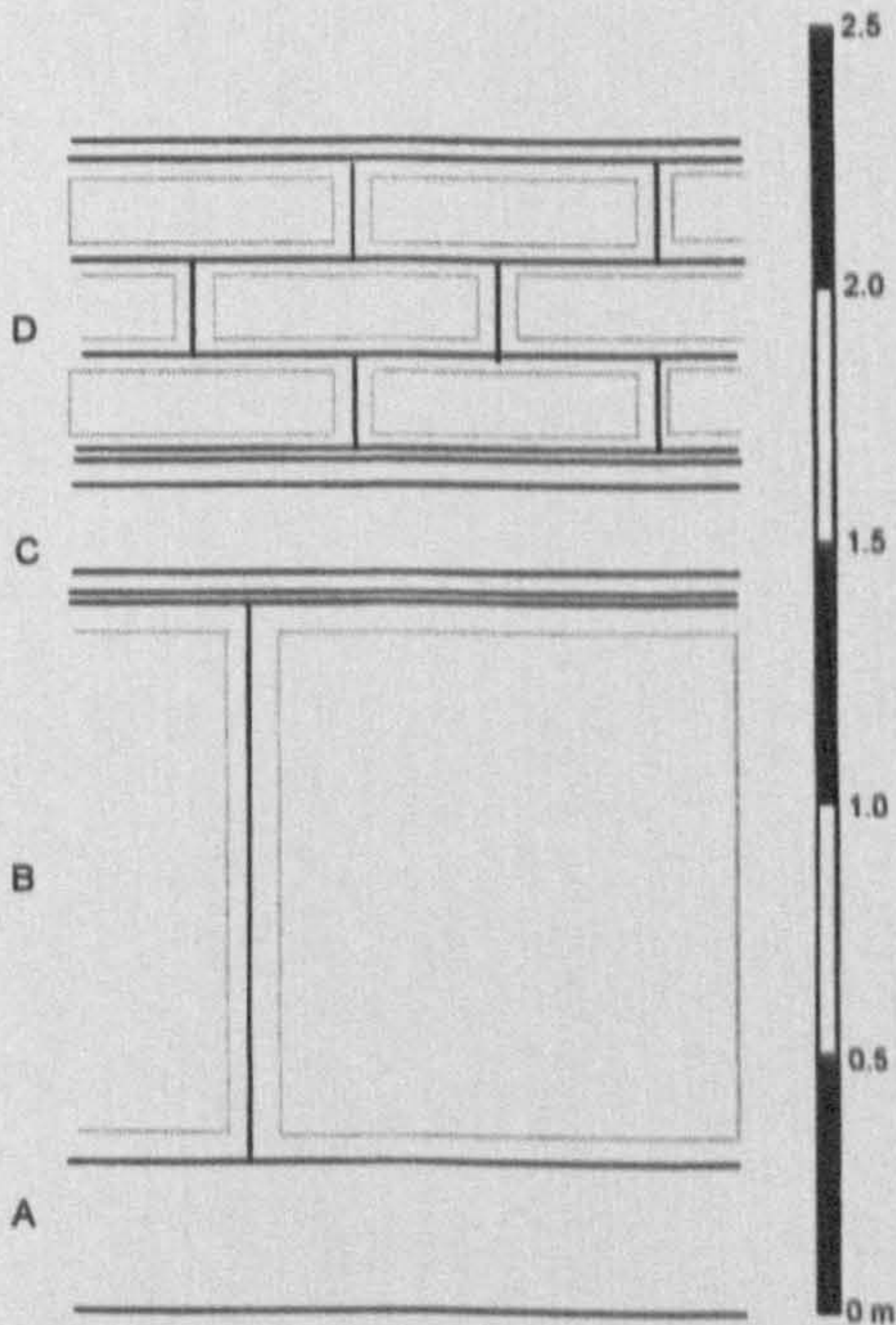


Figure 79: Wall decoration scheme  
(Based on Westgate's measurements, 1995: 1999)



other features e.g. altar in Road 2, adjacent to III K, with painted detail of the legs of a running figure still visible.

Westgate (1995: 201) states that even the smallest Delian houses were plastered throughout. Wall decoration ranges from coverings of uniform white stucco (applied directly to the wall), most usually found in shops, to incised lines cut into white plaster, coloured panels and friezes of relief bosses, and combinations of all these features. Excavators have reconstructed decorative schemes found on the basis of Pompeian parallels, especially for upper walls where plaster rarely survives (Westgate 1995: 198). The Delian houses are decorated in 'Masonry Style', an equivalent of First Pompeian Style with brightly painted and incised plaster imitating blocks of ashlar masonry and coloured stone veneers. Stucco, containing marble powder, enhanced the imitation stone surfaces with grain susceptible to polishing, and vertical and horizontal incisions imitating block joints.

Masonry Style decoration contains horizontal bands and layers of decoration of varying height and detail (Figure 79). A low plinth is placed at the base of the wall, 20-40cm in height and often painted red. Above this, large rectangular panels (*orthostats*), 80-120cm in height and usually painted black, fill the space to the frieze. A narrow frieze band separated the wall, and placed above it is a series of long regular blocks (*isodomes*), 40-50cm high, arranged in patterns similar to brickwork. The decorative scheme reaches c2.5 metres in total. The main paint colours used are black and red though white and yellow were also used, with green and blue featuring less commonly, and usually on the uppermost regions of the wall. Westgate (1995: 200) suggests this hierarchy of colours was related to pigment cost, with the most precious colours being used high on the walls where they were less likely to be damaged, e.g. by furniture.

Many Delian mosaic rooms also contain polychrome painted wall decoration and mouldings contrasting with plain mosaic which was coupled with simpler wall painting. Chip mosaics were accompanied with plain plaster and tile pavements were always linked with white plaster as they were strictly functional (Westgate 1995: 201) though *o. segmentatum* courtyard examples survive with more elaborate walls. The simplest decoration (whitewashed walls, sometimes incised with lines) was not necessarily used for the poorest houses. This type of wall covering was also found in large houses e.g. II A, Trident house, and stairwells, latrines and service rooms (Lake



and Dolphin House) . Whitewashed coverings of neat execution have also been found within vestibules.

Westgate (1995: 207) concludes that the Delian houses were generally more elaborately decorated and less focused on a single room though decorative focus was still drawn to the areas most used for entertaining countering a range of service rooms rendered invisible by their decoration.

Exterior to the house, outer wall facings also hold traces of painted decoration, not imitation masonry schemes but figural scenes illustrating household and domestic cults of the first and second centuries. Sculpted apotropaia including phallus, shield and Dioscures symbols also featured (Bruneau 1964: 159-162). As a Roman colony, many of Delos' large houses were occupied by Italians, so it is perhaps unsurprising then that scenes of Genius and Lares cults representing Roman ceremonies (by people dressed in togas) have been found (Chamonard 1924: 357) alongside other apotropaic images at the entrance to the house (e.g. II B (old TR entrance), II D (with alter), II E, III F (with altars), VI G (with altar), VI H (with altar) and VI I). Similar designs were also found accompanying interior altars either in courtyard spaces or in the corner of rooms (VI Dc (with niches), II Ea (courtyard), III Fe, III Qe, VI Bd (courtyard), VI Fg, VI Jd (courtyard) and VI Mc (courtyard). Illustrations included boxing scenes, vases, people on horseback, feast preparations, foliage and crowns (Bezzera *et al.* 1973: 97ff., Bruno 1985: 10ff.). The repetition of scenes and elements are thought to reveal the importance of celebrating the cult of Lares Compitales, a Greek domestic cult following an original Roman ceremony in honour of the Lares of the crossroads. Scenes contain offerings of pig sacrifices, rhyton carriers (the Lares gods), and rituals are found around altars. Secondary scenes include divinities e.g. Hercules, in their roles as protectors of the house (Bulard 1908: 83).

Painted plaster decoration would be affected by the humidity levels in rooms where water was used extensively, and it is therefore unlikely that these areas would contain rich painted decoration.

## 6.10 Upper floors

The finest examples of mosaic work and wall painting on Delos were found from upper floor rooms. The attribution of this material to upper floor rooms is certain because of the levels it was found at during excavation. The investment in this quality



of decoration represents (including painted figural friezes, only found in upper rooms) shifts emphasis to the use of these rooms suggesting they were high status and desirable accommodation. The decorative schemes used were as the ground floor rooms, though upper floor material provides more beautiful examples.

### 6.10.1 Mosaics

Almost all the known examples of upper floor mosaics come from Delos, due to the houses' building materials, upwards expansion and survival (Westgate 1995: 189). Upper floors feature the same types of mosaic as on the ground floor. Lighter materials were not used, examples of *opus segmentatum*, *tesselatum* and *vermiculatum* work have been found. Motifs were more varied and richer in execution than the ground floor. They include a monochrome checkerboard with borders of posts and coloured meanders (VI I (d, e and f), Chamonard 1922: 198-9) and border and cube motifs (found in III Ik), similar to perspective cube designs of ground floor II Bt. The upper floor decoration within III K and VI G was particularly important as it contrasts with the plain white decoration of the houses' ground floors (Chamonard 1924: 390).

### 6.10.2 Wall painting

Chamonard (1922: 305) notes how upper storey decoration was surprisingly rich. Wall plaster includes pictorial and figural friezes of cupids, fantastic animals, dolphins, anchors and relief cubes and emblema executed in detail rarely found within ground floor examples. Such ornament features within some of the island's most richly decorated houses (Chamonard 1924: 421). Dolphin House, to the east of the Theatre Quarter insulae provides such an example with rich mosaic fragments from an Eros frieze found within several ground floor rooms (Chamonard 1924: 408). Some upper floors were decorated in the same style as the ground floor rooms below, but more elaborately, suggesting unification between the two schemes. Raised panel and boss decoration from the upper floor above VI E (found in h, i and courtyard a/b) indicate that the room above was of greater importance than those below (Chamonard 1922: 196), decorated modestly. Painted and embossed panels also feature upstairs within II Bq, III C, D, and L, VI G, Id and VI Ob. This again suggests that rooms on upper floors were deemed high quality accommodation by their ancient inhabitants.



## 6.11 Discussion

Complementary mosaic flooring and wall decoration suggests a hierarchy of spaces within the Delian houses though there is no evidence to suggest co-ordinated wall and floor decoration (Westgate 1995: 202) or thematic programs of decoration within individual rooms within houses of this period. Most houses contain a single ground floor room, or suite of rooms which was more richly decorated than the rest. It was perhaps used as an equivalent of a modern lounge room as the focus for guest entertainment and visitors. These rooms were often decorated with elaborate mosaics and rich polychrome wall paintings, demonstrating an investment in the appearance of these rooms.

In addition to floor and wall decoration, sculptural and architectural features would have further ornamented the house, and perhaps helped differentiate between household and entertainment space. Richer houses such as the larger residences within the Theatre Quarter and its surrounds e.g. Dionysus, Trident, Mask and Dolphin houses were decorated with more marble (Fyfe 1936:147) and it is likely they would also have contained elaborate furniture and ephemera. Mosaic flooring and painted wall plaster would therefore only have formed part of the house's decoration.

The following section focuses on upper floor rooms and considers who used them and when, tying-in considerations of gender-specific accommodation and multiple occupancy within single premises.

## 6.12 Upper Floors

Many Delian houses survive to above first floor level though none stand to full roof height. Construction material, decorated wall plaster and mosaic flooring from collapsed upper storeys was cleared from ground floor levels during site excavation. This material, which includes the richest examples of mosaic and stucco decoration from the island provides evidence for great investment (both time and money) in the embellishment of upstairs rooms (see Section 6.10.1 and 6.10.2). The importance of this is not only the additional information it gives regarding interior decoration, but the surprising differences in quality between upper and corresponding ground floor examples. This suggests that the role of upper floor rooms was equally, if not *more* important than those on the ground floor. This evidence is linked to Section 6.6.1 which investigates the multiple occupancy of single residences. Differences between



ground and upper floors are of more significant importance where these were occupied and used by members of the same household.

The following sections investigate the evidence provided by the upper storeys of the Delian houses.

### **6.12.1 Upper floor construction**

Upper storey construction favoured lighter building materials than those used on the ground floor, faced poros blocks instead of composite stone walling for interior and dividing walls. Mosaic materials were the same for both, so too the depth of flooring layers (up to 0.25m). This weight would counter any structural gains achieved through the use of lighter wall material, and in combination with heavy roofing tiles is likely to have contributed to the eventual collapse of the upper floors of these buildings.

Chamonard (1922: 197) considers it reasonable to assume that large ground floor rooms corresponded in area to two or three smaller rooms on the floor above, resulting in there being more rooms upstairs than down. He also attributes these rooms as being used by family members as well as other domestic personnel. Upper rooms were frequently lit by windows, facing both inwards towards the courtyard and out onto the surrounding street. First floor rooms were consequently the best-lit (and ventilated) within the house. For this reason alone they may have been favoured as areas in which to spend time, eat, and perhaps entertain. Few of the Delian courtyard houses have rooms on every side and it is only structurally feasible for upper floor rooms to have been placed directly above ground floor supporting walls or pillars beneath them. First floor walkways may have been placed along sides of the courtyard where there were no rooms beneath in order to connect upper storey suites.

#### **6.12.1.1 Collapsed materials**

Materials fallen through from collapsed upper floor levels include walls holding painted and plaster decoration and mosaic flooring, (Figure 80), peristyles and window closures. Found at the top of any collapsed building debris, it is likely that roof tiles may have been largely removed before abandonment for re-sale or re-use elsewhere, and only a few examples remain scattered across the site. Collapsed upper storey architectural debris provides the sole evidence with which to identify fourteen houses as being multi-storey (e.g. III C, D, E, G, H, I, M, S, VI B, C, E, F, J and M). Upper floor debris has been found within houses for which no other extant





Figure 80: Upper floor wall debris (within VI Hi); poros blocks with polychrome and incised plaster decoration  
(Scale bar measures 0.50m total length)



(a) Orientation of the mosaic emblema (*shown with arrow*) in relation to room f; doors numbered 1-3  
(b) The position of room f (*shaded*) in relation to the rest of the ground floor

Figure 81: Mosaic orientation within House VI I



Figure 82: Cover and pan tiles found within the Inopos Quarter  
(Scale bar measures 0.20m total length)



information reveals they were multi-storey, Its absence has also been noted from houses where stone stairs reveal indisputable access to an upper level, e.g. II D and E. Perhaps the upper floor areas of these two houses only partially covered the ground floor and consisted of just a few rooms. Material from these rooms may well have been lost amongst ground floor debris and in-fill. In addition, examples of upper floor decoration have survived where no corresponding ground floor examples remain.

### 6.12.2 Decoration

Upper floor decoration was richer than that on the ground floor; Section 6.10.

House VI I's extant decoration can provide us with additional information regarding its upper storeys. The orientation of the mosaic *emblema* within its impluvium is oriented to be viewed from the north side of the courtyard, room f end (Figure 81). Alignment between the walls of room f and the three pillars along the end of the peristyle obscure views from each of the room's doorways, particularly the central one (2). For this reason I suggest the mosaic was designed to be viewed from *above* this position, from the house's upper floor. Views from above the mosaic itself would also give a fuller view of the image. It is unlikely such a fine work would be commissioned if it wasn't intended to be seen (and admired)!. It is unlikely then that the floors of this house were independently occupied when the *emblema* was laid, fine mosaic flooring placed on the ground floor for the benefit of those living upstairs.

### 6.12.3 Roofing

With single and multi-storey houses placed adjacent to each other, the Theatre Quarter skyline would have been highly irregular. Roof heights changed from one housing block to the next, as well as within individual blocks, due to the underlying double slope of ground. Steps between rooms of each house meant there was also an increased likelihood of differing roof heights between areas of a single building, and upper floors, where present, would not have been uniform in height either. In some instances surviving upper floor remains are able to indicate the total house height e.g. Cleopatra House, III I, with 6m portico and 4m upper resulting in a total house height of c11m, and Trident House roof height c8-9m (Chamonard 1922: 200).

Clay roof tiles (plate and covering) have been found at various locations across the site; plates tiles measuring c 0.60m in length and c 5cm in thickness forming a considerable weight of roofing material (Figure 82). Delos is poor in clays so would



have to have imported any tiles needed; those found are of red clay construction vs grey/black native island clay (Chamonard 1924: 319). The tiles would have been too precious to leave upon moving, and are likely to have been removed (along with doors) by a house's occupants when they relocated (Kent 1948: 293). It is also likely that due to their position at the top of the site's archaeological strata, remaining tiles may have been removed for use elsewhere by more recent scavengers.

It remains uncertain whether flat or sloping roofs were favoured. Tiles findings suggest sloping roofs though the ratio between these and flat roofs is unknown. Frameworks would be needed in most houses to keep roofing tiles in place. Flat roofs would enable the use of roof space, either for drying clothes or produce (e.g. fruit). Even flat roofs would be angled slightly for water run-off and collection, as indicated through the position of adduction and drainage piping.

#### **6.12.4 Discussion**

The Delian houses provide unparalleled information for the upper storeys of ancient Greek houses. Construction materials allowed more extensive upper floors than elsewhere though inconsistent and unstable building techniques coupled with the weight, both of flooring and roofing material, resulted in questionable stability. The richness of upper floor decoration clearly indicates great investment in these rooms, and their resulting importance can be deducted from this.

Where separate floors were independent from one another, and occupied by different families, differences in decoration are to be expected. Where the upper floor material is richer, e.g. within VI O, the evidence suggests the upper floor was occupied by a wealthier family than inhabited the ground floor (Chamonard 1922: 198). In multi-story houses occupied by a single household, the upper rooms are likely to have been the most private, the furthest away from the house entrance and courtyard below. They were decorated in a similar way to rooms on the ground floor which were used for entertaining (Chamonard 1922: 198) and may also have been used for this purpose. Lysias (l: 92-4) mentions dinner guests being entertained upstairs. The suggestion that women's quarters were the upper floor rooms of the house (Section 2.2.1) provides an interesting twist here, as, if this was the case, their decoration demonstrates a larger investment than for the andron equivalent on the ground floor.



Antiphon (I, 14) mentions the use of an upper floor room by a friend of the household when he was in Athens, indicating that these rooms were used for guests as well as family.

Delos' trade situation may also have influenced use of house space, resulting in business meetings or trading taking place within the house, particularly those of merchants. If this was commonplace, family or household activities may have been located the furthest from this, and upstairs. Upper floor rooms, because of building construction and the location of windows were the lightest and airiest within the house (Section 6.12.1). For practical reasons, they are therefore likely to have been favoured as 'living' rooms or ones in which to receive visitors. This is a reversal of modern western housing where areas for receiving and entertaining guests are sited on the ground floor, with sleeping accommodation upstairs (Sotheran *pers. comm.*).

It is likely that many upper floors remain unidentifiable from the town's extant archaeology. Except for where exterior stairs provide the sole access to upper floors, multiple household occupation remains largely speculative. At least *some* of the multi-story Theatre Quarter houses would have been single household buildings, and their extant decoration indicates the importance placed on their upper floors.

### **6.13 "Living in Delos. Building history of the Hellenistic houses and changes in living culture."**

This section addresses the assertions made in Monika Trümper's book, *Wohnen in Delos. Eine baugeschichtliche Untersuchung zum Wandel der Wohnkultur in hellenistischer Zeit* (Living in Delos. Building history of the Hellenistic houses and changes in living culture). It includes an overview investigation of living standards, norms of taste and house culture through the study of Delian architectural house history. Relative construction phase chronologies are created through detailed study of house ground plans and the provision of a catalogue of building history. It is the most recent and dedicated published study of the houses on Delos, and offers valuable information regarding the island's residential architecture.

Two important differences separate Trümper's thesis and this investigation. Firstly, the main focus of each is different, Trümper centres on the provision of building history while this work considers aspects of privacy. Secondly, Trümper's study relies



heavily on ground plan analysis where here ground plan analysis is used as a starting point and is developed into an investigation into standing architectural remains, looking to maximising the interpretative potential of surviving building features.

The following overview details Trümper's normative study of Delian house history through developments in layout and phases of building construction. A 'canonical' Delian house form is traced from its early beginning and features contributing to the 'standard' house form are distinguished from added value items such as peristyles. Reorientation of living taste and investment in private architecture are proposed as having possibly been influenced by wider social change (Trümper 1998: 8) and developments in house history linked to events in the island's history. The research includes comments on the use of house space, including issues of multiple occupancy of single properties, the occupation of independent upper storeys, and guest reception, and its evaluation follows the equivalent analysis herein.

The following sections cover house layout and the 'canonical Delian house', embellishing architectural features and social influence, relative building chronologies and the use of space within houses. Information specific to the Theatre Quarter houses is also covered and the review finishes with a summary evaluation of the material presented.

### **6.13.1 The development of Delian house form**

The 'three-room group' (Section 6.3.3.2.8) is considered the original building block of Delian housing. It is proposed that this room arrangement could represent a homogenous group in regard of social status such as could possibly be identified with an 'average family unit' (Trümper 1998: 108). The preservation of this feature, at least in form if not in function, is identified as within *all* the island's houses which have undergone later architectural conversion or adaptation.

### **6.13.2 The 'canonical normal house'**

The basic constituent features for a house are proposed as being a vestibule, courtyard, access to fresh water, means of water disposal, a latrine, and a three-room group (Trümper 1998: 28). A subset of these (vestibule, rooms for household/economic use, courtyard, and three-room group) form Trümper's suggested canonical Delian house of which 23 are identified on the island. The vestibule and 'work rooms' are placed at the front of the house. The courtyard space is central and



usually has rooms placed on at least two sides of it. It takes up the whole width of the building, only occasionally narrowed by the inclusion of other rooms. The three-room group of an *oecus major* and accompanying annex are positioned at the rear of the house, facing the vestibule from across the courtyard (Trümper 1998: 107). Later house forms are thought to have been more balanced in width and length, developing richly furnished rooms with doors leading directly from the courtyard as opposed to the separation of plain rooms in dark and poorly accessible areas, away from direct courtyard access and particularly in the corner of houses.

### 6.13.3 Upgrading

Trümper (1998: 8) suggests that the expansion and upgrading of the Delian houses resulted from architectural modifications as well as changes in housing tradition. Numerous modifications reflected changes in living taste revealing which items were linked with new standards and new requirements for ennobling residential architecture. Great attention is paid to increased investment house adornment through the installation of colonnades or peristyles, and the increase of enriched spaces by the addition of a second vestibule, bath, latrine, or bathroom/kitchen area or the differentiation or exclusion of 'household' areas from the rest of the house (Trümper 1998: 117-8). It is estimated that traces of such changes can be found in approximately half the island's houses, are their inclusion is considered to be above and beyond the distributed elementary features required.

### 6.13.4 Social Influence

It is proposed that an increase in demand for housing on the island may have further detrimented a situation which resulted in there becoming smaller house space available (Trümper 1998: 143). The suggestion is also made that there may have been a trend for change in houses to become more public in nature (Trümper 1998: 145). The physical layout of the rooms in relation to one another are also considered to influence the use of house space, particularly in regard to guest interaction and entertainment where prestige value versus function is considered (Trümper 1998: 21).

Axial plans with room arrangements of vestibule – yard – *oecus major* are identified as being dominant, facilitating an equivalent of the Roman morning reception of business callers to the front of the house (*salutatio*). This reception starts from the hallway/*atrium* of the house, though the Delian houses with typical long and narrow



vestibules leading from the front door to the courtyard contain no equivalent. Instead, Trümper (1998: 149) proposes that friends and businessmen would have been invited into the *oecus major*, usually large in area, and multi-purpose in use. In contrast to Roman houses, luxury features, their installation and use extended to the simplest of living areas (Trümper 1998: 51) though, unlike the Roman *arranged* and articulated interior space, the majority of the Delian houses do not contain hierarchical arrangements of rooms.

Trümper's proposition for the form of an 'ideal' Delian house includes room spaces which would be rectangular in shape, each with optimal lighting, ventilation, visibility and accessibility. Low rank spaces such as latrines or bath complexes would be placed at the corners, and away from view (Trümper 1998: 115). These ideal specifications are similar to axial layouts and with deliberately constructed visual axes within late Roman houses, so too the separation of household and entertaining areas. It is here the concept of value items (of architecture) is introduced, which may also have held prestige function. Peristyles are considered luxuries as they were not essential for the construction of a building. Whether such embellishments were undertaken to benefit the a house's owner or his social status remains unknown.

### 6.13.5 Site

Trümper's (1998: 126) analysis attempts to correlate house upgrading (using specific architectural features) with the reflection of social standards and changes from Delian history. Direct influence of the rise in economic status of the island with changes in its private architecture with simultaneous public and private sector development. After the declaration of Delos as a free port in 166 BC the island saw a time of renewal as well as new development and expansion. An influx of rich merchants and traders led to an increase in the number of shops, temple records show a rise in rents for houses as well as businesses. New land was opened to the east of the sanctuary and agora, to include the area around the houses of Ascalon and Philostratus, and elsewhere on the outskirts of the town (Trümper 1998: 130), Hill house to the north west, the Stadium Quarter, buildings out towards Ghourna Bay and Fourni House. Expansion of housing areas saw orthogonal plans adapted to suit topographical and urban situations and similarity in form despite their status and provenance (Trümper 1998: 137-138). The resulting growth in domestic luxury is determined by archaeological findings and from survey. Simple houses gradually converted and parallel large and rich houses



were established. Business prosperity fuelled the initiative for people to form into groups e.g. the Italian agora associations, combining business and residential complexes (Trümper 1998: 155).

Investment in house architecture and the introduction of more elaborate house types and ennobling alterations probably climaxed after 130 BC when rivalling trade centres perished. The cosmopolitan atmosphere of free port raised living standards as well as separated levels of the island's housing and increasing the layering of the population according to fortune (Trümper 1998: 142).

Undoubtedly widespread commercial changes would have affected most of Delos' population, though the island and its people were a unique situation from the outset. Established as an early trade and commercial centre, wealthy and influential traders and merchants along with their business associates would have been drawn to the site. It is likely that the island held all *levels* of accommodation, shops with tenements above them, grouped facilities for sales and production and housing to accommodate both residents and visitors. Influenced by sailing seasons and panhellenic trading the transient nature of the population would also have influenced its architectural provision, especially in terms of temporary residences.

### **6.13.6 Use of house space**

Despite their formulaic layouts, Trümper acknowledges that the Delian houses provide minimal possibilities for the identification of their constituent room spaces. In agreement with Chapter 6 in this work secure fixed identification is limited to latrines, baths and bath/kitchen spaces. other spaces ranked on a house by house basis by their configuration, size, form and position (Trümper 1998: 153). Larger houses containing more rooms would also encompass and increased possibility for differentiation between. Trümper (1998: 87) considers that applied terminology suggests specific use of function areas such as an 'economic sector' to include a store, kitchen, bathroom or latrine, a private consisting of sleeping space, women's quarters and possible slave accommodation, and a more public area of the house for guest interaction and reception. Variation in the use of all houses are identified to include a mixture of everyday work and social entertainment; with most spaces being poly-functional areas with houses exceeding their functions only as dwellings (Trümper 1998: 2, 147).



### 6.13.6.1 Dynamic space

Excavation evidence indicates that the use and occupation of houses changed within the shortest times (Trümper 1998: 9) encompassing occupant as well as physical (architectural) changes. Stratigraphic evidence from the excavation for the House of the Comedians insula indicates that it was occupied for a maximum of 37 years. Excavation evidence supports *twelve* phases of change during this time which include changes in household and domestic use of house space and embellishments increasing in overall house value. This does not, however, necessarily represent twelve different occupants or groups of occupants.

### 6.13.6.2 Multiple occupancy

Occurrences of the occupation of single houses by more than one household is also considered. III K is quoted as an example, its separate three-room suite annex considered to be a separate habitation from the rest of the ground floor (Trümper 1998: 96) and Lake and Fourni houses as listed as they both have two separate courtyard areas (Trümper 1998: 89). Multiple occupancy across separate house floors of a single house is also considered and the resulting collective use of the courtyard is considered not to contradict modern conceptions of privacy (Trümper 1998: 101). On the issue of multiple occupancy, Delos is contrasted with Pompeii and Herculaneum where there was a maximum separation of suites, with limited communication between housing units, visual contact over a few windows and shared latrines facilities. Communication within the Delian houses is considered unavoidable by comparison with upper floor suites providing an unhindered view of the ground floor.

### 6.13.6.3 Upper floor

The separation of upper floors stands against a strict division between size and rank of houses within insula development in the way of housing standards and layout indicating social rank of the inhabitants (Trümper 1998: 154). High value placed on upper floors challenges the fact they were established in necessity from lack of ground floor space and particular interest is paid to the rich decoration of upper levels. Fourni and Hermes houses are flagged as exemplars though without evident ranking of rooms across their floors. The criteria for separate apartments is considered to be the placement of stairs; both internal and external. Out of 68 upper floors, 40 are as rich as the ground but only two of these could be reached by internal stairs suggesting the rest were probably separate apartments.



Additional detail is included regarding architectural decoration and configuration by comparing old and published photos which information is recorded alongside the catalogued basic and value items of each house.

### **6.13.7 Relative Chronologies**

Construction technique and material form the basis of all Trümper's (1998: 162) classifications which she uses to date both house context and for relative chronologies. Building sequences are also drawn after changes in material, technique and strength differences between walls and within individual walls (Trümper 1998: 164). Merging and abutting walls are interpreted chronologically for indication of different building phases. Wall joints are also used to identify phases of construction, and to indicate building modifications (Trümper 1998: 160).

Trümper's work (1998: 120, 161) falters on these two points: relationships between walls can't definitely be determined, building phases are easy to distinguish as an absence of stable wall connections is characteristic and house walls are not absolutely datable. Her work includes searches first for published information on wall differentiation at the time of building, temporal changes in building phase and at the point of abandonment or destruction.

Relative chronologies showing up to six phases of building and re-development are established and in some instances, with features and walls of neighbouring properties, due to lack of absolute chronology. Phase plan features (plates 60-65) follow a simple construction order, with walls captioned 'earlier than' and 'later than' in regard to each other and identified construction phases. Shops bordering the road which were later incorporated into the house as rooms are identified as earlier phases, so too access changes between houses and adjacent shops. Blocked openings are identified as later features (as they were once were open) and peristyle courtyards as an addition to previous open courtyard space.

### **6.13.8 Appendix Information**

Appendices within Trümper's book contain details recorded for each of the island's 91 excavated houses. House plans have been redrawn from published excavation reports and features of note added which include queries regarding access e.g. into the house from the surrounding road and between rooms, which is unclear from the site in its present state. Catalogues of information include the name, size, rank, position,



form and orientation of the houses, whether they are considered to be canonical in form or not, detailed notes on decoration, and adjacent shops. Wall decorations are ranked according to Chamonard's categories (1924: 357ff) with plain, embossed and mixed schemes of decorative panelling. Building history notes follow, relating the form of the house to the 'normal house' plan and canonical details, on which great emphasis is placed, and three-room layouts sought within each construction investigated.

Appendices of site photographs combine published material and the author's own work; focus on features used to create the building chronologies: wall abutments, double walls; décor, stairs, niches, sills and windows.

### **6.13.9 Information specific to the Theatre Quarter**

Trümper (1998: 123-4) comments on the remarkable loss of information and paucity of dating evidence for the Theatre Quarter houses which equate numerically to over half of the housing uncovered to date on the island. Problems of architectural dating within the area are largely left unanswered with only fixed point of dating being an inscribed statue base inscriptions found within III I (dating to c84 BC) and third century refurbishment of Insula III halted with the development of blocks IV and VI..

The Dionysus house (VI I) is listed as the first Theatre Quarter house thought of as free-standing though it is not clear whether it dates from the third century, after 166 BC, or is placed atop earlier structures (Trümper 1998: 125).

Buildings III L, U, V, X, Y, IV C are excluded from her catalogue of information, and III R and S are listed as separate houses.

Phase plans showing phases of building and re-development include five houses from the Theatre Quarter, II E, III I, J and K and VI I:

- II E including the addition of a peristyle to the courtyard at the building's latest phase, and by obscuring access between d and the vestibule. Previous to this the wall and blocked door were established between c and adjacent II Db
- III I/J series of three-room groups are identified as the first phase of building history (III I k-m, Jf-h and III E e-g), house I then developed and expanded in the space between them. Both III I and J were ennobled by the addition of a peristyle



- III K included the addition of a courtyard, exedra (I), and back entrance k to earlier room groups of b-d and g-h
- VI I earliest construction phase as a series of shops facing onto Theatre Road (rooms e, d, a and n). Rooms were later added around a large courtyard space and a late construction phase included the addition of a peristyle, impluvium, water system and stairs to the upper floor. The last identified phase includes blocked openings in i and n (stairwell) previously connected with the road and e/f.

The Theatre and Skardhana Quarters provide examples of the earliest form of houses on the island; simple in form they are long and rectangular with a central courtyard and two surrounding groups of rooms (Trümper 1998: 152). Labelled as the ‘canonical Delian house form’ because of the characteristic layout of the three-room group they contain at the back Each underwent numerous modifications on account of living tastes giving information on their development to ‘higher status’ forms showing the inclusion of ‘ennobling’ features.

### **6.13.10 Overall Evaluation**

The creation of building history chronologies, the crux of Trümper’s thesis (1998: 158) both relies on and is hampered by the dating of Delos’ house walls. Few walls can be dated absolutely from brickwork inscriptions or dated stratigraphy alongside evidence from accompanying décor/renewal/repairs and are often not from a single era of creation.

A second important feature is her treatment of houses as isolated, individual units. Relative chronologies are formulated for individual houses some of which encompass walls and architectural features from adjacent properties. While many of the island’s ‘named’ houses occupied entire housing blocks themselves, many more are part of larger insulae, with party and common walls, open and blocked doorways between neighbouring properties. The opportunity for inter- as well as intra-house analysis therefore exists within the Delian insula, and is explored through sections 6.5.2 elsewhere in this work.

Trümper’s research places little importance on the topography of the land on which the houses are built. The island’s ground rock drastically shaped houses, particularly those within the Theatre Quarter insulae. Evidence for this can clearly be seen through the buildings’ erratic shapes and rock outcropping visible both on site and on the



published plans. Despite her reliance on the notion of a normative, canonical house, the lack of absolute criteria for the evaluation of individual configurations, both in house survival and layout is plainly acknowledged (Trümper 1998: 59). Delos does not provide a fixed house form and is compared to the site of Priene in this respect (Trümper 1998: 113). It follows that there is no fixed configuration of rooms, though clear continuity of housing structures independent of the absolute dating possible today (through the occurrence of the characteristic three-room group) is identified (Trümper 1998: 114-6). Delos encompasses a large number of house types, high density occupation and a huge expansion of housing.

The work concludes that the responsibility for the propagation of Delos' domestic luxury could not be determined from either the historical or archaeological record, and only a partial picture of the island's 'social reality' was possible from its housing (Trümper 1998: 5, 152). While the creation of relative chronologies has its merit alongside other analyses, it is a means to an ends rather than an end in itself. Presented in isolation such an exercise in constructing a relative chronology can only suggest answers to questions of 'when' rather than 'how?' or 'why?' in relation to the use of Delos' houses.

In summary, Trümper's analysis is largely irrelevant to this work. Here, progressive ground plan analysis is only part of the study undertaken, not the focus of it, and construction phase chronologies do not feature. Trümper's normative approach to creating individual building histories is hampered by the very methodology it employs, and she acknowledges that the relationships between walls sought, critical to her analysis, can not be absolutely determined (Trümper 1998: 120, 161).

## **6.14 Housing outside the Theatre Quarter**

Housing across Delos contains the same architectural and decorative features as the Theatre Quarter insulae, both within other areas of insulae housing (e.g. Stadium Quarter) and in detached houses (e.g. the Lake House). Some houses, e.g. the Hill House, appear to be isolated though only on account of the incomplete excavation of the surrounding area, as they form part of a block which is still uncovered. There are two main differences between each of the Delian houses, firstly the size and orientation of building plots, which indicated the buildings' interior layout. Secondly, there are significant differences in the decoration of properties, with mosaic flooring,



wall painting, and rich architectural elements of e.g. coloured marble pillars, stylobates and door jambs.

Each housing area contains evidence of property division and amalgamation and features blocked doorways placed both within and between houses. This demonstrates the fluid use of house space and adaptation in the short term, whether the buildings pre- or post-date the case study examples.

Interior space is divided into separate suites, some which provide separate and external access to the house (e.g. Section 6.6.2.2.3 and of Q. Tullius, Stadium Quarter.

Figure 72, Lake House). Evidence for the multiple occupancy of houses also occurs across the island where independent exterior stairs lead directly to upper floor space. This is also a feature of small shop complexes, presumably providing either lodgings or storage space above the commercial property.

## 6.15 The use of house space

This concluding section details information regarding the use of house space within the case study houses. The paucity of associated small finds evidence places heavy reliance on ground level features, plans and extant standing remains. The fact that few function areas can be identified within each house is perhaps more indicative of the fact that the majority of rooms did not have specific purposes associated with them rather than a lack of available evidence. Combining house layout, access to amenities and areas of decoration, suggestions can be made as to the rooms *most likely* to have been used for specific tasks.

The published ground plans identify courtyard areas, exedrae, hallways, stairwells, ‘wet rooms’ and latrines. In addition to these most houses contain a three-room suite, and/including a room decorated with mosaics and wall painting. Considering that all household activities would have been carried out within the bounds of the house, we can question whether the Theatre Quarter houses also indicate areas which were used or were suitable for working (weaving), cooking, sleeping or storing goods.

Comparing the case study houses with modern flat equivalents, most were too small (and with too few rooms) for there to be separate e.g. kitchen, dining, lounge, bedroom and bathroom areas (though the number of their upper floor rooms remains



unknown). It is possible that evidence for equivalent areas is now invisible within the houses' architectural or archaeological remains, and may have originally been distinguished by furniture, portable items, and perhaps more importantly, people. Rooms, as now, may have taken on a specific use when a person moved into that space, e.g. lounge space acting as a dining room if meals were served in it. It is likely that fluid use of rooms was made, influenced by time (times of day, specific occasions), environmental factors (light, heat, orientation, seasons) and personnel, (who was in the house at the time - men/women of the household, guests, or perhaps even business associates). The scheduling of activities would also therefore be important.

Fixed features and differentiated areas of flooring identify areas used for washing and toilet facilities, within 'wet rooms' and latrines. Guest and visitor entertainment is likely to have taken place in the richest decorated rooms and within *exedrae*. Areas used for cooking, sleeping, working (weaving) and the storage of goods are not evident, though we know these had to have taken place within each house. The following sections consider likely locations for these:

### **6.15.1 Cooking**

No discernible hearths or definitive kitchen areas can be identified though flues have been recognised within three houses (II Eb/i (suggested heating for the adjacent bath suite), VI Le/g and VI Nb/c). Areas of cooking activity are likely to have moved seasonally, or on a shorter-term basis, according to the weather. The courtyard may have been favoured in summer, or when the weather was fine, conversely moving under cover or into a room during winter.

### **6.15.2 Sleeping quarters**

Foxhall (2000: 495) emphasises how Greek beds were more like pallets or sleeping bags than couches and were likely to have been rolled up and stored during the day. Daytime work space would then become night-time sleeping space to maximise all available room. She also suggests that the choice of sleeping areas within the house may have changed seasonally according to temperature. Where specific provision was made for bedrooms, these are considered to have been among the private apartments of the first floor (Laidlaw 1933: 242). Specific rooms set aside for the master and mistress of the house may have been located on the first floor of multi-story houses



(Section 6.6.1). Light levels were not important for sleeping areas, and rooms at the back of three-room complexes may have been used for this purpose. Laidlaw (1933: 241) stresses how these inner rooms had no light, and were apparently used as bedrooms. For security a slave ('porter') may have slept by the front door, guarding access to the house during the hours of darkness. Only the largest and wealthiest of houses would have made provision for slaves quarters. In poorer households they probably slept wherever there was free space.

### **6.15.3 Work rooms**

The majority of ancient households would have undertaken weaving and produced cloth, in addition to buying it. Houses involved in textile production would need space in which to set up looms and light with which to work. Light from the courtyard and peristyle would be essential for fabric production for which maximum use of courtyard, portico or exedra space would be made. Storing the frames would also require considerable space, particularly if a location for their permanent placement was not possible. Preliminary washing of fleeces might have taken place in the courtyard (using water from household wells or cisterns) though the houses of the Theatre Quarter were close enough to the coast for women to have travelled there to wash wool in the sea. It is likely that the rest of the weaving process would have taken place in the loom room (where present). If available, space may have been permanently set aside for this or, perhaps more likely, household space would have been adapted for production purposes when needed.

### **6.15.4 Store rooms**

Households would need to store sufficient food for family members (and possibly domestic animals) to last through the winter as the sailing season (and harvest dates) would affect fluctuations in local and market goods. Though light was not necessary for storage, cool locations would be preferable for storing liquids, and dry rooms for grain (Xen. *Mem.* 3.8.3). Household wealth was equated with stored goods. For security these are most likely to have been placed as far as possible from the entrance to the house, out of view of public areas, perhaps upstairs (where the building was multi-floored) in chests or lockable cupboards. No store rooms have been identified within the Theatre Quarter though under-stairs areas may have been used for storage, hence maximising the available space, or ancillary rooms at the back of three-room



suites. ‘Rooms within rooms’ (e.g. II A1, II Eg and VI Af) would provide additional security by their location, as well as being cool and shaded.

This suggests multiple uses for the rooms within the house, and stresses the importance of light and security in relation to activity spaces. The following explores what information we can attribute to the use of the identifiable room spaces:

### 6.15.5 Courtyard

The largest of the ground floor areas, the courtyard provided secluded interior ‘outside’ space which had to be crossed to reach the other ground floor rooms of the house. Open to the sky it was also the main light source for the house with all interior rooms opening onto it. It was the focus of the house and also acted as an additional ground floor activity space, it being the most versatile of ground floor spaces on account of its size and position. It was also the natural place for meeting and talking within the house, adjacent to the entrance hallway. The courtyard also contained access to the house’s water supply, via a well, cistern or both, suggesting it was the focus for domestic activities. Nevett (1999:166) considers the focus on courtyard space as representing a radical change in priorities in terms of the organisation of space, though the interior arrangement of the Delian houses make this inevitable.

Some of the Theatre Quarter households may have kept domestic animals for movement of goods in and out of the house, and these would also require space in which to be accommodated. Animals may have been kept in the courtyard area for practical reasons of space, and waste disposal. Their continual presence may mean that these were seen and treated as everyday ‘fixtures’ and so were not an issue when it came to e.g. food preparation or cooking which is also likely to have taken place within the courtyard.

### 6.15.6 Three-room suites

Second to the courtyard, these suites of rooms covered the majority of ground floor space within the house and are therefore unlikely to have been dedicated to specific functions. Bruneau *et al.* (1996: 68) suggest that these rooms were not particularly distinguished by their luxurious decoration and were used daily in a wide range of circumstances. Nevett (1995: 92) identifies this arrangement of rooms as being an *oikos* though the examples she uses are Olynthian and differ from the Delian in that the ancillary rooms contain evidence for kitchens (with flue) and bathrooms.



Chamonard (1922: 168ff.) considers there to have been two three-room suites within each/the typical house. The second is identified as the second entertainment room, though only two of the Theatre Quarter houses contain two of these suites (III RS and III T), the former of these being likely due to the amalgamation of two previously separate properties. Chamonard (1922: 174) suggests that these rooms were reserved for banqueting though in larger houses they may not have been the only reception room.

The ancillary rooms within these suites may have been used for storing food and wine as well as household goods. Sited far from the open courtyard space, unless lamp-lit, they would have remained in darkness.

### **6.15.7 Andron equivalents: rooms for entertaining**

Identified by rich mosaic and painted wall plaster decoration these rooms would have represented the ‘public face’ of the household, presenting the investment made in house adornment via decoration. Equivalent to modern lounges, these are the rooms into which guests would most likely have been invited and where dinner parties and business meetings were held. Some houses may indeed have been large or rich enough to have a suite of entertaining rooms, and maybe one of these was indeed kept primarily as a dining area, but I do not think this would have been the ‘norm’. It is equally likely that these rooms would be a locus for family meals and occasions, including festival arrangements, wedding, funeral and other ceremonies, therefore transforming the space from its usual dining room function. Furniture (e.g. tables, couches and stools) were light and easily portable. It is also probable that smaller rooms within the house would be seconded e.g. for the provision of guest accommodation. Likewise, changes in family situations would require an adaptation of space e.g. at the birth of a new child or time of illness.

### **6.15.8 Upper floor rooms**

These were smaller and more numerous than their ground floor counterparts. They formed the most private part within the house by merit of being the most remote rooms and furthest from the street entrance. As such, upper floor rooms were also the most secure areas within the house, and for this reason may have been favoured to contain the family’s stored wealth, or provide sleeping quarters. They were also lighter and airier than the ground floor rooms, free of the dust of the courtyard, less



susceptible to the noise of the street and better lit, via windows and the gallery area. Their rich decoration indicates extensive investment in them and suggests they were the favoured location for private household use.

## 6.16 Conclusions

Few household activities can be specifically located within the Theatre Quarter houses. The original use of the houses was likely to have been affected by environmental factors, particularly light and temperature, in a similar way to that of house form and construction (Section 2.2.3). I suggest that inhabitants would have made the most of natural daylight and supplemented it with lamp light where and when necessary. Times of rising may have followed seasonal changes in order to achieve this, maximising the use of daylight hours and affecting the times people were about and working. Rooms favoured for working or dining may also have changed according to season to gain maximum benefit from e.g. lighter evenings during summer months.

Physical and environmental evidence aside, the occupants of each house would have changed and dictated the use of space according to need and situation. Lawrence (1987: 126) stresses the resulting increased importance of time management and scheduling where a single room served two or three functions at different times of day. Despite extensive archaeological evidence, practices such as the temporal use of space (Laurence 1997: 13) and the original meaning of the built environment (Rapoport 1994: 465) eludes us. Though combining all available evidence, without the original house occupants and their belongings, many rooms within the Theatre Quarter houses remain the 'empty spaces' recorded on the ground plans in terms of their use (Figure 54 and Figure 55).



# Chapter Seven

## Access Analysis

### 7.1 Introduction

This chapter analyses the case study houses using established techniques of spatial syntax. It investigates the statistical accessibility and spatial permeability of house space via doorway access and room placement, considering relationships between the interior and exterior of buildings, and between individual rooms.

Statistical calculations were undertaken with the aim of providing analytical information in addition to that possible through visual observation of ground plans alone. The exercise also serves as a demonstration of the application of spatial syntax to plans analysis, first proposed by Hillier and Hanson (1978) in their article *Social organisation and settlement* and later developed into *The social logic of space* (Hillier and Hanson 1984). The statistical methods used assign numerical values to separate building spaces with their magnitude depending on the number of its immediate adjacents. House plans can then be compared on a like-with-like basis, despite differences in size or layout, as the direct links between neighbouring spaces form the foundation for the calculations. Important considerations therefore include those of boundary maintenance, what defines room spaces, and how these are grouped together.

Hillier and Hanson's 'access analysis' methodology has been applied to notable archaeological examples from the Ancient and Medieval world (including Chapman 1990, Fairclough 1992, Foster 1989, Grahame 1996 and Laurence 1994) though resulting inferences have been heavily criticised (Brown 1990, Leach 1978). Their methods continue to be used and developed, notably by Grahame (1996, 1997, 1998) through his study of Pompeiian housing. The following sections explore the usefulness of access analysis by applying it to the case study housing, and assessing what inferences regarding the accessibility and privacy of house space can be made from the results obtained.



## 7.2 Graph construction

As an aid to visual interpretation and a starting point from which to undertake the statistical analysis, the amended Theatre Quarter house plans (Appendix 1) were translated into a series of graphs. These are stylised representations of each house showing all room spaces, the exterior, and the links between them (Figure 83). It is likely that changes in layout would have occurred within some of the houses since their occupation during the Hellenistic period and it is acknowledged that this would affect the statistical analysis undertaken.

Combining Hillier and Hanson (1984) and Foster's (1989) methods for graph ('gamma map') construction, each room is visualised as a circle (node) with links between them represented as lines (edges). Here, I have chosen to represent the nodes with uniform filled circles. Hillier and Hanson (1984) use combinations of open and closed circles of different sizes to distinguish between function spaces, as does Grahame (1997: 153ff.). Similarly, Foster (1989: 41ff) distinguishes between 'defined' and 'transitional' spaces (hallways) and uses stylised symbols to represent e.g. rooms containing hearths.

Movement from one room to another (between directly adjacent spaces) is described as a 'movement step'. The exterior to the house (the 'carrier space') is represented as a circle with a cross through it,  $\oplus$ . Only one exterior space is drawn per house, though the immediate outdoor space may itself be subdivided e.g. into the equivalent of front and back gardens. It is assumed, for the purpose of this analysis, that the transition between the exterior and interior of the house takes a single movement step, and is represented accordingly by a single graph edge. The diagrams are 'justified' by horizontally aligning each room which takes the same minimum number of movement steps from the exterior to reach it (Figure 83b and c). Graph edges can only link nodes on horizontal levels directly above or below them and can loop around the diagram in order to do so, but cannot cross. The graphs were all drawn from the position of the carrier space; placed at the bottom of each diagram; enabling information to be gained regarding inter-room links as well as those between the houses' interior and exterior space.



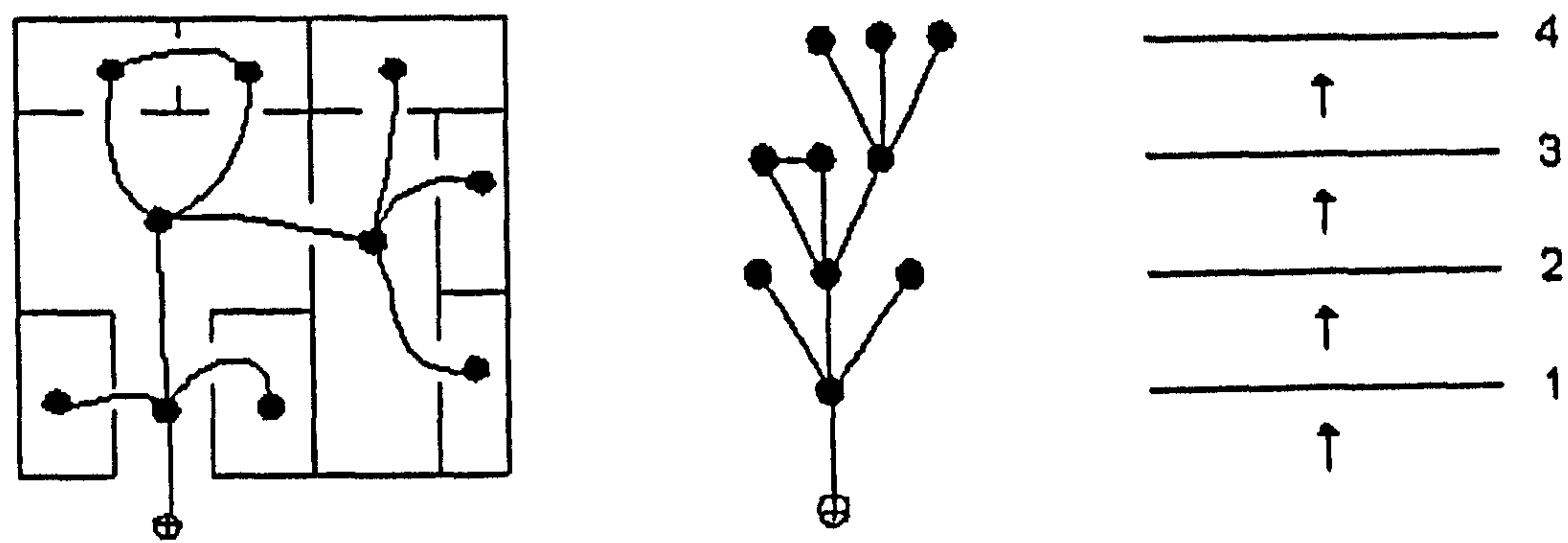
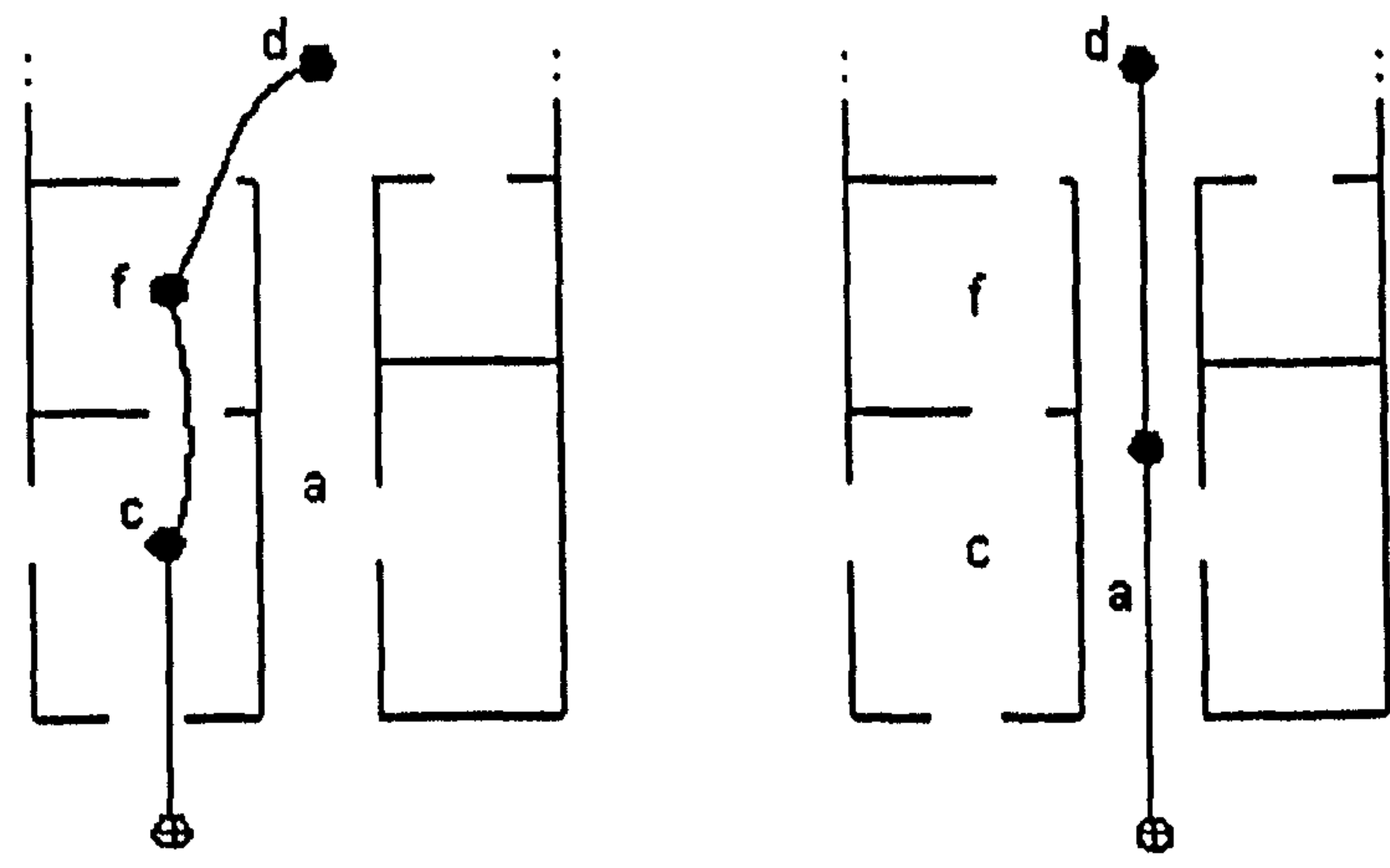
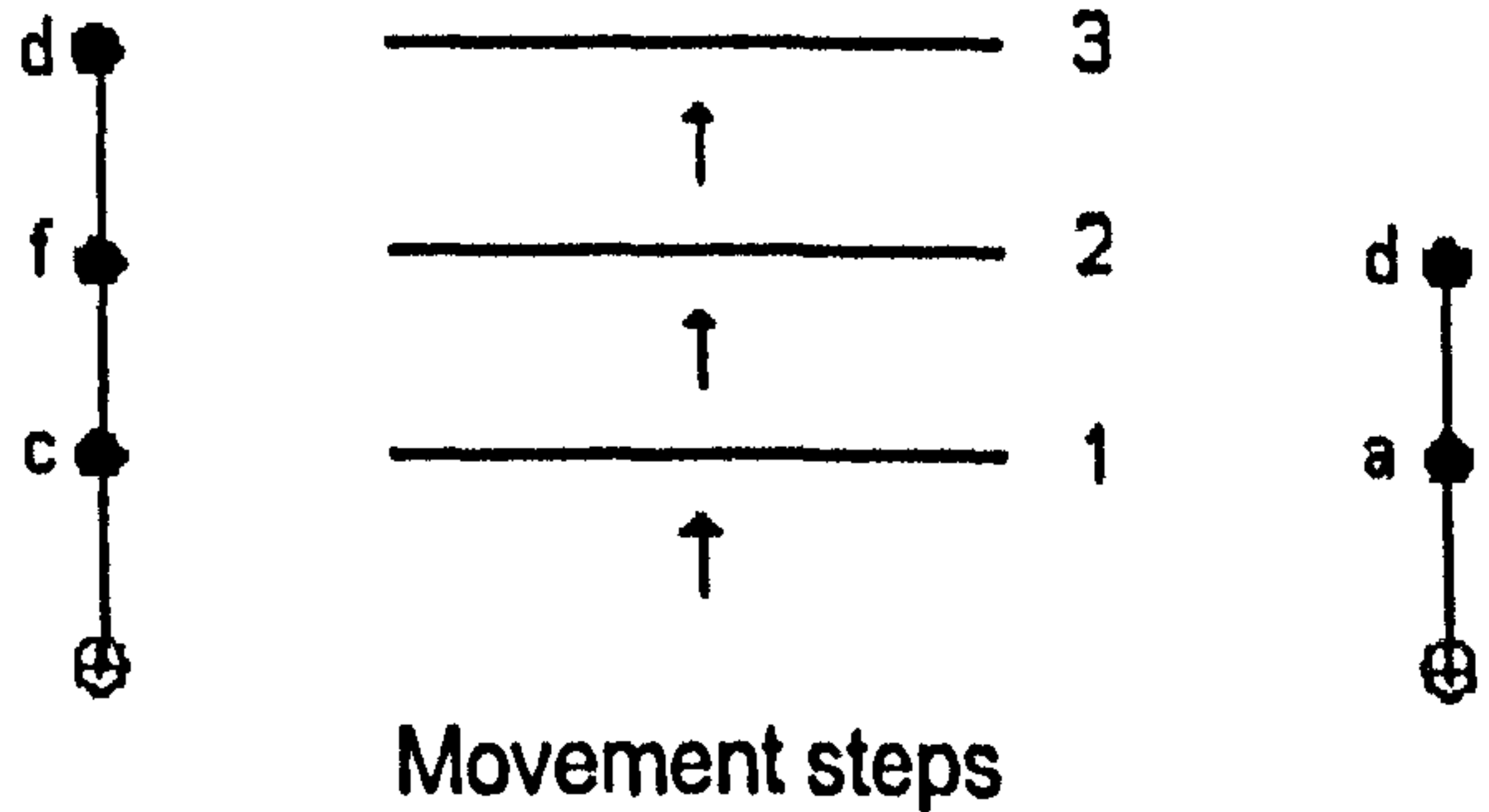


Figure 83: Graph construction

- (a) Hypothetical house plan with room symbols overlaid      (b) Justified gamma map      (c) Movement steps from the house's exterior



(a) Partial maps for House II A showing access to d (courtyard) via entrances a and c



(b) Justified gamma maps for (a) showing movement steps from the house's exterior to d

Figure 84: Ambiguities with graph construction



The graphs provide simple representations showing which rooms join which others, and the number of movement steps that are crossed in order to move from one space to another within the house, or to reach a particular room from the building's exterior.

### **7.2.1 Problems encountered during graph construction**

Despite following the rules of construction (above), graph creation proved problematic, and impossible for several houses (Appendix 2). Firstly, decisions regarding the division of space into rooms had to be made. For the majority of examples this was simple and followed room assignments indicated by wall boundaries (Section 6.3.2.1). However, for areas such as courtyards or irregularly-shaped rooms, their representation as a single or multiple spaces had to be decided upon. Grahame (1996: 67) follows Hillier and Hanson's (1984) rules of convexity to determine the number of nodes that should represent a room space, fitting the minimum number of convex shapes into an area and counting each as a node. For the case study houses, decisions were made regarding room divisions by combining fieldwork observation and careful plans analysis as opposed to using strict rules of mathematical division.

Secondly, in some houses a room (node) could be placed at different levels/movement steps from the exterior of the building depending from which entrance into the house was used to reach it, as shown in Figure 84. Here space d (the courtyard) can be placed either two or three movement steps from the exterior depending on whether the house is entered via a (the vestibule) or c (a shop).

Thirdly, despite detailed field survey and observation, access between a small number of rooms remains uncertain or ambiguous. Such queries are mainly linked to the position of low and foundation walls in which no evidence of doorway access remains. Doorways may have been placed above the level of wall elevation that survives on site.

It was therefore necessary to make a number of assumptions regarding room boundaries and house layout in order to facilitate graph construction. It is appreciated that these decisions, particularly those regarding adjoining spaces into single nodes may affect subsequent mathematical calculations. Brown (1990: 100) emphasises the shortfalls of access analysis graphs, largely because such qualitative judgements have to be made for their construction. This is particularly pertinent when dealing with unclear or incomplete



archaeological evidence. Though Brown applauds the visual clarity of graphs and their use as a tool for comparisons of layout, details such as distance and area, both measurable from even the most basic of ground plans, is often overlooked. Dallas' (1992) later work which focuses on the relational descriptions of complex entities supports this. He includes house plans (II E and F within the Theatre Quarter) to illustrate the importance of links *between* rooms, not merely their position in relation to others within the same building.

A room which takes five steps to cross would have a significantly different accessibility than one which took twenty, and the potential view into these two (linking them to visual accessibility or perhaps privacy) would also vary considerably. Figure 85 demonstrates this point by showing two plans with an identical graph but notably different accessibility. Room c in diagram (a) is considerably easier to reach than the corresponding room c in diagram (b) by virtue of the difference in area of the rooms and distances from them to the building's exterior.

The methodology for graph construction only allows for ground floor comparisons. It is rare that buildings survive above ground floor level, and though several case study houses survive to roof height, they contain little, if any, information about the layout of the lost upper floors. Access to upper rooms from a walkway may have been achieved in a similar way to access of ground floor rooms from the central courtyard.

### 7.2.2 Layout Patterns

Graphs can be used for visual comparisons of house layout, clarifying complicated room arrangements and detailed plans. Many of the Theatre Quarter houses have similar, radial patterns; entered via a hallway or vestibule (often with adjacent latrine) which leads into the courtyard (Figure 86). Most of the other ground floor rooms lead directly off the courtyard, some interconnecting and forming separate suites. This coincides with Brown's (1990: 99) shallowest ('star') arrangement of rooms (Figure 87a) which he states is one of the most common of all access patterns for buildings. All rooms are accessible from a single space, here the courtyard. He contrasts this with buildings of long, narrow arrangements (Figure 87b), characteristic of houses with a narrow street frontage onto surrounding thoroughfares. Radial plans are impossible to achieve in this instance as there is insufficient space to place two or more rooms alongside each other at the entrance to the house. Brown (1990: 100) concludes that the depth of houses, i.e. the number of



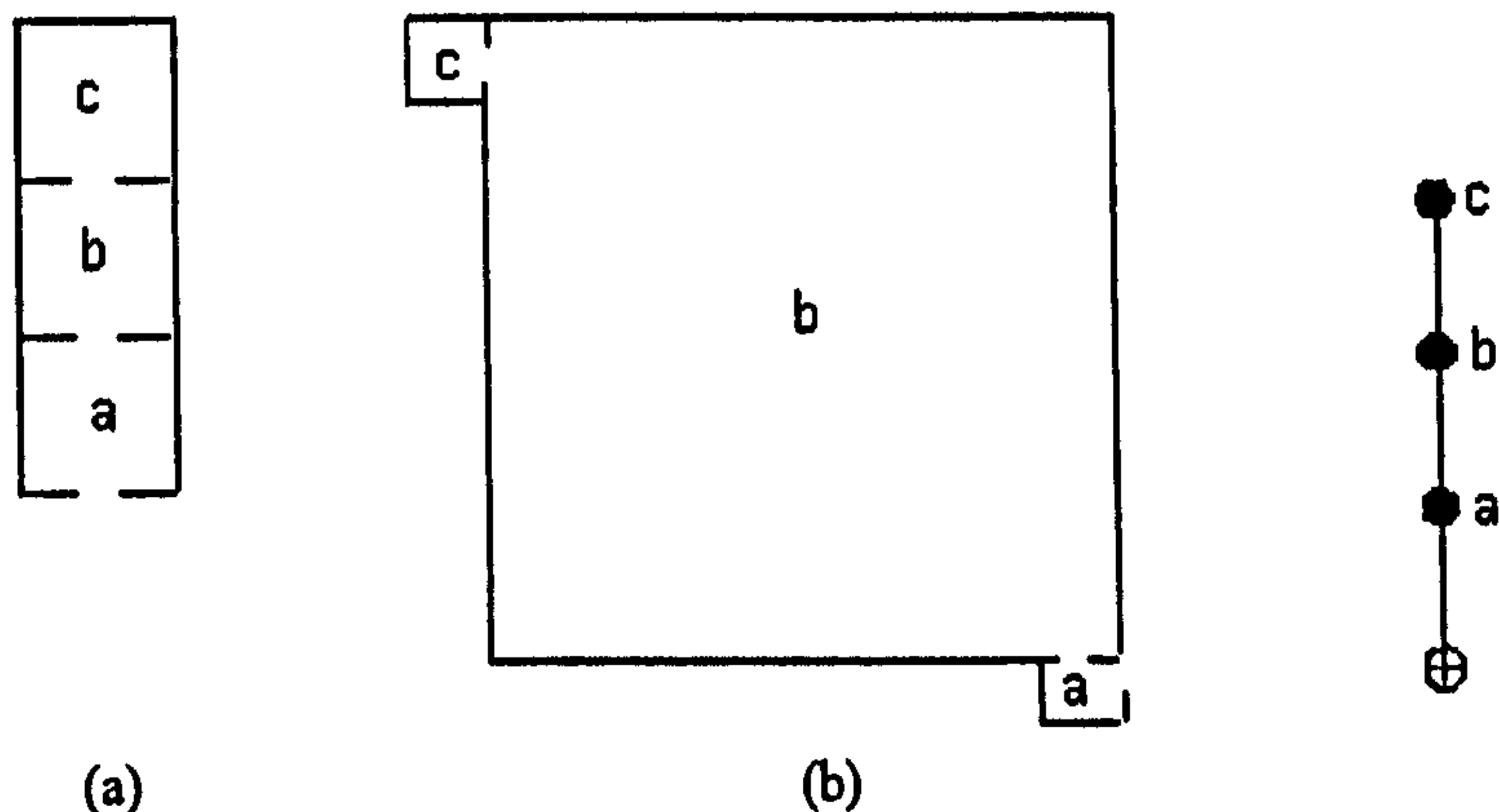


Figure 85: Two hypothetical building plans with identical patterns of access and justified graph (Brown 1990: 95 Fig. 4.1)

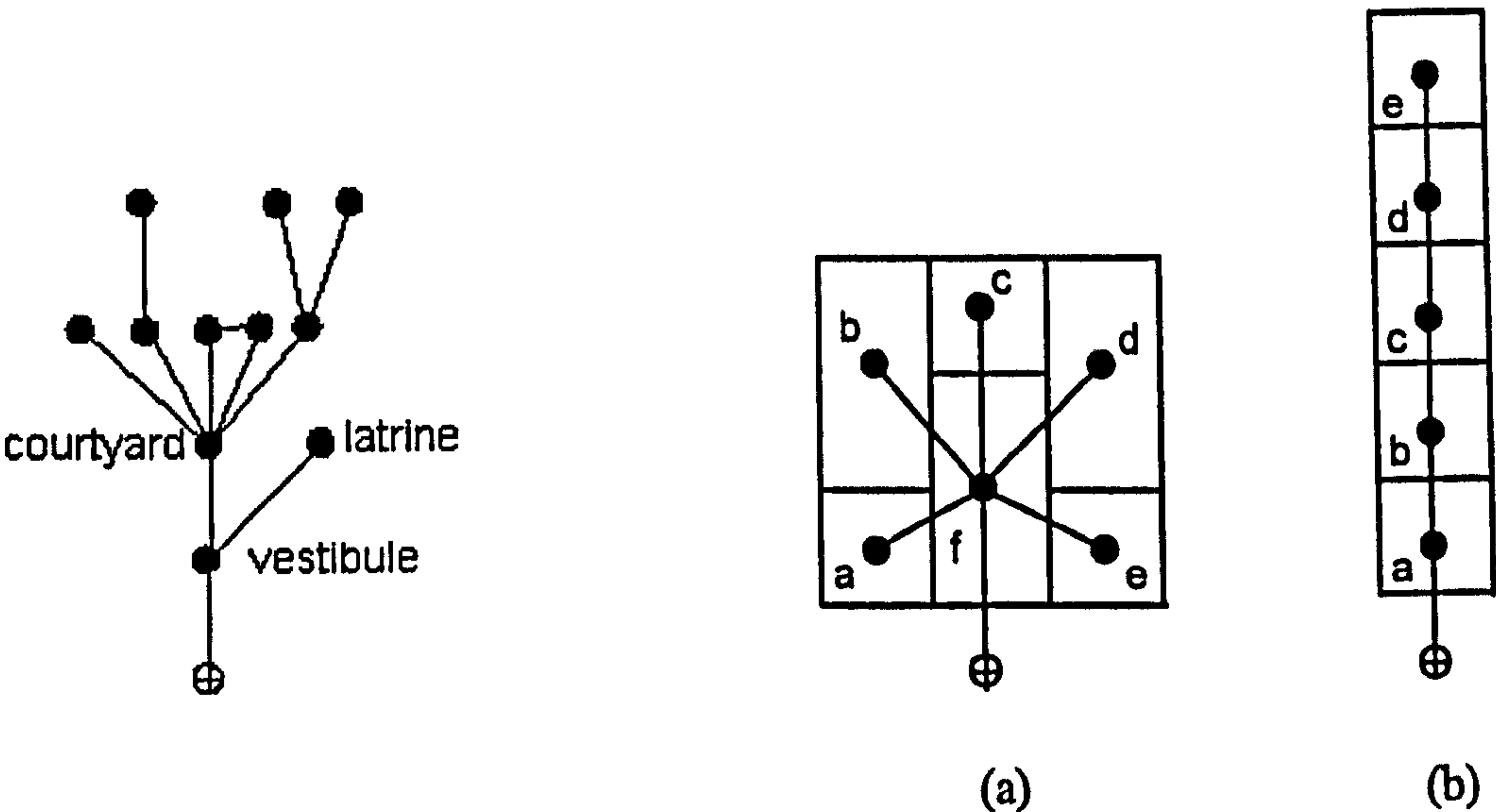


Figure 86: Stylised Delian house layout showing common features

Figure 87: The 'shallowest' (a) and 'deepest' (b) forms of access graphs (Adapted from Brown 1990: 96 Fig. 4.2)

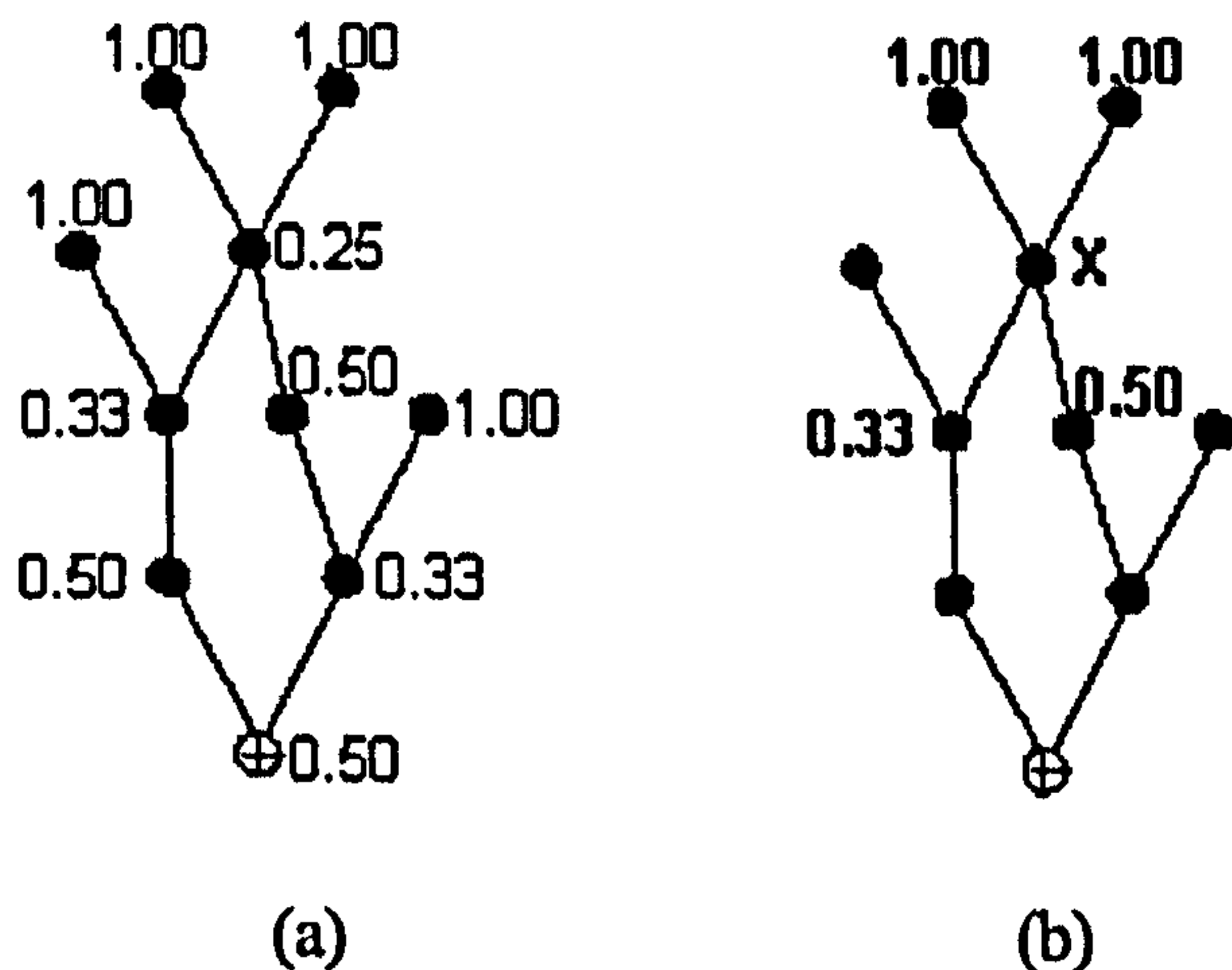


Figure 88: Control space calculations graphs showing (a) proportional control figures for each room and (b) figures contributing to the overall control value for room X (*emboldened*):  
Control value for X = 0.50 + 0.33 + 1.00 + 1.00 = 2.83



levels it contains between the exterior and its furthest point, need not be expressive of patterns in domestic life but merely reflections of the building plot on which the house stands.

The Delian graphs provide examples of both radial and long narrow layouts, as well as examples of both in combination, varying according to the size and shape of land plot each house covers. Multiple entrances to a house usually make the resulting graph shallower as few rooms need to be crossed in order to reach the furthest point within the building. Variations occur when there are more steps between the exterior and courtyard space, rooms are placed further than two steps from the courtyard, or rooms off the courtyard are linked. In each case the courtyard has to be crossed in order to move between the ground floor rooms, emphasising its importance at the heart of the house. It can be conjectured that the most private rooms on the ground floor were those furthest from the entrance, at the 'deepest' points of the plans, or perhaps further from the vestibule (and courtyard) where visitors and guests would have been received.

### 7.3 Control space calculations

Hillier and Hanson's (1984: 109) method for analysing local spatial relations, i.e. those *within* the house, was followed to calculate a measure of control, 'E' for each room. This determines which rooms hold statistically strong or weak controlling status over their immediate adjacents, giving a numerical indication of the areas influencing movement within the house.

Notional considerations as to what constitutes a 'controlling space' or space with strong control over rooms leading off it could be:

- the entrance - regulating who and what goes into and out of the house
- the courtyard - from which the majority of ground floor rooms lead, and needing to be crossed in order to reach them
- rooms (or passageways) which provide the sole access to adjacent rooms
- staircases, controlling movement between the ground and upper floors of the house

The exterior of the unit may also be considered a controlling space as it controls what and whom reaches the building.



Each distinct area has a degree of control over spaces adjoining it by virtue that they interconnect, and movement from one to the other relies on this. Quantitative analysis of these links reveals a way by which the degree of control can be expressed.

### 7.3.1 Method

Using the graphs constructed, a value of 1 is first assigned to every room space<sup>1</sup>. This initial value (1) is then divided by the number of rooms directly adjoining it. The room under consideration then receives this proportional number as its (new)/control value. For example, a room with four spaces immediately joining it will (each) receive a value of 0.25, one quarter (Figure 88a). This simple calculation is completed for each space within the house and the control values for each room are calculated as a sum of its adjacent values (Figure 88b).

If a room is calculated to have a control value larger than 1 (the initial control value originally assigned to it) it is said to have *strong* control over its adjacents (Hillier and Hanson 1984: 109), or to be a *controlling* space (Grahame 1996: 73). Rooms with values less than 1 are said to be *controlled* spaces (Grahame 1996: 73) or have *weak* control (Hillier and Hanson 1984: 109). In the sample calculation of Figure 88 room X has a control value of 2.83, which shows it has numerically 'strong' control.

Grahame (1997: 153) later identifies nodes with control values >2 as controlling spaces, considering scores of 2 or more to signify that the amount of control invested in that space is equivalent to at least two spaces, the space itself and one other (Grahame 1996: 93). As this exercise is one of comparison, I prefer to use a *scale* of figures as opposed to a cut-off point of either 1 or of 2 to indicated controlling or controlled spaces. This also avoids problems of numerical significance related to the number of decimal places reported when resulting calculations are similar.

Control figures were calculated for each room in the study area excluding the houses with incomplete ground plans (III K, L, O and P) and for which graphs could not be constructed. Pairs of houses linked by open doorway access were treated as separate units for the purpose of this analysis.

---

<sup>1</sup> Known stair wells were assigned an initial value of 0.5, the maximum initial control value possible for a space linked to two others, a room on the ground floor and a room on the upper floor



### 7.3.2 Results

The control status calculation results are listed in Appendix 2. House entrances, courtyards and rooms providing the only access to one or more adjacent rooms were calculated as having the largest statistical control values. In some cases the building's exterior also ranked highly (e.g. in II A, IV B and VI O) though, as each of these examples have two exterior points of access, this is likely be a feature of multiple entrance houses.

Courtyards received the largest control values as the greater the number of adjacents a room has, the more numbers are summed in order to obtain its control value. High values were also calculated for rooms that provided the sole access to one or more areas adjoining it as each adjacent here adds '1' to the control calculation. Similar results were obtained for areas which can be termed as 'transition spaces', rooms with access to two or more adjacents, forming link- or through-space. Grahame (1998: 166) suggests that narrow room spaces are more likely to have formed this kind of conduit.

The statistical results reveal four houses whose entrances do not hold statistical strong control status ( $>1.00$ ) in relation to the rest of the house, II Ba, IV Bh, VI Ma, f and j (all three entrances), and VI Oa and c (both entrances). This also appears to be a feature of multi-entrance houses though here the exterior of each house has statistically strong control. These exceptions show differences between the evaluation of controlling space on the basis of statistically quantifiable spatial relationships and the mere assignment of controlling space status on the basis of visual impression. The calculated results do *not* give at least one entrance to every house control space, highlighting the difference between the notional and mathematical categories. Multiple access points into a house could be in use simultaneously and, following Grahame's (1996: 73-74) control space calculations do not always receive the statistical weighting afforded their practical function.

### 7.3.3 Implications for upper floors

Although these calculations are solely for the ground floor, the assignment of proportional values to adjoining rooms means that information can also be conjectured for the controlling status of upper floors. The layout of the upper floor is likely to have been similar to that on the ground floor though with two or three smaller rooms taking the



space of one of the larger rooms beneath (Chamonard 1922: 196). Walkways would give access to rooms leading off them, some of which may have interconnected or perhaps led one from another, in a similar way to the ground floor plan. Calculations for the walkway would therefore be similar to those for the courtyard below, with high control values.

## 7.4 Relative Asymmetry calculations

Hillier and Hanson's (1984: 108ff.) method for calculating *Relative Asymmetry* (RA), a measure of integration, was followed to investigate both local links (between rooms) and to a lesser extent global links, between the interior and exterior of buildings.

RA values are obtained by first calculating the average or *Mean Depth* (MD) of rooms from the exterior and all other rooms within the house. From a start space, its relations to the other rooms contained in the house via movement steps is calculated. This is achieved by assigning a score of 1 to all the rooms that require a single movement step to be crossed in order to reach them from the start space, 2 to each that require two spaces to be crossed in order to reach them, and so on for the whole plan (Figure 89). These values are then summed and divided by the total number of spaces in the house, less one (the starting space from which the movement steps are made):

$$MD = \frac{\sum d_k}{k - 1}$$

where  $\sum d_k$  is the sum of the depth values ( $d$ ) for each of the room spaces ( $k$ ).

The RA value for each room can be calculated using the following equation:

$$RA = \frac{2(MD - 1)}{k - 2}$$

RA values range between 0 and 1. High values indicate low accessibility, places which are difficult to reach from the rest of the house and its exterior, with low RA values representing easy accessibility. Using RA figures as a means of comparison between buildings has its drawbacks in that the more rooms a unit has, the proportionally smaller figures it is likely to produce as  $k$ , (the number of rooms) by which the equations are divided are larger. Hillier and Hanson (1984: 112) compensate for this, producing a *RR*A or *Real Relative Asymmetry* value by the application of a controlling factor, a *D value*:



$$RRA = \frac{RA}{D \text{ value}}$$

Their D values are calculated for diamond-shaped configurations, with single spaces at both the shallowest and deepest points; provided for units with 5 to 300 spaces (therefore excluding houses of less than 5 rooms, and small shop complexes). The lower the overall RRA value, the more accessible a room is said to be. A result of 1+ indicates a more segregated space and values as low as 0.4-0.6 indicated a space that is strongly integrated with the rest of the building (Hillier and Hanson 1984: 113). The RRA value of X within Figure 89 is 0.72, indicating its easy accessibility to the rest of the unit; it is connected to four out of the house's nine rooms. Hillier and Hanson (1984: 113) state, however, that RRA comparisons are only necessary between complexes containing different numbers of spaces, elsewhere comparisons of RA are sufficient.

Changes in access between rooms with now-blocked doorways would alter the initial values attributed to the adjacent rooms, as well as altering pathways within RA analysis. This would cause knock-on effects to the calculations throughout the house.

### 7.4.1 Results

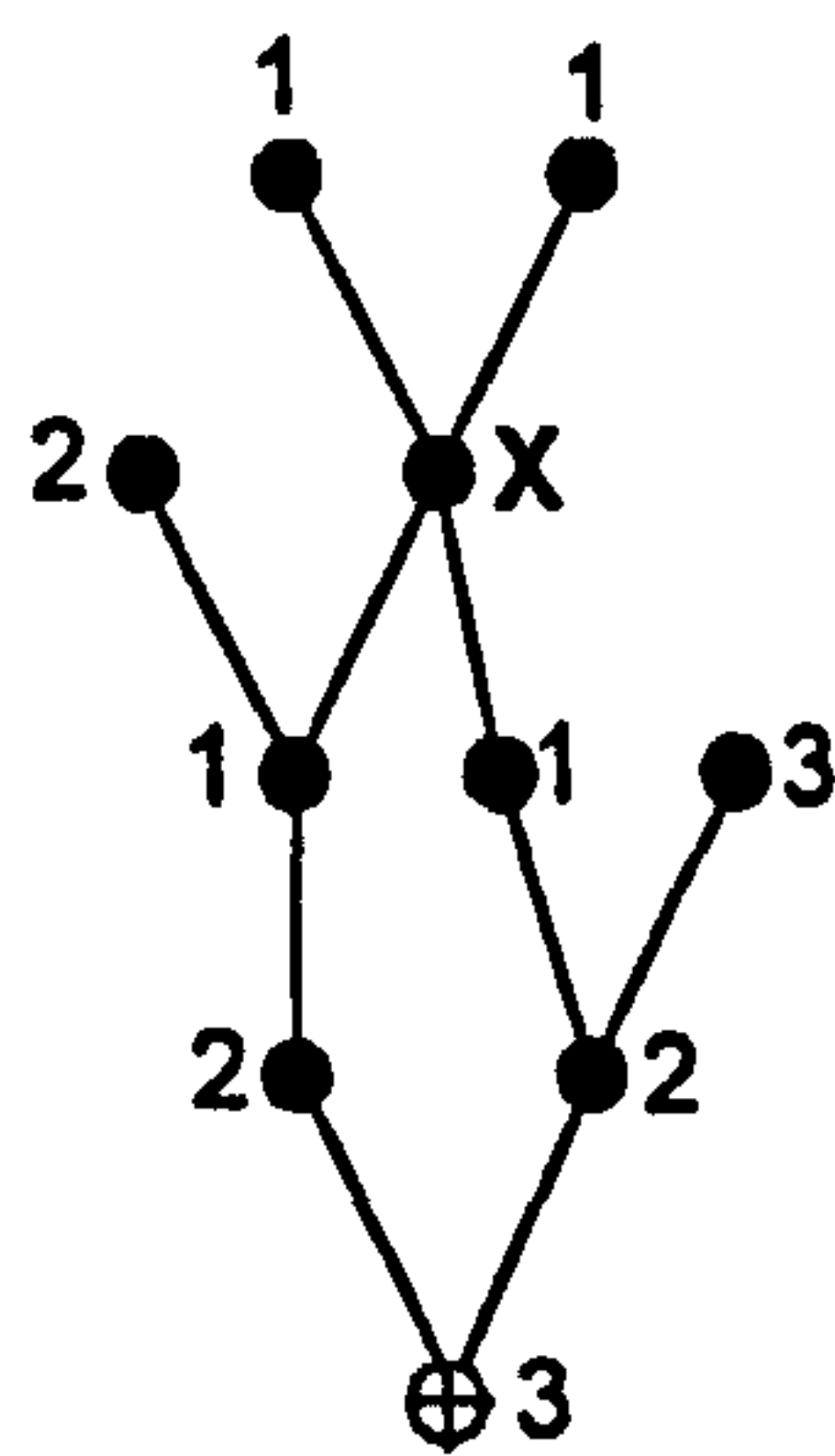
Appendix 2 contains the MD, RA and RRA values for each room within the case study houses for which control values were earlier calculated. Houses with the lowest RRA values are those whose layouts appear most accessible from the exterior, via multiple access points or by virtue of the majority of their rooms being sited only a few movement steps from the outside. In reverse, houses with the highest RRA values are those whose rooms are further from the surrounding exterior space and which need a larger number of movement steps to be crossed in order to reach them.

### 7.4.2 Linking control status and Relative Asymmetry

Grahame (1996: 77-78) concludes that although control status and accessibility between individual rooms are closely linked, it is possible for a room to be locally accessible to spaces adjoining it (high total control value) yet globally inaccessible (high RA). A large number of movement steps are therefore needed to reach it from the building's exterior. In reverse, a room that is locally inaccessible with few rooms adjoining it may be



Mean Depth



Depth from X	Occurrence	Depth value (d)
1	4	4
2	3	6
3	2	6
Totals	9	16

Hypothetical ground plan showing depth values (movement steps) from X; room spaces (k) = 10 (including exterior)

Depth values (d) = depth x occurrence

$$MD = \frac{\sum d_k}{k - 1}$$

$\sum d_k$  = sum of the depth values (d) for each of the room spaces (k)

$$= \frac{16}{9} = 1.78$$

Relative Asymmetry

$$RA = \frac{2 (MD - 1)}{k - 2} = \frac{2 (1.78 - 1)}{7} = 0.22$$

Real Relative Asymmetry

$$RRA = \frac{RA}{D \text{ value}}$$

$$\text{For X (above)} = \frac{0.22}{0.306} = 0.72$$

Figure 89: Mean Depth and Relative Asymmetry calculations



globally accessible (low RA), and can be reached via few movement steps from the house exterior.

However, there are significant exceptions to these results where areas other than those of the house's entrance or courtyard are calculated to be the most accessible within the unit. These can be referred to as 'transition spaces':

**II Bb and j** These rooms form a link space between entrances a and c. Room b opens onto six other spaces, and is considered to have been the courtyard of an earlier, smaller property (Section 6.5.2). Area j links this area (b) to the courtyard, into a single, larger complex.

**III Fe** This area forms a link space between rooms f and g which lead off it, and the courtyard, b. It adjoins three out of the units' six rooms.

**III Nf** forms a link space between e at one side of it to g, h and i on the other

**III Sd** This room is similar to III Fe (above), linking the two ancillary rooms which front it (e and f), and the courtyard, Sb.

**IV Cc, d** and the building's exterior. This unit plan is very 'shallow' with each space being no further than two movement steps away from the outside.

**VI Mb** Situated directly adjacent to the courtyard, c, which leads to five adjoining rooms.

The results show that the accessibility to houses from the outside is closely linked to the control status within them. A house may have had multiple access points but it is unlikely, as in present-day housing, that these all would be open at once. Where present, different routes to and from the house may have been used at different times<sup>2</sup>. This was also perhaps affected by where the house opened onto the surrounding street. Wide entrances may have been used for cart access, for loading and unloading goods. In the larger houses with multiple entrances one may also have been the main entrance for visitors and the second a form of 'tradesman's entrance' e.g. VI I. Here, notable differences in exterior door widths are more likely a result of rooms a and d, facing onto Theatre Road having been converted from earlier shop to later house use.

---

<sup>2</sup> Covering times of the day, seasonality, stages in the building's history and use of house space by its occupants



### 7.4.3 Linking Control Space and RRA calculations to Privacy

The results from Control Space and Relative Asymmetry calculations reveal the most statistically accessible points within the case study houses: entrances, courtyards, 'transition spaces' and rooms controlling the sole access to those adjoining them. Combining the graphs with the statistical figures assigned to each space shows the high accessibility of all the Theatre Quarter houses and emphasises the 'open' layout of their ground floors. This provides statistical confirmation of visual observation and indicates the areas furthest from the house entrance and other ground floor rooms. There are a minimum number of rooms which can be considered isolated in either sense.

Nevett (1992: 16) considers that access analysis provides a method of judging the privacy of each room both through the number of doors leading from it, and a number representing the spaces between the given room and the outside of the house. I consider access analysis more a measure of house form than equating spatial accessibility with privacy. The Theatre Quarter houses reveal influence over the former was largely due to room location. Resulting opportunities for spatial privacy may seem evident, but only on a level of consideration of the now-empty and uninhabited buildings which are undoubtedly a long way distant from their inhabited states. We are still left without knowing how the rooms, whether considered 'private' or not, may have been used. Relationships between rooms may well have affected tasks carried out in them, though it is likely that more factors than their location would have been involved if this was the case.

But what, if anything, can spatial patterning say about social meaning? House 'depth' may be associated with hierarchy with the more privileged or the most private places being situated the furthest from the street entrance or courtyard. Rooms placed at the back of the house may equally have been reserved for ancillary or storage functions as a measure of security. Chapman (1990: 62) suggests that deep houses provide greater *opportunities* for the production and storage of artefacts, though they could equally be interpreted as providing greater opportunities for privacy.



## 7.5 Conclusions

The results of the above analyses reveal two main features. Firstly, the value and quirks of the mathematical methodology used and secondly, differences in house plans within the Theatre Quarter. Limitations of the methodology include how house space is divided on the ground plans, particularly how an open area is interpreted as one or more room spaces.

Heavy emphasis is also placed on the physical adjacency of rooms. There is also the unwritten tendency to assume that a single room space was used for a single purpose, and was of uniform use throughout. Areas/corners may have been used for specific tasks for which there are no traceable indicators or boundaries. The divisions and emphasis on separate rooms as individual entities may therefore be void.

The amalgamation and division of property, and blocking and re-positioning of doorways adds complexity to the Delian insula plans. Despite following the rules for construction, graphs were unable to be drawn for two of the case study houses. This may say more about the methods used than the sample data. Complicated house layouts can be clarified by the construction of graphs, though queries regarding decisions over access are both time-consuming and, however well-informed, remain largely conjectural. As Brown (1990: 95) emphasises, the reduction of ground plans to graphs results in a massive loss of information, much of which may be relevant to the interpretation of interior house space.

Where detailed ground plans survive, graphs could be modified (or codified) to contain more information e.g. edges holding numerical data representing multiple doorway access. Measured survey data could also be used to provide additional information in favour of objective divisions of interior space. For example, distances from the house entrance to the courtyard or distances between rooms could be included, and door widths and accompanying angles used to estimate possible views into rooms. Simple details of light levels could also be incorporated on a graded scale, from courtyard areas directly open to the sky through covered walkways to rooms one or more movement steps from the courtyard which would be in permanent darkness if not artificially lit. Though this would mean the assignment of further numerical factors, physical measurements taken directly from source could be compared rather than numerical attributions used.



It is important to remember that access analysis results are calculated through the manipulation of subjective numerical attributions in an attempt to quantify spatial meaning. They can only assist our understanding of spatial inferences, and cannot, as Foster (1989: 43-4) comments, include such concepts as temporality or symbolic meaning which may have affected the houses' original occupants. Hillier and Hanson's (1984) Relative Asymmetry calculation gives statistical measures of depth by comparing spaces but cannot be used as social indices. In this instance we are the ones making both qualitative and quantitative judgements regarding extant housing space and such mathematical calculations cannot take into account the complexities of the everyday past situation (Leach 1978: 400). Social practice cannot be deduced from syntactic rules (Leach 1978: 397) and it is here that the application of access analysis reaches the extent of its usefulness.



# Chapter Eight

## Sight Line Analysis

### 8.1 Introduction

This chapter studies aspects of visual and spatial accessibility associated with the Theatre Quarter houses. It examines views within and between them - investigating which areas could be seen, from where, and links this in with associated notions of privacy. Lines of sight can be traced between ground plan fixed features, indicating the maximum possible extent for fields of vision from a given view point. This analysis is then developed through the extension of extant architecture via computer re-constructions. Re-elevating broken walls or pillars can show us the extent of vision through the house, facilitating an investigation into its visual and spatial accessibility.

House remains are raised from their ground plans into (partial) 3D spatial representations through the combination of standing remains and their extension via survey measurements. These reconstructions facilitate analysis not possible from ground plans alone, or from sites where house remains stand only to one or two low courses. Computer Aided Design (CAD) models enable us to put ourselves in the position of the ancient Greek viewer/owner-occupier or visitor to the house. The resulting models used in combination with site photographs are used to gain further understanding of the use of the Theatre Quarter houses by their past occupants.

The chapter starts with consideration of architectural and spatial boundaries within the ancient Greek house, and moves on to investigate their influence over views into, within, between and out of buildings. The chapter concludes with information obtained about the visual and spatial privacy of the Theatre Quarter houses, and a discussion of the usefulness of CAD as an interpretative tool.



## 8.2 Architectural boundaries: walls and doors

Chapter 3 illustrates how the construction and layout of the ancient Greek house would have affected views both into, within and out of it. Houses feature a narrow street entrance and angled hallway, interior rooms facing inwards onto the courtyard space, and windows, where present, placed high within ground floor walls, or on the upper floor. Wall placement angles restrict and direct interior views, dividing interior house space into rooms and courtyards, and creating further sub-divisions within them. These architectural boundaries may also have acted as symbolic boundaries for the occupants of the house, and their visitors.

Inscription evidence from Delos' farm leases show that doors were considered part of a house's moveable/portable contents, and were not permanent fixtures or a feature of every room, as may be expected (Kent 1948: 293ff.). Subsequently, not all interior doorways necessarily had (wooden) doors associated with them and, though may have been closed over by other means, may also have been permanently open during the building's occupation. The narrowest doorways may have been the ones left open though this may have depended on the position of the room in relation to others within the house, or what there was to keep from view within it.

Areas akin to modern 'through' lounge-dining rooms *without* interior dividing walls also feature as not all house space is divided into rooms enclosed by four walls and a doorway entrance (Section 6.3.3.1). Sill stones provide an indication of the placement of doors *within* the house, and surviving wear marks and striking plates holes indicate door leaf fixtures and direction and side of opening. Rubble thresholds reveal where sill stones have been removed and may help indicate whether and where doors had been present at the time of house occupation.

### 8.2.1 Windows

Windows also regulate visual (and to a lesser extent aural) accessibility within the house, and between the house and its surrounds. The height above the ground is important in distinguishing whether windows were primarily used to admit light or intended as observation portals (or both). If observation was the prime intent then the height of the



window opening above ground floor level would be within reach of the viewer, below eye level. Eye level is estimated at 1.50m, based on the average skeleton heights from the Rheneian necropolis (Bruneau *et al.* 1996: 48) (1.55m female, 1.64m male; c1.60m average of these figures, minus distance from the top of the head to the eyes). All ground floor windows measured within exterior walls were too high above ground to be looked into from the outside; Figure 90.

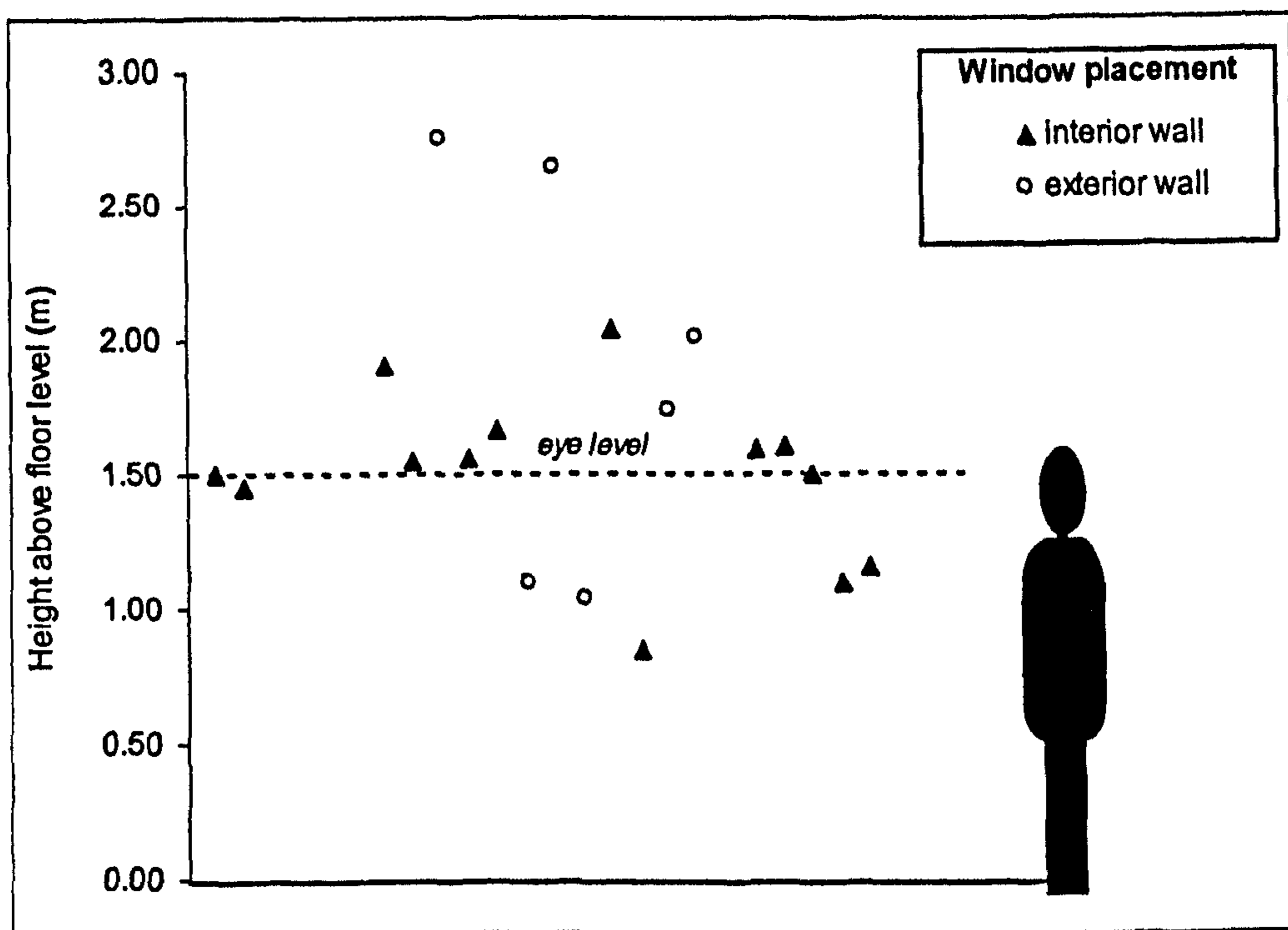
The importance of these measurements is that it shows ground floor windows were placed at a level just *above* eye level, restricting views both *into* and out of interior rooms. This suggests that they were intended to admit the maximum amount of light possible, while at the same time retaining the privacy of the house within. In reverse, ground floor windows could be looked *out of* from within the house where the interior floor level was significantly elevated in comparison with the surrounding road, e.g. within IV B (Figure 91).

Ground floor windows at this height are certain to have been able to be closed and locked, for security. People walking in the street may have taken little notice of these windows positioned above head height. There may have been a tendency, as now, to look straight ahead, or down, when walking in the street. This enables pedestrians to see other people, and avoid ground level obstacles, within the Theatre Quarter - uneven flag stones and drainage covers. With exterior house walls plastered and painted, openings in them would perhaps have been more obvious than the niches and windows within the composite stone facings seen today.

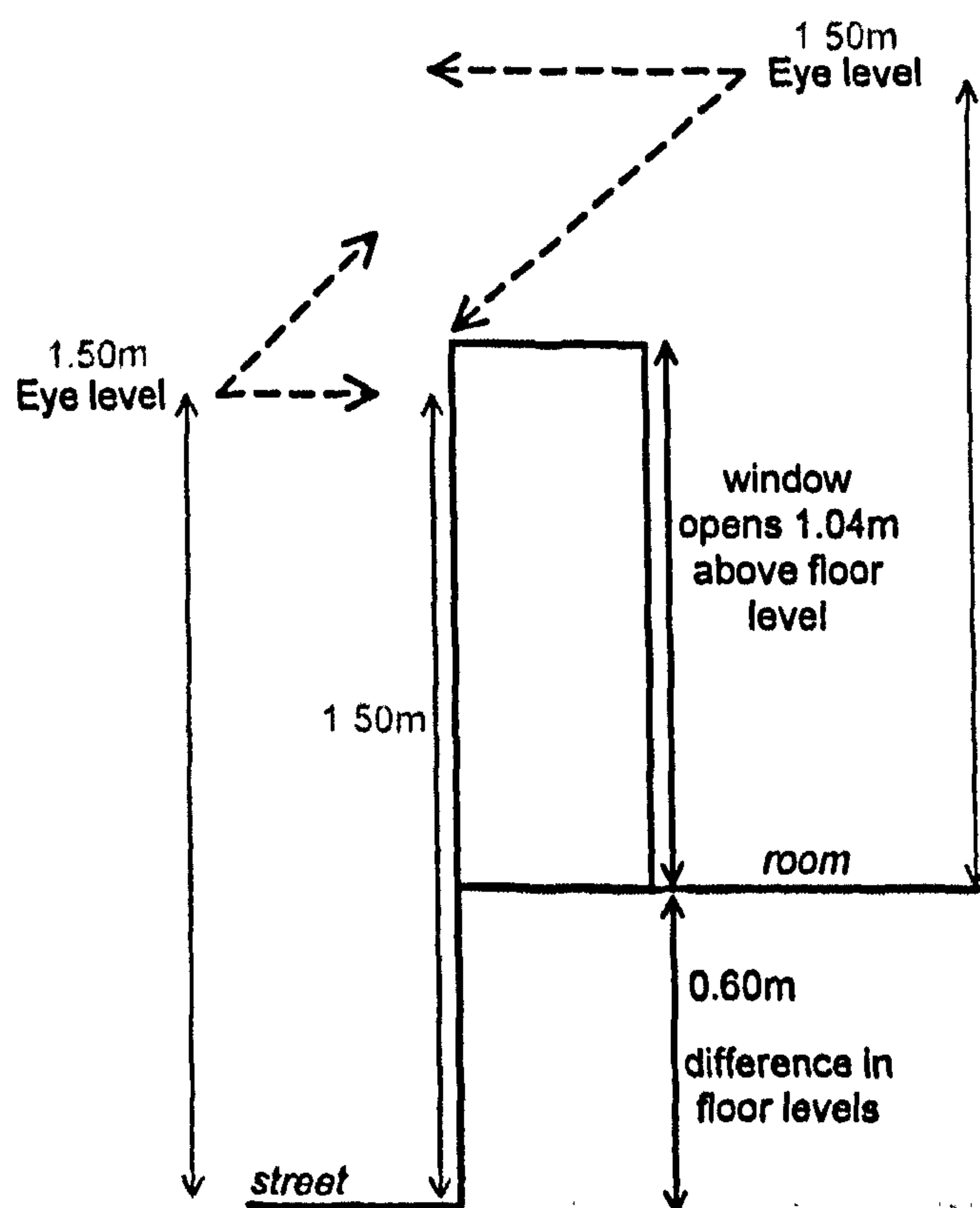
Few complete windows within the case study houses survive 'in the round', only VI Nj on the ground floor, opening 2.20m above ground level (Figure 92). Other windows have sills and jambs remaining, but no top edge. The height of the tops of windows is not known though it is likely that the largest openings possible were created, making for tall (and narrow) window spaces, in order to admit the maximum amount of daylight to the rooms' interiors.

Views through low, interior windows are possible within houses, between the courtyard and surrounding rooms, allowing additional views across courtyards to those permitted via doorways. More light would also reach these rooms, and interior areas opening off





**Figure 90 Graph showing the height of surviving windows within the Theatre Quarter insulae**



**Figure 91: Sketch illustrating differences between interior and exterior floor levels  
(between TR IV Bg and Road 3)**



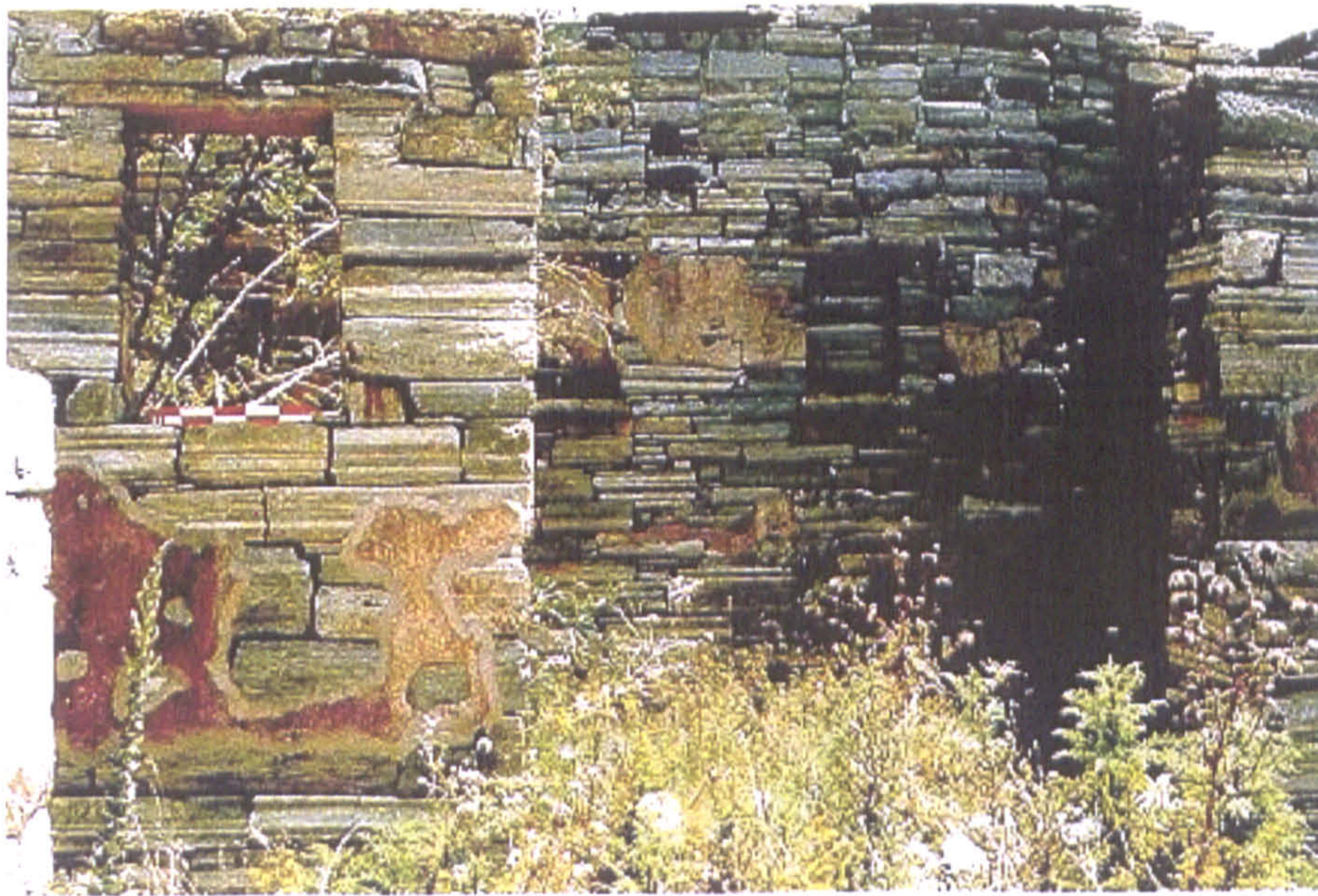


Figure 92: VI Ni window  
(Scale bar measures 0.50m, total length - *left*)



Figure 93: Sketched sight lines within house III M showing the maximum extent of vision possible looking in from the street door, with interior doors open



these would have been brighter. This 'open-ness' may be an indication of ground floor space with a more public, perhaps semi-public feel to it. In this instance more private space would be rooms further from view, situated *behind* those leading directly off the courtyard. Perhaps these 'open plan' ground floors were not for use as living space, indicative instead of e.g. meeting houses or areas for business or trade, for which observation and visual accessibility was actively encouraged. Associated/corresponding accommodation may have been situated on upper floors, or located elsewhere.

Buildings within Delos' Merchant's Quarter, situated between the Theatre Quarter and the western shoreline, contain several large buildings in which window heights vary markedly in rooms different distances from the central courtyard space. Low height windows are found in rooms directly adjacent to and leading from the courtyard; rooms one step back have windows placed higher in their walls. Views between the courtyard and immediately adjacent rooms were therefore possible via these windows, but not so between these rooms and interior rooms leading from them.

Chamonard (1924: 287) suggests that peristyle houses had more windows to counter-effect the darkening effect of the courtyard colonnade. This can be seen where the *oecus* or equivalent room and courtyard were separated by three doors to maximise the light reaching its interior e.g. within II El and VI If. In some cases, the two flanking doors were replaced by windows (e.g. II Ak, VI Hj, Ni and Od and VI Ii where the windows are now blocked). Curtains may have closed interior windows, though this seems less important with them opening above eye level, while elsewhere, bolt holes for grill and shutter fixings reveal security measures (Chamonard 1924: 291-3) e.g. II Aa.

The Delian houses had high ground floor ceilings, with gallery floors starting on average at a height of four metres. This is nearly double (1.8 times) the modern western average of 7-9ft ceiling heights (2.13m-2.74m). These measurements mean that in some instances it is uncertain whether examples of exterior windows were of ground or first floor construction. Such high ceilings would have promoted the feeling of spaciousness within rooms and would have made these rooms cooler in summer. This may have been particularly important for some of the smaller rooms within the house where spaciousness was achieved by height, where expanse was not possible via either length or breadth:



“A room that can be traversed in one or two steps gives an entirely different experience from a room requiring fifteen or twenty steps. A room with a ceiling you can touch is quite different from one with a ceiling eleven feet high” Hall (1969: 54).

The paucity of ground floor windows, and their usual above-head height placement reveal that observations *out* of the house were more likely to have been made from the upper floor. Chamonard (1922: 103) reports that upper floor windows were more numerous (and covered a wider variety of sizes) than those on the ground floor, though little remains from the Delian house upper floors survive to confirm this. Observers looking from upper floor windows were also less likely to be noticed by people outside the house than if they had been looking from the ground floor.

### 8.3 Sight lines and views

Sight lines (or ‘lines of sight’) reveal what areas can be seen within the house from a given start/view point. Ruler lines sketched between fixed boundaries (between walls and pillars) across ground plans give a simple illustration of this, indicating the theoretical maximum possible extent of views along a given route/path (Figure 93). These simple line drawings can serve as a reference point from which to consider possible views within these buildings though they provide little information about the physical structure and dimensionality of the house. In addition to architectural barriers and distancing, angling and light provision would further narrow fields of vision, while low interior windows could widen them. Given lighting provisions (Section 8.3.5) and the fact that not all doorways would have contained doors with which to close them, the extension of sight lines is not as simple as depending on whether interior doors were open, permitting views inside, or closed.

The addition of elevation data to ground plans adds invaluable detail to these lines of sight. Combining CAD reconstructions and data from site photographs enables the creation of views not just across floor level features, but within three dimensional structures.



### **8.3.1 Investigating visual accessibility through house reconstructions: CAD methodology**

Computer Aided Design is used here to create factual computer reconstructions of Delos' Theatre Quarter houses. Using fieldwork survey data from the site as is, surviving house structures are re-elevated and extended on screen as three dimensional computer 'models'. Manipulation of these models enables us to more fully explore the original buildings, in a more complete form than they have survived, and also in ways that would be impossible on site. Particular features of note include the representation of changes in floor levels, high ground floor ceilings and the darkness of interior rooms which cannot be represented by ground plans, or by the site itself. This methodology is possible on account of the remarkable preservation of the buildings, though similar analysis is also possible from data which is less complete.

The house ground plans are an essential starting point for reconstruction work. They are used as the base maps from which to extrude elevated architectural features, Figure 94. Measured survey data was used to represent the following features:

#### **Floor levels**

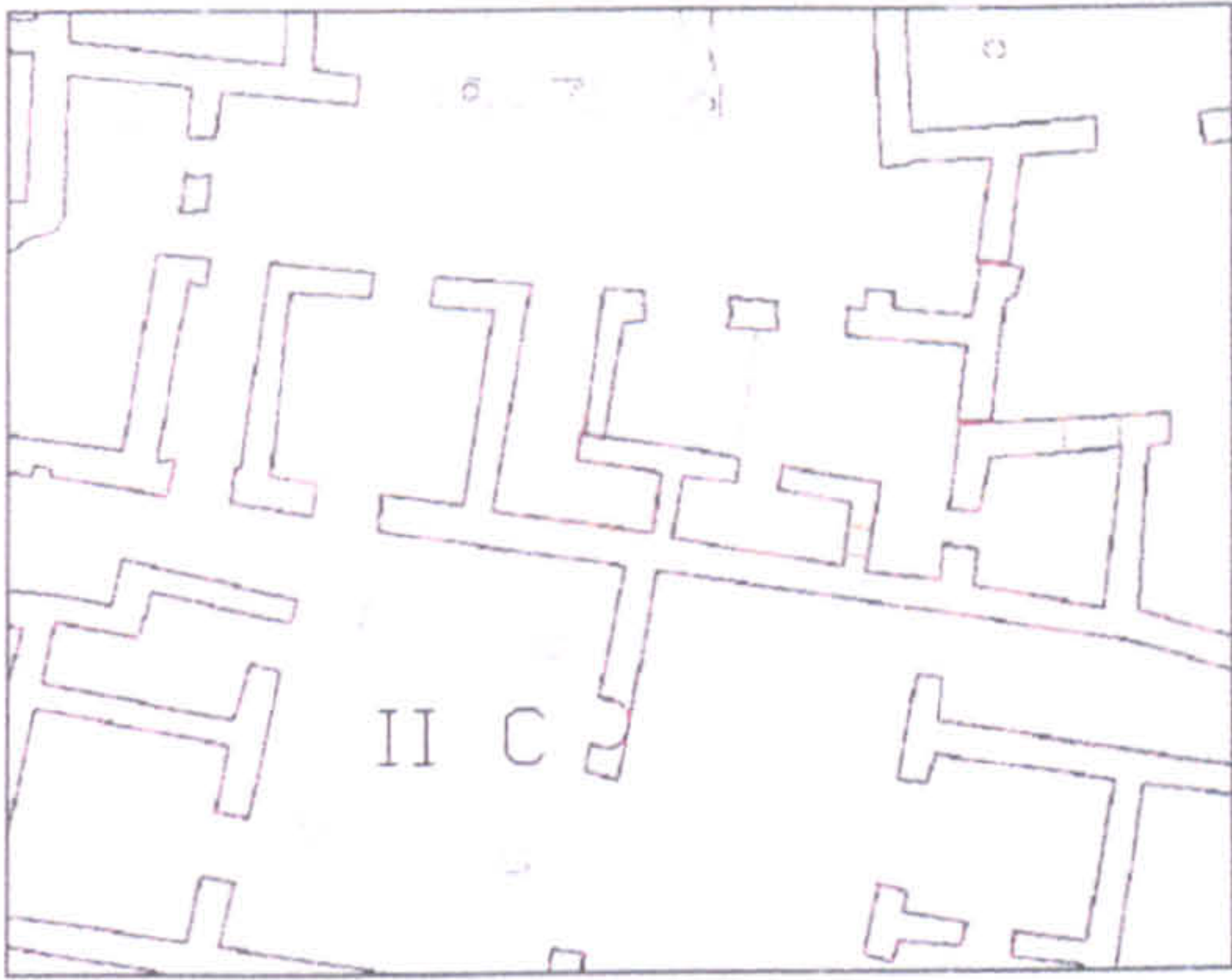
- stepped entrances into the house
- sill stones at the vestibule/courtyard boundary, and between the courtyard and surrounding rooms, emphasising differences in floor levels on either side of them,
- stylobates and impluvia

Walls (exterior, interior and partition), windows (both interior and exterior) and interior flights of stairs.

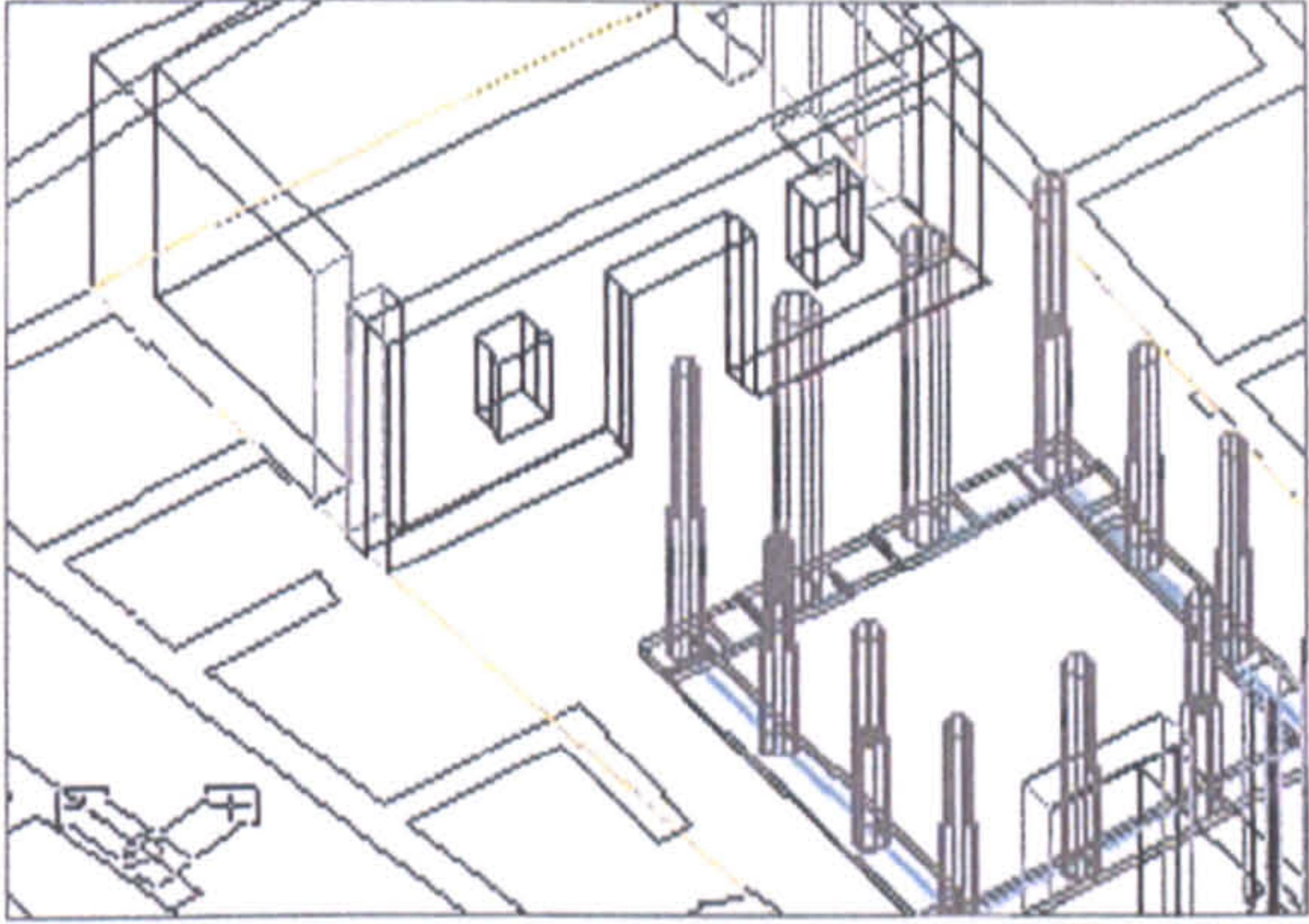
Walls were extruded to the height of the tallest wall within the house, using a number of simple assumptions regarding walls and their construction:

- walls can not be seen through (other than via windows)
- walls of equal height are needed to support a room's ceiling and
- walls would have to have stood taller than head height in order for the houses to have been occupied and used

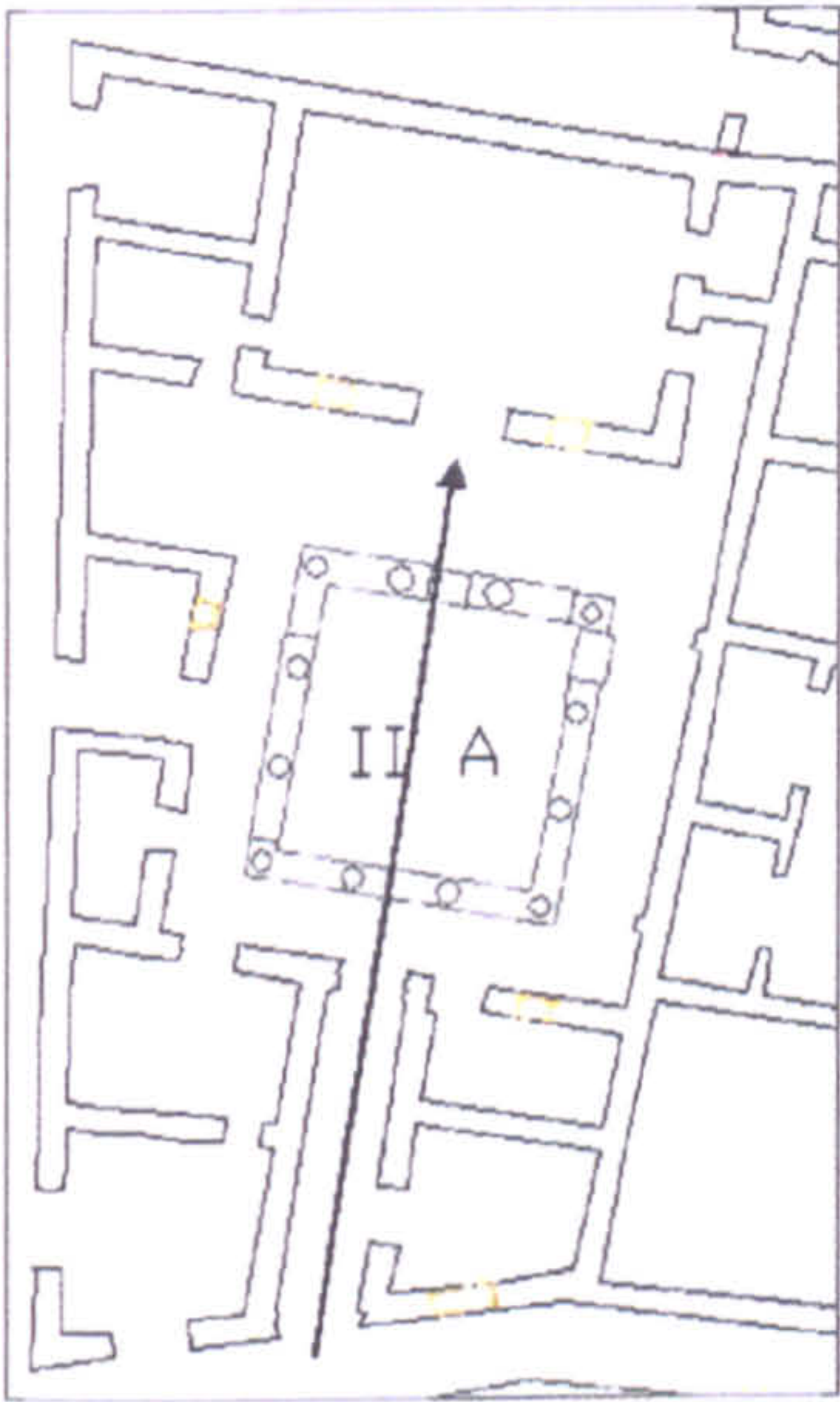




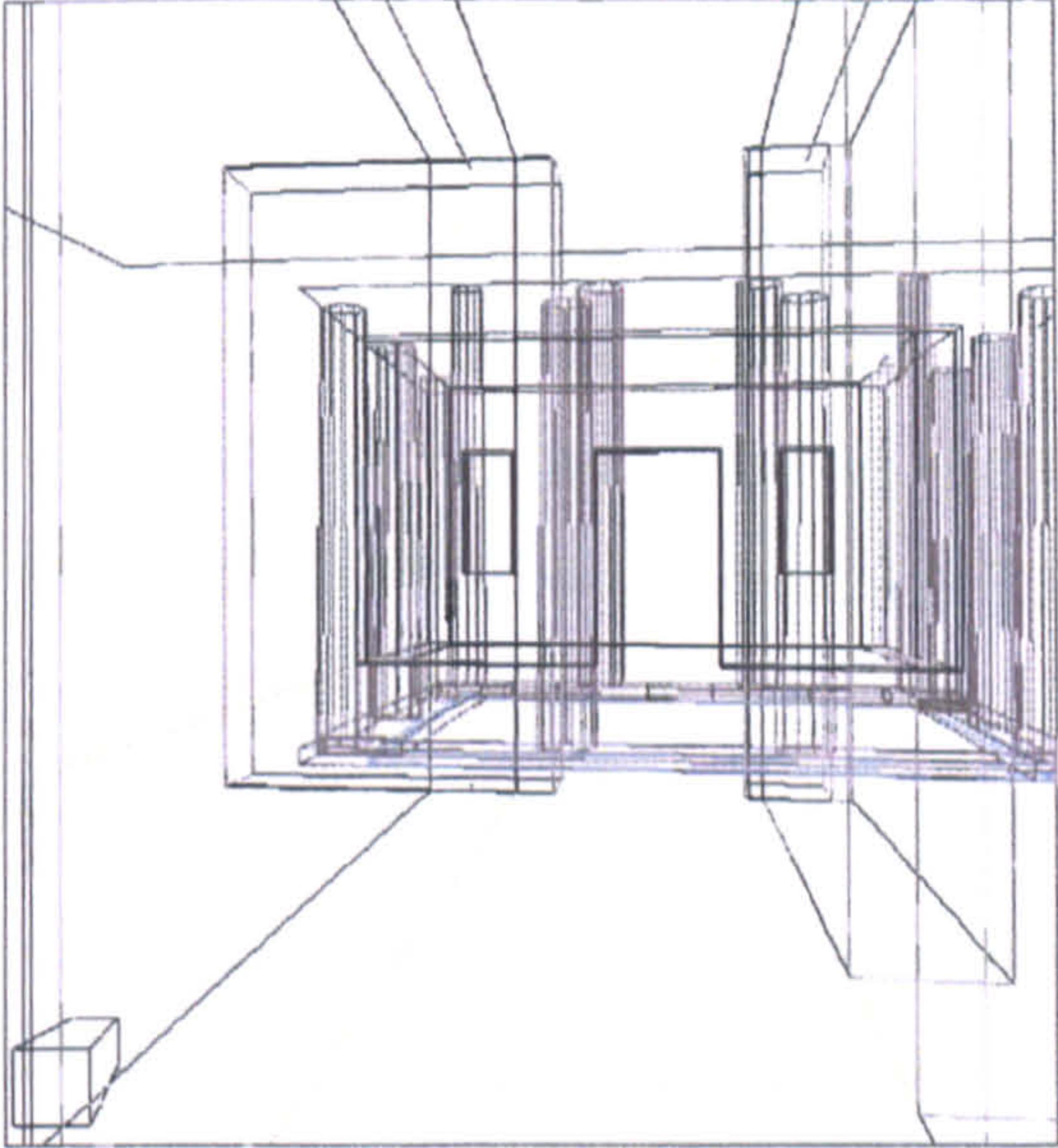
1. Digitized ground plans



2. Architectural elements elevated from ground plans



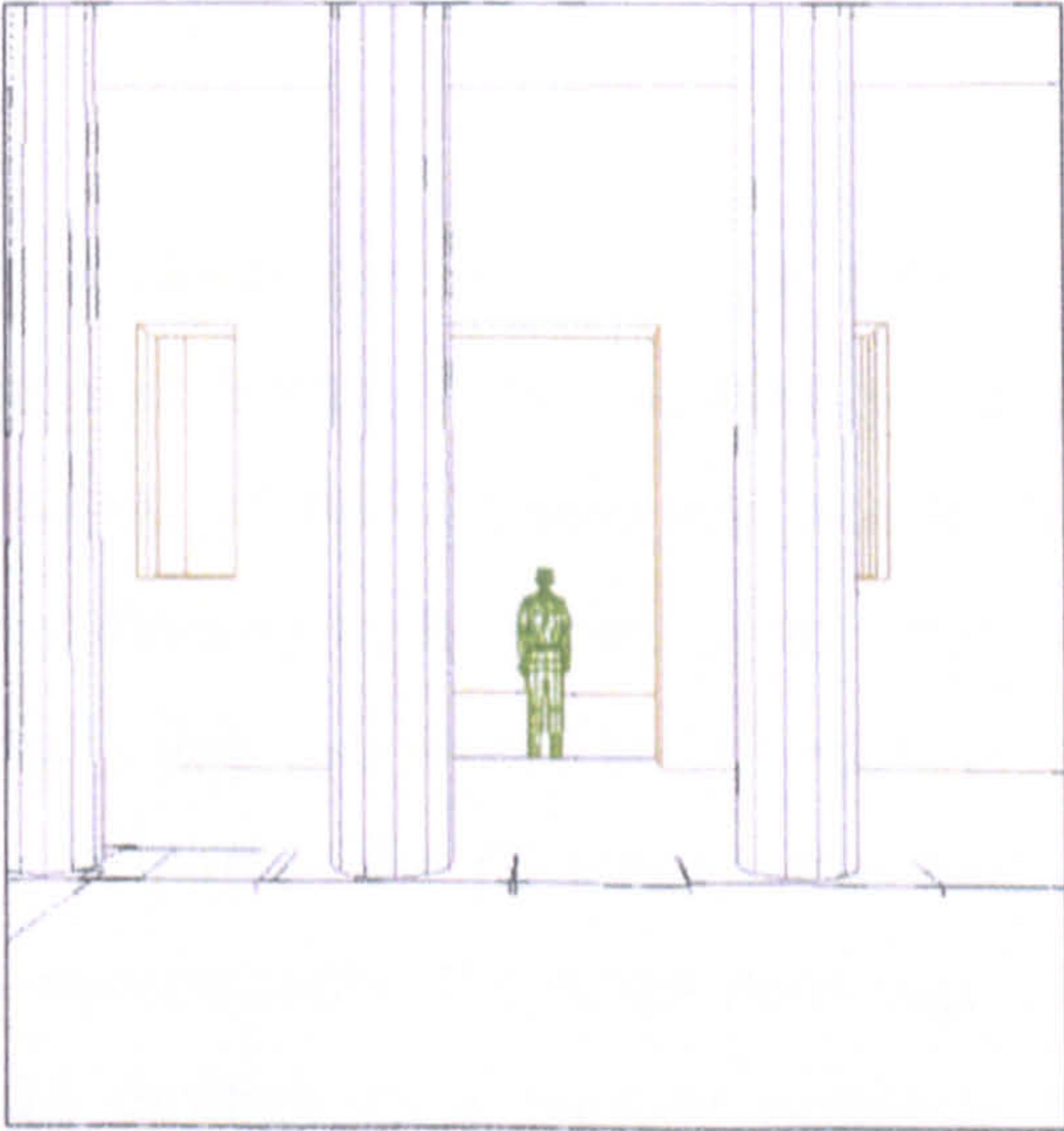
3. Views are created from along chosen lines of sight or from given view points



4. Wireframe image of view into the house



5. Image with 'hide' feature enabled, masking underlying wireframe structures



6. Image from further along line of sight – at the vestibule/courtyard boundary

Figure 94: CAD reconstruction methodology



Surviving walls which stand lower than eye line can be extended to head height or above. Overall, walls had to be at least as tall as courtyard pillars in order to be able to support the superstructure above the ground floor. Ceilings were placed at known heights of either courtyard pillar or ground/first floor boundaries (from stair well measurements).

Appendix 3 contains the CAD commands used in the construction of the following models.

‘Wireframe’ models provide simple representations of the vistas possible, illustrating views from specific view points. Areas hidden or furthest from view (on account of distancing and barriers placed across or blocking the line of sight) can consequently be indicated. Replacing missing or broken architectural/structural elements provides a more complete picture to analyse, though it can also impose restrictions which are not obvious at first. For example, rooms that appear open<sup>1</sup> and readily accessible on site become more enclosed, and views into and from them become narrower (Section 8.3.2.1). In some instances, CAD illustrations also help clarify the site as is, e.g. where the house is currently overgrown and it is difficult to distinguish room spaces from one another.

The houses chosen for partial reconstruction are among the best preserved within the case study area. Between them they contain examples of low interior windows, peristyle courtyards, and significant changes in floor levels, encompassing example illustrations for each of the following sections.

### **8.3.2 Views into the house**

The street door controlled the primary and usually sole access route to these houses. It was therefore both the focus of accessibility and security; the transition point between interior and exterior, channelling the movement of both people and goods. Entrance would have been via admittance by a porter or slave, or by knocking to draw the attention of a household member to the door. It is unlikely this door would be left open, at least not unattended for any significant length of time, as most of the Theatre Quarter houses open directly onto public thoroughfares. Perhaps unexpectedly, the street door was often not the widest door within the house and lead through to a narrow vestibule hallway

---

<sup>1</sup> with the exception of II A, Trident House, which now contains a roofed porch covering rooms k-m



positioned directly behind it. It would have been answered by someone inside the house – standing within the door leaf/shutter itself, meaning any views inside were likely to have been masked by the door itself, or by the person opening it.

The majority of views into these houses from the street are limited to the entrance vestibule and directed straight onto walls, reaching no further (Section 3.2.2). By studying ground plans, though some appear to have extended further into the house. Figure 93 shows a conjectural clear view into the house, here without door or doorkeeper to narrow the field of vision. This would have been further restricted by the subtle angling and the placement of walls. This appears to have been deliberate in order to restrict views into the house. Westgate (1995: 209) comments that, in contrast with Pompeian houses, one of the most remarkable features of the Delian house is that neither layout or decoration invited passers by to look in.

### **8.3.2.1 Directed views**

The majority are onto vestibule walls and no further. In contrast, the construction and layout of Roman houses is thought to have actively encouraged views in from the street. The gaze of passers by was drawn into the house along a carefully orchestrated visual pathway, framed by architectural and decorative features (Wallace-Hadrill 1994: 12ff.). However, this is also considered to have been too simplistic an analysis, and the narrow view in from the street may have been intentionally restrictive so as to keep viewers at a distance (cf Hayles, 1998).

Figure 95 illustrates the extended view into II A from the street (TR) through the vestibule (a) and courtyard (d) through to the richly-decorated room k at the back of the house. The entrance-way is 1.20m wide; narrower with door apparatus in position. The vestibule/courtyard boundary is narrower still, at c1.00m wide. Courtyard pillars further restrict the view through the house, which narrows to a maximum of c80cm at the door into k. Given the shade of the peristyle, and the distance between the street door and the entrance to the room (c14m), the most a viewer would have been able to see from the street would be a narrow strip of shaded doorway across the far side of the courtyard.

As this example shows, extended lines of sight which look as though they would reach into the furthest rooms would in reality be too distant and the rooms themselves too dark



unless brightly lit. Views within peristyle houses are likely to have been further restricted with shading occurring where walkways were present.

### **8.3.2.2 Houses with multiple street entrances**

These had greater opportunities for more of their ground floor areas to be seen from the surrounding street, if their doors were open at once. Such layouts were also usually the most shallow of plans (Section 7.3.2), with less distance to move/less rooms to cross in order to reach the furthest room on the ground floor from its exterior. However, it is equally likely in these circumstances that the open ground floor was intended for public (or tenant/guest) access, and the upper floors would have been more sheltered and remote.

Seven of the case study houses have multiple (double) street entrances (II E, III K and N, IV B, VI I, M and O), two with doors opening onto two different roads, IV B and VI O which are corner plots. All contain architectural evidence for the presence of upper floors. House VI I is the only out of these examples where there are marked differences in width between the two entrances, 2.8m and 1.2m (a and b respectively). Such a difference could be attributed to main and perhaps service entrances though here it is equally as likely to have been the result of the transformation of a shop (fronting onto Theatre Road) to part of the house. Chamonard comments on notable differences in houses with multiple entrances, with the main entrances and vestibules of II A, III K, and VI I being richly decorated (1922: 112); VI O entrance c being of a later date than entrance a; and entrance III Nk closed while the entrance on TR was used.

Figure 96 illustrates how double entrances (within IV B) can influence views right through the ground floor of the house. Vestibule h is subtly angled so as to direct views towards the wall on the far side of the courtyard versus the directed views in from entrance a; which is similar to those possible within single entrance houses.

### **8.3.2.3 Floor levels**

Differences in floor levels also affected views into the house, restricting lines of sight to the house's interior. Entry into the Theatre Quarter houses involved a significant step up from the surrounding road. Callers to the front door would therefore be stood at a lower



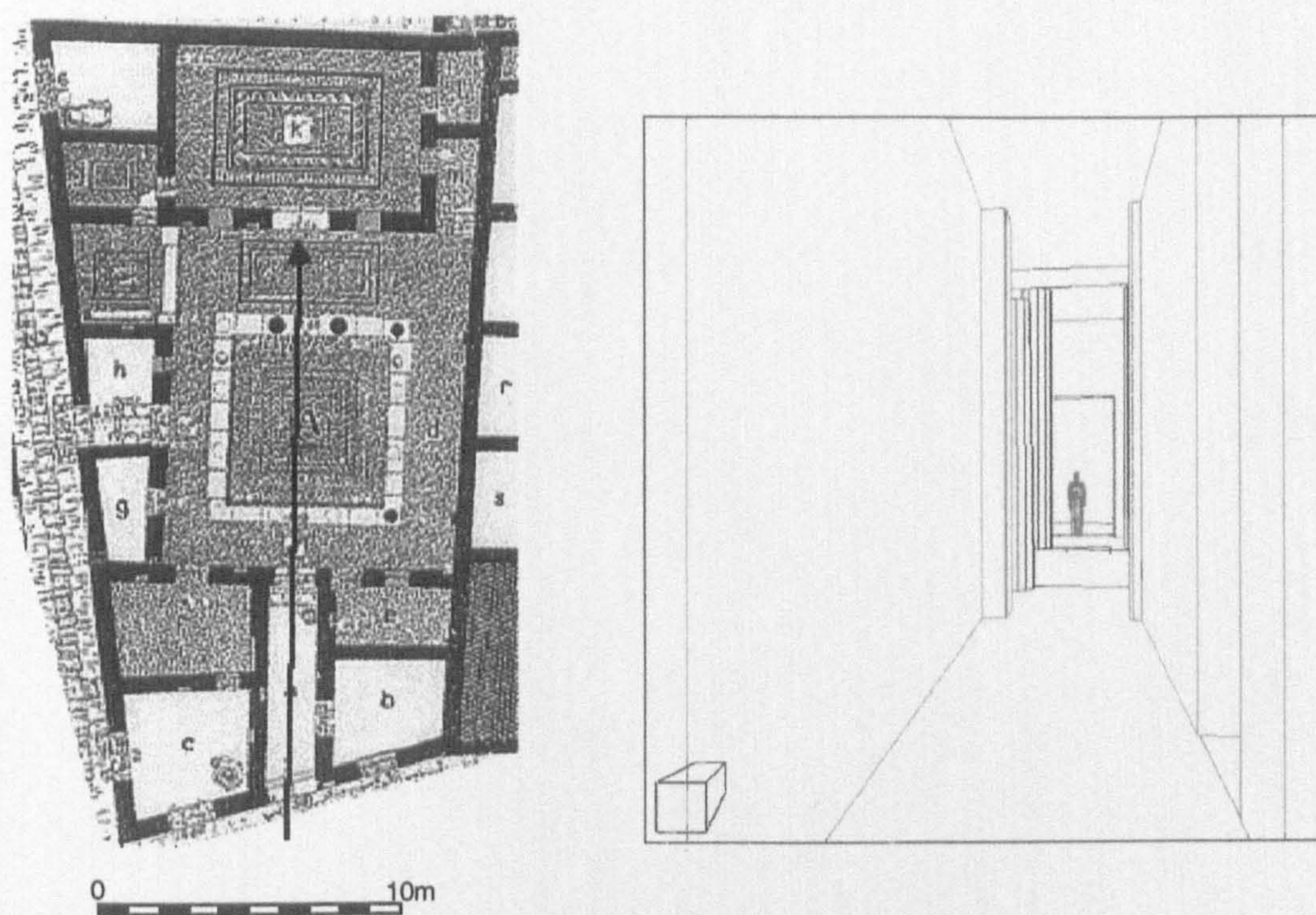


Figure 95: Directed views into the house: II A, Trident House

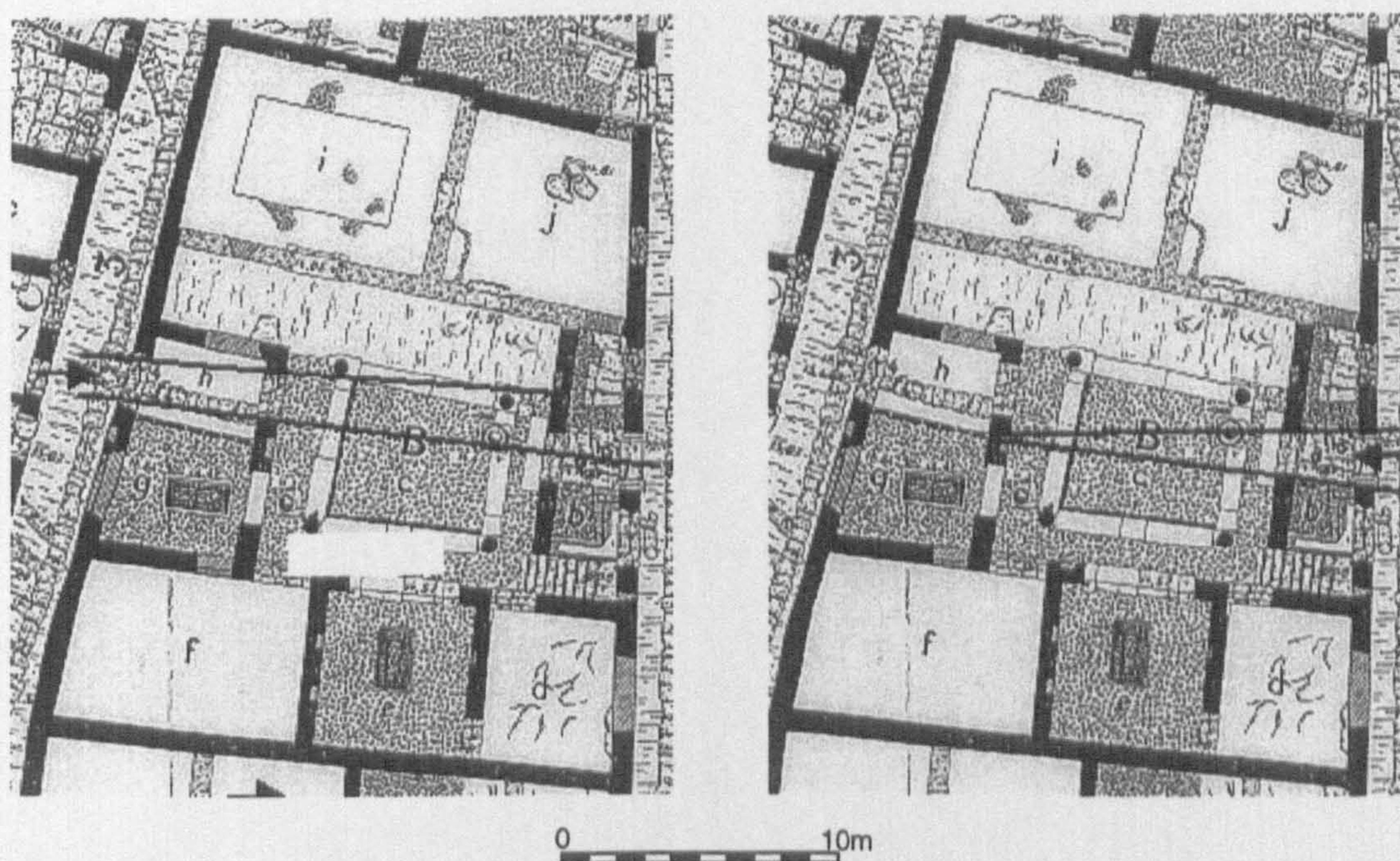


Figure 96: Views in from House IV B street entrances



level than the vestibule floor. Additional changes in floor level at the vestibule/courtyard boundary would further restrict the extent of vision, as well as creating barriers along the line of sight. House IV B provides a good example of this. The Road 3 entrance is 0.60m below the level of the vestibule, and courtyard (Figure 97).

### 8.3.3 Lines of sight within the house

It is likely the observation of people's actions within the house as now, would have affected what they did, where and when (though doors form an effective barrier in this instance). In addition to views into the house from the front door (*above*), other important views would have been:

- at the vestibule/courtyard boundary
- between rooms off the courtyard (and from these rooms back towards the vestibule and main door)
- views from stairs or upper floors and
- views to and from rooms in which guests are likely to have dined (*androns*)

Upon entering the house the next important spatial boundary lay at the dividing line between hall and courtyard. The darkness of the shadowed and narrow vestibule opens into the relative light and airiness of the central courtyard space, open to the sky. This transitional space also forms an important social boundary, marking the divide between unexpected callers and invited guests. The former would be met at the front door and would move no distance into the house. The courtyard space would only be reached by people who had been *invited* in, either kinsmen familiar to other household members, or guests asked into the house. The progress into the house by non-kinsmen also poses interesting questions such as to which rooms would guests have been led, who could see them there, and where (of the rest of the house) could *they* see once they were there?

Areas *within* the house are also considered to have been divided into areas which were meant to be seen by outsiders, and those which were not meant to be seen with ancillary rooms (e.g. areas for food preparation) masked from suites of rooms used for dining and guest entertainment. Structured views into the house may well have been arranged to suit the purposes of the owners and inhabitants, though views within the house were equally



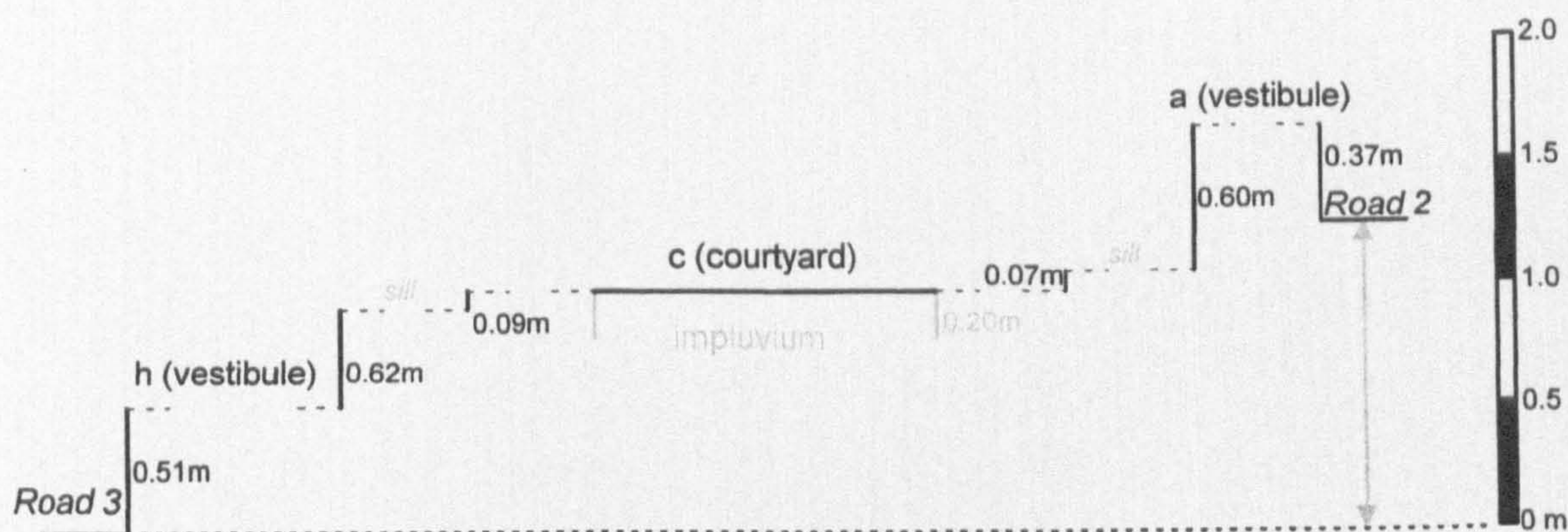


Figure 97: Floor levels – IV B

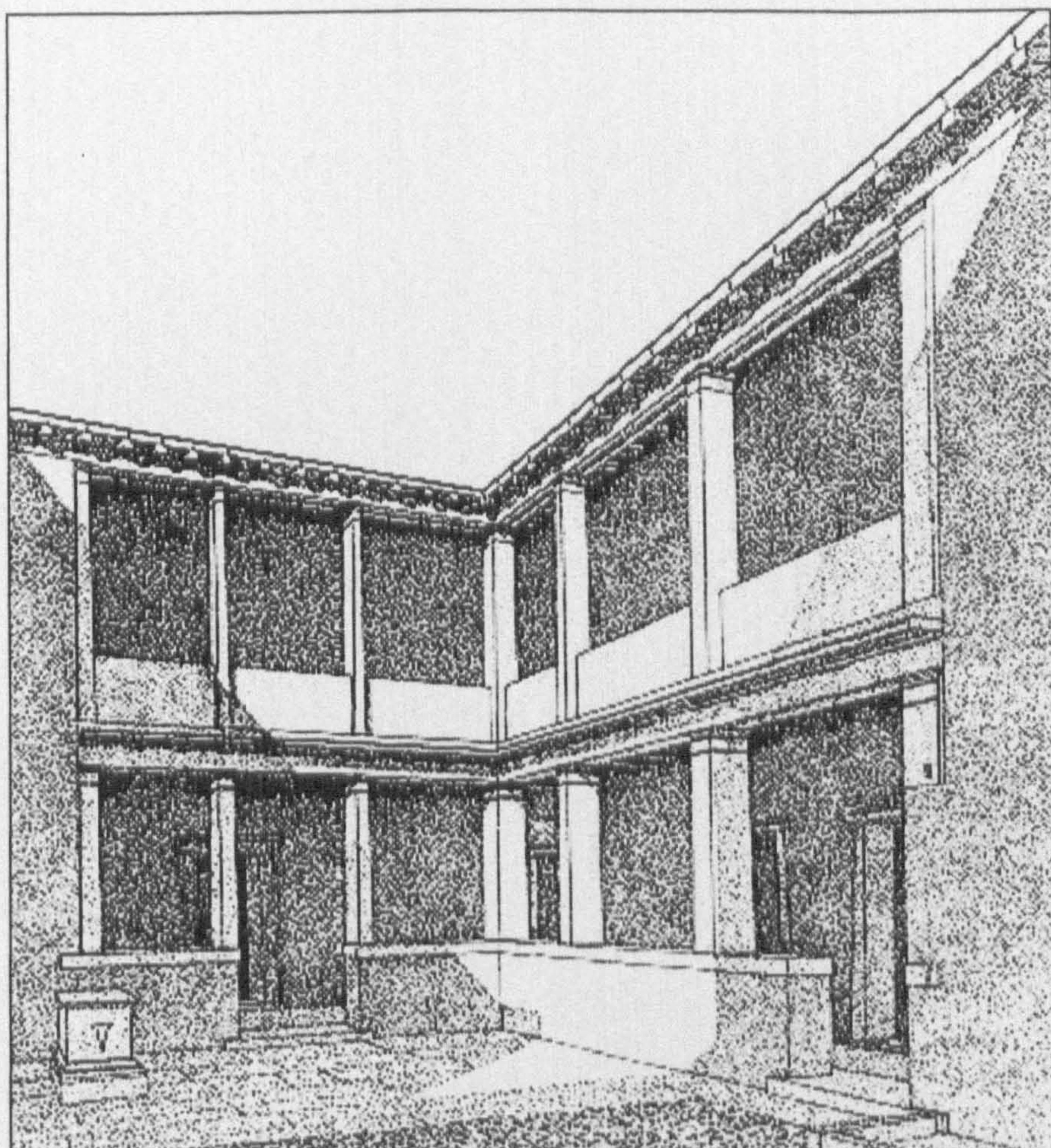


Figure 98: House of Tritons reconstruction featuring courtyard walls  
(Bruneau *et al.* 1970: 93 Fig. 80)



as important when guests were admitted. Views between rooms can be more fully investigated by considering their placement in relation to one another, the hallway, and, where present, stair well to the upper floor.

### **8.3.3.1 Courtyard space and pillar placement**

The majority of ground floor room doorways could be seen from the courtyard, so too from other ground floor thresholds. A person standing within the central courtyard space would then (at least in theory) command a view of the rest of the ground floor. The exact extent to which sight lines extended into the rooms was perhaps not as important as the indication of which doorways were and were not obscured from the view points used. This would facilitate observation of the movement both in and out of rooms, to water access points within the courtyard, and in some instances between floors via stairs.

Pillar placement (and in some instances screens erected between) them could further affect views within courtyard space. Figure 98 illustrates inter-columnar walls (standing 1.12m above the level of the courtyard) within the House of the Tritons elsewhere on Delos. These would have interrupted access across the impluvium space, but, due to their low level, not views. A similar example can be found within the Villa of the Mysteries at Pompeii (Elsner 1995: 64) where plastered and painted partition walls stood to 1.5m between the peristyle columns. These would have blocked both movement and vision within the courtyard, and reduced the amount of light reaching the courtyard walkway.

The regular arrangement of pillars within the Theatre Quarter's nine peristyle houses suggests that any advantages or disadvantages regarding observation and views due to pillar placement may have been coincidental. If pillars, when erected, had been deliberately positioned to block views, it is unlikely their positioning would coincide with the regular spacing observed. Pillar placement may have been a feature to take advantage of, with pillars aligned with entrances to rooms or stair wells. House VI N provides the only example of an irregularly-planned peristyle courtyard within the Theatre Quarter.

#### **8.3.3.1.1 House VI N**

The courtyard of VI N combines both pillars and angled square pilasters (Figure 99), the latter perhaps later added as extra supports when the roof/upper floor area became more widely used or extended. The pillar between h and i is unusual, placed at an angle and not



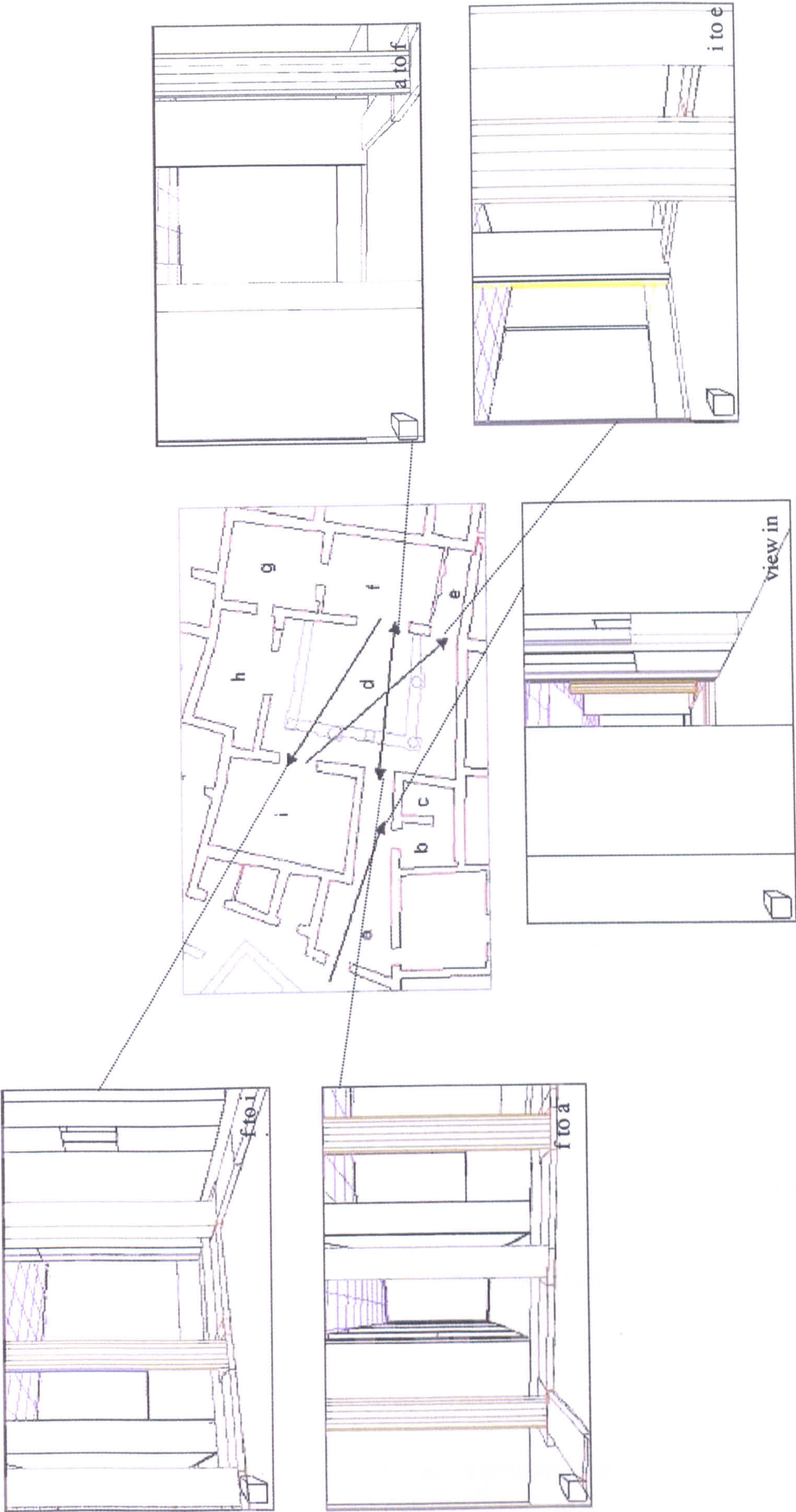


Figure 99: CAD images of VIN



in alignment with the rest of the stylobate. It may be a replacement of an original pillar attesting to the extension of the upper floor, though indicates the need for additional architectural support. The lack of pillar/pilaster support on the west (h) side of the courtyard suggests the upper floor did not extend over the walkway outside this room; no evidence of supports for it remain.

### 8.3.3.2 Interconnecting rooms

Rooms interconnecting off the courtyard feature in nine of the case study houses. Access between these provided the opportunity of movement from one room to another out of sight of the courtyard and vestibule: (Section 3.2.3) (Figure 100). Interconnecting rooms containing flights of stairs to the upper floor would be particularly important, enabling possible movement between here and the ground floor without being observed (perhaps within II Fm, connecting to rooms j, k and l<sup>2</sup>). These room arrangements allowed movement within the house without first having to cross the courtyard and include:

- two interconnecting rooms, closeable from the courtyard e.g. IVB i-j VI I f-g VI N f-g
- three-room groups, e.g. II C i-k, III I i-k (+ l and m?) / three interconnecting rooms / larger entertainment complexes e.g. IIA j-l/m
- four-room groups e.g. IIB p-s, IIF i-m (j/k wall previously in place blocking access between these two though remain accessible via l), VI M g-j
- possible two-room house-shop complexes, e.g. II A c-f, II C n-p

Additional doors were needed to close off areas such as e.g. IV Bi-j where both rooms have doors facing onto the courtyard. More examples of such routes would have been apparent before openings were blocked within the houses.

Some of these room groupings formed separate suites in their own right with single doors (lockable from the inside) facing onto the courtyard IVA g-i, oecus/main and ancillary room. These may have been used for guests or family members, closed to provide privacy, or perhaps for the women of the household.

---

<sup>2</sup> area m is a possible stair well / access point to the upper floor



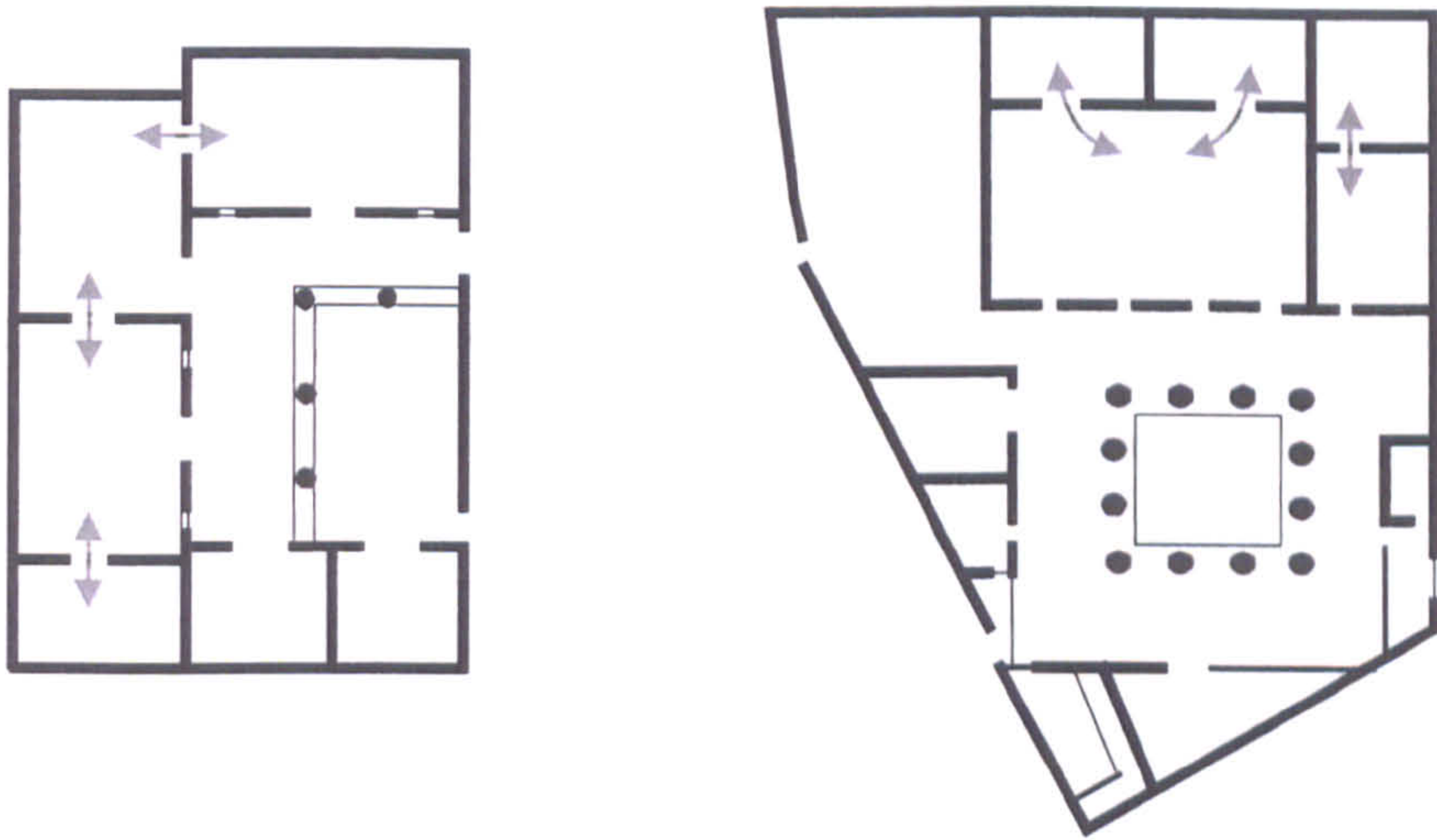


Figure 100: House plans showing possible movement between interconnecting rooms

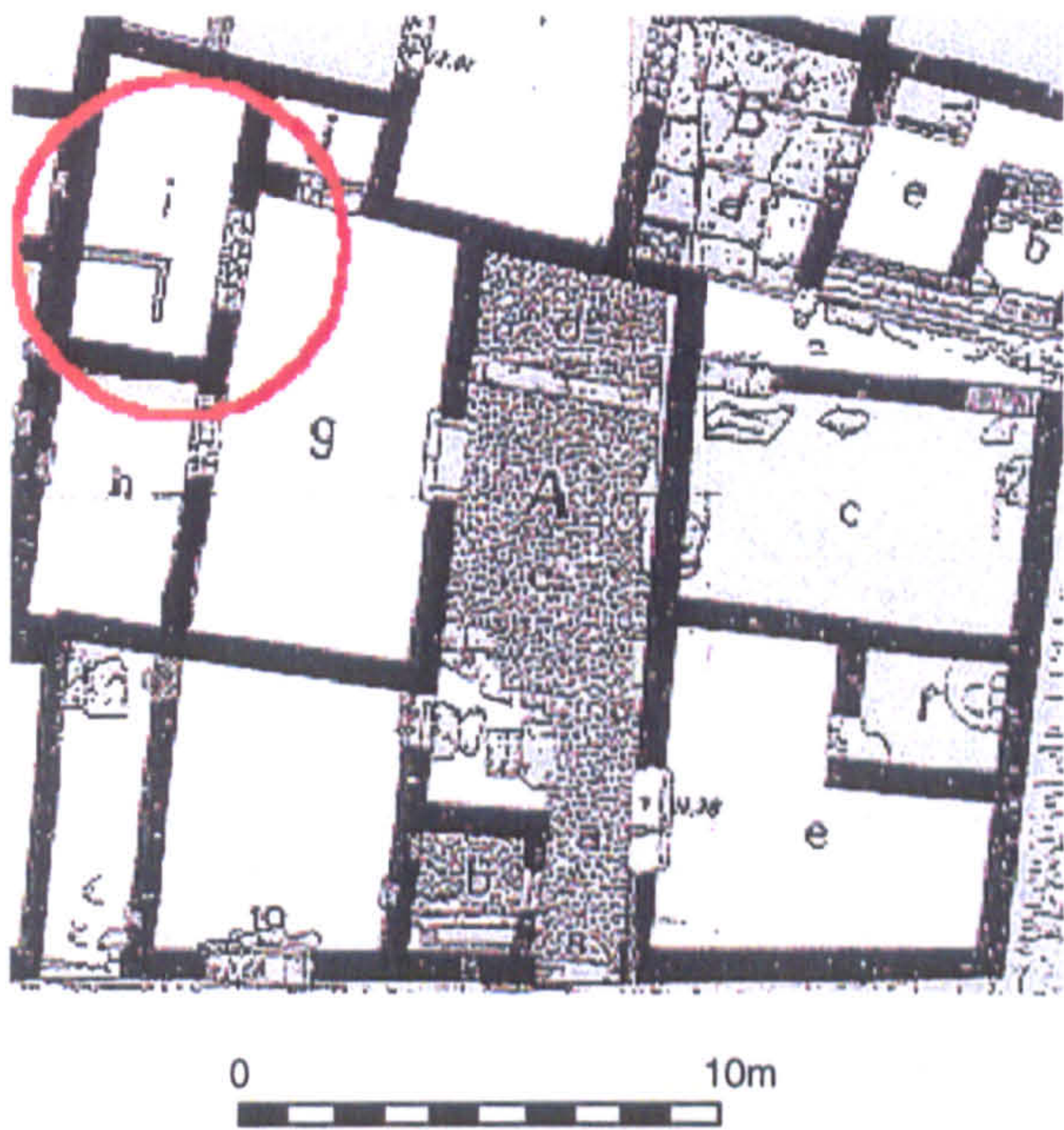


Figure 101: Interior partition placement within VI Ai



### 8.3.3.3 Views within rooms: door alignment and partitions

For rooms positioned *behind* others (one behind the other) on the ground floor, door alignment was crucial in structuring views from the courtyard space in order to reach them. Angled doors reduce the likelihood of views into these interior rooms. The desire for visual separation is further revealed through rooms in which evidence for partitions remain. Visibility to positions *behind* these screens is only possible from within the rooms themselves, e.g. within VI Ai dogleg arrangement preventing any visual axis from the doorway to behind the screen (Figure 101). This must have been intended to separate view from the entrance to the room. Few examples of partitions remain within the Theatre Quarter due to deterioration and removal of poros material. The division of room space by partitioning holds an important link to lighting within these areas. Rooms may also have been divided by other means, e.g. furniture. Given that these rooms were in darkness the majority of the time, emphasis on this spatial division may have been for more specific reasons. Why go to the bother of further dividing the room if it could not be seen into anyway? In contrast, these partitions may indicate that light within these rooms *was* sufficient, and that further or additional separation was sought.

### 8.3.3.4 Interior ground floor windows - House III K

III K contains the only examples of ground floor windows positioned *below* eye level within the case study Theatre Quarter houses (Figure 102). It is a double entrance house with access directly into vestibule a, or into the stair well for the upper floors, b from alley ζ. There is also access via a doorway into k, from Road 6 and alley η (by neighbouring house L). This house also contains two examples of wells positioned within walls, in f/d and f/I. The 'open plan' of the ground floor suggests views within and between these rooms was actively encouraged and any secluded space, if contained within this building, would have been upstairs.

The window in d facing onto the courtyard is at 1.15m above floor level, and the window in g at 1.10m (j, is placed at eye level, 1.50m). Wide windows allowed maximum vision as well as light into the rooms adjacent to the courtyard. The height of these windows indicates that it would have been possible to monitor or observe movement within other ground floor rooms from across the courtyard.



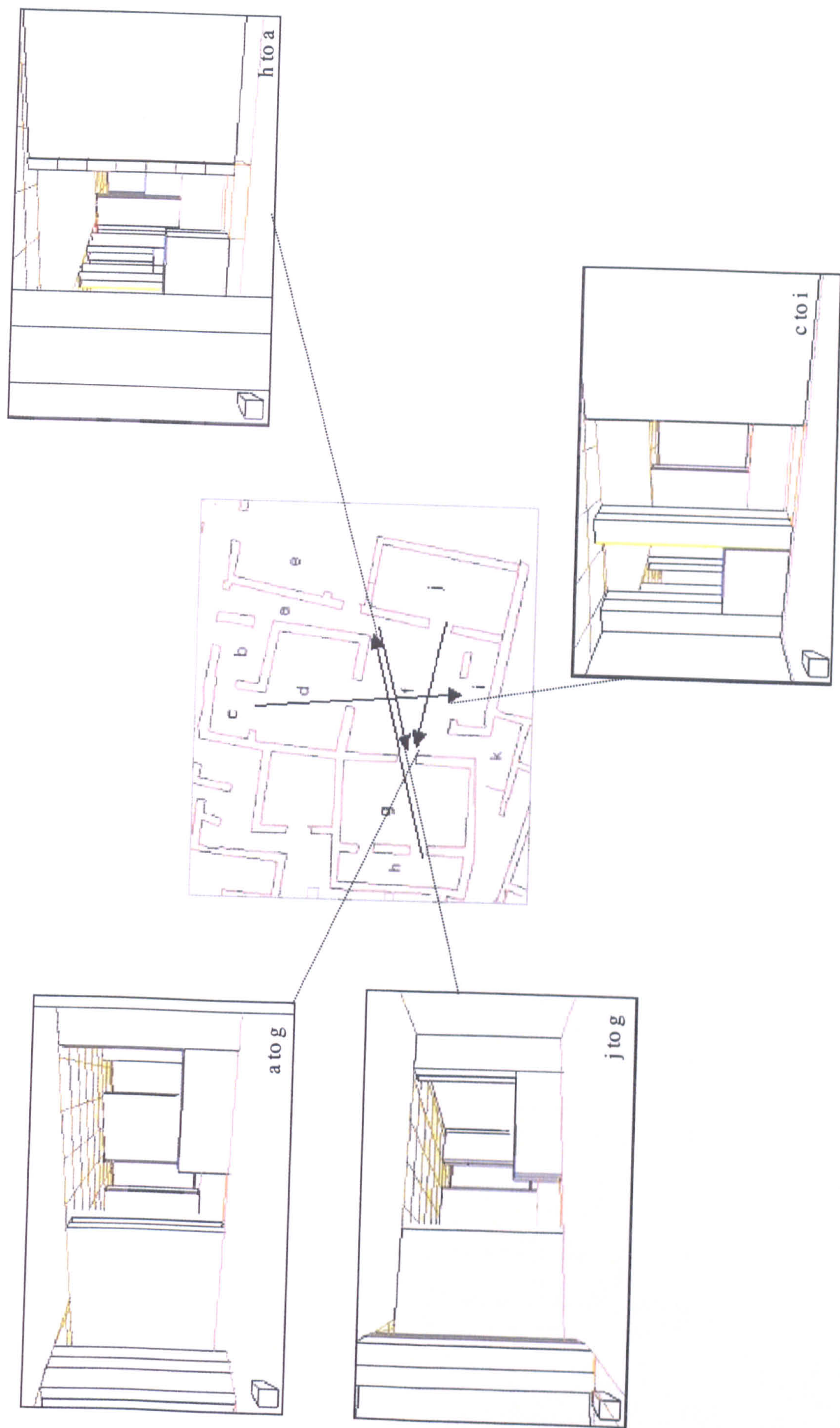


Figure 102: CAD images of III K



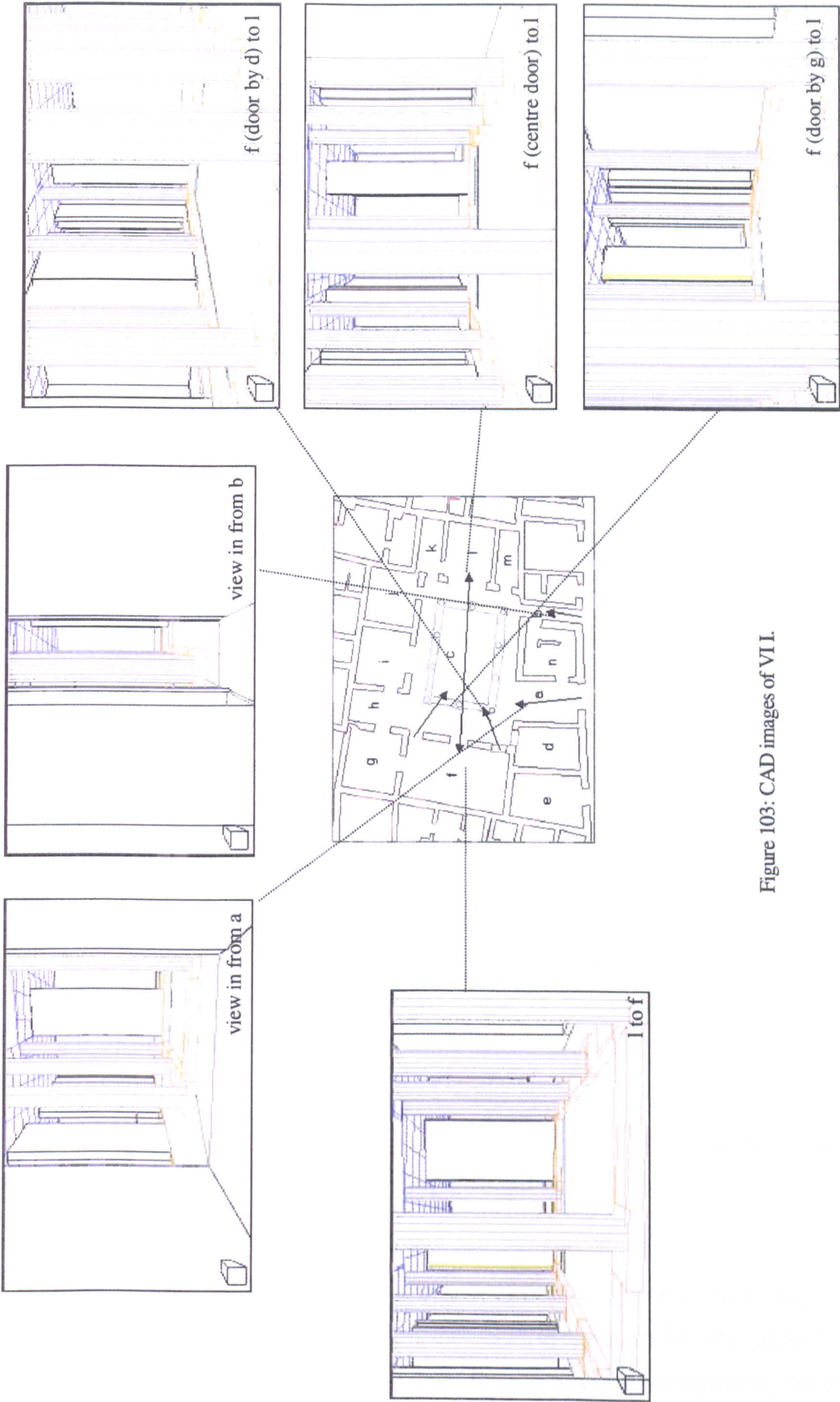


Figure 103: CAD images of VI L.



### **8.3.3.5 House VI I**

The window in g opens at waist height above floor level; providing a view across to the main entrance into the house, a (Figure 103). This would enable observation of people both entering and leaving the building via this route. Courtyard pillars restrict views towards the south side of the courtyard, rooms k-m.

### **8.3.3.6 House VI N**

The window in i opens 1.30m above floor level, allowing views across the courtyard towards room f beyond (Figure 104).

## **8.3.4 Views out of the house and overlooking**

### **8.3.4.1 Door alignment**

The alignment of house ‘front doors’ with residences or shops across the other side of roads and alleyways would have provided opportunities for observing traffic to and from other buildings. Few houses open directly opposite one another though the fact that the street doors of houses would have been closed the majority of the time would reduce the likelihood of frequent observation.

#### **8.3.4.1.1 Exterior ground floor windows - House IV B**

Named ‘The Voyeur’s Guild’ during fieldwork on account of its windows and door access. Positioned in the centre of Insula IV, between houses A and C, and with doors opening onto Roads 2 and 3, this house has three outward-facing windows (marked) as well as two interior ones (Figure 105). These are situated at ground floor level (in g), at the top of the first flight of stairs leading to its upper storey (b’) (Figure 106) and at upper floor (?) level (d). The first two are of ‘arrow slit’ design (the third is positioned too high in the wall to confirm from ground level observation) i.e. designed to allow a greater view out than can be seen in. h and i.

#### **In b’/on the stairs:**

This window provides a view across to II A, Trident House (Figure 107), in addition to Road 2. It measures c0.44m at the bottom of its opening, and c0.16m at the top. The view into Trident Houses reaches through the Road 2 entrance (alongside h, the stairwell) and



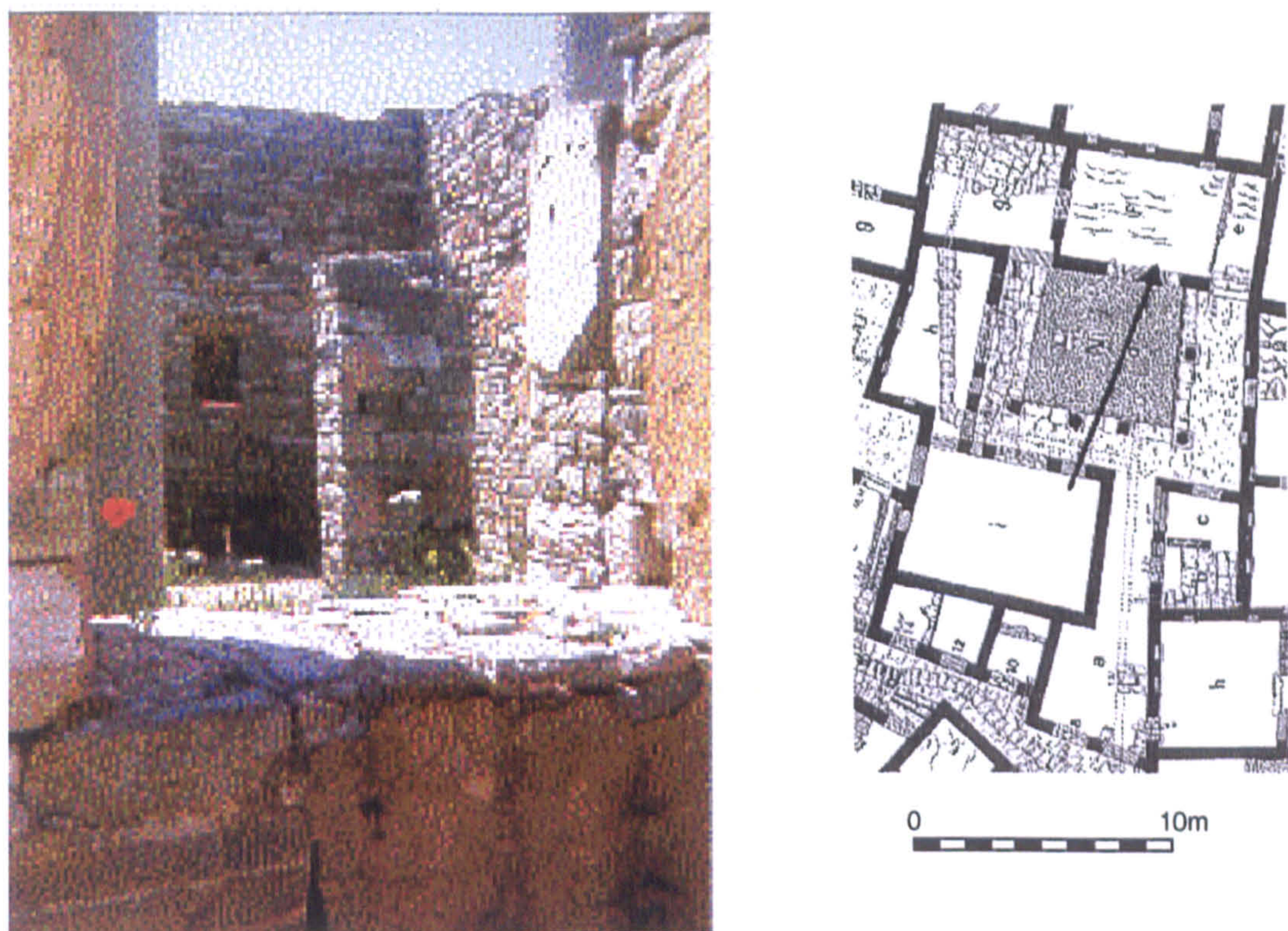


Figure 104: VI Ni window view across courtyard into room f, beyond

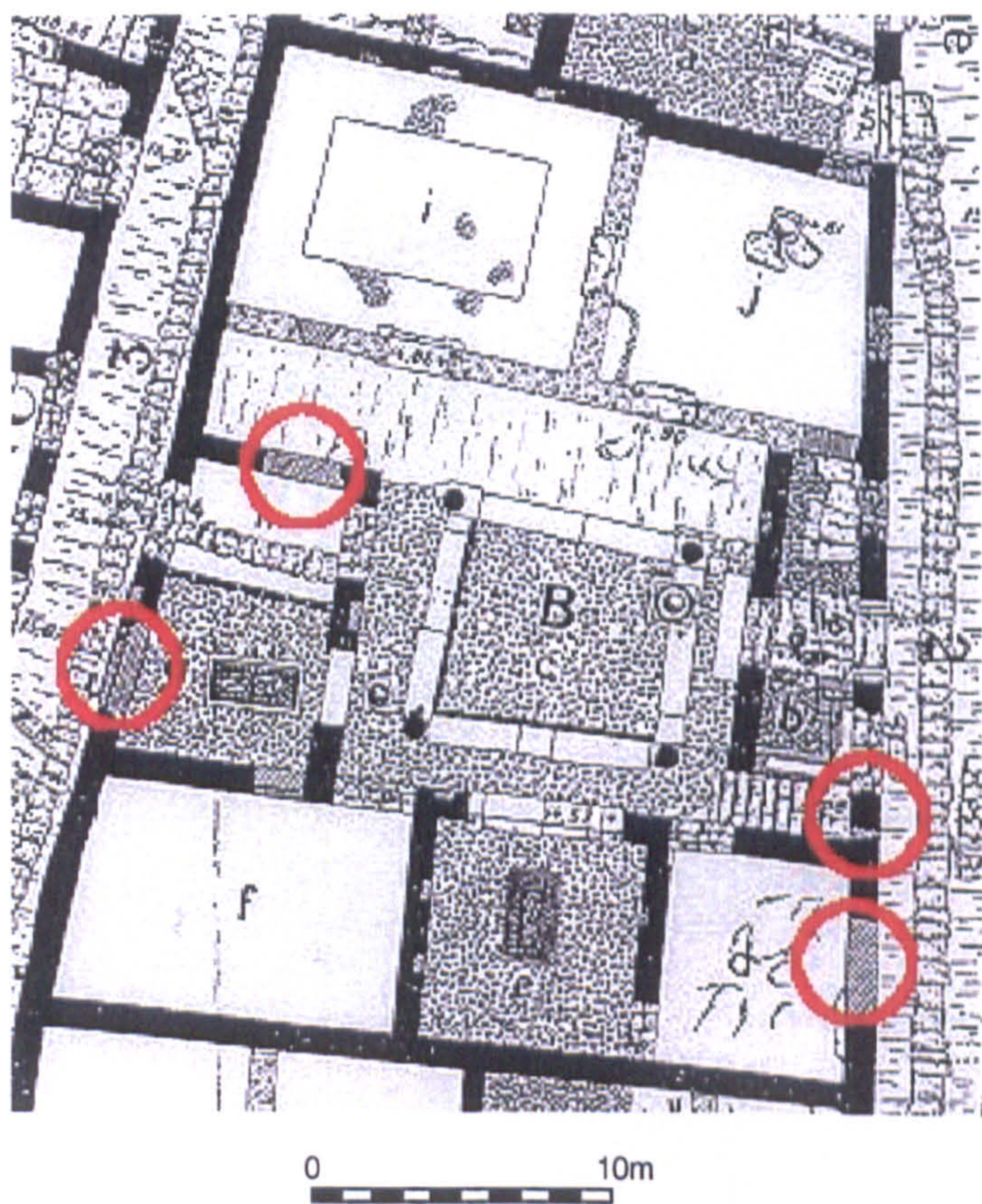


Figure 105: Plan of IV B showing window placement



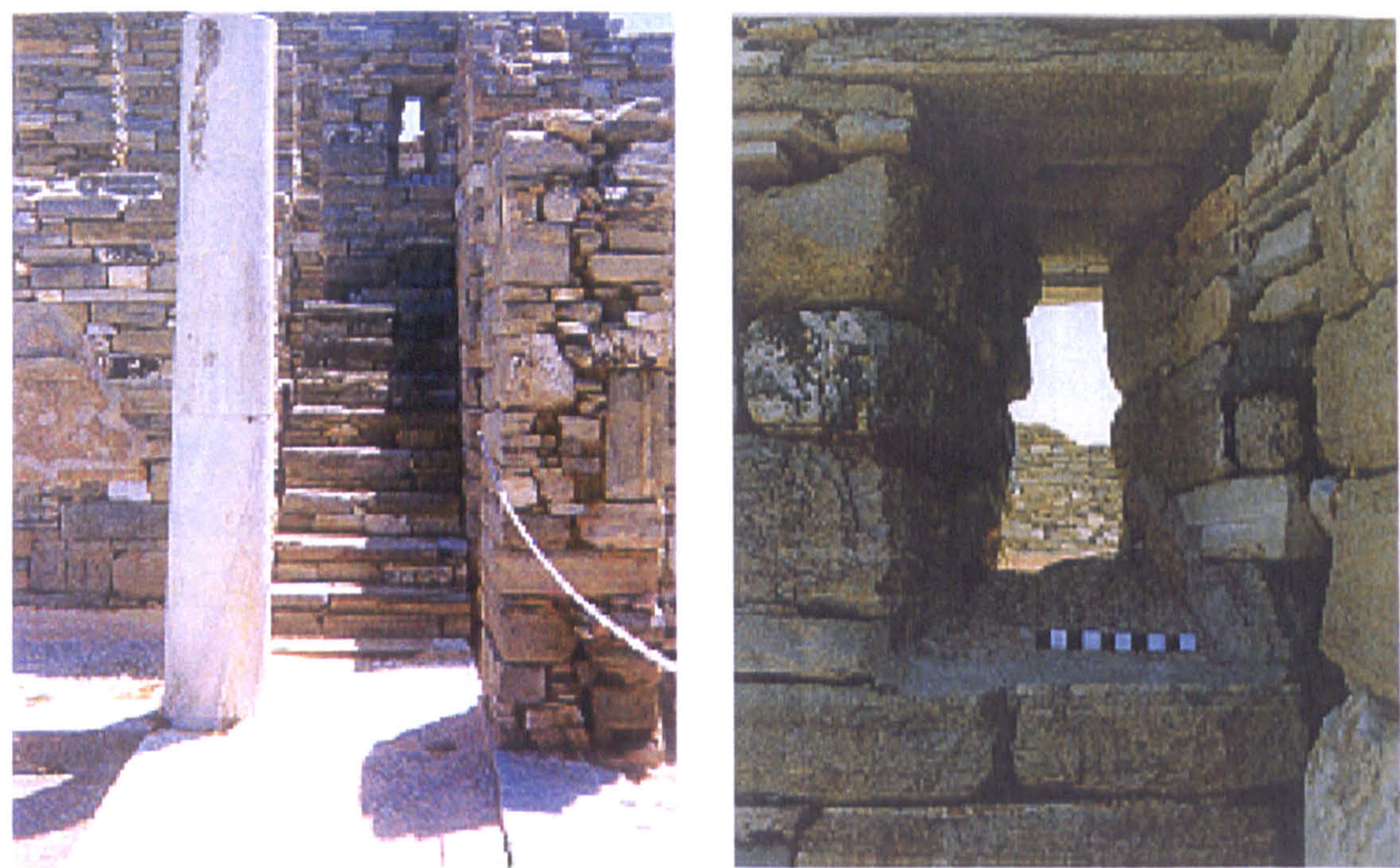


Figure 106: IV B window placement, and detail  
(Scale bar (*right*) measures 0.20m total length)

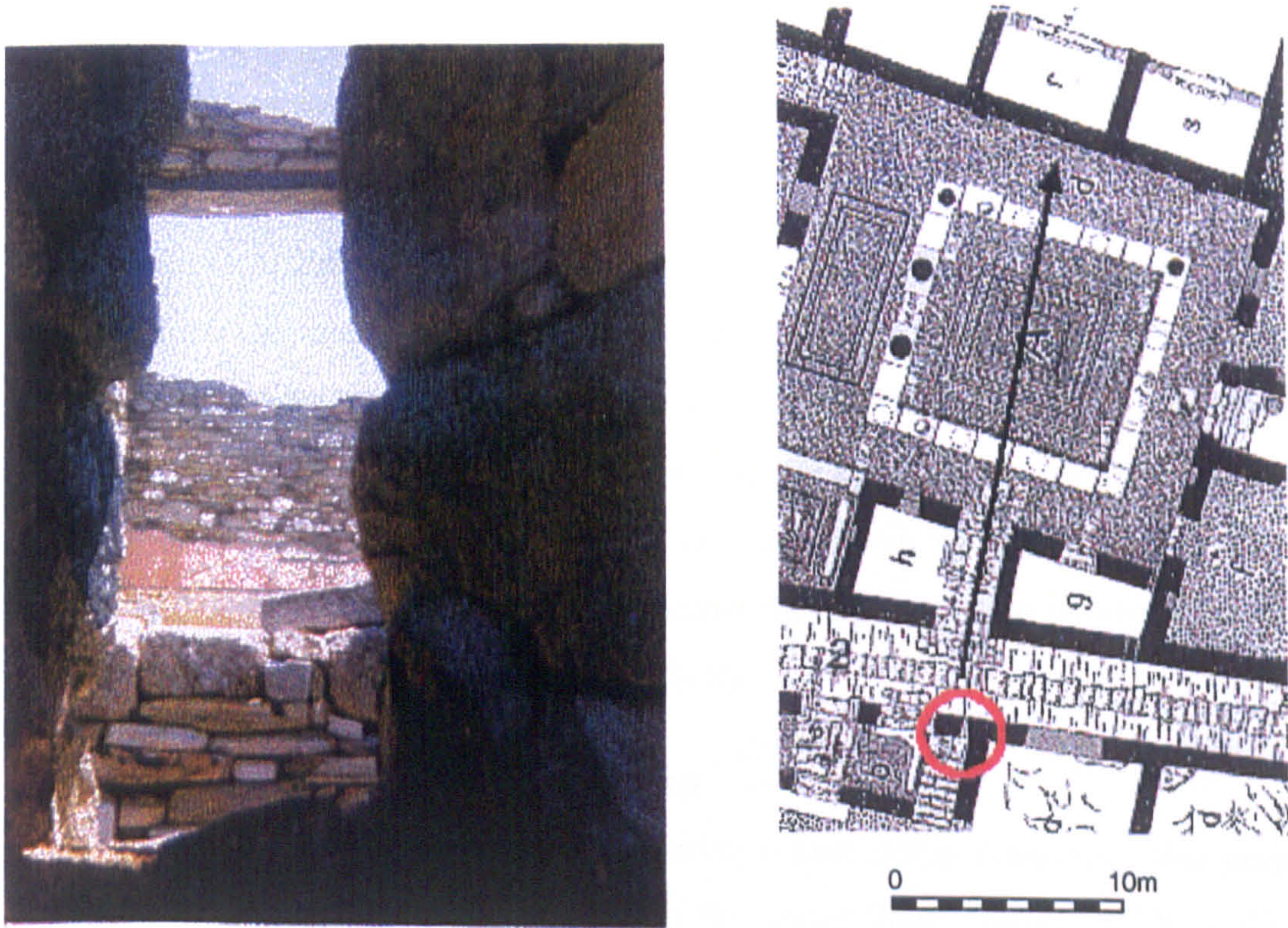


Figure 107: View from IV B window across to House II A



across into the courtyard (d), to the far side of the peristyle (where the marble well surround is placed). This view currently is limited by the door being sealed off in order to prevent tourist access to the property, and would have originally been limited by the closure of the house door itself. Observation via this window could show who was coming and going via this entrance. It is unlikely if the view were reversed from II A that (due to the window's reduced exterior dimensions) anything of the stairs could be seen. The same applies for the road running between these two houses, it being too narrow to get far enough back from the exterior wall of B to achieve much of a view. The window is also too high up. Was it noticed by passers-by? Perhaps not if they were not looking for it or their attention drawn to it – view extending further up as well as down Road 2 from the entrance to II A.

**In d:**

Measuring c 2.00m wide, placed 2.64m above floor level.

**In g:**

Measuring c1.98m wide, placed 1.04m above the ground. The difference between interior house and exterior street floor levels here would have maintained the privacy of this room from outside the house.

This ground floor window is unusually sited as the room is richly decorated, has central carpet mosaic and would probably have been used for dining and/or entertaining guests to the house (along with e, the exedra). If you stand flush to the window opening, you can see across Road 3 to insula VI, and can see just about the length of Road 3 (including the doorways), and therefore who entered and left houses VI B, C, D and E. The window also offers a direct view into house VI D across the road, into the courtyard of the house if the exterior street door was open (Figure 108).

### **8.3.4.2 Upper floor windows**

The paucity of windows within exterior house walls reinforces the emphasis on the majority of windows being placed on the upper floor. Houses VI N and O provide the only surviving example from the Theatre Quarter houses to have a window placed in the boundary wall between them, Figure 109. This was not a common feature and other





Figure 108: View from IV Bg window across Road 3 to House VI D

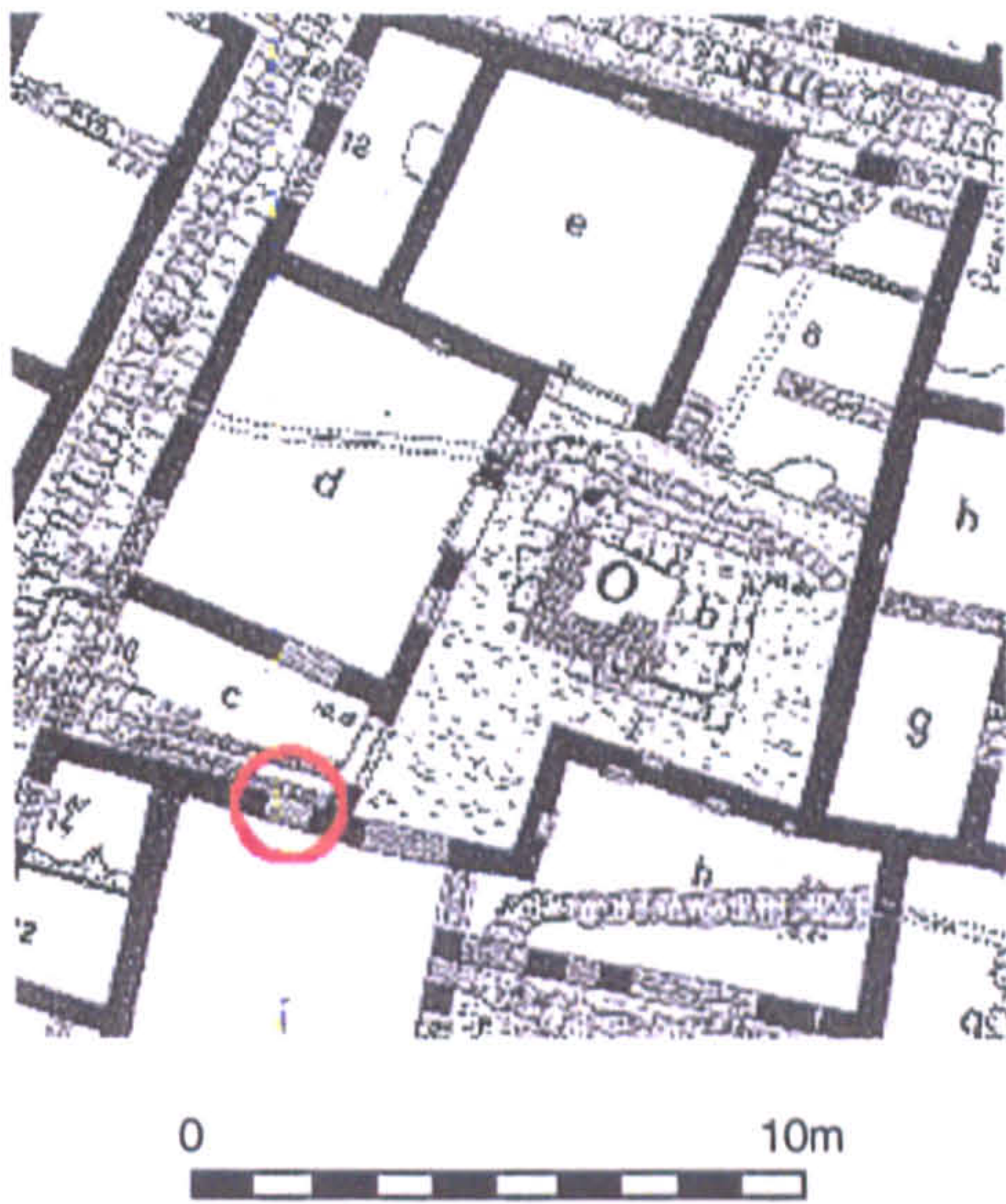


Figure 109: Window between houses VI N and O



Figure 110: View from VI M courtyard to VI N



Figure 111: View from VI N a through VI M



examples may have existed but evidence for them was destroyed along with the walls in which they were placed. The windows of house N (room i) appear to have been placed so they permitted views into the courtyard (b) of neighbouring house O. Roofing within O would have restricted any possible views. If interior doors within O had been open, this view might also have extended into room c. House O was a multi-storey construction though it was unlikely to have had unsupported rooms positioned around the west side of its courtyard (bordering N). The window may have opened onto an upper floor area instead of overlooking the ground floor, placed c2.80m above ground floor level on N side (c3.16m on O), suggesting the direction of viewing was indeed intended from house N into O. With courtyard columns standing to 4.94m tall in N, it is also possible that this was a high ground floor window.

#### 8.3.4.3 Floor levels - Houses VI M and N

A c2.16m difference in floor level has been measured between the two rooms, Na higher than Mh (Figure 110). It is likely to be a door space as opposed to a window because of its surviving tall, straight-edged and narrow dimensions and also the fact that from N, it is too low for a ground floor window (0.62m above ground level). The height difference would mean the view would be restricted to one direction only, from N through M (Figure 111). This is an unusual view into h, a 'back' room leading from g adjoining the courtyard, and also able to be closed off from g with a lockable door (sill survives). Open doors within M could have permitted a view through to d on the opposite side of the courtyard. It is richly decorated though it was likely d was used for. It is unlikely that there was a view straight in if there was no association with N. Also the fact that the g/h door closes on h side suggest for separation etc. but NOT if visible from next door's vestibule.

Did the steps up from Na continued to *above* Mh and g? All traces are lost. Was Mb perhaps a stair well? This is very tentative though it is possible for upper floor to have linked with that of N, or to an area separate from that reached by the stairs in Ne? Was the group of three houses linked at one time? This suggestion is unlikely as, apart from the open door (between M and N), single occurrences between each pairing between the



three and the layout of the rest of the buildings are ‘self-contained’ (with reference to facilities etc.?)

#### **8.3.4.4 Upper floors**

The extent of upper floors are not known so we can only guess as to views down into the open courtyard space from an upper floor gallery area. Covered walkways or peristyles give a good indication of upper floor or roofing areas, both were used, though from the roof area out is able to look outside to the house while the upper storeys are more likely to have faced inwards onto the courtyard space below.

Views from upper floor gallery areas to the ground floor below would be limited due to of walkway overhangs and barriers, leaving only the open courtyard area visible, and limited parts of the peristyle walkway beneath in view, though possibly enabling views to doorways. This kind of possible observation poses more important interesting questions as to accessibility and surveillance for houses with independently-occupied ground and upper floors. Upper floor rooms and walkways would have a direct view into ground floor courtyards below, and so to the doors of rooms leading off them. This would mean people on the ground floor could be observed both entering and leaving rooms, perhaps the house itself, and working within the courtyard. In contrast, the doors to the upper floor rooms were visible from the ground floor.

These forms of visual control would be equally possible in both single and multiple occupancy houses though social constraints/ideals may have been further affected if housing space was shared between both kinsmen and non-kinsmen. Emphasis here can be placed on the differences we perceive between family and non-family members. These include the use of courtyard by the women during the day for household activities usually hidden from strangers and non-kinsmen verses arguments for women working within darkened interior rooms when there was the choice not to (Section 3.1.3.2).

#### **8.3.4.5 Adjacent houses and roof heights**

Houses within the Theatre Quarter area stood to different overall heights, forming mixed skylines of silhouettes. The Theatre Quarter area was built on a double slope, II D and the theatre at the highest point, leading down both towards insula VI, and the shoreline to the



west. Floor levels varied greatly due to the uneven nature of bedrock onto which the houses were built, with houses with different numbers of floors standing adjacent to one another.

This may have provided opportunities for overlooking between houses, from roof spaces or upper floor windows. The site's lack of extant upper floor architecture and roofing means examples of this remain impossible to identify though with each house containing an open courtyard area, overlooking for at least some of these households would have been a possibility.

‘Although it may have been overlooked by one or two neighbouring properties... the way in which the outdoor courtyard is enclosed by the remainder of the house suggests that it was essentially a private area...’ (Nevett 1995: 91)

Rooms g and h of II E are placed immediately above rooms g and h in II C and share one set of labels on the plans (Figure 54). The ceiling height of the rooms in II C were placed at c2.50m, known from a series of beam holes set into the walls.

Height differences are also important for single storey buildings adjacent to those of first floor construction and above. Views from the upper floors of such higher properties may have been possible where they had outward-facing exterior windows. Within the houses there are significant height differences in floor levels on either side of adjoining/blocked doorways, in some instances a floor in height (e.g. VI M and N; Section 8.3.4.3). This suggests that access between the two areas may well have been restricted else a significant amount of ground floor space (at a premium) would have been taken up with interior stairs, even if the equivalent of stepladders, Figure 112.

Such differences in floor level is unusual in modern buildings where all rooms on a given floor are at the same level. Small flights of stairs lead to mezzanine or split level flooring, though rooms are generally at a uniform height. Insula housing was certainly placed close enough for such observation, via upper storey windows or roof space, with upper floors overlooking alleyways between houses.

“It is not whether there will be a window or door, but their form, placement, and orientation which are important; (it is not whether one cooks or eats, but where and how.)” Rapoport (1969: 61)



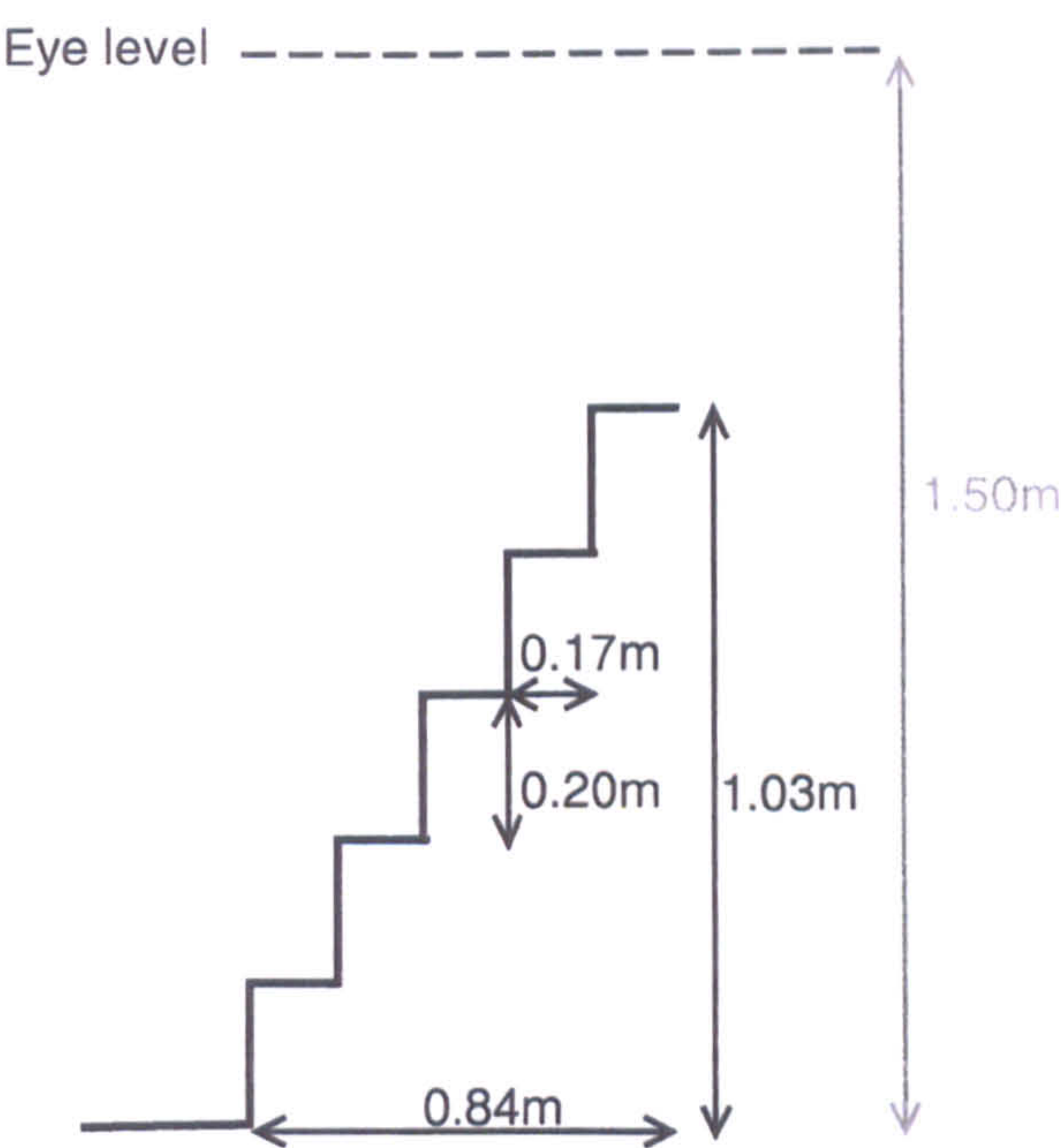


Figure 112: Excavation hut stairs



Figure 113: Hermes House, courtyard view to room g



### 8.3.5 Light

Whatever the architectural layout of the house, the placement of door leaves, window shutters or partitions, there is no sight without illumination, whether natural or artificial. Only a small area of each house, the courtyard area, was open to the sky and benefited from direct overhead natural light. The amount of this 'open' space was reduced further within peristyle houses, with walkways in partial shade. High ground floor ceilings may have allowed more light to reach rooms opening off the courtyard or walkway, though even with direct overhead sunlight many rooms would be left in almost total darkness.

Figure 113 shows a view into the courtyard (and adjacent room) of the Hermes House from the first floor gallery. It was taken in bright overhead summer sun, and with the upper floors of the house missing, i.e. with the maximum amount possible of natural light reaching this room. The windows (2.18m above floor level) do little to counter the darkening effect of the peristyle. The room directly adjacent to the courtyard and rooms further from this, in perpetual darkness. Views *into* and vision within these rooms, would only have been possible if they were lit from the interior.

Rooms in non-peristyle houses would have received more natural light directly from the courtyard space, via their doorways and windows, where present. Exedrae would therefore have been the lightest of rooms, open-sided onto the courtyard.

The only light interior rooms would receive would be via lamps; particularly if the exterior walls of the house were positioned *within* a housing block, so making it impossible for them to include light niches (e.g. VI H). Laidlaw (1933: 241) states that these interior rooms were completely without light. Illumination of these rooms would have been aided by doors being left open (where this was possible). the first lit by natural light from the courtyard, larger in size and acting as an antechamber to the second (Chamonard 1922: 167). Additional light was obtained via links to neighbouring rooms via doors and windows (Chamonard 1924: 288), particularly by windows placed within walls opening onto courtyards (e.g. II Ae, VI Hl and m, Nh), onto vestibules (VI Nc) and vestibules with windows facing onto pastas areas (IV Bh).



### 8.3.5.1 Lamps and wall niches

Delos' private houses yielded around five thousand terracotta lamps dating to the end of the second century/beginning of the first BC. Bruneau (1986: 54) considers that dozens of lamps would have been indispensable for everyday domestic life within each house. High and deep niches were used to hold these. Based on the oil reservoirs of the lamps, Bruneau (1986: 54) calculates that a single wick lamp would provide equivalent light to a candle (i.e. poor quality lighting), and burn for two hours. Two- and three- wick lamps were common, and would have provided more light. Lamp stands holding multiple lamps would also have been used for brighter illumination. Although Delos produced its own oil, oil was an expensive commodity in antiquity. Reger (1994: 139) considers that the level of its consumption was linked to social standing. It is likely that lamp light would only have been used when necessary, with householders making the most of natural light wherever possible.

Wall niches, 84 of which feature within the case study houses, were sited at an average height of 1.75m above ground. They stood 0.6-0.7m high, were recessed up to c0.25m deep into the wall and had projecting lower sills. Remains of plaster identical to that used for wall covering found within them indicates they were originally covered and painted. It is unusual for niches to be totally absent from a building (e.g. III B) and niches were also sited below porches and within reception rooms of the more important houses and adjacent to house entrances. Many house walls though do not survive to a sufficient height to show whether niches had been present or not (noted by Chamonard 1922: 202, and during field observation).

Chamonard (1922: 167) suggest that wall niches within a room prove it to be a reception room, though this may be rather simplistic and it is likely that supplementary lighting would also have been needed at other times too. Niches provide safe and convenient places in which to place lamps within rooms, above head height, though not all niches would have been used for lamp placement. Exterior niches, e.g. that within the courtyard of IV B (at c1.30m above floor level), may have been used for statuary or some form of cult display.



VI H contains the largest number of surviving niches within the case study area (15+), presumably because of its position in the middle of the insula, surrounded on all four sides by other residences and with no exterior-facing ground floor walls. Some of its niches are placed low in the wall too, standing to below 1.50m in height.

If niches were numerous within a room they were arranged symmetrically and at uniform heights. VI Ik contains two niches which are placed directly on top of one another, separated by sills (1.87m above ground level to the sill of the first).

## 8.4 Conclusions

The most important information obtained from the Theatre Quarter insulae is their height measurements, few of which are recorded on the corresponding ground plans. CAD modelling allows their 3D representation. Differences in floor levels restricted views into the house while at the same time facilitating views out of them. The fact that most of the interior windows were placed just above eye level indicates a conscious choice on the part of the builder to block views through them. Due to the height of these window openings, the maximum amount of natural light would reach into the rooms via them. The height of ground floor rooms, nearly double that of contemporary houses (Section 8.2.1) added spaciousness within otherwise small rooms.

Sight line analysis investigates vision around and through these fixed feature architectural elements. House ‘shells’ are created, modelling floor, wall, window and roof elements. The few items of furniture found within the excavations have been moved from context and so can not be included, unless conjecturally as part of this analysis. However, for these buildings to have functioned as houses, each would have contained a collection of couches, stools, tables and chests in order that their inhabitants would be able to eat, sleep and store their belongings. The views created using the CAD models therefore represent the maximum views possible, unhindered by ephemera, fixtures and fittings, looking across and through empty house space.

In terms of where could be seen, it makes no difference what colour the walls are, either on site or within the CAD models, painted white or coloured. The faded walls that survive on site were previously painted in vivid red, yellow, black with some holding



figural and frieze decoration, while others were whitewashed and incised with lines mimicking masonry blocks. Texture mapping provides a more realistic finish to what we can now see and to properly 'decorate' these houses by draping the CAD structures with photorealistic surfaces. This would facilitate more realistic representations, either of the site as it is now (with textured stonework), or to visualise the houses as they looked when they were last occupied (with painted wall decoration, whitewash and stucco). However, the modern-day viewer is more likely to be distracted by these vivid colours, as they are alien to our own house decoration, and far from the muted colours of the surviving buildings themselves.

Within the small, open courtyard houses light alone would have severely restricted views even into rooms from the central courtyard area. Rooms within the house, even those opening directly off the courtyard would be in darkness unless lit by lamp light. The height of interior windows indicates that visual accessibility was certainly important to houses' occupants. It may be a coincidence that upper floor windows overlooked adjacent alleyways and neighbour's courtyards in attempt to secure lighting for the house though further opportunities for observation, spying or monitoring provided by the architecture of the house may have remained unrealised to the building's inhabitants. Conversely, the 'closed door' policy attributed to the ancient Greeks may credit far more restrictions on house and household space than there was in reality. It is certain, though, that opportunities to develop the ancient equivalent of 'nosy neighbour' syndrome certainly existed within the Theatre Quarter's crowded *insulae*. Though each house indeed faced inwards onto its courtyard space, links *between* houses were not restricted to doorways or windows in adjoining walls. Voyeurism reaches further afield, particularly with the positioning of exterior-facing windows and the use of 'arrow slit' windows indicate without doubt that they were used for observation rather than interior lighting.



# Chapter Nine

## Conclusions

### 9.1 The Delian houses: Greek or Roman?

Delos' residences are often overlooked within studies of ancient Greek houses, both on account of their late construction dates, the second and first century BC, and the fact that many of them would have been occupied by Romans (Section 4.5.2). For these reasons the island's houses are labelled as being 'Roman'. This study demonstrates the houses are neither Greek or Roman in form, but a hybrid of both styles. The interior layout of individual buildings was clearly affected by plot size, building space and the underlying geography. Extensive architectural alterations through blocked doorways, property division and amalgamation evidences the dynamic nature of the houses, and their short-term occupation. Stone construction material allowed upwards expansion, and the inclusion and extension of upper floor levels.

Indicators of the lifestyle of the house's occupants can be gleaned from their construction, favouring spatial seclusion and separation. Exterior walls continued a single street door, and high windows, both practical for reasons of security where buildings opened directly onto busy roads. Views into the house were dark and narrow, and angled into hallway spaces, blocking views further into the house from the street outside. Suites of rooms, some interconnecting, opened onto a central courtyard space, which provided the main source of light for the house. The ground floor contained at least one room decorated with rich mosaic flooring and wall plaster identified as being favoured for visitor and guest reception. Upper floor rooms, where present, held the finest decoration within the house, and may also been used for dining or entertaining (Section 6.12.2). Interior windows provided light rather than observation portals, as much of the ground floor would have been in darkness.



## 9.2 Multiple occupancy

The division of ground floor space into separate suites of rooms, and independent upper floors provide evidence for the multiple occupancy of single houses. The placement of suites of rooms was in some cases dictated by the layout of the house with rooms placed on opposite sides of the courtyard. This arrangement is also attributed to the provision of separate accommodation for the men and women of the household (Section 2.2.1) though there is no unambiguous evidence to support this.

More definitive evidence for the multiple occupancy of a single house is the placement of exterior stairs which provided sole access to upper floor rooms. Here, the ground and upper floors of the house would have been occupied by at least two separate groups of people. Questions then arise as to the preferred accommodation space, the ground floor with courtyard, shade and access to water, or the lighter and airier upper floor rooms. Though the extent of upper floors is not known, it is likely that these would have provided opportunities of overlooking into the courtyard space below, impacting on the people living within the ground floor apartments.

Accommodating the maximum number of people within a small area, particularly at the time of markets or festivals, it is likely that more and varied examples of multiple occupancy took place within the Theatre Quarter insulae e.g. renting single rooms or a suite of rooms within a house.

## 9.3 Temporality of use

All household tasks, and in some instances, industrial tasks, took place within the bounds of the house. The small number of rooms contained within most houses indicates that each space would have been multi functional as there were too few rooms to have dedicated space for e.g. cooking and food preparation, washing, working, sleeping and storage. The scheduling of activities would enable the maximum use of house space available. An example of this is different use of the same room during the day and night, e.g. weaving during the day and sleeping at night, when light would not be needed. In addition to daily activities, the same room space would also be used for occasions e.g. dinner parties, visitors and festival celebrations.



## 9.4 CAD modelling

CAD modelling enables the extension, rebuilding and manipulation of site data without damaging the archaeological material itself. Here, CAD is used to create partial house reconstructions to *known* values, based on measurements from field survey of the site. It facilitates interpretation of the buildings in greater depth than the site itself as walls and pillars can be re-elevated to provide more complete buildings. Though not ideal, as CAD is intended for contemporary constructions; straight lines versus multiple floor levels and unevenness of the Delian site, the resulting models can provide views and illustrations of the site which are no longer there on the ground. Re-constructed house interiors become easier to visualise. Its use also enables the buildings to be 'lit', and coloured with image maps, draping decoration and material textures onto structural models.

This work adds substantial information to the current knowledge of ancient Greek housing, particularly with reference to their upper storeys as living and working spaces. It has been demonstrated that statistical analysis of ground floor space, while able to provide numerical comparisons of accessibility, cannot inform the *use* of those areas. A study of house form and layout reveals the dynamic nature of the Theatre Quarter buildings, resulting in rapid changes in form through blocked doorways, and the division and amalgamation of adjacent properties. Interior layouts suggest temporal and flexible uses of house space, likely to have been influenced by time as well as occasion.

The importance of upper floor rooms is evidenced through their rich decoration, of higher quality and demonstrating greater investment than equivalent rooms on the ground floor. The case study houses provide definitive evidence for the multiple occupancy of single building by two or more groups of people, through exterior stair access to independent upper floor rooms.

The unparalleled house remains has enabled analysis not possible from ground plans alone. CAD modelling of house remains has shown that the layout and form of the Delian houses appear to have provided their occupants with opportunities for what we currently understand to be 'privacy', though as Sciamia (1993: 92) states, privacy is also concerned with principles and sentiment rather than physical representations or tangible items such as property.



# Appendix 1

## House plans and fieldwork notes

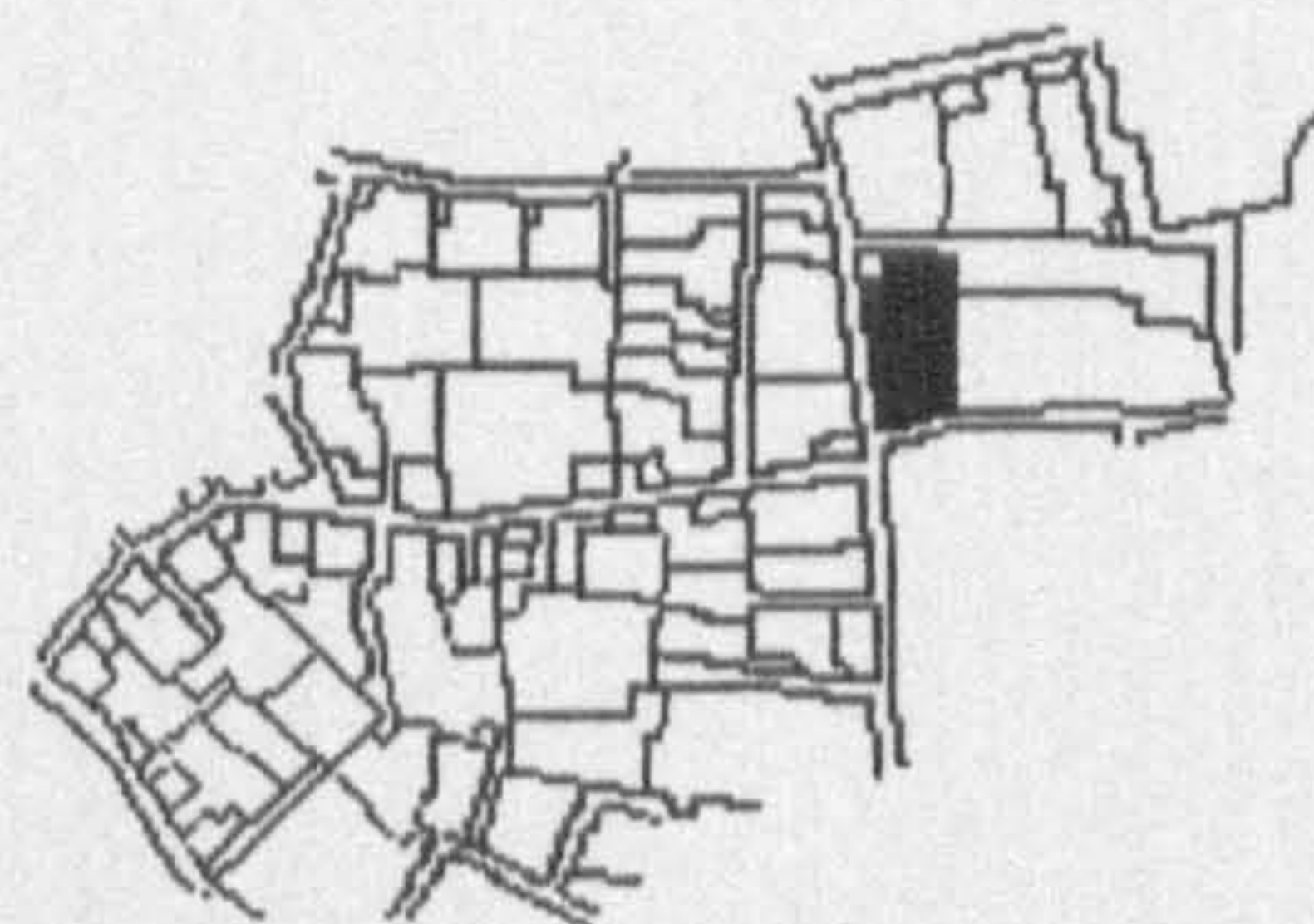
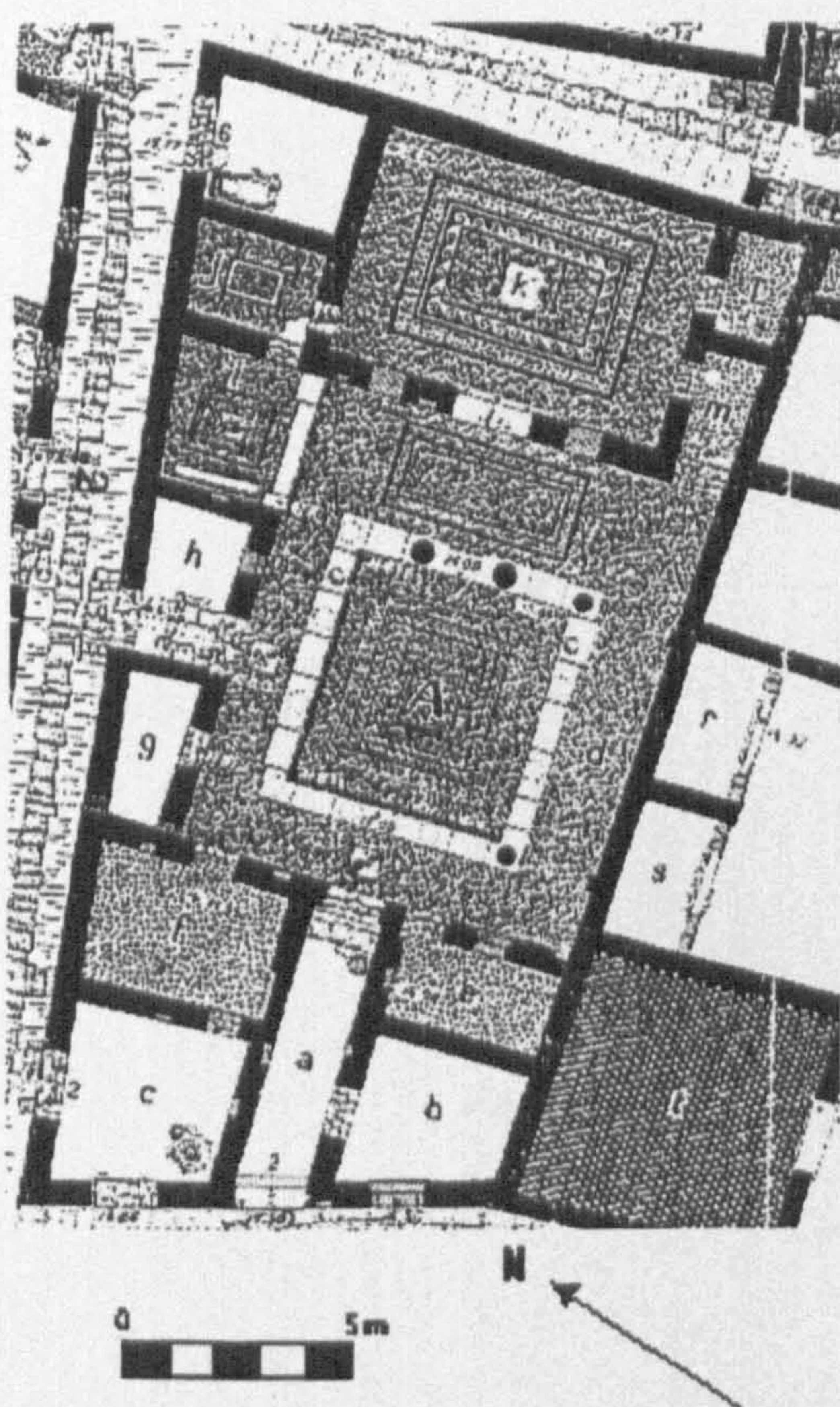
This appendix contains the published ground plans for the case study houses. These are taken directly from Chamonard (1922: Plates III-IV and V-VI, Figures 54 and 55) and each plan is accompanied by a sketch map indicating its position within the Theatre Quarter area. Discrepancies between the published plans and fieldwork observations are noted, particularly with reference to the position of blocked doorways, niches and windows. Individual room identifications are noted, where these are discernible.

Brief fieldwork notes accompany the plans and focus on measured survey data and elevated features. This includes the heights of walls, niches and windows, and details of wall decoration. Measurements taken from the highest wall within each house are recorded, providing the reader with a general estimate of the extent of standing remains within each building.

Additional comments regarding the houses, particularly unique features within them, are taken from Chamonard's excavation reports (1922 and 1924). All unreferenced comments are taken from field survey.



## II A Trident House



Position within the Theatre Quarter

### Notes

- a hallway; panel decoration with high projecting band
- b rich panel decoration with coarse plaster, hydraulic flooring. Originally opened onto TR; window with grill closure
- c wall niches: 1.73m above floor level (in wall to f), 1.77m (in wall to a) and 'through niche' 1.87m above floor level in the wall to Road 2
- d courtyard; Rhodian peristyle; rich panel decoration, mosaic of rich meander bands, threshold mosaics of tridents and anchors near h, and trident and dolphin near a
- e and f white stucco (Chamonard 1922: 387)
- h stair well
- j figural frieze (Eros) (Chamonard 1922: 380); emblem of panathenaic amphora; relief cube mosaic
- k richest decoration; panel decoration including relief stucco pillars (Chamonard 1922: 385). emblem removed at time of house abandonment

**Highest wall:** 5.60m, exterior wall of k, measured from the alley between this house and II C. Excavated during 1894 (Chamonard 1922: 27)

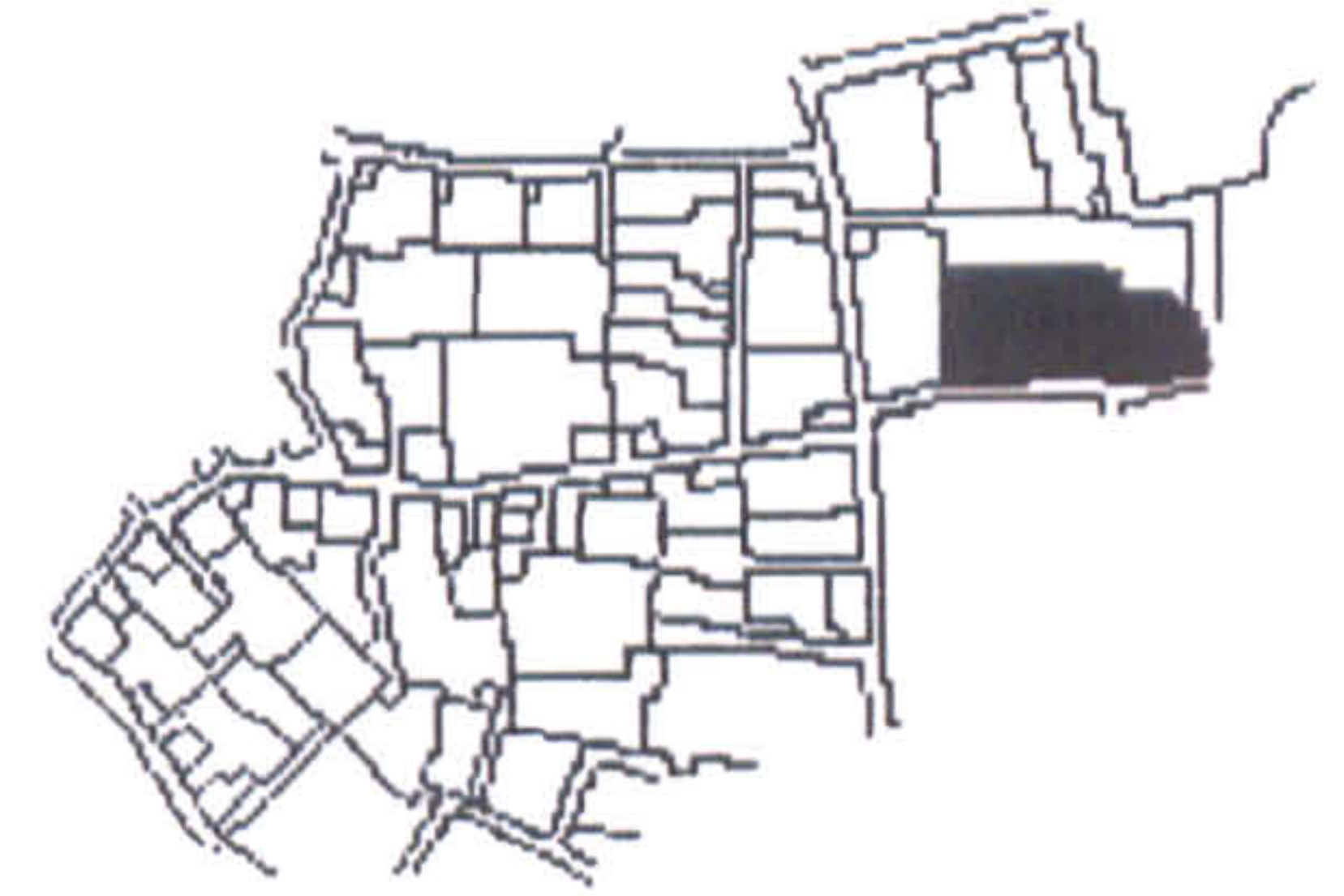
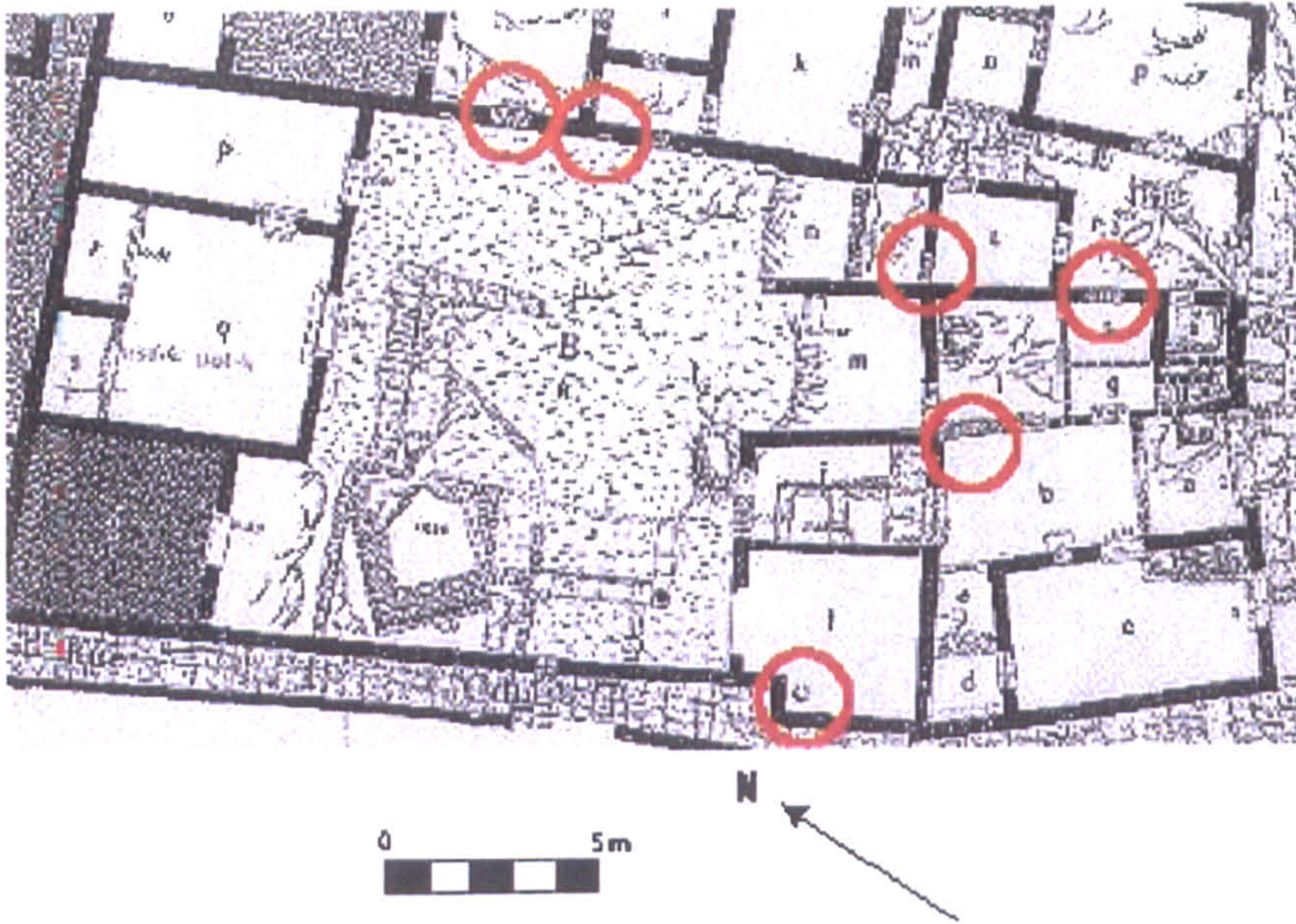
Height of the gallery floor placed at 2.5m (Chamonard 1922: 150)

**Exterior:** white plaster survives on the alley /II F outer wall

**Special feature:** a unique example of a window with grill (Chamonard 1922: 28). The most elaborate and completely conserved of the Delian houses.



## II B



Position within the Theatre Quarter

### Plan amendments

Doorways open, not blocked: h and II Cr, k and II Cf, k and II Cj, o and II Ct

There is a low wall/wall foundations rather than a window between b and i (standing to 0.60m)

There is no well feature in the corner of l, or a niche within the wall k to II Cj

### Notes

- a white incised plaster; flooring of marble cube mosaic and marble and red chips; traces of central mosaic motif found (Chamonard 1922: 30)
- b and q imitation marble panelled décor (Chamonard 1924: 365); b and c well in wall; b marble chip flooring and white incised plaster
- d window in wall to TR, 1.45m above floor level (0.55h, 0.70w); also a blocked larger window? 0.78m (to original blocking), 1.10h x 1.25m, vs actual = 1.35m, 0.60 interior h, 0.48 and 0.70 interior w vs 0.60 ext = arrowslit. Separated from e by poros wall.
- g red pot flooring
- i white plaster; no rock outcropping visible through the concrete floor
- k unfinished courtyard; white plaster on red coarse; niche 1.65m /C (j niche only features from j side so not a blocked doorway); door to TR for movement of materials? (Chamonard 1922: 150) 4.65m column height
- l red coarse plaster on top of white coarse; exterior – upper floor drainage channel as well as a niche, 1.02m containing white on red plaster; no corner feature apparent
- n outcropping is raised by c 0.73m
- o white plaster with large cracks; door gives evidence of two stages of blocking – different materials
- q and s white plaster
- r and s sills as plan – appear to be floating; perhaps wooden fixtures now lost? niche through 2.35m
- s white plaster; niche through 2.46m



s white plaster; niche through 2.46m

t panel décor (Chamonard 1924: 380); /o blocked door but c1.5m above floor level

**Unique feature:** vaulted rock supports the entire length of the cistern (NW k) (Chamonard 1922: 30)

**Exterior:** upper floor drainage by f, l

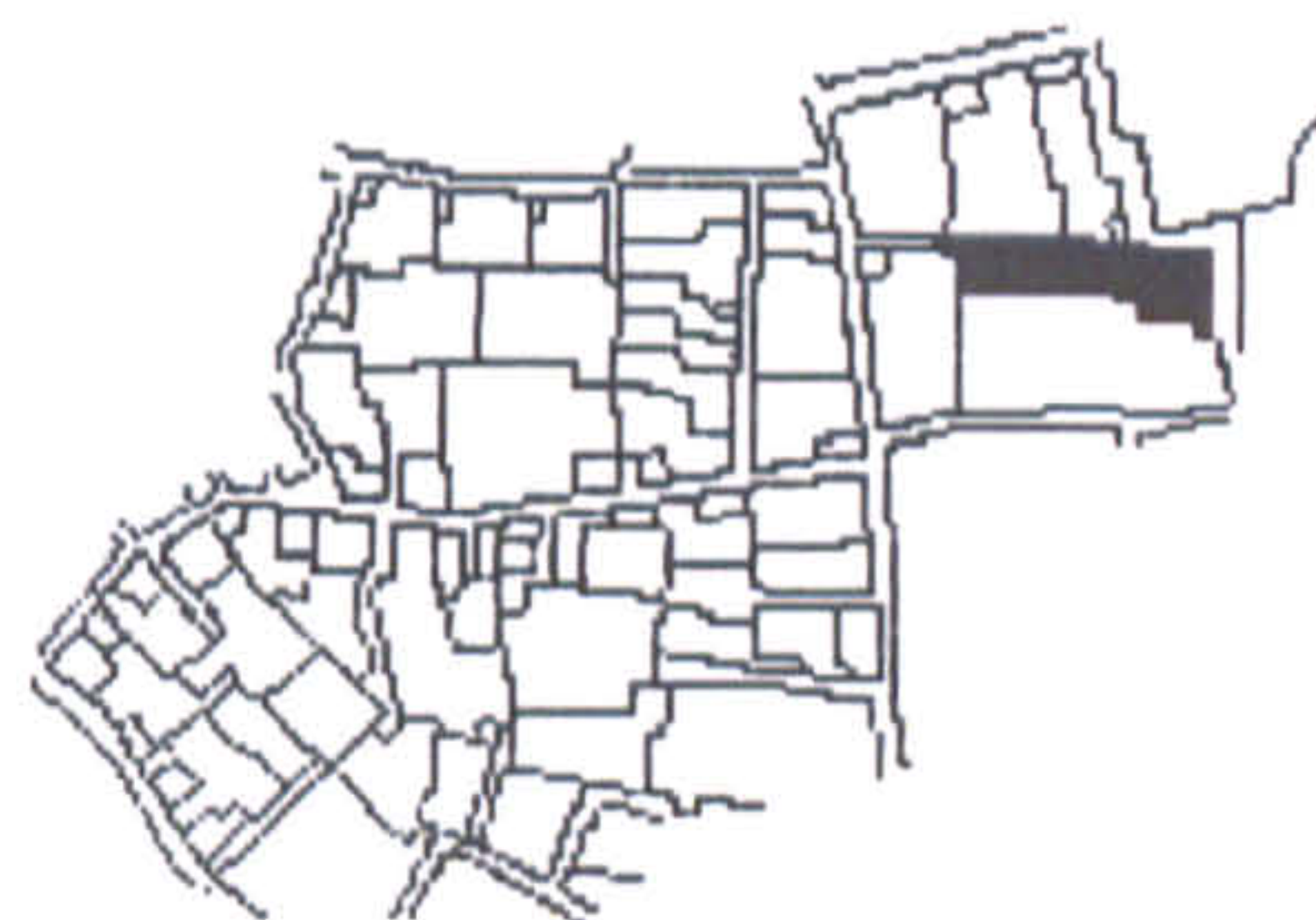
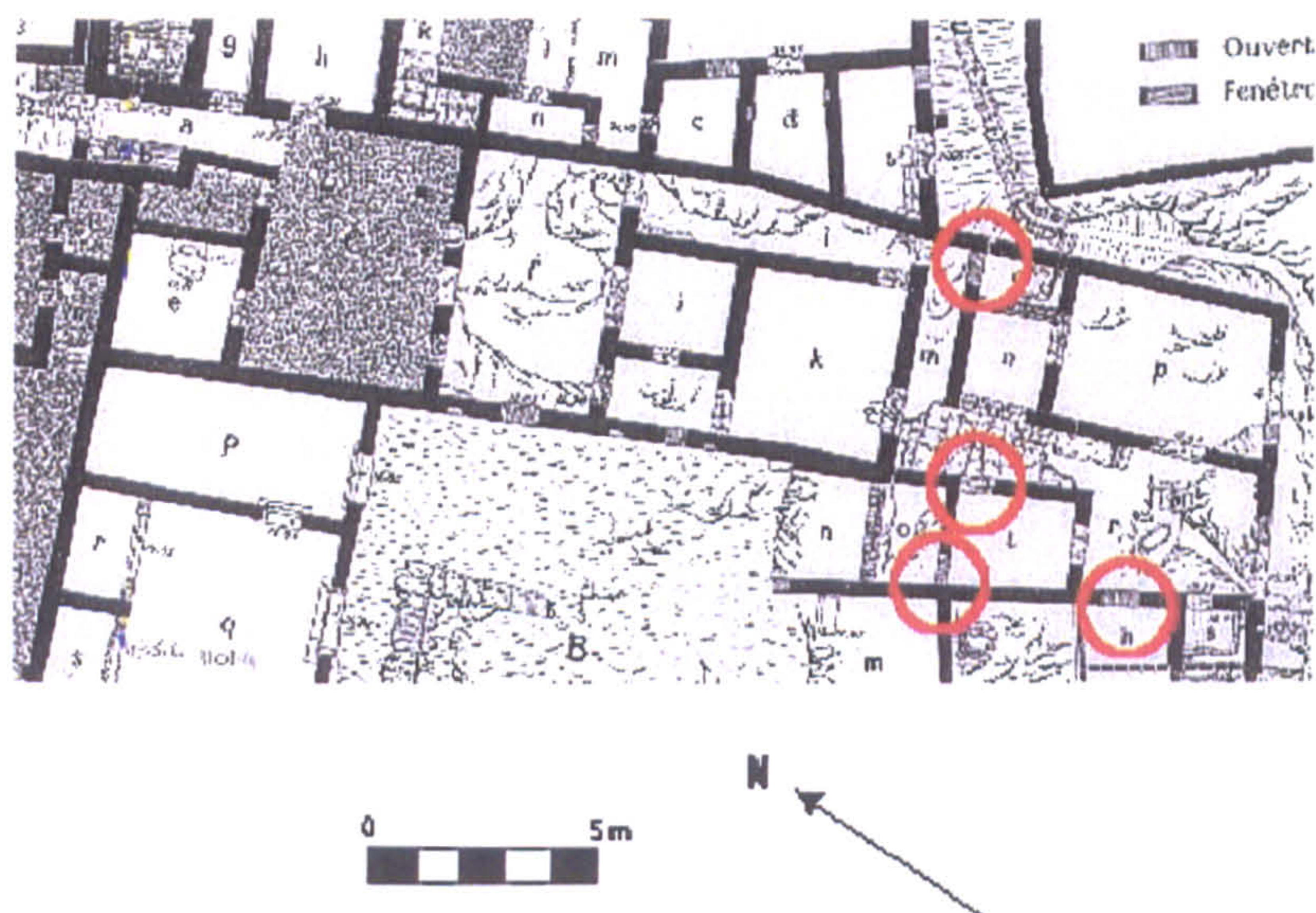
Red coarse plaster on top of white coarse plaster on exterior wall of l

Niche on exterior of l wall, 1.02m (0.52h x 0.39w x 0.27d)

Excavated in 1893 (Chamonard 1922: 29)



## II C



Position within the Theatre Quarter

### Plan amendments

Doorways open, not blocked: m and o, r and IIBh, t and IIBo

There is no evidence of a doorway between q and t

### Notes

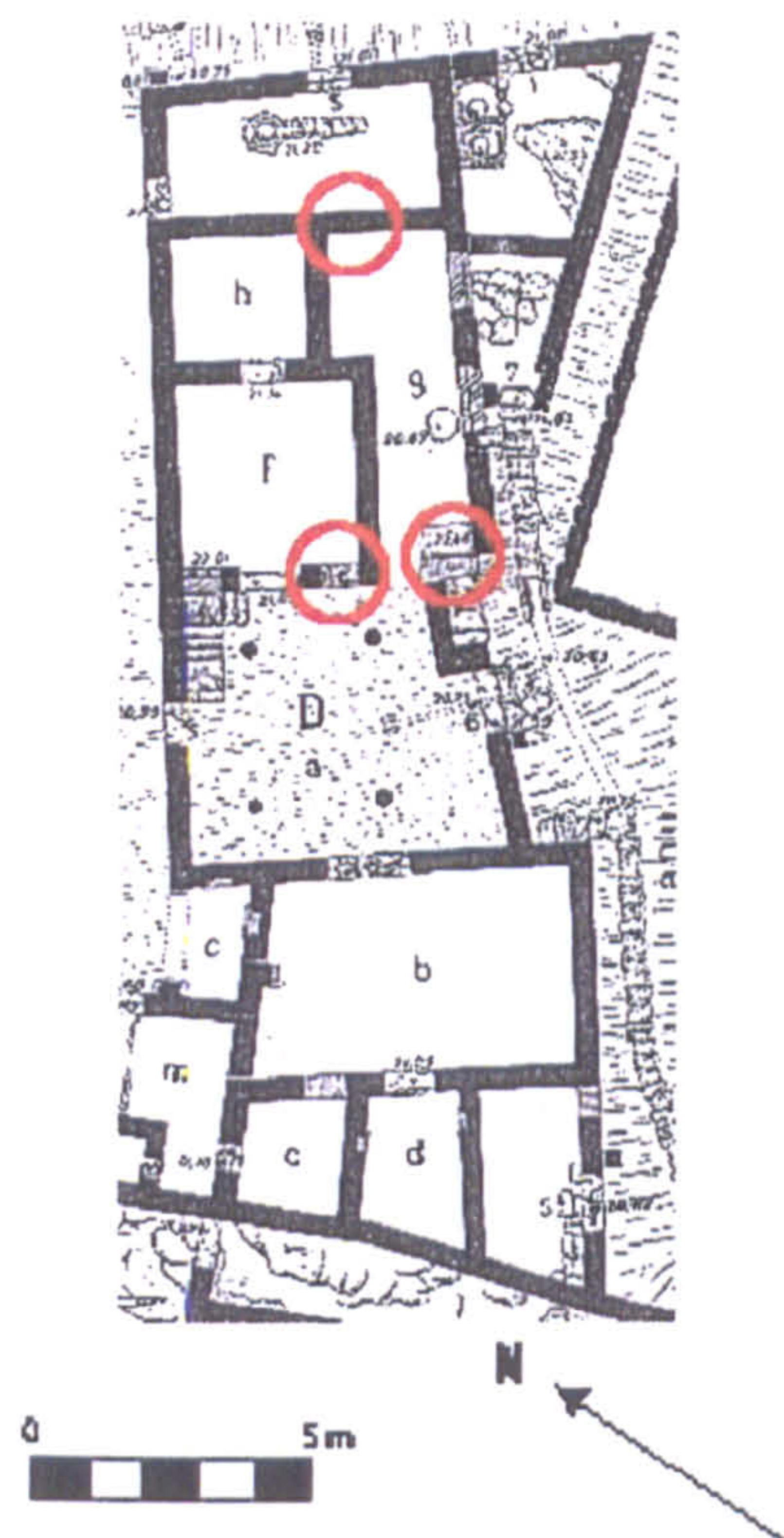
- a white plaster on red coarse (and in adjoining alleyway); alley massif 2.62m high; stairs? or upper floor support? /Ej wall niche supports x6, 2.46m (~E door level)
- c courtyard; white stucco walls incised with numbers and figures (Chamonard 1924: 359); marble chip flooring, white plaster over red coarse; 4 pillars faced in stucco forming a lean-to; marble seat sunk in wall as found in theatre nearby (Chamonard 1922: 32) though found no corresponding positions or debris within orchestra seating area; house occupied when theatre already ruined? plundered?
- d coarse plaster
- e red frieze (Chamonard 1924: 365)
- f oecus, white walls with a coloured frieze (Chamonard 1924: 365)
- g and h found directly beneath Eg and h, difference in floor elevation of 2.55m
- h coarse plaster; /k 5 niches, 2.41m
- i coarse plaster
- k coarse plaster and crocks overlaid by white incised; 5 statues – Apollo, Artemis, Leto and Muses (Chamonard 1922: 32) (group from theatre?)
- o marble chip flooring in pink plaster; architectural elements from public lavatory (!) / sml Corinthian columns 32
- q stone platform 0.23m, stairs (from r end) 1.3m above floor level
- s hydraulic plaster
- t /Bo blocked material in situ to 1.68m

Excavated in 1893

This house contains no trace of an upper floor.



II D



Position within the Theatre Quarter

Plan amendments

There is possible doorway access between g and Road 1, though it is not blocked  
There is a window within the g/STR3 wall, its left edge aligned to the wall between g and h (2.45m above the floor level in g and 0.85m wide)

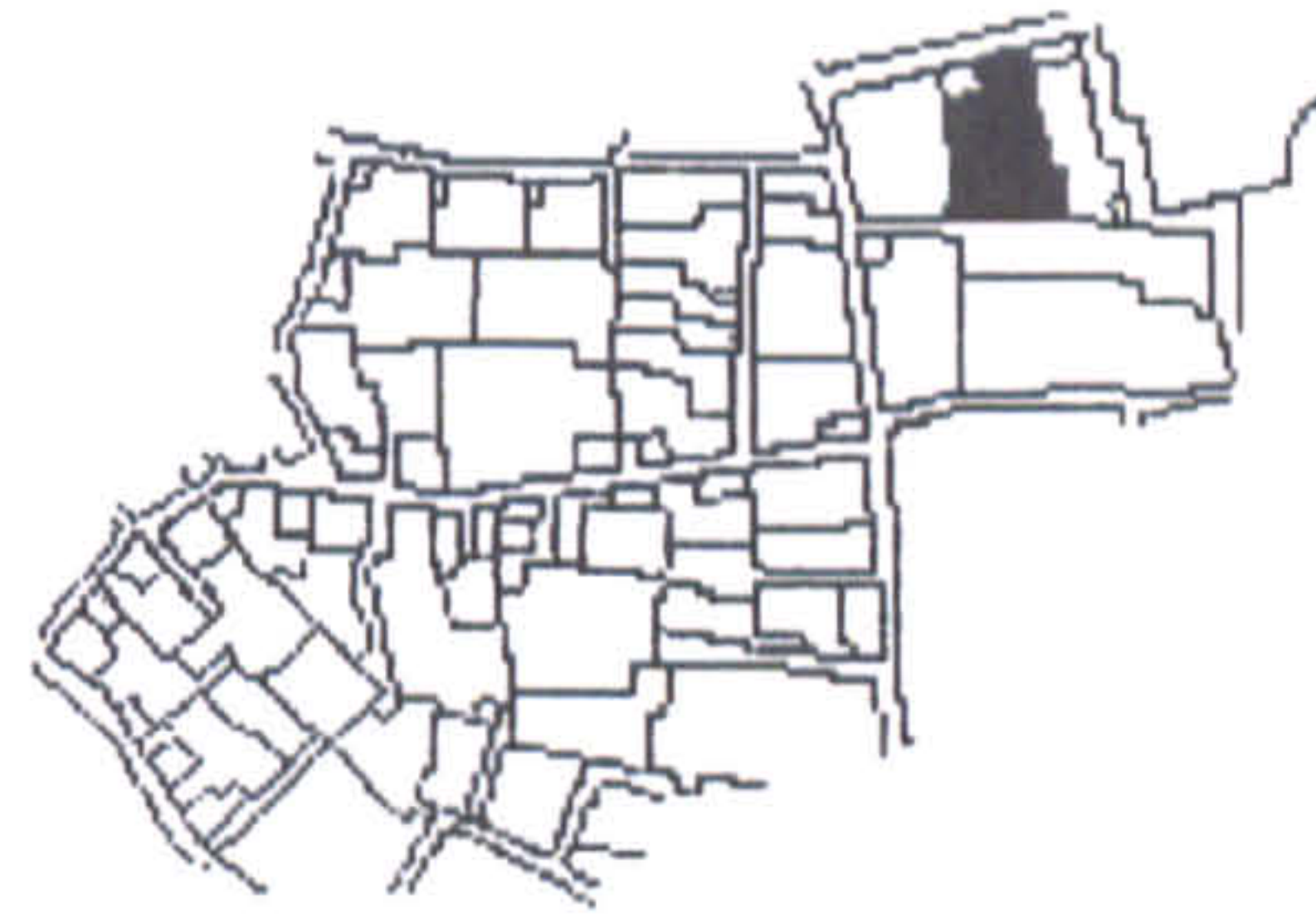
Notes

Altar to left side of entrance, (Chamonard1922: 32), stair recess to the right  
The house is entered directly into the courtyard.

- a courtyard; white plaster; window /f 0.85m; stairs overhang doorway by c 0.10m suggesting them to be a later addition to the house; poros cols covered in stucco; door, at back of ctyd communicates with E; 32; poros columns covered in stucco, peristyle without impluvium; NE angle - staircase
- b oecus; white stucco walls with incised figures and numbers (Chamonard 1924: 359)
- d coarse plaster
- g white plaster over red coarse; windows /Rd 1 7 1.74m (nearest STR) and 2.01m, both built up on shop side – arrowslit ; window /STR 3 2.45m; orig lit by 2 windows opening 2m above ground level.



## II E



Position within the Theatre Quarter

### Plan amendments

The doorway between m and n is blocked, not open

### Notes

There are altars on either side of the entrance.

a, b, c, k and l with panel decoration (Chamonard 1924: 362), STR3/well room white plaster

a niche (mini temple design) 1.09m; red plaster; cols insufficient to support gallery and entablature – additional poros cols added – a lean-to instead? (Chamonard 1922: 34)

b door through to D is plastered and has no sill stone, suggesting no door? incised white plaster; altar decorated with garlands and bucrania (Chamonard 1922: 34); b-i feature *marked on plan as through-drainage*, c 1x2ft in dimension against f wall; courtyard unfinished (peristyle), well access. Chamonard (1922: 150) 4.65m column height.

c niches, 1.37m, incised and painted plaster decoration

e white plaster

h red frieze (Chamonard 1924: 365)

i red tile floor; low wall between latrine and bathroom (0.68); narrow door in; flue? to b; 0.78 high, 0.42 wide

j red plaster; fill hole space in wall for tub tho' no evidence for drainage leading from the tub itself; 'corner shelves' x 3

k stair cases – two stone flights remain

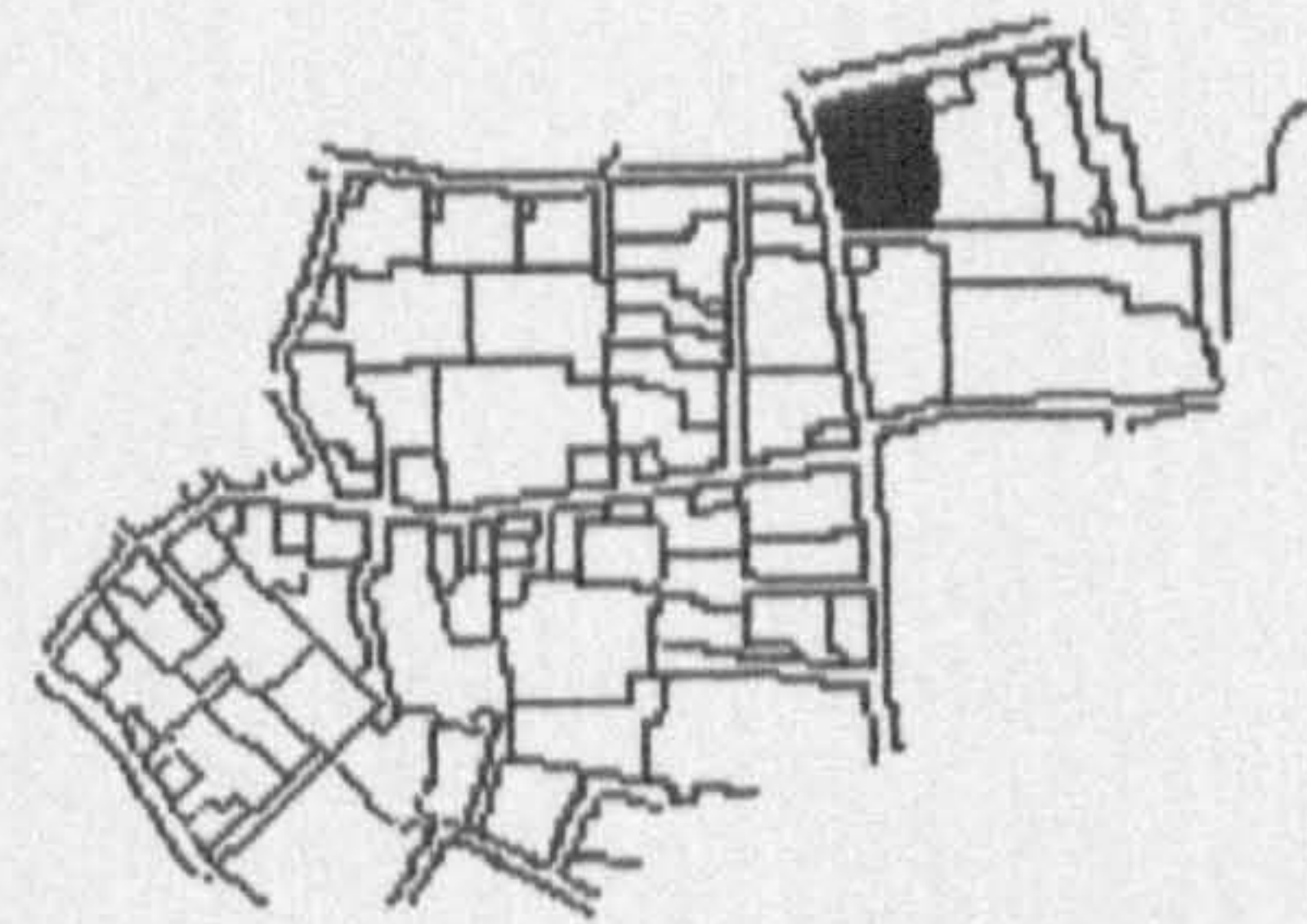
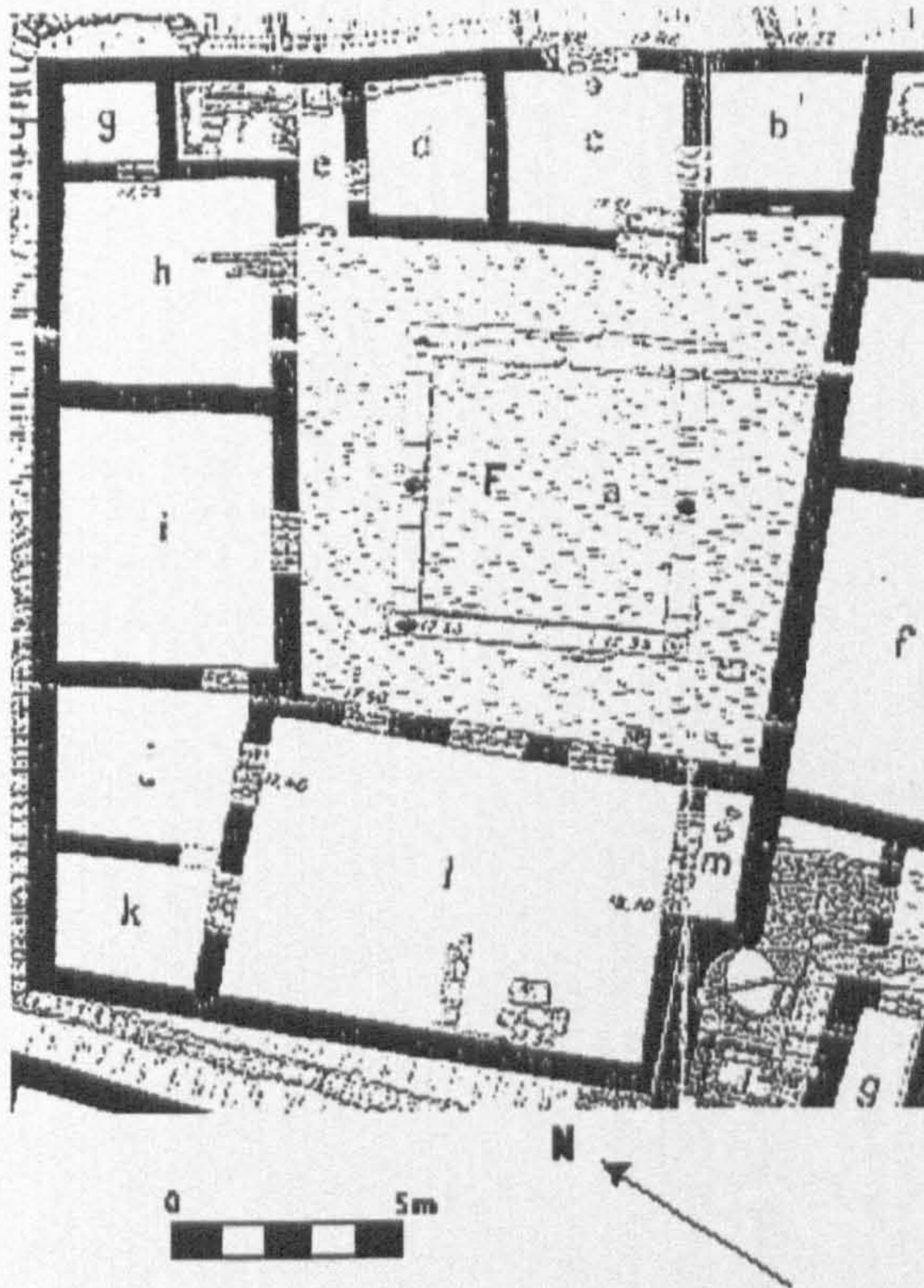
l red plaster flooring and incised wall décor

n wall curves round (as marked)

**Unique feature:** bathroom i, only one found on the island j most complete wc of quarter (Chamonard 1922: 33)



## II F



Position within the Theatre Quarter

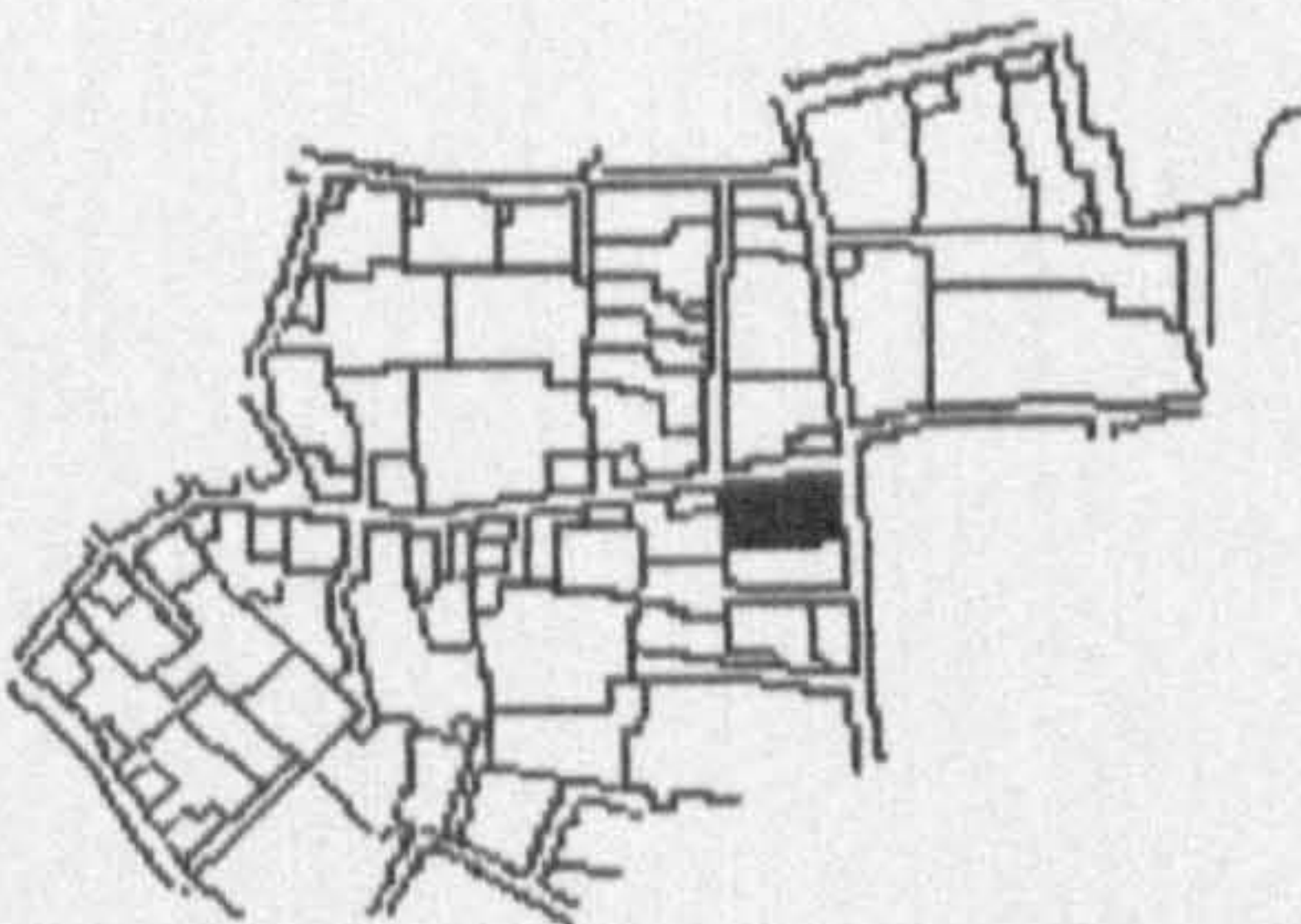
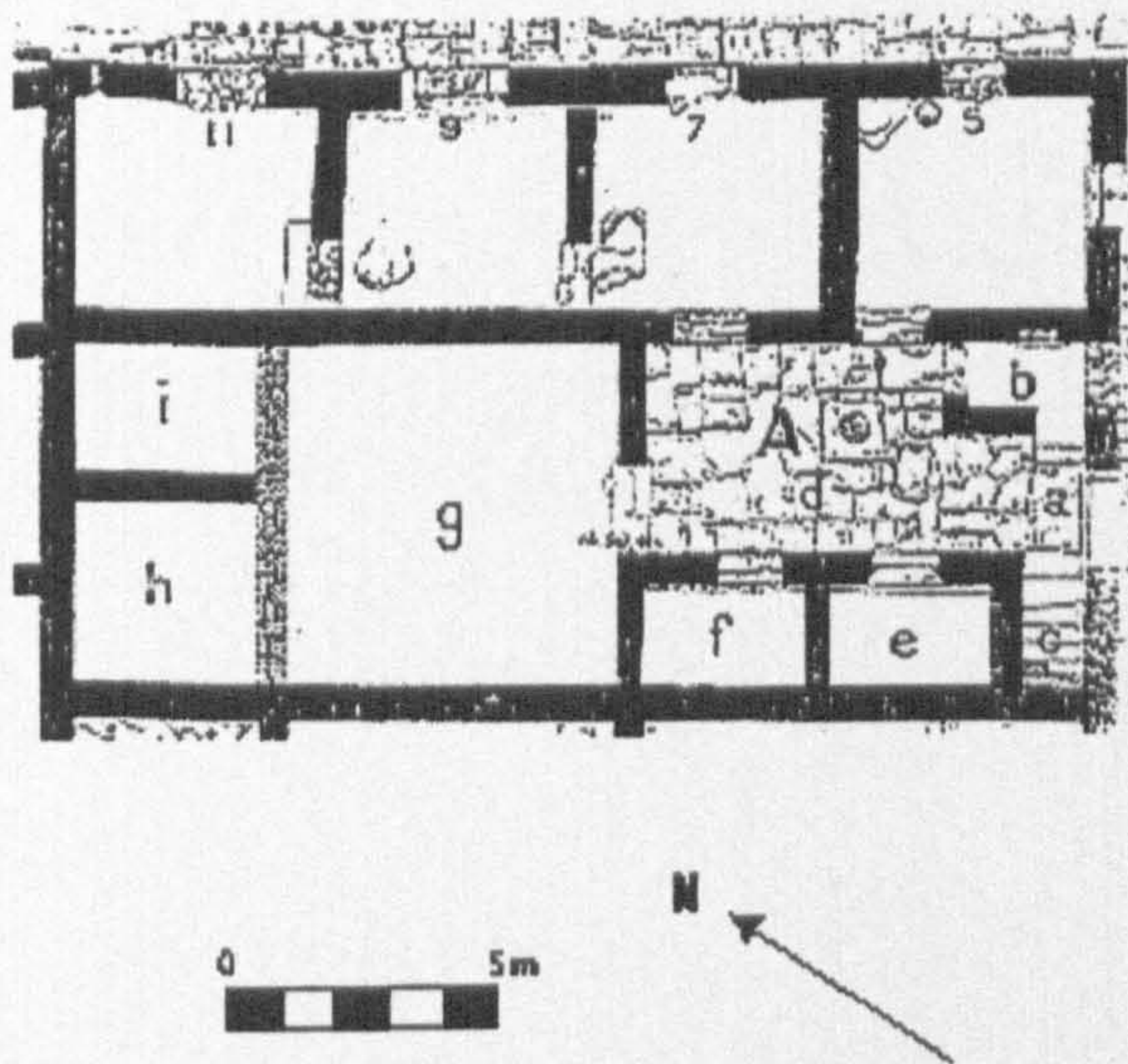
### Notes

- a and c, vestibule and courtyard, incised lines on white walls (Chamonard 1924: 365)
- a courtyard, niches 1.98m; in 2 blocks at foot of wall to E, at 0.75m above original house floor level 650 legionary denarii found in a bag, struck between 99 and 34, M. Antonius; (Chamonard 1922: 36). if hidden then house already ruined? columns fluted on their upper part
- b niche 1.60m
- c transformed from ancient shop
- e previous vestibule (Chamonard 1922: 36) now blocked onto the road; with f wc's adjoining
- f cistern not hollowed out (Chamonard 1922: 36)
- h through-niche in wall c0.8m, 0.15<sup>2</sup>
- i niche 1.05m and 0.68 (nearest j)
- j through-niche 0.81m
- l support holes /m double wall, 1.70m and 1.79; ancient threshold found within back of l but the wall has been entirely rebuilt 36
- m possible stair well; 'floor' level is over a metre above that of room l, adjacent

Excavated in 1893 (Chamonard 1922: 32)



III A

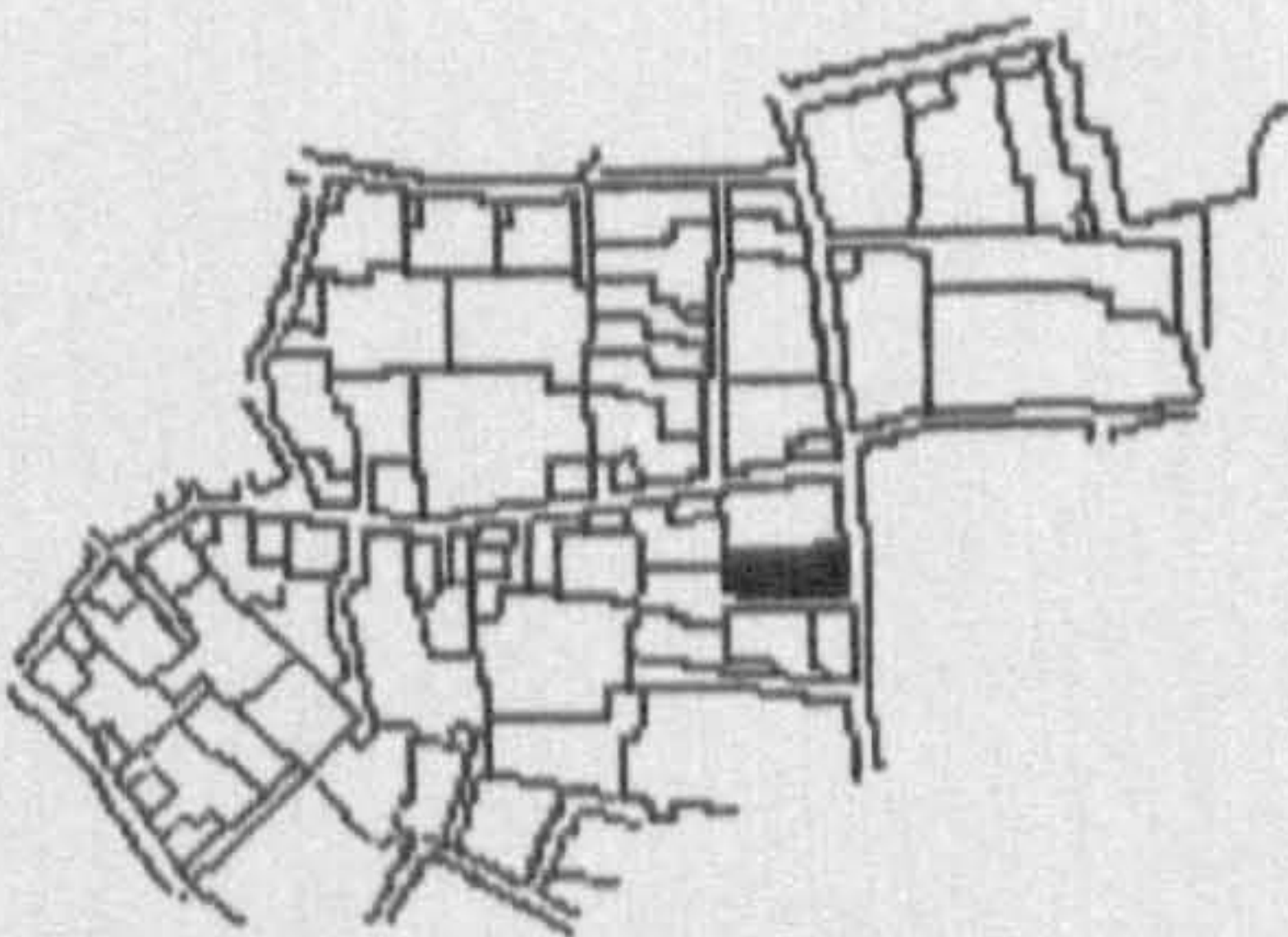
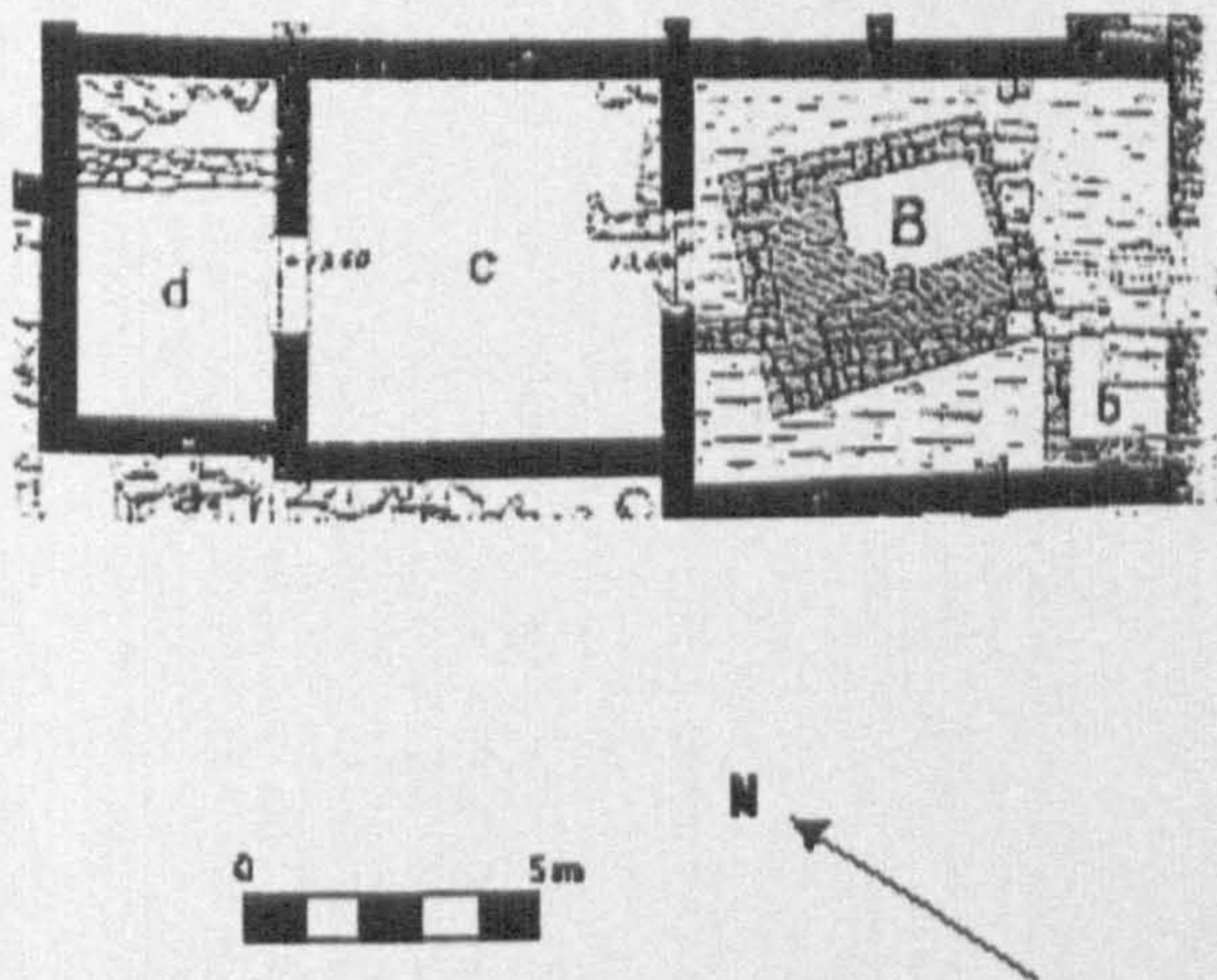


Position within the Theatre Quarter

Notes

- c latrines
- d courtyard. TR shops 5 and 7 linking in

III B



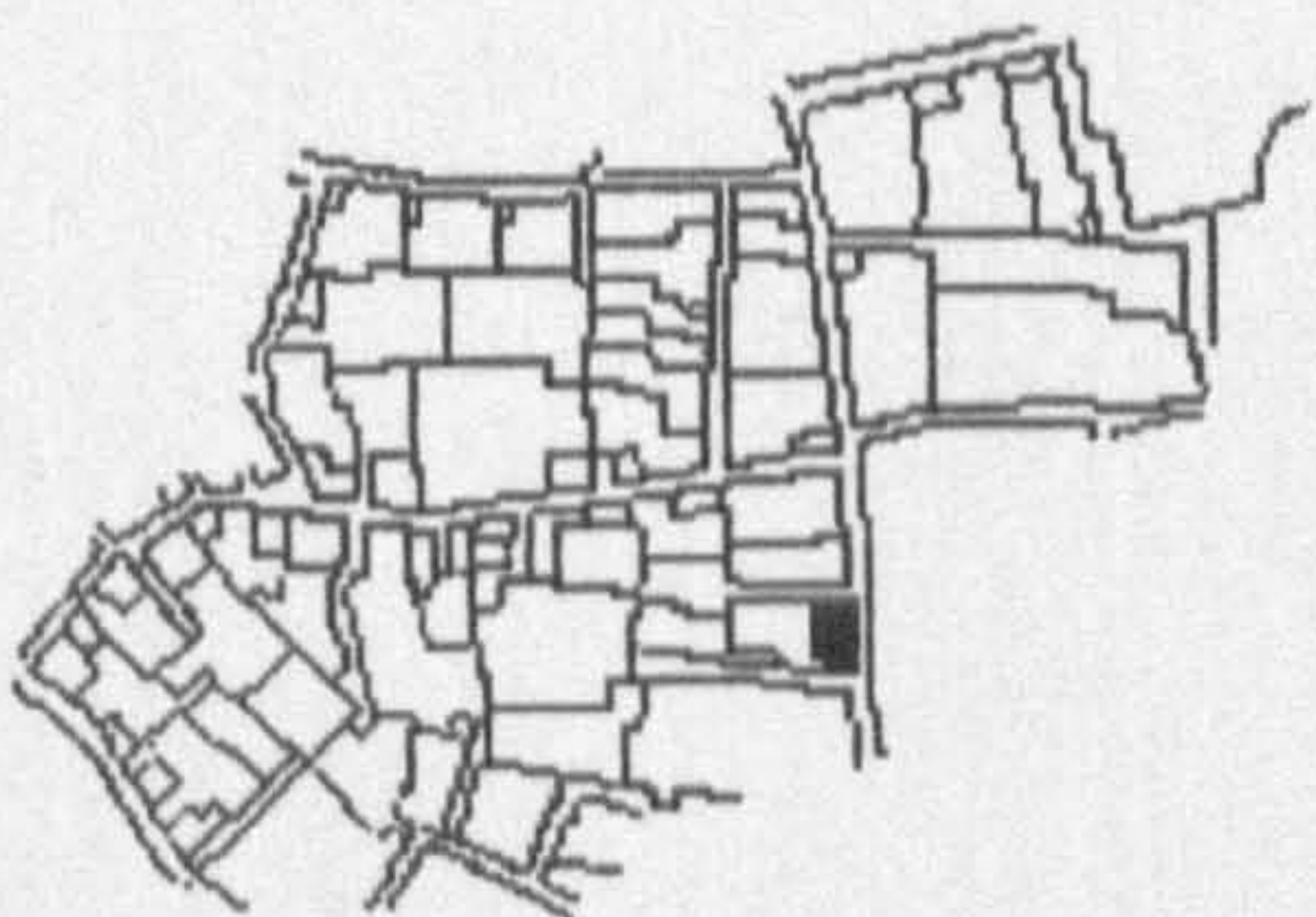
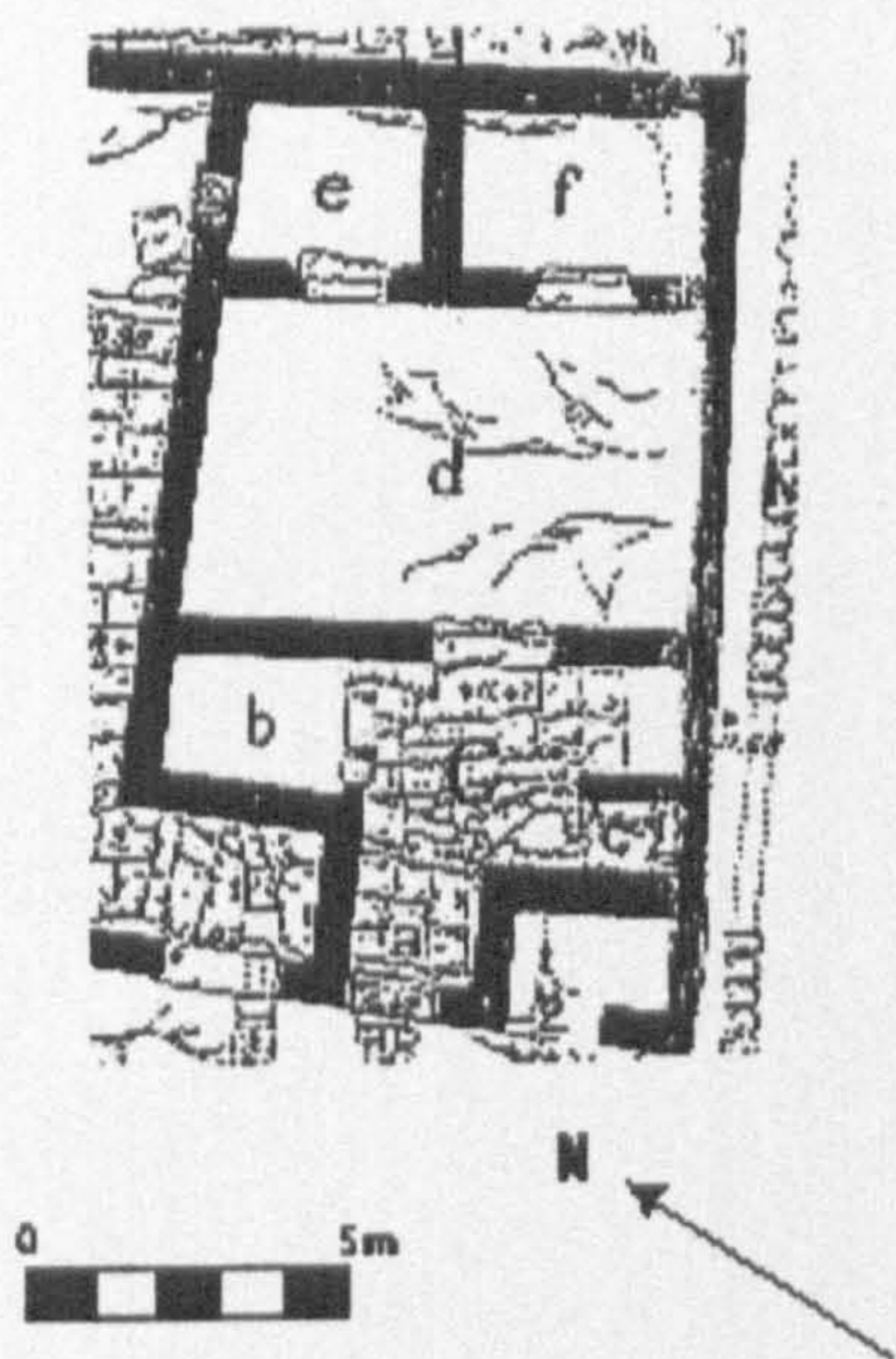
Position within the Theatre Quarter

Notes

- a courtyard, entrance leads directly into this from Road 2; large cistern. Chamonard (1922: 38) left part of courtyard (as enter) occupied by a long, narrow room; possibly once occupied by a peristyle as II D? the drainage channel suggesting this?
- b latrines
- c panel decoration (Chamonard 1924: 381)



III C

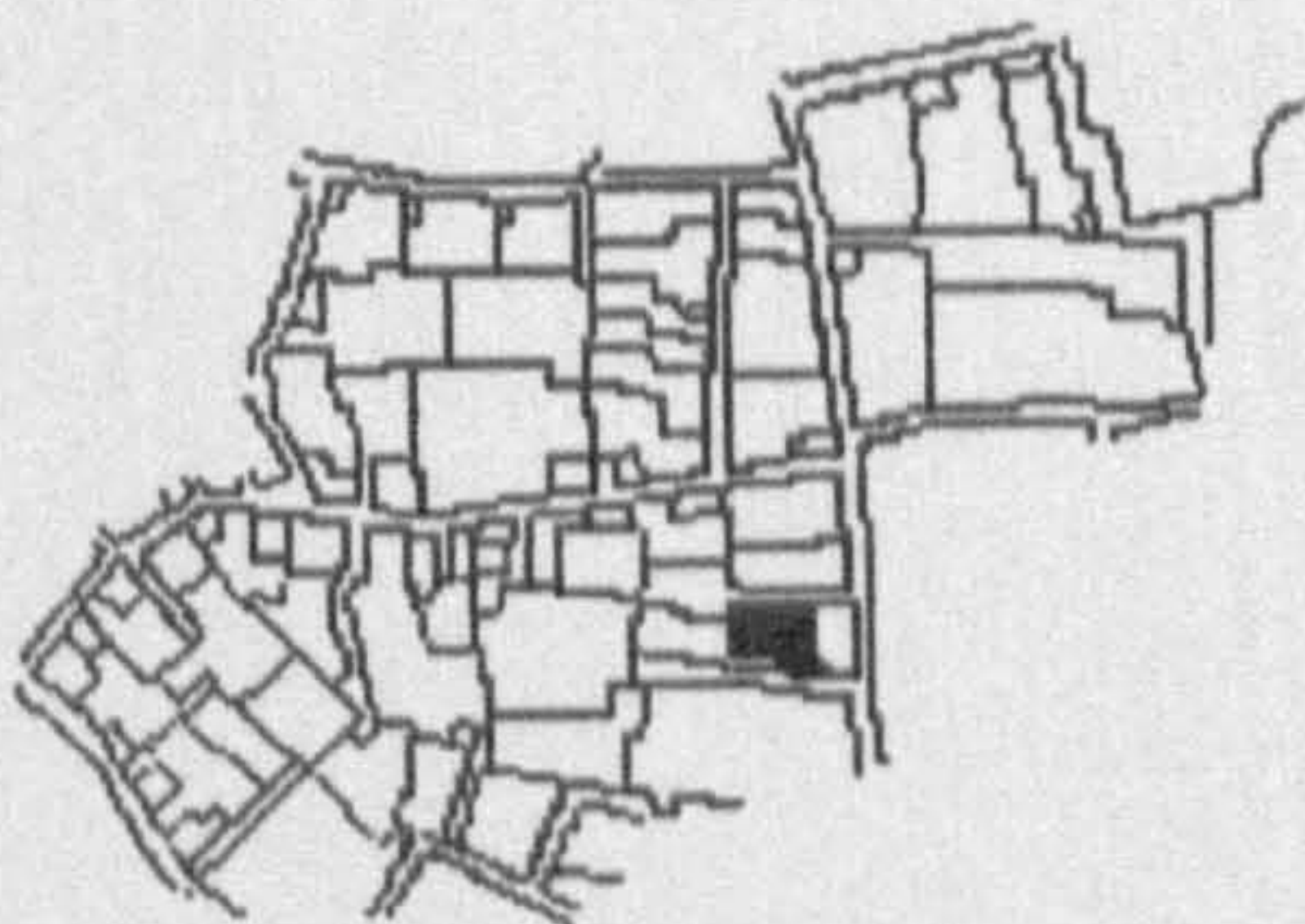
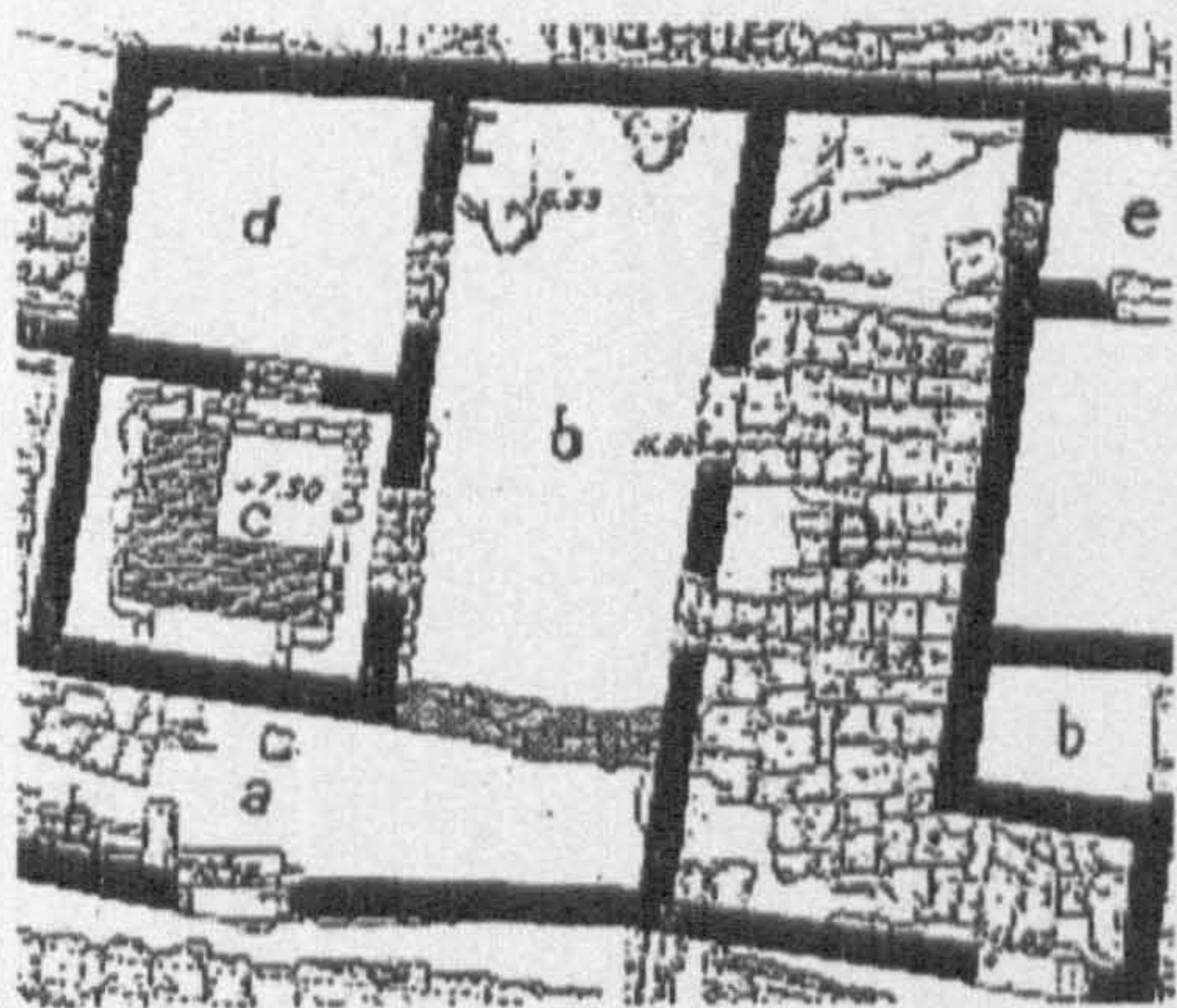


Position within the Theatre Quarter

Notes

- a entrance and courtyard area
- d coarse plaster
- e well at base of wall between here and adjacent III Da

III D



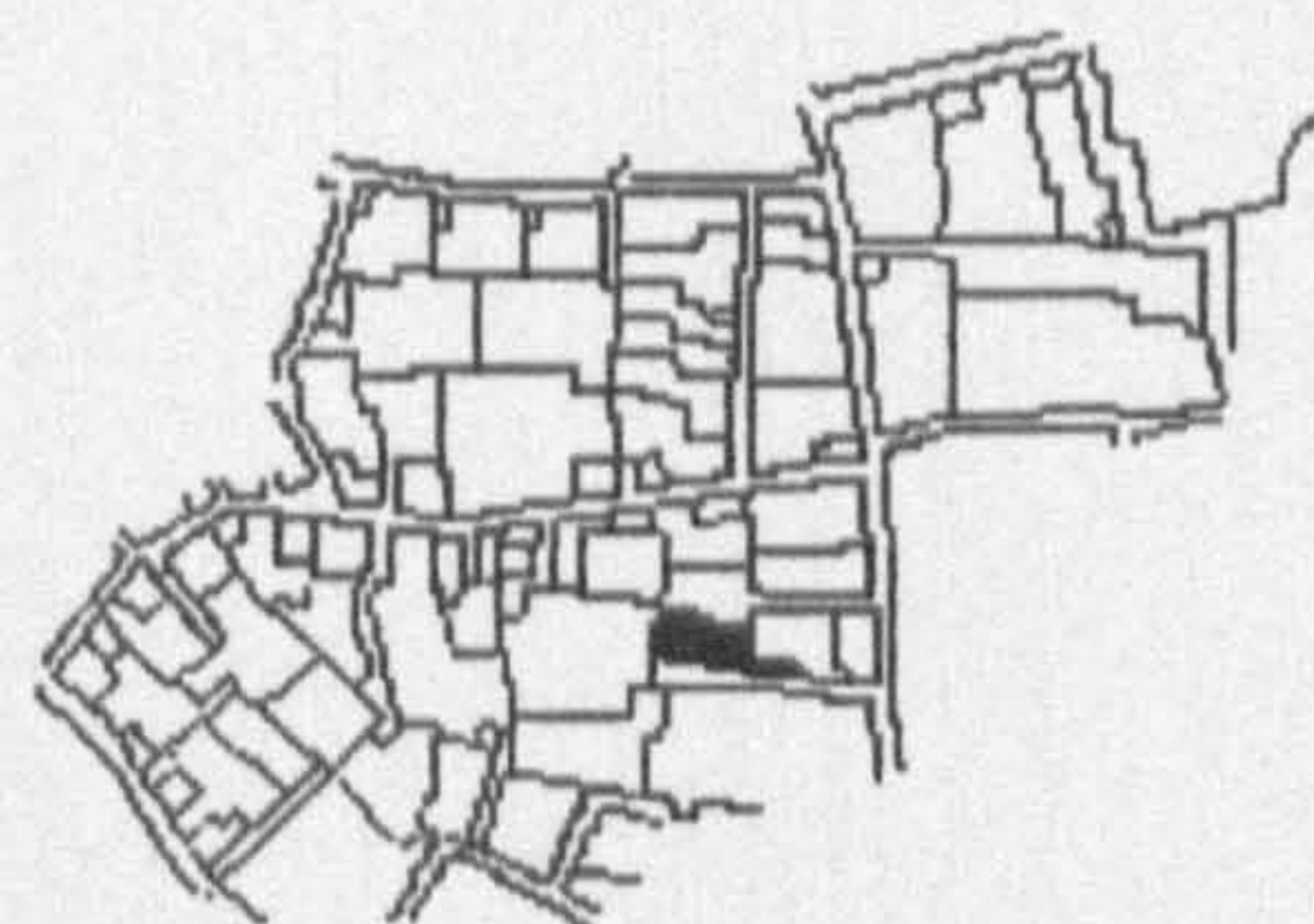
Position within the Theatre Quarter

Notes

- a entrance and courtyard; well in wall between here and adjacent III Ce
- c rare disposition, but not unique – entirely occupied by a cistern (Chamonard 1922: 38)



### III E



Position within the Theatre Quarter

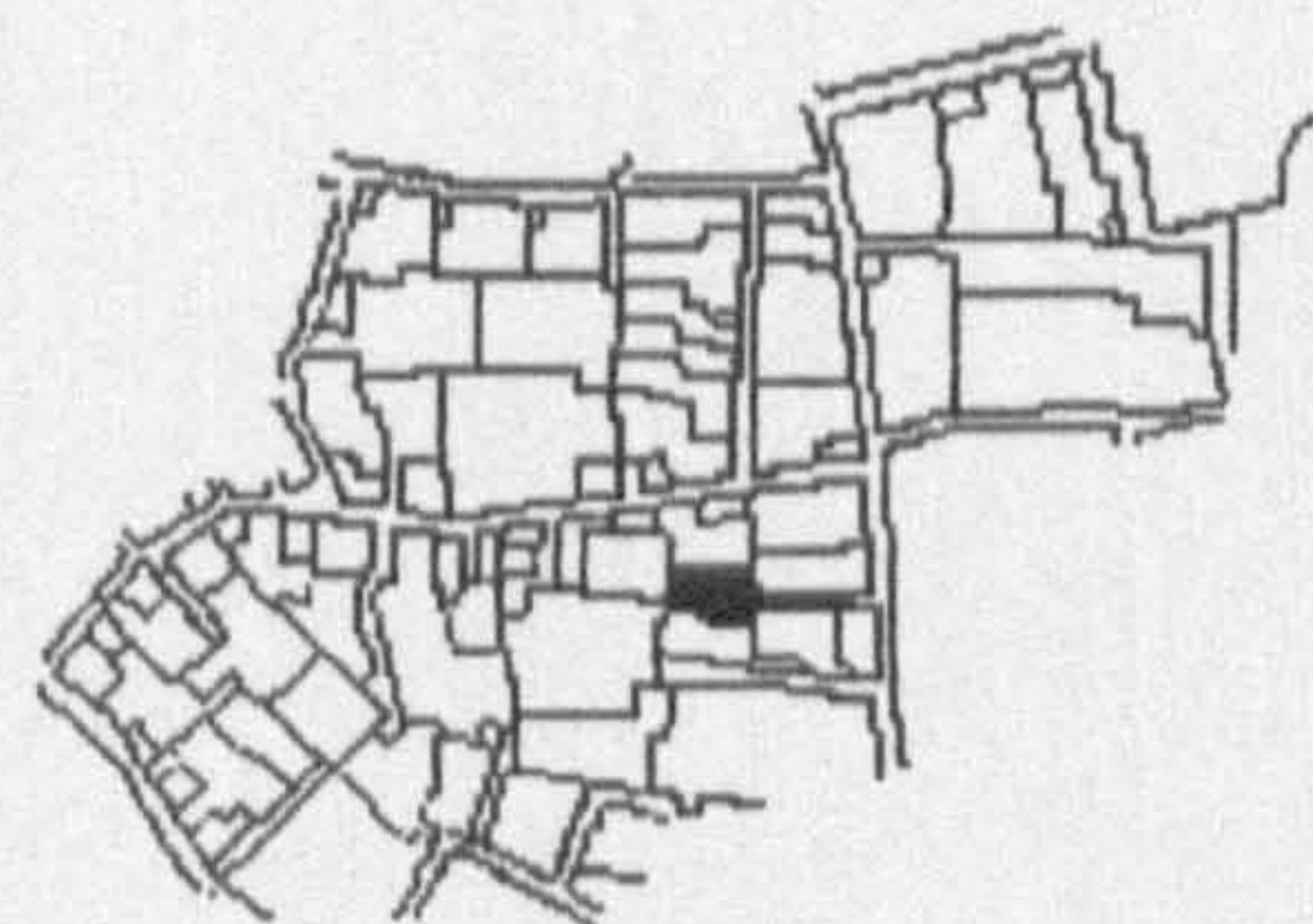
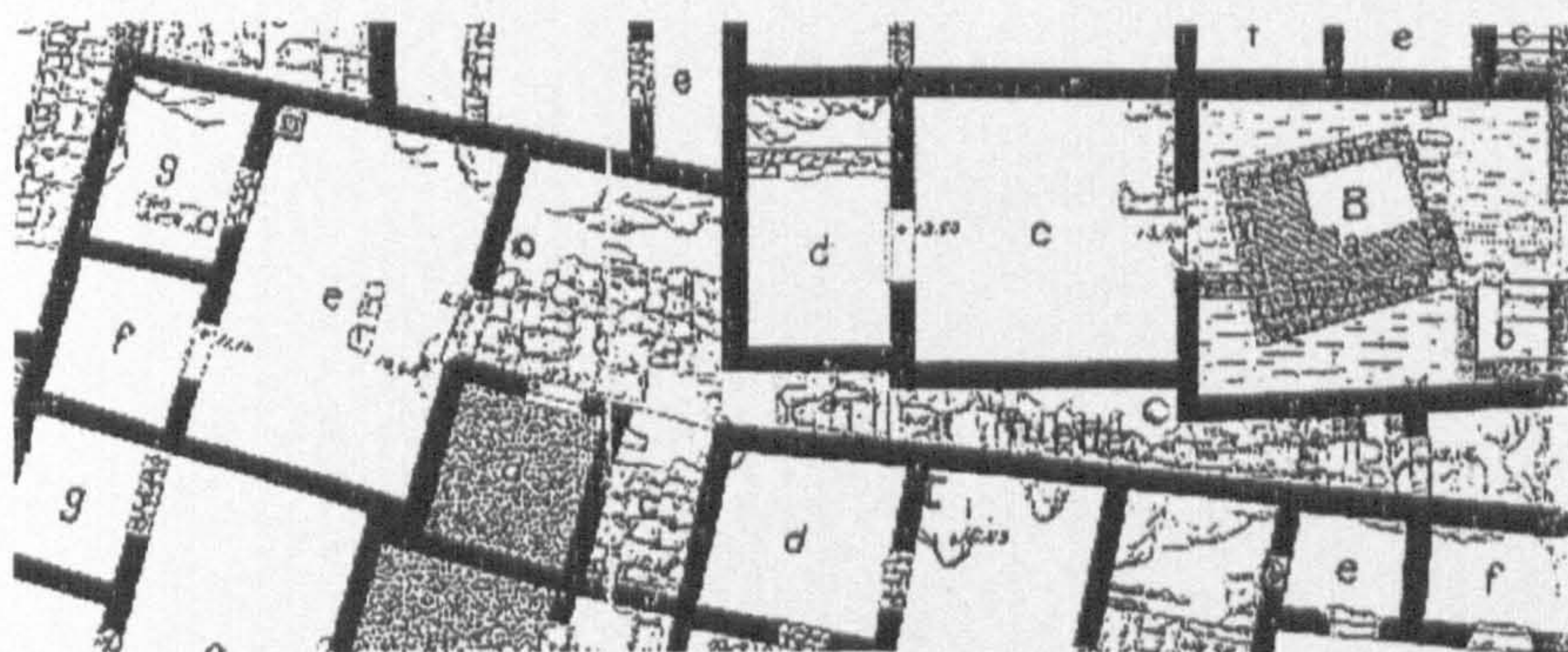


#### Notes

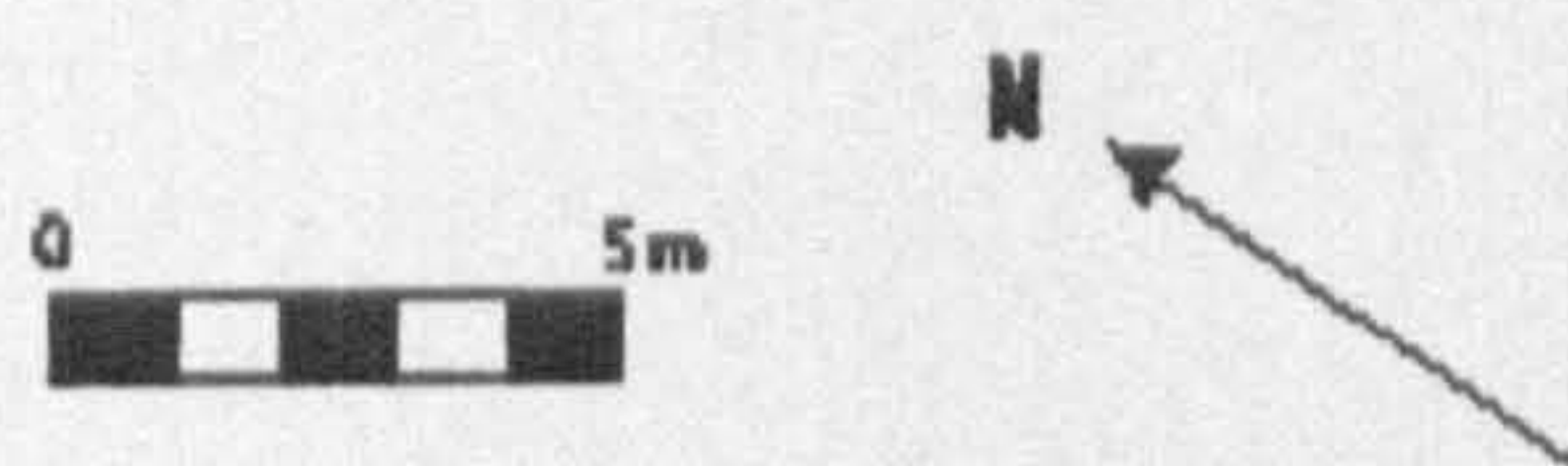
- a long vestibule
- b latrines, red pot flooring
- c and d stucco walls (Chamonard 1924: 387); *opus segmentatum* flooring, well opening
- d coarse plaster
- e white plaster



III F



Position within the Theatre Quarter



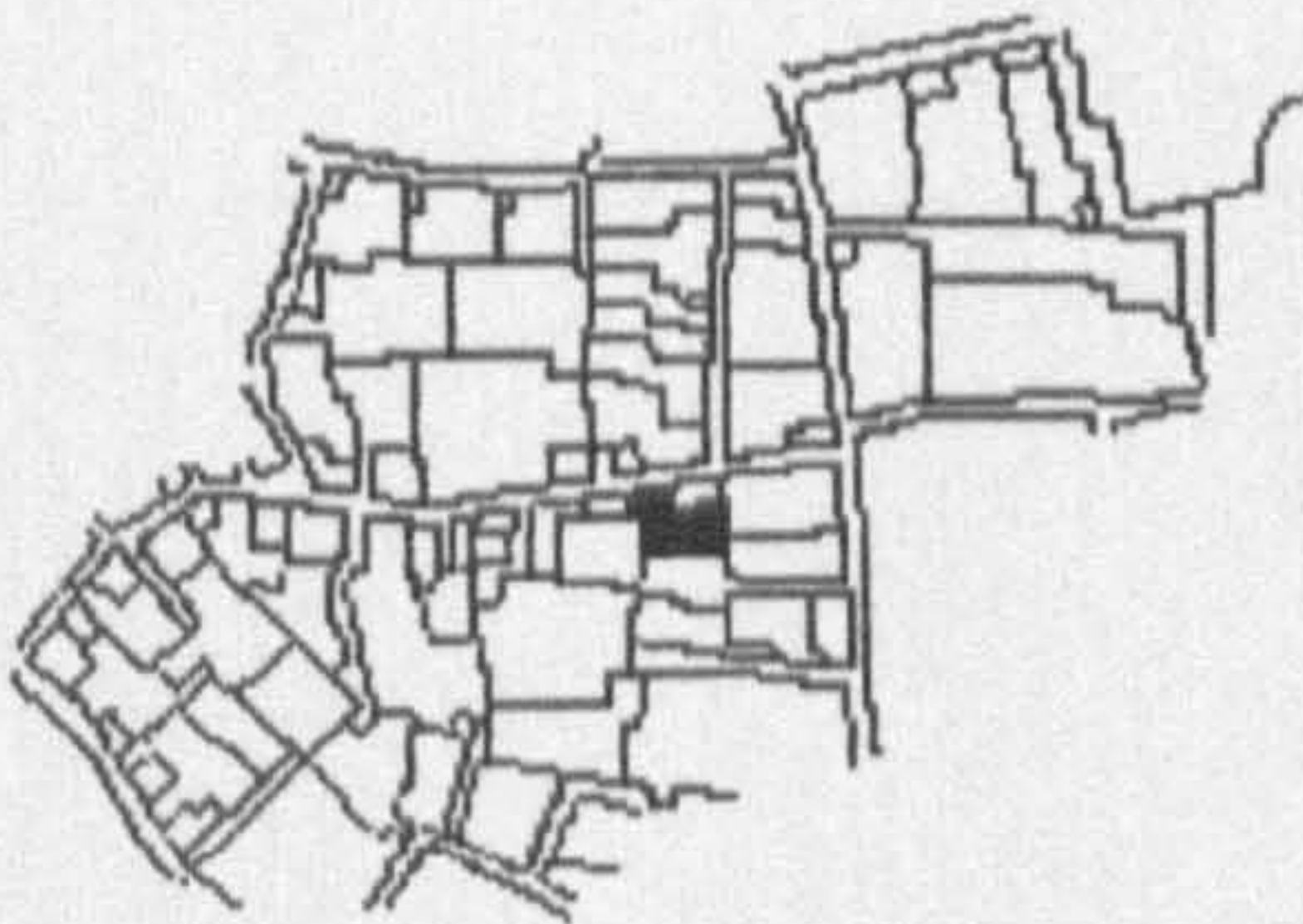
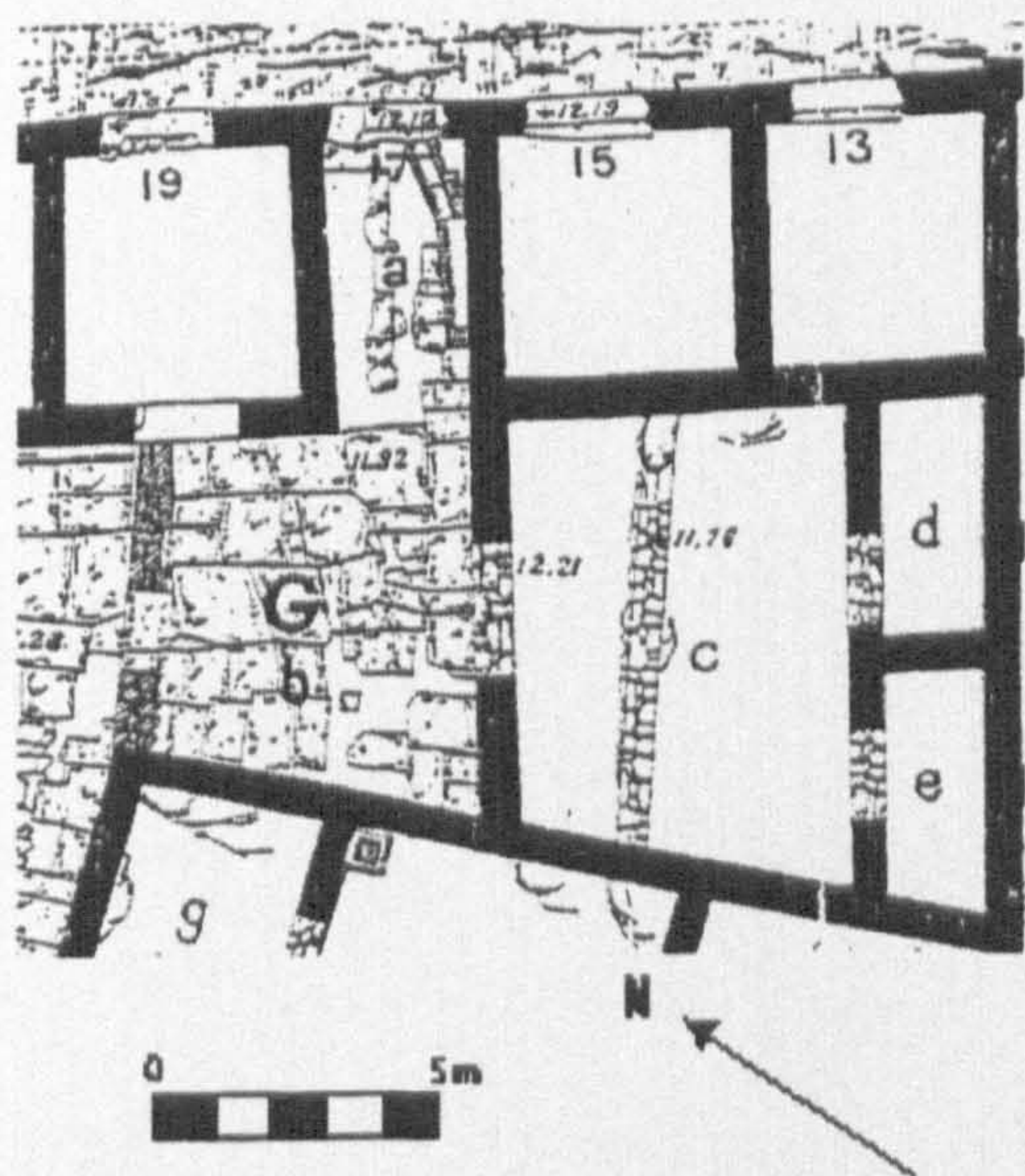
**Notes**

- a altar immediately after door in (and to right), rubble construction covered in stucco
- b white plaster; white coarse and pot beneath
- c white plaster
- d incised lines in white wall plaster (Chamonard 1924: 365); marble chip flooring; (Chamonard 1922: 38) remains of mural and boss decoration
- e coarse plaster with white incised top layer; marble altar in angle of room

This house contains no well or cistern



III G



Position within the Theatre Quarter

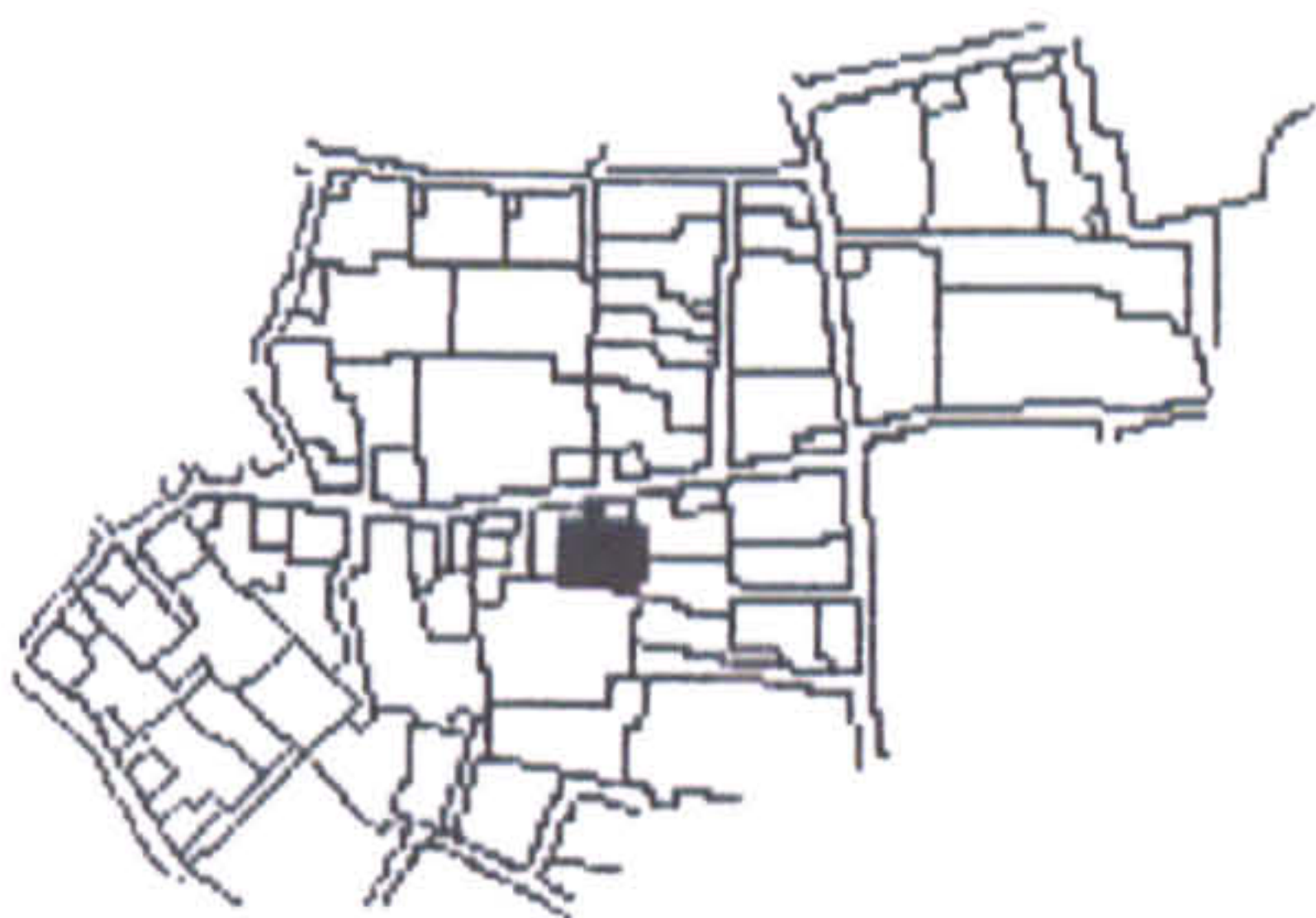
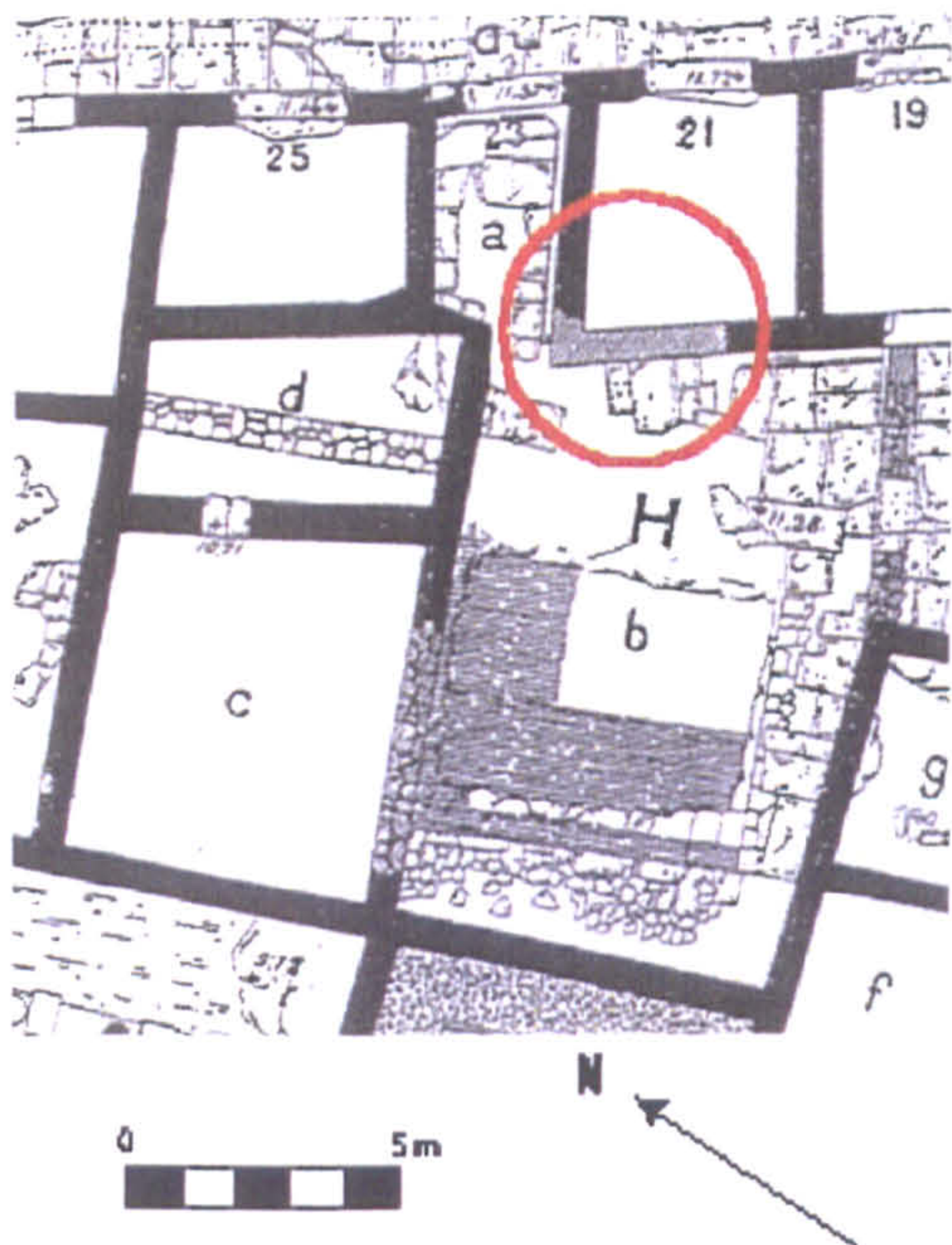
Notes

- a vestibule
- b courtyard
- e white plaster, double drain along low marked wall; fragments from upper floor found (Chamonard 1922: 38-9) – meander mosaic, analogous with House of the Trident impluvium mosaic
- e fine detailed mosaic pavement (Chamonard 1922: 38-9)

This house contains no direct access to water; perhaps the door to H allowed access to the neighbouring cistern?



III H



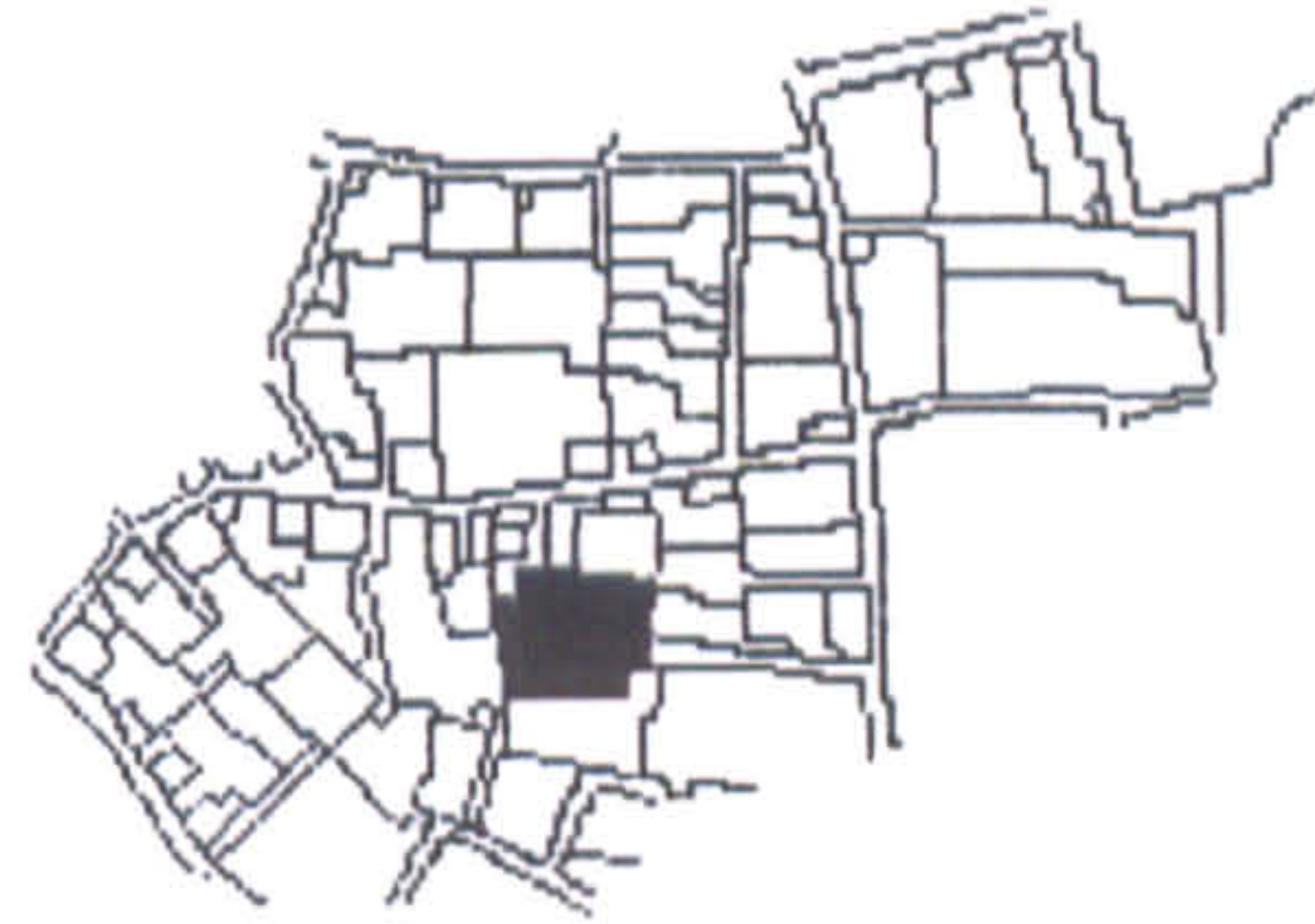
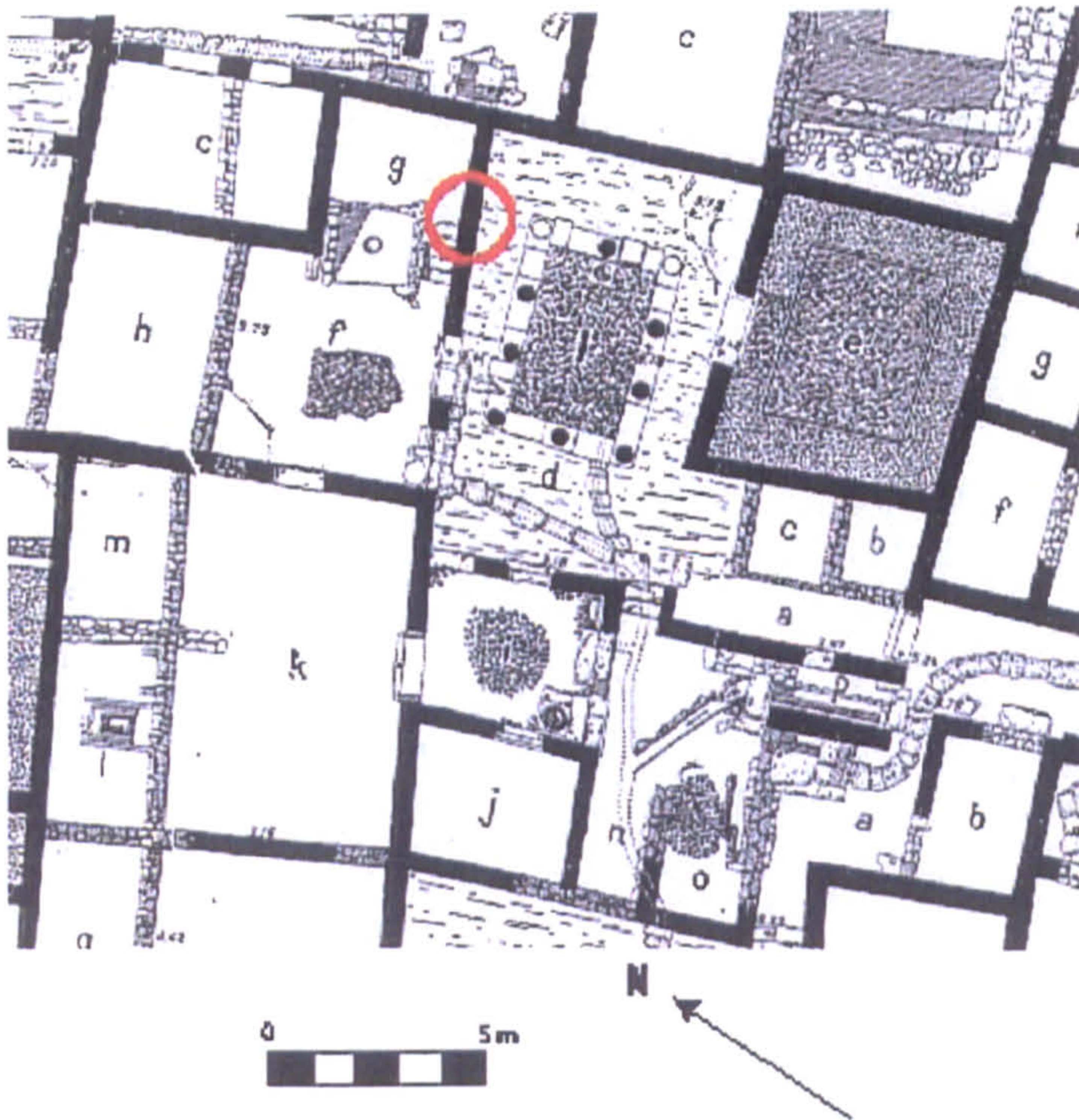
Position within the Theatre Quarter

**Plan amendment:**  
There is a wall, not window separating b and TR21

- Notes**
- a vestibule
  - b courtyard; vaulted cistern
  - d contains evidence of ancient wall



### III I Cleopatra House



Position within the Theatre Quarter

#### Plan amendments

Channels running either side of the low ancient wall in c

There is a possible entrance into c visible in the wall between this area and the vestibule, a

There is evidence for the position of a doorway in the wall foundations between f and h

The blocked doorway between g and d is still visible (though not marked)

#### Notes

b white and red plaster

d to g blocked door?; white plaster; visible in courtyard but not in g plaster

e marble chip around o tess threshold and carpet mosaics; painted plaster

d and f panel decoration (Chamonard 1924: 365); *o segmentatum* impluvium mos

(Chamonard 1922: 40), rare type for Delos; cistern one of only three on the island with stone joists; descending pipe for adduction fixed to column on central east side; statues of owners found in NW angle – Cleopatra and Dioscurides; Athenian cleruchs; cramped dimensions suggest a later addition to the house? associated with named dedication made by C in memory of her husband within the temple of Apollo in 138/7 BC elevated statue base in direct sight line from the entrance; no trace of pavement found beneath the peristyle; the door between d and f (nearest k) provides a site for statue placement as opposed to a second doorway

f marble chip flooring, white plaster; extended by the addition of g

g pink plaster; (Chamonard 1922: 49) earlier independent and blocked doorway between here and d is still visible (though not marked)

i marble chip flooring; coarse plaster

k white plaster; k/lm not a low wall but a double wall around the drain (contains semi-circular feature); mos similar to II Aj (Chamonard 1922: 40)

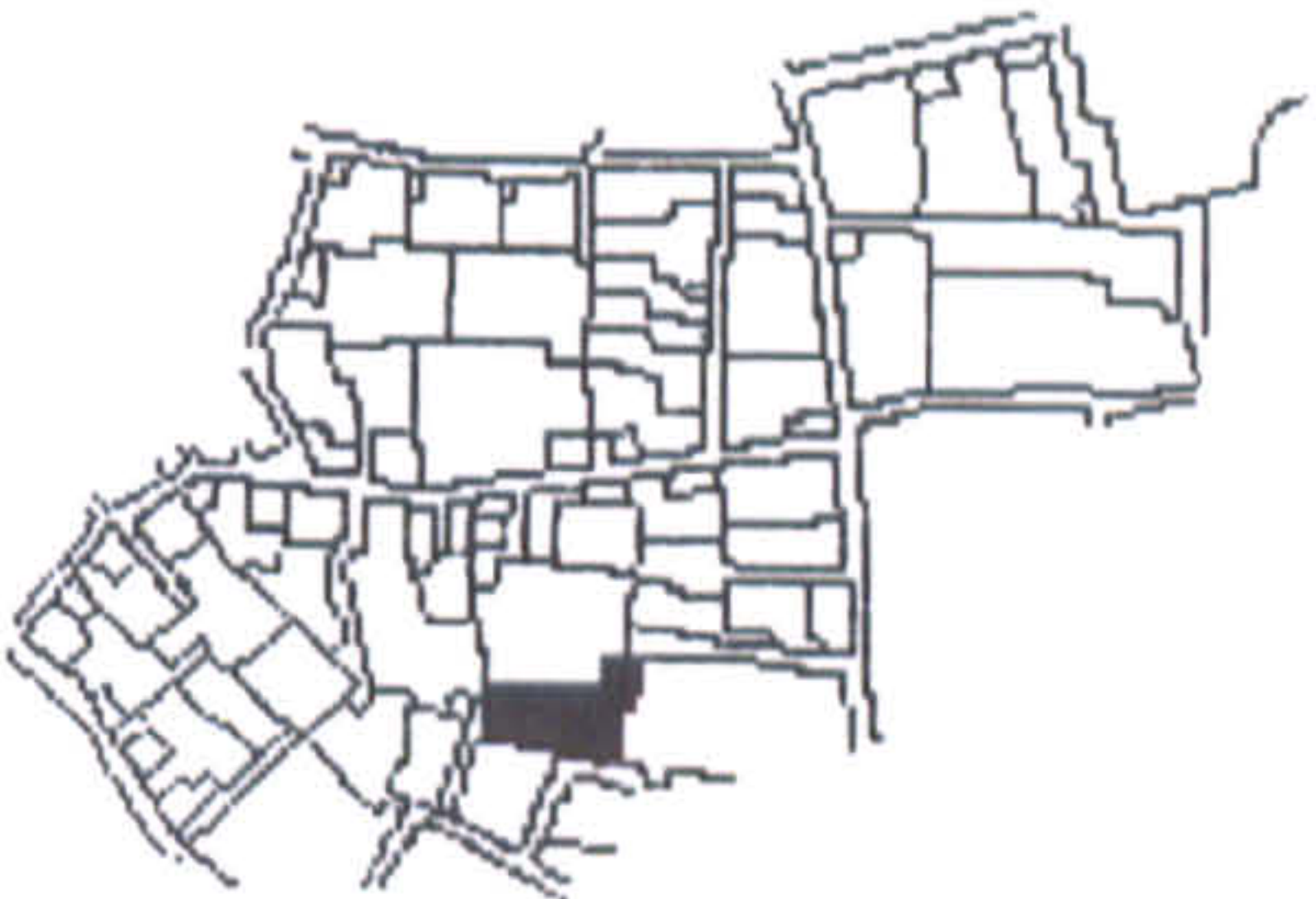
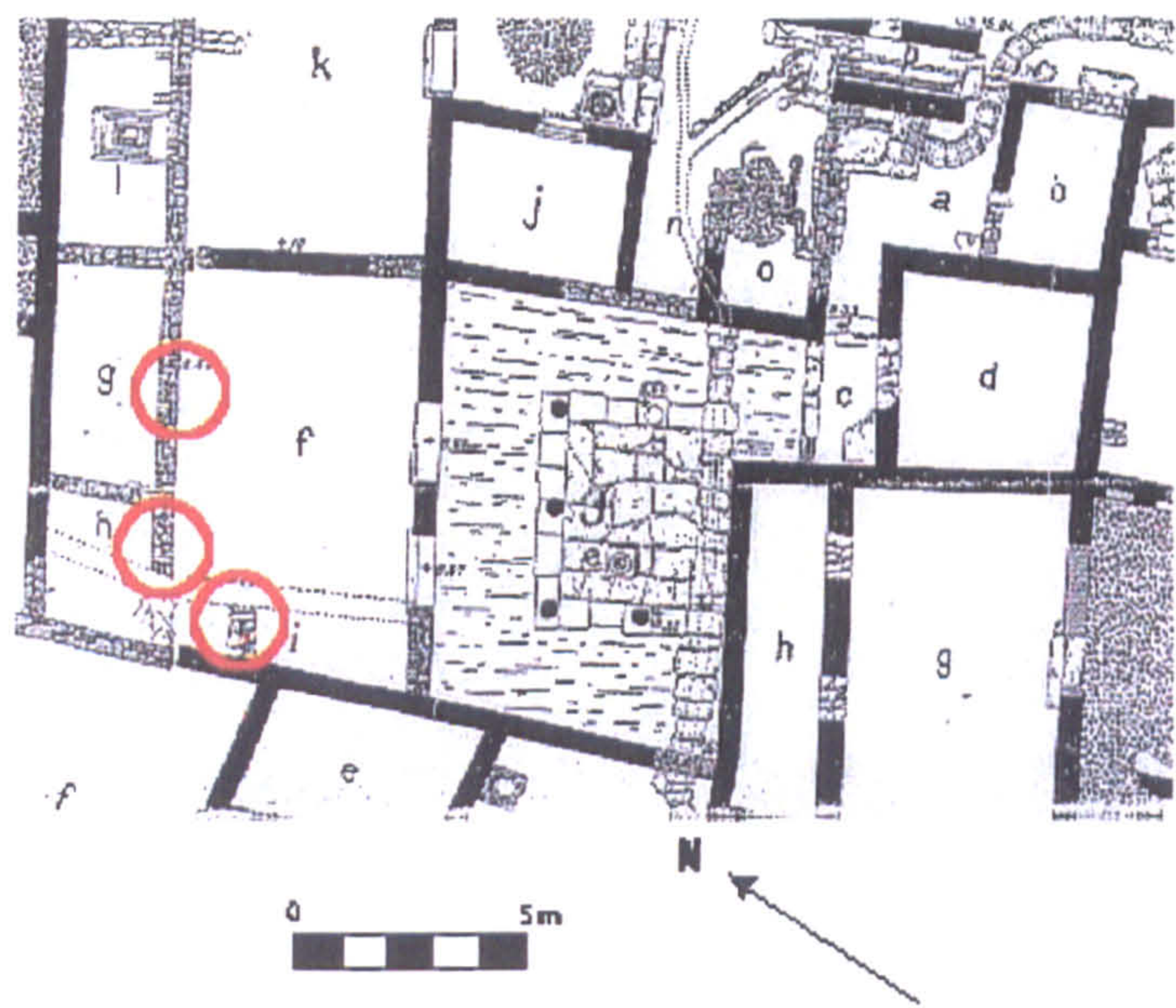


- n 3<sup>rd</sup> flight (stone) would have blocked the access (via b) to the courtyard; marble chip bottom of current first flight; turning point for 2<sup>nd</sup>/3<sup>rd</sup> flights at gap between b and current 2nd flight
- o marble chip 'platform' 0.30 above floor level; successive occupations?

Cleopatra house is dated from a statue base inscription to 138 (Chamonard 1922: 71).



III J



Position within the Theatre Quarter

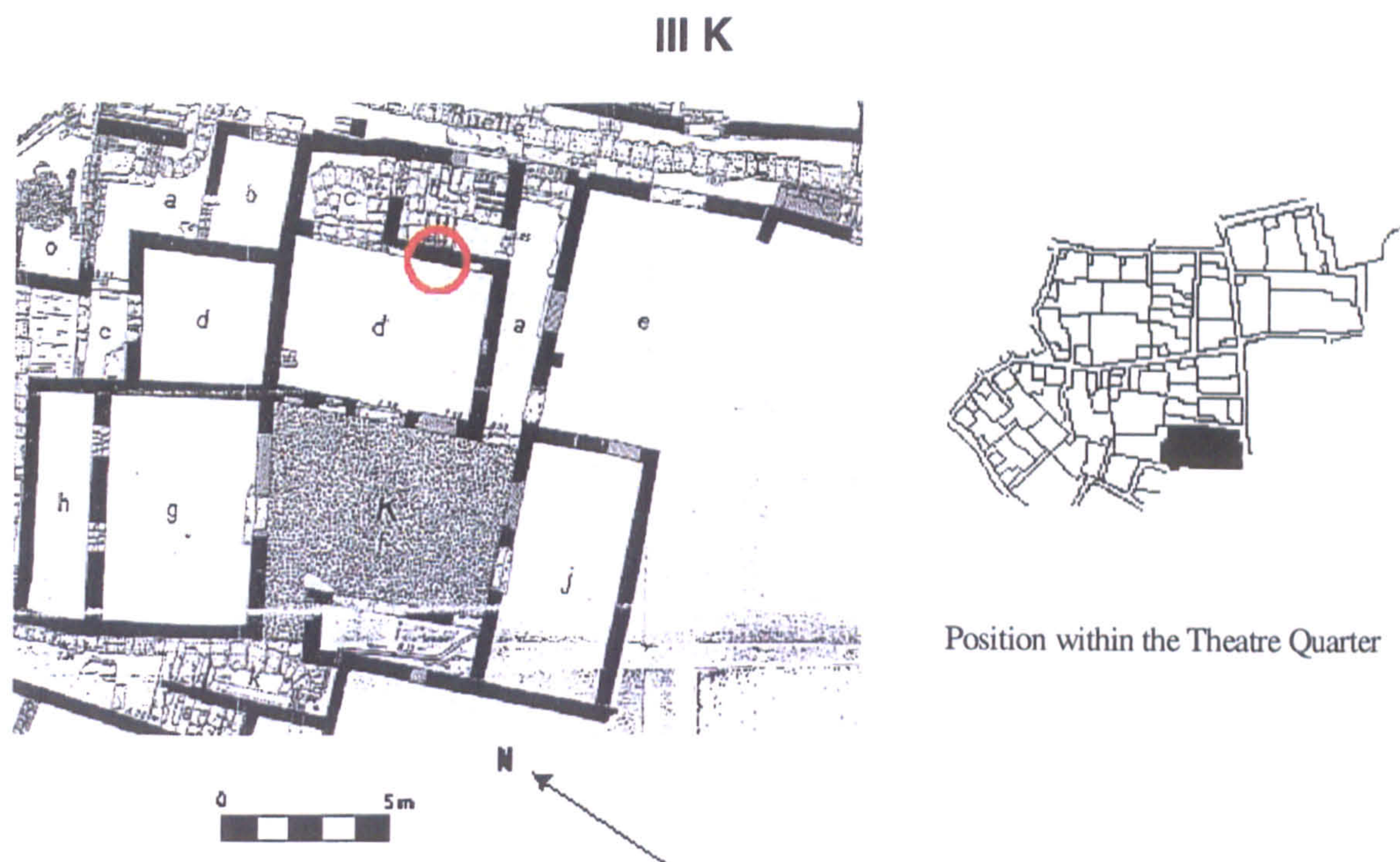
**Plan amendments**

- The corner feature in c is a rock platform standing 0.32m above ground floor level, plastered on the side facing the courtyard, e
- There is evidence for doorway placement in the wall foundations of g and h
- There is no evidence of the ancient wall in i
- A channel runs across k, c0.30m deep

**Notes**

- e (Chamonard 1922: 160) 3.60m column height





**Plan amendment**

Blocked doorway between the stairwell, b, and room d

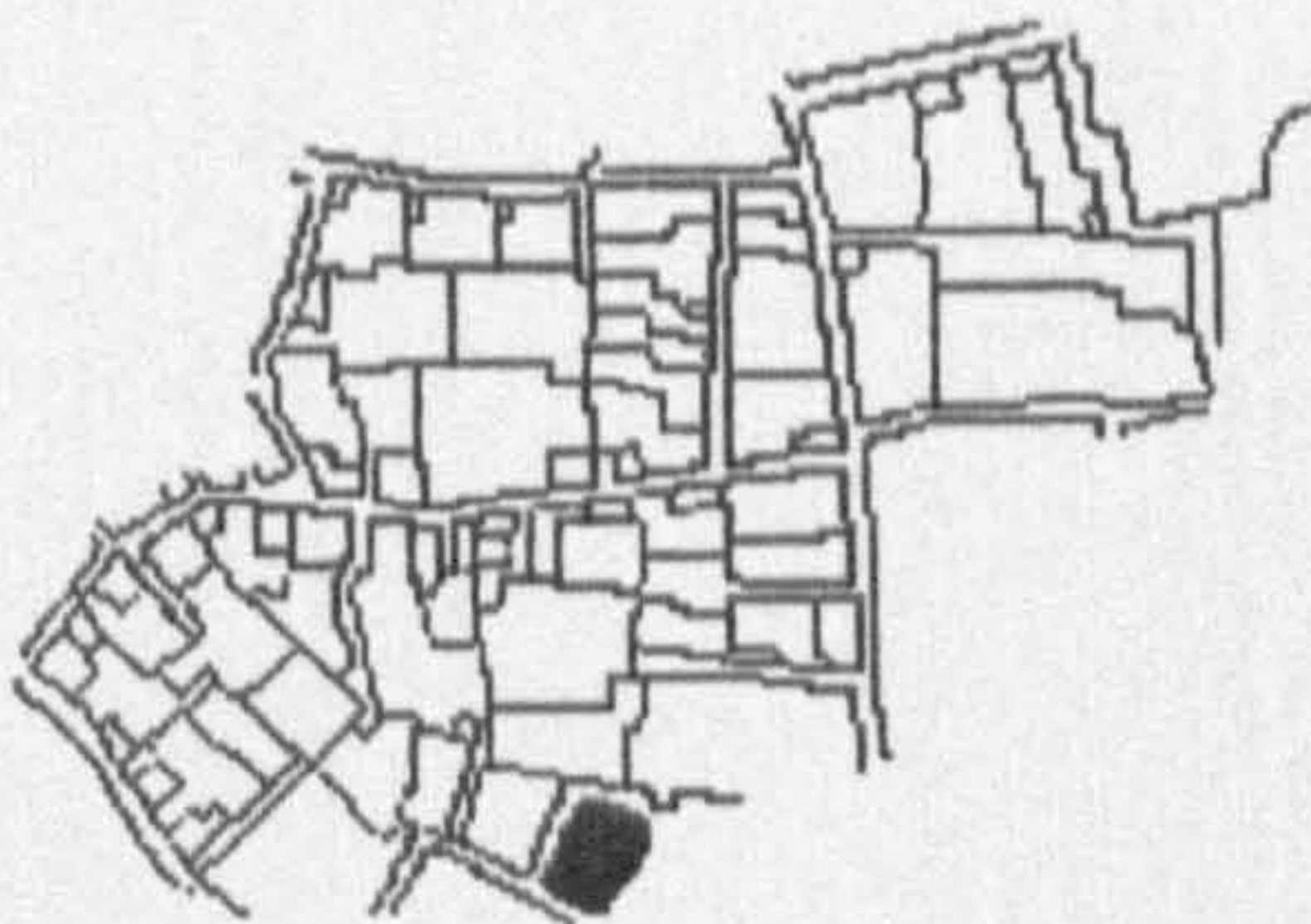
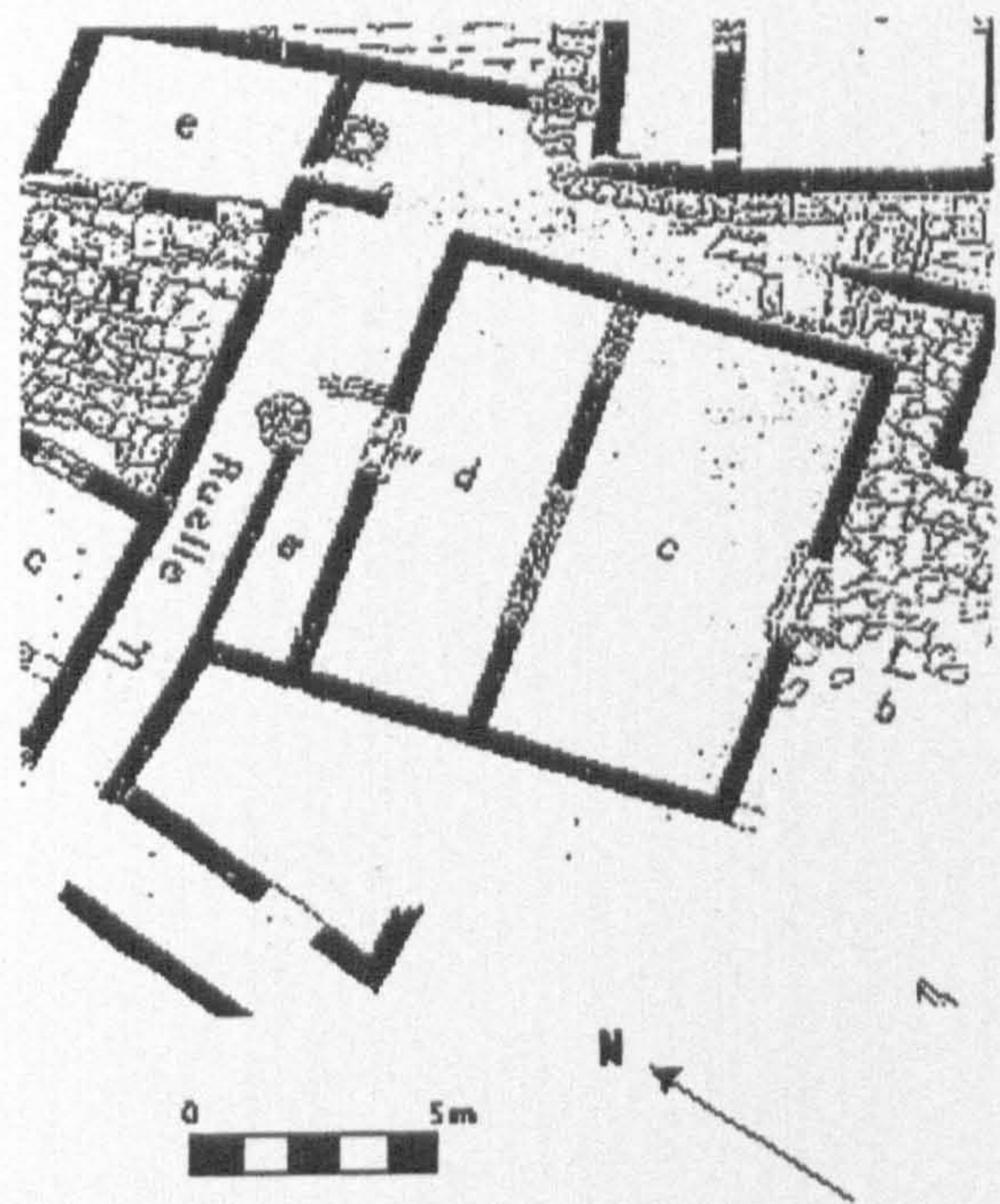
**Note**

- b red and white plaster; stairs – most ingenious found in Delian housing (Chamonard 1922: 42)
- d window /f 1.15; white coarse plaster; blocked doors to stairs plastered over; niche /c 1.29 (nearest c) and 1.82; /a 1.88
- f white plaster, marble chip floor; windows /j 1.41, /d 1.17, /g 1.80
- g window 1.10m
- h well in wall, opening c1.50m
- i white plaster; niche 1.59m
- j white plaster; window 1.50m
- k white coarse plaster

**Exterior:** drainage (to L of entrance) plastered over  
double entrances, a and k



III L

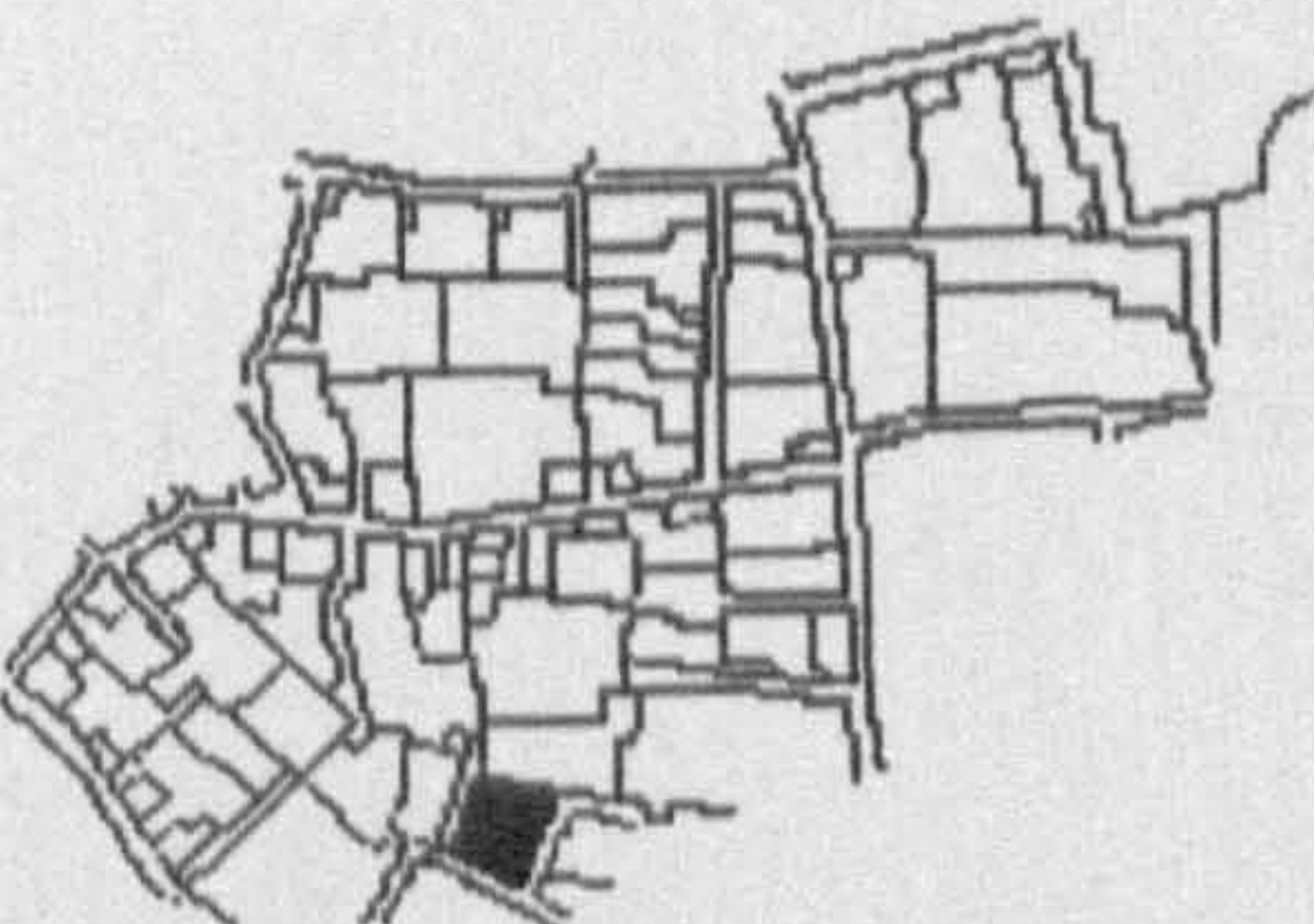
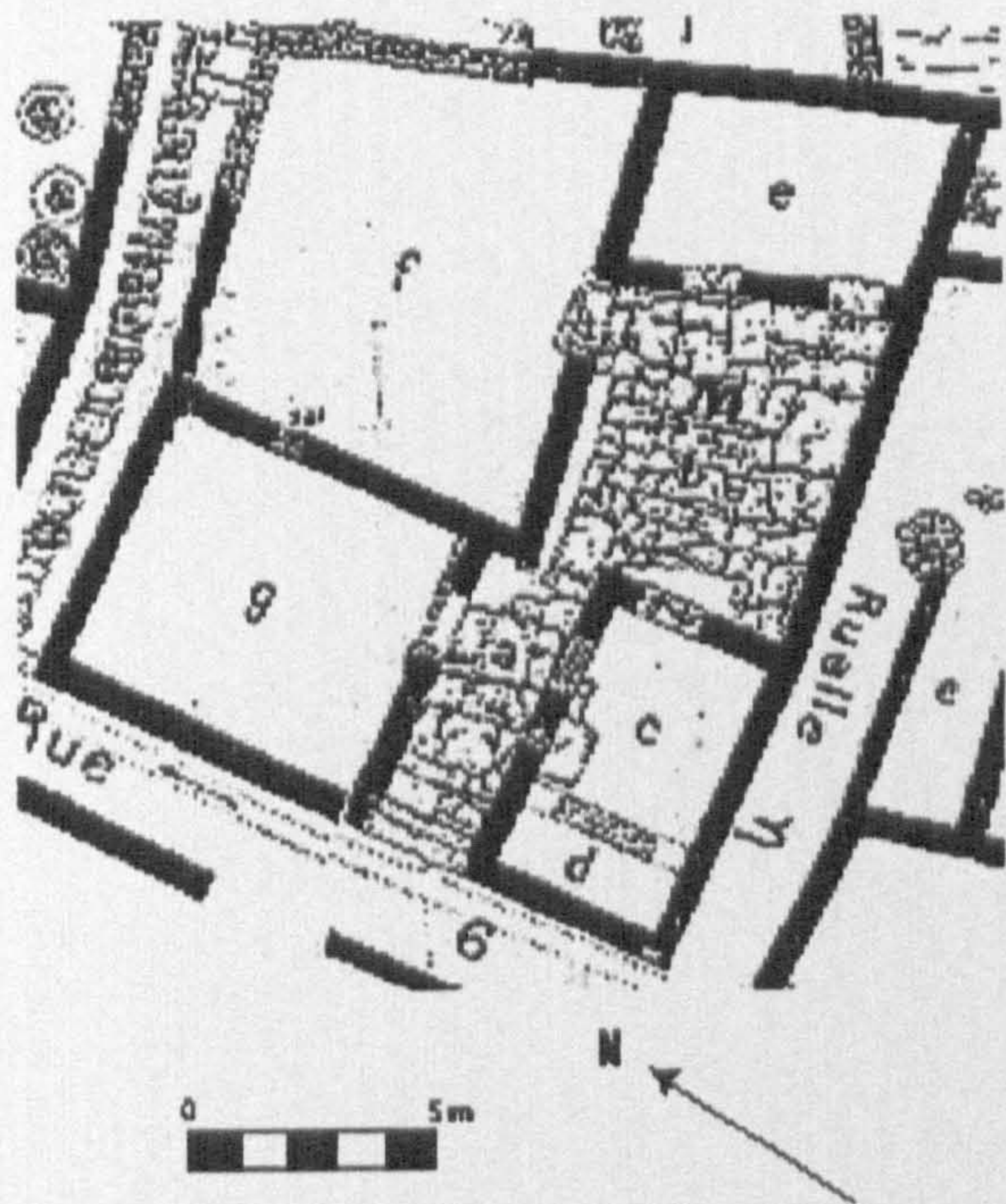


Position within the Theatre Quarter

Notes

- a sill
- c white plaster
- f panel decoration (Chamonard 1924: 365)

III M



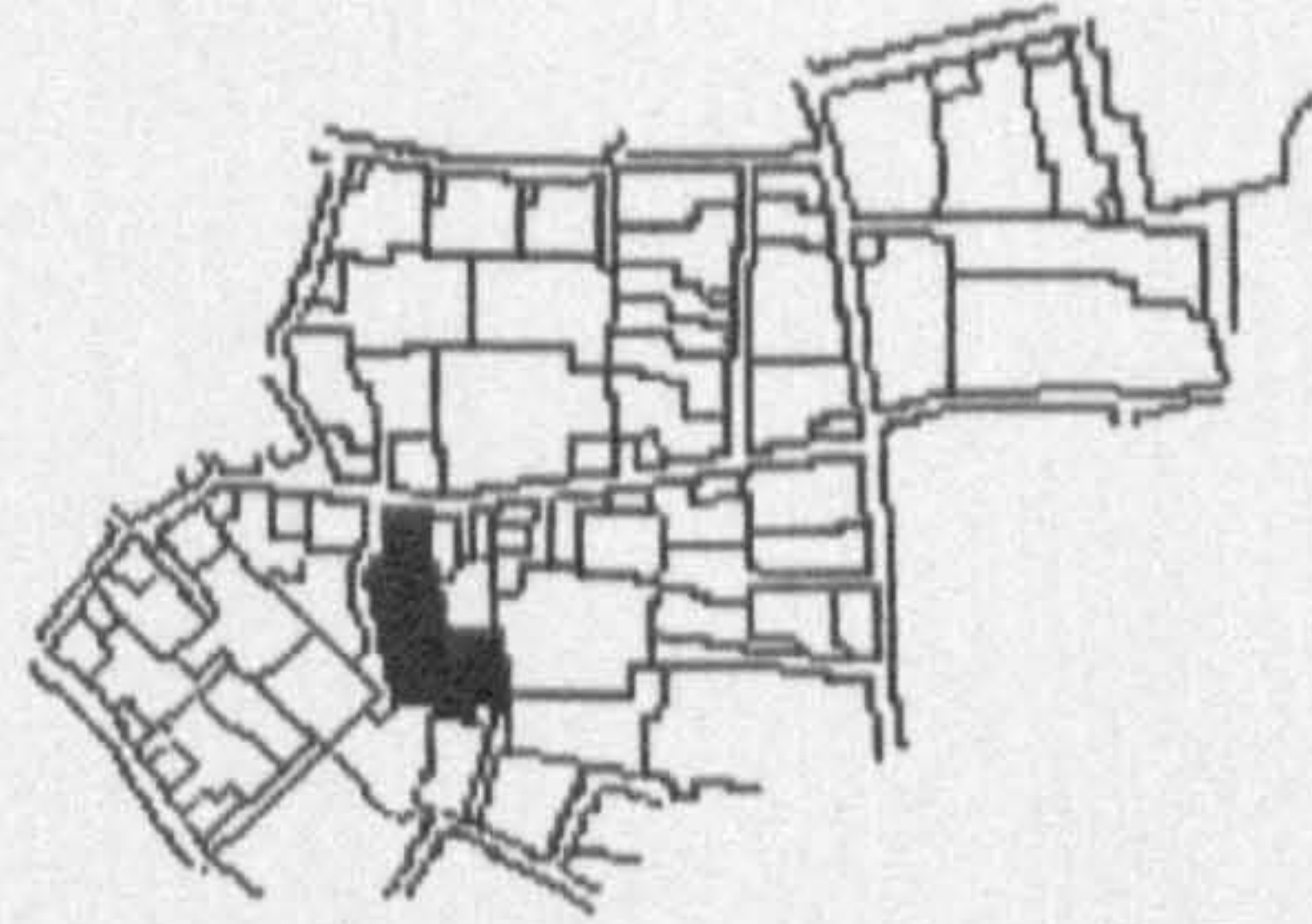
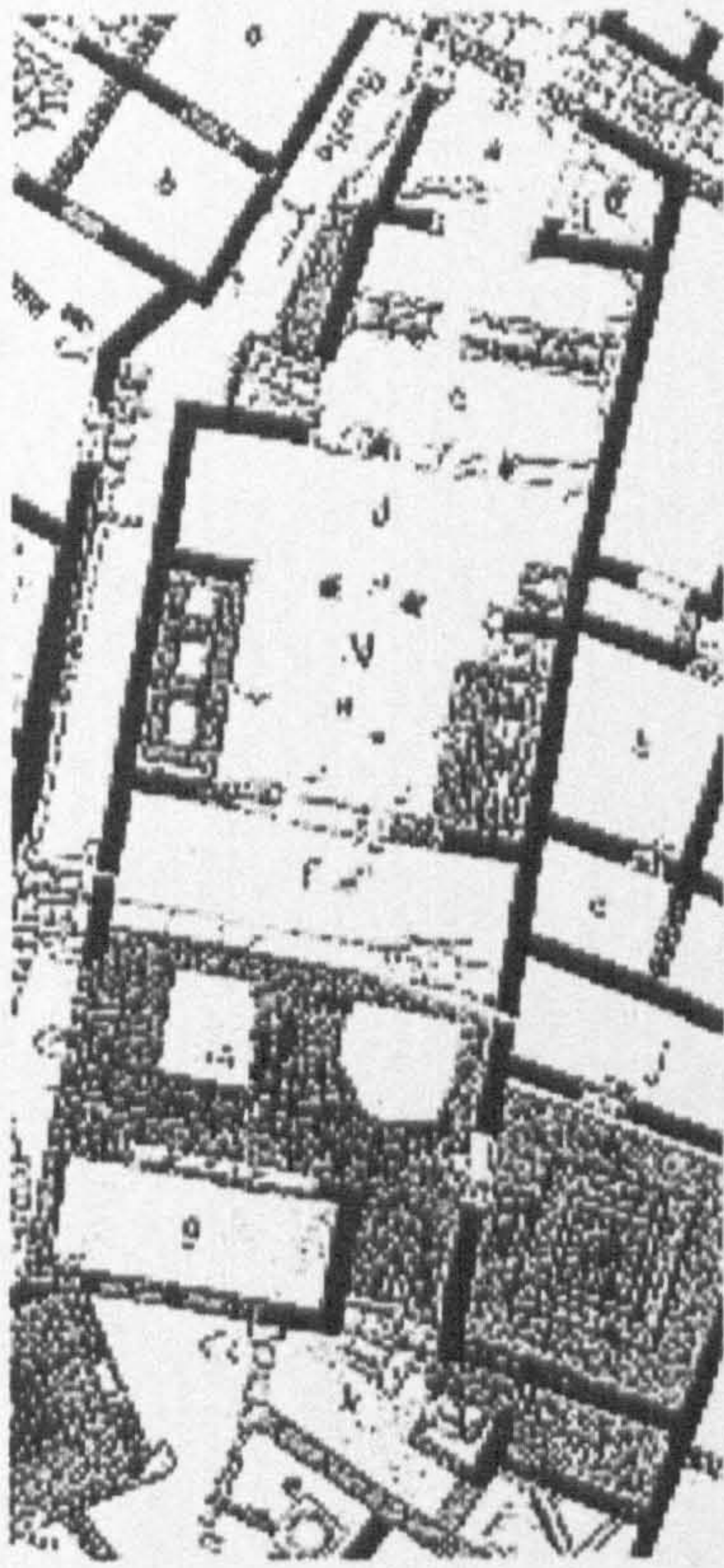
Position within the Theatre Quarter

Notes

- Access between c and d is totally blocked
- f – fragments of a stucco mural with high red border found from first floor (Chamonard 1922: 43)



### III N



Position within the Theatre Quarter

#### Notes

The only house in which several rooms have to be crossed in order to reach the courtyard (Chamonard 1922: 45)

alley gamma/d closes on alley side

c canal, 0.9m deep x 0.85m wide, closed at both ends (Chamonard 1922: 43); 4 large paves in situ across the canal suggesting it was covered or part-covered

d press feature

e tanks/cisterns of rubble with thick hydraulic coatings; N side all 1.4m deep, to S, 0.8-1.15m. S side tanks with small shelves (also coated), perhaps used as seats??

cistern cover – marble chips in red plaster

i emblema, as Trident House – dolphin wrapped around an anchor; centre – rosaceous plant

m perhaps a bathroom? (Chamonard 1922: 45)

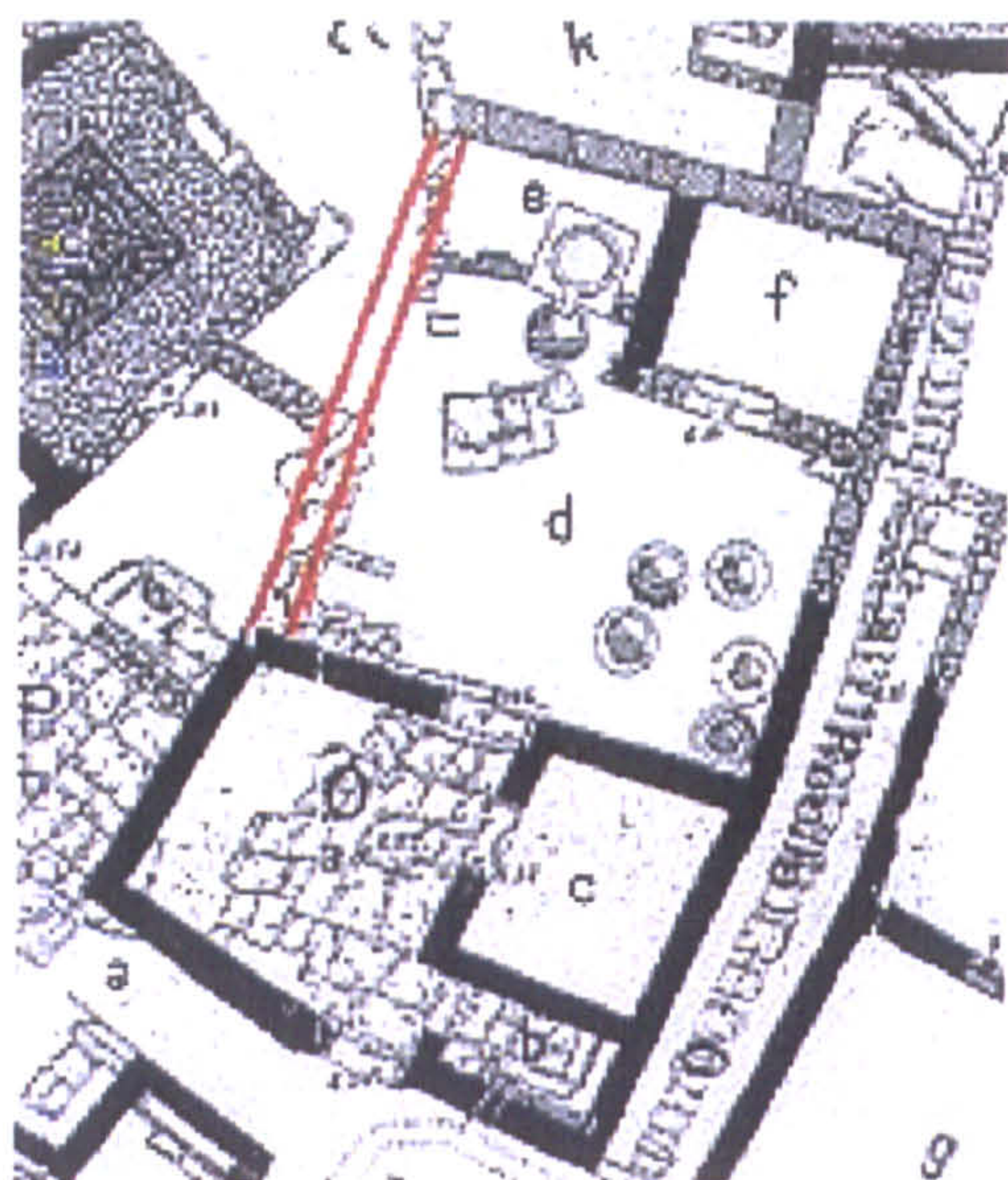
entrance via earlier-open doorway in k wall to alley theta → more usual plan with latrines to one side of the vestibule, leading through to a courtyard area from which the other ground floor room slead. Ancient shop with back room a-c? c tank remnants of the merchants living/working there? tanks contain traces of dyes suggesting tanning works; linking rooms a-e would then provide the space for drying cloth, canal in c linked to washing process

d and e finds: large rectangular marble basin décor'd with mouldings on base, large round table, frags of columns/caps, small marble Dionysus figure

a-c shop and back room – phasing (Chamonard 1922: 45); 161 3.70m total column height



III O



Position within the Theatre Quarter

Notes

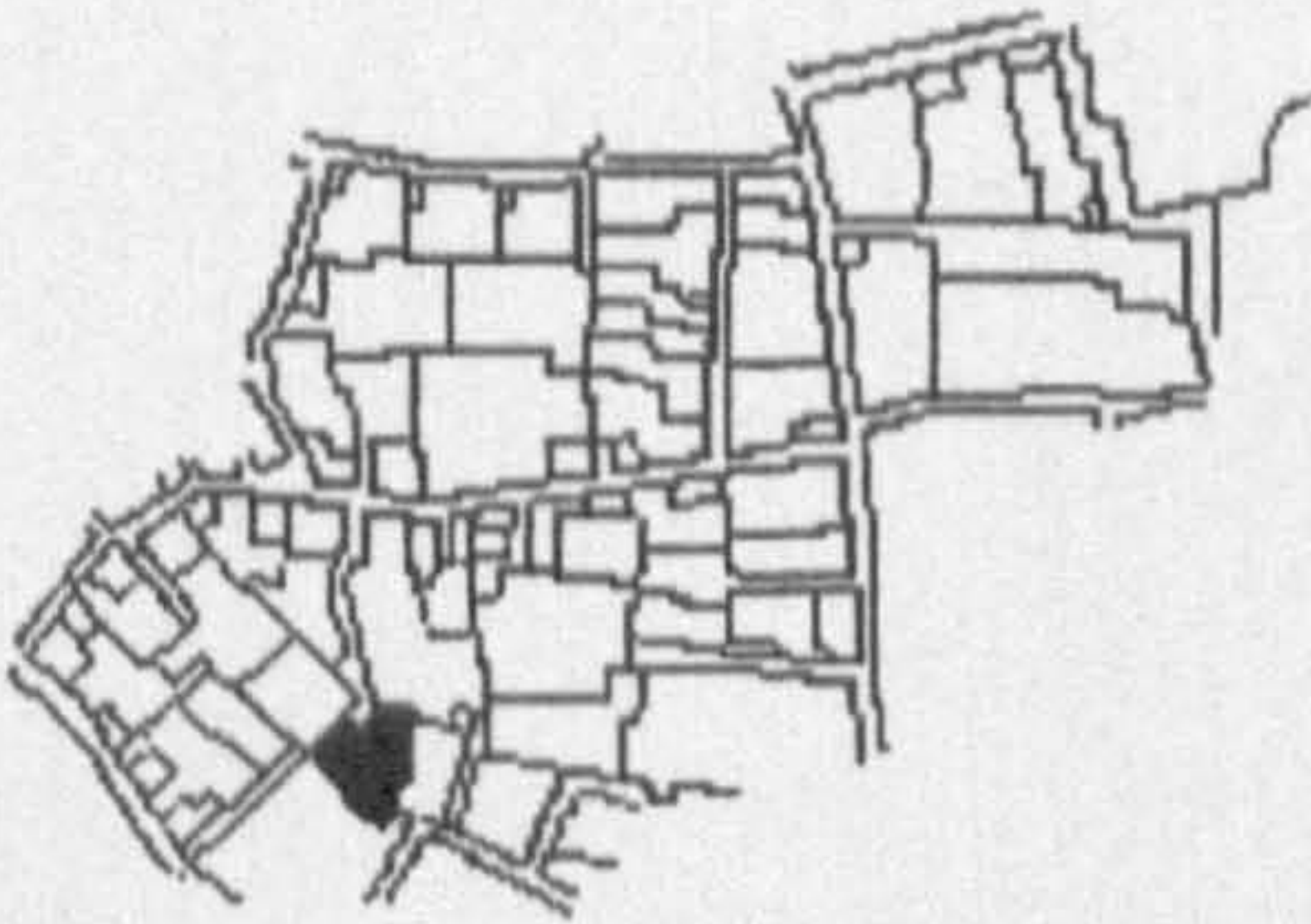
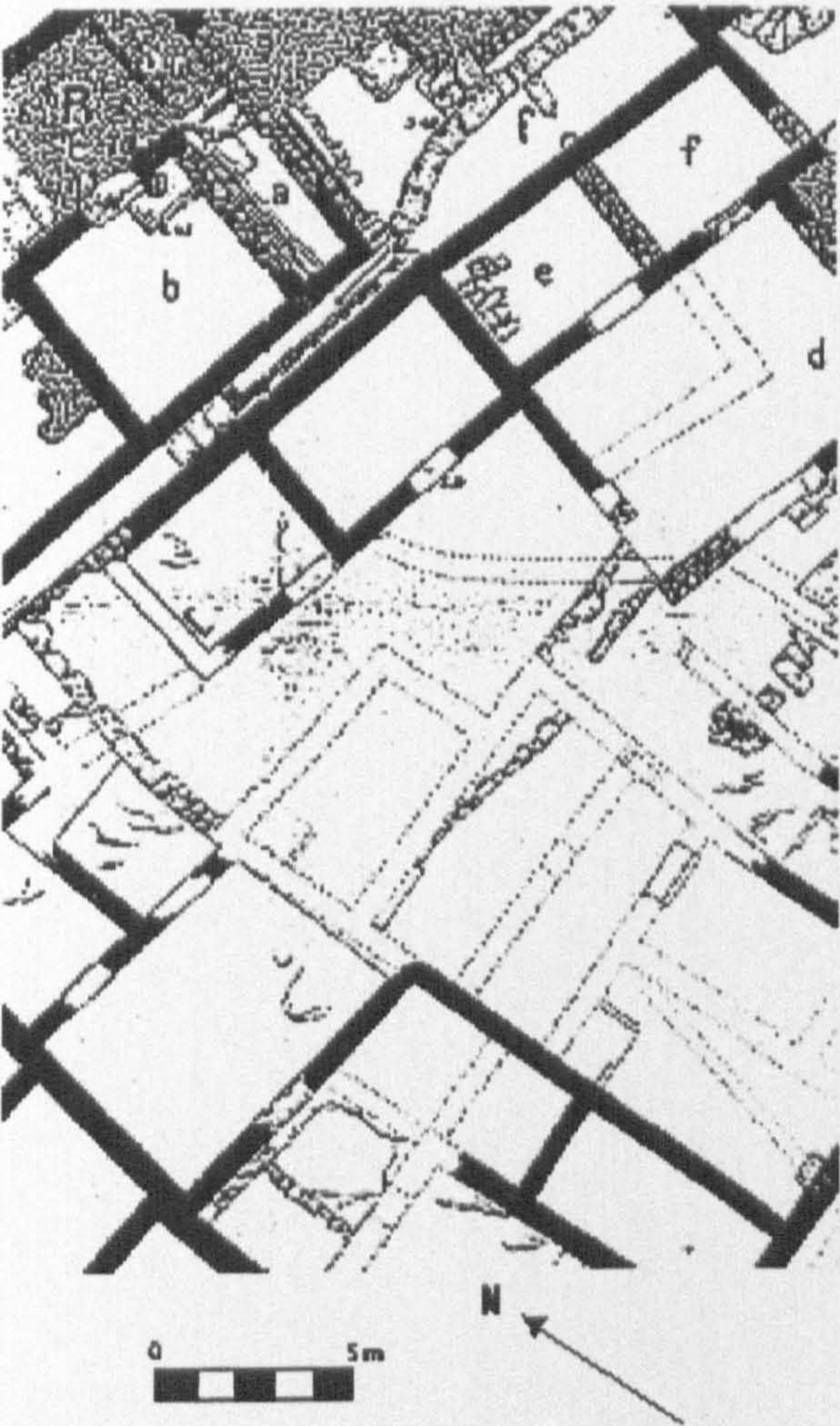
whitewash applied directly to the walls (Chamonard 1924: 359)

d belly amphora 1m in diameter

e pressing platform, storage jars and press weights



III P



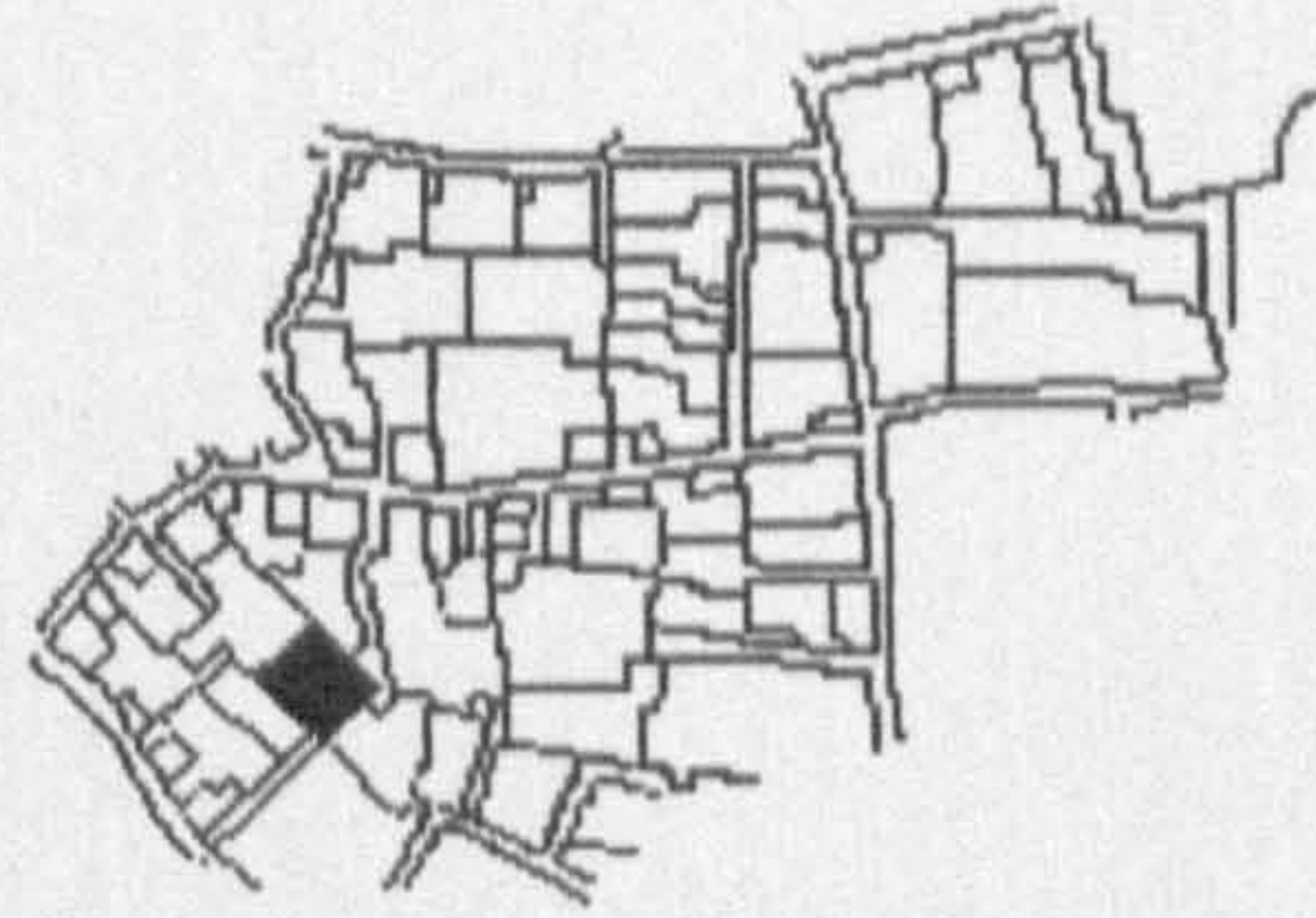
Position within the Theatre Quarter

Notes

Poorly preserved and not easy to interpret plan; entrance at side of O  
*opus tessellatum* central mosaic in c



### III Q



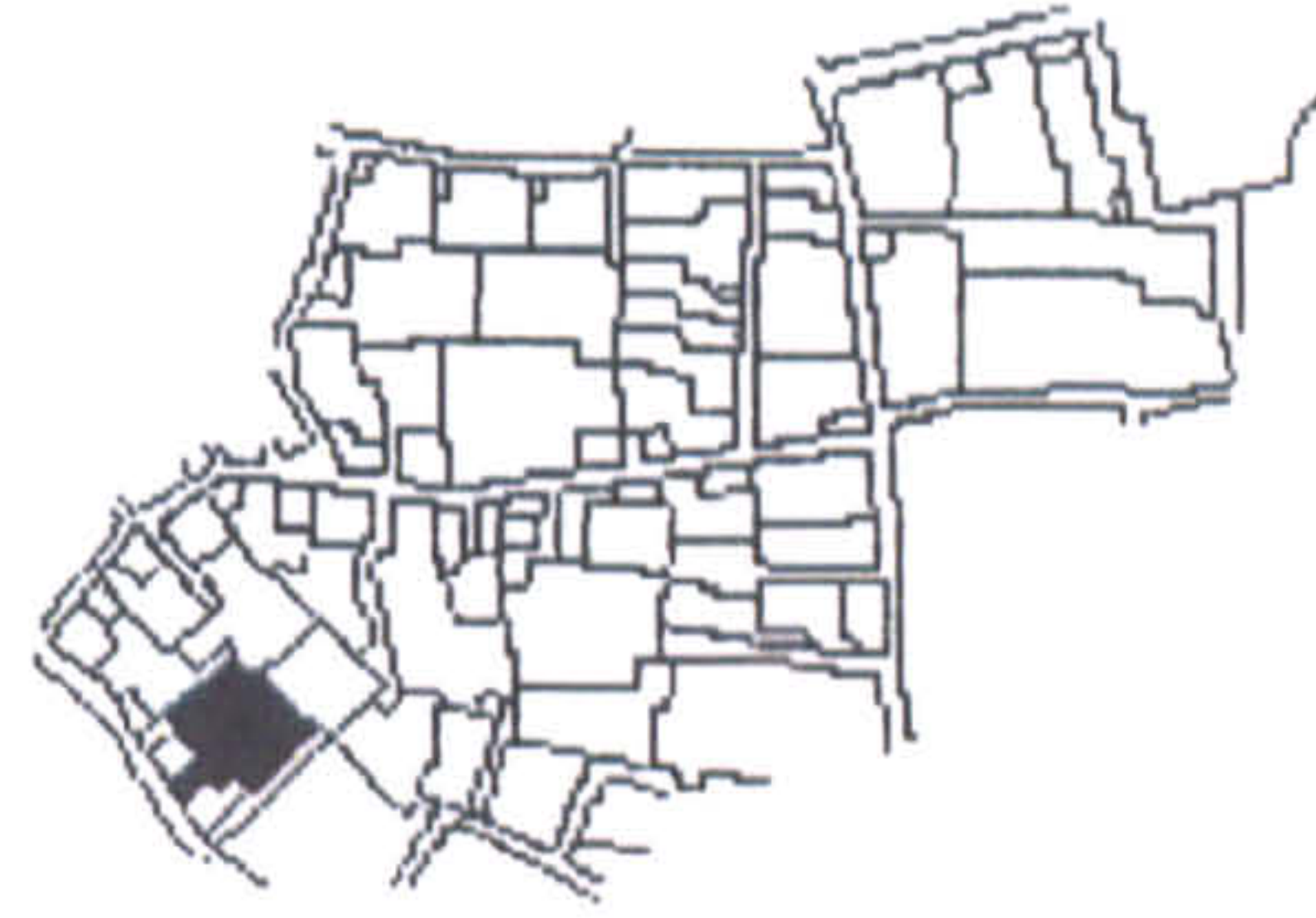
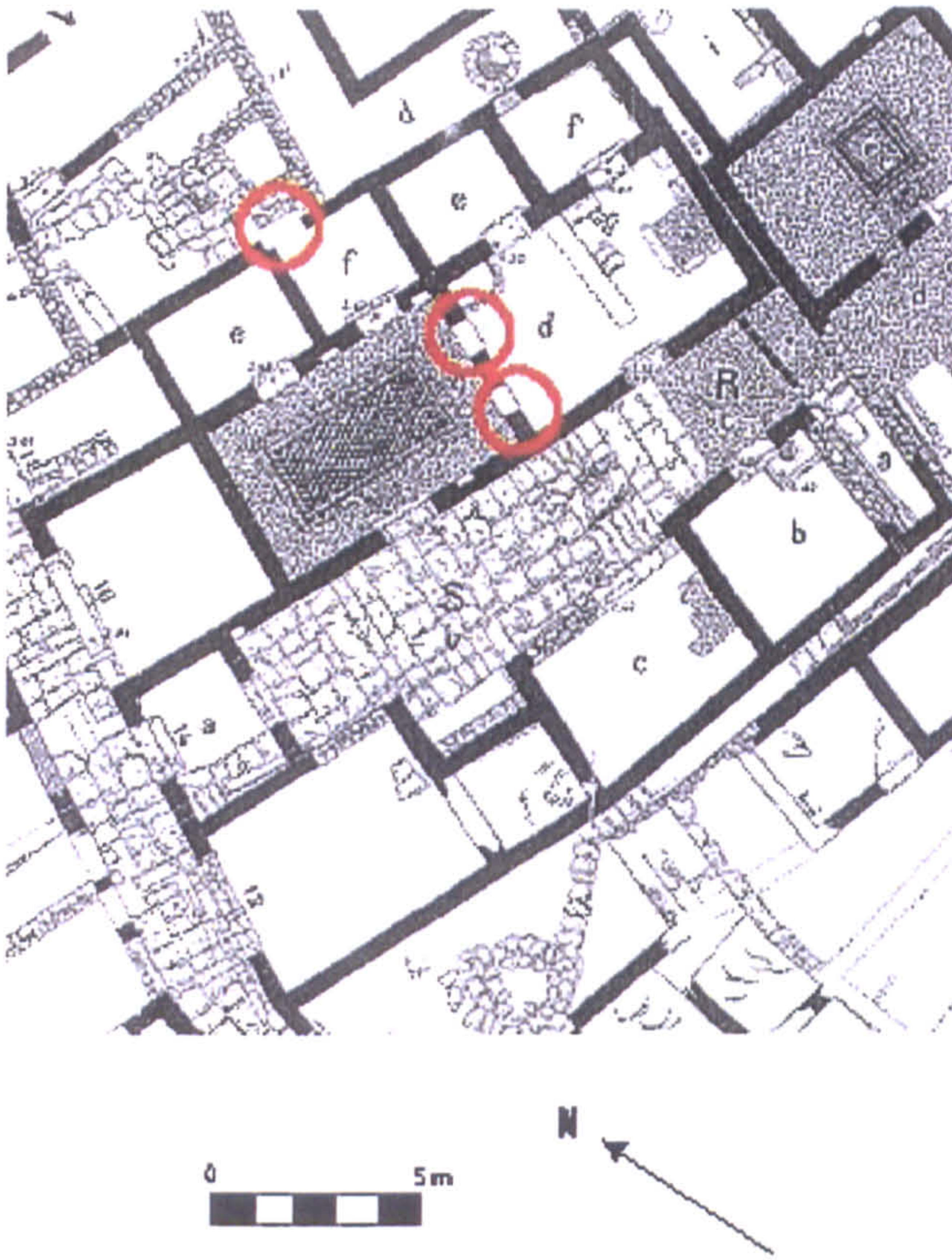
Position within the Theatre Quarter

#### Notes

- c marble chip and concrete flooring; small marble (stucco covered) altar against door 47
- e *o seg.* paving, box and posts central feature (Chamonard 1922: 47); threshold mosaic in rosette and leaf design, alternate red and yellow colouring (Chamonard 1922: 48)
- f drainage to alley; no sign of sill or closure



### III RS



Position within the Theatre Quarter

#### Plan amendments

Sf not open to Vc

No evidence of windows between Sd and Rd (Chamonard 1922: 48) suggests Tf-h was a small residence prior to Q?

#### Notes

Rc white plaster; poros placed on top of marble chip flooring

Rf blocked door seems to have originally been opened, sealed and then the door space opened further up the wall

contains two cisterns (courtyard and d) and a well, b; courtyard cistern one of only 3 on Delos with stone girder supports

Sa painted plaster with red frieze; entrance transformed from Rd5 14 shop

Sb white coarse plaster with large crocks; at back of courtyard atop a large rubble mound acting as a base – sculpted group of Artemis and a hind

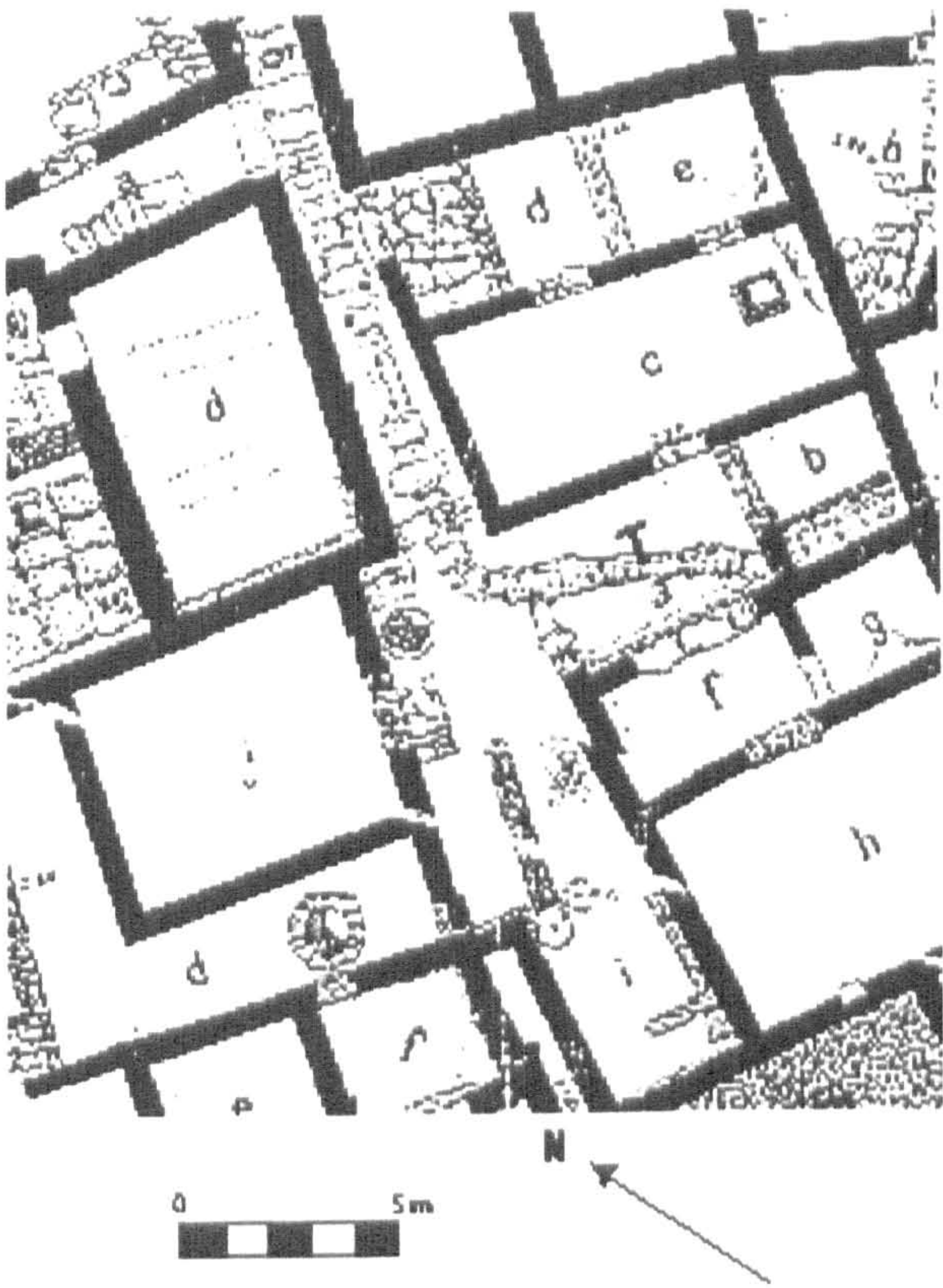
Sd panel décor (Chamonard 1924: 365); /Rd niches 1.45 and 1.52m; relief cube mosaic in *o. tess.*; threshold mosaic of anchor

Se mixed décor (Chamonard 1924: 359); white plaster on red coarse

Sf coarse plaster, 0.98 door/wall height to V



III T



Position within the Theatre Quarter

Notes

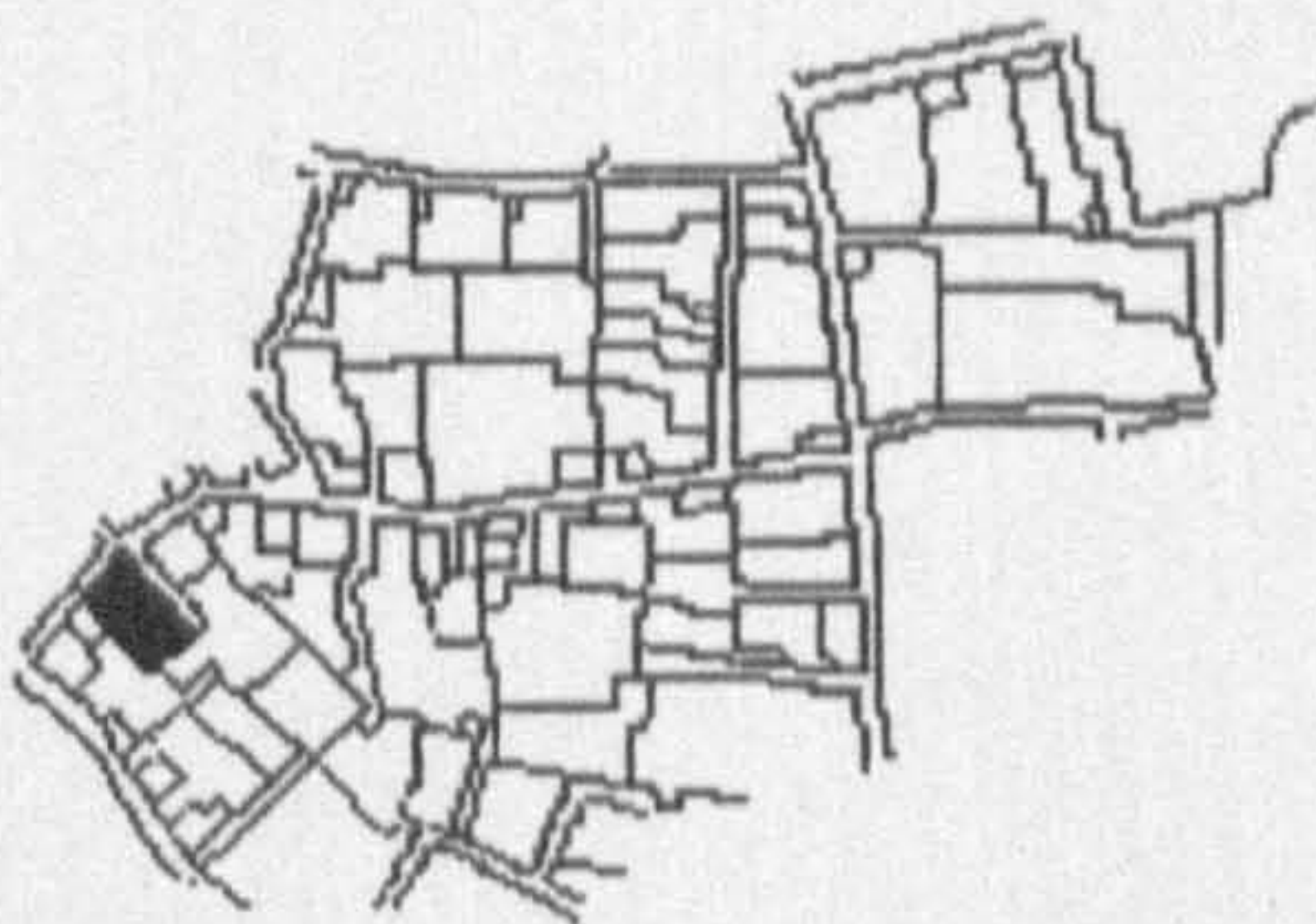
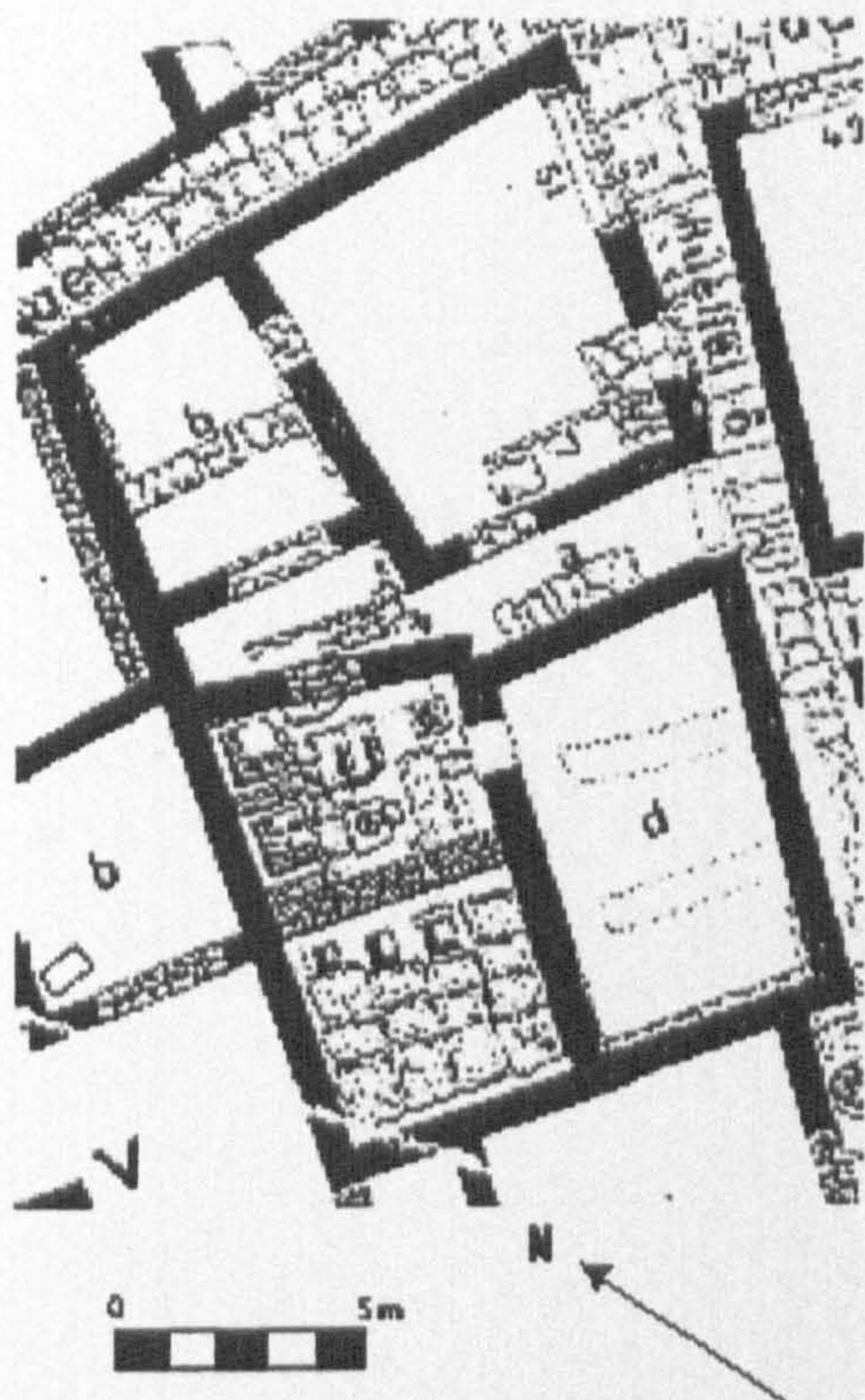
e/47 wall 4 niches/supports c2.50m, equally spaced

Unusual position of rooms f-h; two smaller rooms found *in front* of the larger room behind; (Chamonard 1922: 48)

Largest marble press found on the island uncovered in the courtyard, i earlier a much larger house?



III U



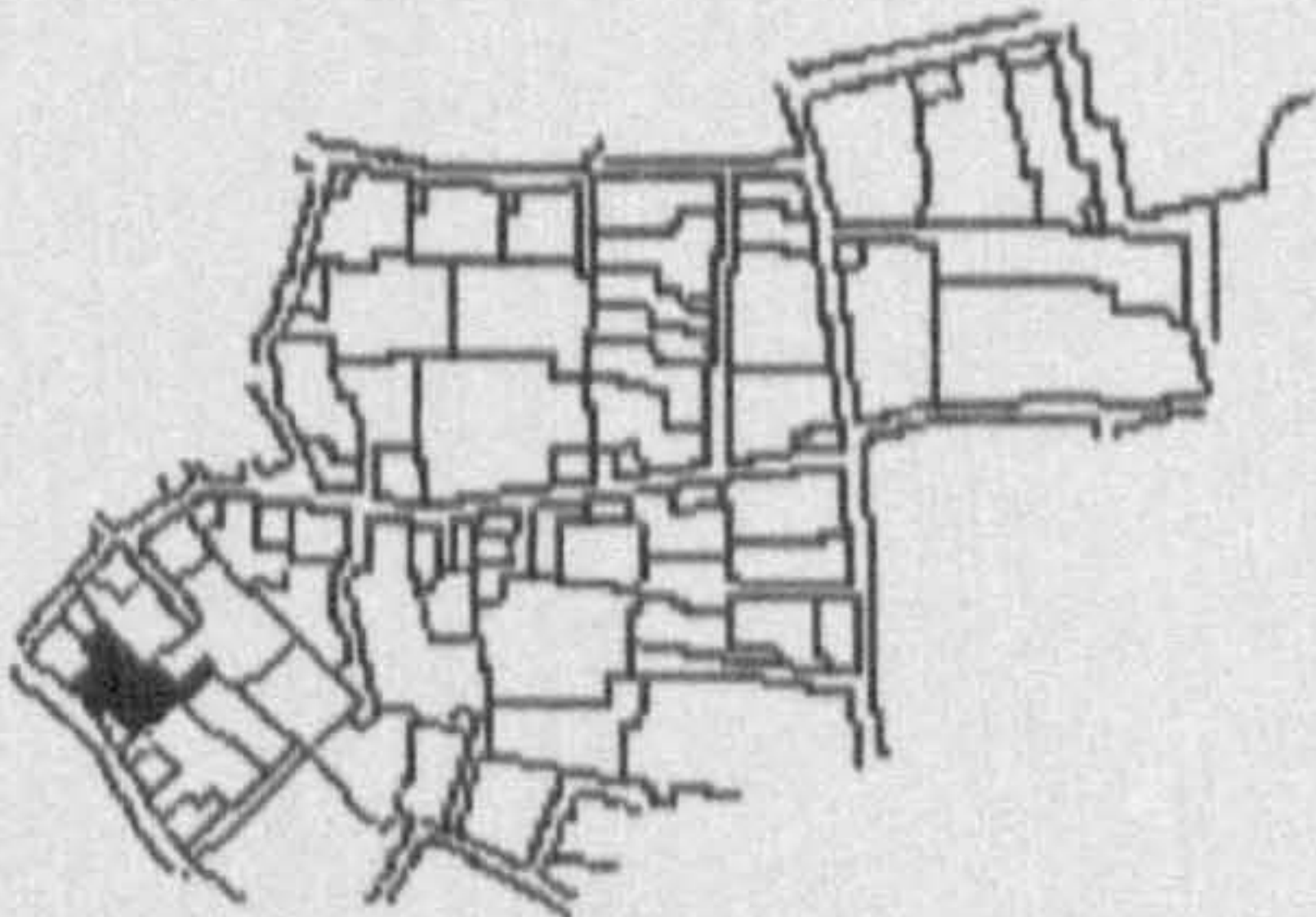
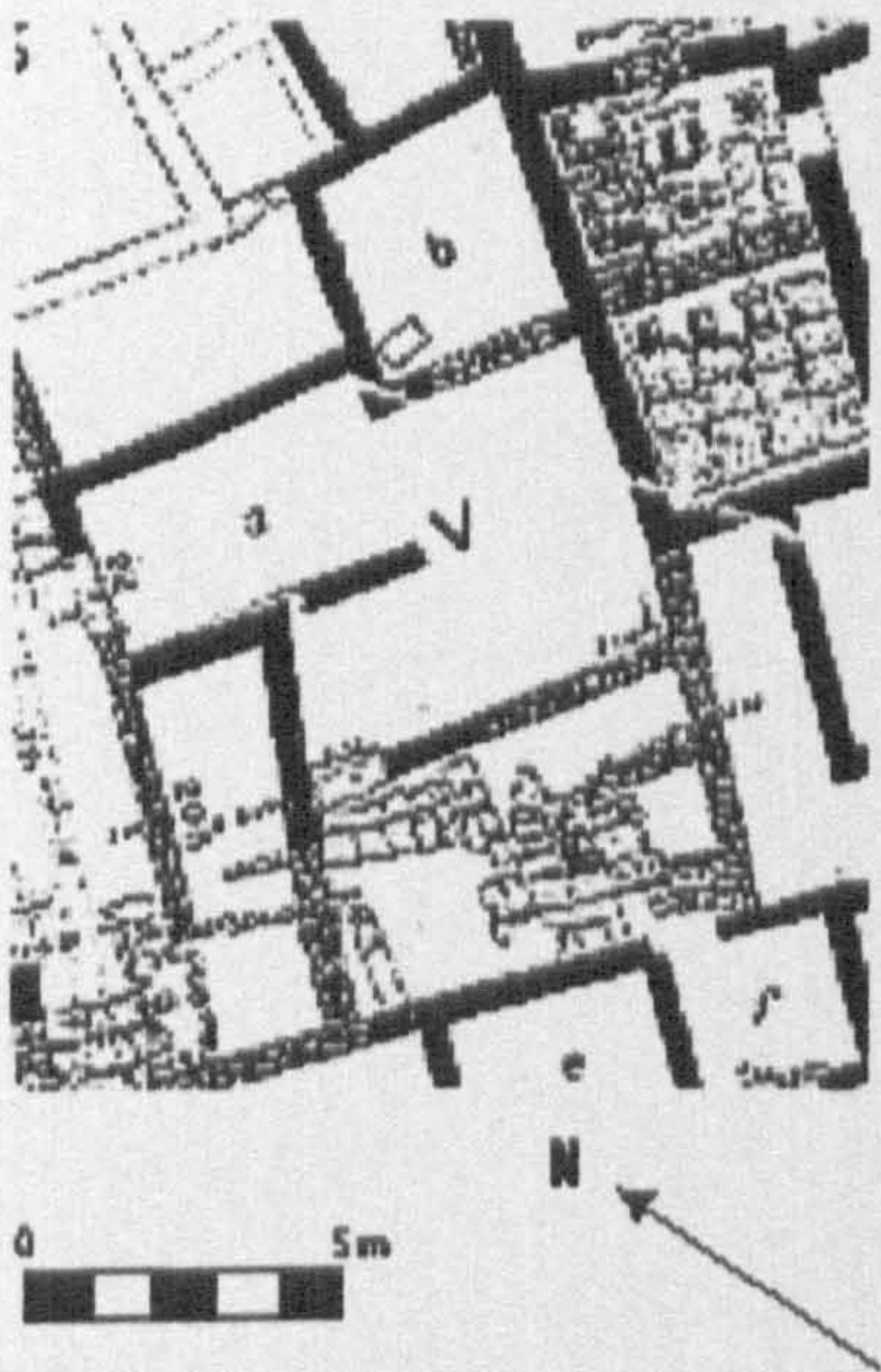
Position within the Theatre Quarter

Notes

- TR51 flagging the base for stair flights? c0.30m; white plaster on pink  
a trace of staircase at back of vestibule  
c two tanks similar to those found in III N found in angle of courtyard  
d (Chamonard 1922: 49) stairs at the back of the room

**Unique feature:** 2 independent cisterns in the courtyard alongside each other (Chamonard 1922: 49)

III V



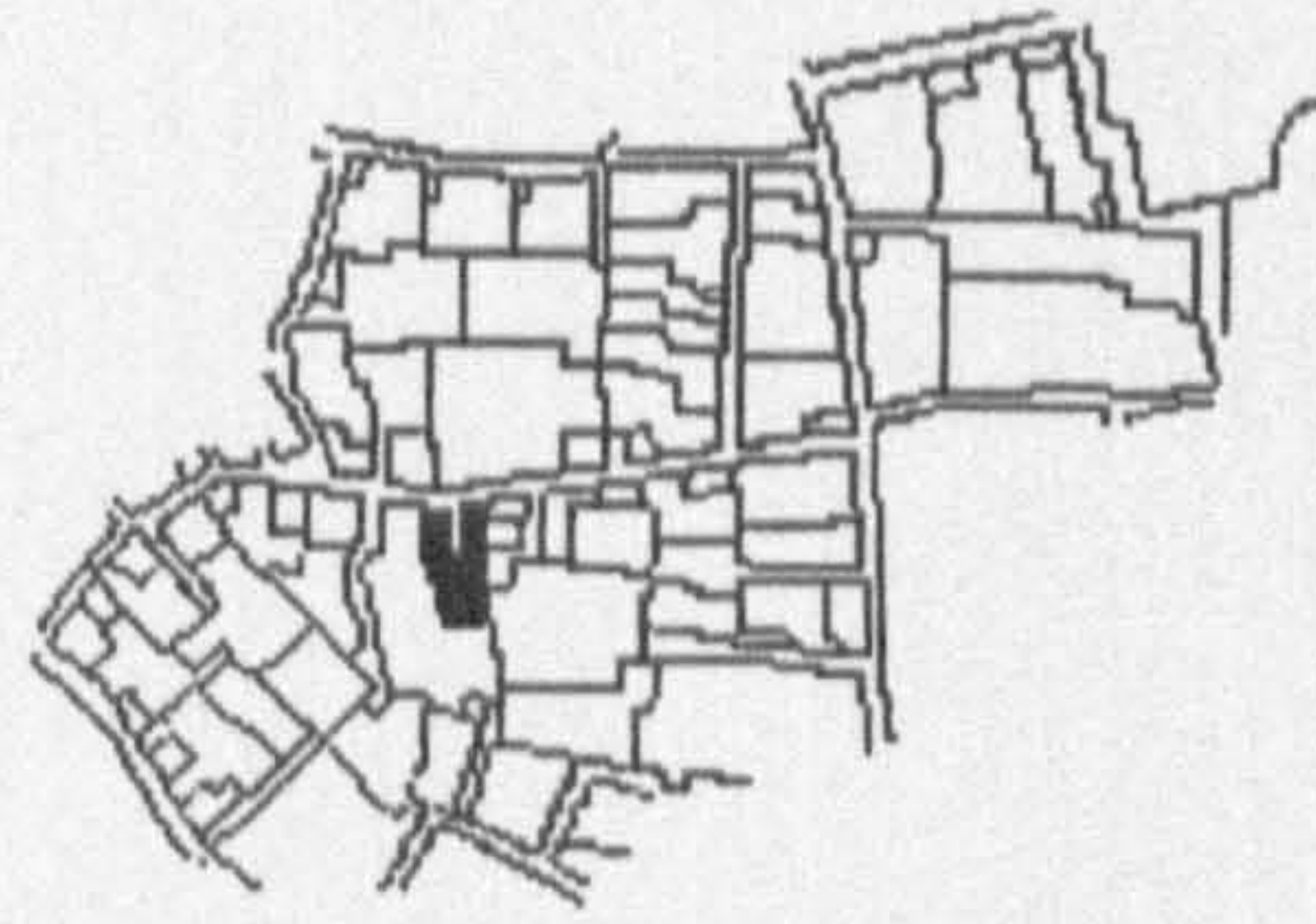
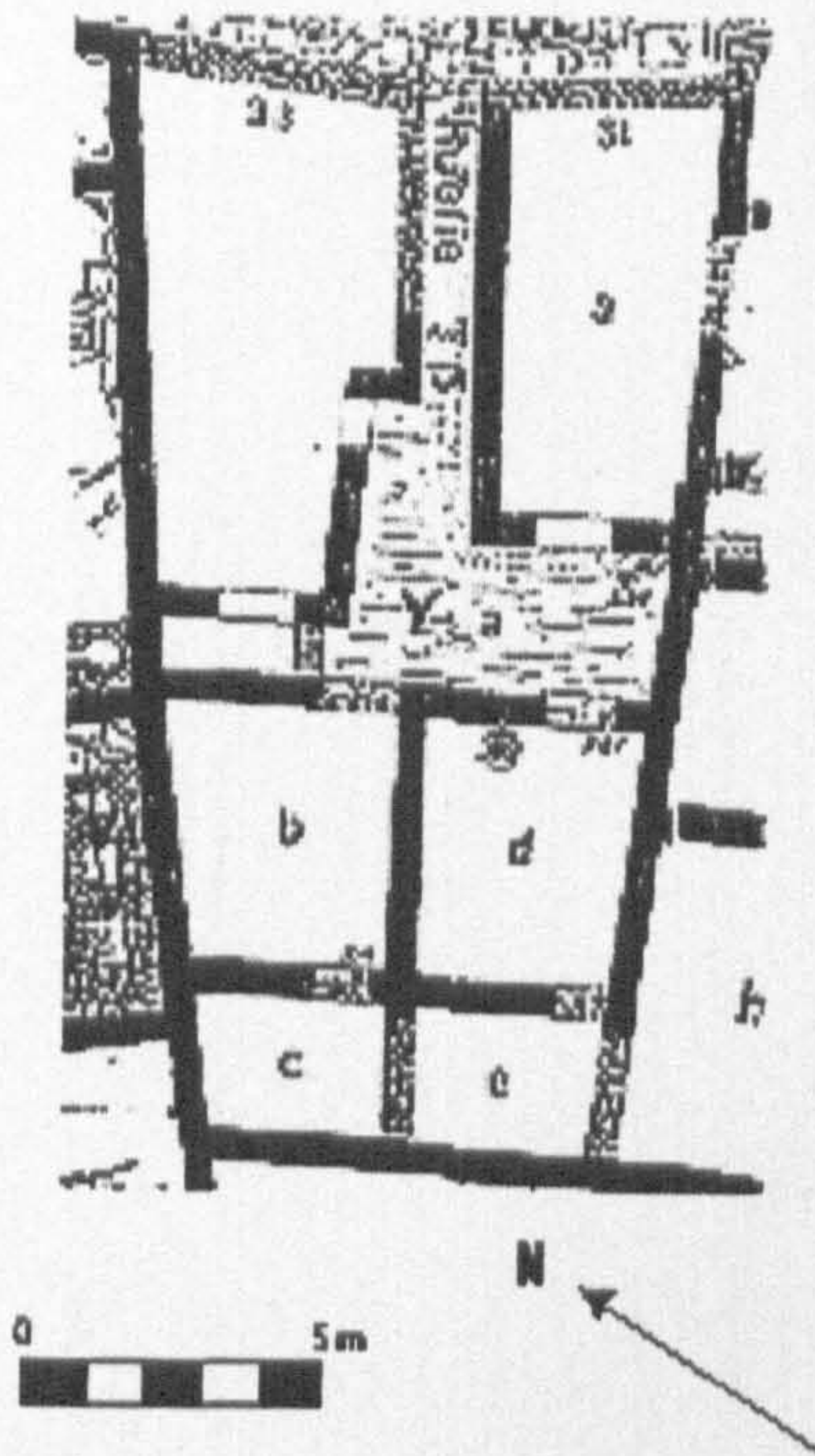
Position within the Theatre Quarter







### III Y



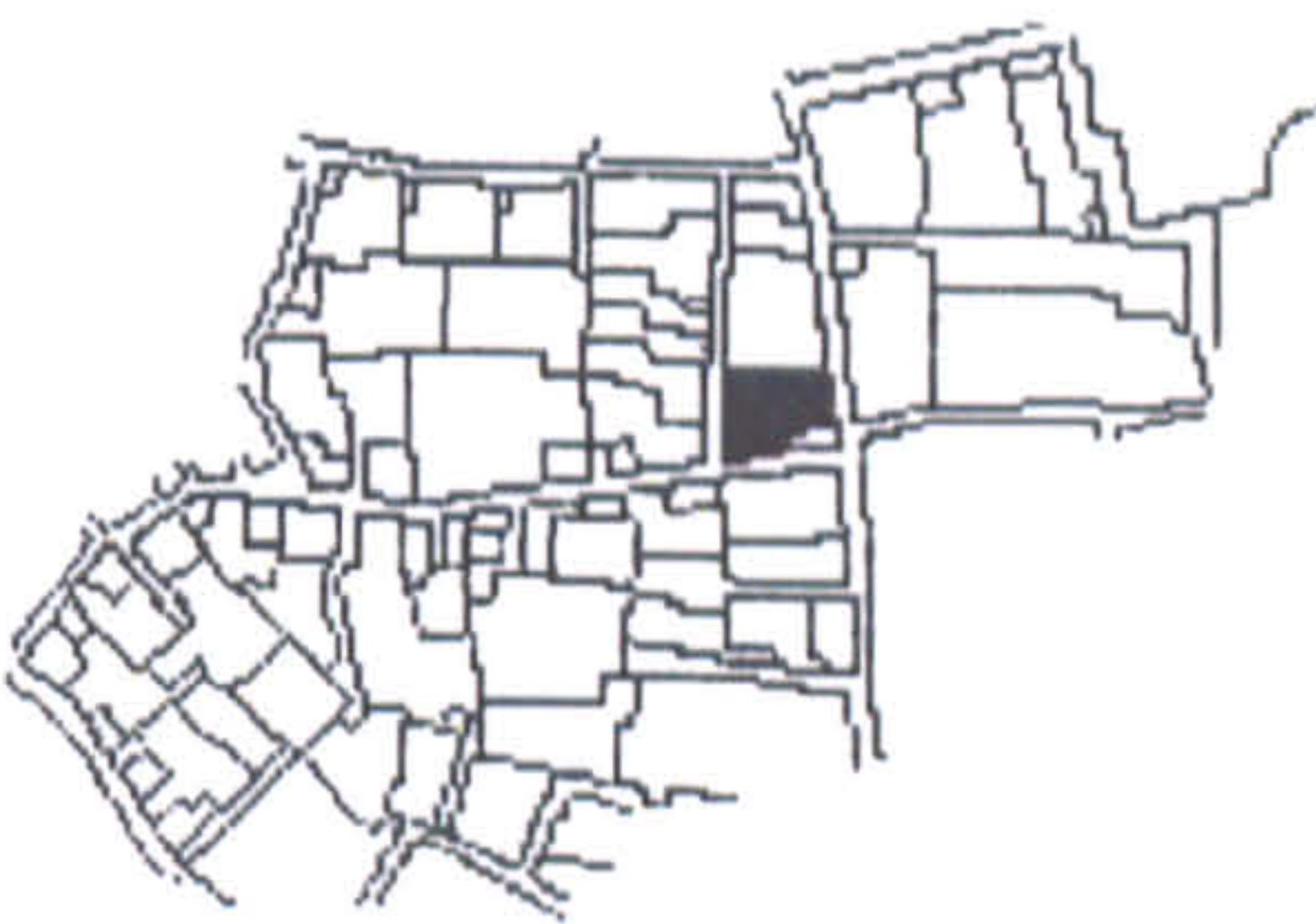
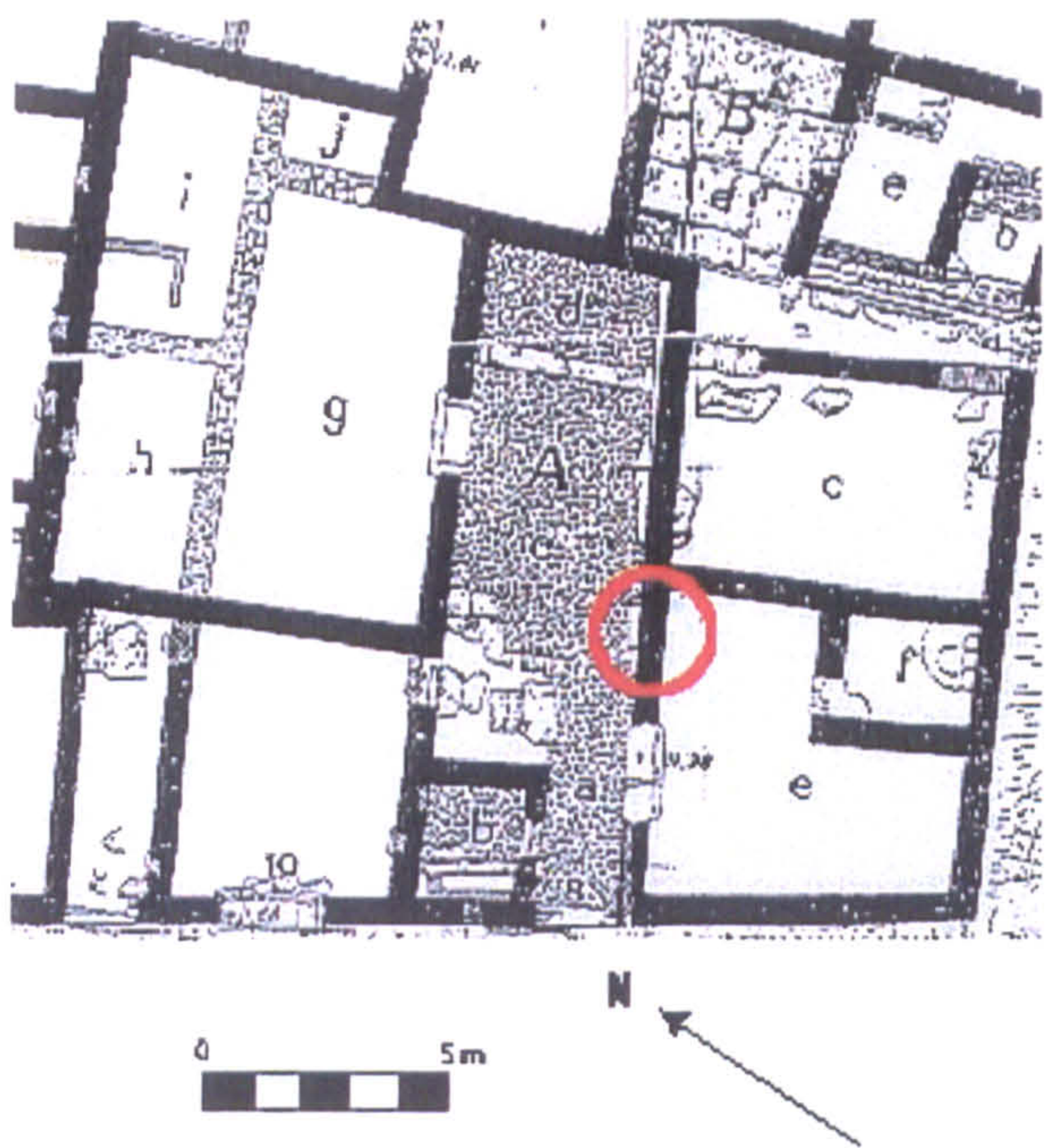
Position within the Theatre Quarter

#### Notes

(Chamonard 1922: 50) reasonable to consider plot as two houses, b-c and d-e, sharing a single courtyard and dependent perhaps on shops TR 31 and 33 which also have doors leading onto the courtyard; humble abodes occupied by merchants or families too poor to own an entire house?



IV A



Position within the Theatre Quarter

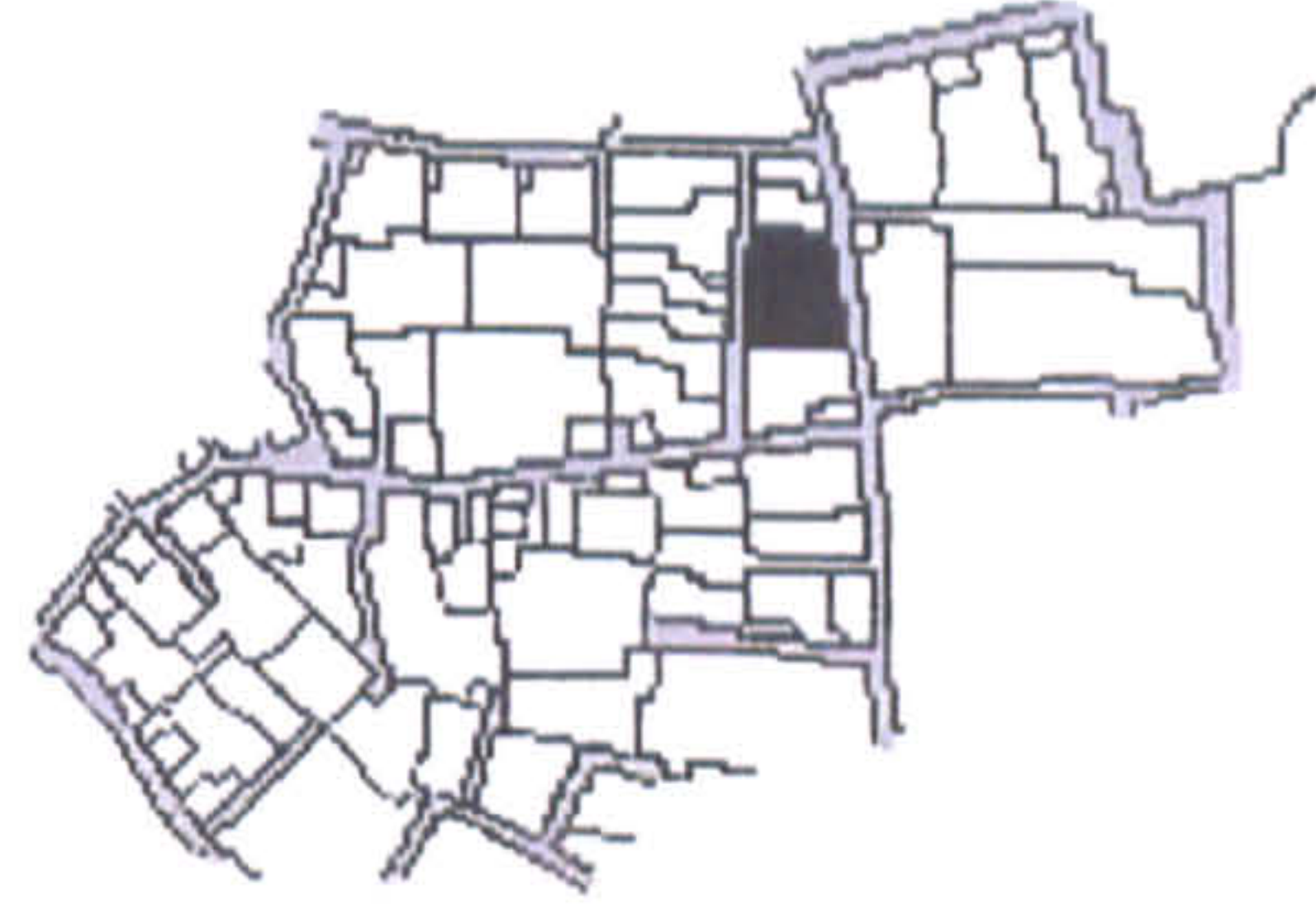
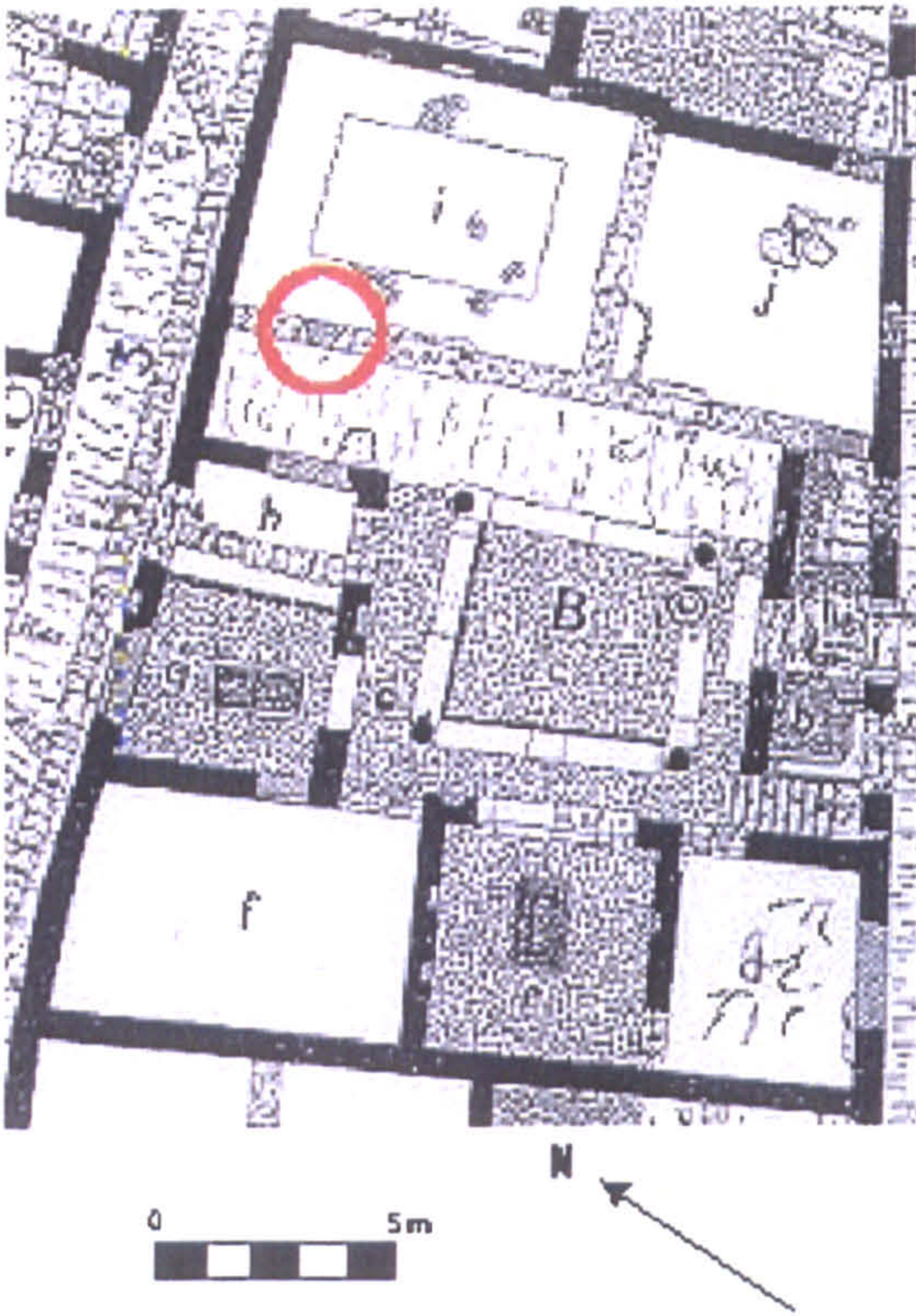
Notes

There is no evidence of the following blocked doorways: a/TR4, j/TR or TR4/TR  
The feature marked between a and f is a wall, not a window

- a-f wall blocked, not enough width for one person to pass through unless they're very thin and walking sideways
- c flooring not visible; (Chamonard 1922: 51) tile ~ kitchen
- f understairs?/ base of stairs
- g white plaster
- h, i white plaster over red
- earlier entrance perhaps on TR/j though indistinct and difficult to tell
- shop 4 originally part of the house



## IV B



Position within the Theatre Quarter

**Notes**

There is no evidence of a break in the wall between b and Rd 2

No visible remains survive of the arrow slit window between i and k (the wall survives to c1.55m in height)

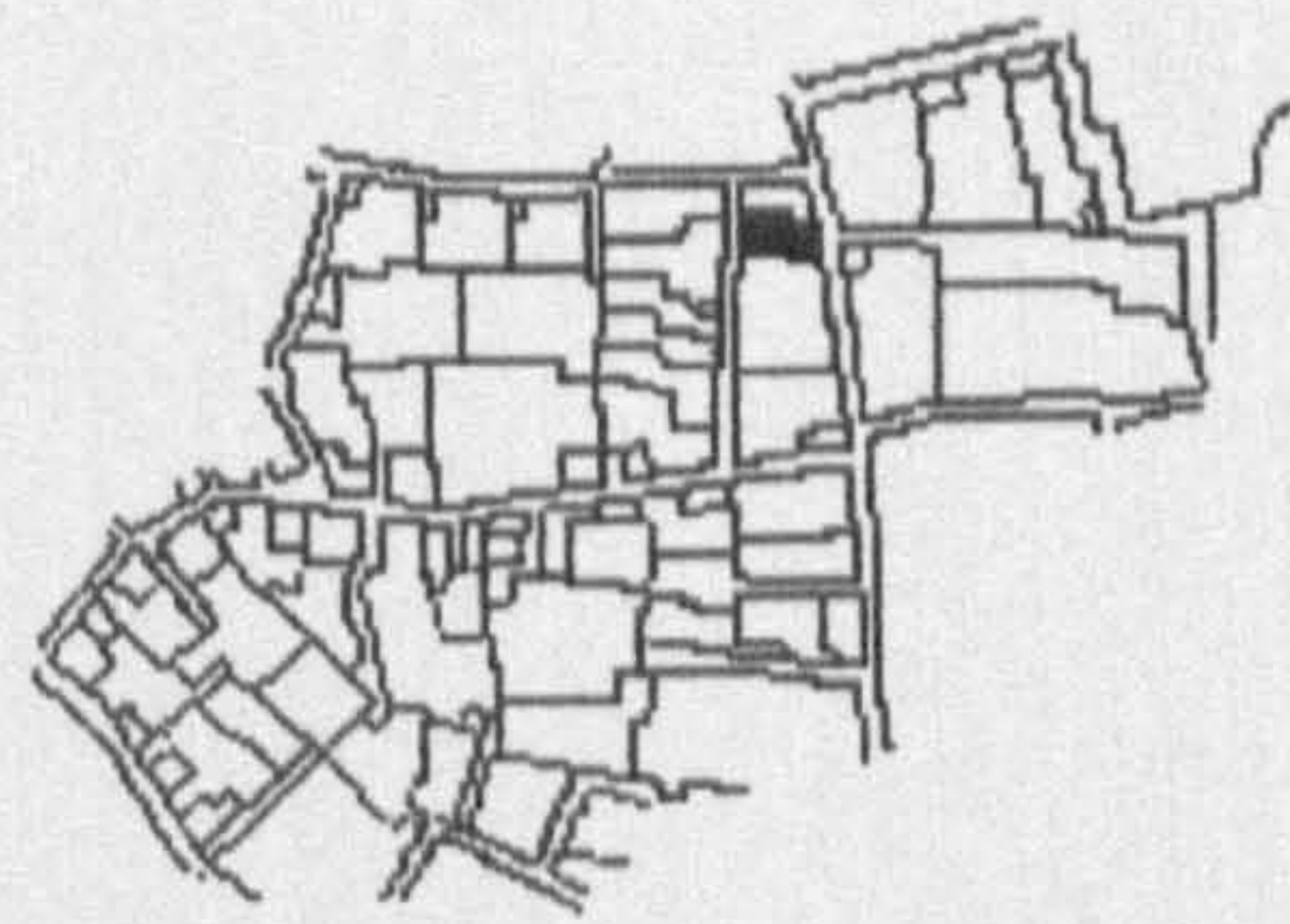
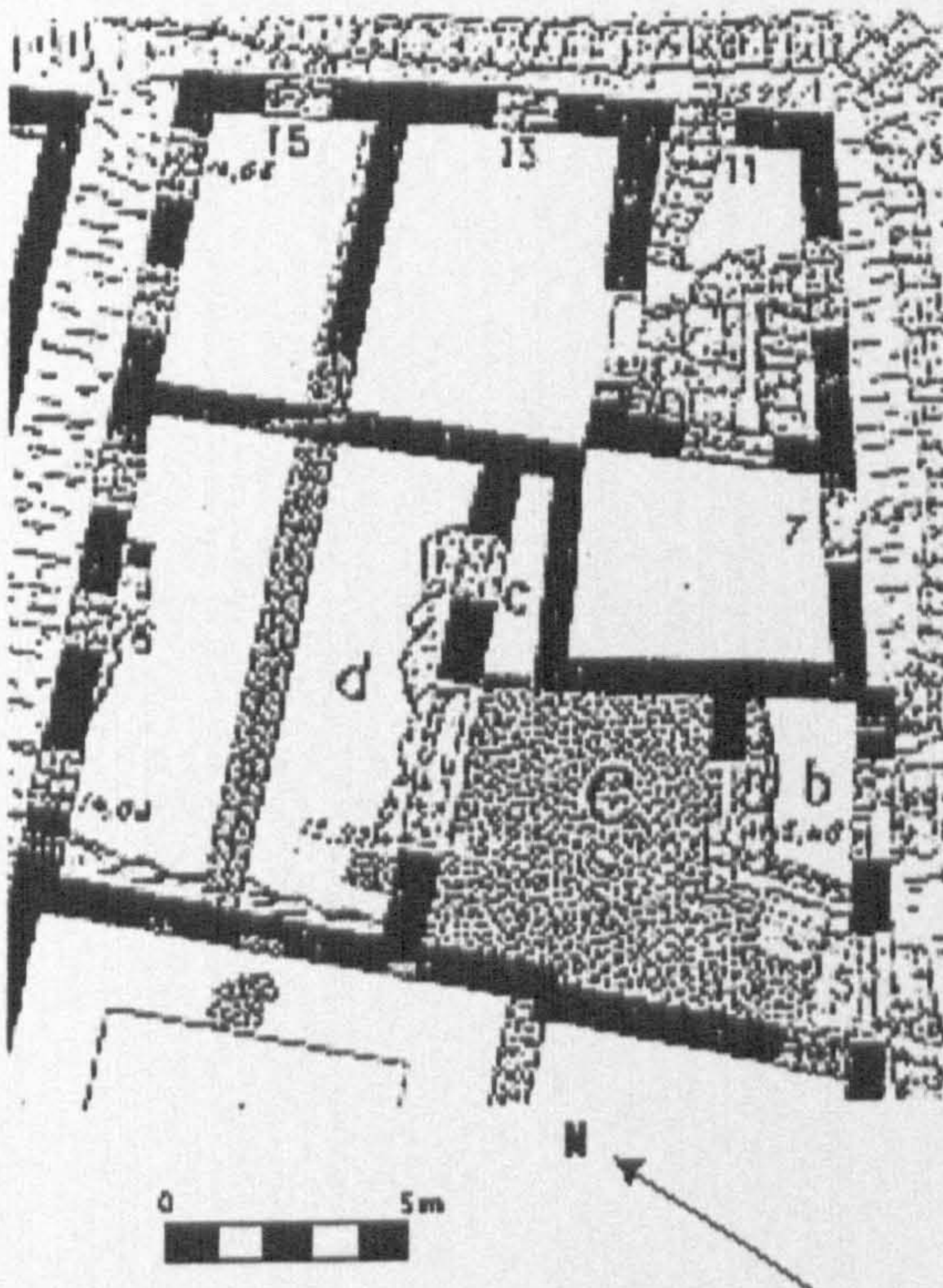
- b red pot flooring; white plaster against stairs; coarse plaster alongside flight; stair window 2.20m ext height above floor level, second bay – door in? assume blocked on installation of the latrines 51
- c stucco work (Chamonard 1924: 387); b/c wall niche 1.18m; /g 1.31m; columns 3.14m high 51; (Chamonard 1922: 155) 3.415m cols. (Chamonard 1922: 52) ctyd decoration analagous with i, vs e and g white raised bosses surrounded by colour decorated mural, mosaic pavement and poros frags further attesting upper floor, analagouse with ground floor decoration found in the impluvium and rooms e, f, and i
- d window sill 2.64m
- e and h panel décor (Chamonard 1924: 65); /d niche 1.62m; /f 1.80m; o.seg flooring with o. tess central motif 50
- g and i panel décor (Chamonard 1924: 81); niche /f once a blocked door, 1.15m; window /Rd 3j1.04m; (Chamonard 1924: 287) window 2.35 m above road level
- h coarse plaster; window 2.04m
- i niches without sills; middle 1.18m, ends c1.70m; panel décor; o seg flooring 50 and rare (only?) example of wall décor containing black bosses (above orthostats); blocked door hidden and covered between here and j. The most important room; only rare example of bosses placed above square orthostats (black) (Chamonard 1922: 51). i and just into road 3 scattered pieces of shafts and capitals, 4 marble parastades, total height (if added to cols) 2.53m and too high to've come from gallery floor – corner pillars? (square?) don't belong to the house –one re-used as the step in from the courtyard from a; from larger house/public building and used?



- j white plaster; (Chamonard 1922: 51) second well ~ kitchen?
- k white and painted plaster

Both pavement and mural debris (Chamonard 1922: 52) IV B impluvium and e, f and i debris of decorated mural (on poros blocks) and mosaic pavement, analogous with ground floor.

## IV C



Position within the Theatre Quarter

### Notes

The foundation wall in d stands to c1.00m, the pillar (against the wall to a) to c0.74m

a marble chip flooring

d/Rd 3 6 wall to 1m

niches /B not marked 3.73 above floor level, 0.60 in from a and the second, 0.30m in from Rd 3

b retains evidenc for two successive levels of water evacuation; 22: 52 latrines??

c hidden by poros blocks on excavation; now removed

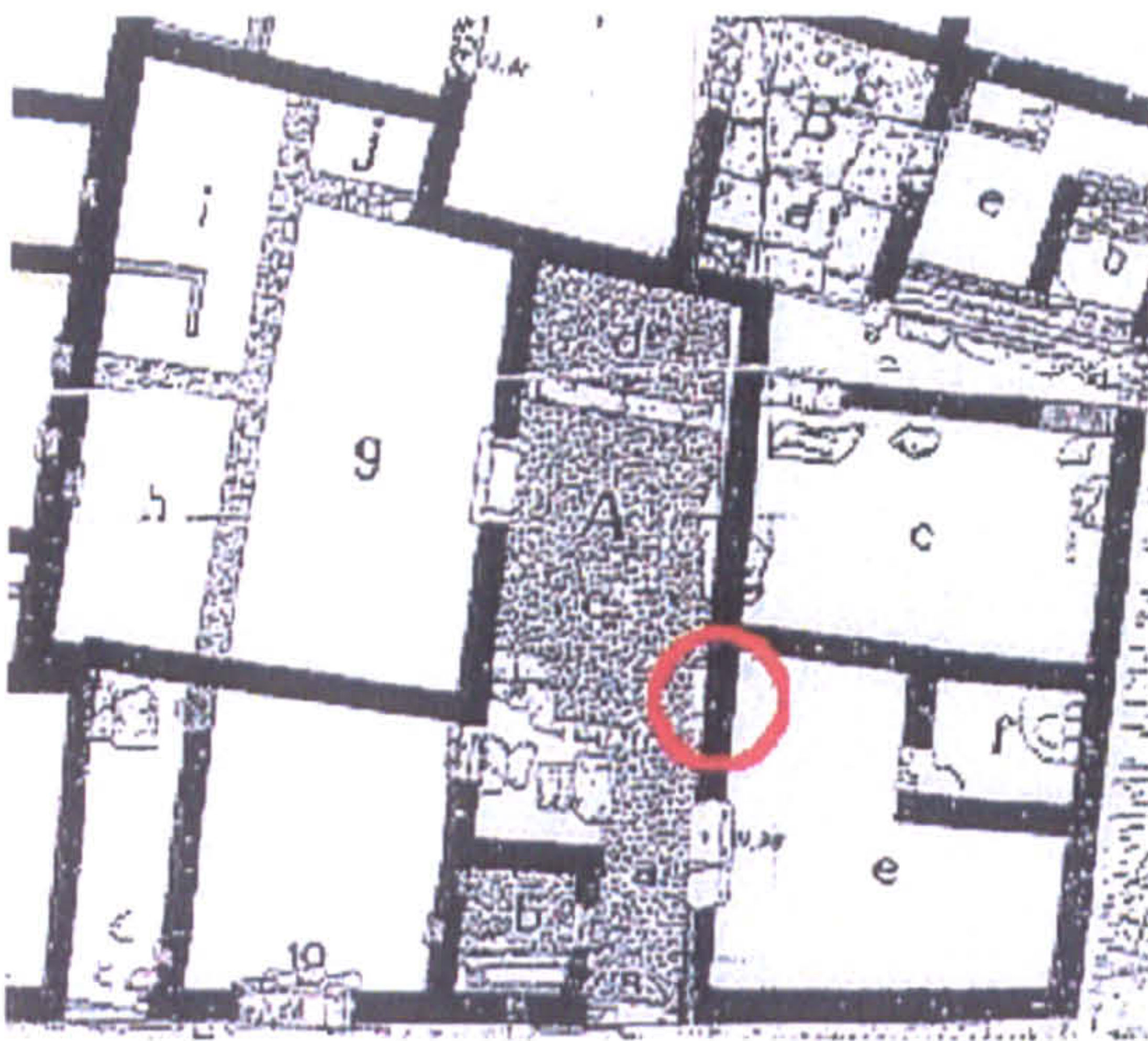
b door on road 2 from earlier epoch

d sill is 0.14 below the level of the courtyard = exact thickness of pavement indicating it to be a repair/late feature; suggests house once included the rooms at the extreme top (east) of the insula which have since been transformed into shops

Chamonard (1922: 52) probable wc's to right of entrance (!!!) with two levels of water evacuation; 1.70m difference in floor height between house and d shops.



## VI A



Position within the Theatre Quarter



### Plan amendments

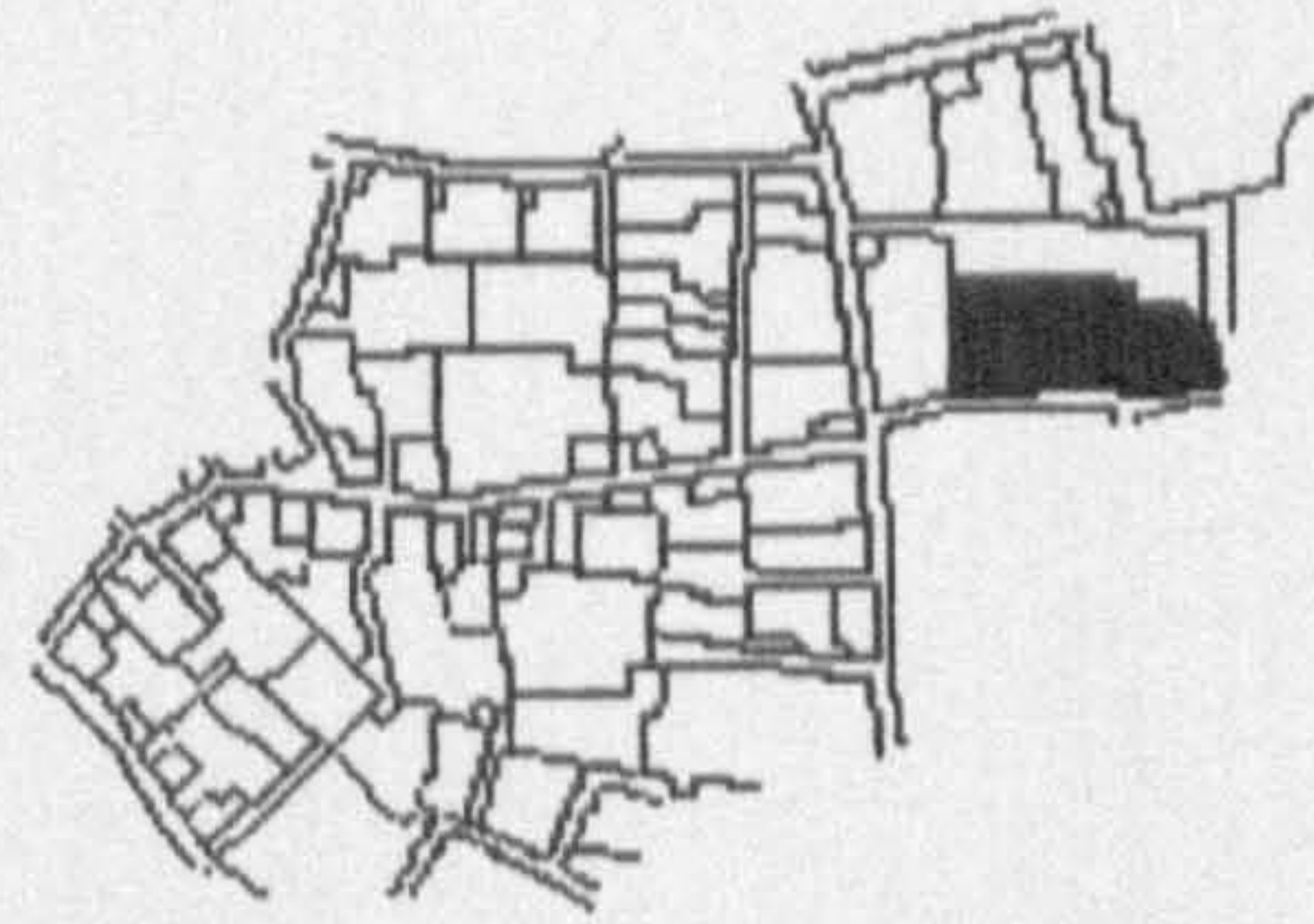
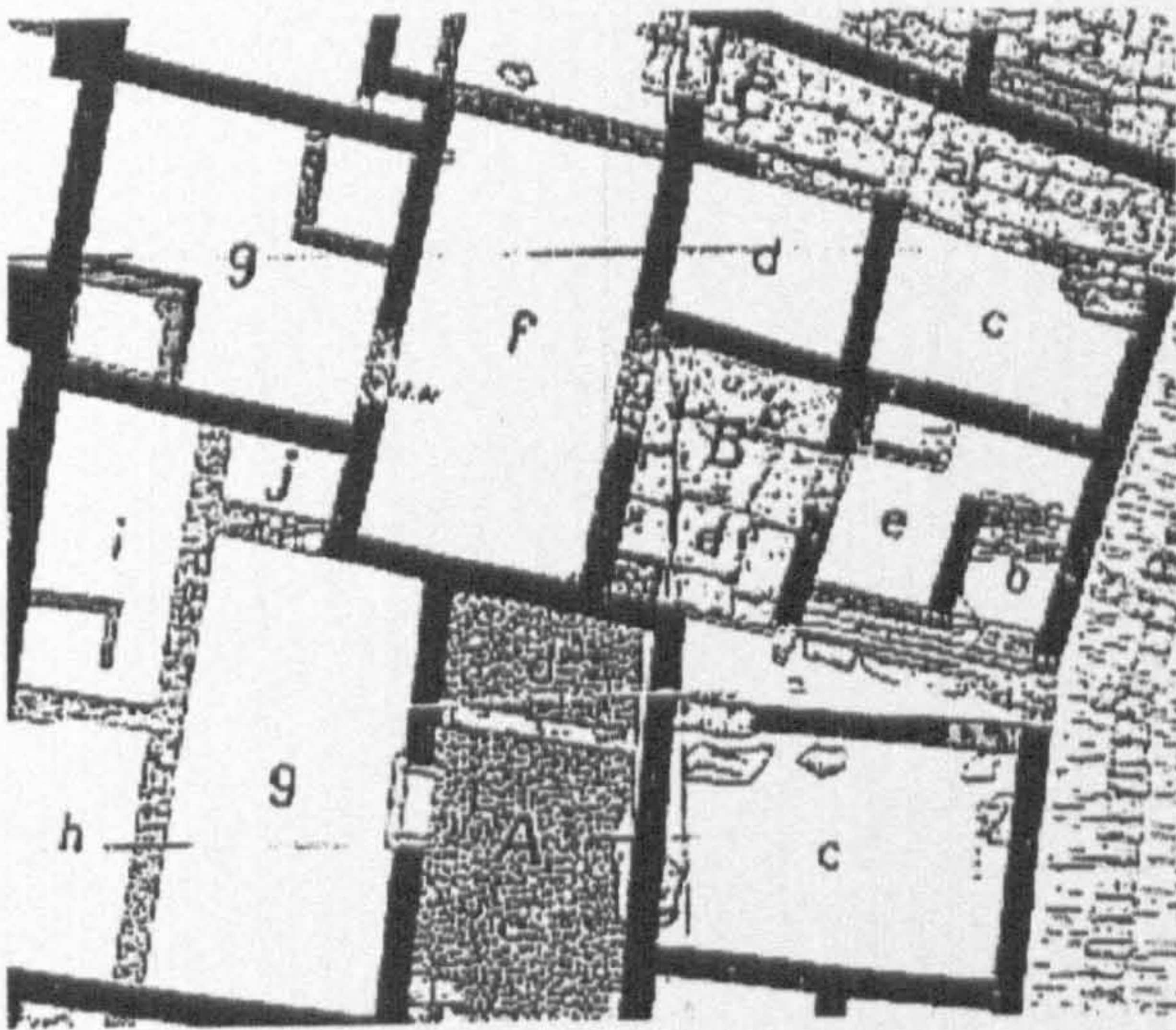
There is a second open doorway between the courtyard (c) and e (0.86m wide)

### Notes

- a *o. segmentatum* courtyard (Chamonard 1922: 53); to left of vesti prob find origins of stairs
- b marble chip flooring, niche 0.85m
- d and g panel decoration (Chamonard 1924: 365, 381); < 3 layers of decorated plaster visible; developed courtyard space into exedra space enough for 4 couches
- e door to c; red mosaic flooring outside this door on courtyard side
- f flooring of red crocks in pink hydraulic plaster, white wall plaster
- g incised white plaster; panel and frieze décor
- h white wall with a coloured (yellow) frieze (Chamonard 1924: 365); 1.80m niche
- i hatched area ~ marble chip in hydraulic plaster flooring
- j coarse plaster



## VI B



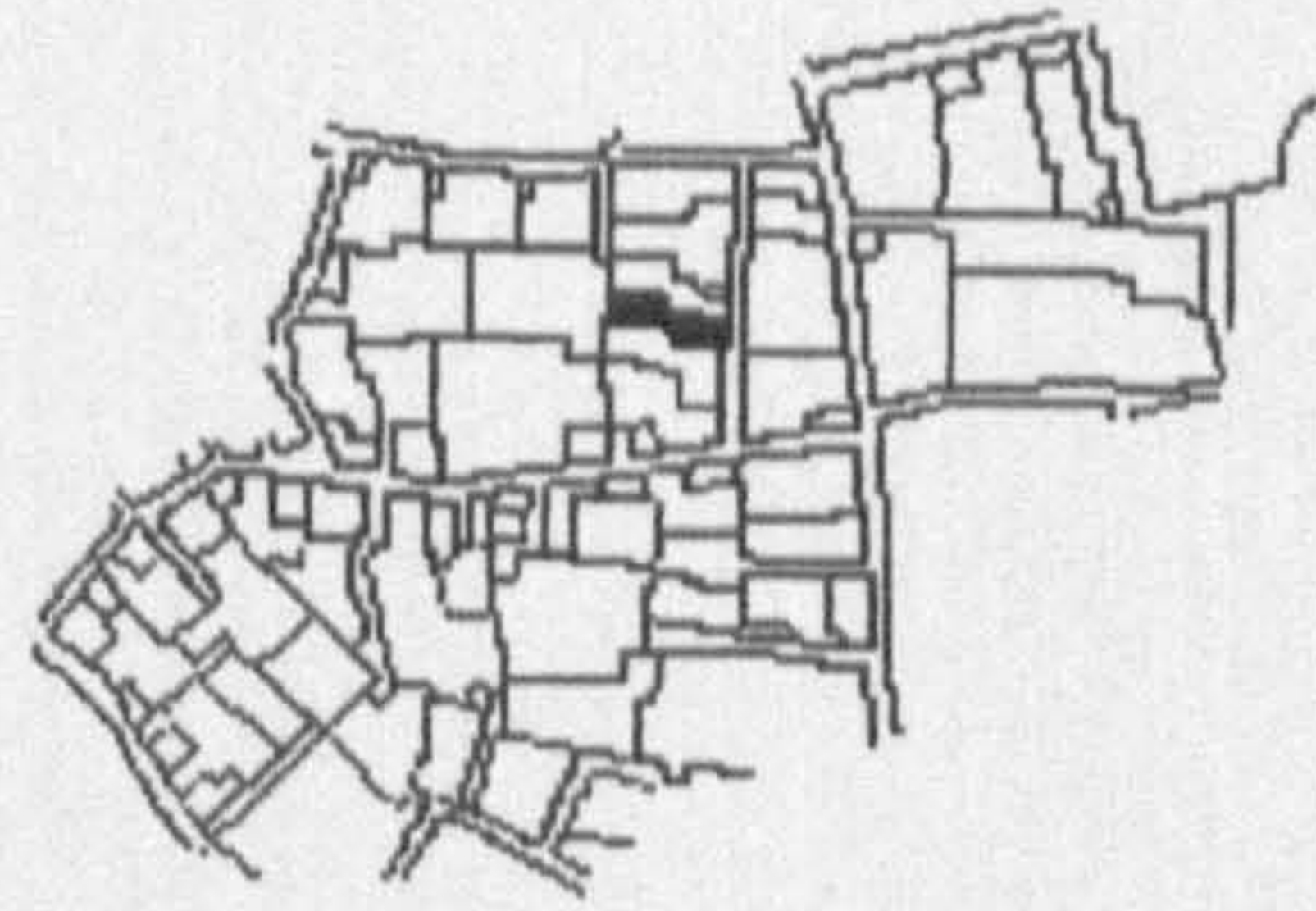
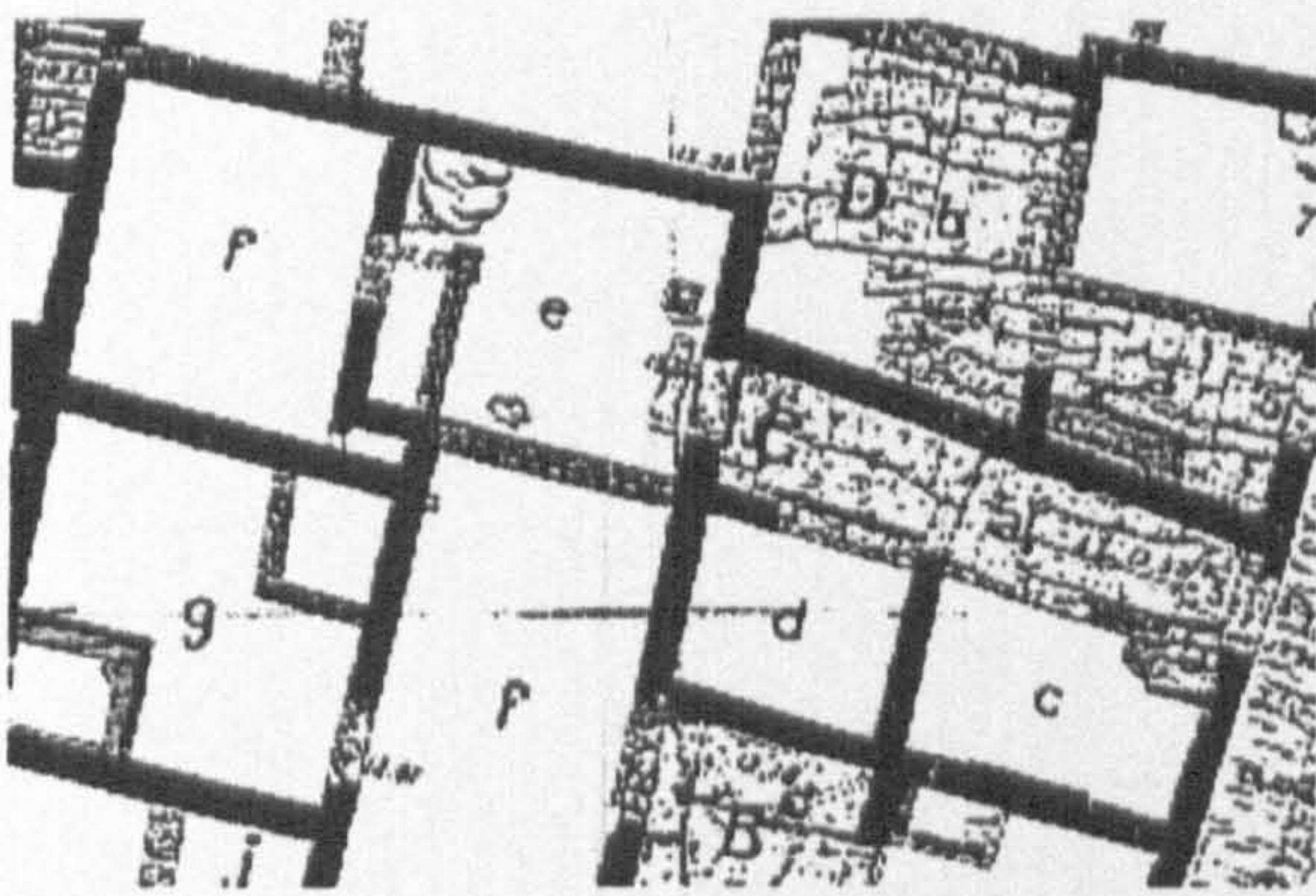
Position within the Theatre Quarter

### Notes

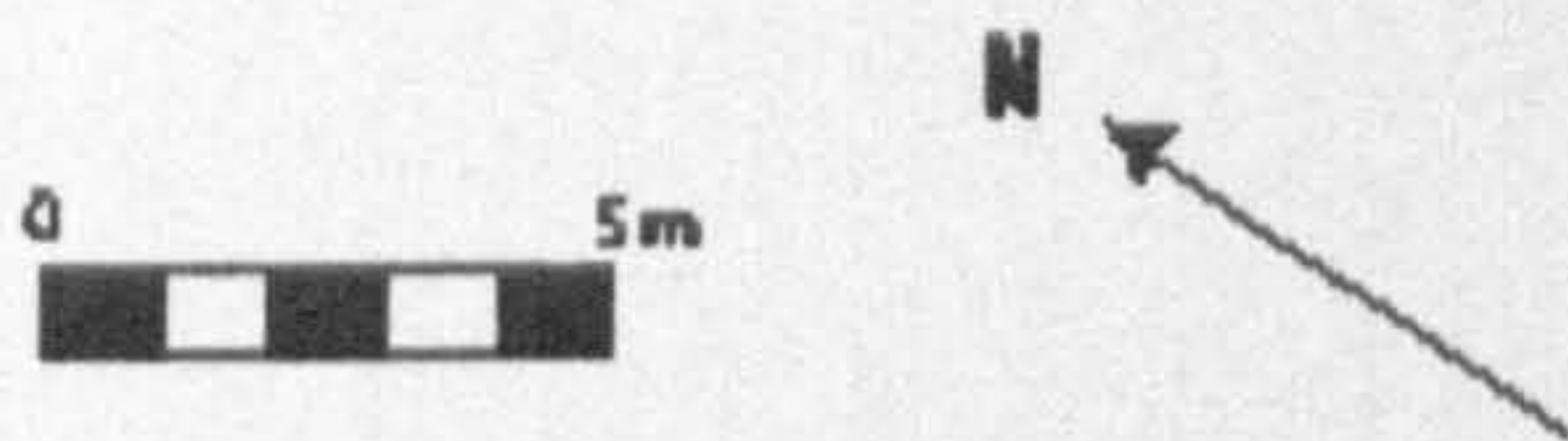
- b coarse plaster
- e corner feature, drop of 0.38m from floor level (0.43 above the floor); another tank???
- g /A interior plastered, 0.52 depth, 0.23 depth (0.08 flush of the floor) Contained (Chamonard 1922: 53) uncovered and containing a large quantity of vase fragments, statuettes and casts, blocks of fine clay and colour – without doubt the house of a potter; basin of hydraulic cement to keep clay humid, in opposite corner – remains of an oven



## VIC



Position within the Theatre Quarter



### Notes

- a plinth décor (Chamonard 1924: 365)
- c double step from vestibule into room, not a separate area
- e floor slopes down towards f; partition wall max height 0.45m
- f /H series of projecting stones 0.36m above floor level

**Unique feature:** this house has no courtyard, strictly speaking (Chamonard 1922: 53) and also does not contain a well or cistern.



VID



Position within the Theatre Quarter

**Plan amendment**

Rd3 7 there is no evidence of the corner well/jar feature shown

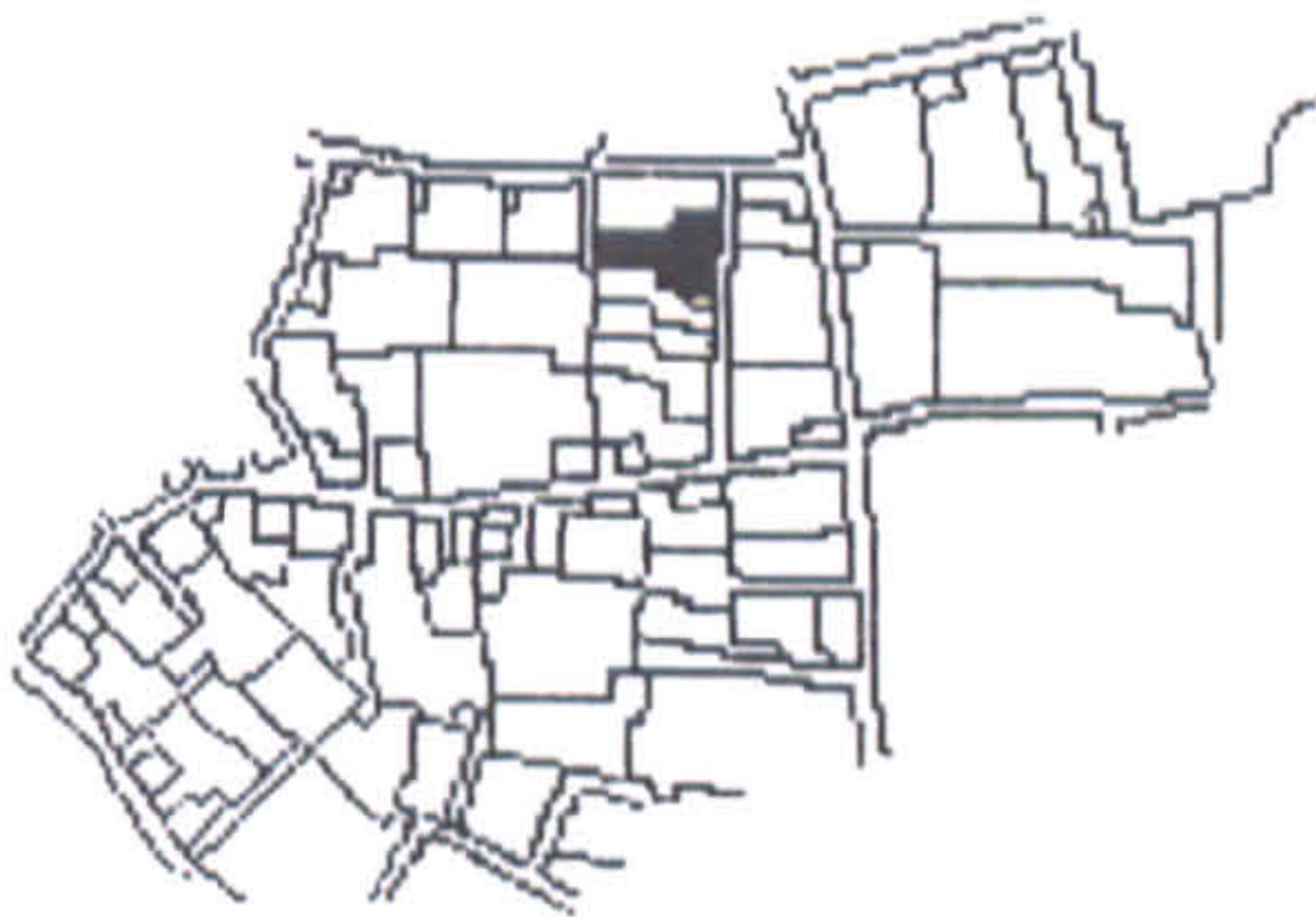
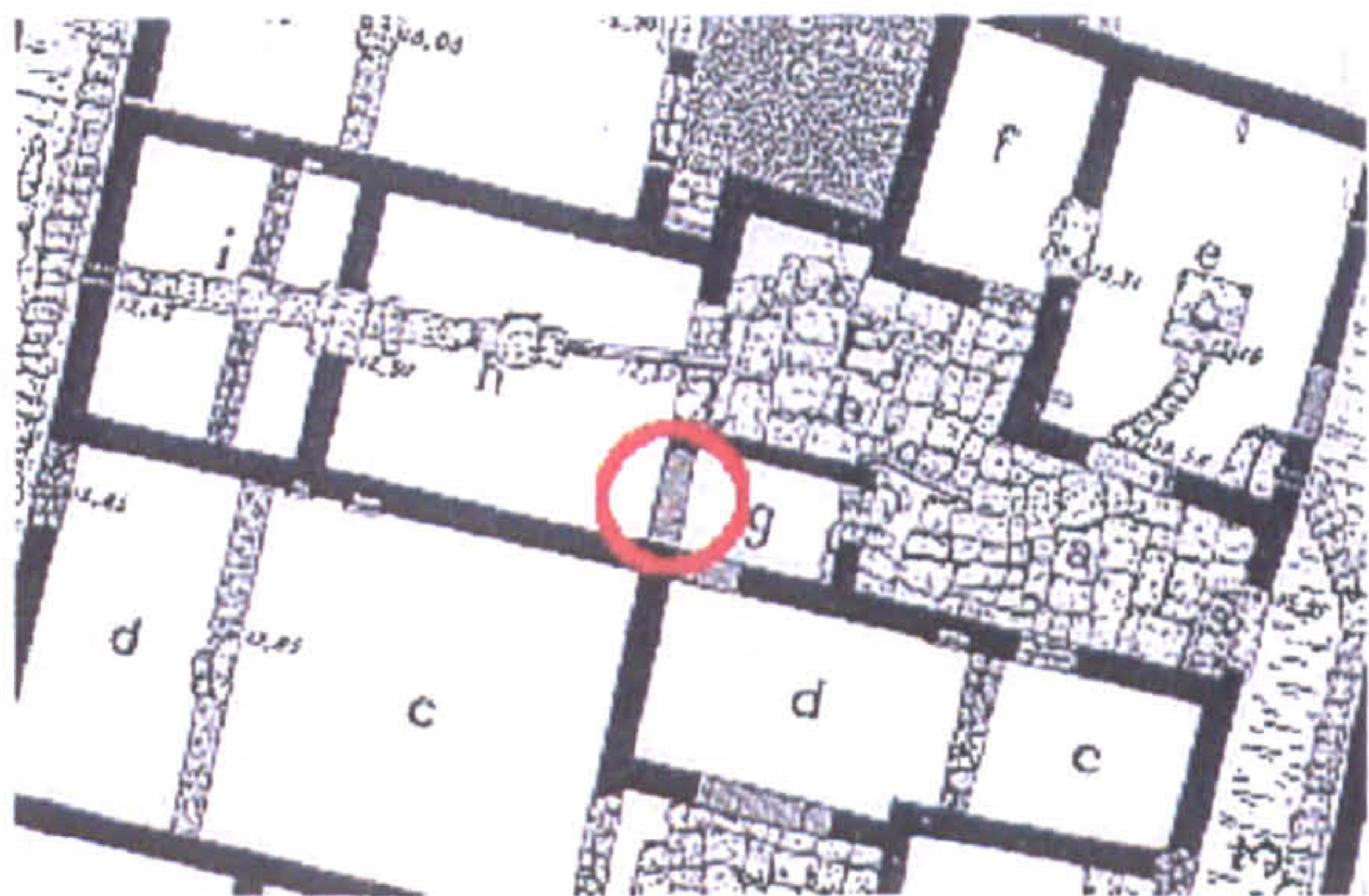
**Notes**

- c oecus; white wall with coloured frieze; niches 1.44m; corner – rectangular marble altar 53 decorated with garlands (and other traditional motifs)
- d wall/alley; no edges to suggest a window feature

**Unique feature:** vestibule latrines with two parallel canals



V I E



Position within the Theatre Quarter



**Plan amendments**

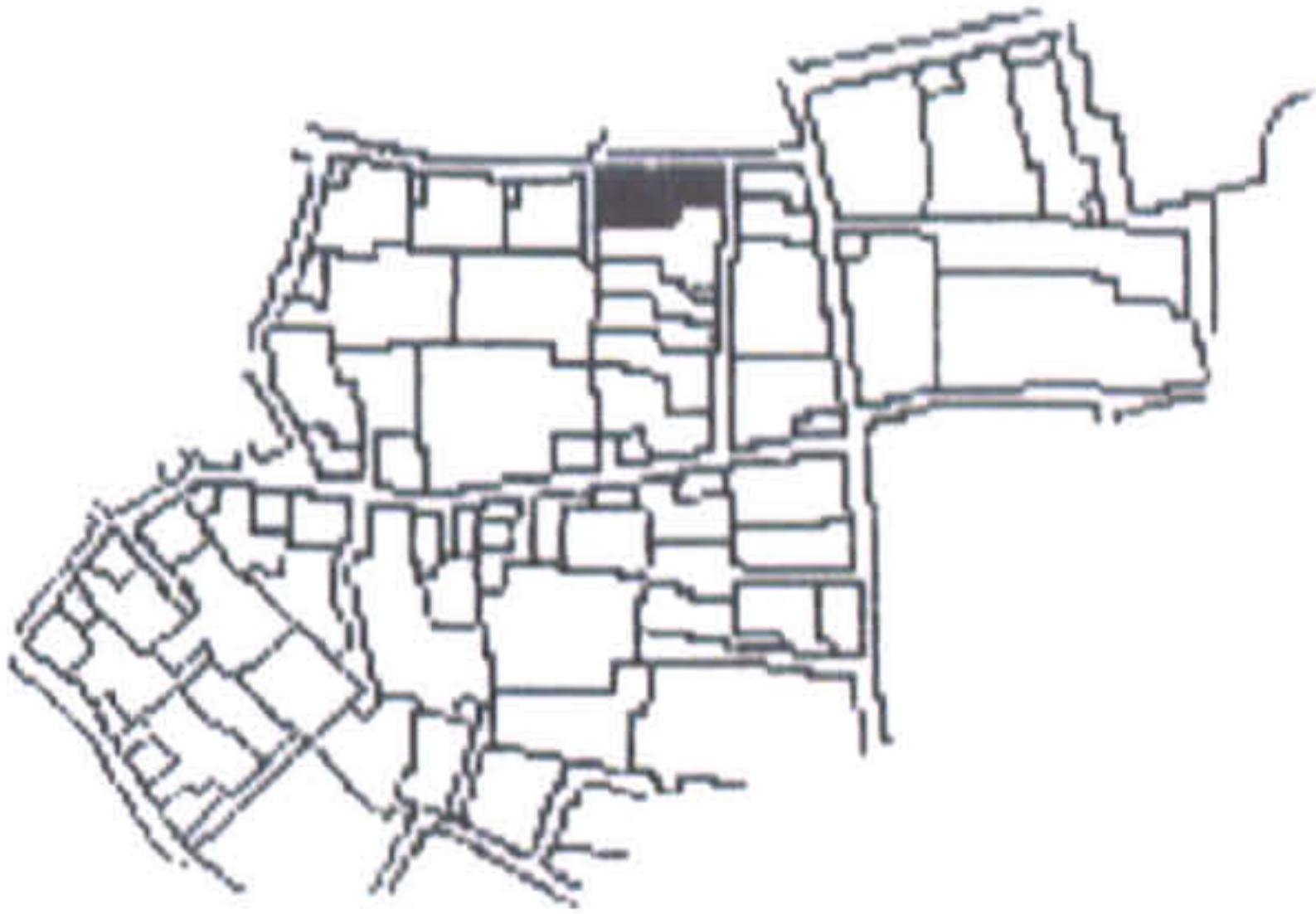
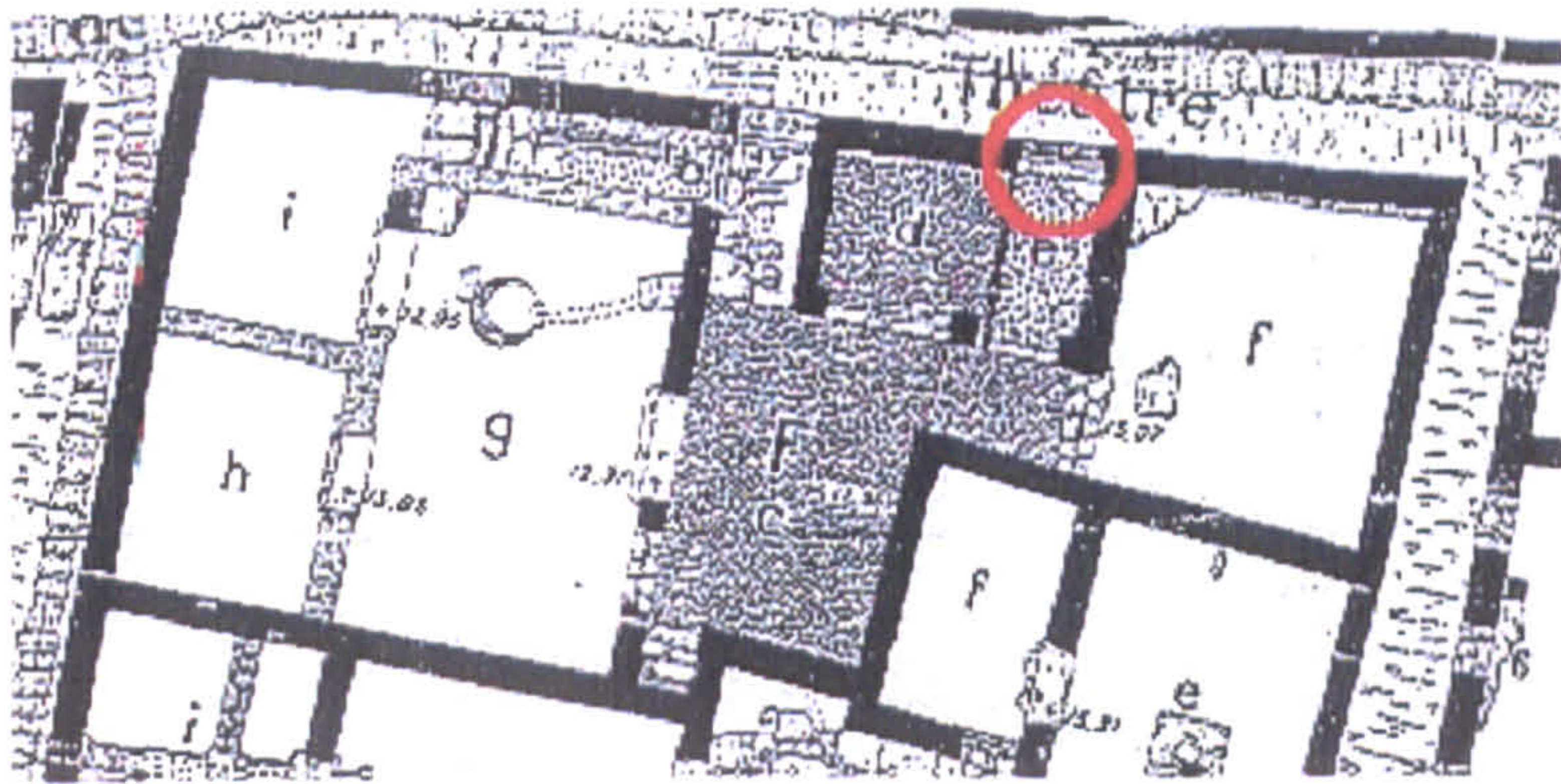
The doorway between g and h is open, not blocked

**Notes**

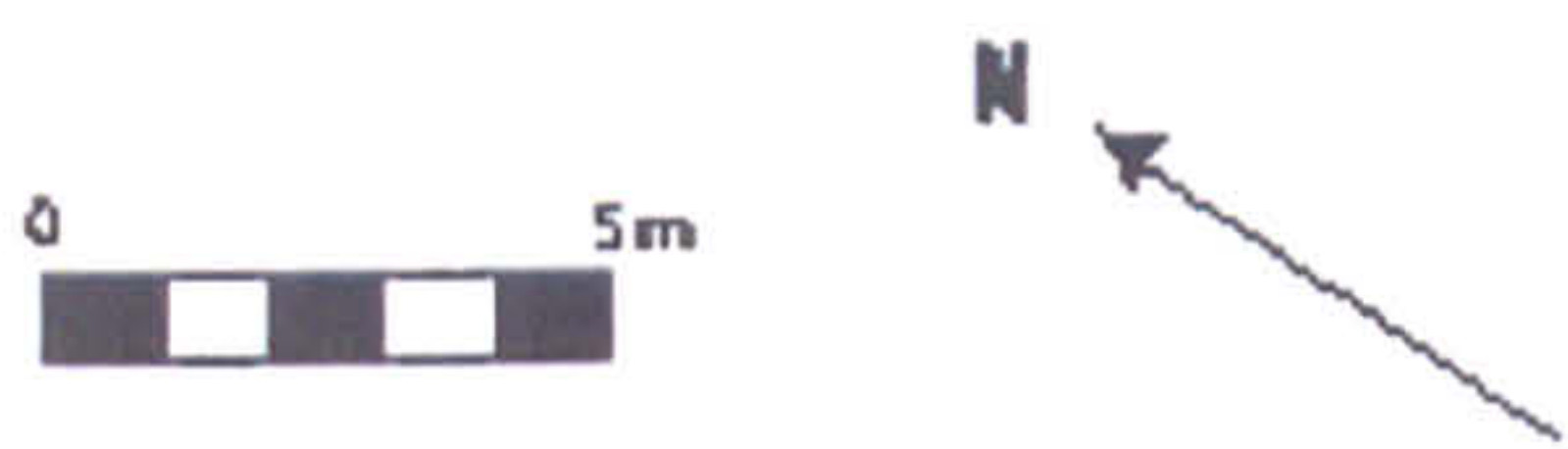
- c and h stucco on mortar (Chamonard 1924: 387)
- d fillet décor (Chamonard 1924: 365); niche 1.30m
- e coarse plaster; corner feature – heavy/solid masonry support – sink – leading to the sewer outside the house
- i niche 1.38
- i most remarkable décor fragments found from the upper floor including frieze panels of dance scens and scenes of war and domesticity (Chamonard 1922: 54) adjacent alley rules out the possibility of these being displaced from a neighbouring house; niche 1.30m



VI F



Position within the Theatre Quarter



Plan amendments

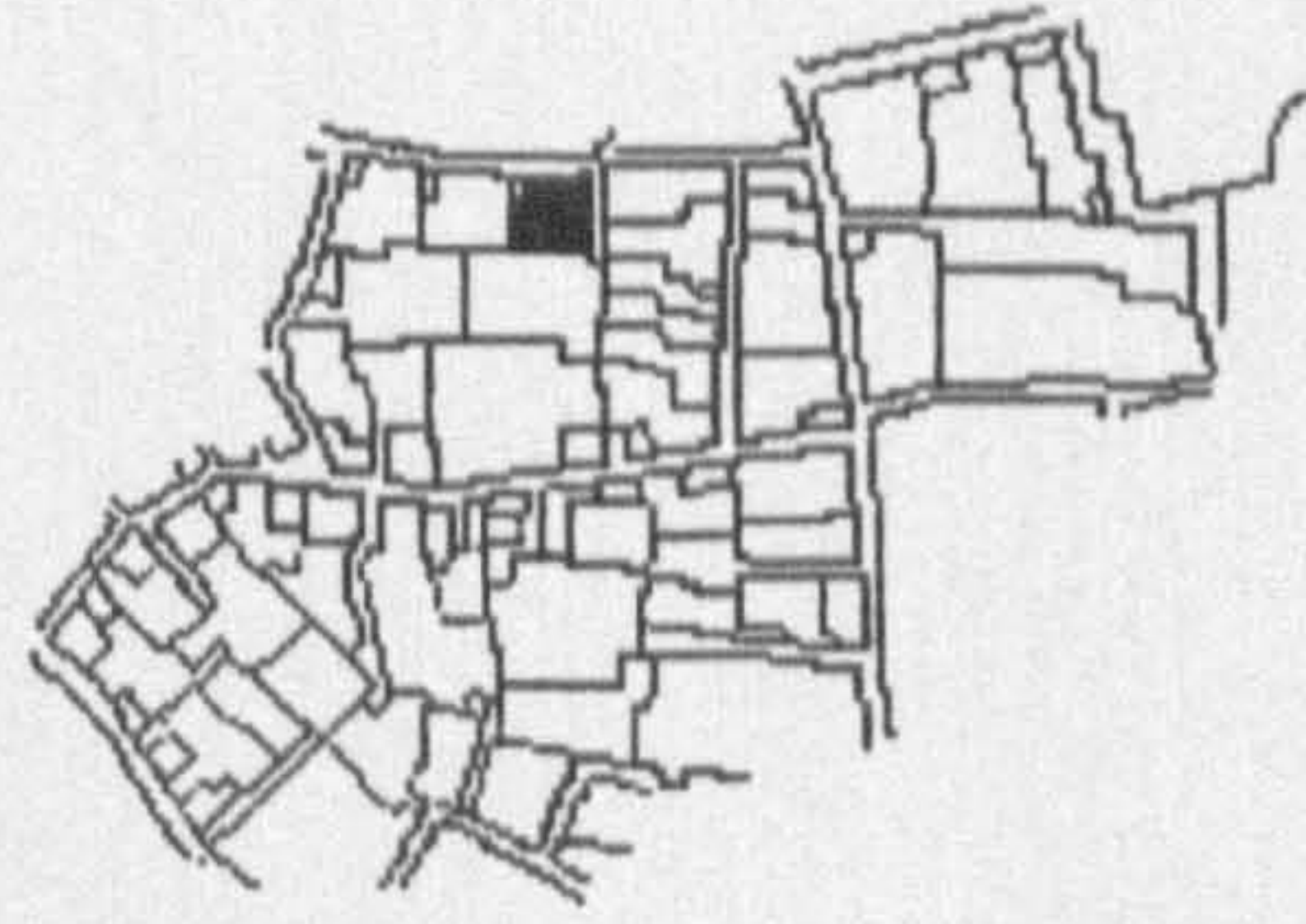
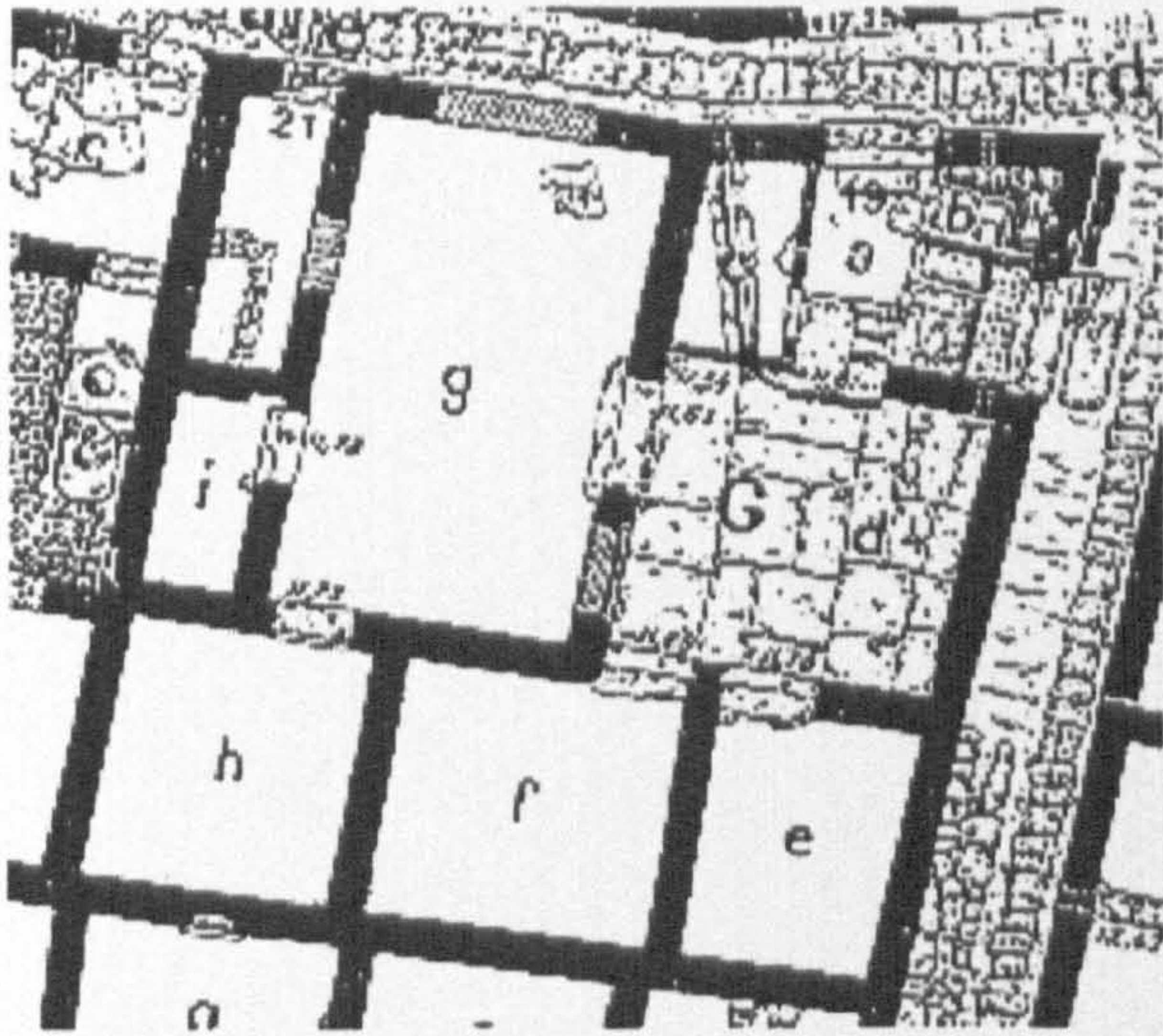
Access between e and STR is open, not blocked  
Evidence for the blocked door between i and STR is uncertain; there is no sign of the doorway from the interior of the house, the only straight vertical edge visible is that marked nearest neighbouring VIG

Notes

- d panel décor (Chamonard 1924: 365); white marble chip flooring, painted and incised,
- e north wall – painted red curtain pattern with fringeing/embroidery (Chamonard 1924: 361); white wall plaster, marble chip flooring; no sign of blocking doorway to STR; earlier vestibule
- g appears to have two sets of double doors; white plaster; rare type of cistern with circular access, c 1m in diam (Chamonard 1022: 55)
- h niche 1.54m
- i m chip floor covering between here and b, coarse plaster; only one straight edge (G end) ~ questions re blocked door
- j panel décor (Chamonard 1924: 365)



## VIG



Position within the Theatre Quarter

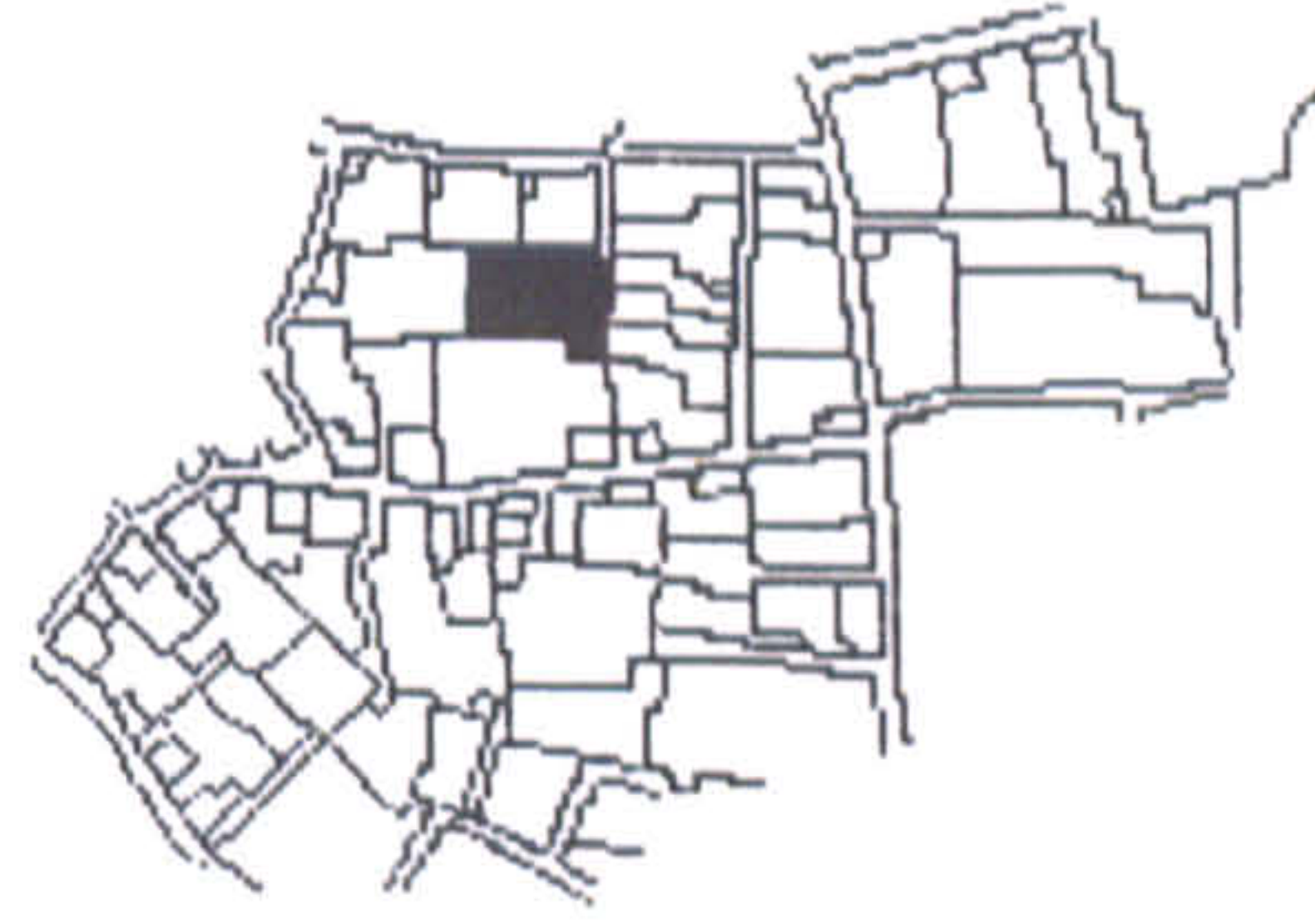
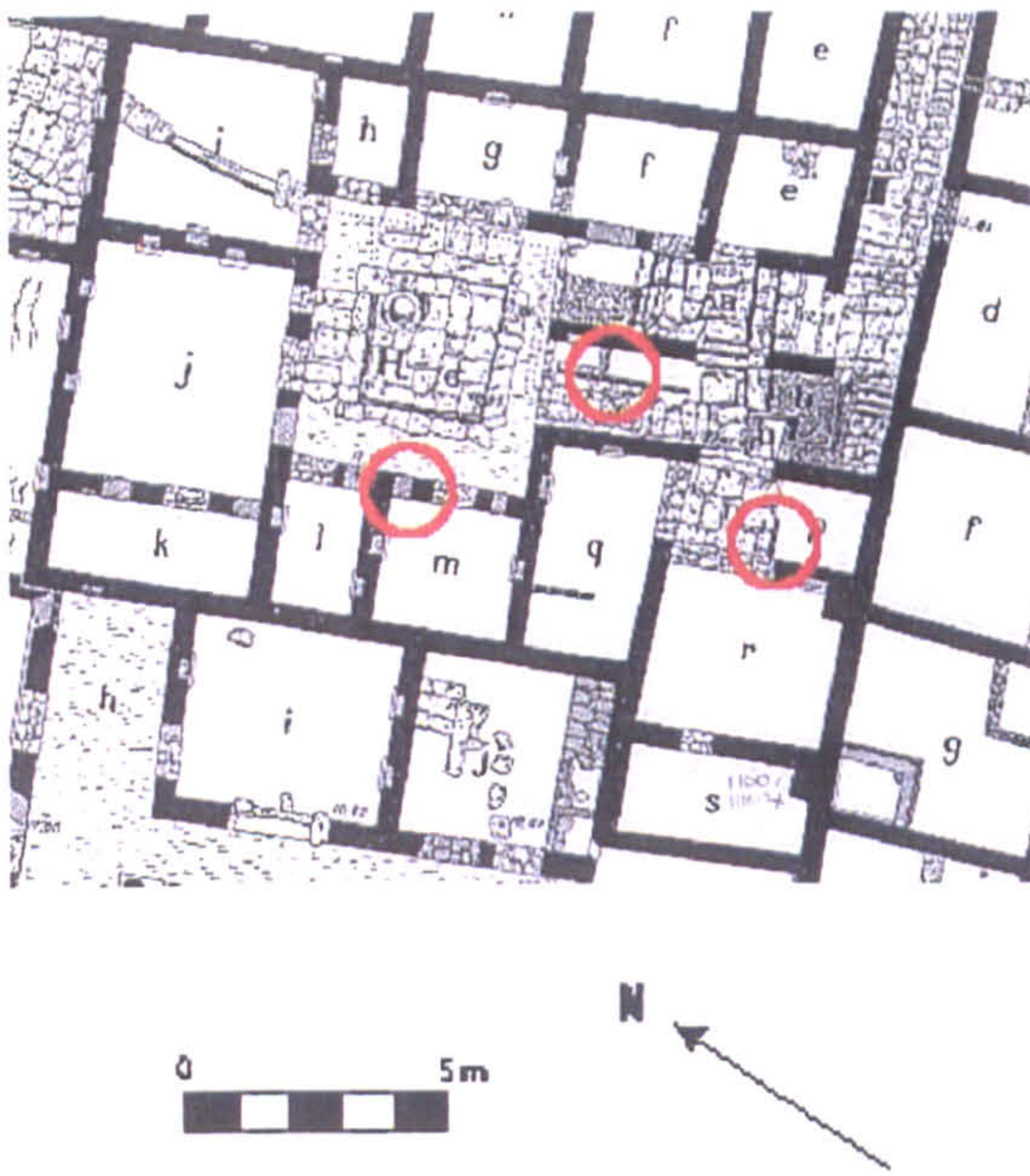
### Notes

- f white plaster
- g oecus; stucco incised with figures; relief décor (Chamonard 1924: 359); window /d 1.55m, /STR possible at 2.75m – now appears as a horizontal flat area atop the remaining standing wall though survival height is 0.52
- h white plaster; 3-4 support niches on /J wall, 2.04m
- altar covering of white plaster with traces of red paint
- 2 adjacent altars outside alley entrance to upper floor – Genies dancing
- 55 stairs positioned against south courtyard wall

This house contains no well or cistern.



## VI H



Position within the Theatre Quarter

**Plan amendments**

The doorway between h and i is blocked

There is only one window apparent between m and the courtyard (d), not two (other window opens 1.66m above ground level, the wall standing to 1.95m)

(No evidence remains of the poros partition wall in p)

**Notes**

altars of painted plaster

a marble chip flooring at base of steps (twds i)

a and r panel décor

b hydraulic flooring, coarse plaster

e and f, white plaster with large crocks

f niche 1.33m

g white incised plaster; niches 1.35 and 1.58 (/G)

g, j and l imitation marble décor

h white plaster; /i shored up with poros

i cache of upper floor material, some painted on both sides indicating previous use as partition walls? also some sandstone with iron-rich cement; niche /j 1.60m, /h 1.42m; (Chamonard 1922: 58) probable store; 4 intact amphorae and a number of frags found

j locked, presumably because of the crumbling wall /k niche /Nf 1.50m, 2 x niches on i wall, 1.60-1.70 above floor level; window /k estimated at c 1.40m; contains huge stack of white *o. tessellatum* (and possible *o. vermiculatum*) mosaic, incl. areas of b/w checkerboard design similar to that in situ @ Est de Pos, presumably from the upper floor; niches (x4) estimated at being chest height; white plaster

l thick painted and incised plaster; niches to k and m 1.17m; window to d 1.56m

m white coarse plaster on top of red, niche /q 1.60m, /l 1.22m; window to d 1.66m, **one only**

o poros partition walls possible later additions as there is plaster behind them

p incised lines on white plaster; exedra (Chamonard 1924: 365); no partition wall visible

q niche 1.53m

r buttress a later addition (i.e. after wall) as plaster features between the two; niche 1.68m; incised and coloured plaster

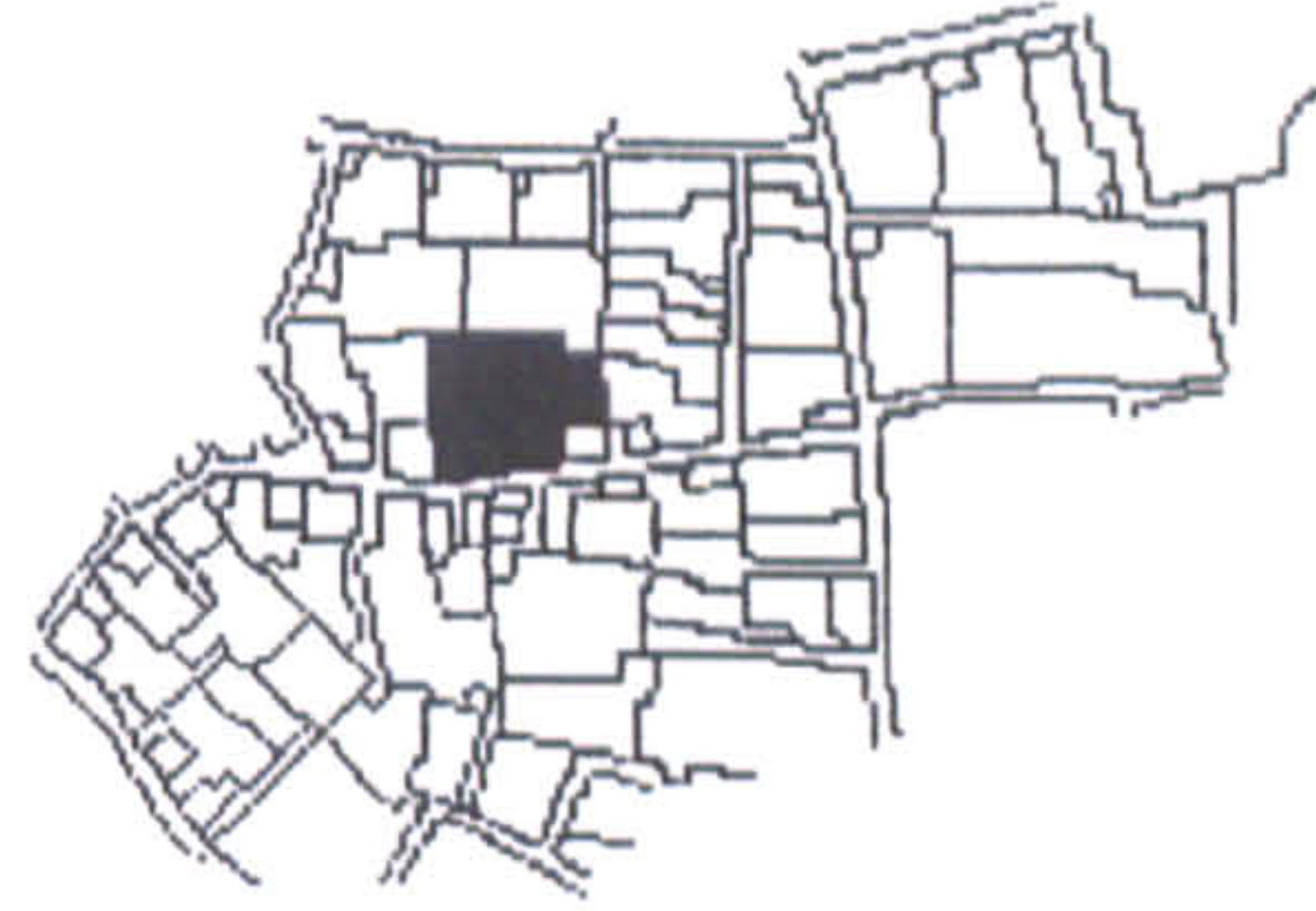
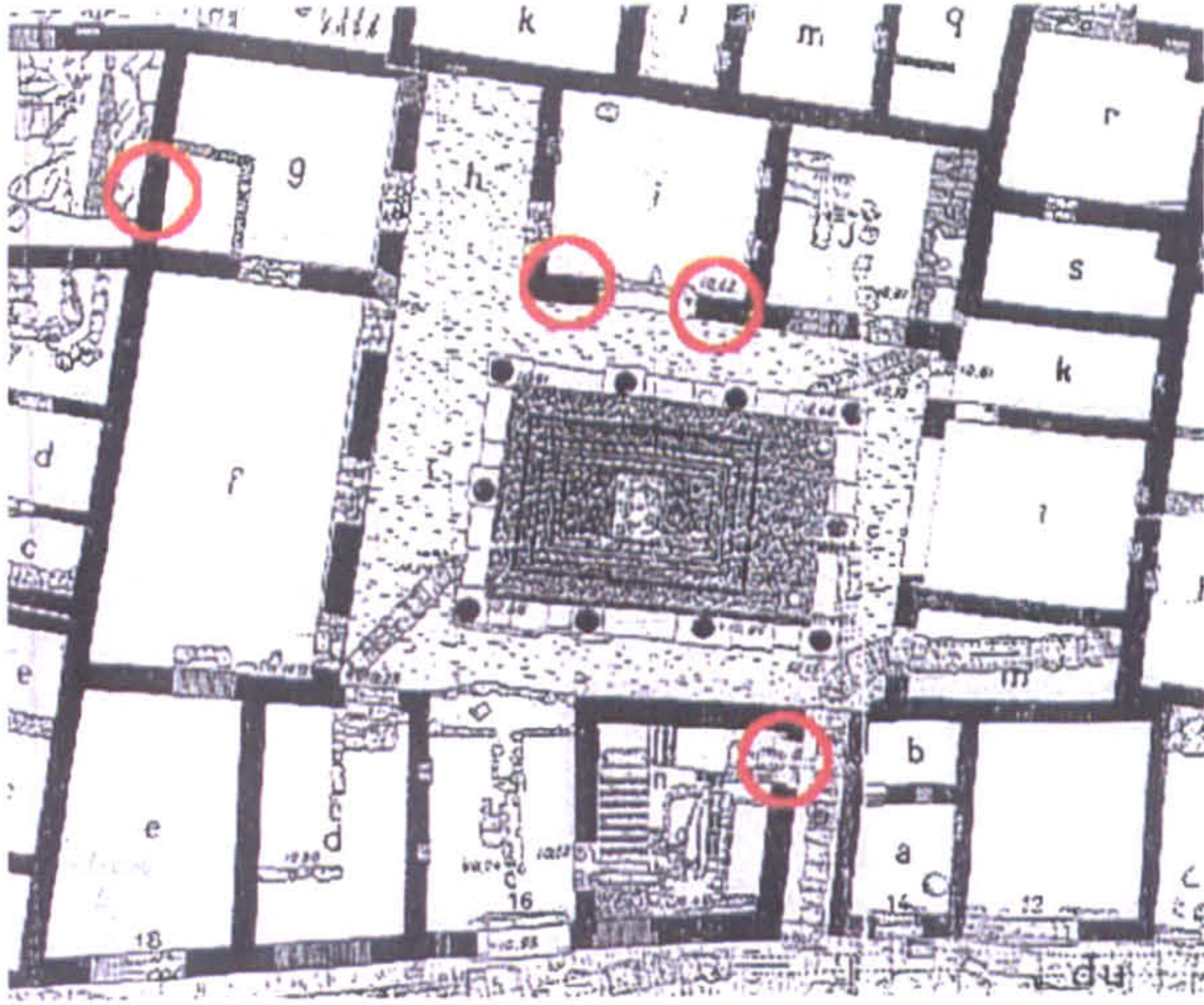


s white plaster straight onto Ik wall, coarse red onto Ij, niches (Ij end) 1.34m, 2.63m

Altar to right of entrance decorated with garlands and flowers (Chamonard 1922: 56)



## VI I Dionysus House



Position within the Theatre Quarter

### Notes

(Additional flag stones are visible within d)

There is a window in g facing VIIg (1.90m above ground level, 2.34m wide, 0.60m in from f/g wall and 0.53 in remaining height – extents lost)

There is a niche within n, on the wall adjoining b, 2.40m above ground level, without sill (unusual), 0.60m high x 0.21m wide x 0.50m deep)

blocked windows in I, opening 1.61 (z) and 1.60m (x) above ground level

c and j panel décor (Chamonard 1924: 362)

d, i and k panel décor (Chamonard 1924: 365)

a niches 2.38m

b peephole to n 1.37m above floor level; white plaster; foundation walls uncovered the most important peristyle courtyard on the island 58

c (Chamonard 1922: 130) columns 5.34-5.45m height, 5.60m including capitals, gallery floor 7m above floor level (5.6 columns + 1.4m architrave); upper floor room ht 4m

e/d 5x protruding blocks, end niches with niche beside them, 2.10m

f coarse plaster; wall to courtyard built atop a much lower flag course (just above ground lvl), = FS work or wall changed earlier?

g window 1.90m to O; 1.10m to h; /h blocked door, blocked with poros on h side and plastered over

h white plaster; niche to Hk 2.34m, light niche 1.00m; plaster /g incised plaster

i niche 2.34; rich incised décor; blocked windows /ctyd, either side of the door, 1.61m above floor level, 0.75w x 1.51 surviving heights

j white coarse plaster

k two niches sited directly over the top of one another, the sill of the upper forming the top of the one underneath; 1.87m to bottom sill, + c0.65 up to second opening with top height as 0.74m; red and white plastered interiors = unusual

l niches 3.08m; coarse plaster interior



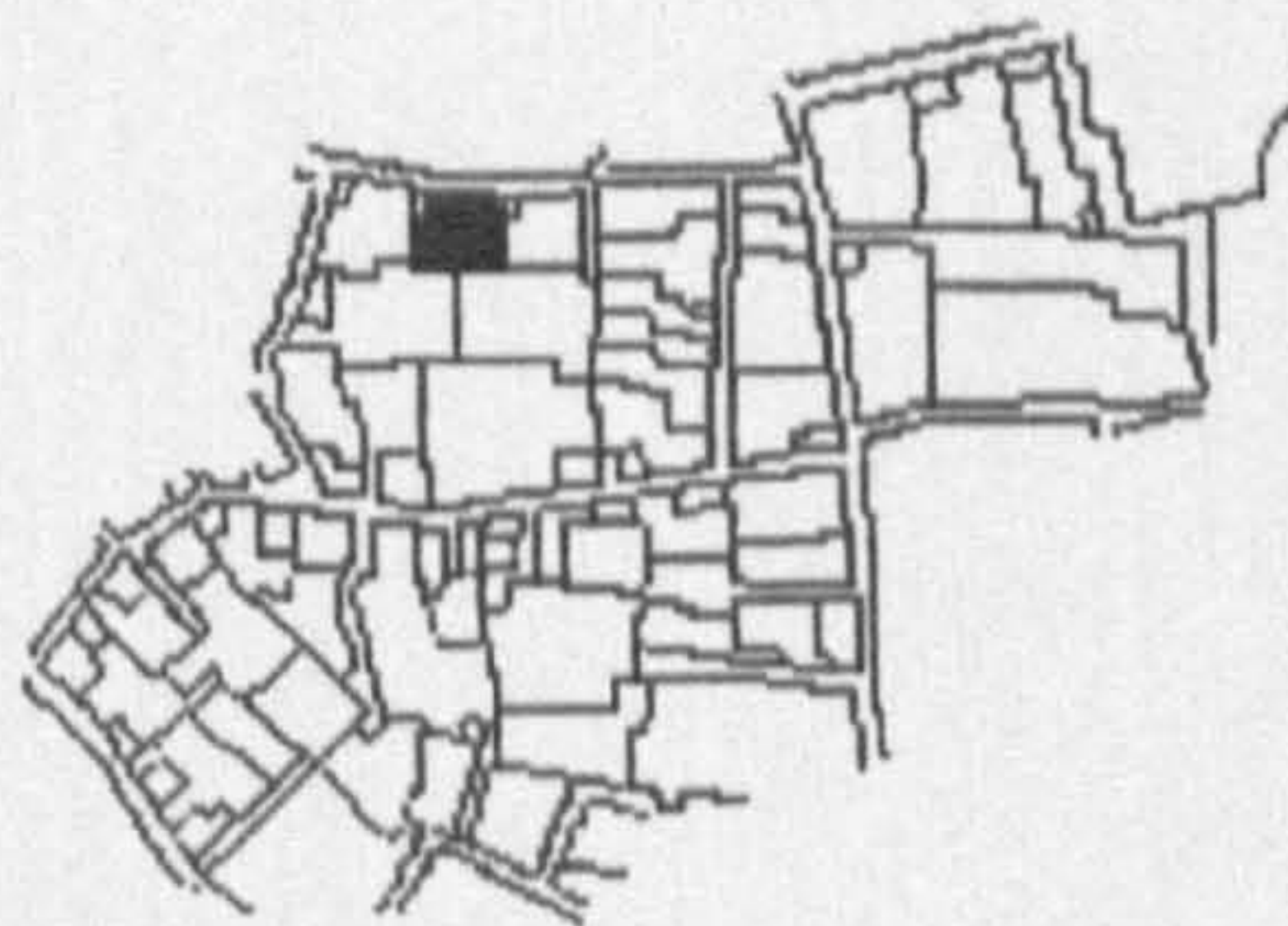
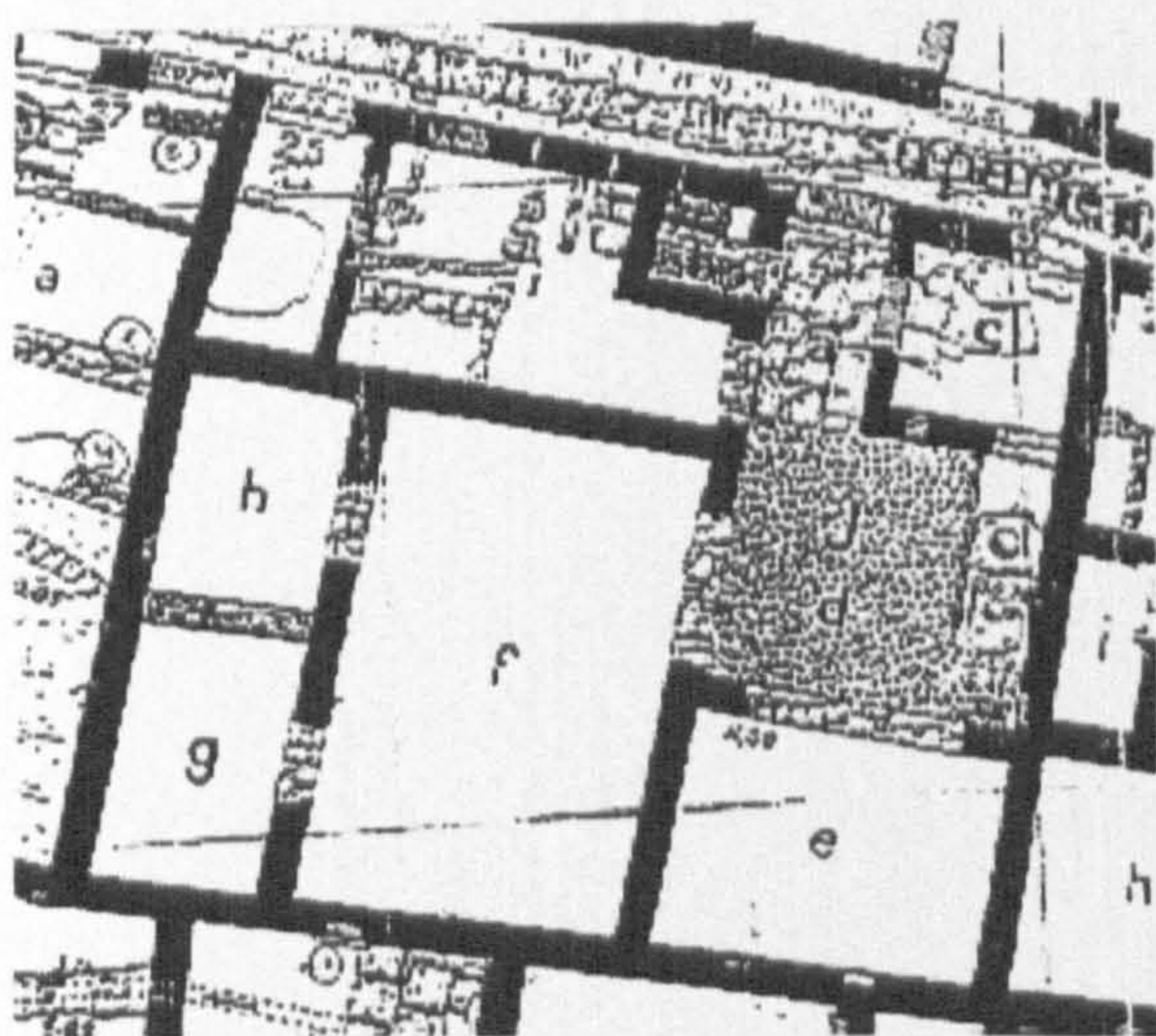
- m wide and deep drain (c0.46m) with depressions to hold covering flag stones on either side (c0.12 x 0.12)
- n marble chip flooring at the bottom of the stairs; niche in /b wall (not on map) 2.40m; 3 stone flights, the 4<sup>th</sup> wood; cols 5.60m ; emblema of Dionysus riding on the back of a tiger
- blocked door niches – 2.39m, 1.34 and 1.46m

Apotropaic symbol on exterior TR wall

Post-Hellenistic traces of occupation within Dionysus house as well as across other areas of the site, (Bruneau 1968: 704).



## VI J



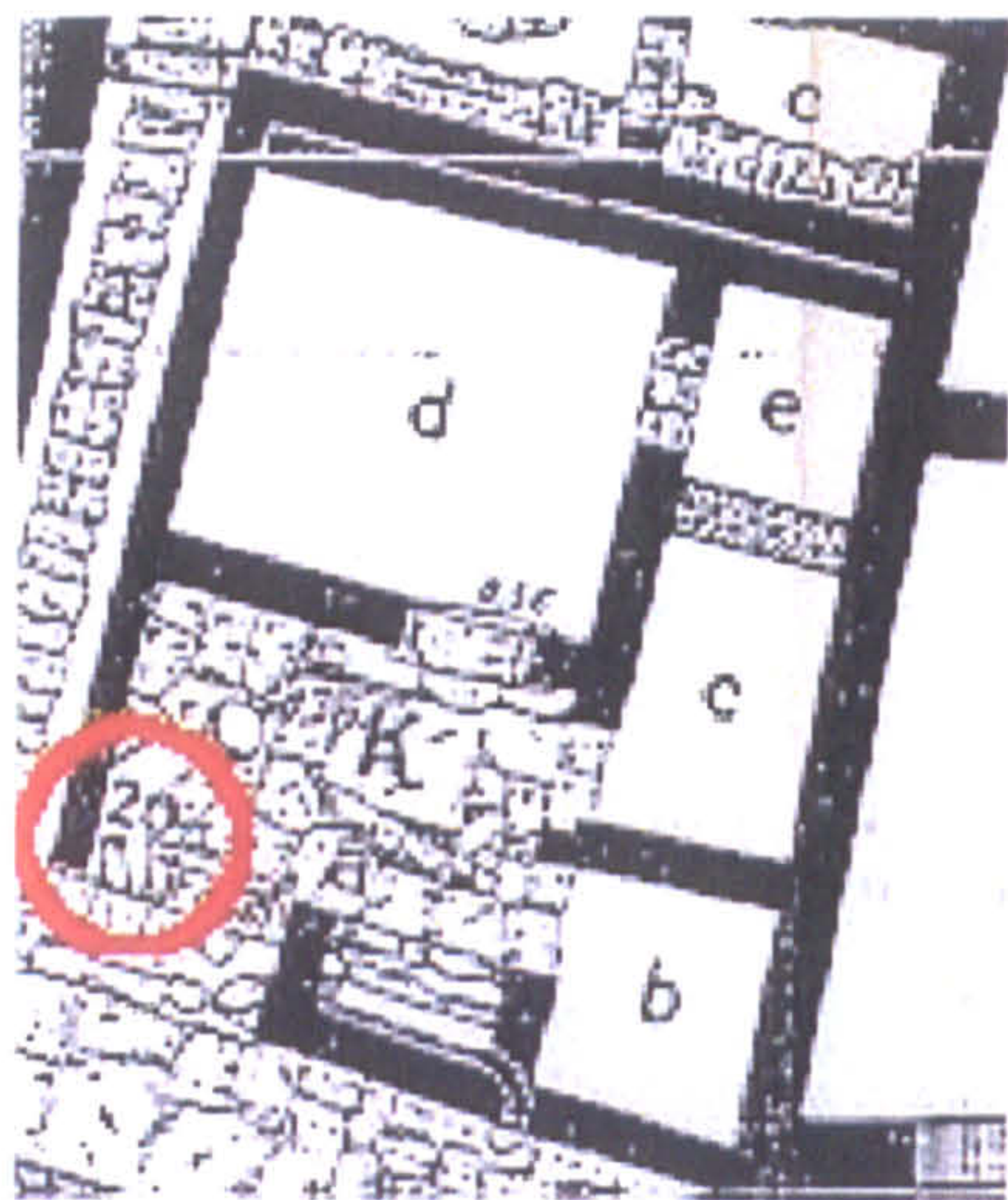
Position within the Theatre Quarter

### Notes

- a white plaster
- c white plaster
- d white wall with coloured frieze (Chamonard 1924: 365), no evidence of division as marked though difference in floor level, 0.24 to lower (wells etc.); niche 1.97m window /c 2.35m *VI J* ctyd large number of poros block; source of fall-through poros blocks from the upper floor
- e and h panel décor (Chamonard 1924: 365); e niches 2.14m; hole to Gh wall, 1.87m, incised wall plaster
- f plinth (Chamonard 1924: 362) incised plaster; f and g preserved mural décor (Chamonard 1922: 60)
- g support niches x 2 1.75m
- h alcove 1.97; incised anelling



VI K



Position within the Theatre Quarter



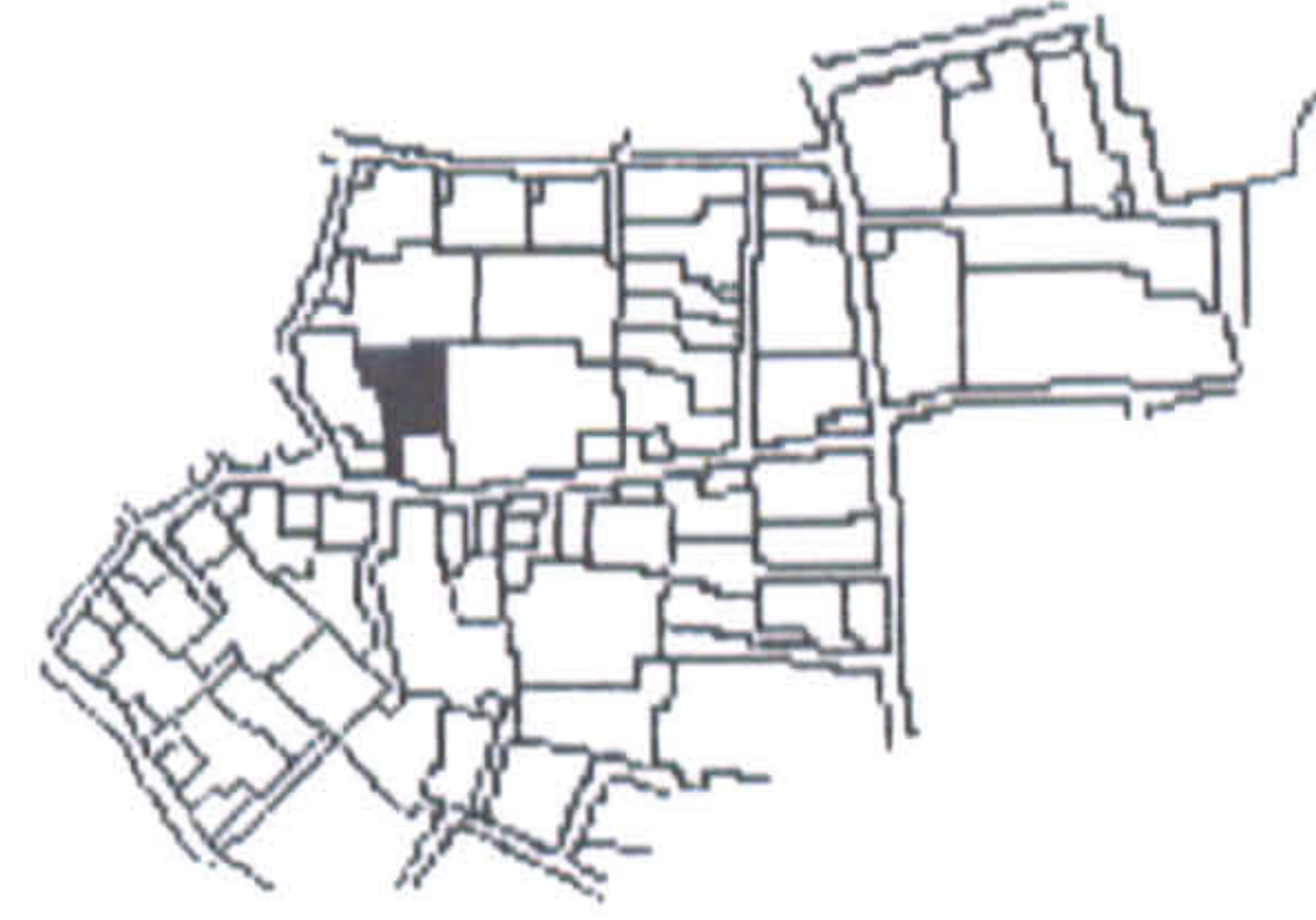
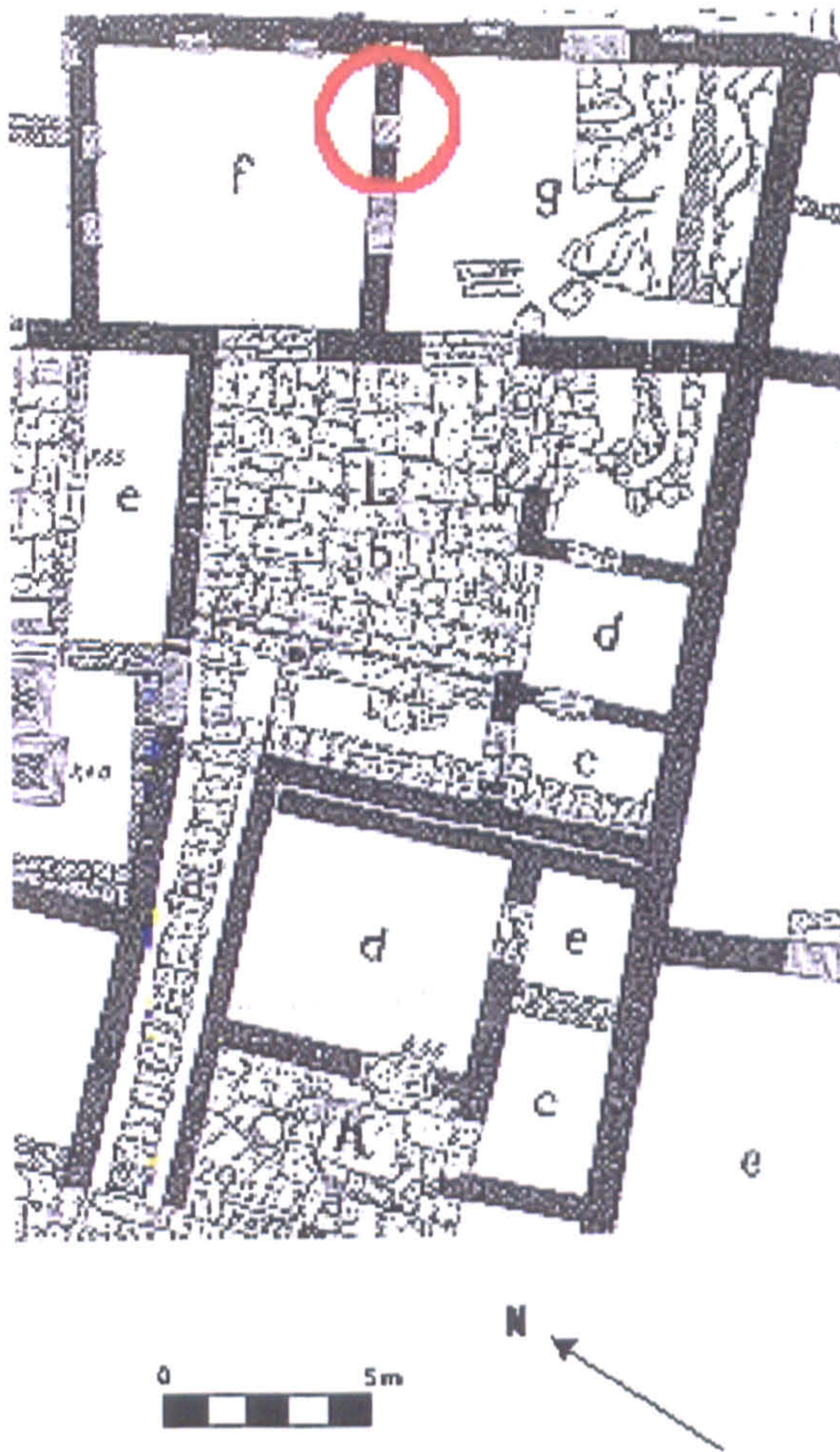
Notes

The wall onto TR extends across the house entrance

- b/a wall hole 0.80m up, 0.21h x 0.16w
- b/c series of 7 niches, 2.70m
- b/exterior jutting stones at 1.53m



## VI L



Position within the Theatre Quarter

### Plan amendments

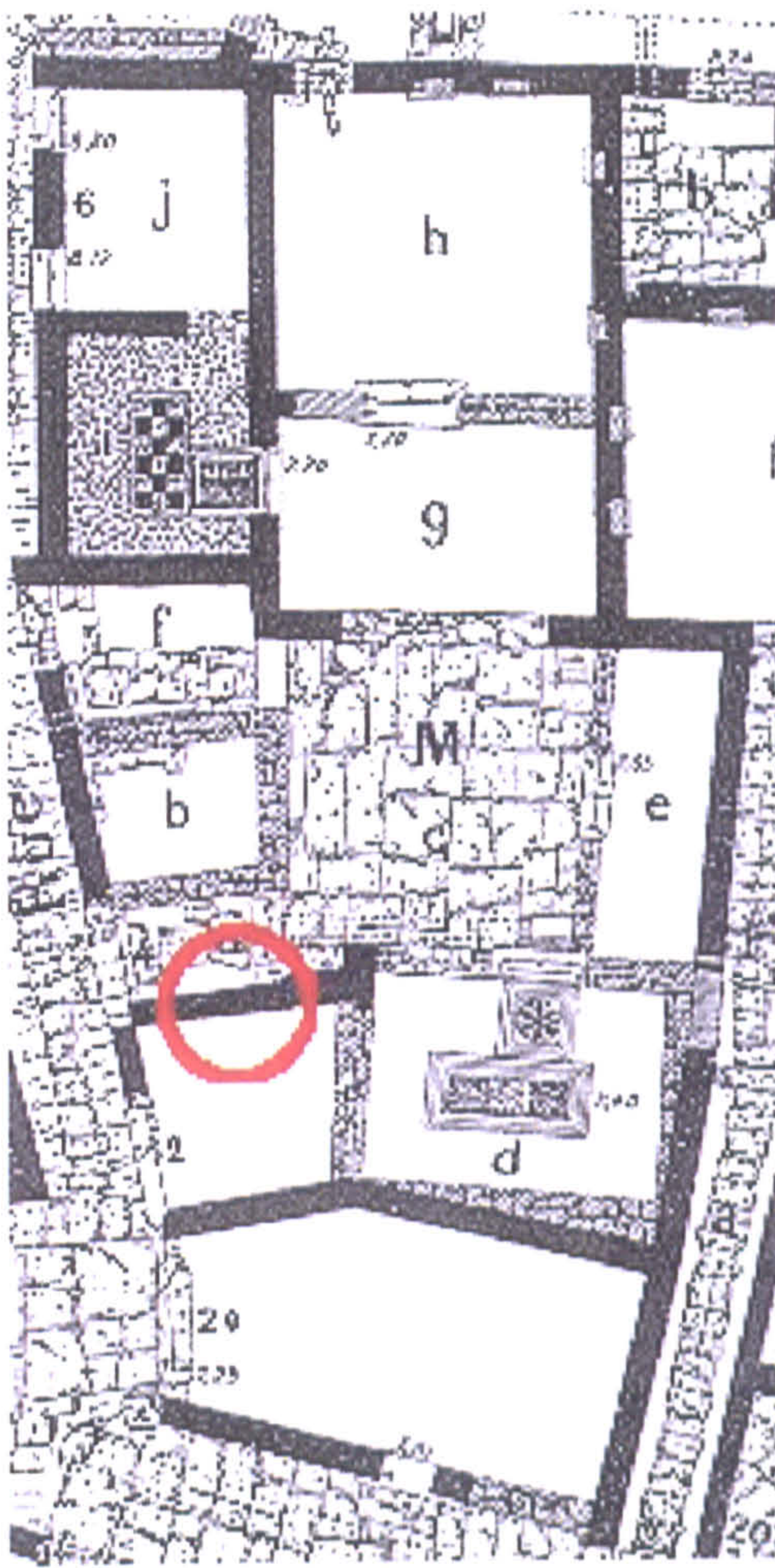
There is no evidence of a window between f and g

### Notes

- c coarse plaster
- d exedra; white wall with coloured frieze (Chamonard 1924: 355); incised plaster and red frieze
- f niches /Mg 1.62m, vs Nbc 1.54 hole in wall, f to g, 0.77h, 0.64w; drainage c 1ft channel sunk into the floor; *marked as window on plan*
- g Jutting stones – poss stairs /e? g/e hole 0.45w x 0.71h; elements of simple mural 60; also found 50 personal objects and architectural fragments, all in marble – bases, table tops and feet, sundials, window lintels, Doric and Ionic column capitals, all used/worn
- 61 marble worker/studio/workshop or collected in order to be melted down? foundry installed after TQ houses abandoned?; 2 kilns/ovens found in III I and another in VI N courtyard (adjacent)



## VI M



Position within the Theatre Quarter

**Plan amendments**

There is a low window between a and Rd4 2 (wall standing to c1.65m)  
window in wall between a and neighbouring shop Rd 1 2; 0.8m above ground

**Notes**

- a window to shopc 0.8m
- e white plaster
- f doors close on f side? (no details on plan)
- g large bay; *unique situation* leading to large room h with walls standing 5m+ (Chamonard 1922: 61), white plaster
- h coarse plaster; x4 niches, 2 on /N wall, 2 on /Nb, all c2.80m, vs g 1.75m; 62 contained many blocks of painted poros; from 1<sup>st</sup> floor?
- i coarse plaster; holes /h at c2m

Traces of mural decoration are rare in this house



VI N



Position within the Theatre Quarter



**Plan amendments**

There is an open doorway between g and h, 0.95m wide, 1.60m high (the wall standing to 3.52m)

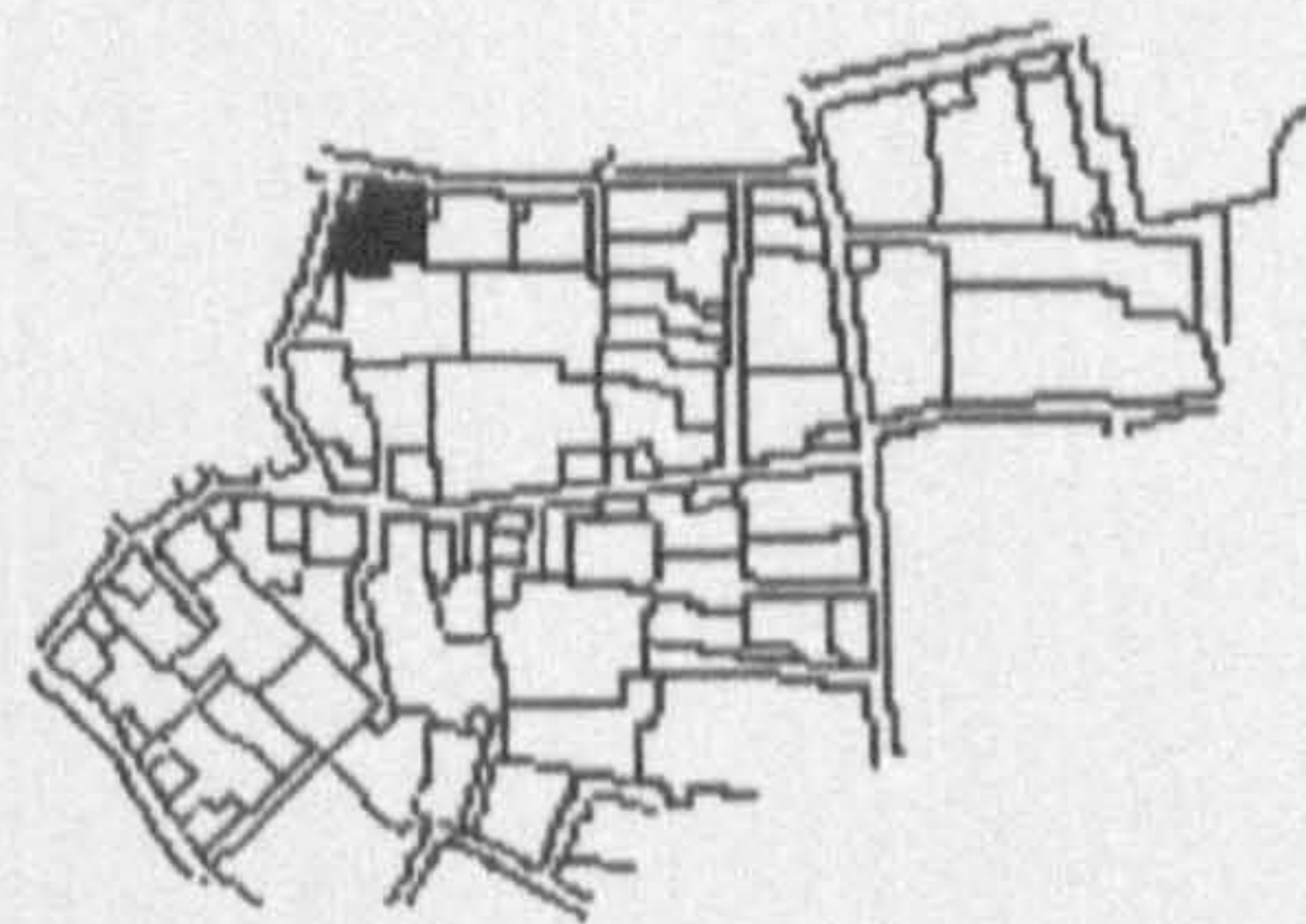
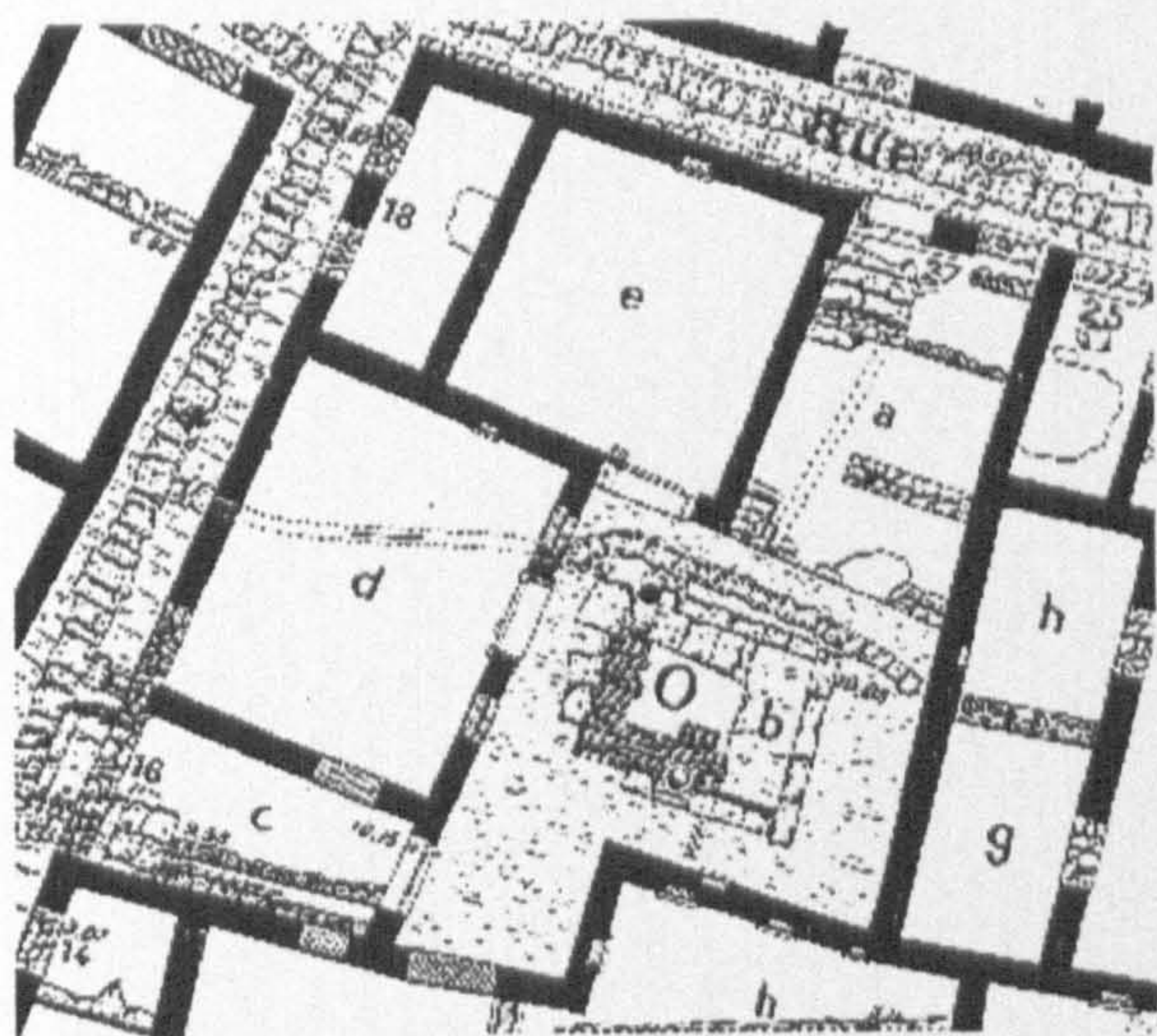
**Notes**

- a window/door c0.62 above floor level, coarse and pink plaster; Architectural changes – vestibule transformation from previous shop
- b support niches c3.60m x 6; x4 on c wall; pink plastered pillars
- flu feature between b and c, approx. 0.39 square; window 2m up
- c window c2.00m above floor level, blocked door 0.40m above ground level
- d coarse plaster; niches c2.24m above floor level; cols 4.94m 63 with Doric caps; ancient door to g now walled up; oven feature found against Lg wall
- f niches on back wall c1.58 and 1.72m; /g 1.50m
- g niches c1.66m; coarse plaster; g/h door/flr access, 0.95w x 1.60h
- h niches c2.36m
- z drainage channel from upper floor
- i/a wall niches x 5, 3.24m
- i coarse red plaster; w1 c2.23m above floor level, w2 c1.30m

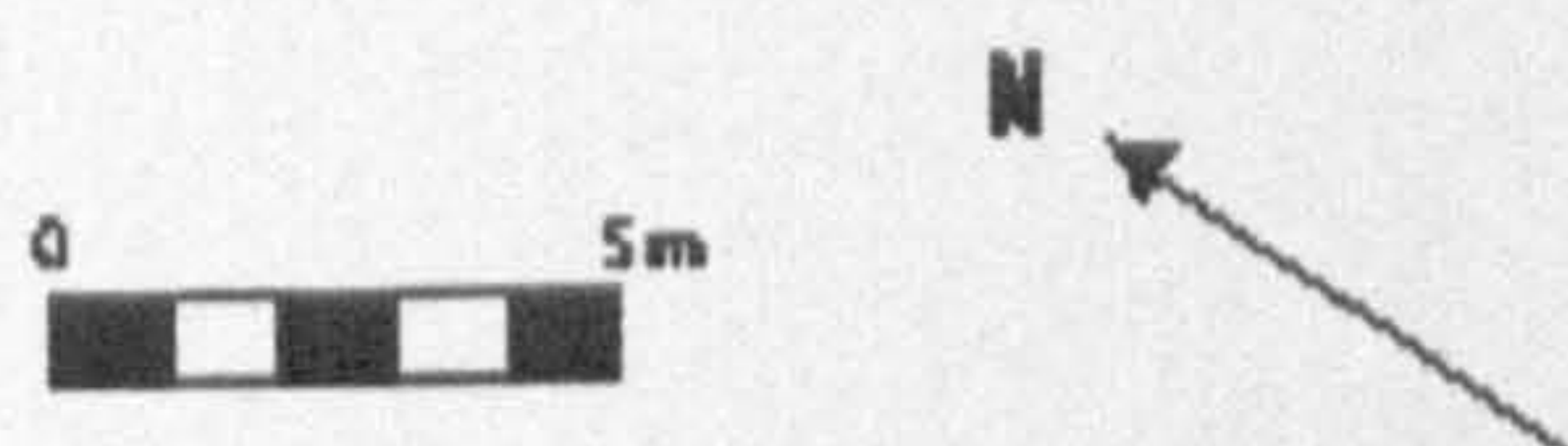
Wall décor lost from rooms though fragments survive from the upper floor and b/w mosaic pieces, fallen down into the vestibule



## VI O



Position within the Theatre Quarter

**Notes**

- a panel décor (Chamonard 1924: 365) niche  $c1.92\text{m}$  above floor level; 64 prob two small rooms occupying the space underneath the stair case; niche near STR entrance,  $2.29\text{m}$
- b panel décor (Chamonard 1924: 365) white wall, coloured frieze, niche  $c1.92$  above floor level, windows and windows  $c3.16\text{m}$  above floor level, Chamonard 1922: 155 column height  $3.45\text{m}$
- d oecus; panel décor (Chamonard 1924: 365) painted frieze detail, oves, niche  $c2.19\text{m}$  above floor level, windows  $1.50\text{m}$  above floor level; d and e : first floor decorated stucco, panel décor; also contains figural scenes including a man sat next to a ship and the figure of a sleeping women (Chamonard 1922: 66), also upper floor construction debris

(Chamonard 1922: 64) rich décor frags from upper floor and these combined with the lavish decoration of the ground floor rooms suggests this house was one of the most important on the island



# Appendix 2

## Access Analysis Calculations

**Keys:**

**Ranked results**

- ctyd            courtyard
- entr           entrance
- sole access   room providing the only access to one (or more) other(s)
- wc             latrine

**Mean depth and RRA**

- MD            mean depth
- RA            Relative Accessibility
- RRA          Real Relative Accessibility

**Control Status calculations**

- initial        initial control value assigned to each room space
- control       control value based on caluclations of adjacents' initial values

Spaces	D-value
1	-
2	-
3	-
4	-
5	0.352
6	0.349
7	0.340
8	0.328
9	0.317
10	0.306
11	0.295
12	0.285
13	0.276
14	0.267
15	0.259
16	0.251
17	0.244
18	0.237
19	0.231
20	0.225

Fraction	Decimal value
1/3	0.333
1/4	0.250
1/5	0.200
1/6	0.167
1/7	0.143
1/8	0.125
1/9	0.111
1/10	0.100
1/11	0.091

Table of D values used in the calculation of RRA  
(taken from Hillier and Hanson 1984: 112, Table 3)

Table of decimal values used for Control Status  
calculations

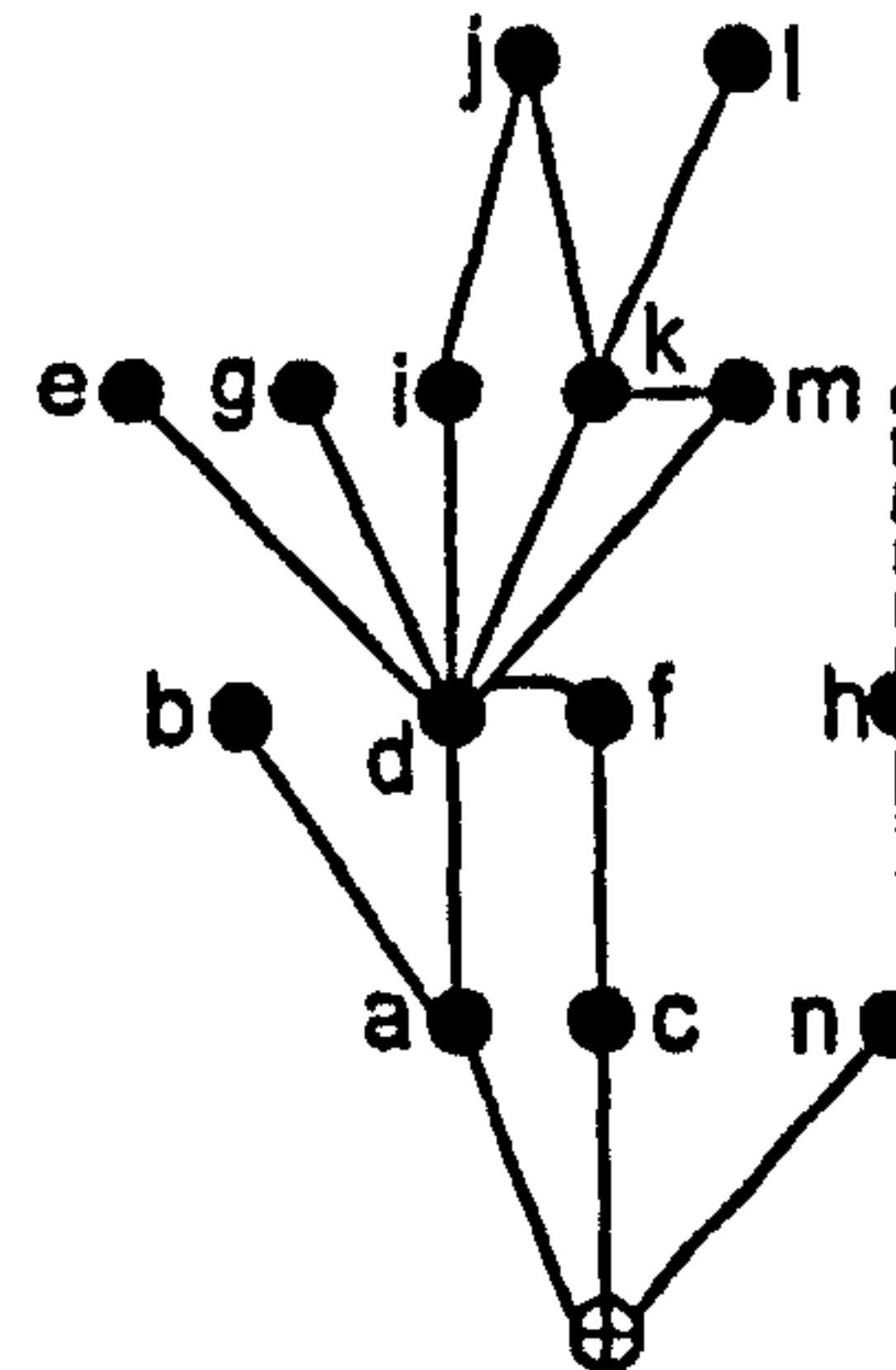






## II A

The area between the Road 2 entrance and the courtyard (d) has been labelled as an addition area, n. The stairwell, h, opens from this space and has an initial control value of \*0.500 as it provides access to the upper floor.



**Ranked results:**

	h	i	j	b	c	e	g	l	m	ext	f	k	n	a	d
<b>RRA</b>	1.962	1.382	1.293	1.204	1.026	1.026	1.026	0.981	0.892	0.892	0.803	0.803	0.669	0.580	0.446
	stair							exedra				sole	entr	entr	ctyd
	well											access			
	<i>least accessible</i>							→	<i>most accessible</i>						
	e	g	i	b	m	h	f	l	j	c	n	ext	a	k	d
<b>Control status</b>	0.143	0.143	0.250	0.333	0.393	0.500	0.643	0.643	0.750	0.833	0.833	1.333	1.476	2.143	4.083
						stair		exedra			entr		entr	sole	ctyd
						well								access	
	<i>least control</i>							→	<i>most control</i>						

**Mean Depth and RRA:**

	1	2	3	4	5	6	Depth	MD	RA	RRA
a	3	8	3				28	1.929	0.155	0.580
b	1	2	8	3			41	2.929	0.321	1.204
c	2	3	7	2			37	2.643	0.274	1.026
d	7	5	1	1			24	1.714	0.119	0.446
e	1	6	5	1	1		37	2.643	0.274	1.026
f	2	7	4	1			32	2.286	0.214	0.803
g	1	6	5	1	1		37	2.643	0.274	1.026
h	1	1	2	3	5	2	58	4.143	0.524	1.962
i	2	6	3	2	1		36	2.571	0.262	0.981
j	2	3	4	3	1	1	43	3.071	0.345	1.293
k	4	5	3	1	1		32	2.286	0.214	0.803
l	1	3	5	3	1	1	45	3.214	0.369	1.382
m	2	7	3	1	1		34	2.429	0.238	0.892
n	3	7	4				29	2.071	0.179	0.669
ext	3	4	5	2			34	2.429	0.238	0.892

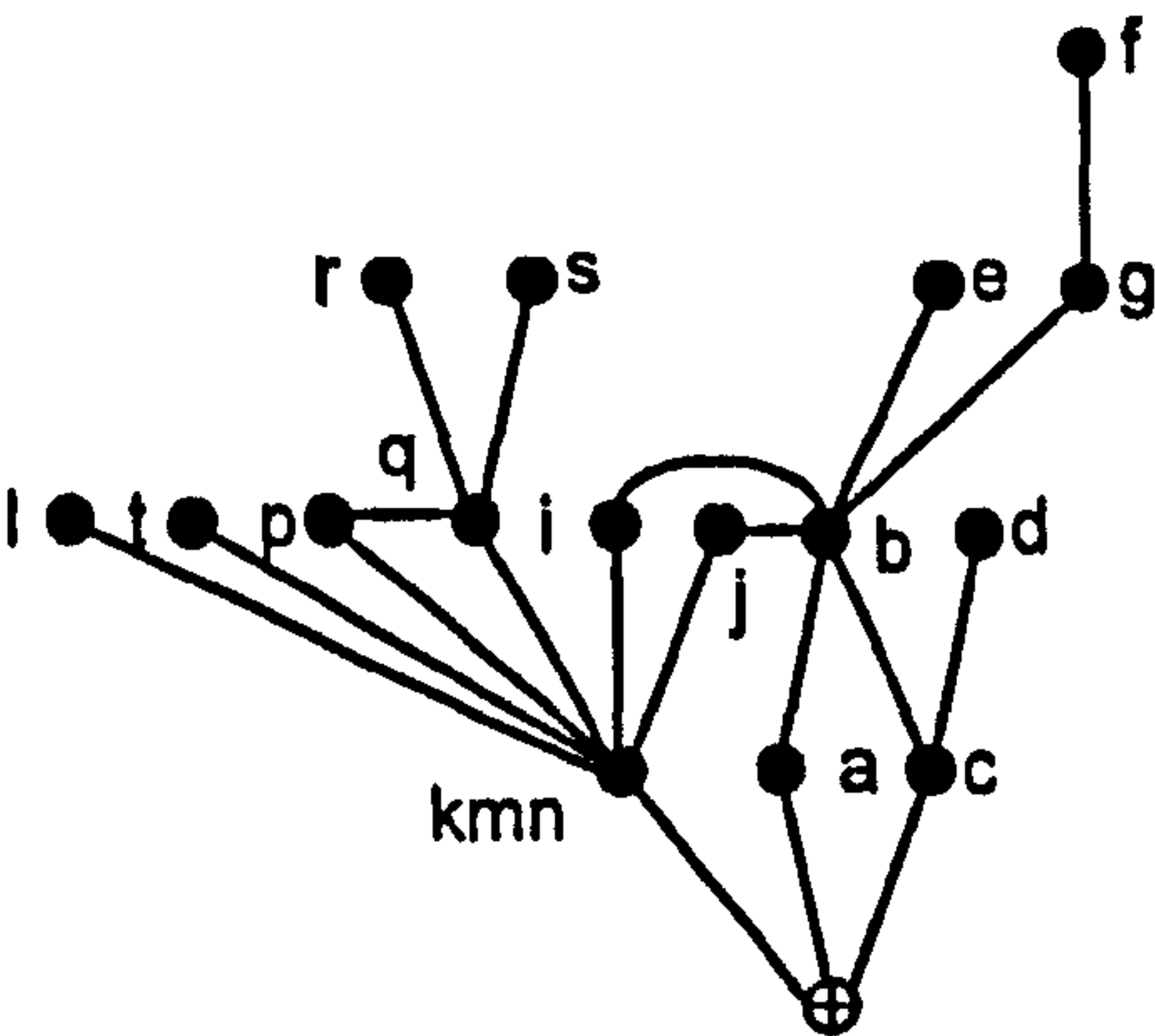
**Control status calculations:**

	Initial	Control
a	0.333	1.476
b	1.000	0.333
c	0.500	0.833
d	0.143	4.083
e	1.000	0.143
f	0.500	0.643
g	1.000	0.143
*h	0.500	0.500
i	0.500	0.643
j	0.500	0.750
k	0.250	2.143
l	1.000	0.250
m	0.500	0.393
n	0.500	0.833
ext	0.333	1.333



II B

Areas m and n and are not differentiated from the courtyard, and are grouped to form a single space, kmn. Areas n and o are separated by a row of flagstones indicating an earlier wall separating the area. Room o may have once been part of II C. Room h is only accessible from II C.



Ranked results:

	f	r	s	d	e	g	t	p	a	q	c	ext	b	i	j	kmn
RRA	1.538	1.304	1.304	1.237	1.104	1.037	0.970	0.869	0.803	0.803	0.736	0.635	0.602	0.602	0.602	0.468
wc									entr	sole					stairs	ctyd
	least accessible										most accessible					

	i	t	e	r	s	g	j	d	p	a	f	ext	c	q	b	kmn
Control status	0.143	0.143	0.166	0.250	0.250	1.166	0.309	0.333	0.393	0.499	0.500	0.976	1.499	2.643	3.333	4.083
						stairs				entr	wc			sole		ctyd
	least control										most control					

Mean Depth and RRA:

	1	2	3	4	5	6	Depth	MD	RA	RRA
a	2	6	6	2			40	2.500	0.214	0.803
b	6	4	4	2			34	2.125	0.161	0.602
c	3	6	5	2			38	2.375	0.196	0.736
d	1	2	6	5	2		53	3.313	0.330	1.237
e	1	5	4	4	2		49	3.063	0.295	1.104
f	1	1	5	3	4	2	62	3.875	0.411	1.538
g	2	5	3	4	2		47	2.938	0.277	1.037
i	2	10	4				34	2.125	0.161	0.602
j	2	10	4				34	2.125	0.161	0.602
kmn	7	5	3	1			30	1.875	0.125	0.468
l	1	6	5	3	1		45	2.813	0.259	0.970
p	2	7	3	3	1		42	2.625	0.232	0.869
q	4	5	3	3	1		40	2.500	0.214	0.803
r	1	3	5	3	3	1	55	3.438	0.348	1.304
s	1	3	5	3	3	1	55	3.438	0.348	1.304
t	1	6	5	3	1		45	2.813	0.259	0.970
ext	3	8	4	1			35	2.188	0.170	0.635

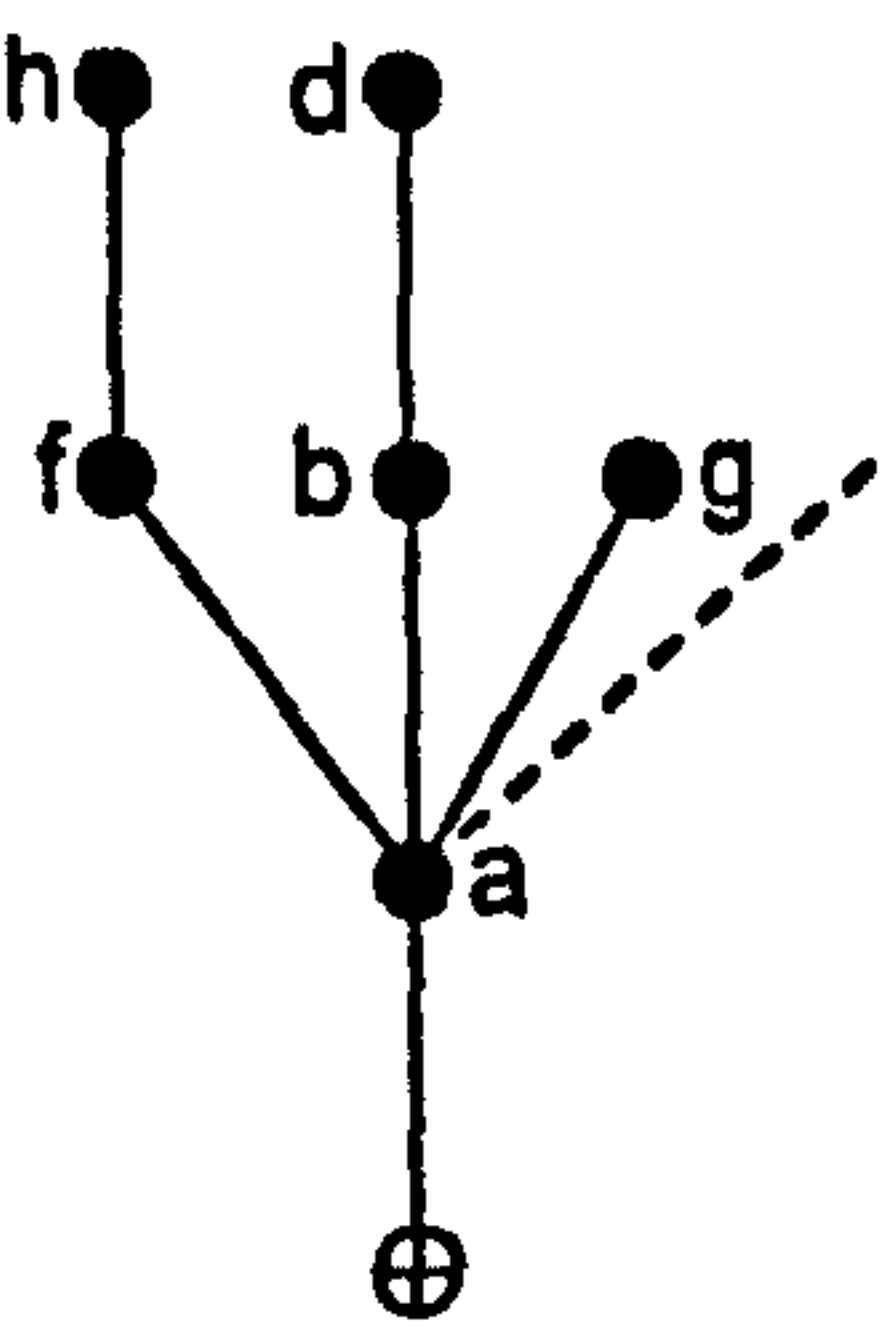
Control status calculations:

	Initial	Control
a	0.500	0.499
b	0.166	3.333
c	0.333	1.499
d	1.000	0.333
e	1.000	0.166
f	1.000	0.500
g	0.500	1.166
i	0.500	0.309
j	0.500	0.309
kmn	0.143	4.083
l	1.000	0.143
p	0.500	0.393
q	0.250	2.643
r	1.000	0.250
s	1.000	0.250
t	1.000	0.143
ext	0.333	0.976



II D

The courtyard, a, contains stairs to the upper floor and therefore links to additional space giving it an initial control value of \*0.200



Ranked results:

	d	h	g	ext	b	f	a
RRA	2.388	2.388	1.671	1.671	1.194	1.194	0.478
					sole access	sole access	ctyd
	least accessible			→	most accessible		

	g	ext	d	h	b	f	a
Control status	0.200	0.200	0.500	0.500	1.200	1.200	3.000
					sole access	sole access	ctyd
	least control			→	most control		

Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	4	2			8	1.333	0.167	0.478
b	2	3	1		11	1.833	0.417	1.194
d	1	1	3	1	16	2.667	0.833	2.388
f	2	3	1		11	1.833	0.417	1.194
g	1	3	2		13	2.167	0.583	1.671
h	1	1	3	1	16	2.667	0.833	2.388
ext	1	3	2		13	2.167	0.583	1.671

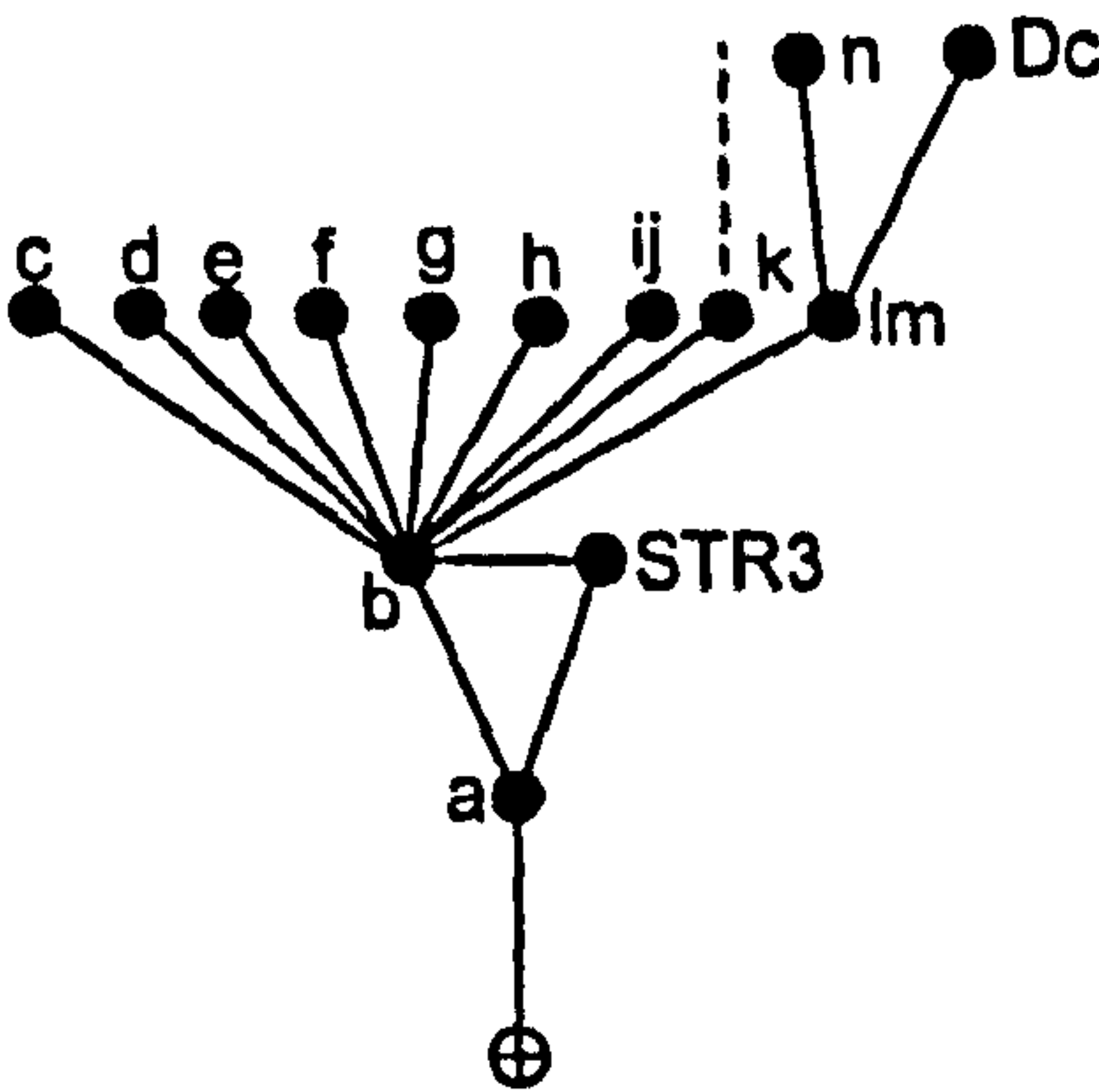
Control status calculations:

	Initial	Control
*a	0.200	3.000
b	0.500	1.200
d	1.000	0.500
f	0.500	1.200
g	1.000	0.200
h	1.000	0.500
ext	1.000	0.200



II E

Areas ij and lm are treated as single room spaces as there are no discernible partition between each pair of areas.



Ranked results:

	ext	n	Dc	ij	c	d	e	f	g	h	k	STR3	a	lm	b
RRA	1.076	1.037	1.037	0.730	0.691	0.691	0.691	0.691	0.691	0.691	0.691	0.576	0.538	0.499	0.115
				bath suite	exedra						stairs	well	entr	sole access	ctyd
	least accessible										most accessible				

	c	d	e	f	g	h	ij	k	n	Dc	ext	STR3	a	lm	b
Control status	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.333	0.333	0.333	0.423	1.590	2.090	8.666
	exedra						bath suite	stairs				well	entr	sole access	ctyd
	least control										most control				

Mean Depth and RRA:

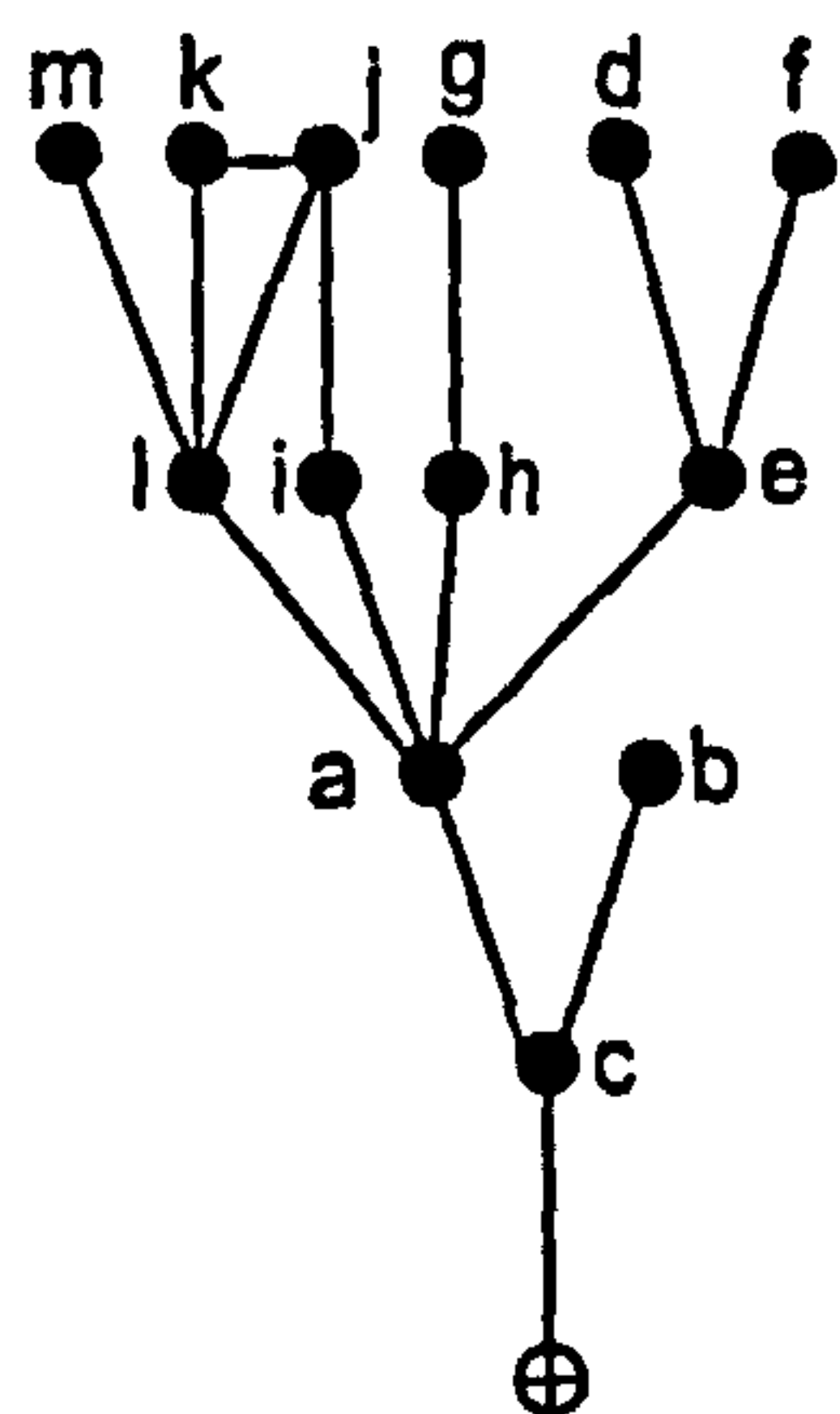
	1	2	3	4	Depth	MD	RA	RRA
a	3	10	2		29	1.933	0.144	0.538
b	12	3			18	1.200	0.031	0.115
c	1	11	2	1	33	2.200	0.185	0.691
d	1	11	2	1	33	2.200	0.185	0.691
e	1	11	2	1	33	2.200	0.185	0.691
f	1	11	2	1	33	2.200	0.185	0.691
g	1	11	2	1	33	2.200	0.185	0.691
h	1	11	2	1	33	2.200	0.185	0.691
ij	2	11	2	1	34	2.267	0.195	0.730
k	1	11	2	1	33	2.200	0.185	0.691
lm	3	11	1		28	1.867	0.133	0.499
n	1	2	11	1	42	2.800	0.277	1.037
STR3	2	11	2		30	2.000	0.154	0.576
Dc	1	2	11	1	42	2.800	0.277	1.037
ext	1	2	10	2	43	2.867	0.287	1.076

Control status calculations:

	Initial	control
a	0.333	1.590
b	0.090	8.666
c	1.000	0.090
d	1.000	0.090
e	1.000	0.090
f	1.000	0.090
g	1.000	0.090
h	1.000	0.090
ij	1.000	0.090
k	0.500	0.090
lm	0.333	2.090
n	1.000	0.333
Dc	1.000	0.333
STR3	0.500	0.423
ext	1.000	0.333



II F



Ranked results:

	g	b	ext	d	f	m	k	j	h	i	c	e	l	a
RRA	1.520	1.419	1.419	1.368	1.368	1.318	1.216	1.064	0.912	0.861	0.811	0.760	0.709	0.405
	wc								sole access		entr	sole access	sole access	ctyd
	least accessible								→				most accessible	
	m	b	d	f	ext	g	i	k	h	j	a	l	c	e
Control status	0.250	0.333	0.333	0.333	0.333	0.500	0.533	0.583	1.200	1.250	1.916	2.033	2.200	2.200
	wc								sole access		ctyd	sole access	entr	sole access
	least control								→				most control	

Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	5	8			21	1.615	0.112	0.405
b	1	2	4	6	41	3.154	0.392	1.419
c	3	4	6		29	2.231	0.224	0.811
d	1	2	5	5	40	3.077	0.378	1.368
e	3	5	5		28	2.154	0.210	0.760
f	1	2	5	5	40	3.077	0.378	1.368
g	1	1	4	7	43	3.308	0.420	1.520
h	2	4	7		31	2.385	0.252	0.912
i	2	5	6		30	2.308	0.238	0.861
j	3	3	3	4	34	2.615	0.294	1.064
k	2	3	3	5	37	2.846	0.336	1.216
l	4	4	5		27	2.077	0.196	0.709
m	1	3	4	5	39	3.000	0.364	1.318
ext	1	2	4	6	41	3.154	0.392	1.419

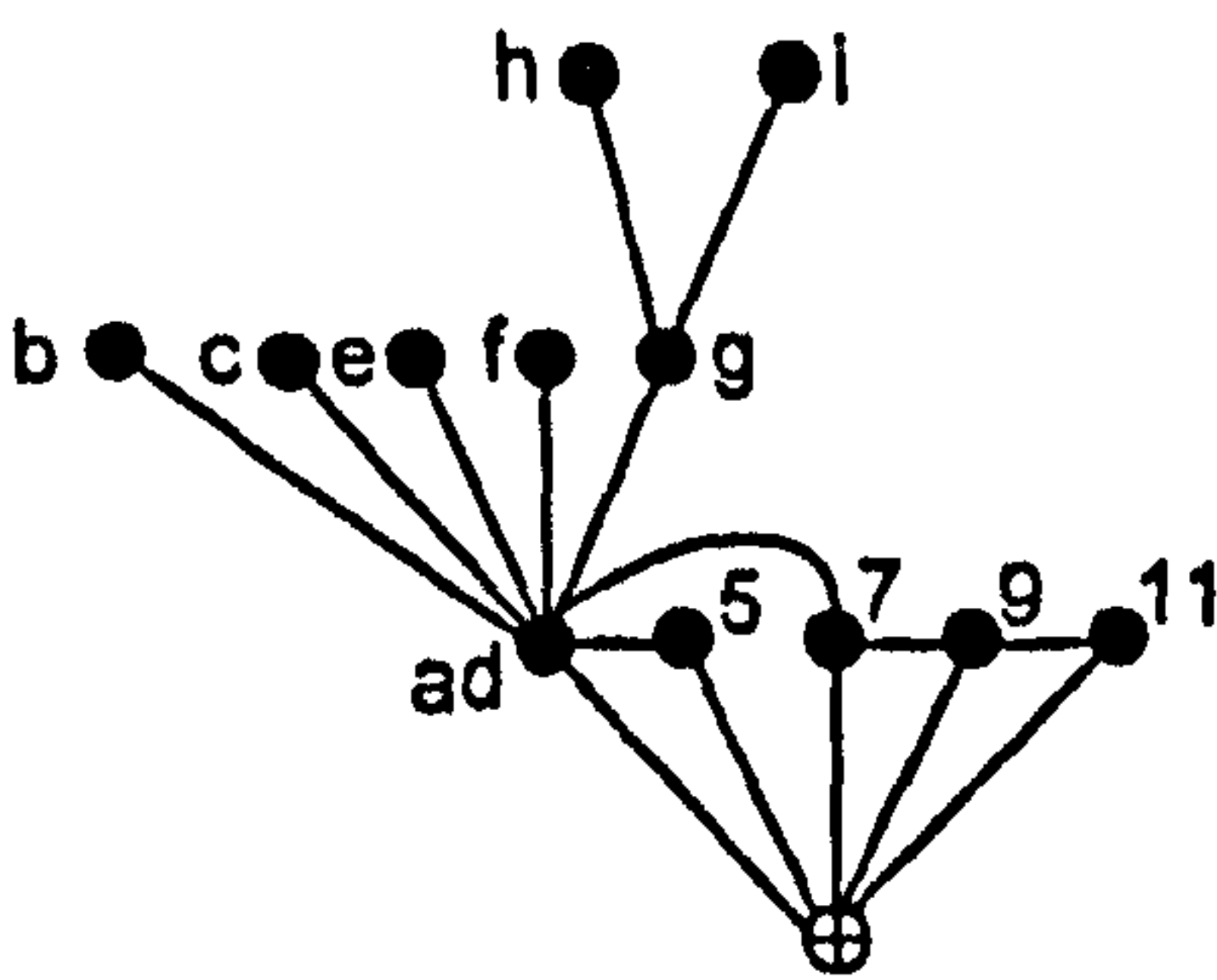
Control status calculations:

	Initial	Control
a	0.200	1.916
b	1.000	0.333
c	0.333	2.200
d	1.000	0.333
e	0.333	2.200
f	1.000	0.333
g	1.000	0.500
h	0.500	1.200
i	0.500	0.533
j	0.333	1.250
k	0.500	0.583
l	0.250	2.033
m	1.000	0.250
ext	1.000	0.333



III A

Areas a and d are treated as one area, ad, as there is no discernible distinction between them.



Ranked results:

	h	i	11	9	b	c	e	f	5	g	7	ext	ad
RRA	1.208	1.208	1.043	0.988	0.823	0.823	0.823	0.823	0.659	0.604	0.604	0.494	0.220
						wc							
									sole access			ctyd	
	least accessible					→			most accessible				
	b	c	e	f	h	i	11	5	7	9	ext	g	ad
Control status	0.125	0.125	0.125	0.125	0.333	0.333	0.533	0.658	0.658	1.033	1.624	2.125	4.866
						wc							
									sole access			ctyd	
	least control					→			most control				

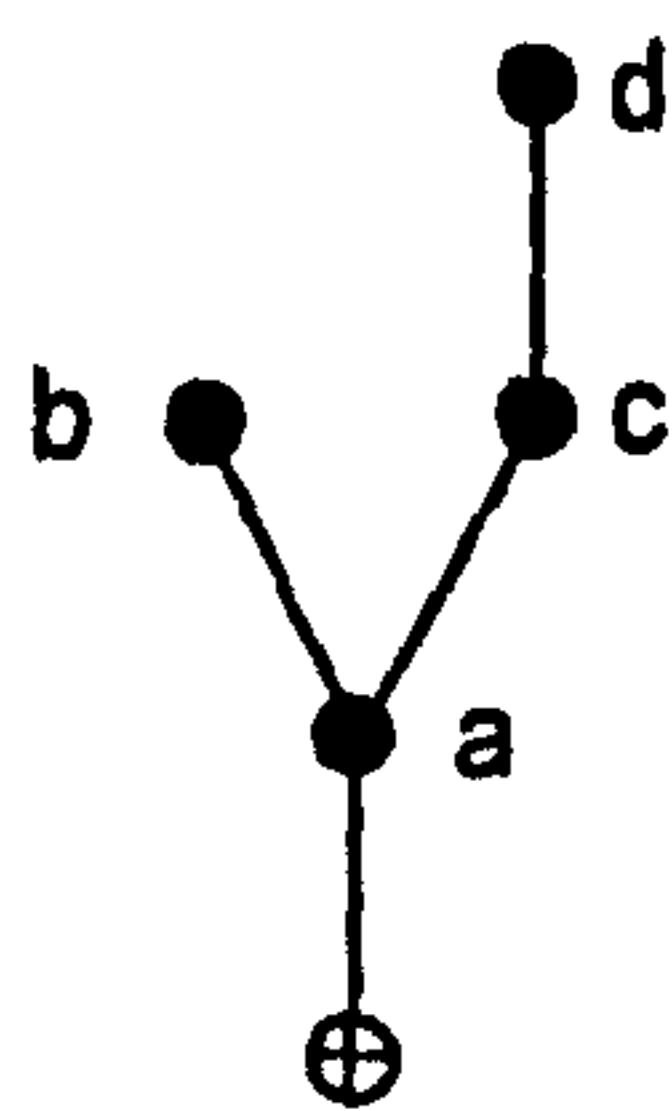
Mean Depth and RRA: calculations:

Control status

	1	2	3	4	Depth	MD	RA	RRA		Initial	Control
ad	8	4			16	1.333	0.061	0.220	ad	0.125	4.866
b	1	7	4		27	2.250	0.227	0.823	b	1.000	0.125
c	1	7	4		27	2.250	0.227	0.823	c	1.000	0.125
e	1	7	4		27	2.250	0.227	0.823	e	1.000	0.125
f	1	7	4		27	2.250	0.227	0.823	f	1.000	0.125
g	3	7	2		23	1.917	0.167	0.604	g	0.333	2.125
h	1	2	7	2	34	2.833	0.333	1.208	h	1.000	0.333
i	1	2	7	2	34	2.833	0.333	1.208	i	1.000	0.333
5	2	8	2		24	2.000	0.182	0.659	5	0.333	0.658
7	3	7	2		23	1.917	0.167	0.604	7	0.333	0.658
9	3	2	5	2	30	2.500	0.273	0.988	9	0.333	1.033
11	2	3	5	2	31	2.583	0.288	1.043	11	0.500	0.533
ext	5	5	2		21	1.750	0.136	0.494	ext	0.200	1.624



III B



Ranked results:

	ext	d	c	b	a
RRA	1.894	2.367	0.947	1.894	0.473
				wc	ctyd
	least accessible		→	most accessible	

	b	ext	d	c	a
Control status	0.333	0.333	0.500	1.333	2.500
	wc				ctyd
	least control		→	most control	

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	3	1		5	1.250	0.167	0.473
b	1	2	1	8	2.000	0.667	1.894
c	2	2		6	1.500	0.333	0.947
d	1	1	2	9	2.250	0.833	2.367
ext	1	2	1	8	2.000	0.667	1.894

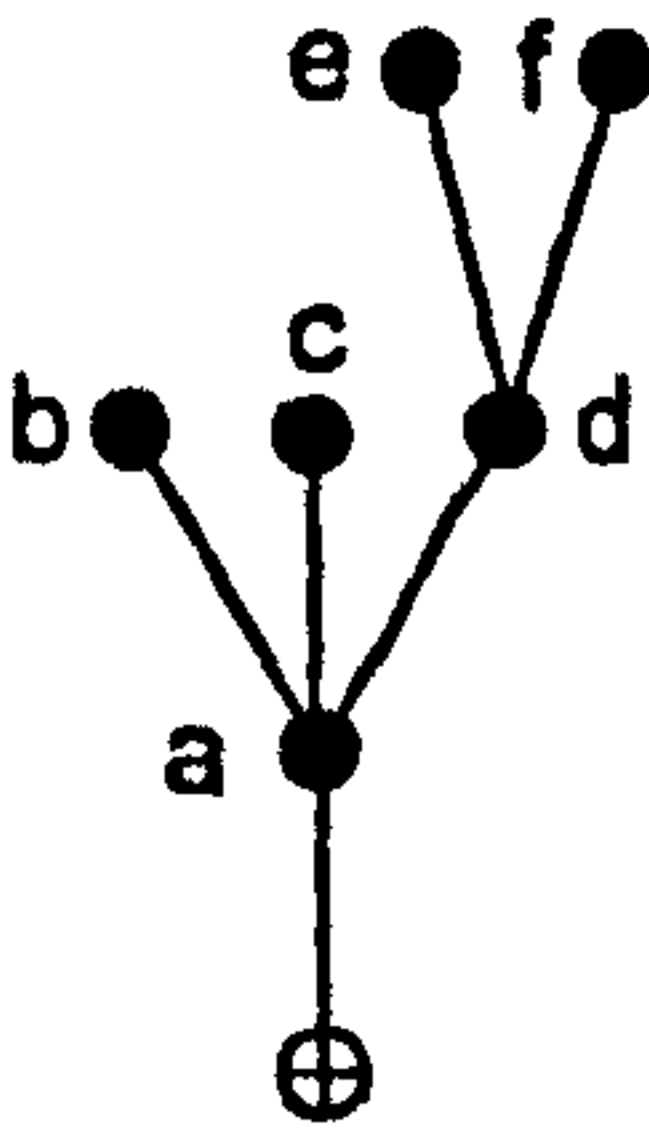
Control status calculations:

	Initial	Control
a	0.333	2.500
b	1.000	0.333
c	0.500	1.333
d	1.000	0.500
ext	1.000	0.333



III C

Area b is distinguished from the courtyard space, a, on account of the wall extension at its entrance.



Ranked results.

	e	f	b	c	ext	a	d
RRA	1.307	1.307	1.144	1.144	1.144	0.490	0.490
				wc		entr	sole
						ctyd	access
	least accessible			→			
				most accessible			

Control	b	c	ext	e	f	d	a
status	0.250	0.250	0.250	0.333	0.333	2.250	3.333
		wc				sole	entr
						access	ctyd
	least control			→			
				most control			

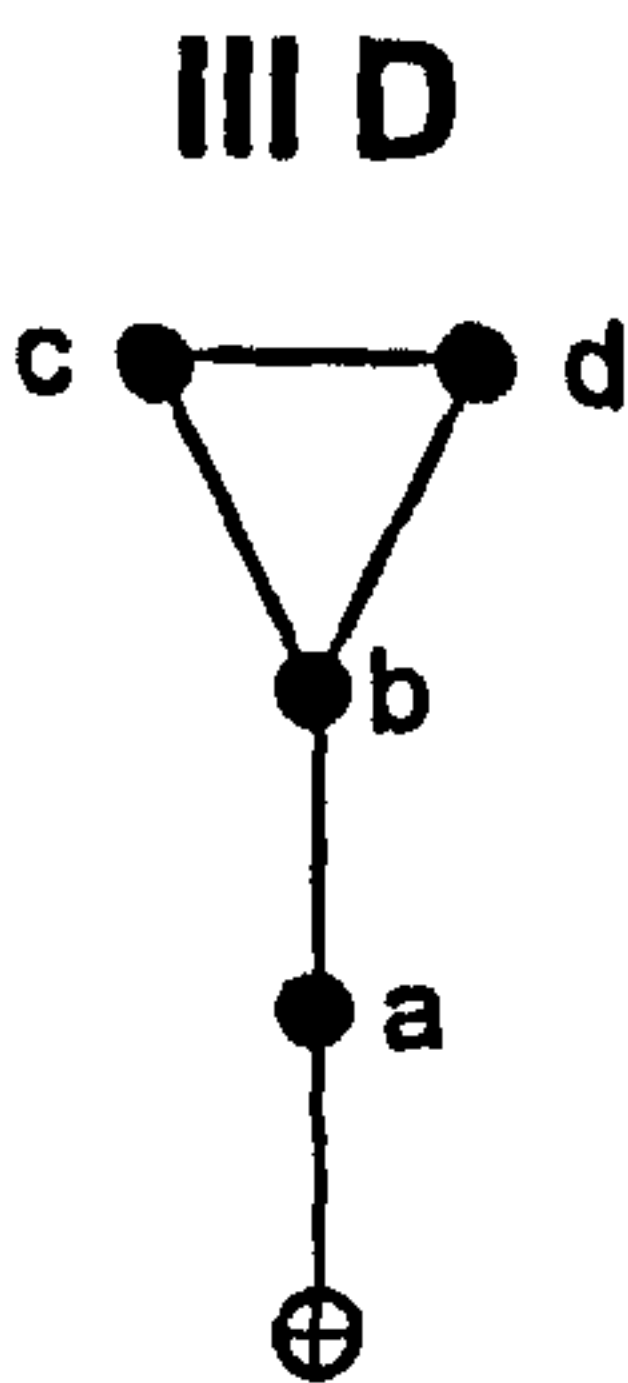
Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	3	3		9	1.500	0.167	0.490
b	1	3	2	13	2.167	0.389	1.144
c	1	3	2	13	2.167	0.389	1.144
d	3	3		9	1.500	0.167	0.490
e	1	2	3	14	2.333	0.444	1.307
f	1	2	3	14	2.333	0.444	1.307
ext	1	3	2	13	2.167	0.389	1.144

Control status calculations:

	Initial	Control
a	0.250	3.333
b	1.000	0.250
c	1.000	0.250
d	0.333	2.250
e	1.000	0.333
f	1.000	0.333
ext	1.000	0.250





Ranked results:

	ext	c	d	a	b
RRA	2.367	1.420	1.420	0.947	0.473
				ctyd	sole
					access
	least accessible		→	most accessible	

	ext	c	d	a	b
Control status	0.500	0.833	0.833	1.333	1.500
				ctyd	sole
					access
	least control		→	most control	

Mean Depth and RRA:

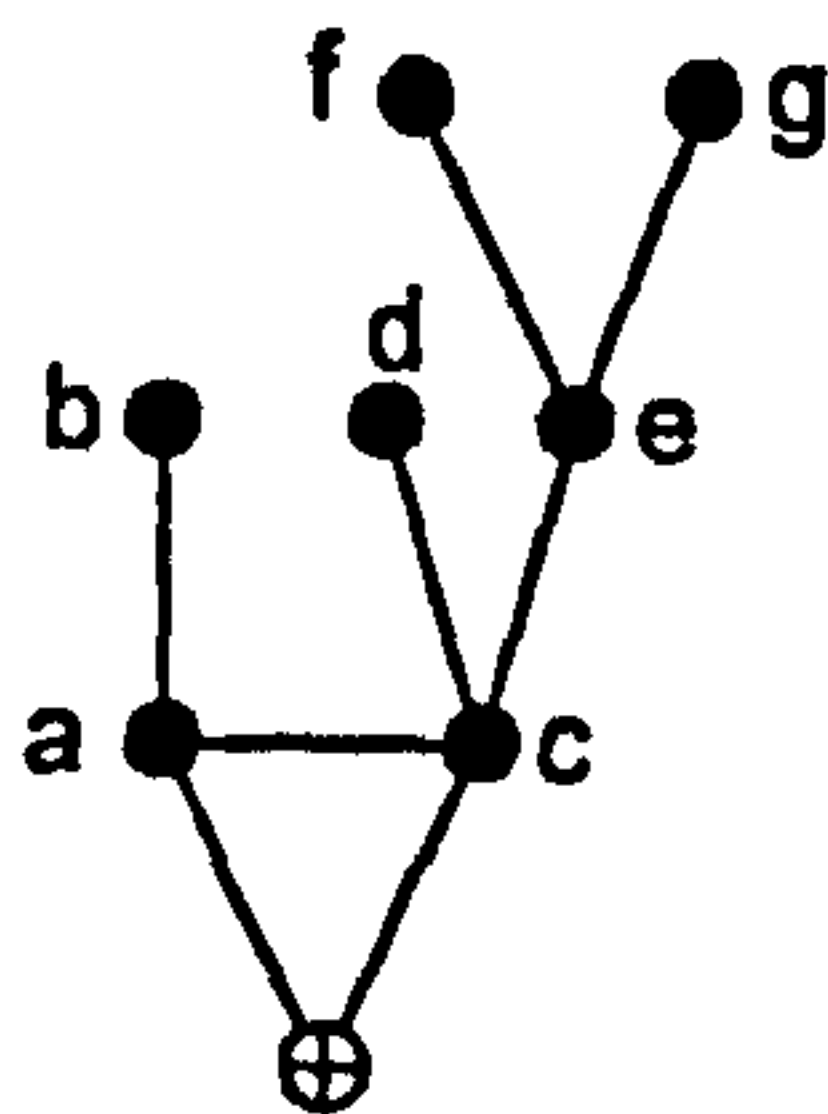
	1	2	3	Depth	MD	RA	RRA
a	2	2		6	1.500	0.333	0.947
b	3	1		5	1.250	0.167	0.473
c	2	1	1	7	1.750	0.500	1.420
d	2	1	1	7	1.750	0.500	1.420
ext	1	1	2	9	2.250	0.833	2.367

Control status calculations:

	Initial	Control
a	0.500	1.333
b	0.333	1.500
c	0.500	0.833
d	0.500	0.833
ext	1.000	0.500



III E



Ranked results:

	b	f	g	ext	d	a	e	c
RRA	1.742	1.597	1.597	1.452	1.307	0.871	0.726	0.436
	wc					entr	sole	ctyd
							access	
	least accessible				most accessible			

	d	b	f	g	ext	a	c	e
Control status	0.250	0.333	0.333	0.333	0.583	1.750	2.166	2.250
		wc				entr	ctyd	sole
								access
	least control				most control			

Mean Depth and RRA:

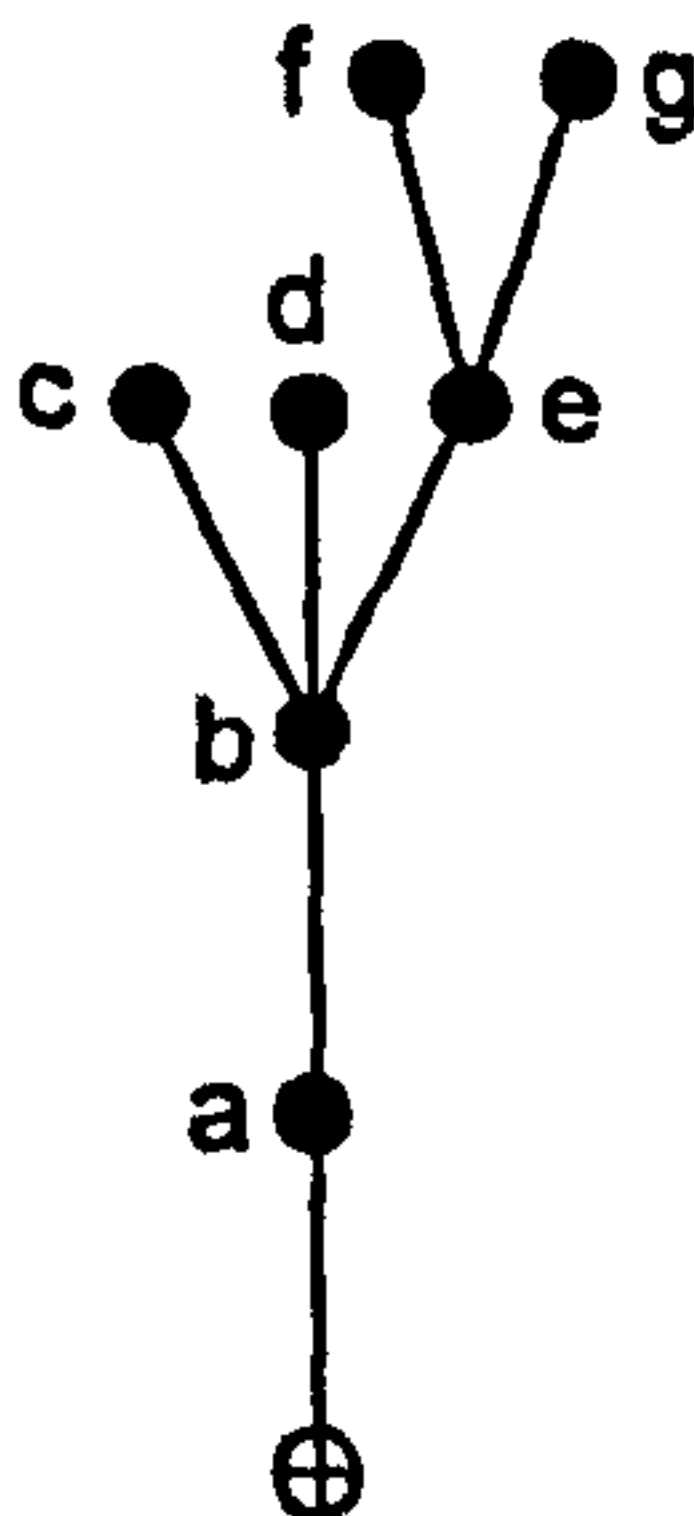
	1	2	3	4	Depth	MD	RA	RRA
a	3	2	2		13	1.857	0.286	0.871
b	1	2	2	2	19	2.714	0.571	1.742
c	4	3			10	1.429	0.143	0.436
d	1	3	3		16	2.286	0.429	1.307
e	3	3	1		12	1.714	0.238	0.726
f	1	2	3	1	18	2.571	0.524	1.597
g	1	2	3	1	18	2.571	0.524	1.597
ext	2	3	3		17	2.429	0.476	1.452

Control status calculations:

	Initial	Control
a	0.333	1.750
b	1.000	0.333
c	0.250	2.166
d	1.000	0.250
e	0.333	2.250
f	1.000	0.333
g	1.000	0.333
ext	0.500	0.583



III F



Ranked results:

	ext	f	g	c	d	a	e	b
RRA	1.887	1.597	1.597	1.307	1.307	1.016	0.726	0.436
						entr	sole	ctyd
							access	
	least accessible			→				
				most accessible				

	c	d	f	g	ext	a	e	b
Control status	0.250	0.250	0.333	0.333	0.500	1.250	2.250	2.833
						entr	sole	ctyd
							access	
	least control			→				
				most control				

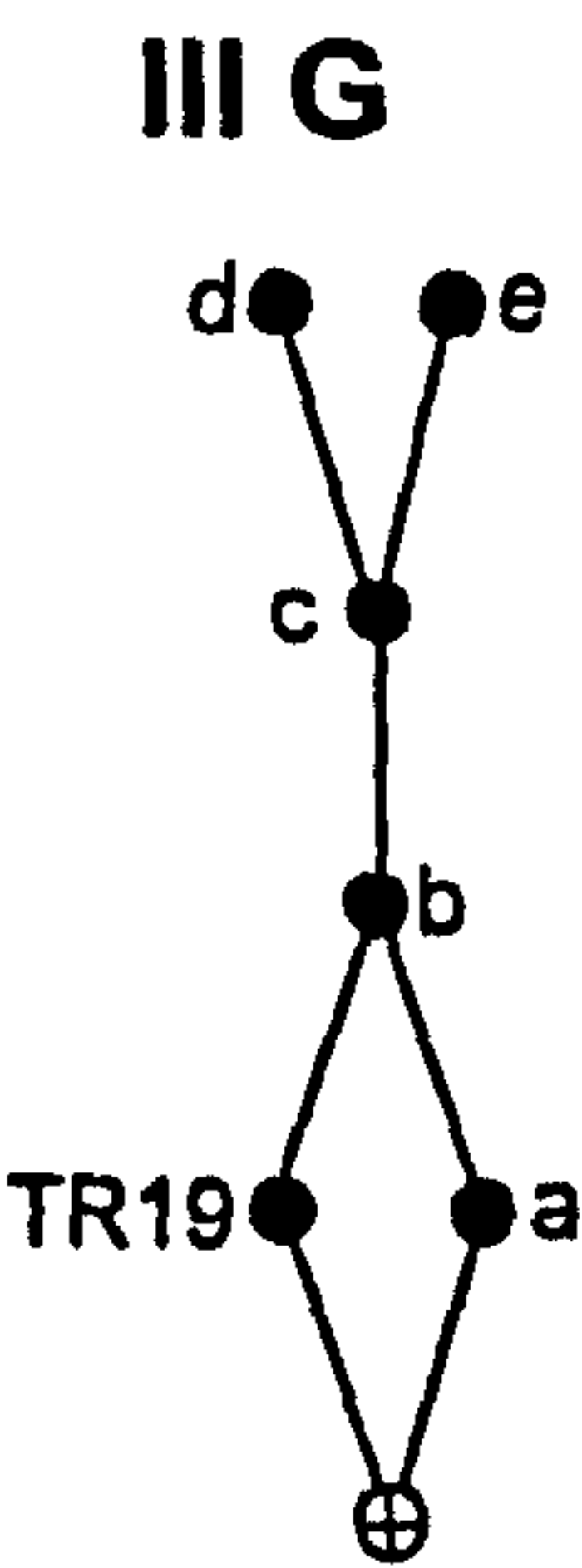
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	2	3	2		14	2.000	0.333	1.016
b	4	3			10	1.429	0.143	0.436
c	1	3	3		16	2.286	0.429	1.307
d	1	3	3		16	2.286	0.429	1.307
e	3	3	1		12	1.714	0.238	0.726
f	1	2	3	1	18	2.571	0.524	1.597
g	1	2	3	1	18	2.571	0.524	1.597
ext	1	1	3	2	20	2.857	0.619	1.887

Control status calculations:

	Initial	Control
a	0.500	1.250
b	0.250	2.833
c	1.000	0.250
d	1.000	0.250
e	0.333	2.250
f	1.000	0.333
g	1.000	0.333
ext	1.000	0.500





Ranked results:

	d	e	ext	a	19	c	b
RRA	1.765	1.765	1.765	1.176	1.176	0.784	0.588
				entr	shop	sole	ctyd
						access	
	least accessible			→ most accessible			

	e	a	TR19	d	ext	b	c
Control	0.333	0.833	0.833	1.000	1.000	1.333	2.333
status		entr	shop			ctyd	sole
							access
	least control			→ most control			

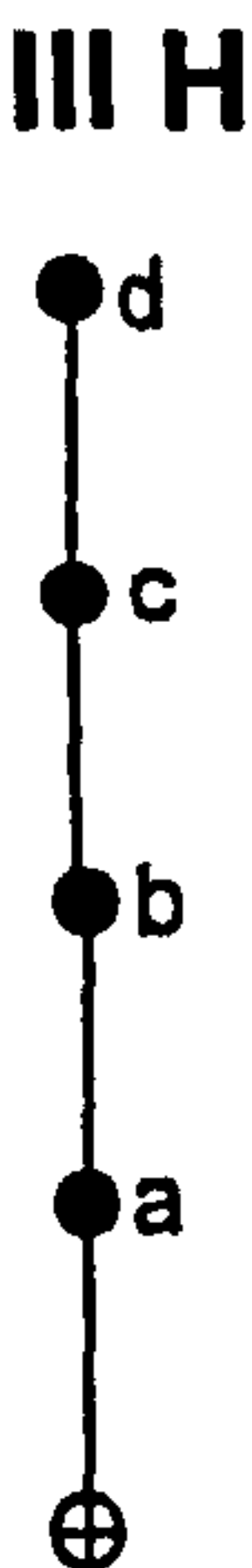
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	2	2	2		12	2.000	0.400	1.176
b	3	3			9	1.500	0.200	0.588
c	3	2	1		10	1.667	0.267	0.784
d	1	2	2	1	15	2.500	0.600	1.765
e	1	2	2	1	15	2.500	0.600	1.765
TR19	2	2	2		12	2.000	0.400	1.176
ext	2	1	1	2	15	2.500	0.600	1.765

Control status calculations:

	Initial	Control
a	0.500	0.833
b	0.333	1.333
c	0.333	2.333
d	1.000	1.000
e	1.000	0.333
TR19	0.500	0.833
ext	0.500	1.000





Ranked results:

	d	ext	a	c	b
RRA	2.841	2.841	1.420	1.420	0.947
			entr	sole	ctyd
				access	
	least		→	most	
	accessible			accessible	

	d	ext	b	a	c
Control	0.500	0.500	1.000	1.500	1.500
status			ctyd	entr	sole
					access
	least control		→	most control	

Mean Depth and RRA:

a	1	2	3	4	Depth	MD	RA	RRA
b	2	1	1		7	1.750	0.500	1.420
c	2	2			6	1.500	0.333	0.947
d	2	1	1		7	1.750	0.500	1.420
ext	1	1	1	1	10	2.500	1.000	2.841

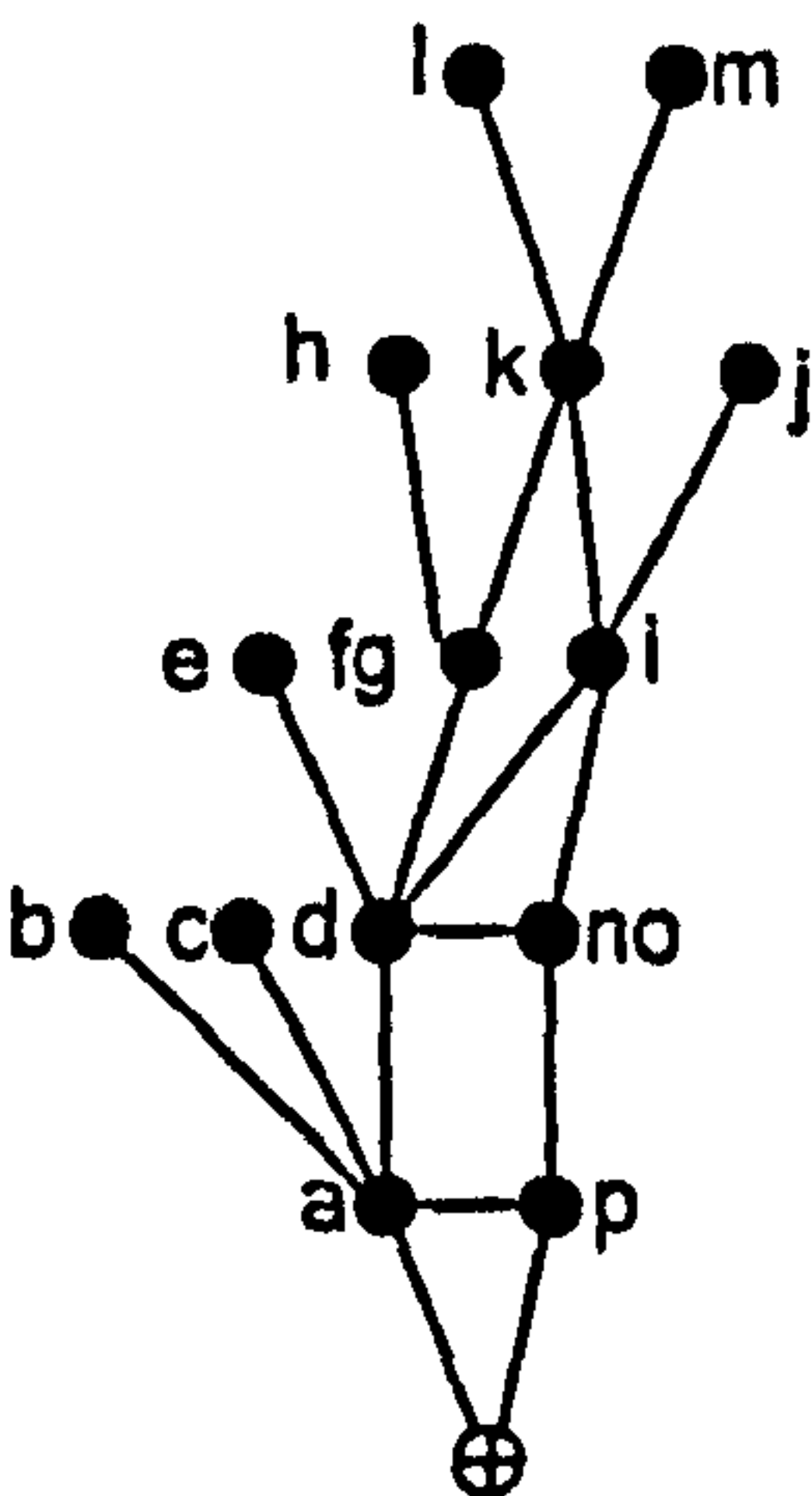
Control status calculations:

	Initial	Control
a	0.500	1.500
b	0.500	1.000
c	0.500	1.500
d	1.000	0.500
ext	1.000	0.500



III I

Rooms f and g are treated as a single space, fg, as there is no wall boundary between them. It is assumed that area a provides access to b and c.



Ranked results:

	l	m	b	c	h	j	ext	e	p	k	a	fg	no	i	d
RRA	1.358	1.358	1.230	1.230	1.230	1.146	1.146	1.061	0.891	0.806	0.679	0.679	0.679	0.594	0.50
									wc	sole access	entr	sole access		sole access	ctyc
	least accessible							most accessible							
	b	c	e	j	i	m	h	ext	no	p	fg	i	d	k	a
Control status	0.200	0.200	0.200	0.250	0.250	0.250	0.333	0.533	0.783	1.033	1.450	1.783	2.116	2.583	2.70
									wc	sole access	sole access	ctyd	sole access	sole access	entr
	least control							most control							

Mean Depth and RRA:

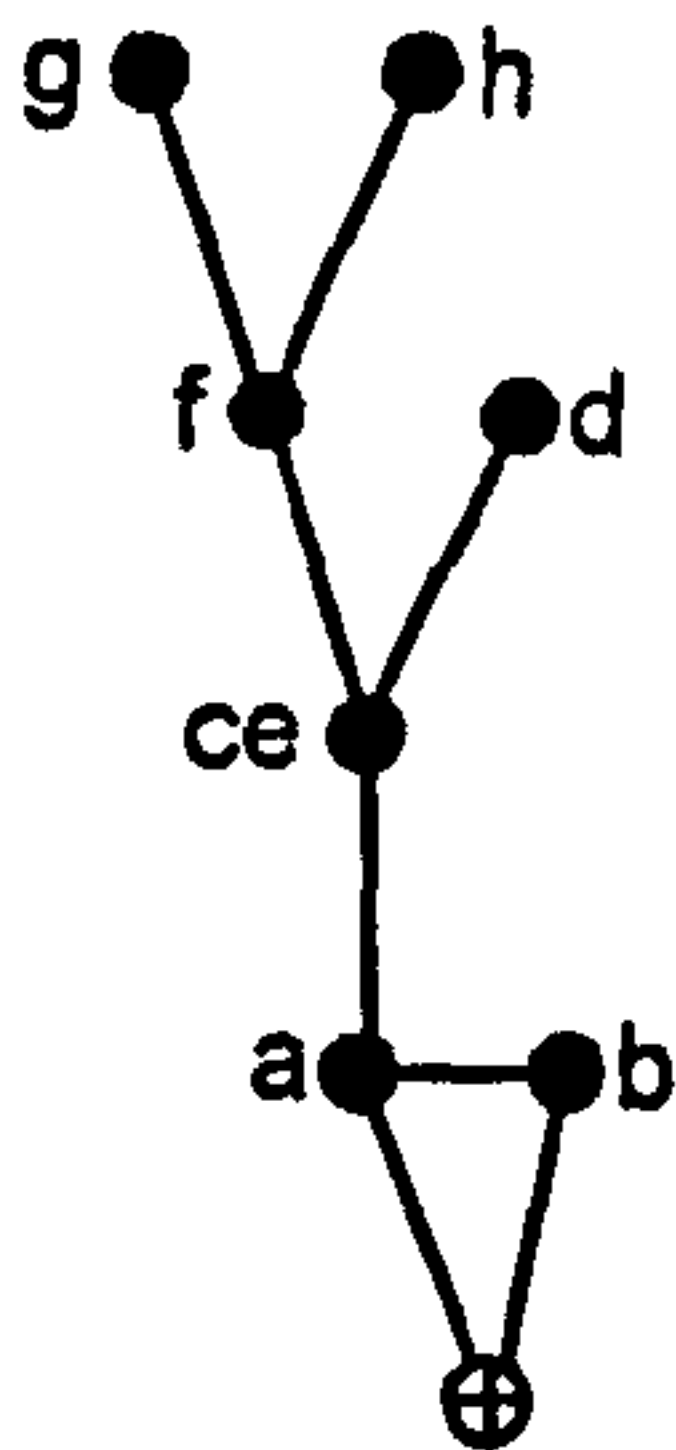
	1	2	3	4	5	Depth	MD	RA	RRA
a	5	4	3	2		30	2.143	0.176	0.679
b	1	4	4	3	2	43	3.071	0.319	1.230
c	1	4	4	3	2	43	3.071	0.319	1.230
d	5	6	3			26	1.857	0.132	0.509
e	1	4	6	3		39	2.786	0.275	1.061
fg	3	6	5			30	2.143	0.176	0.679
h	1	2	6	5		43	3.071	0.319	1.230
i	4	6	4			28	2.000	0.154	0.594
j	1	3	6	4		41	2.929	0.297	1.146
k	4	4	3	3		33	2.357	0.209	0.806
l	1	3	4	3	3	46	3.286	0.352	1.358
m	1	3	4	3	3	46	3.286	0.352	1.358
no	3	6	5			30	2.143	0.176	0.679
p	3	4	4	3		35	2.500	0.231	0.891
ext	2	4	3	3	2	41	2.929	0.297	1.146

Control status calculations:

	Initial	Control
a	0.200	2.700
b	1.000	0.200
c	1.000	0.200
d	0.200	2.116
e	1.000	0.200
fg	0.333	1.450
h	1.000	0.333
i	0.250	1.783
j	1.000	0.250
k	0.250	2.583
l	1.000	0.250
m	1.000	0.250
no	0.333	0.783
p	0.333	1.033
ext	0.500	0.533



III J



Ranked results:

	g	h	b	ext	d	a	f	ce
RRA	1.742	1.742	1.597	1.597	1.452	0.871	0.871	0.581
	shop					entr	oecus	ctyd
	least accessible			→		most accessible		

	d	g	h	b	ext	a	ce	f
Control status	0.333	0.333	0.333	0.833	0.833	1.333	1.666	2.333
				shop		entr	ctyd	oecus
	least control			→		most control		

Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	3	2	2		13	1.857	0.286	0.871
b	2	1	2	2	18	2.571	0.524	1.597
ce	3	4			11	1.571	0.190	0.581
d	1	2	4		17	2.429	0.476	1.452
f	3	2	2		13	1.857	0.286	0.871
g	1	2	2	2	19	2.714	0.571	1.742
h	1	2	2	2	19	2.714	0.571	1.742
ext	2	1	2	2	18	2.571	0.524	1.597

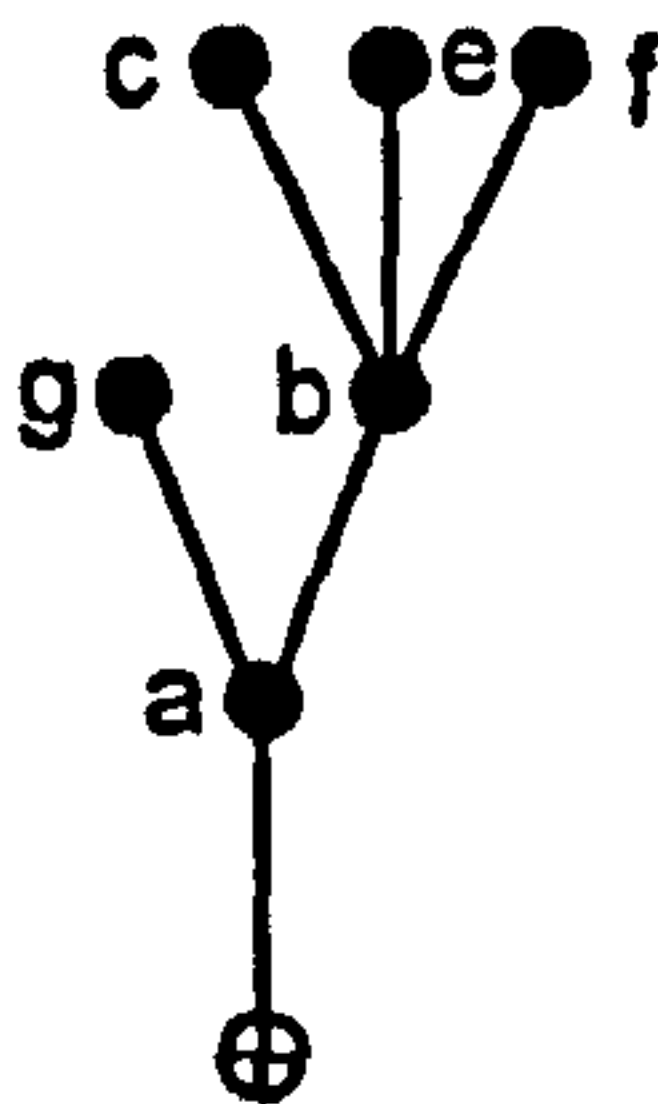
Control status calculations:

	Initial Control	
a	0.333	1.333
b	0.500	0.833
ce	0.333	1.666
d	1.000	0.333
f	0.333	2.333
g	1.000	0.333
h	1.000	0.333
ext	0.500	0.833



III M

There is no access to room d.



Ranked results:

	g	ext	c	e	f	a	b
RRA	1.569	1.569	1.373	1.373	1.373	0.588	0.392
						entr	ctyd
	least accessible		→		most accessible		
	c	e	f	g	ext	a	b
Control status	0.250	0.250	0.250	0.333	0.333	2.250	3.333
						entr	ctyd
	least control		→		most control		

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	3	3		9	1.500	0.200	0.588
b	4	2		8	1.333	0.133	0.392
c	1	3	2	13	2.167	0.467	1.373
e	1	3	2	13	2.167	0.467	1.373
f	1	3	2	13	2.167	0.467	1.373
g	1	2	3	14	2.333	0.533	1.569
ext	1	2	3	14	2.333	0.533	1.569

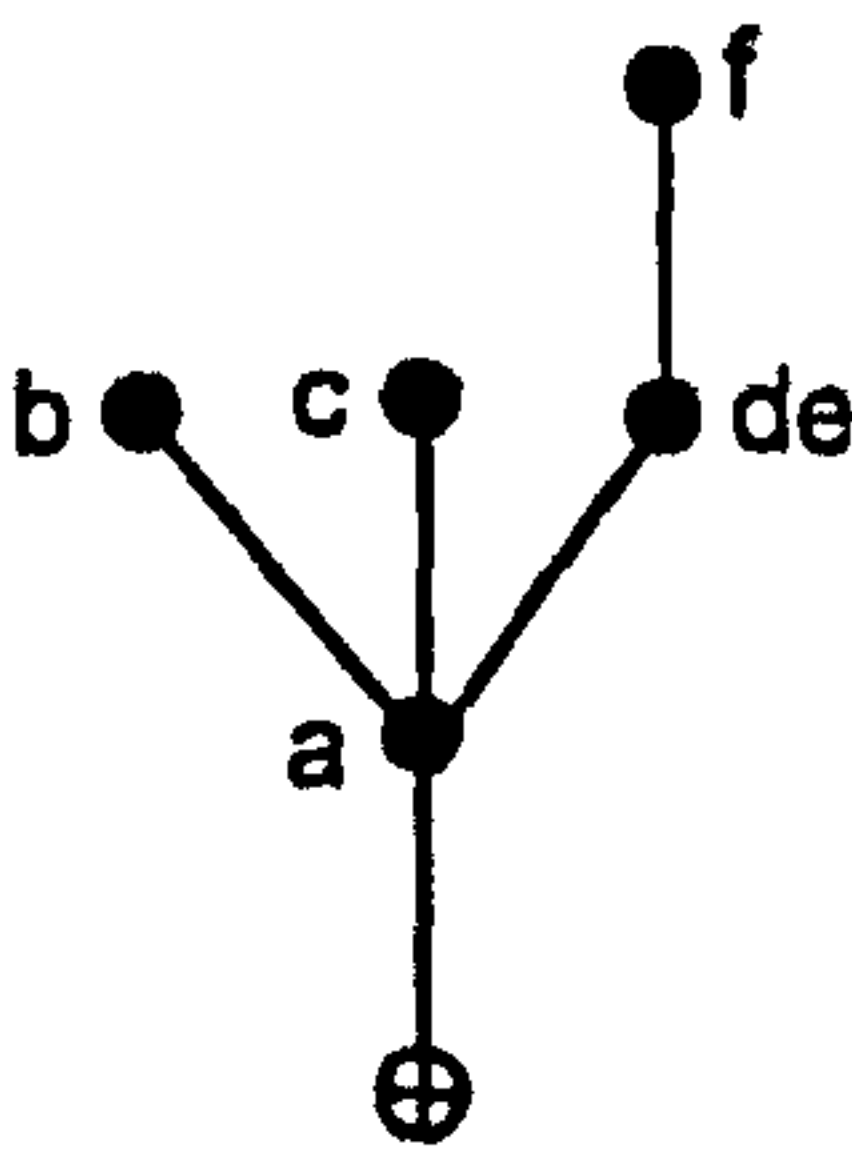
Control status calculations:

	Initial	Control
a	0.333	2.250
b	0.250	3.333
c	1.000	0.250
e	1.000	0.250
f	1.000	0.250
g	1.000	0.333
ext	1.000	0.333



III O

Areas d and e are treated as a single space, de, as there are no wall boundaries between them.



Ranked results:

	ext	f	b	c	de	a
RRA	2.292	2.006	1.433	1.433	0.860	0.287
	wc			ctyd		
	least accessible			→	most accessible	

	b	c	ext	f	de	a
Control status	0.250	0.250	0.250	0.500	1.250	3.500
	wc			ctyd		
	least control			→	most control	

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	4	1		6	1.200	0.100	0.287
b	1	3	1	10	2.000	0.500	1.433
c	1	3	1	10	2.000	0.500	1.433
de	2	3		8	1.600	0.300	0.860
f	1	1	3	12	2.400	0.700	2.006
ext	1	3	2	13	2.600	0.800	2.292

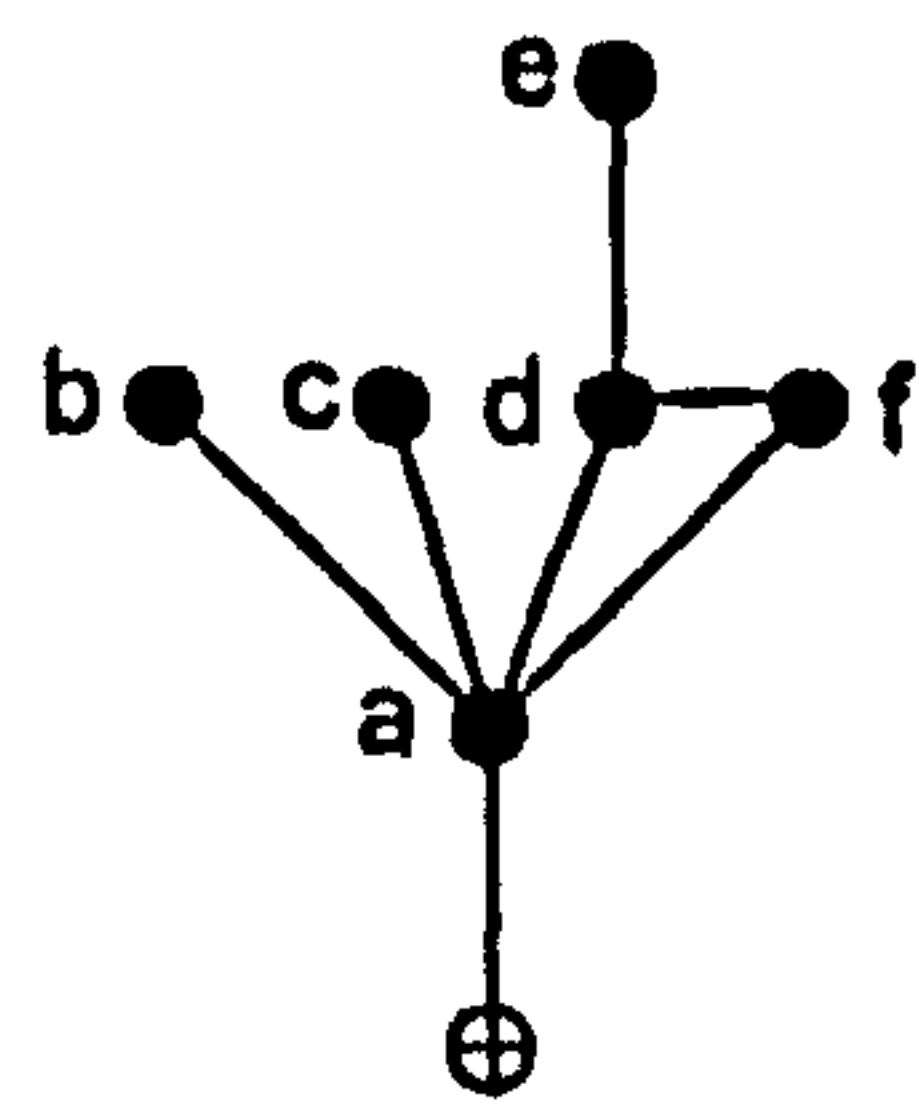
Control status calculations:

	Initial	Control
a	0.250	3.500
b	1.000	0.250
c	1.000	0.250
de	0.500	1.250
f	1.000	0.500
ext	1.000	0.250



III Q

Remains of low walls separate areas c and f from the courtyard, d.



Ranked results:

	e	b	c	ext	f	d	a
RRA	1.569	1.176	1.176	1.176	0.784	0.588	0.196
						ctyd	entr
	least						most
	accessible			→			accessible

	b	c	ext	e	f	d	a
Control	0.200	0.200	0.200	0.333	0.533	1.700	3.833
status						ctyd	entr
	least control			→			most control

Mean Depth and RRA:

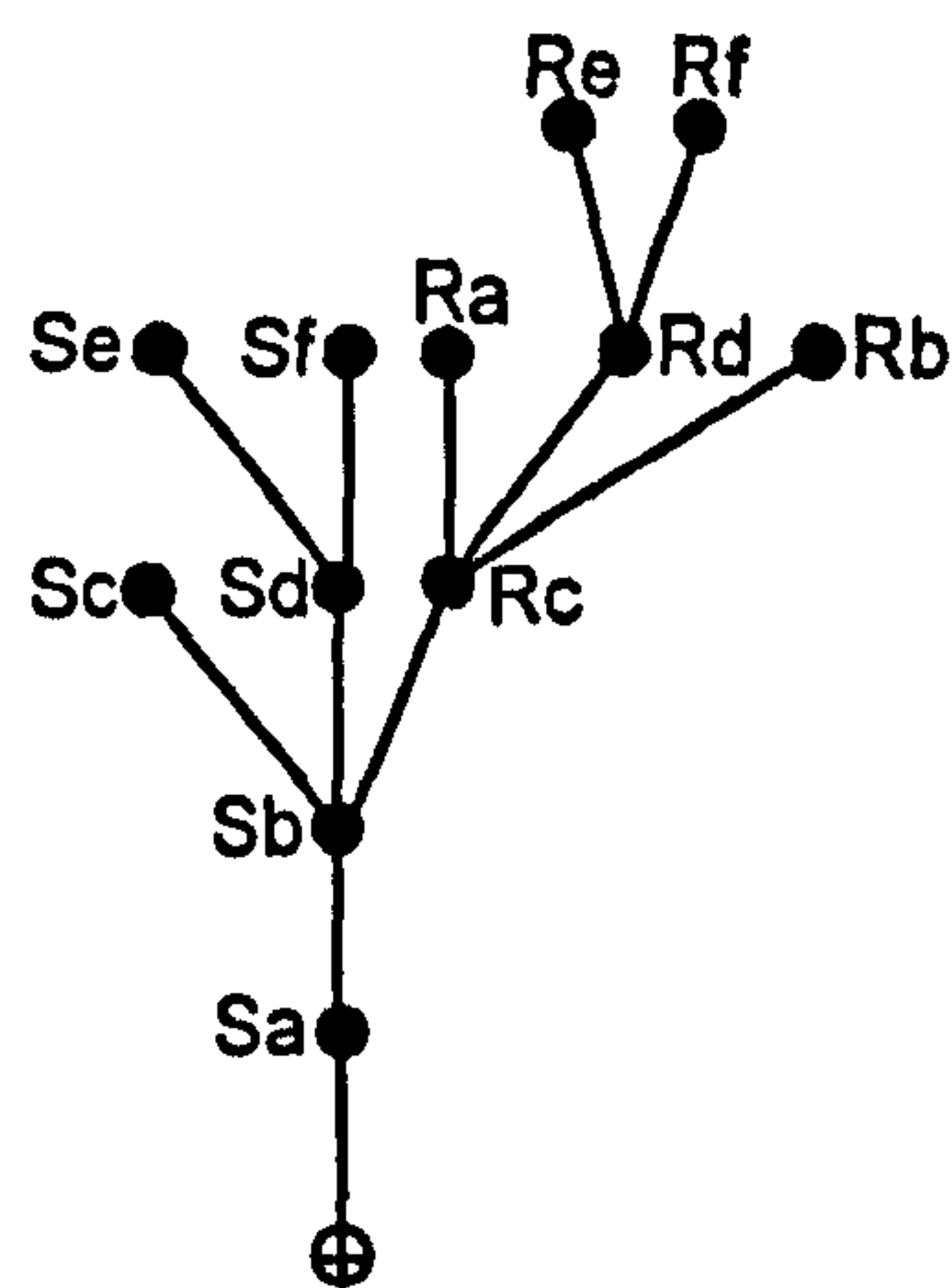
	1	2	3	Depth	MD	RA	RRA
a	5	1		7	1.167	0.067	0.196
b	1	4	1	12	2.000	0.400	1.176
c	1	4	1	12	2.000	0.400	1.176
d	3	3		9	1.500	0.200	0.588
e	1	2	3	14	2.333	0.533	1.569
f	2	4		10	1.667	0.267	0.784
ext	1	4	1	12	2.000	0.400	1.176

Control status calculations:

	Initial Control	
	I	
a	0.250	3.833
b	1.000	0.250
c	1.000	0.250
d	0.333	1.750
e	1.000	0.333
f	0.500	0.583
ext	1.000	0.250



III RS



Ranked results:

	ext	Re	Rf	Se	Sf	Ra	Rb	Sc	Sa	Rd	Sd	Rc	Sb
RRA	1.392	1.344	1.344	1.296	1.296	1.104	1.104	0.960	0.864	0.816	0.768	0.480	0.432
									entr	sole	sole	ctyd	ctyd
										access	access		
	least accessible						→	most accessible					
	Sc	Ra	Rb	Se	Sf	Re	Rf	ext	Sa	Sb	Sd	Rd	Rc
Control status	0.250	0.250	0.250	0.333	0.333	0.333	0.333	0.500	1.250	2.083	2.250	2.250	2.583
									entr	ctyd	sole	sole	ctyd
											access	access	
	least control						→	most control					

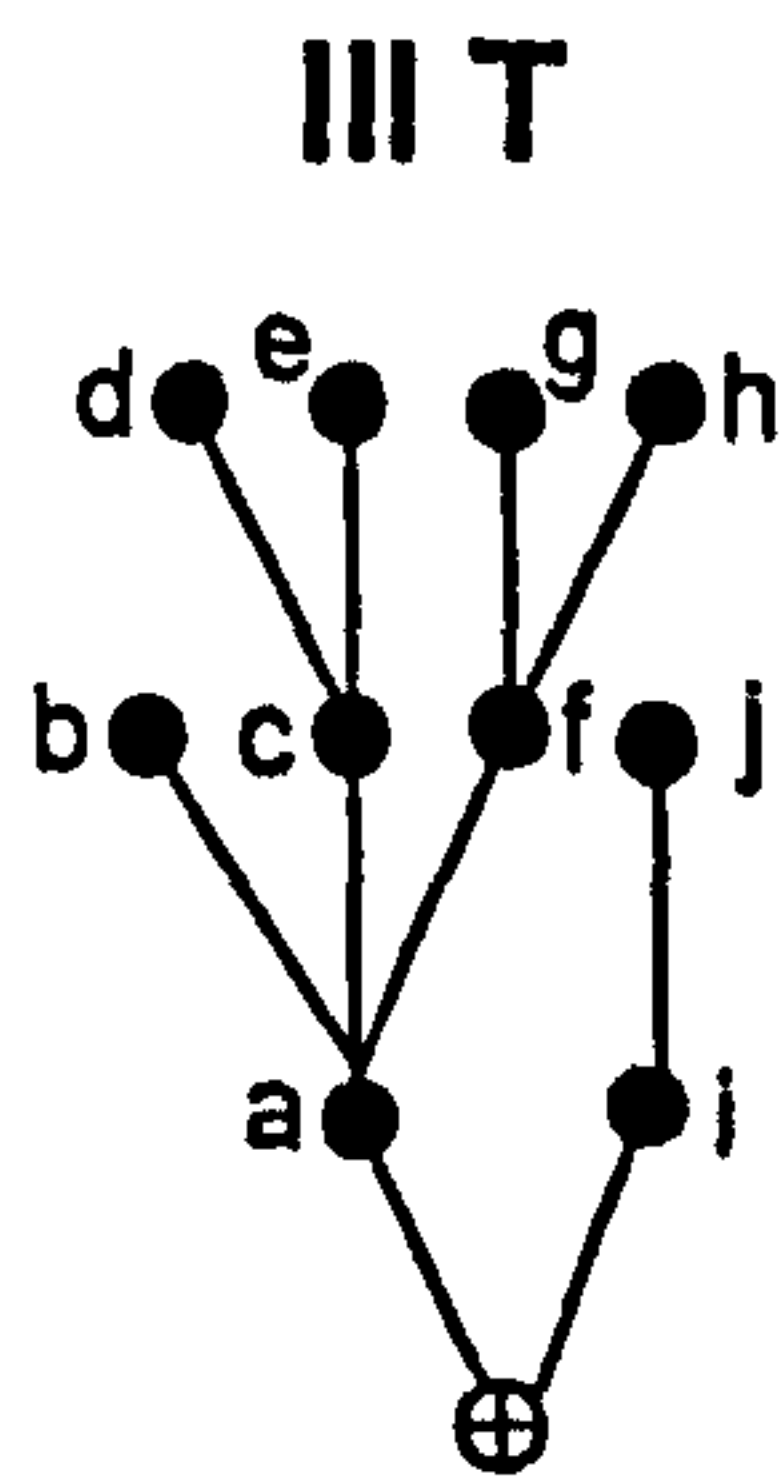
Mean Depth and RRA:

	1	2	3	4	5	Depth	MD	RA	RRA
Sa	2	3	5	2		31	2.385	0.231	0.864
Sb	4	6	2			22	1.692	0.115	0.432
Sc	1	3	6	2		33	2.538	0.256	0.960
Sd	3	3	4	2		29	2.231	0.205	0.768
Se	1	2	3	4	2	40	3.077	0.346	1.296
Sf	1	2	3	4	2	40	3.077	0.346	1.296
Ra	1	4	5	3		36	2.769	0.295	1.104
Rb	1	4	5	3		36	2.769	0.295	1.104
Rc	4	5	3			23	1.769	0.128	0.480
Rd	3	3	3	3		30	2.308	0.218	0.816
Re	1	2	3	3	3	41	3.154	0.359	1.344
Rf	1	2	3	3	3	41	3.154	0.359	1.344
ext	1	1	3	5	2	42	3.231	0.372	1.392

Control status calculations:

	Initial	Control
Sa	0.500	1.250
Sb	0.250	2.083
Sc	1.000	0.250
Sd	0.333	2.250
Se	1.000	0.333
Sf	1.000	0.333
Ra	1.000	0.250
Rb	1.000	0.250
Rc	0.250	2.583
Rd	0.333	2.250
Re	1.000	0.333
Rf	1.000	0.333
ext	1.000	0.500





Ranked results:

	j	d	e	g	h	i	b	c	f	ext	a
RRA	2.109	1.582	1.582	1.582	1.582	1.431	1.205	0.904	0.904	0.904	0.527
						entr		sole access	sole access		sole access
	least accessible										most accessible

	b	d	e	g	h	j	ext	i	a	c	f
Control status	0.250	0.333	0.333	0.333	0.333	0.500	0.750	1.500	2.166	2.250	2.250
								entr access	sole access	sole access	sole access
	least control										most control

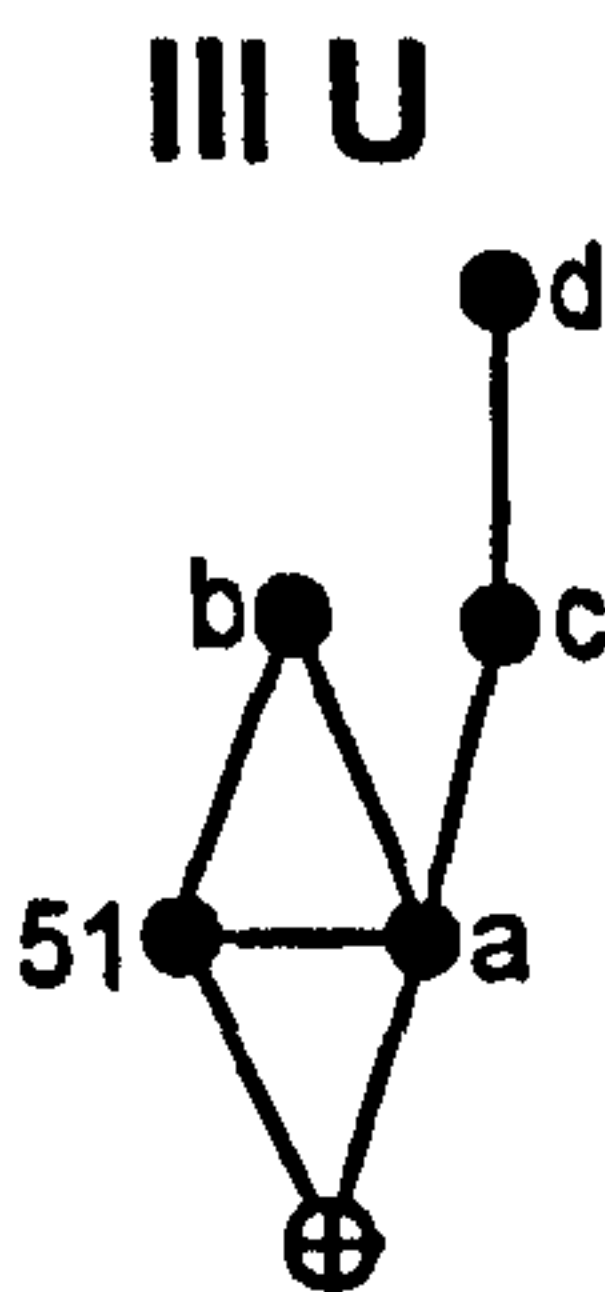
Mean Depth and RRA:

	1	2	3	4	5	Depth	MD	RA	RRA
a	4	5	1			17	1.700	0.156	0.527
b	1	3	5	1		26	2.600	0.356	1.205
c	3	3	3	1		22	2.200	0.267	0.904
d	1	2	3	3	1	31	3.100	0.467	1.582
e	1	2	3	3	1	31	3.100	0.467	1.582
f	3	3	3	1		22	2.200	0.267	0.904
g	1	2	3	3	1	31	3.100	0.467	1.582
h	1	2	3	3	1	31	3.100	0.467	1.582
i	2	1	3	4		29	2.900	0.422	1.431
j	1	1	1	3	4	38	3.800	0.622	2.109
ext	2	4	4			22	2.200	0.267	0.904

Control status calculations:

	Initial	Control
a	0.250	2.166
b	1.000	0.250
c	0.333	2.250
d	1.000	0.333
e	1.000	0.333
f	0.333	2.250
g	1.000	0.333
h	1.000	0.333
i	0.500	1.500
j	1.000	0.500
ext	0.500	0.750





Ranked results:

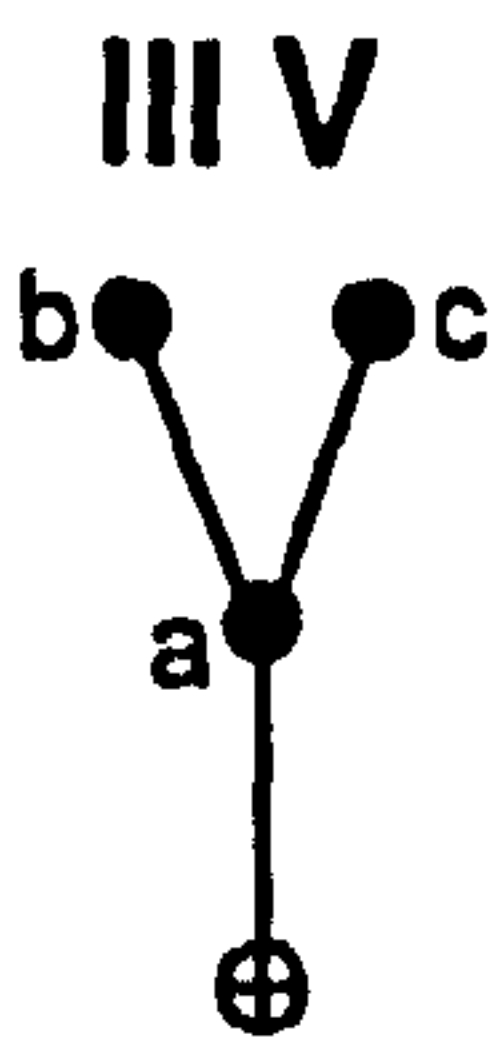
	ext	d	c	b	a	51
RRA	1.146	2.006	0.860	1.146	0.287	0.860
					entr	shop
	least accessible			→	most accessible	
	d	b	ext	c	51	a
Control	0.500	0.583	0.583	1.250	1.250	1.833
status					shop	entr
	least control			→	most control	

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	4	1		6	1.200	0.100	0.287
b	2	2	1	9	1.800	0.400	1.146
c	2	3		8	1.600	0.300	0.860
d	1	1	3	12	2.400	0.700	2.006
51	3	1	1	8	1.600	0.300	0.860
ext	2	2	1	9	1.800	0.400	1.146

Control status calculations:

	Initial	Control
a	0.250	1.833
b	0.500	0.583
c	0.500	1.250
d	1.000	0.500
51	0.333	1.250
ext	0.500	0.583



Ranked results:

	<b>b</b>	<b>ext</b>	<b>c</b>	<b>a</b>
<b>RRA</b>	3.157	3.157	1.894	1.263
				entr
<i>least accessible</i>	→		<i>most accessible</i>	
	<b>b</b>	<b>c</b>	<b>ext</b>	<b>a</b>
<b>Control</b>	0.333	0.333	0.333	3.000
<b>status</b>				entr
<i>least control</i>	→		<i>most control</i>	

Mean Depth and RRA:

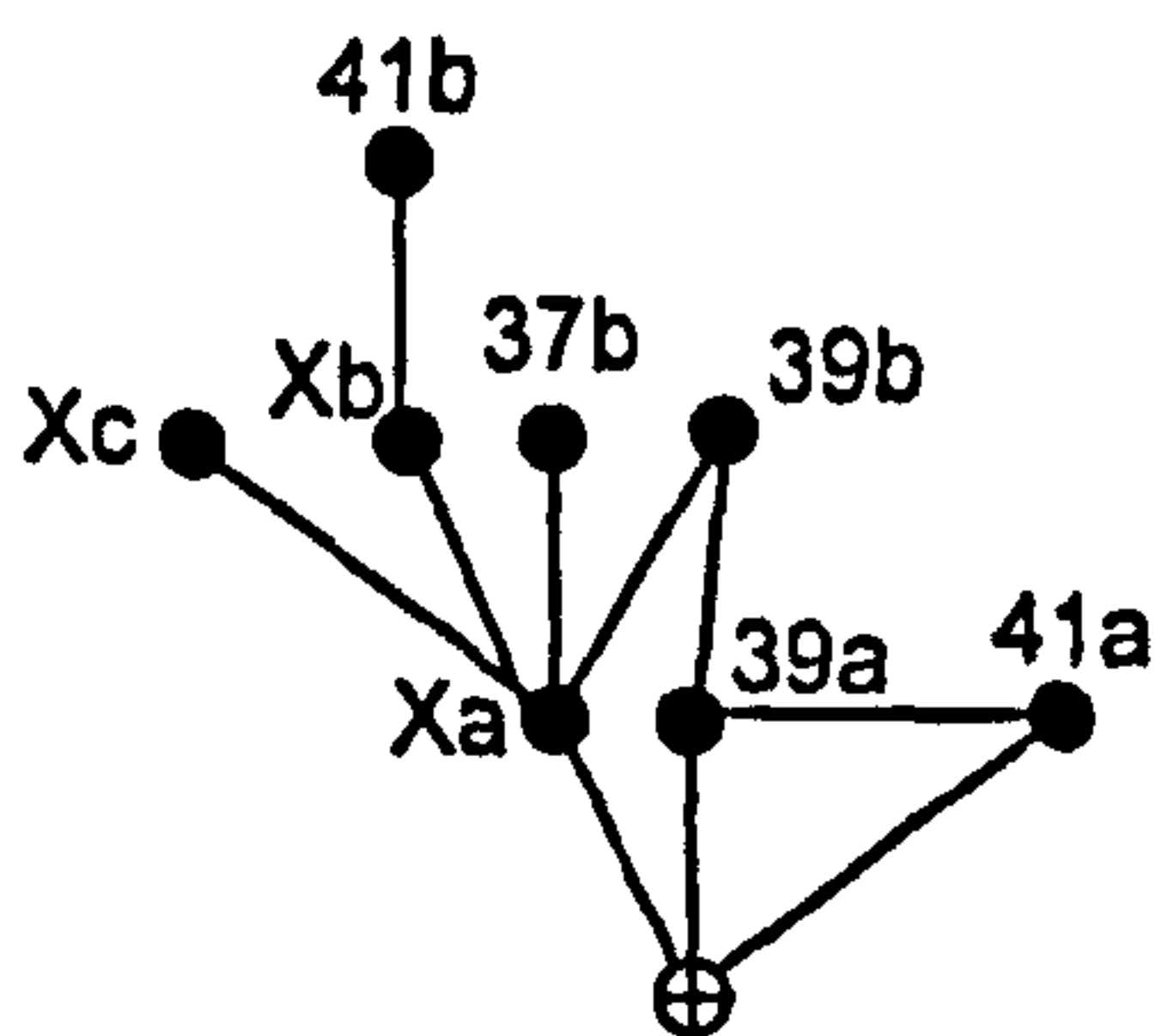
	1	2	3	Depth	MD	RA	RRA
a	3	1		5	1.667	0.444	1.263
b	1	2	1	8	2.667	1.111	3.157
c	2	2		6	2.000	0.667	1.894
ext	1	2	1	8	2.667	1.111	3.157

Control status calculations:

	Initial	Control
a	0.333	3.000
b	1.000	0.333
c	1.000	0.333
ext	1.000	0.333



III X



Ranked results:

	41b	41a	Xc	39a	37b	Xb	39b	ext	Xa
RRA	1.271	0.908	0.817	0.817	0.817	0.635	0.545	0.454	0.182
	least accessible				→ most accessible				
	Xc	37b	41b	39b	41a	ext	Xb	39a	Xa
Control status	0.200	0.200	0.500	0.533	0.666	1.033	1.200	1.333	3.333
	least control				→ most control				

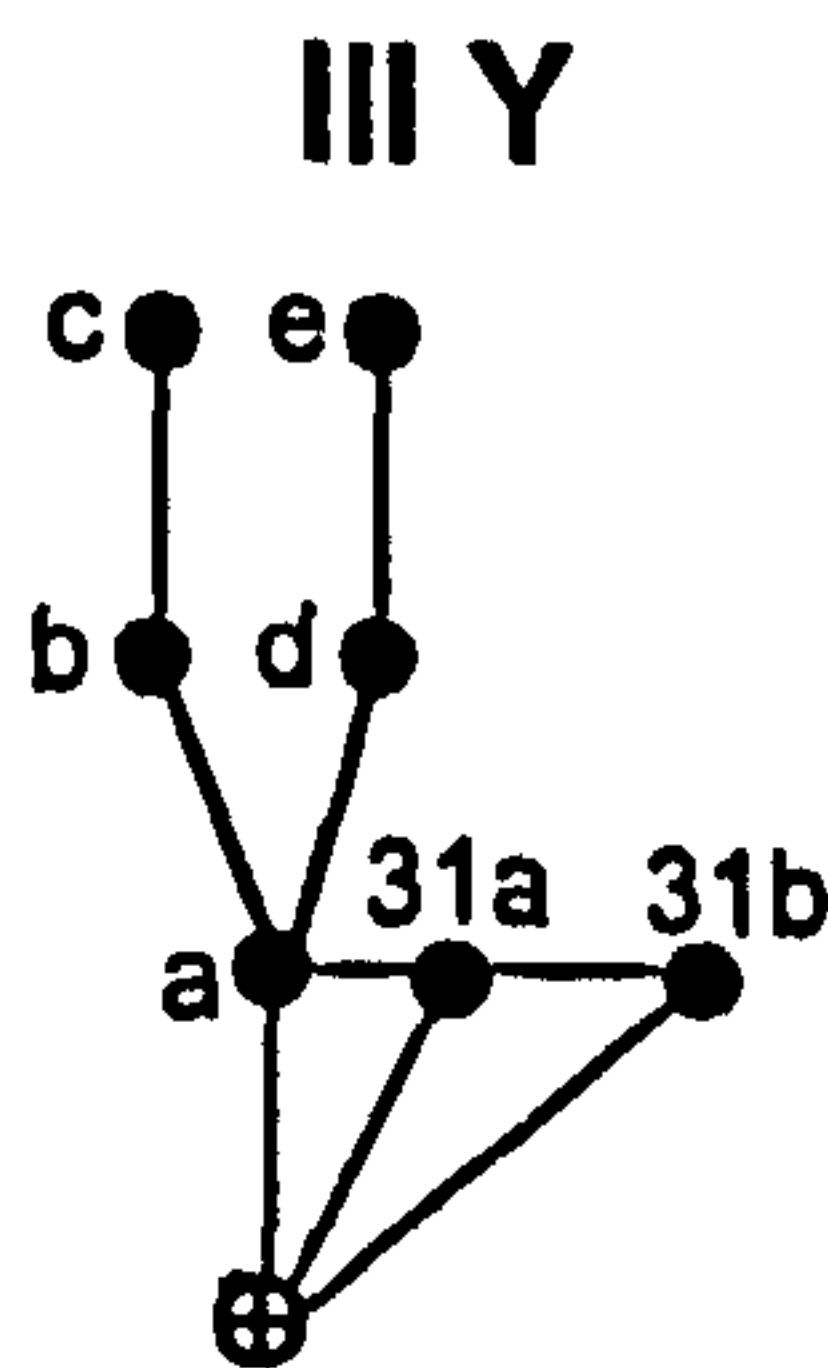
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
Xa	5	3			11	1.222	0.056	0.182
Xb	2	4	2		16	1.778	0.194	0.635
Xc	1	4	3		18	2.000	0.250	0.817
39a	3	1	3	1	18	2.000	0.250	0.817
39b	2	5	1		15	1.667	0.167	0.545
41a	2	2	3	1	19	2.111	0.278	0.908
41b	1	1	4	2	23	2.556	0.389	1.271
37b	1	4	3		18	2.000	0.250	0.817
ext	3	4	1		14	1.556	0.139	0.454

Control status calculations:

	Initial	Control
Xa	0.200	3.333
Xb	0.500	1.200
Xc	1.000	0.200
39a	0.333	1.333
39b	0.500	0.533
41a	0.500	0.666
41b	1.000	0.500
37b	1.000	0.200
ext	0.333	1.033





Ranked results:

	31b	c	e	b	ext	d	31a	a
RRA	2.178	2.033	2.033	1.887	1.307	1.016	0.871	0.436
				sole access		sole access	shop	entr ctyd
	least accessible							most accessible

	c	e	31b	31a	ext	b	d	a
Control status	0.500	0.500	0.666	1.083	1.083	1.250	1.250	1.333
				shop		sole access	sole access	entr ctyd
	least control							most control

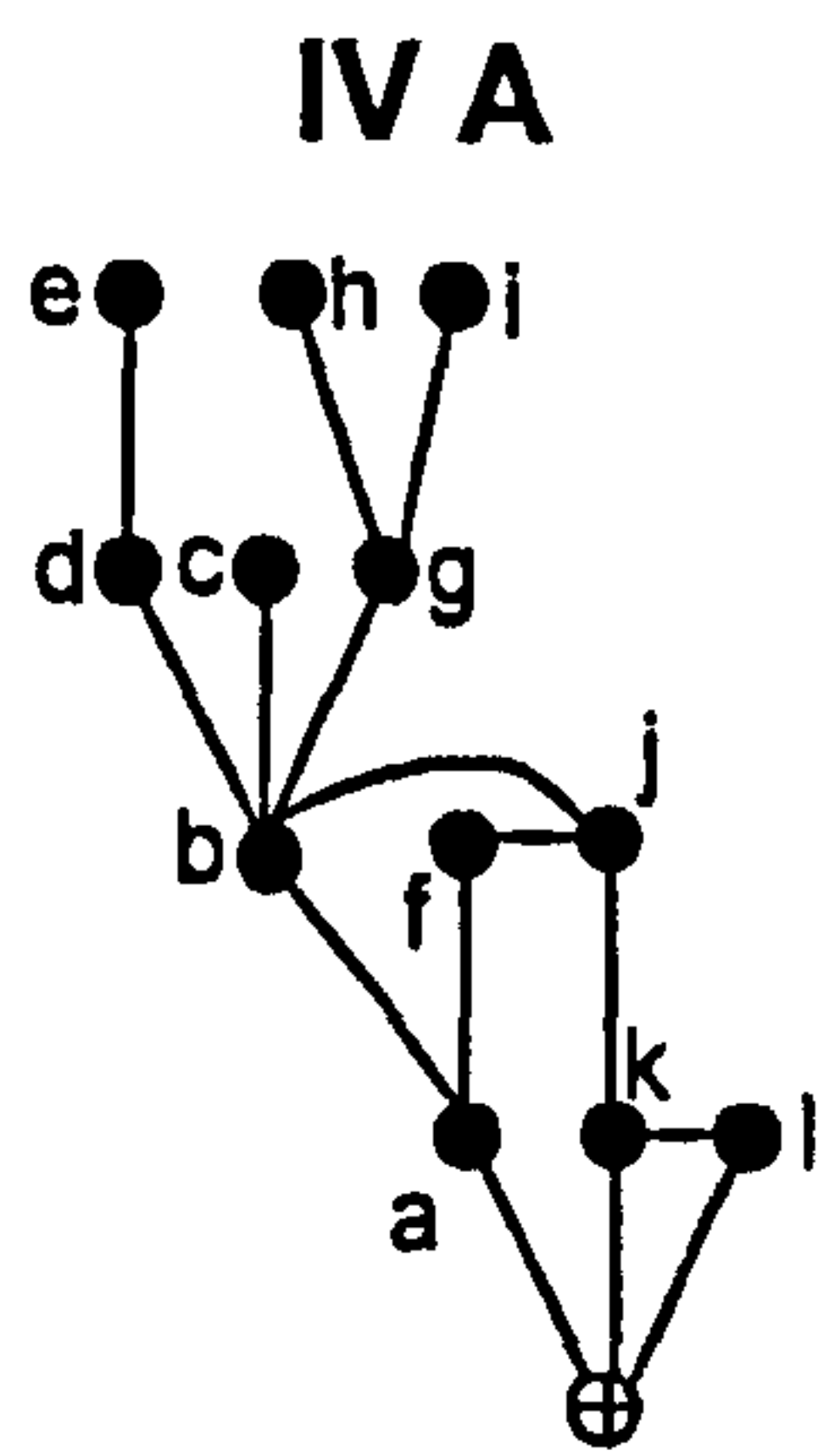
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	4	3			10	1.429	0.143	0.436
b	2	3	2		20	2.857	0.619	1.887
c	1	1	3	2	21	3.000	0.667	2.033
d	2	3	2		14	2.000	0.333	1.016
e	1	1	3	2	21	3.000	0.667	2.033
31a	3	2	2		13	1.857	0.286	0.871
31b	2	1	2	2	22	3.143	0.714	2.178
ext	3	2	2		16	2.286	0.429	1.307

Control status calculations:

	Initial Control	
a	0.250	1.333
b	0.500	1.250
c	1.000	0.500
d	0.500	1.250
e	1.000	0.500
31a	0.333	1.083
31b	0.500	0.666
ext	0.333	1.083





Ranked results:

RRA	e	i	h	i	f	c	k	ext	d	g	a	j	b
	1.254	1.208	1.161	1.161	0.883	0.836	0.790	0.790	0.743	0.650	0.511	0.511	0.325
	shop						shop?		sole	sole	entr		ctyd
									access	access			
	least accessible						→	most accessible					

Control	c	h	i	e	f	i	a	j	k	ext	d	g	b
status	0.200	0.333	0.333	0.500	0.666	0.666	1.033	1.033	1.166	1.166	1.200	2.200	2.499
						shop	entr		shop?		sole	sole	ctyd
											access	access	
	least control						→	most control					

Mean Depth and RRA:

	1	2	3	4	5	Depth	MD	RA	RRA
a	3	6	3			24	1.846	0.141	0.511
b	5	6	1			20	1.538	0.090	0.325
c	1	4	6	1		31	2.385	0.231	0.836
d	2	4	5	1		29	2.231	0.205	0.743
e	1	1	4	5	1	40	3.077	0.346	1.254
f	2	3	4	3		32	2.462	0.244	0.883
g	3	4	4	1		27	2.077	0.179	0.650
h	1	2	4	4	1	38	2.923	0.321	1.161
i	1	2	4	4	1	38	2.923	0.321	1.161
j	3	6	3			24	1.846	0.141	0.511
k	3	3	3	3		30	2.308	0.218	0.790
l	2	2	2	3	3	39	3.000	0.333	1.208
ext	3	3	3	3		30	2.308	0.218	0.790

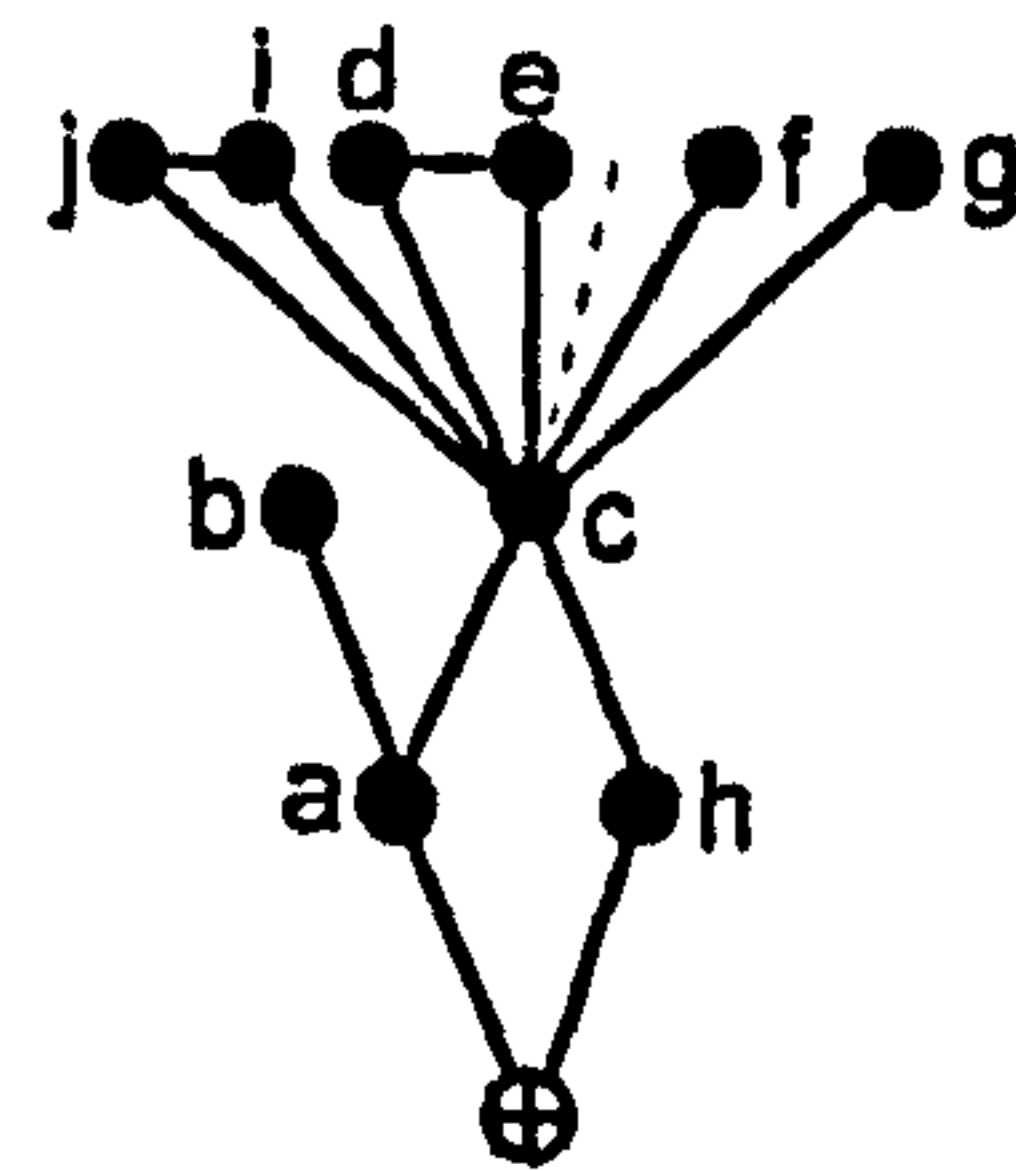
Control status calculations:

	Initial	Control
a	0.333	1.033
b	0.200	2.499
c	1.000	0.200
d	0.500	1.200
e	1.000	0.500
f	0.500	0.666
g	0.333	2.200
h	1.000	0.333
i	1.000	0.333
j	0.333	1.033
k	0.333	1.166
l	0.500	0.666
ext	0.333	1.166



## IV B

The courtyard, c, contains stairs to the upper floor and therefore has an initial control value of \*0.111.



**Ranked results:**

RRA	b	ext	f	g	d	e	i	j	h	a	c
	1.205	1.055	0.829	0.829	0.753	0.753	0.753	0.753	0.678	0.527	0.151
	wc								entr	entr	ctyd
	least accessible					→	most accessible				

Control	f	g	b	d	e	h	i	j	ext	a	c
status	0.111	0.111	0.333	0.611	0.611	0.611	0.611	0.611	0.833	1.611	4.833
			wc			entr				entr	ctyd
	least control					→	most control				

**Mean Depth and RRA:**

	1	2	3	Depth	MD	RA	RRA
a	3	7		17	1.700	0.156	0.527
b	1	2	7	26	2.600	0.356	1.205
c	8	2		12	1.200	0.044	0.151
d	2	6	2	20	2.000	0.222	0.753
e	2	6	2	20	2.000	0.222	0.753
f	1	7	2	21	2.100	0.244	0.829
g	1	7	2	21	2.100	0.244	0.829
h	2	7	1	19	1.900	0.200	0.678
i	2	6	2	20	2.000	0.222	0.753
j	2	6	2	20	2.000	0.222	0.753
ext	2	2	6	24	2.400	0.311	1.055

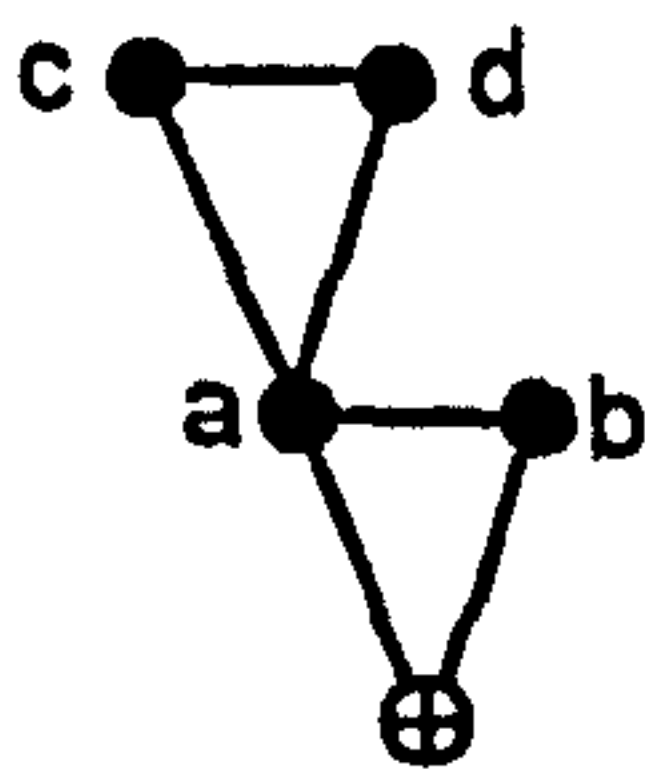
**Control status calculations:**

	Initial	Control
a	0.333	1.611
b	1.000	0.333
*c	0.111	4.833
d	0.500	0.611
e	0.500	0.611
f	1.000	0.111
g	1.000	0.111
h	0.500	0.611
i	0.500	0.611
j	0.500	0.611
ext	0.500	0.833



IV C

There is no evidence of a division (poros partition) between areas a and c.



Ranked results:

RRA	b	c	d	ext	a
	0.947	0.947	0.947	0.947	0.473
	ctyd				
	least accessible		→	most accessible	

Control	b	c	d	ext	a
status	0.750	0.750	0.750	0.750	2.000
	ctyd				
	least control		→	most control	

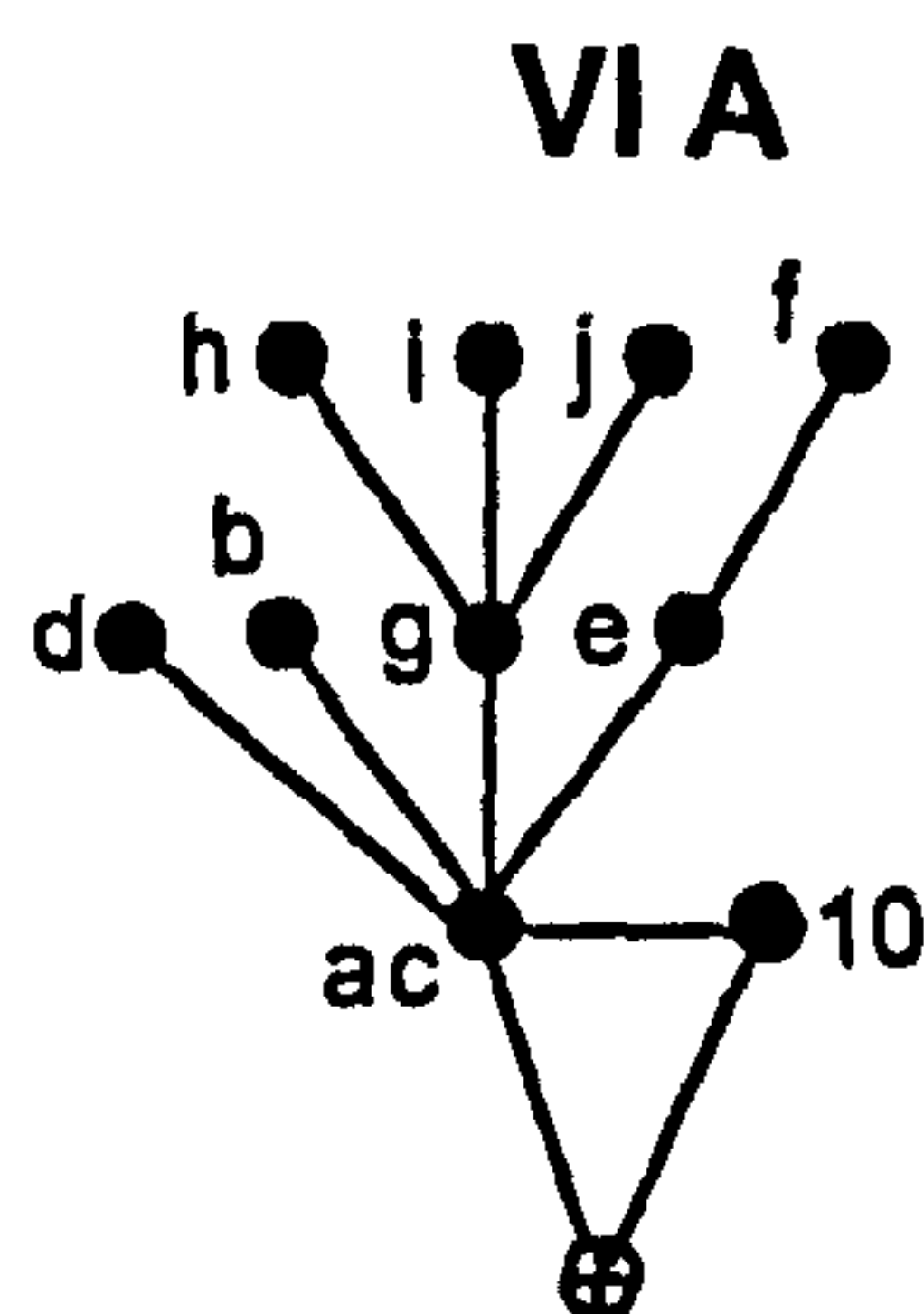
Mean Depth and RRA:

	1	2	Depth	MD	RA	RRA
a	3	1	5	1.250	0.167	0.473
b	2	2	6	1.500	0.333	0.947
c	2	2	6	1.500	0.333	0.947
d	2	2	6	1.500	0.333	0.947
ext	2	2	6	1.500	0.333	0.947

Control Space Calculations:

	Initial	Control
a	0.250	2.000
b	0.500	0.750
c	0.500	0.750
d	0.500	0.750
ext	0.500	0.750





Ranked results:

	TR10	j	i	h	g	f	ext	e	d	b	ac
RRA	0.814	1.153	1.153	1.153	0.610	1.356	0.814	0.746	0.881	0.881	0.271
	shop				sole access			sole access	exedra	wc	ctyd
	least accessible				→		most accessible				

	b	d	h	i	j	f	TR10	ext	e	g	ac
Control status	0.167	0.167	0.250	0.250	0.250	0.500	0.667	0.667	1.167	3.167	3.250
	wc	exedra					shop		sole access	sole access	ctyd
	least control					→		most control			

Mean Depth and RRA:

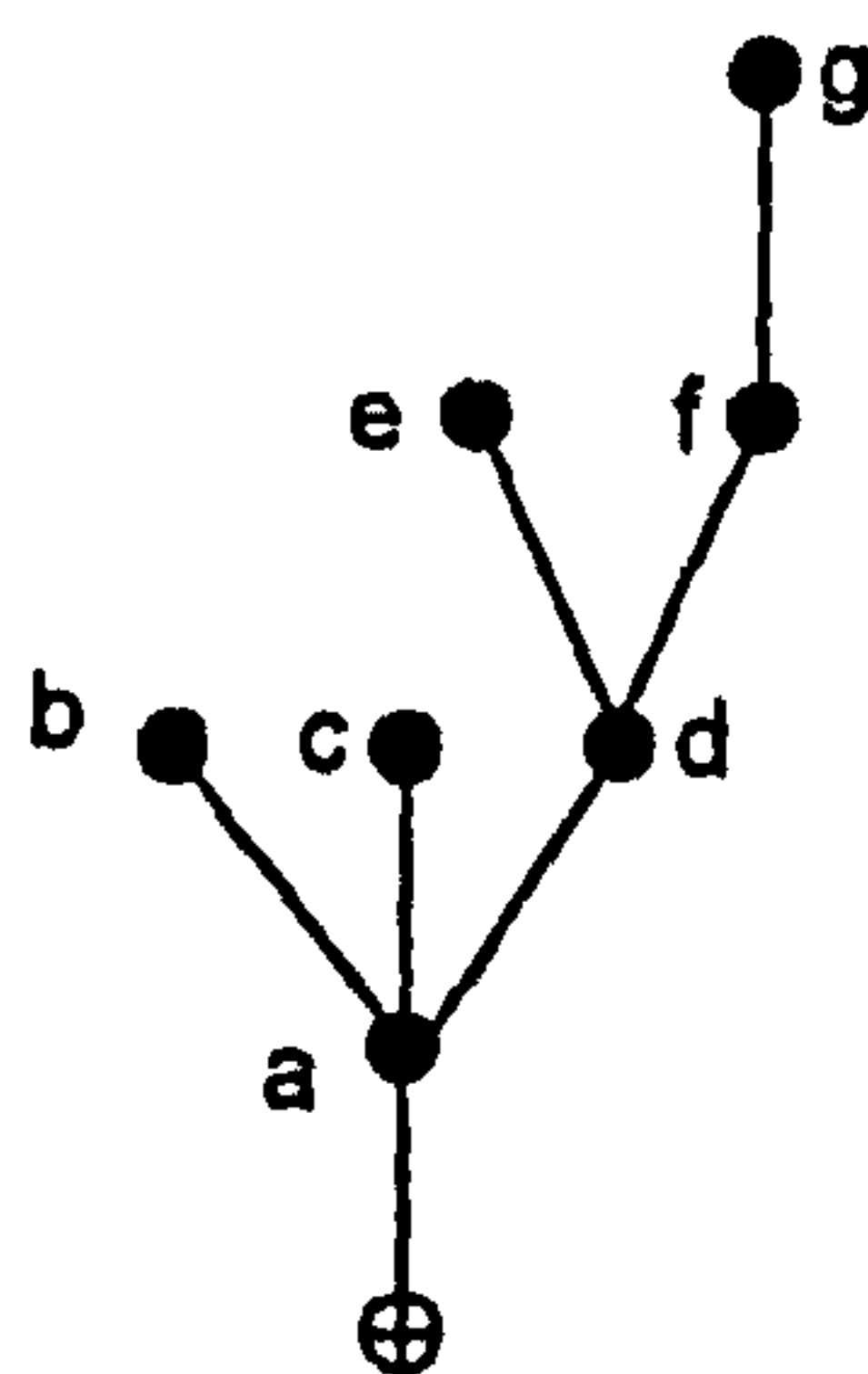
	1	2	3	4	Depth	MD	RA	RRA
ac	6	4			14	1.400	0.080	0.271
b	1	5	4		23	2.300	0.260	0.881
d	1	5	4		23	2.300	0.260	0.881
e	2	5	3		21	2.100	0.220	0.746
f	1	1	5	3	30	3.000	0.400	1.356
g	4	3	3		19	1.900	0.180	0.610
h	1	3	4	2	27	2.700	0.340	1.153
i	1	3	4	2	27	2.700	0.340	1.153
j	1	3	4	2	27	2.700	0.340	1.153
TR10	2	4	4		22	2.200	0.240	0.814
ext	2	4	4		22	2.200	0.240	0.814

Control status calculations:

	Initial	Control
ac	0.167	3.250
b	1.000	0.167
d	1.000	0.167
e	0.500	1.167
f	1.000	0.500
g	0.250	3.167
h	1.000	0.250
i	1.000	0.250
j	1.000	0.250
TR10	0.500	0.667
ext	0.500	0.667



VI B



Ranked results:

	g	b	c	e	ext	f	a	d
RRA	2.178	1.452	1.452	1.452	1.452	1.307	0.871	0.581
	wc						entr	ctyd
	least accessible					→	most accessible	

	b	c	ext	e	g	f	d	a
Control status	0.250	0.250	0.250	0.333	0.500	1.333	1.750	3.333
	wc						ctyd	entr
	least control					→	most control	

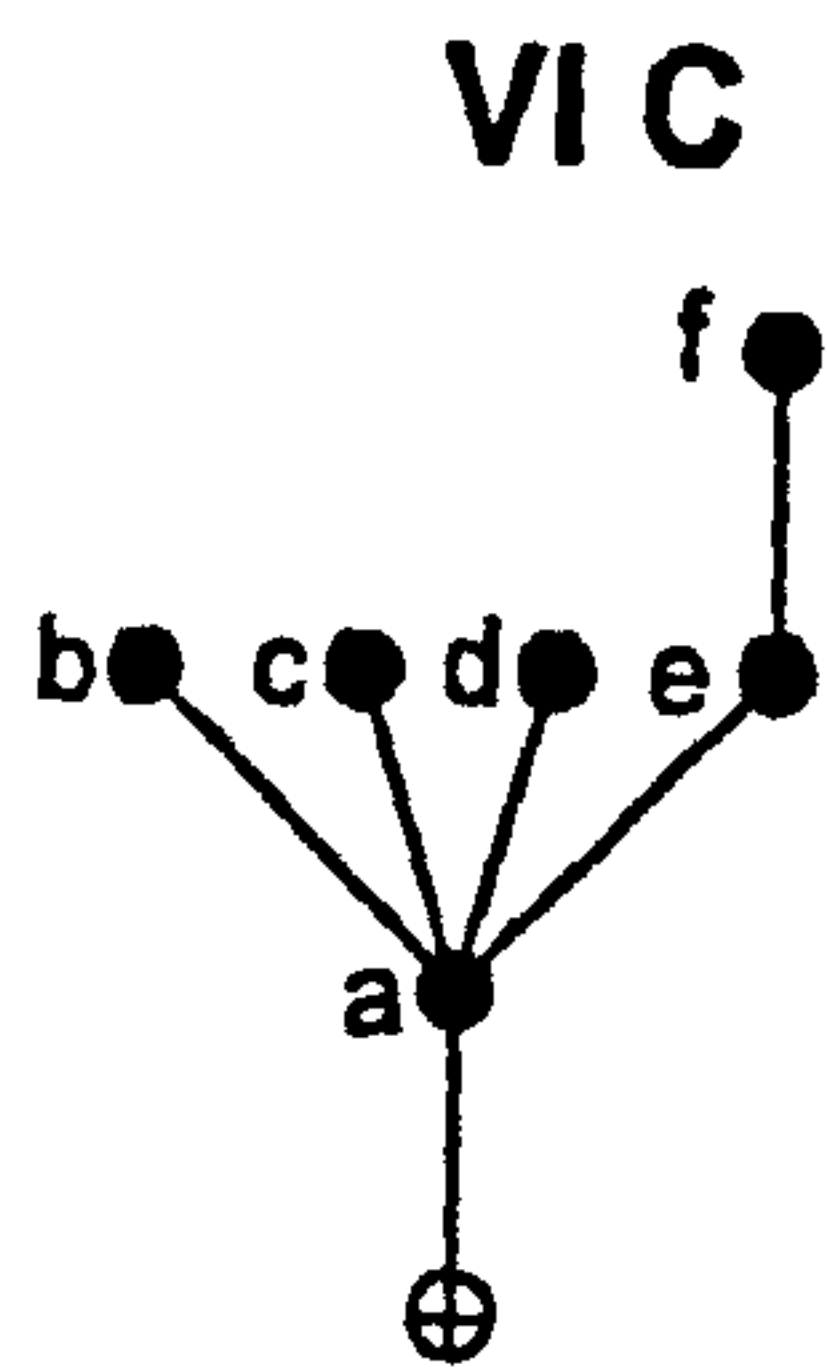
Mean Depth and RRA:

	1	2	3	4	5	Depth	MD	RA	RRA
a	2	4	1			13	1.857	0.286	0.871
b	1	3	2	1		17	2.429	0.476	1.452
c	1	3	2	1		17	2.429	0.476	1.452
d	3	4				11	1.571	0.190	0.581
e	1	2	4			17	2.429	0.476	1.452
f	2	2	2	1		16	2.286	0.429	1.307
g	1	1	2	2	1	22	3.143	0.714	2.178
ext	1	3	2	1		17	2.429	0.476	1.452

Control status calculations:

	Initial	Control
a	0.250	3.333
b	1.000	0.250
c	1.000	0.250
d	0.333	1.750
e	1.000	0.333
f	0.500	1.333
g	1.000	0.500
ext	1.000	0.250





Ranked results:

	f	b	c	d	ext	e	a
RRA	1.765	1.176	1.176	1.176	1.176	0.784	0.196
						sole	entr
						access	
	least					most	
	accessible					accessible	

	b	c	d	ext	f	e	a
Control	0.200	0.200	0.200	0.200	0.500	1.200	4.500
status						sole	entr
						access	
	least control					most control	

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	5	1		7	1.167	0.067	0.210
b	1	4	1	12	2.000	0.400	1.262
c	1	4	1	12	2.000	0.400	1.262
d	1	4	1	12	2.000	0.400	1.262
e	2	4		10	1.667	0.267	0.841
f	1	1	4	15	2.500	0.600	1.893
ext	1	4	1	12	2.000	0.400	1.262

Control status calculations

	Initial	Control
a	0.200	4.500
b	1.000	0.200
c	1.000	0.200
d	1.000	0.200
e	0.500	1.200
f	1.000	0.500
ext	1.000	0.200



VI D



Ranked results:

	d	ext	c	b	a
RRA	3.314	2.841	2.367	1.894	1.420
			sole access		entr
	least accessible		→		most accessible

	d	ext	b	a	c
Control status	0.500	0.500	1.000	1.500	1.500
				entr	sole access
	least control		→		most control

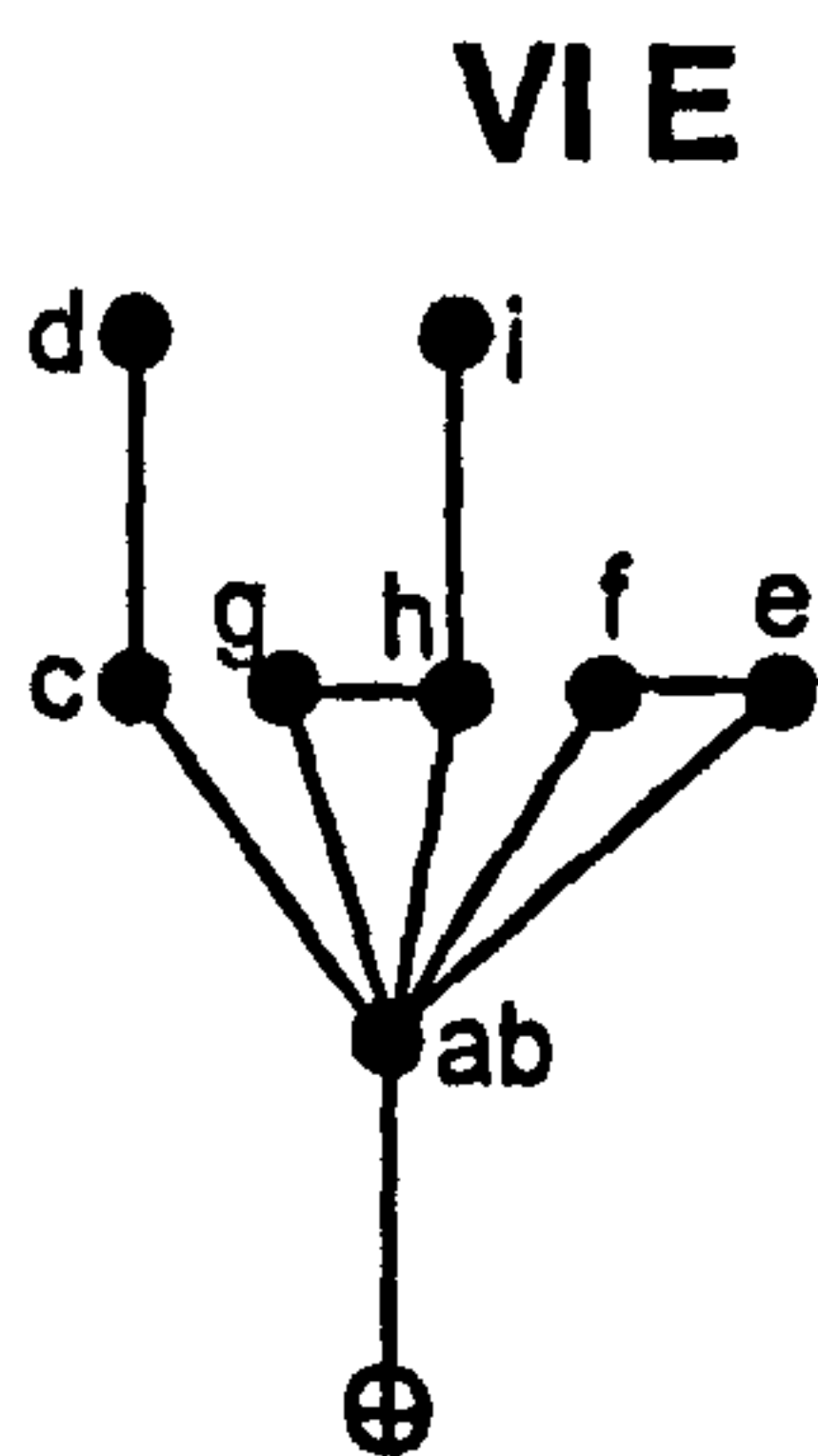
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	2	1	1		7	1.750	0.500	1.420
b	2	2			8	2.000	0.667	1.894
c	2	1	1		9	2.250	0.833	2.367
d	1	1	1	1	11	2.750	1.167	3.314
ext	1	1	1	1	10	2.500	1.000	2.841

Control status calculations:

	Initial Control	
a	0.500	1.500
b	0.500	1.000
c	0.500	1.500
d	1.000	0.500
ext	1.000	0.500





Ranked results:

	d	i	ext	e	f	c	g	h	ab
RRA	1.380	1.282	0.887	0.789	0.789	0.690	0.690	0.591	0.197
	entr ctyd								
	least accessible				→	most accessible			

	ext	i	g	d	e	f	c	h	ab
Control status	0.166	0.333	0.499	0.500	0.666	0.666	1.166	2.166	3.833
	entr ctyd								
	least control				→	most control			

Mean Depth and RRA:

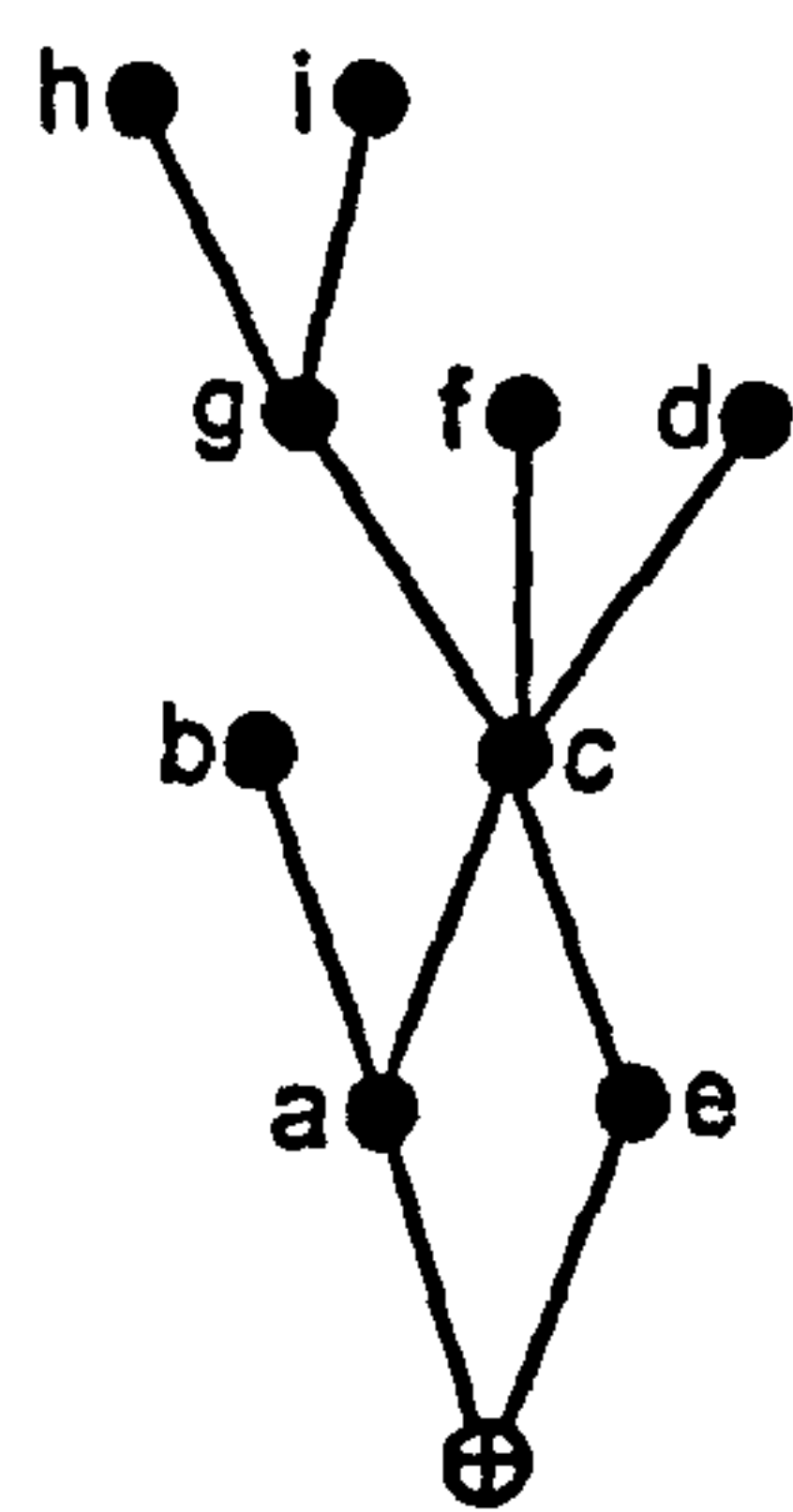
	1	2	3	4	Depth	MD	RA	RRA
ab	6	2			10	1.250	0.063	0.197
c	2	5	1		15	1.875	0.219	0.690
d	1	1	5	1	22	2.750	0.438	1.380
e	2	4	2		16	2.000	0.250	0.789
f	2	4	2		16	2.000	0.250	0.789
g	2	5	1		15	1.875	0.219	0.690
h	3	4	1		14	1.750	0.188	0.591
i	1	2	4	1	21	2.625	0.406	1.282
ext	1	5	2		17	2.125	0.281	0.887

Control status calculations:

	Initial	Control
ab	0.166	3.833
c	0.500	1.166
d	1.000	0.500
e	0.500	0.666
f	0.500	0.666
g	1.000	0.499
h	0.333	2.166
i	1.000	0.333
ext	1.000	0.166



VIF



Ranked results:

	b	h	i	ext	d	f	e	a	g	c
RRA	1.452	1.452	1.452	1.271	1.089	1.089	0.908	0.726	0.726	0.363
	wc				exedra				sole	ctyd
	least accessible								access	most accessible

	d	f	b	h	i	e	ext	a	g	c
Control	0.200	0.200	0.333	0.333	0.333	0.700	0.833	1.700	2.200	3.166
status	exedra		wc						sole	ctyd
	least control								access	most control

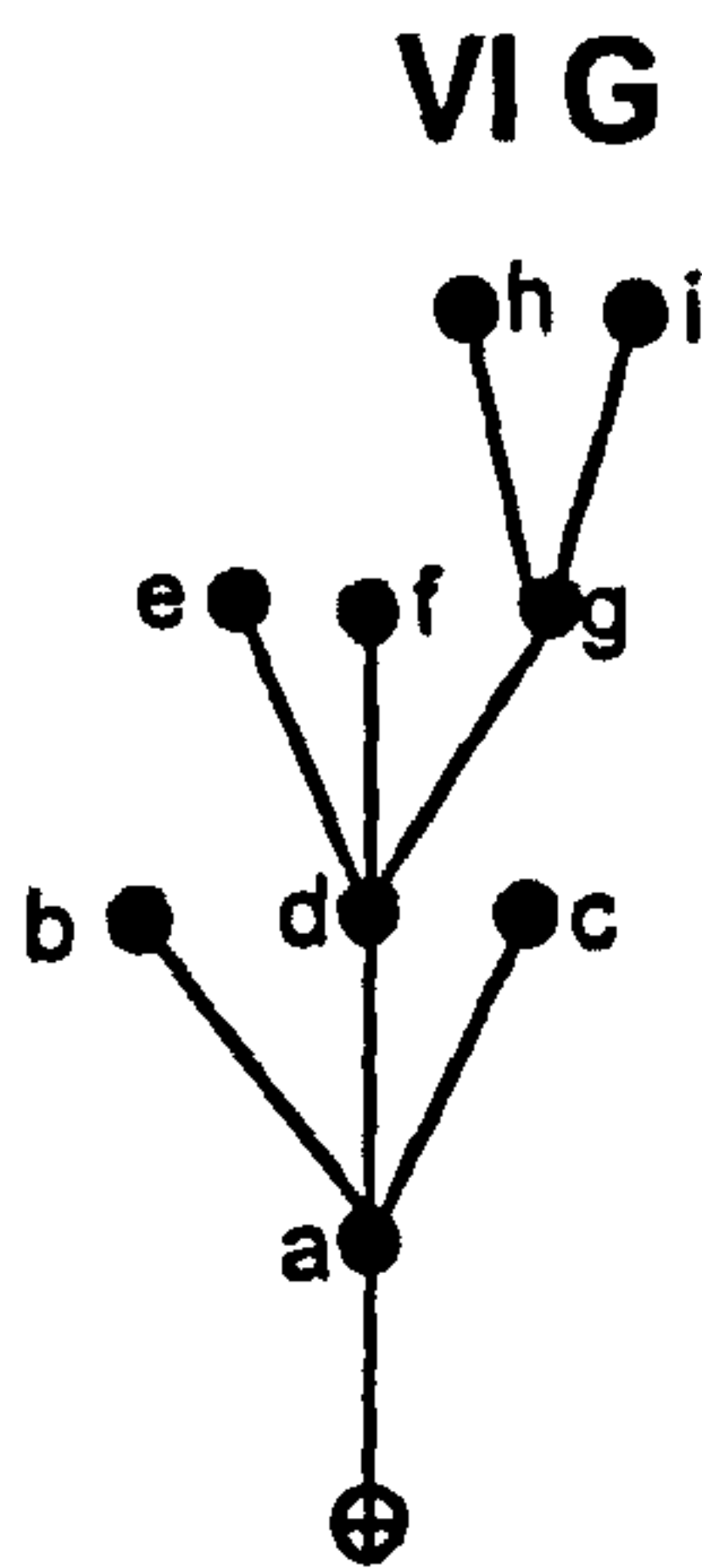
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	3	4	2		17	1.889	0.222	0.726
b	1	2	4	2	25	2.778	0.444	1.452
c	5	4			13	1.444	0.111	0.363
d	1	4	4		21	2.333	0.333	1.089
e	2	4	3		19	2.111	0.278	0.908
f	1	4	4		21	2.333	0.333	1.089
g	3	4	2		17	1.889	0.222	0.726
h	1	2	4	2	25	2.778	0.444	1.452
i	1	2	4	2	25	2.778	0.444	1.452
ext	2	2	3	2	23	2.556	0.389	1.271

Control space calculations:

	Initial	Control
a	0.333	1.700
b	1.000	0.333
c	0.200	3.166
d	1.000	0.200
e	0.500	0.700
f	1.000	0.200
g	0.333	2.200
h	1.000	0.333
i	1.000	0.333
ext	0.500	0.833





Ranked results:

	h	i	b	c	ext	e	f	g	a	d
RRA	1.543	1.543	1.362	1.362	1.362	1.180	1.180	0.817	0.635	0.454
	wc							sole access	entr	ctyd
	least accessible				→		most accessible			

	b	c	e	f	ext	h	i	g	d	a
Control status	0.250	0.250	0.250	0.250	0.250	0.333	0.333	2.250	2.583	3.250
	wc							sole access	ctyd	entr
	least control				→		most control			

Mean Depth and RRA:

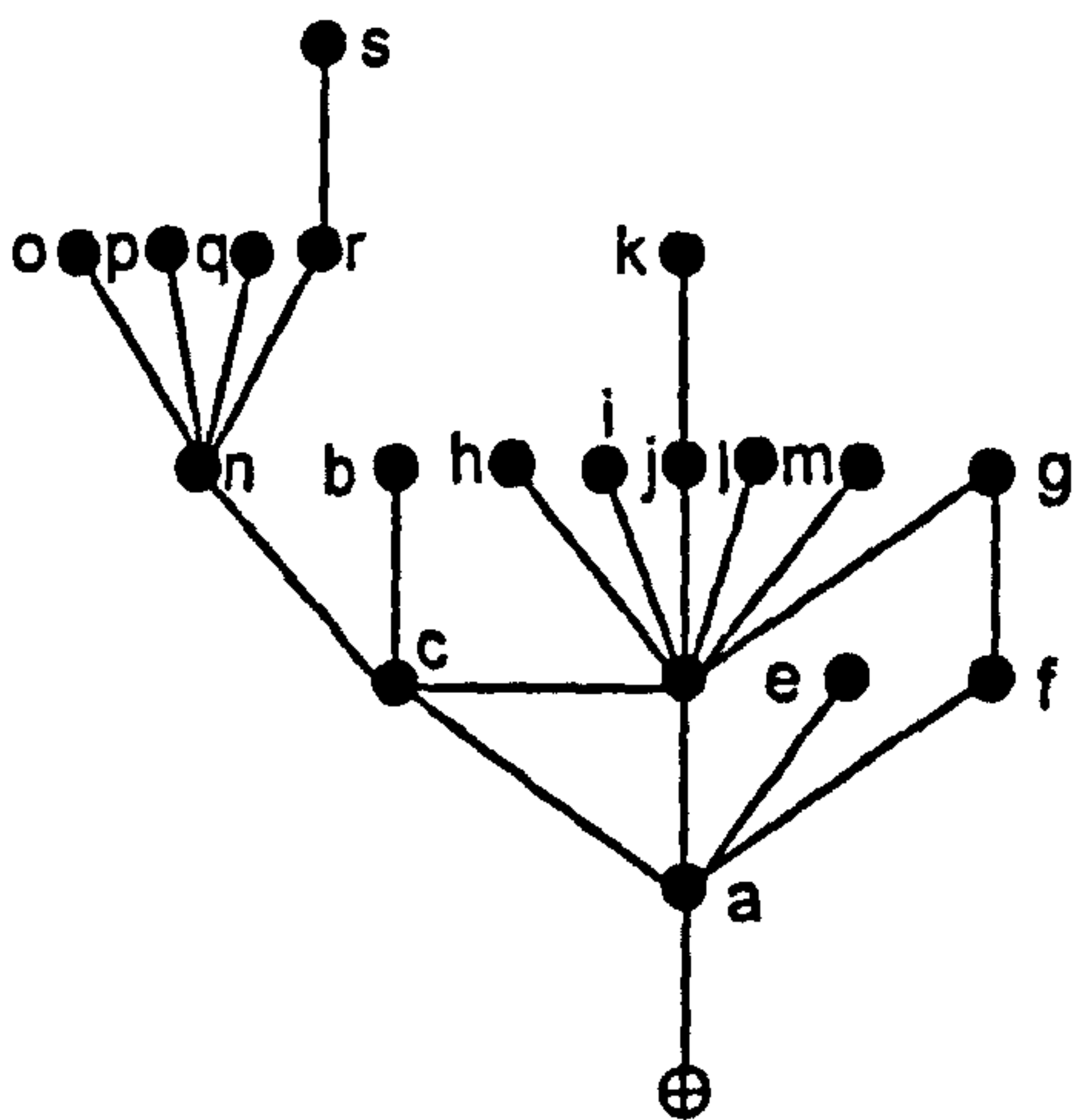
	1	2	3	4	Depth	MD	RA	RRA
a	4	3	2		16	1.778	0.194	0.635
b	1	3	3	2	24	2.667	0.417	1.362
c	1	3	3	2	24	2.667	0.417	1.362
d	4	5			14	1.556	0.139	0.454
e	1	3	5		22	2.444	0.361	1.180
f	1	3	5		22	2.444	0.361	1.180
g	3	3	3		18	2.000	0.250	0.817
h	1	2	3	3	26	2.889	0.472	1.543
i	1	2	3	3	26	2.889	0.472	1.543
ext	1	3	3	2	24	2.667	0.417	1.362

Control status calculations:

	Initial	Control
a	0.250	3.250
b	1.000	0.250
c	1.000	0.250
d	0.250	2.583
e	1.000	0.250
f	1.000	0.250
g	0.333	2.250
h	1.000	0.333
i	1.000	0.333
ext	1.000	0.250



VI H



Ranked results:

	s	k	o	p	r	q	e	ext	f	b	h	i	l	m	g	j	n	a	c	d				
RRA	1.533	1.326	1.118	1.118	1.118	1.066	1.014	1.014	0.962	0.910	0.910	0.910	0.910	0.910	0.858	0.858	0.650	0.546	0.442	0.4				
	sole access								wc				sole access				ctyd	entr	cty					
	least accessible										→										most accessib			
	h	i	l	m	e	o	p	r	ext	b	k	g	f	s	j	q	c	a	n	d				
Control status	0.125	0.125	0.125	0.125	0.200	0.200	0.200	0.200	0.200	0.250	0.500	0.625	0.700	1.000	1.125	1.200	1.525	2.875	3.750	4.6				
	sole access								wc				sole access				entr		ctyd	cty				
	least control										→										most control			

Mean Depth and RRA:

	1	2	3	4	5	6	Depth	MD	RA	RRA
a	5	8	5	1			40	2.105	0.123	0.546
b	1	3	13	2			54	2.842	0.205	0.910
c	4	13	2				36	1.895	0.099	0.442
d	8	6	4	1			36	1.895	0.099	0.442
e	1	4	8	5	1		58	3.053	0.228	1.014
f	2	4	7	5	1		56	2.947	0.216	0.962
g	2	7	5	4	1		52	2.737	0.193	0.858
h	1	7	6	4	1		54	2.842	0.205	0.910
i	1	7	6	4	1		54	2.842	0.205	0.910
j	2	7	5	4	1		52	2.737	0.193	0.858
k	1	1	7	5	4	1	70	3.684	0.298	1.326
l	1	7	6	4	1		54	2.842	0.205	0.910
m	1	7	6	4	1		54	2.842	0.205	0.910
n	5	4	9	1			44	2.316	0.146	0.650
o	1	4	4	9	1		62	3.263	0.251	1.118
p	1	4	4	9	1		62	3.263	0.251	1.118
q	2	4	3	9	1		60	3.158	0.240	1.066
r	1	4	4	9	1		62	3.263	0.251	1.118
s	1	1	4	3	9	1	78	4.105	0.345	1.533
ext	1	4	8	5	1		58	3.053	0.228	1.014

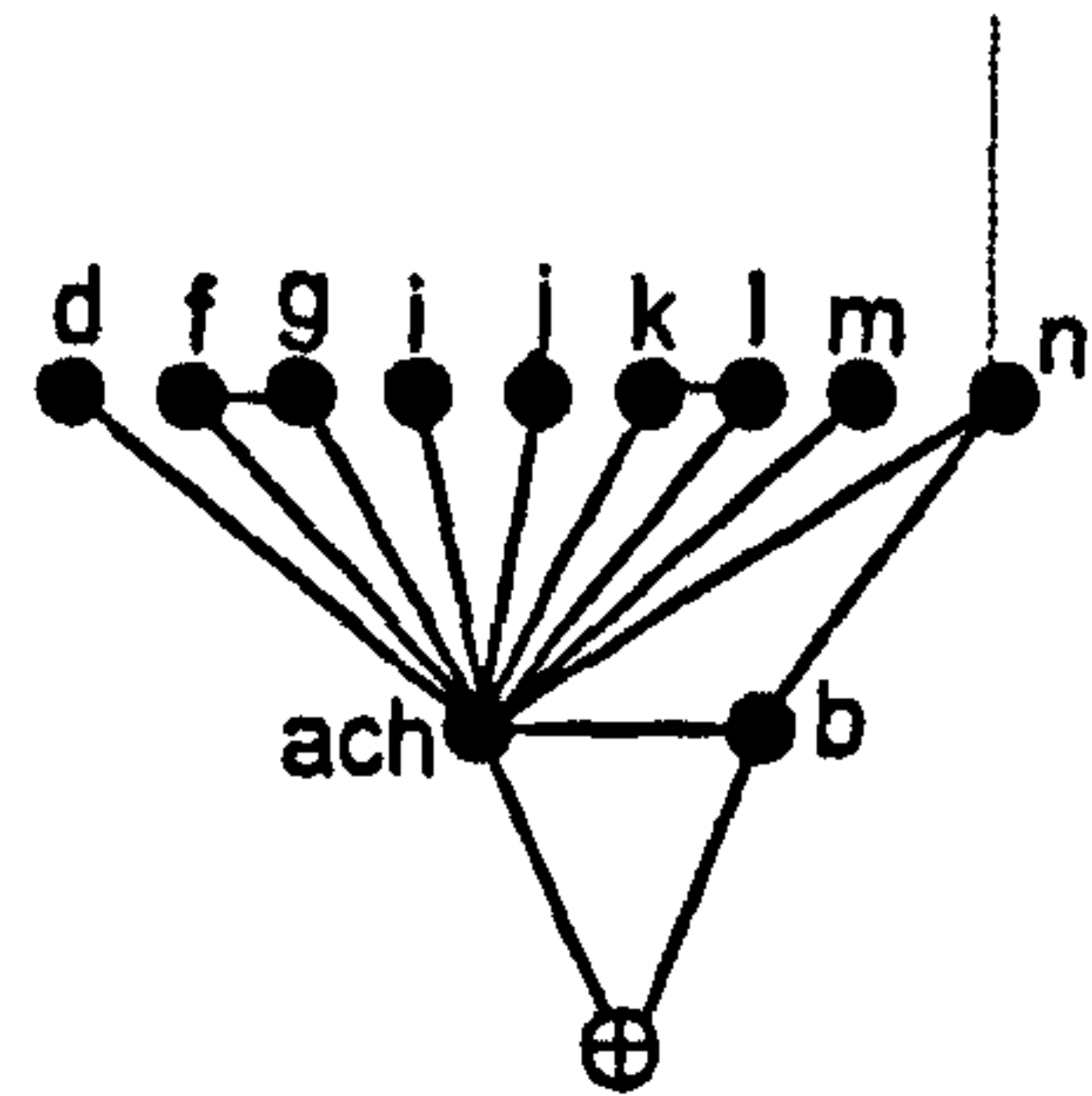
Control status calculations:

	Initial	Control
a	0.200	2.875
b	1.000	0.250
c	0.250	1.525
d	0.125	4.650
e	1.000	0.200
f	0.500	0.700
g	0.500	0.625
h	1.000	0.125
i	1.000	0.125
j	0.500	1.125
k	1.000	0.500
l	1.000	0.125
m	1.000	0.125
n	0.200	3.750
o	1.000	0.200
p	1.000	0.200
q	1.000	1.200
r	0.500	0.200
s	1.000	1.000
ext	1.000	0.200



VII

Area n contains stairs to the upper floor so has a lower initial control value of \*0.333.



Ranked results:

	d	i	j	m	f	g	k	l	n	ext	b	ach
RRA	0.702	0.702	0.702	0.702	0.638	0.638	0.638	0.638	0.574	0.574	0.510	0.064
								exedra	stair well		entr	ctyd
	least accessible								most accessible			

	d	i	j	m	ext	f	g	k	l	b	n	ach
Control status	0.100	0.100	0.100	0.100	0.433	0.600	0.600	0.600	0.600	0.933	0.933	7.166
									exedra	entr	stair well	ctyd
	least control								most control			

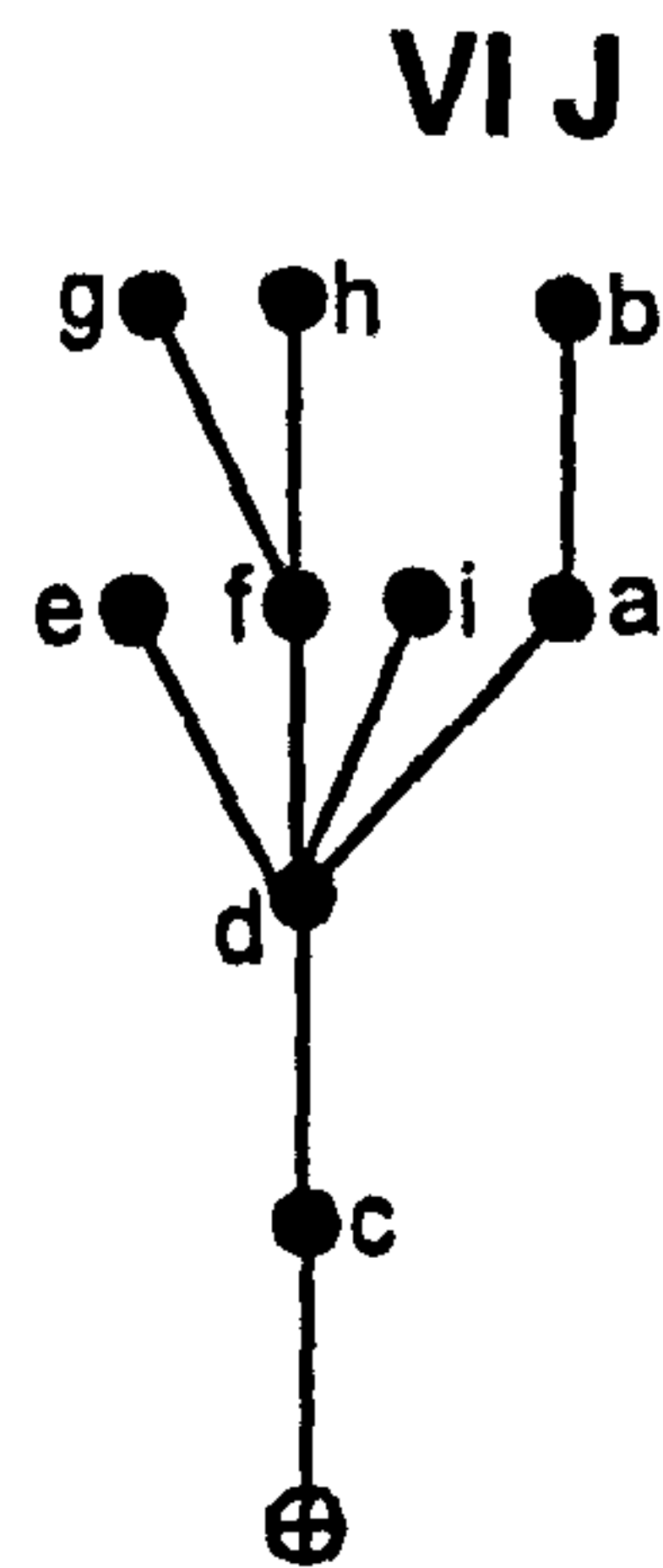
Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
ach	10	1		12	1.091	0.018	0.064
b	3	8		19	1.727	0.145	0.510
d	1	9	1	22	2.000	0.200	0.702
f	2	8	1	21	1.909	0.182	0.638
g	2	8	1	21	1.909	0.182	0.638
i	1	9	1	22	2.000	0.200	0.702
j	1	9	1	22	2.000	0.200	0.702
k	2	8	1	21	1.909	0.182	0.638
l	2	8	1	21	1.909	0.182	0.638
m	1	9	1	22	2.000	0.200	0.702
n	2	9		20	1.818	0.164	0.574
ext	2	9		20	1.818	0.164	0.574

Control status calculations:

	Initial	control
ach	0.100	7.166
b	0.333	0.933
d	1.000	0.100
f	0.500	0.600
g	0.500	0.600
i	1.000	0.100
j	1.000	0.100
k	0.500	0.600
l	0.500	0.600
m	1.000	0.100
*n	0.333	0.933
ext	0.500	0.433





**Ranked results:**

	ext	b	g	h	i	e	c	a	f	d
RRA	1.725	1.543	1.543	1.543	1.543	1.180	0.999	0.817	0.817	0.454
							entr	sole	sole	ctyd
								access	access	

*least accessible* → *most accessible*

	e	i	g	h	b	ext	a	c	f	d
<b>Control status</b>	0.200	0.200	0.333	0.333	0.500	0.500	1.200	1.200	2.200	3.333
							sole access	entr	sole access	ctyd
	<i>least control</i>					→	<i>most control</i>			

**Mean Depth and RRA:**

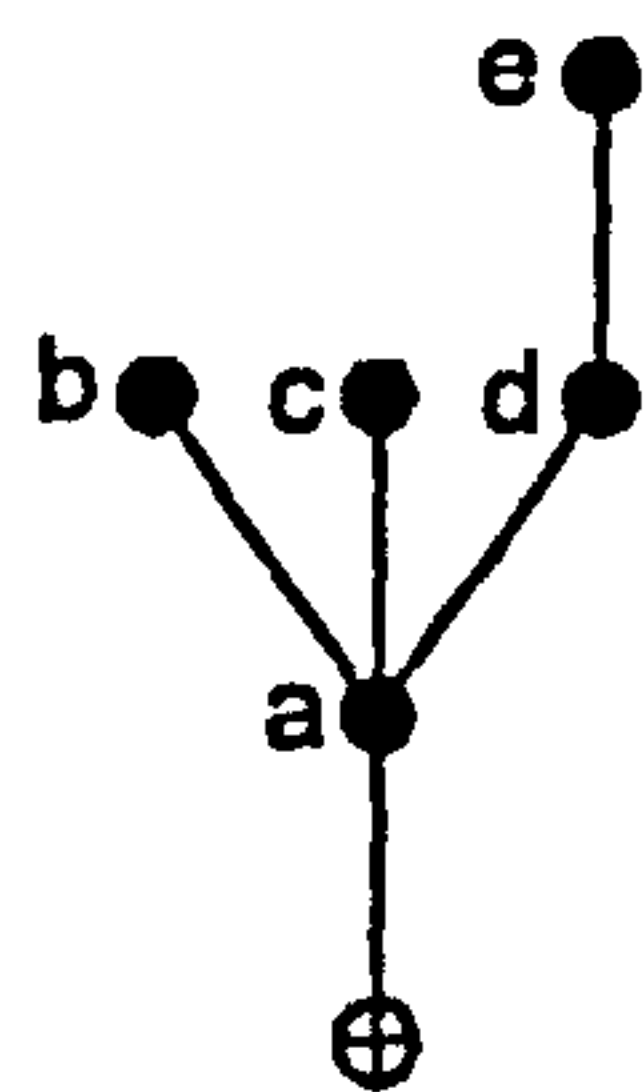
	1	2	3	4	Depth	MD	RA	RRA
a	3	3	3		18	2.000	0.250	0.817
b	1	2	3	3	26	2.889	0.472	1.543
c	2	3	4		20	2.222	0.306	0.999
d	4	5			14	1.556	0.139	0.454
e	1	3	5		22	2.444	0.361	1.180
f	3	3	3		18	2.000	0.250	0.817
g	1	2	3	3	26	2.889	0.472	1.543
h	1	2	3	3	26	2.889	0.472	1.543
i	1	2	3	3	26	2.889	0.472	1.543
ext	1	1	3	4	28	3.111	0.528	1.725

**Control status calculations:**

	Initial	control
a	0.500	1.200
b	1.000	0.500
c	0.500	1.200
d	0.200	3.333
e	1.000	0.200
f	0.333	2.200
g	1.000	0.333
h	1.000	0.333
i	1.000	0.200
ext	1.000	0.500



VI K



Ranked results:

	ext	e	d	c	b	a
RRA	1.433	2.006	0.860	1.433	1.433	0.287
						entr
						ctyd
	least accessible					most accessible
	b	c	ext	e	d	a
Control status	0.250	0.250	0.250	0.500	1.250	3.500
						entr
						ctyd
	least control					most control

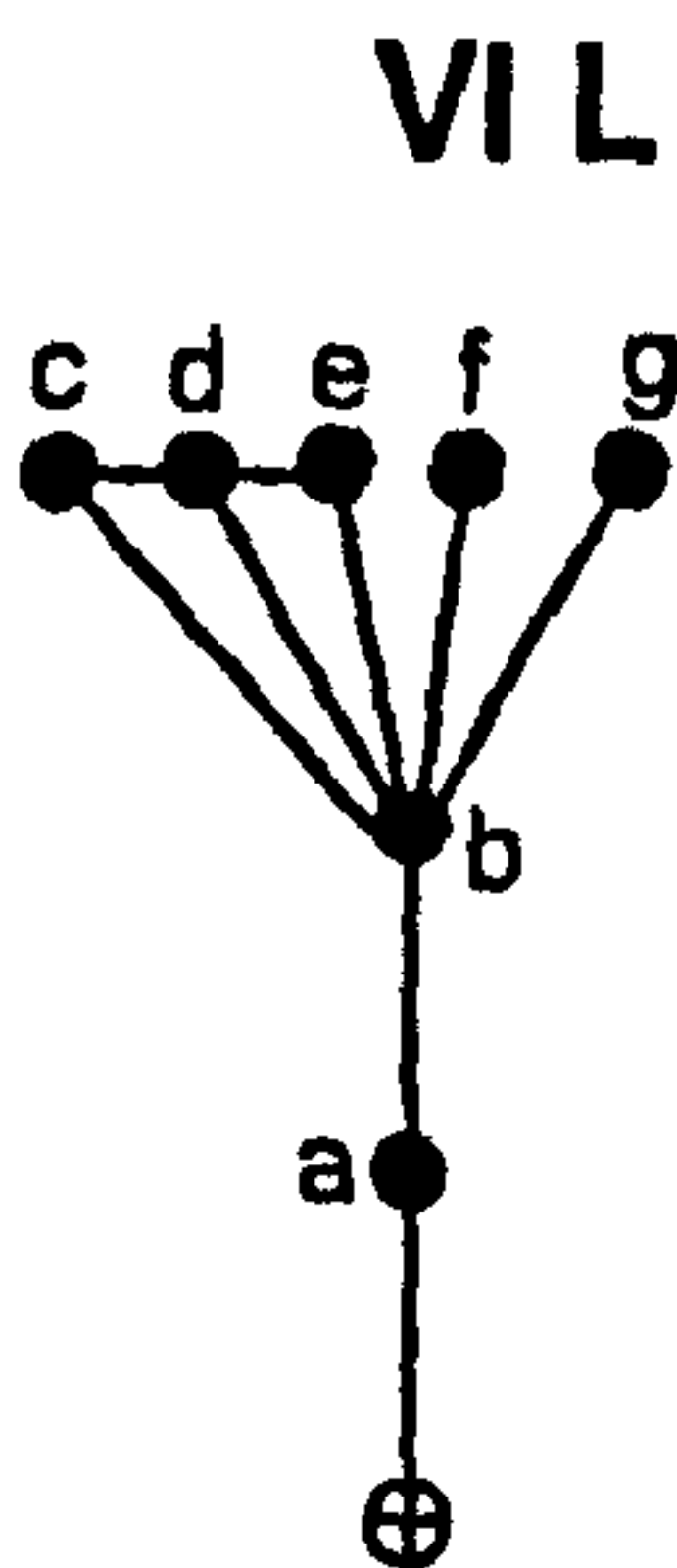
Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	4	1		6	1.200	0.100	0.287
b	1	3	1	10	2.000	0.500	1.433
c	1	3	1	10	2.000	0.500	1.433
d	2	3		8	1.600	0.300	0.860
e	1	1	3	12	2.400	0.700	2.006
ext	1	3	1	10	2.000	0.500	1.433

Control status calculations:

	Initial	Control
a	0.250	3.500
b	1.000	0.250
c	1.000	0.250
d	0.500	1.250
e	1.000	0.500
ext	1.000	0.250





Ranked results:

	ext	a	g	f	e	c	d	b
RRA	1.597	1.307	1.016	1.016	0.871	0.871	0.726	0.145
	entr						ctyd	
	least accessible			→		most accessible		

	f	g	e	ext	c	a	d	b
Control status	0.166	0.166	0.499	0.500	0.833	1.166	1.166	3.833
	least control				entr		ctyd	
					→		most control	

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	2	7		16	2.286	0.429	1.307
b	6	1		8	1.143	0.048	0.145
c	2	4	1	13	1.857	0.286	0.871
d	3	3	1	12	1.714	0.238	0.726
e	2	4	1	13	1.857	0.286	0.871
f	1	5	1	14	2.000	0.333	1.016
g	1	5	1	14	2.000	0.333	1.016
ext	1	1	5	18	2.571	0.524	1.597

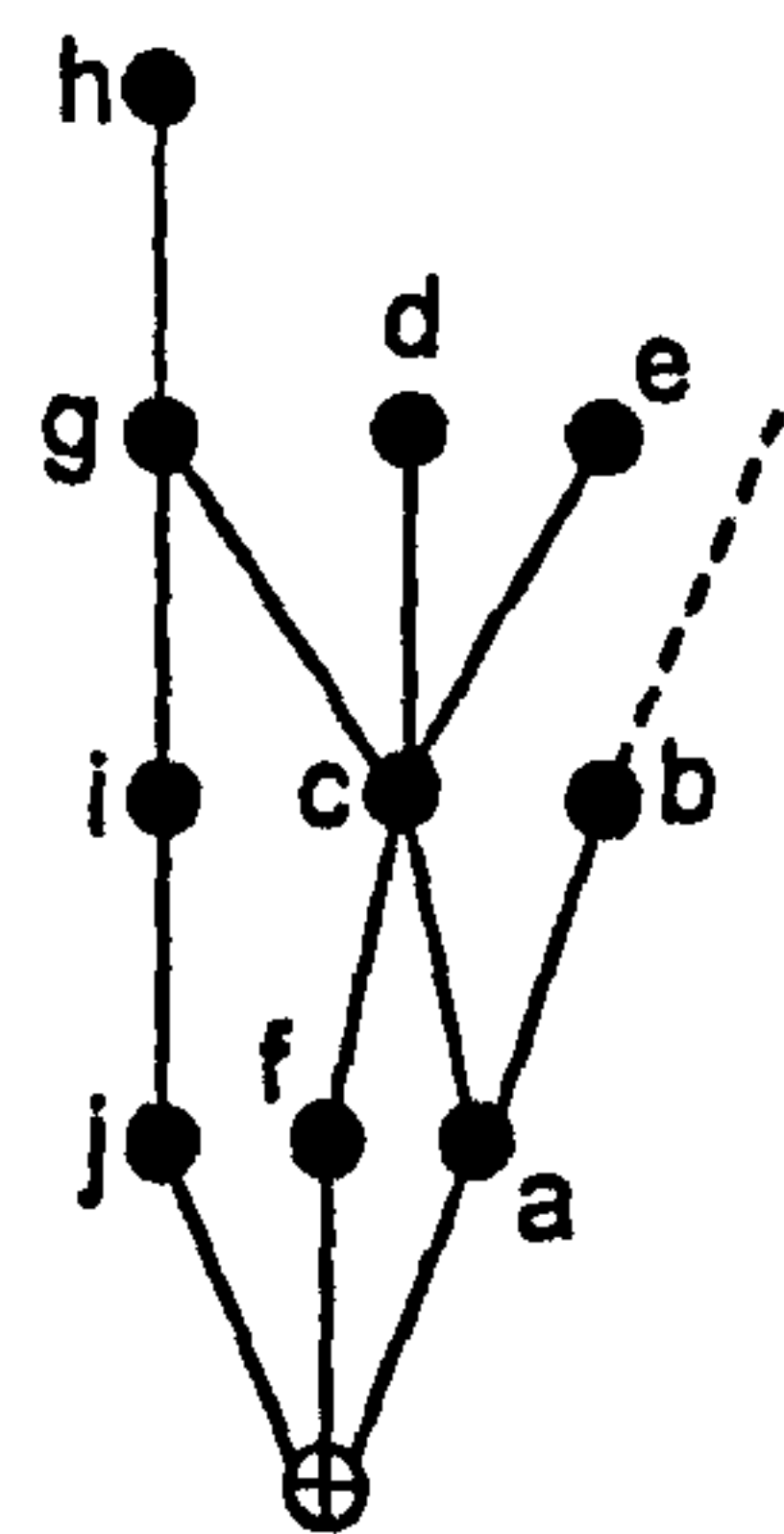
Control status calculations:

	Initial	control
a	0.500	1.166
b	0.166	3.833
c	0.500	0.833
d	0.333	1.166
e	0.500	0.499
f	1.000	0.166
g	1.000	0.166
ext	1.000	0.500



VIM

Area b opens from entrance a. The doors at either end of a form an 'airlock' allowing access to b (stair well?) without visitors/guests entering the courtyard of the house, c.



Ranked results:

	b	h	d	e	j	i	ext	f	a	g	c
RRA	1.085	1.085	0.893	0.893	0.893	0.829	0.702	0.638	0.510	0.510	0.319
	?stair well				entr			entr	entr	sole access	ctyd
	least accessible										most accessible

	b	d	e	h	f	i	j	a	ext	g	c
Control status	0.200	0.200	0.200	0.333	0.533	0.833	0.833	1.033	1.333	1.700	3.166
	?stair well				entr		entr	entr		sole access	ctyd
	least control										most control

Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	3	5	2		19	1.727	0.145	0.510
b	1	2	5	2	28	2.545	0.309	1.085
c	5	4	1		16	1.455	0.091	0.319
d	1	4	4	1	25	2.273	0.255	0.893
e	1	4	4	1	25	2.273	0.255	0.893
f	2	5	3		21	1.909	0.182	0.638
g	3	5	2		19	1.727	0.145	0.510
h	1	2	5	2	28	2.545	0.309	1.085
i	2	3	4	1	24	2.182	0.236	0.829
j	2	3	3	2	25	2.273	0.255	0.893
ext	3	3	3	1	22	2.000	0.200	0.702

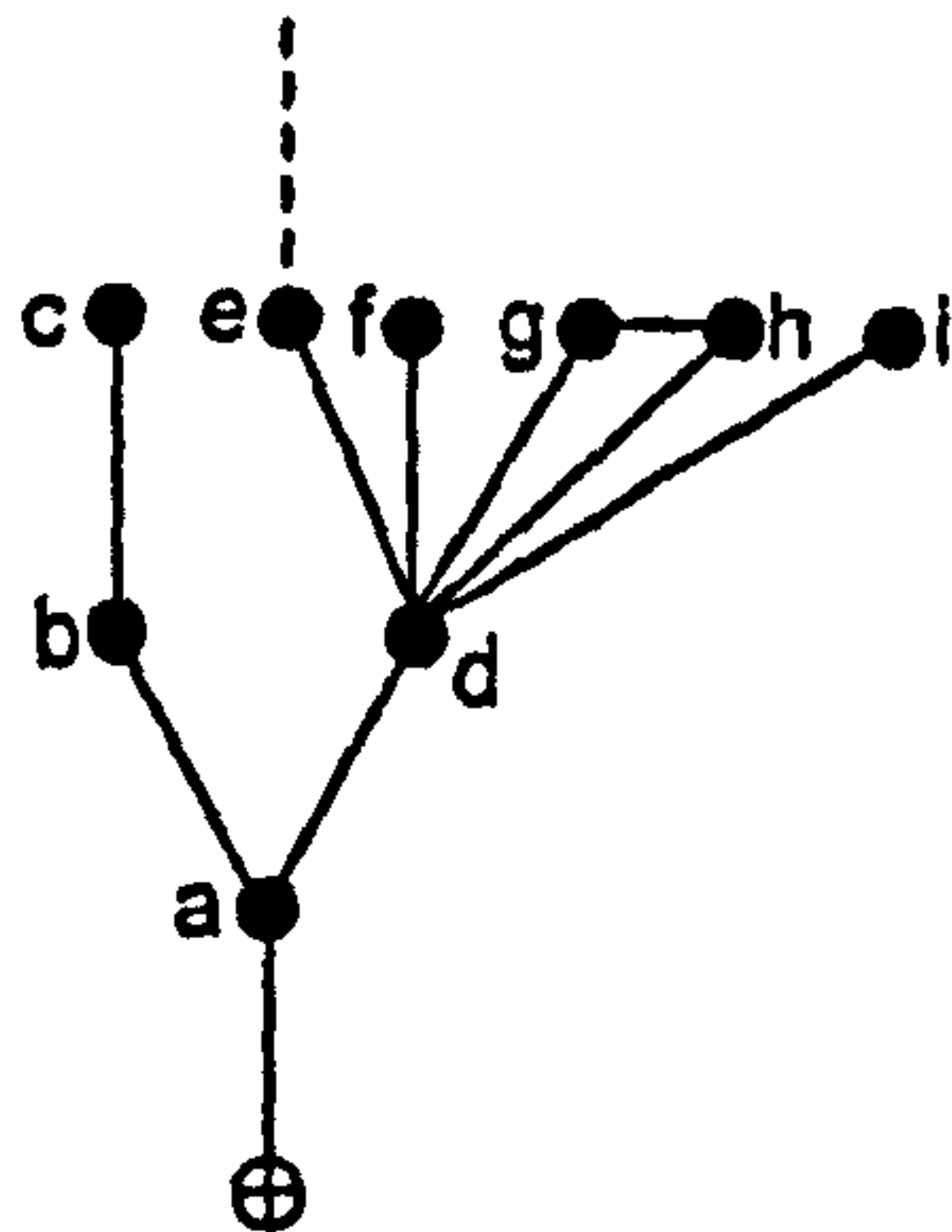
Control status calculations:

	Initial	control
a	0.333	1.033
b	0.500	0.200
c	0.200	3.166
d	1.000	0.200
e	1.000	0.200
f	0.500	0.533
g	0.333	1.700
h	1.000	0.333
i	0.500	0.833
j	0.500	0.833
ext	0.333	1.333



V I N

Area e contains the stairs to the upper floor, and therefore has an initial control value of \*0.500, forming a link between the courtyard, d, and the upper storey.



Ranked results:

	c	ext	e	f	i	g	h	b	a	d
RRA	1.431	0.979	0.829	0.829	0.829	0.753	0.753	0.603	0.377	0.226
			stair well					sole access	entr	ctyd
	least accessible									most accessible

	e	f	i	ext	c	g	h	b	a	d
Control status	0.166	0.166	0.166	0.333	0.500	0.666	0.666	1.333	1.666	3.833
	stair well							sole access	entr	ctyd
	least control									most control

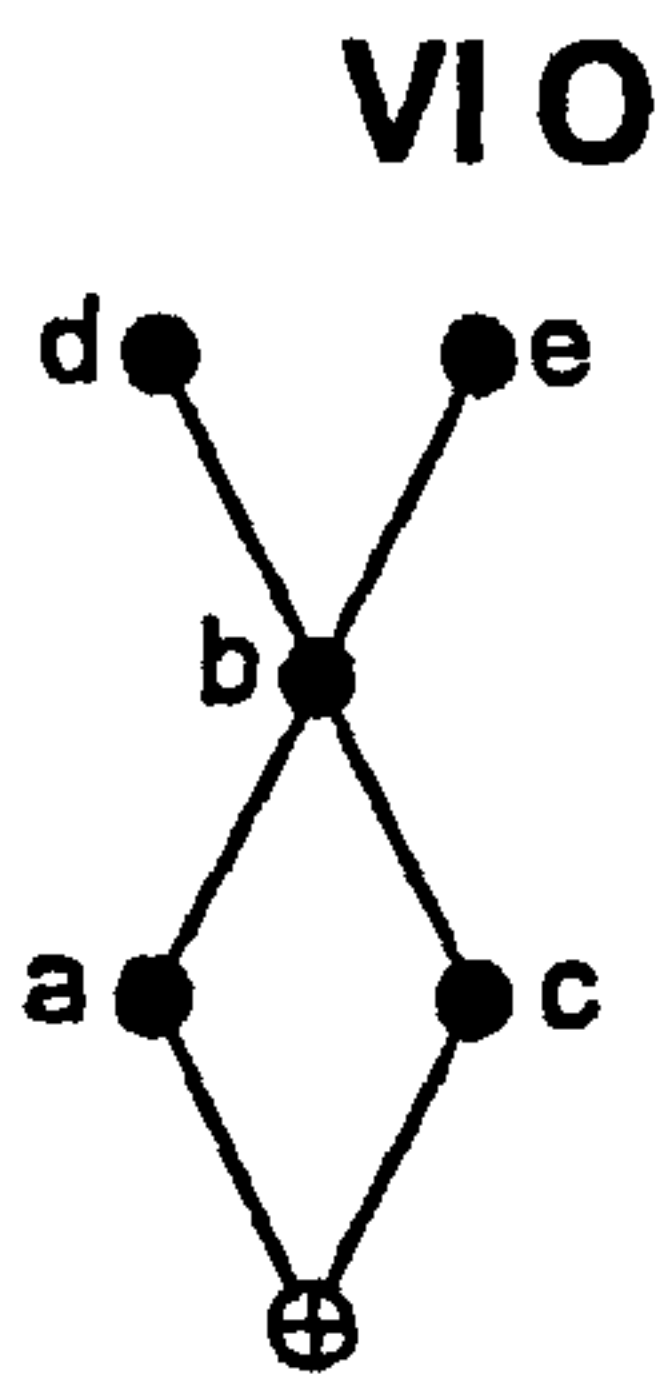
Mean Depth and RRA:

	1	2	3	4	Depth	MD	RA	RRA
a	3	6			15	1.500	0.111	0.377
b	2	2	4		18	1.800	0.178	0.603
c	1	1	2	5	29	2.900	0.422	1.431
d	6	2	1		13	1.300	0.067	0.226
e	1	5	2	1	21	2.100	0.244	0.829
f	1	5	2	1	21	2.100	0.244	0.829
g	2	4	2	1	20	2.000	0.222	0.753
h	2	4	2	1	20	2.000	0.222	0.753
i	1	5	2	1	21	2.100	0.244	0.829
ext	1	2	6		23	2.300	0.289	0.979

Control status calculations:

	Initial	control
a	0.333	1.666
b	0.500	1.333
c	1.000	0.500
d	0.166	3.833
*e	0.500	0.166
f	1.000	0.166
g	0.500	0.666
h	0.500	0.666
i	1.000	0.166
ext	1.000	0.333





Ranked results:

	d	e	ext	a	c	b
RRA	1.433	1.433	1.433	0.860	0.860	0.287
				entr	entr	ctyd
	least accessible			most accessible		

	d	e	a	c	ext	b
Control status	0.250	0.250	0.750	0.750	1.000	3.000
			entr	entr		ctyd
	least control			most control		

Mean Depth and RRA:

	1	2	3	Depth	MD	RA	RRA
a	2	3		8	1.600	0.300	0.860
b	4	1		6	1.200	0.100	0.287
c	2	3		8	1.600	0.300	0.860
d	1	3	1	10	2.000	0.500	1.433
e	1	3	1	10	2.000	0.500	1.433
ext	2	1	2	10	2.000	0.500	1.433

Control status calculations:

	Initial	Control
a	0.500	0.750
b	0.250	3.000
c	0.500	0.750
d	1.000	0.250
e	1.000	0.250
ext	0.500	1.000



# Appendix Three

## CAD methodology

### A3.1 Plan preparation

The first step to creating 3D CAD reconstructions was to transfer information from the paper ground plans (Chamonard 1922, Plates III-IV and V-VI, Figures 54 and 55) onto computer in order to create a base map template from which elevated features could be traced and extruded. Each plan was first fixed to a digitizing tablet, and the tablet calibrated by inputting and then digitizing the coordinates of measured reference points. These reference points were sited bottom left, bottom right, top left and top right of the plan, and their position was measured in relation to plan features, using the scale in which they were drawn. This process was repeated until the digitized reference points tallied with the input figures. The CAD software was then able to relate the plan to the coordinates given, and ensure the accurate translation, position-wise, between plan and screen when entering (digitizing) information. Image limits (horizontal and vertical, x and y coordinate ranges) were set to those of the bottom left and top right reference points, enabling one unit of measurement on screen to corresponded to and represent one metre on the ground plan. This scaling facilitated later typing-in of measurements without having to first convert or calculate figures.

Once the tablet was calibrated, information was traced from the plans into CAD using the digitizing puck. Separate *layers* of information were recorded, a single type of architectural feature being recorded within each. These covered walls (in elevation, ancient and recent), the position of windows, blocked doors, staircases, courtyard stylobates and pillars. Each drawing layer was effectively transparent except for the areas of detail it held, similar to a piece of OHP film, and as such layers could be piled together to form composite images. Drawings consequently contained a wide range of features which could be viewed separately e.g. the walls, or in combination, e.g. both walls *and* pillars or sills and flooring. The layers were colour-coded to help distinguish them from



one another. The two plans (Plates III-IV, insulae II, IV and VI and Plates V-VI, insula III) were digitized separately.

These 2D digitized ground plans formed the basis for all consequent 3D reconstructions and architectural features were traced directly from them wherever possible. Errors in accuracy lay in using photocopies of the original plans (made with an A0 roller copier and therefore prone to distortion) as opposed to the originals, and the accuracy of the digitizing process itself. Further errors are likely to have occurred in the translation of 2D plan features into 3D ones as this involved tracing from already-copied plans. However, I consider that these errors, estimated to relate to a maximum of several centimetres distance transposition on site would detract little from the views and perspective images created.

### A3.2 Model construction

The following methodology was employed for each 3D model created. CAD and AEC (an architectural add-on package) were used in combination to create the models and associated illustrations. Software commands and menu choices appear in **bold** and information 'input' represents measurements typed in at the CAD command line.

For each model, a select area of the overall (Theatre Quarter) digitized ground plan was magnified and saved as a separate file from which to work. In addition to the plan layer/ground plan new drawing layers were created for each of the features listed (**Ddlmodes**). Different views of the same model were created on screen concurrently by dividing the screen into smaller regions (**vports**). The model within each window could then be rotated (**Dview**) or magnified (**Zoom**) to aid construction, changes made within one window being immediately reflected in all the others. To reposition features accurately three concurrent viewports were used, showing the image in plan view, viewed from the side (**3dview**, 0° angle from the XY plane and either from the **right side** or **left side**) and at an angle (**3dview**, 45° angle from the XY plane, and **↑**, **→**, **↓**, or **←** in direction). Working with a single view proved deceptive as it was not possible to show at what point in 3D space a feature been placed. Features linked directly to others, i.e. at edges or corners, walls to floors so no gaps appeared between them, and sills to flooring



levels, were linked by using the object snap (**osnap**) function. Information regarding the most common features constructed are listed below:

### **A3.3 Flooring areas: courtyards, impluvia and rooms**

Each area was created from a 3D surface (**3Dface**), its outline traced from the ground plan using **Osnap** to fix its corners to wall intersections around its boundary. The **3Dface** command is limited in that it can only use four points, i.e. create a four-sided polygon. Irregular shapes e.g. 'dogleg'-shaped courtyard areas were made up of a series of 3D surfaces in combination. Later use of **Hide 3Dface edges** concealed selected edges of these multiple shape areas to make the area appear uniform. Many floor levels were positioned either below or above that of the courtyard itself and to raise (or lower) the area to the appropriate level from the courtyard or adjacent rooms, additional procedures were employed.

#### **A3.3.1 Walls**

First built for rooms facing onto the courtyard (using **Wall**); traced from the ground plan, start and end positions fixed with **Osnap**; width, height and alignment measurements input. Compound wall utilities (as opposed to single walls) were chosen for walls which would later contain windows, an AEC convention. Each section of wall was built independently, though continuation through adjoining sections were possible where width and height remained the same. The **Wall** feature elevates two wall faces independently and in parallel but does not turn them into a virtual solid object. To seal wall edges (preventing views *inside* the walls), **endcaps** were used, and where this was not possible, a **3Dface** was **Osnap**'d onto the end of each wall. The top and bottom faces of the walls were left open as these would be unable to be seen by the computer 'viewer'.

#### **A3.3.2 Block features: sills and stylobate flagging**

**3D objects**, boxes, were used to create these, choosing a start point with **Osnap**, and inputting height, length and width. Stylobates were constructed using the same method and elevated above the level of the courtyard.

To move objects, e.g. sill stones or floor faces, above or below the level of the ground plan from which they were traced, the drawing's coordinate system needed to be shifted to align to the end of the selected feature i.e. the origin point of the picture corresponding



to the point 0,0,0 in 3D space (UCS, O to move the Origin or UCS, E to align the origin with the Entity being moved). The feature was then moved by typing in the new z axis coordinate for the point of origin, e.g. 0,0,*x* where '*x*' is its height *above* the courtyard (or 0,0,-*x* where '-*x*' is its height *below* the courtyard).

Alternatively, the plan layer itself could be moved to each new flooring level, allowing the flooring area (and associated walls) to be traced directly from it, as opposed to creating features and *then* moving them. For rooms to be moved to a *lower* elevation level, their walls were created with **Draw below floor level** enabled, extending them below ground level.

Walls and flooring were created for all spaces within the chosen area, starting at the courtyard and working outwards to the rooms surrounding it and using combinations of the above methods. The construction process proved to be extensively time consuming and awkward as the majority of rooms were placed at different floor levels from one another. Room flooring and sill stones were often placed at a different elevation from adjacent courtyards. In the same way, entrances were elevated separately both from the surrounding road (involving a sill step in) and from the adjoining vestibule. The Delian houses contrast greatly with modern-day housing on this point where ground floor rooms are placed on the same level.

### **A3.3.3 Pillars**

Created from 3D objects, cones, centring their base points with **osnap**, and inputting base and top radii measurements, overall height and component numbers of segments to give the appearance of simple fluting.

### **A3.3.4 Doors and windows**

Cut into walls using the **door insertions** function. Height and width of openings and distance along the selected (compound) wall were input. Where door lintel (header heights) weren't known, doorway spaces were created by the gaps between sections of wall.



Once created, models could be viewed from varying angles at cardinal points (**3dview**) or freely rotated (**dview**). Resulting wire frame images were saved and clarified using the **Hide** function, which renders back faces of 3D features invisible so as not to allow views *through* e.g. walls and pillars. AEC 5's **perspective** feature was also used. This places an imaginary viewer within the building – chosen by the author in plan view, at a given rotation and eye level, then creates a view of the model as could have been seen from that point.



# Bibliography

- Adam, J. P. 1994. *Roman Building, Materials and Techniques*. London: B. T. Batsford Ltd, 291-327.
- Ardaillon, E. 1896. Rapport sur les fouilles. Du Port de Délos. *Bulletin de Correspondance Hellénique*, Vol. XX: 428-445.
- Ault, B.A. 1994. *Classical houses and households: An architectural and artefactual case study from Halieis, Greece*. PhD thesis, University of Indiana, Michigan, US.
- Bain, D. M. (ed) 1985. *Menander. Samia*. Second Edition. Loeb Classical Library. Warminster: Aris and Philips.
- Bezerra de Meneses, U. and H. Sarian. 1973. Nouvelles Peintures Liturgiques de Délos In. *Bulletin de Correspondance Hellénique*, Suppl. 1. *Etudes Déliennes publiées à l'occasion du centième anniversaire du début des fouilles de l'École française d'Athènes à Délos*. 77-109.
- Blundell, S. 1995. *Women in Ancient Greece*. London: British Museum Press
- Boardman, J. 1974. *Athenian black figure vases: a handbook*. London: Thames and Hudson.
- Boardman, J. 1975. *Athenian red figure vases: the archaic period: a handbook*. London: Thames and Hudson.
- Brown, F. E. 1990. Comment on Chapman: some cautionary notes on the application of spatial measures to prehistoric settlements. In R. Samson (ed), *The Social Archaeology of Houses*, 93-124. Edinburgh: Edinburgh University Press.
- Brun, J-P, and M. Brunet. 1997. Une huilerie du premier siècle avant J.-C. dans le Quartier du théâtre à Délos. *Bulletin de Correspondance Hellénique*, Vol. 121, 2. 573-615..
- Bruneau, P. 1964. Apotropaia Déliens. La Massue D'Héraclès. *Bulletin de Correspondance Hellénique*, Vol. 88: 159-168.



- Bruneau, P. and J. Ducat. 1965. *Guide de Délos*. Paris: Boccard.
- Bruneau, P. 1968. Contribution a l'histoire urbaine de Délos a l'époque Hellénistique et a l'époque impériale. *Bulletin de Correspondance Hellénique*, Vol. XCII: 633-709.
- Bruneau, P. 1970. *Delos XXVII. Exploration Archéologique de Delos: L'ilot de la Maison des Comédiens*. Paris: Boccard.
- Bruneau, P. 1974. *Mosaics on Delos*. Paris: Boccard.
- Bruneau, P. and P. Fraisse. 1981. Un pressoir à vin à Délos. *Bulletin de Correspondance Hellénique*, 1. CV: 127-153.
- Bruneau, P. 1985. Deliacca (V). *Bulletin de Correspondance Hellénique*, Vol. CIX (I): 545-567.
- Bruneau, P. 1986. Les Maisons Privées. In *Grece: Delos: L'île D'Apollon. Dossiers Histoire et Archeologie*. No. 105, 45-55.
- Bruneau, P. 1987. Deliacca. *Bulletin de Correspondance Hellénique*, Vol. CXI (I): 313-342.
- Bruneau, P. 1995. L'Agora des Italiens était-elle un établissement de sport? *Bulletin de Correspondance Hellénique*, Vol. CXIV(I): 35-62.
- Bruneau, P. and M. Brunet, A. Farnoux, J-C. Moretti, 1996. *Delos: Ile sacrée et ville cosmopolite*. École Française d'Athènes. Paris: Edition Paris-Méditerranée.
- Brunet, M. 1988. Fouille de la ferme aux jambages de granit et exploration du territoire. *Bulletin de Correspondance Hellénique*, Vol. CXII (II): 787-790.
- Brunet, M. 1990. Contribution à l'Histoire rurale de Délos aux époques Classique et Hellénistique. *Bulletin de Correspondance Hellénique*, Vol. CIV (II): 669-682. Vol. CIV (II): 669-682.
- Bruno, V. J. 1985. *Hellenistic Painting Techniques: The Evidence of the Delos Fragments*. Leiden: Brill.
- Bulard, M. 1908. *Peintures Murales et Mosaïques de Délos*. Monuments et Mémoires Tome Quatorzième. Paris: L'Académie des Inscriptions.



- Bulard, M. 1926. *Delos IX. Exploration Archéologique de Delos: Description des revêtements peints a sujets religieux*. Paris: Boccard.
- Cahill, N. D. 1991. *Olynthus; Social and Spatial Planning in a Greek City*. PhD thesis, University of California, Berkeley, US.
- Chamonard, J. 1896. Théâtre de Délos. Appendices A. La rue et les habitations voisines du théâtre. *Bulletin de Correspondance Hellénique*, Vol. XX: 314-317.
- Chamonard, J. 1922. *Delos VIII. Exploration Archéologique de Delos: Le Quartier du Théâtre: étude sur l'habitation délienne a l'époque hellénistique*. Vol. 1. Paris: Boccard.
- Chamonard, J. 1924. *Delos VIII. Exploration Archéologique de Delos: Le Quartier du Théâtre: étude sur l'habitation délienne a l'époque hellénistique*. Vol. II. Paris: Boccard.
- Chapman, J. 1990. Social Inequality on Bulgarian Tells and the Varna Problem. In R. Samson (ed), *The Social Archaeology of Houses*, 49-92. Edinburgh: Edinburgh University Press.
- Clarke, J. R. 1991. *The Houses of Roman Italy 100BC-AD250. Ritual, Space and Decoration*. University of California Press, Berkeley, Los Angeles and London.
- Cohen, D. 1989. Seclusion, separation and the Status of Women in Classical Athens. *Greece and Rome*, Vol xxxvi, No 1, 3-15. New York: Charles Scribner's Sons.
- Cohen, D. 1991. *Law, sexuality and society. The enforcement of morals in classical Athens*. Cambridge: Cambridge University Press.
- Cook, J. M. 1962. *Ancient Peoples and Places. The Greeks in Ionia and the East*. London: Thames and Hudson.
- Dallas, C. 1992. Relational description, similarity and classification of complex archaeological entities. In G. Lock and J. Moffett (eds), *Computer Applications and Quantitative Methods in Archaeology 1991*, 167-178. BAR S577 Oxford.



- Daniels, R. 1995. Punic Influence in the Domestic Architecture of Roman Volubilis (Morocco). In *Oxford Journal of Archaeology*, 79-95. vol. 14 (1) Oxford: Basil Blackwell Ltd.
- Daux, G. 1959. Chronique des Fouilles 1958: Délos. Maisons du quartier de l'Aphrodision. *Bulletin de Correspondance Hellénique*, Vol. 83: 784-787.
- Déonna, W. 1946. La Végétation a Délos. *Bulletin de Correspondance Hellénique*, Vol. 70: 154-163.
- Déonna, W. 1948. La Vie Privée es Déliens. In *École Française d'Athènes, Travaux et Mémoires*. Fasc, VIII. Paris: Boccard.
- Dillon, M. and L. Garland 1994. *Ancient Greece – Social and Historical Documents from Archaic Times to the Death of Socrates (c. 800-329 BC.)* Routledge: London and New York.
- Dinsmoor, W. B. 1975. *The Architecture of Ancient Greece: An Account of its Historic Development*. London: Batsford Ltd.
- Edmonds, J. M. 1956. *Theophrastus. The Characters of Theophrastus*. Loeb Classical Library. London: William Heinemann Ltd.
- Elsner, J. 1995. *Art and the Roman Viewer*. Cambridge: Cambridge University Press.
- Fairclough, G. 1992. Meaningful constructions – spatial and functional analysis of medieval buildings. *Antiquity* Vol. 66, 348-366.
- Foley, H. 1981. The Conception of Women in Athenian Drama. In H. Foley (ed) *Reflections of Women in Antiquity*, 127-163. London: Gordon and Breach Science Publishers.
- Foster, S. M. 1989. Analysis of spatial patterns in buildings (access analysis) as an insight to the social structure: examples from the Scottish Atlantic Iron Age. *Antiquity* 63; 40-50.
- Foxhall, L. 2000. The running sands of time: archaeology and the short-term. *World Archaeology*. Vol 31 (3) 484-498. Human Lifecycles.



- Fraisse, P. 1983. Rapport sure les travaux de l'École Française en Grèce en 1982: La restauration des murs. *Bulletin de Correspondance Hellénique*, Vol. CVII (II): 892-896.
- Fyfe, T. 1936. *Hellenistic Architecture: An Introductory Study* Cambridge, Cambridge University Press.
- Gallant, T. W. 1991. *Risk and Survival in Ancient Greece. Reconstructing the Rural Domestic Economy*. Polity Press, Cambridge.
- Gardner, E.A. 1901. The Greek House. *Journal of Hellenistic Studies*, 293-305.
- Gardner, J. F. 1989. Aristophanes and Male Anxiety - The defence of the oikos. *Greece and Rome*, Vol xxxvi, 51-62, No 1. New York: Charles Scribner's Sons.
- Gardner, P. and F. B. Jevons. 1898. *A Manual of Greek Antiquities*. 2nd edition. London: Charles Griffin & Co. Ltd.
- Godley, A. G. (trans). 1971. *Herodotos*. Loeb Classical Library. London: William Heinemann Ltd.
- Goold, G. P. (trans). 1976. *Lysias*. Loeb Classical Library. London: William Heinemann Ltd.
- Grahame, M. 1996. *The Houses of Pompeii: Space and Social Interaction*. Unpublished PhD thesis, Southampton University.
- Grahame, M. 1997. Public and Private in the Roman house: the spatial order of the *Casa del Faino*. In Laurence, R. and A. Wallace-Hadrill (eds), *Domestic Space in the Roman World: Pompeii and Beyond*. *Journal of Roman Studies*, 137-164. Supplementary Series 22. Portsmouth, RI.
- Grahame, M. 1998. Material Culture and Roman Identity. The spatial layout of Pompeiian houses and the problem of ethnicity. In Laurence, R. and J. Berry (eds) *Cultural Identities in the Roman Empire*. London: Routledge.
- Guettel Cole, S. 1988. Greek Cults. In M. Grant and R. Kitzinger (eds), *Civilization of the Ancient Mediterranean. Greece and Rome*. vol II. New York: Charles Scribner's Sons.



- Harris, C. M. 1977. *Historical Architecture Sourcebook*. New York: McBraw-Hill Book Company.
- Hatzfeld, J. 1912. Remarques Historiques. Progrès de la population italienne de Délos jusqu'à la guerre de Mithridate. – Formules qui servent à la designer. – Emplacements qu'elle fréquente. – Date de la construction de l'Agora des Italiens. *Bulletin de Correspondance Hellénique*, Vol. XXXVI: 102-218.
- Hayles, S. *Cave Canem - a reinterpretation of the public view into private space in the atrium houses of Pompeii*. Paper presented at the Households in Classical Antiquity Conference, Open University, January 1998.
- Hall, E. T. 1969. *The Hidden Dimension*. New York: Doubleday and Company Inc.
- Hillier, B., Leaman, A., Stansall, P., and M. Bedford. 1978. Reply to Professor Leach. In Green, D., C. Haselgrove and M. Spriggs, *Social Organisation and Settlement*, 403-405. BAR International Series (Supplementary) 47 (ii).
- Hillier, B and Hanson, J. 1984. *The Social Logic of Space*. Cambridge: Cambridge University Press.
- Hoepfner, W. and & Schwander, E-L. 1986. *Haus und Stadt im Klassischen Griechenland*. München: Deutscher Kunstverlag.
- Homolle, T. 1884. Les Romains a Délos. *Bulletin de Correspondance Hellénique*, Vol. VIII: 75-158.
- Hopper, R. J. 1979. *Trade and Industry in Classical Greece*. London: Thames and Hudson.
- Hornblower, S. and A. Spawforth (eds), 1996. *The Oxford Classical Dictionary*. Third Edition. Oxford: Oxford University Press.
- Jackle, J. A., Brunn, S. and Roseman, C. C. (eds), 1976. *Human Spatial Behaviour: A Social Geography*. California: Duxbury Press.
- Jameson, M. 1990. Domestic space in the Greek city-state. In S. Kent *Domestic Architecture and the Use of Space. An interdisciplinary cross-cultural study*, 92-113. Cambridge: Cambridge University Press.



- Jones, H.L. (trans). 1930. *The Geography of Strabo*. Volume VI. Loeb Classical Texts. London: William Heinemann Ltd.
- Kent, J. H. 1948. The Temple Estates of Delos, Rheneia and Mykonos. In *Journal of the American School of Classical Studies at Athens, Hesperia* Vol. XVII, 243-338. Baltimore: J. H. Furst Co.
- Laidlaw, W. A. 1933. *A History of Delos*. Oxford, Basil Blackwell & Mott Ltd.
- Laloux, V. 1888. *L'architecture Grecque*. Paris: Maisson Quantin, 244-249.
- Lapalus, E. 1939. *Delos XIX. Exploration Archéologique de Delos: L'Agora des Italiens*. Paris: Boccard.
- Laurence, R. 1994. *Roman Pompeii. Space and Society*. London: Routledge.
- Laurence, R. 1995. The organization of space in Pompeii. In Cornell, T. J. and K. Lomas (eds) *Urban Space in Roman Italy*, 63-78. London: UCL Press.
- Laurence, R. and A. Wallace-Hadrill (eds), 1997. Domestic Space in the Roman World: Pompeii and Beyond. *Journal of Roman Studies Supplementary Series* 22. Portsmouth, RI.
- Lawrence, A. W. 1957. *Greek Architecture*. Pelican History of Art. Middlesex: Penguin Books Ltd.
- Lawrence, A. W. 1996. *Greek Architecture* (revised by R. A. Tomlinson). Pelican History of Art (5th edn.). New Haven and London: Yale University Press.
- Lawrence, R. J. 1987. *Housing, Dwellings and Homes. Design theory, research and practice*. Chichester: John Wiley & Sons.
- Leach, E. 1978. Does Space Syntax really 'Constitute the Social'? In Green, D., C. Haselgrove and M. Spriggs, *Social Organisation and Settlement*, 385-401. BAR International Series (Supplementary) 47 (ii).
- Le Dinahet, M-T. 1986. Les Domaines D'Apollon. In *Grece: Delos: L'île D'Apollon. Dossiers Histoire et Archeologie*. No. 105, 70-72.



- Le Dinahet, M-T. 1986a. Monumnets et Rituel Funeraire dans l'île de Rhenee. In Grece: Delos: L'île D'Apollon. *Dossiers Histoire et Archeologie*. No. 105, 73-81.
- Maidment, J. (trans). 1933. *Minor Attic Orators*. Antiphon and Andocides. Loeb Classical Library. London: William Heinemann Ltd.
- Marchant, E. C. (trans). 1923. *Xenophon. Memorabilia and Oeconomicus*. Loeb Classical Library. London: William Heinemann Ltd.
- Martin, R. 1982. *L'Urbanisme dans la Grèce Antique*. Paris: Picard.
- McKay, A. G. 1988. Houses. In Grant, M and Kitenger, R. (eds), *Civilization of the Ancient Mediterranean. Greece and Rome*, vol II: 1363-1383. New York: Charles Scribner's Sons.
- Morgan, M. H. (trans). 1960. *Vitruvius, The ten books on architecture*. New York: Dover Publications Inc.
- Moore, B. 1984. *Privacy Studies in Social and Cultural History* New York: M. E. Sharpe Inc.
- Moore, J. E. 1978. *Design for Good Acoustics and Noise Control*. London: Macmillan Press Ltd.
- Murray, A. T. (trans). 1956. *Demosthenes, Private Orations XLI-XLIX*. Vol. V. Loeb Classical Library. London: William Heinemann Ltd.
- Murray, A. T. (trans). 1957. *Demosthenes, Private Orations L-LVIII*. Vol. IV. Loeb Classical Library. London: William Heinemann Ltd.
- Nevett, L. 1992. *Variation in the forms and use of domestic space in the Greek world in the Classical and Hellenistic periods*. Unpublished PhD thesis, Cambridge University.
- Nevett, L. 1995. Gender Relations in the Classical Greek Household: The Archaeological Evidence. *The Annual of the British School at Athens*, 363-381. No 90 Centenary Volume. London: Managing Committee, British School at Athens.
- Nevett, L. 1997. The organisation of space in Classical and Hellenistic house from mainland Greece and the western colonies. In Spencer, N. (ed) *Time, Tradition*



- and Society in Greek Archaeology. Bridging the 'Great Divide'*, 89-108. London and New York: Routledge.
- Nevett, L. 1999. *House and Society in the Ancient Greek World*. Cambridge: Cambridge University Press.
- Osborne, R. 1985. Buildings and Residence on the land in Classical and Hellenistic Greece: The contribution of Epigraphy. In *The Annual of the British School at Athens* No. 80, 119-128 Published by the Managing Committee, Oxford.
- Owens, E. J. 1992. *The City in the Greek and Roman World*. New York and London: Routledge.
- Paris, P. 1884. Fouilles de Délos. Maisons du Second Siècle Av. J.-C. *Bulletin de Correspondance Hellénique*, Vol. VIII: 473-496.
- Petracos, B. 1995. *The Amphiareion of Oropos*. Athens: Clio Editions.
- Picard, C. 1920. Fouilles de Délos (1910). Observations sur la société des Poseidoniastes de Bérytis et sur son Histoire. *Bulletin de Correspondance Hellénique*, Vol. XLIV: 263-311.
- Pomeroy, S. B. 1975. *Goddesses, Whores, Wives and Slaves: Women in Classical Antiquity*. New York: Schocken Books.
- Pomeroy, S. B. 1994. *Xenophon Oeconomicus: A Social and Historical Commentary*. Oxford: Clarendon Press.
- Pope, M. 1976. *The Ancient Greeks – How they Lived and Worked*. Newton Abbott and London: David and Charles.
- Rapoport, A. 1969. *House Form and Culture*. London: Prentice-Hall.
- Rapoport, A. 1980. Vernacular architecture and the cultural determinants of form. In A. D. King (ed.) *Buildings and Society. Essays on the social development of the built environment*, 283-305. London: Routledge and Kegan Paul.
- Rapoport, A. 1994. Spatial Organisation and the Built Environment in T. Ingold (ed) *Companion Encyclopaedia of Anthropology*, 460-502. New York and London: Routledge.



- Rauh, N. K. 1993. *The Sacred Bonds of Commerce: Religion, Economy and Trade Society at Hellenistic Roman Delos 166-87 BC*. Amsterdam: Gieben.
- Reger, G. 1994. *Regionalism and Change in the Economy of Independent Delos 314-167 BC*. California: University of California Press.
- Rider, B. C. 1964. *Ancient Greek Houses: Their History and Development from the Neolithic Period to the Hellenistic Age*. Chicago: Argonaut Inc. Publishers.
- Ringwood A. I. 1933. Local Festivals at Deos. *American Journal of Archaeology*, Vol. 37: 452-458.
- Robinson, D. M. 1930. *Excavations at Olynthos Part II Architecture and Sculpture: Houses and other Buildings*. Baltimore, John Hopkins Press.
- Robinson, D. M. and J. W. Graham. 1938. *Excavations at Olynthos Part VIII The Hellenic House. A Study fo the houses found at Olynthos with a detailed account of those excavated in 1931 and 1934*. Baltimore: John Hopkins Press.
- Rodaway, P. 1994. *Sensuous Geographies: Body, sense and place*. London: Routledge.
- Rogers. B. B. (trans). 1950. *Aristophanes. The Peace, The Birds, The Frogs*. Vol. II. Loeb Classical Texts. London: William Heinemann Ltd.
- Rogers. B. B. (trans). 1955. *Aristophanes. The Acharnians, The Knights, The Clouds, The Wasps*. Vol. I. Loeb Classical Texts. London: William Heinemann Ltd.
- Rogers. B. B. (trans). 1955a. *Aristophanes. The Lysistrata, The Thesmophoriazusae, The Ecclesiazusae, The Plutus*. Vol. III. Loeb Classical Texts. London: William Heinemann Ltd.
- Rostovtzeff, M. 1986. *The Social and Economic History of the Hellenistic World*. Volume II. Oxford: Clarendon Press.
- Roussel, P. 1931. La Population de Délos a la fin du II<sup>e</sup> Siècle Avant J.-C. *Bulletin de Correspondance Hellénique*, Vol. 55: 438-449.
- Sanders, D. 1990. Behavioural conventions and archaeology: methods for the analysis of ancient architecture. In S. Kent *Domestic Architecture and the use of space. An*



- interdisciplinary cross-cultural study*, 43-72. Cambridge: Cambridge University Press.
- Schoeman, F. D. 1984. Privacy, Philosophical dimensions of the literature in F. D. Schoemann (ed) *Philosophical Dimensions of Privacy*, 1-34. Cambridge: Cambridge University Press.
- Sciama, L. 1993. The Problem of Privacy in Mediterranean Anthropology. In S. Ardener (ed) *Women and Space: Ground Rules and Social Maps*, 87-111. Oxford: Berg Publishers Ltd.
- Siebert, G. 1976. Rapports sure les travaux de l'École Française en 1975: Delos. Le quartier de Skardhana. *Bulletin de Correspondance Hellénique*, Vol. C (II): 799-821.
- Simpson, J.A. and E. S. C. Weiner. 1989. *Oxford English Dictionary*. Second Edition. Oxford: Clarendon Press.
- Trümper, M. 1998. *Wohnen in Delos. Eine baugeschichtliche Untersuchung zum Wandel der Wohnkultur in hellenistischer Zeit*. Internationale Archäologie Band 46. Leidorf: Verlag Marie Leidorf GmbH.
- Walker, S. 1983. Women and Housing in Classical Greece: The Archaeological Evidence. In A. Cameron and A. Kuhrt (eds), *Images of Women in Antiquity*, 81-91. London and Sydney: Croon Helm Ltd.
- Wallace-Hadrill, A. 1988. The Social Structure of the Roman House. *Papers of the British School at Rome* 56, 43-97.
- Wallace-Hadrill, A. 1994. *Houses and Society in Pompeii and Herculaneum*. Princeton: Princeton University Press.
- Wallace-Hadrill, A. 1997. Rethinking the Roman *atrium* house. In Laurence, R. and A. Wallace-Hadrill (eds),. *Domestic Space in the Roman World: Pompeii and Beyond*. *Journal of Roman Studies Supplementary Series* 22. Portsmouth, RI, 219-240.



- Ward-Perkins, J. B. 1974. *Cities of Ancient Greece and Italy: Planning in Classical Antiquity*. New York: George Braziller.
- Way, A. S. (trans). 1922. *Euripides. Ion, Hippolytus, Medea, Alcestis*. Vol. IV. Loeb Classical Texts. London: William Heinemann Ltd.
- Way, A. S. (trans). 1952. *Euripides. Bacchanals, Madness of Hercules, Children of Hercules, Phoenician Maidens, Suppliants*. Vol. III. Loeb Classical Texts. London: William Heinemann Ltd.
- Way, A. S. (trans). 1957. *Euripides. Iphigeneia at Aulis, Rhesus, Hecuba, The Daughters of Troy, Helen*. Vol. I. Loeb Classical Texts. London: William Heinemann Ltd.
- Westgate, R. C. 1995. *Greek Mosaics of the Classical and Hellenistic Periods*. PhD thesis, University of Manchester.
- Westin, A. 1984. The Origins of modern claims to privacy. In F. D. Schoeman (ed) *Philosophical Dimensions of Privacy* 56-74. Cambridge: Cambridge University Press.
- Zaphiropoulou, P. 1983. *Delos. Monuments and Museum*. Krene editions, Papadopoulos, S. A.
- Zimmern, A. (trans.). 1966. *The Home Life of the Ancient Greeks*. New York: Cooper Square Publishers.