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The archaeology of Roman London Volume 3

CBA Research Report 88

Public Buildings in the South-West Quarter of Roman London

Tim Williams

1993

The archaeology of Roman London, Volume 3:

Public Buildings in the South-West Quarter of Roman London

by
Tim Williams

With contributions by: Ian Betts, Barbara Davies, Jennifer Hillam and Peter Marsden

Illustrations by Majella Egan

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Erratum:
The front cover reconstruction painting is by Peter Froste and not by Martin Bentley as stated on page iv.

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Front cover: The Period II complex under construction in the late 3rd century; looking northwards, with the Riverside Mall in the foreground. All the main elements in this monumental building project can be clearly seen: the oak foundation piles, the overlying chalk raft, and the massive blocks of the superstructure.
(Illustration by Martin Bentley)

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Peter's Hill

Ian Blair Richard Bluer Chris Evans
Simon Grant Jack MacIlroy Penny MacConnoran
Marie Nally Jon Price Sue Rivière
Mark Samuel Angela Simic Annie Upson
Andrew Westman

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Sunlight Wharf

Kieron Tyler Craig Spence Ken Steedman

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The publication drawings, along with many hours of stimulating discussion, were the very valuable contribution of Majella Egan, to whom I am indebted; not least for her patience, diligence and insight. I would also like to thank Alison Hawkins for her advice on the final artwork. Figure 25 is reproduced from E M Wightman, *Roman Trier and the Treveri* (1970), by permission of Grafton Books.

The author would like to express a special thanks to Dominic Perring, Ken Steedman, Liz Shepherd and Majella Egan, all of whom provided a valuable forum for discussion and a continual outlet for ideas concerning both the presentation and content of the report. Nevertheless, the author naturally assumes full responsibility for the ideas presented here.

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Tim Williams, London. December 1990.

Summary

Excavations in 1981 and 1986 revealed massive Roman foundations in the waterfront area of the south-west quarter of the City of London, and also shed light on earlier observations made during the 19th and early 20th centuries. Together these have provided the evidence for at least two periods of major public works within the south-west quarter of the late Roman walled town.

The earliest structures (Period I) were laid out at the foot of the hillside in an area of relatively flat land bordering the Thames. They appear to have marked the first colonisation of the area and were probably constructed during the late 1st or early 2nd century, possibly as part of a programme of public building in the waterfront area which included the public baths at Huggin Hill. A temple possibly formed part of the complex and as such would provide a context for the monumental masonry re-used in the later riverside wall. The monuments indicate that the complex was refurbished or repaired on a number of occasions, the most notable being marked by a possibly Severan monumental entrance and a mid-3rd century rebuilding of a temple.

During the second half of the 3rd century *(c* AD 270 or slightly later) a riverside defensive wall was constructed along the southern edge of the complex, probably severely affecting its riverside vista.

In the last years of the 3rd century the Period I structures were levelled to make way for another, larger, public building complex (Period II). This new development stretched over more than 150m of the waterfront and extended about 100m northward, covering an area of not less than 1.5 ha. This complex was terraced into the hillside; the lowest terrace was constructed by partially cutting into the slope and partially utilising the reclaimed land behind the riverside wall, the latter now effectively forming a retaining wall and riverside limit to the complex.

Massive masonry foundations, varying between 2.75m and 6.2m in width, were constructed on carefully-prepared chalk and timber pile foundations. The ground around the foundations was also meticulously prepared, using compacted building debris laid in horizontal bands to prepare an extensive area for surfacing. The size of the foundations indicated that a substantial superstructure was envisaged, but the nature of the surviving evidence did not conclusively demonstrate that the complex had ever been finished, or indeed, how much work had taken place above the prepared surface. No single foundation can be traced over the known extent of the complex, or even over a substantial length of it. Rather, the area appears to have comprised a number of discrete structures or enclosures.

This phase of building has been dated with some precision to AD 294 on the basis of the dendrochronological analysis of the piles beneath the foundations. The oak was still sheathed in bark, and it is unlikely that seasoning occurred; the dates formed a tight group, even suggesting that the foundations were laid from east to west, during the spring/summer of AD 294. This date coincides with the brief reign of Allectus, who had taken over from Carausius in AD 293 and who was in turn removed after the reconquest of Britain by Constantius in AD 296. It is possible that the Period II complex was never completed; Constantius' arrival might have cut short this ambitious development, redirecting the resources in keeping with the pressures of a wider empire.

This building programme appears to have been the last flourishing of the so-called 'British Empire'. Parallels in military architecture suggest that military engineers, if not labour, had been diverted to the task from the Saxon Shore forts. It is unlikely that the complex was purely military itself, being situated upstream of the bridge and being poorly positioned to defend London, but the monumental size of the construction, and the elaborate nature of its preparation, suggest that it was intended to form an impressive monument within the urban landscape, dominating the riverfront. Allectus, whose base is thought to have been London, may have been seeking to construct a palace, mint, treasury and supply base complex along lines common within the reorganised late 3rd century Empire. The land already lay within public ownership and would have provided an ideal site for such works. The care with which the complex was constructed suggests that Allectus was building for a future which neither he, nor possibly the complex, ever enjoyed. At least part of the site was occupied by a timber building from the mid-late 4th century, suggesting that, by that time at least, it had ceased to serve any public function.

Résumé

Des fouilles entreprises en 1981 et 1986 ont mis à jour de très importantes fondations de I'époque romaine dans un des quartiers au Sud-Ouest de la Cite adjoignant à la rivière. Ces fouilles ont également clarifié certaines observations faites auparavant au cours du 19ème et au debut du 20ème siècle. On a pu ainsi reconnaître au moins deux époques de travaux publiques d'importance majeure dans le quartier sud-ouest de la ville romaine intramuros de l'époque récente.

Les bâtiments les plus anciens (Période 1) étaient disposes au pied de la colline dans une zone assez plate au bord de la Tamise. Ils marquent le tout debut de la colonisation de cette partie de la ville et leur construction date de la fin du 1er ou du début du 2ème siècle; peut-être faisaient-ils partie intégrale d'un programme de construction publique qui aurait compris les bains de Huggin Hill près de la rivière. Un temple fait aussi partie de cet ensemble de bâtiments et devait être à l'origine des importants ouvrages en Pierre qui ont été réutilisés à une date ultèrieure dans le mur qui longe la rivière. Ces monuments montrent que l'ensemble des bâtiments ont été refaits ou réparés plusieurs fois, le plus remarquable d'entre eux étant une entree monumentale de l'époque de Severe et la reconstruction d'un temple au milieu du 3ème siècle.

Pendant la deuxième partie du 3ème siècle (environ 270 après JC ou un peu plus tard), un mur défensif a été érigé le long de la rivière sur le côté sud de l'ensemble d'immeubles; il est probable qu'il ait entièrement bloqué la vue sur la rivière que l'on devait avoir de ces bâtiments.

Pendant les dernières années du 3ème siècle, les structures de la Période l ont été démolies pour être remplacées par un autre ensemble de bâtiments plus grands (Période II). Ce nouvel ensemble s'étendait sur plus de 150m le long de la rivière et sur environ 100m vers le nord couvrant ainsi une surface d'au moins 1.5 ha. Cet ensemble était construit dans le flanc de la colline; la terrasse la plus basse était construite en partie dans la pente et en partie sur des terrains asséchés situés derriere le mur longeant la rivière, celui-ci formant à la fois un mur de retenue et une limite à l'ensemble de bâtiments.

D'énormes fondations de Pierre, d'une largeur allant de 2.75m à 6.2m, étaient placées sur des fondations de craie et de bois préparées avec soin. Le sol autour des fondations avait également été bien prepare; on s'était servi pour cela des detritus de bâtiments très tassés et disposes en couches horizontales pour former une large surface de preparation. La taille des fondations montre que l'on avait prévu une superstructure importante mais ce qui a survécu de leurs restes ne prouve pas que l'ensemble ait jamais été terminé ou même que les travaux entrepris sur cette surface soigneusement préparée aient été importants. On n'a pas pu retrouver de fondation unique à tous les bâtiments ni même une section importante d'une seule fondation. Il semblerait plutôt qu'il y avait à cet emplacement un certain nombre de bâtiments et d'enclos séparés les uns des autres.

Cette phase de construction a été datée de façon assez precise 294 après JC, grace à l'analyse dendrochronologique des piliers sous les fondations. Le chêne était encore couvert d'écorce et il est peu probable que l'on ait laissé reposer lo bois. Les dates sont très rapprochées et suggèrent même que les fondations ont été posées est/ouest pendant le printemps/été de 294 après JC. Cette date coincide avec le règne bref d'Allectus qui avait succédé à Carausius en 293 et qui fut depose après le reconquête de l'Angleterre par Constantius en 296. Il est possible que les bâtiments de la Période 2 n'aient jamais été terminé. L'arrivée de Constantius a peut-être coupe court à cet ambitieux projet en reconvertissant ses fonds pour pouvoir faire face aux pressions d'un empire toujours plus étendu.

Ce projet de construction semble avoir été le dernier de ce que l'on a appelé 'L'Empire Britannique'. Des cas paralleles en architecture militaire semblent indiquer que des ingénieurs militaires ou même leur main d'oeuvre aient été déplacés des forts saxons des côtes pour s'aquitter de la tâche. Il est peu probable que le complexe ait été lui-même purement militaire, situé comme il l'était en amont du pont et donc mal placé pour défendre Londres; mais la taille monumentale de l'ensemble et les préparatifs élaborés suggèrent qu'il s'agissait là d'un monument impressionant dans le paysage urbain et qui dominait la rive. Allectus, dont la base se trouvait sans doute à Londres, cherchait peut-être à construire un palais ou un Hotel de la monnaie, ou encore un endroit pour garder trésors et équippement comme on le trouvait communément dans l'Empire reorganisé du 3ème siècle. La terre était déjà propriété publique et aurait constitué un site ideal. Le soin avec lequel l'ensemble fut construit semble signifier qu'Allectus construisait pour un futur dont ni lui, ni même peut-être son projet, ne virent le jour. Au moins une partie du site était occupé par une construction en bois à partir de la moitié ou la fin du 4ème siècle et ceci suggère qu'au moins à cette date là, le site n'occupait plus aucunce fonction publique.

Zusammenfassung

Ausgrabungen im Flußgebiet, im südwestlichen Teil der Londoner City haben 1981 und 1986 massive römische Fundamente freigelegt, die auch ein Licht auf früheren Beobachtungen im 19. und frühen 20. Jahrhundert werfen. Zusammen gesehen liefern sie den Beweis fur zumindest zwei Perioden größerer, öffentlicher Bautätigkeit im südwestlichen, befestigten Teil der spätrömischen Stadt.

Die frühesten Anlagen (Periode I) befinden sich am Fuß eines Abhangs auf relativ flachem Land entlang der Themse. Es scheint daß diese Arbeiten im Zusammenhang mit der ersten Besiedlung dieser Gegend stehen und wahrscheinlich im späten 1. oder frühen 2. Jahrhundert möglicherweise als Teil eines öffentlichen Bauprogramms, zu dem auch das öffentliche Bad in Huggin Hill gehörte, im Flußgebiet ausgeführt wurden. Es könnte durchaus sein daß darin auch ein Tempel eingeschlossen war. Dieses würde jedenfalls das Vorhandensein umfangreichen Mauerwerks erklären, das später fur den Bau der Ufermauer wiederbenutzt wurde. Die Monumente deuten darauf bin, daß die Anlage mehrere Male umgebaut oder repariert wurde, am auffälligsten belegt durch das gewaltige Eingangstor (möglicherweise von Severan) und den Wiederaufbau eines Tempels, Mitte des 3. Jahrhunderts.

Während der zweiten Hälfte des 3. Jahrhunderts (ca. 270 n. Ch. oder wenig später) wurde am Südrand des Komplexes entlang des Flußes eine Verteidigungsmauer errichtet, die wahrscheinlich den Blick auf den Fluß gehörig behinderte.

Während der letzten Jahre des 3. Jahrhunderts wurden die Bauwerke der Periode I eingeebnet, um Platz fur noch größere öffentliche Bauten zu schaffen (Period 11). Das neue Bebauungsgebiet erstreckte sich über mehr als 150m entlang des Flußes und ungefähr 100m nördlich, insgesamt also über nicht weniger als 1.5 ha. Die Anlage ging in Terrassen den Abhang hinauf. Die unterste begann auf trocken gelegtem Land direkt hinter der Flußmauer, die jetzt die eigentliche Sicherung und Abgrenzung zum Fluß bildete, und war auf der anderen Seite in den Abhang gebaut.

Die überaus starken Fundamente (zwischen 2.75m und 6.20m breit) waren auf sorgfältig vorbereitetem Kalkboden und HolzpfPilern verlegt. Der Boden um die Fundamente herum war ebenfalls sehr sorgfältig mit mehreren Lagen gestampften Bauschutts für den späteren Bodenbelag ausgelegt. Obwohl die Ausmasse der Fundamente auf die Planung ansehnlicher Bauwerke hinweisen, ergibt das noch erhaltene Material keinen schlüssigen Beweis, daß die Anlage je fertiggestellt oder wieviel Arbeit nach der Erstellung der gestampften Böden überhaupt noch geleistet wurde. Die Fundamente reichen weder über die soweit bekannten Grenzen hinaus, noch sind sie innerhalb der Anlage besonders lang. Es sieht vielmehr so aus, als ob das Gebiet mehrere von einander unabhängige Bauwerke und Einfriedungen enthält.

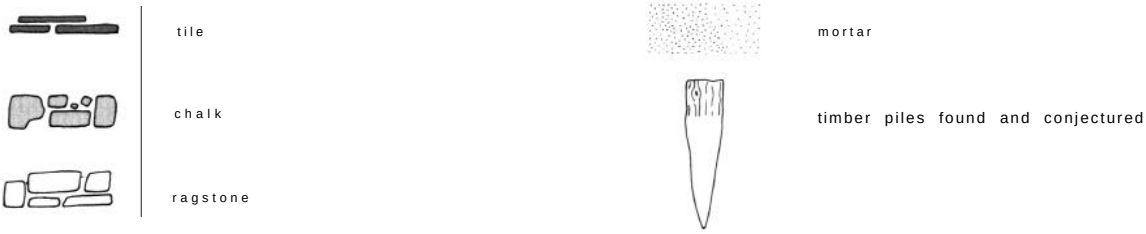
Diese Konstruktionsphase kann mit Hilfe dendrochronologischer Analyse der Pfeiler unterhalb des Fundamentes mit ziemlicher Sicherheit auf das Jahr 294 n. Ch. datiert werden. Die Eichenpfähle waren noch mit Borke umgeben und es ist unwahrscheinlich daß sie vorher gelagert wurden. Die Daten der einzelnen Stämme bilden eine so geschlossene Gruppe daß sogar vermutet werden kann daß das Fundament im Frühjahr/Sommer 294 von Osten nach Westen gelegt wurde. Dieses Datum fällt in die kurze Herrschaft des Allectus, ab 293 Nachfolger von Carausius. Allectus wurde nach der Wiedereroberung Britanniens 296 von Constantius abgesetzt. Es ist durchaus möglich, daß die Bauperiode II des Komplexes nie vollendet wurde. Constantius mag unter dem Druck wichtigerer Erfordernisse im Reich das ganze ehrgeizige Bauprojekt eingestellt haben, um die Mittel anderweitig einzusetzen.

Der Bau scheint das letzte groß angelegte Programm im sogenannten 'Britischen Emperium' gewesen zu sein. Parallelen mit Militärarchitektur der Forts an der Küste, gebaut zur Verteidigung des Landes gegen die Sachsen, lassen vermuten daß Militäringenieure, wenn nicht sogar auch Soldaten, zur Bauarbeit herangezogen wurden. Es ist jedoch unwahrscheinlich daß die Anlage rein militärischen Zwecken diente, da sie von der Brücke flussaufwärts lag und daher für die Verteidigung Londons von geringem Nutzen war. Andererseits deuten die sorgfältige Vorbereitung der Fundamente und das monumentale Ausmaß der Anlage darauf hin, daß ein eindrucksvolles, die Silhouette des Flußufers beherrschendes Bauwerk, geplant war.

Allectus, dessen Macht sich auf London stützte, mag den Bau eines Palastes, einer Münze, eines Schatzamtes oder einer Nachschubbasis geplant haben. Dies würde dem Denken des reorganisierten Reiches im späten 3. Jahrhundert entsprechen. Das Gelände gehörte schon der öffentlichen Hand und bot sich damit als ideale Baustelle für ein derartiges Vorhaben an. Die Sorgfalt mit der das Projekt angegangen wurde läßt vermuten daß Allectus für eine Zukunft baute, die weder er noch möglicherweise der Bau je erleben sollten. Da in der zweiten Hälfte des 4. Jahrhunderts auf einem Teil des Geländes ein Holzgebäude stand, liegt die Vermutung nahe, daß hier zumindest zu dieser Zeit keine offiziellen Veranstaltungen mehr stattfanden.

Study area interpretive plans - figs 2, 4, 6, 11 & 27

Sections: the more common inclusions- figs 10, 11, 13, 39, 44, 50 & 52



Drawing conventions

The drawings within this report follow conventions developed and standardised by the Department of Urban Archaeology, the majority of which fall into the categories of location maps and plans, phase plans, sections and interpretative period plans.

Symbols used for the drawings vary according to their category (see Key). The outlines of the sites and excavated areas as presented in Figure 2 are used consistently throughout the phase and interpretative period plans: the outline of the excavated area shown on the phase plans always depicts the maximum area of controlled excavation, while the outlines of the sites which appear on the period plans depict the area of redevelopment.

Part I: Introduction

Previous work in the area (Figs 1 and 2)

The evidence for at least two periods of major public works within the south-west quarter of Roman London (Fig 1) has been slowly amassed over the last 150 years. The first indication that the area was of some importance came during the construction of a sewer beneath Upper Thames Street in 1840-l (Fig 2), when the antiquary Charles Roach Smith observed a number of substantial Roman walls which suggested the presence of unusually large structures in the area.

A number of additional, and unfortunately often sketchy, observations were made in the 1920s (RCHM 1928), but it was not until 1961 that further evidence came to light; during the construction of the Salvation Army Headquarters in Queen Victoria Street (Fig 2), Peter Marsden, working for the then Guildhall Museum, recorded a number of substantial foundations terraced into the base of the hillside. It was not possible to record the stratigraphy in more than the most basic form, as the resources of the Guildhall Museum were stretched to their utmost by the quantity of construction work taking place elsewhere in the city at the time, particularly in the area of the Forum. As a result, the observations on the Salvation Army Headquarters site were intermittent and the full extent of many of the features was not established. Nevertheless, it was clear that substantial structures existed in the area, and that they belonged to at least two distinct periods of activity, although very little dating evidence was recovered (Marsden 1967; also Merrifield 1965).

These early observations became increasingly linked in the ensuing years to the question of the existence, form and date of a Roman riverside wall (Marsden 1967). In 1975 the excavation and watching brief at Baynard's Castle (Fig 2) at last produced

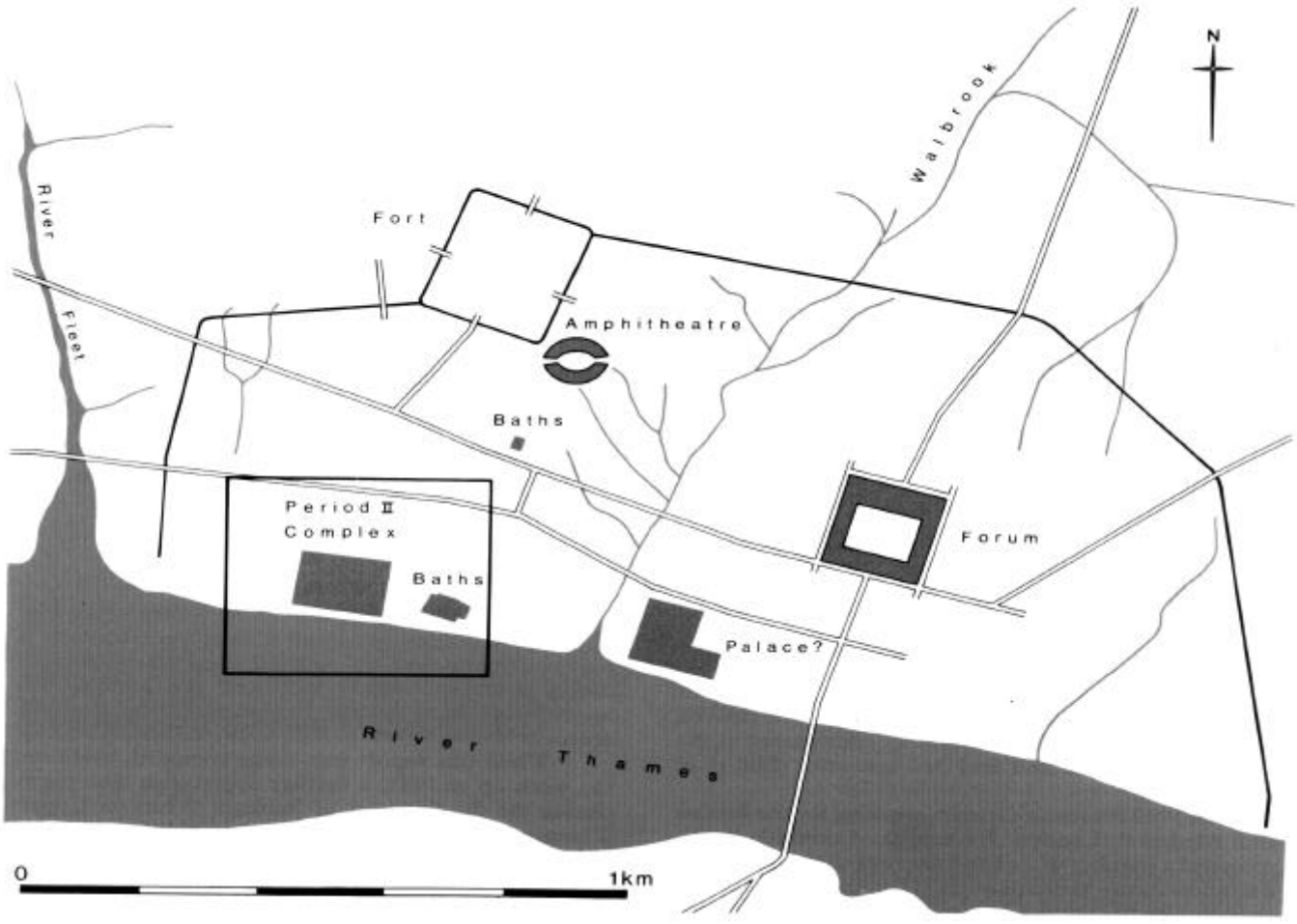


Fig 1 Location of the study area in the City of London, showing principal Roman streets and public buildings.

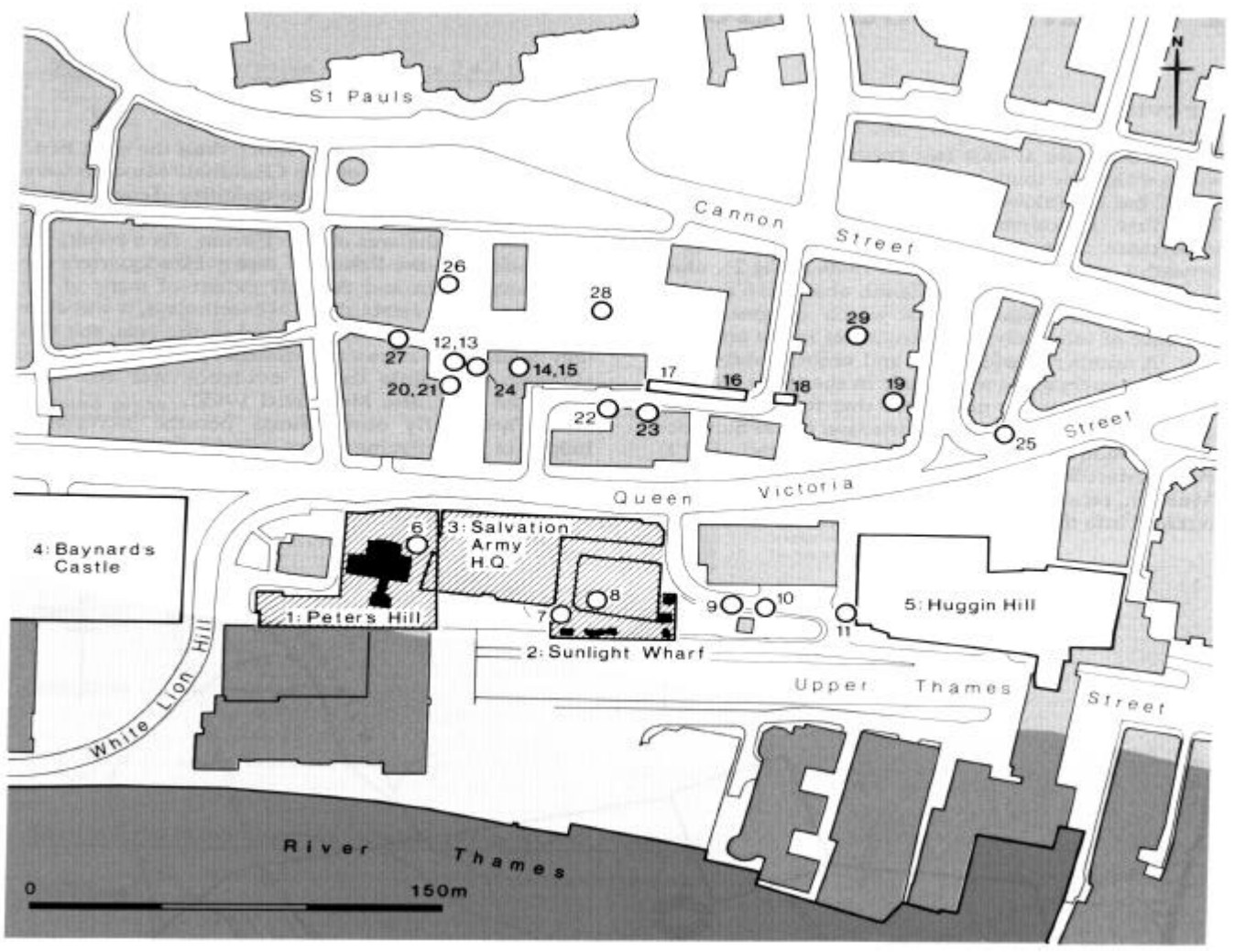


Fig 2 Position of the sites within the study area. Principal sites are hatched. Circles denote observations without secure locations. Dark blue represents the modern line of the Thames; light blue the approximate line of the late Roman riverbank. Reproduced from the 1980 Ordnance Survey 1:1250 Map, with the permission of the Controller of Her Majesty's Stationery Office; Crown Copyright.

detailed evidence for the existence of a late 3rd century wall (Hill et al 1980; see below for a discussion of the dating evidence). It also provided further indications of the character of occupation in the area, in the form of re-used masonry which was thought to have derived from impressive public monuments constructed in the vicinity during the 2nd and 3rd centuries (Hill et al 1980, 191-3).

In 1962 Professor Grimes, working for the Roman and Medieval London Excavation Committee, had recorded a number of isolated features to the east of the Salvation Army Headquarters (Grimes 1968), but the opportunity to conduct a large open-area excavation in the south-west quarter did not come until 1981, with the development of the site of the future City of London Boys' School on Queen Victoria Street (Peter's Hill, Fig 2). This excavation produced a complex stratigraphic sequence, supported by detailed dendrochronological dating evidence, which indicated the presence of impressively large public structures of the late 3rd century.

While this report was being compiled, based on the work up to 1981, a further observation took place during the development of Sunlight Wharf on Upper Thames Street (Fig 2). This provided important additional information concerning not only the construction and layout of the late 3rd century public buildings in the area, but also the supposed association of some of the earlier 1840s observations with the riverside wall.

Organisation of the report

A central aim of this report is to present, in Part II, a discussion of the development of the public building works in this area (divided into two chronological periods, discussed in Chapters 1 and 2). An attempt is then made to place these periods within the wider framework of the development of the south-west quarter of the town, and examine their relationship with the whole urban landscape: reasons are suggested for their location, for areas of specialised land-use, and for the public ownership of land (Chapter 3).

In support of these discussions more detailed archaeological evidence is presented in Part III. This section includes syntheses of the site sequences from the excavations at Peter's Hill (Chapter 4), Sunlight Wharf (Chapter 5) and the Salvation Army Headquarters (Chapter 6). The attempt to bring this disparate evidence together into a coherent whole also entails the presentation of the observations of the 1840s (Chapter 7), and a consideration of the possible significance of materials re-used in later monuments (Chapter 8).

The basis of the Part II discussion section is the proposition that the Peter's Hill excavation (and to a lesser degree that of Sunlight Wharf) provides a detailed and well-dated framework against which the earlier observations can be compared and re-interpreted. The strength of their association is explored throughout Part III (summarised in Chapter 9).

Various specialist reports are presented as appendices: dendrochronological information (Appendix 1), building materials (Appendix 2), and

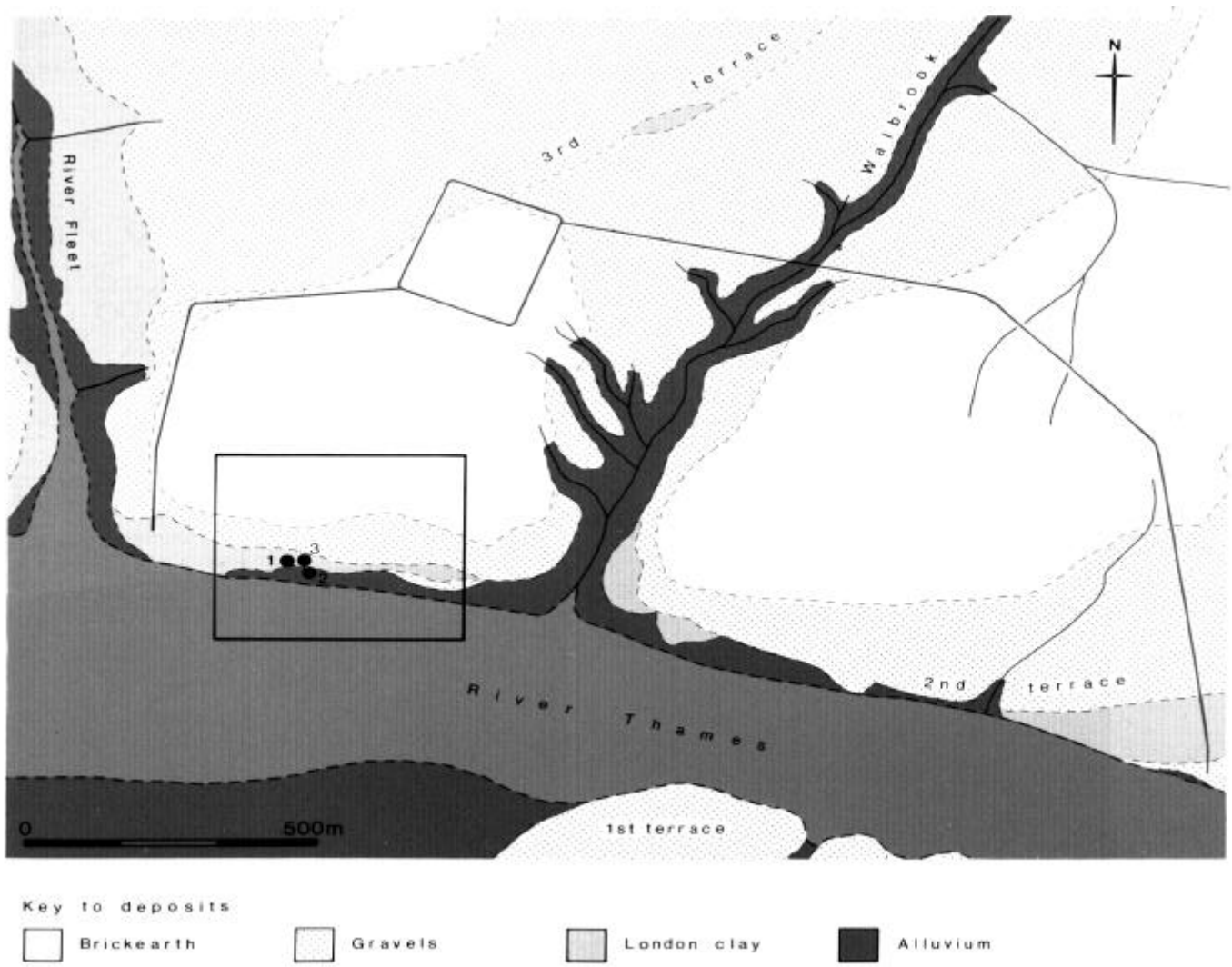


Fig 3 Geology; showing river terraces and principal watercourses. The sites lay on the exposed London clay, just below the second river terrace. No traces of the first terrace remained in the study area. I: Peter's Hill. 2: Sunlight Wharf. 3: Salvation Army Headquarters.

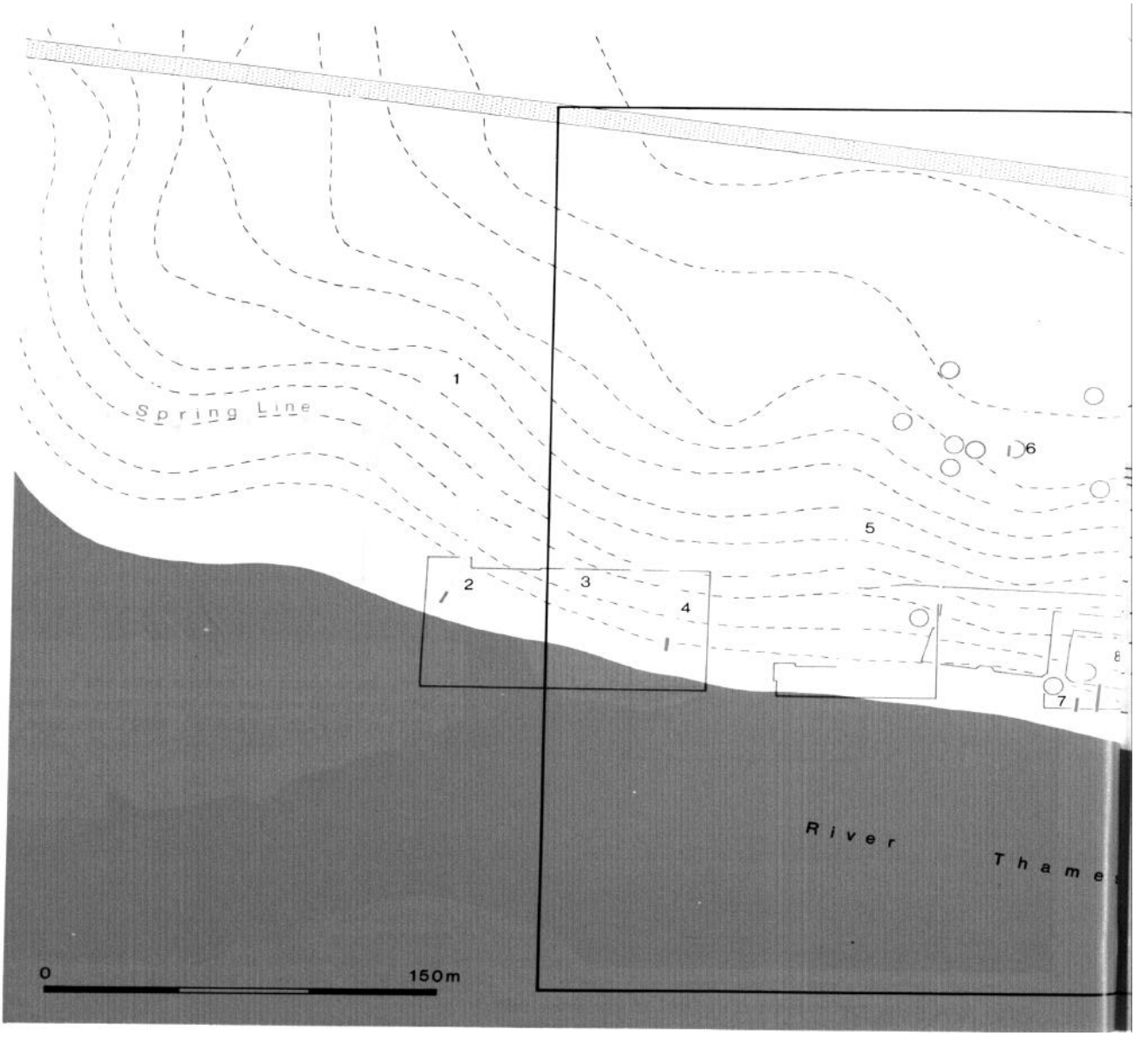
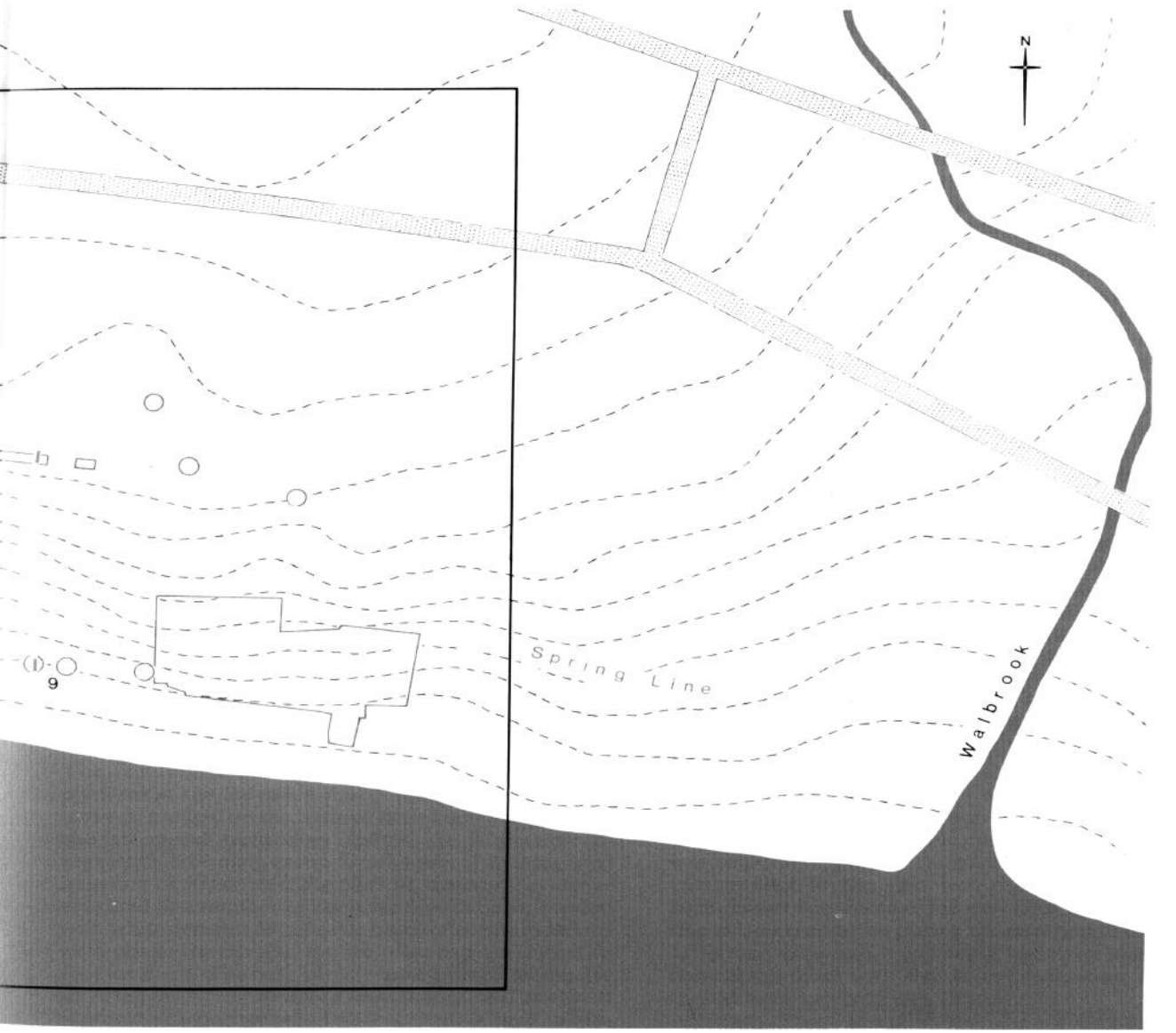


Fig 4 Natural topography; showing the suggested watercourses and the approximate springline. Watercourses are numbered as in the text; dark blue indicates observed evidence, light blue conjectured. Contours, at 3 feet intervals are derived from the 1841 survey of the City area. Roman streets, leading to Ludgate and Newgate, are shown to the north. Principal site outlines in grey. (1:2500)


N
Spring Line
Walbrook

timber supply (Appendix 3). Archive reports are listed in Appendix 4, and for an explanation of the site numbering system, see Appendix 5.

Geological and topographical background (Figs 3 and 4)

The south-western quarter of the Roman town encompasses an area of diverse topographic, hydrographic and geomorphological character. The physical contours shown on Figure 4 are derived from an 1841 survey and cannot be said to reflect Roman conditions precisely. However, the survey was conducted prior to the major Victorian landscaping of the city and it is likely that these contours at least provide a general framework within which to discuss the Roman topography.

The land in the south-western quarter of the Roman town sloped gently from a high point, roughly beneath the present St Paul's Cathedral, until it reached a sharp break, some 70-80m to the south, at which point the ground fell away more steeply towards the south and the River Thames. At the same time the mouths of the Fleet to the west and the Walbrook to the east also caused the ground to drop sharply towards the south-west and south-east respectively (Fig 4). The geological formation of the area consists of London Clay, overlain by river terrace gravels which are, in turn, overlain by brickearth. Due to the erosion of the area by river valleys, these deposits are exposed at varying points on the slope of the hillside. Accurate plotting of the interfaces between these deposits is not available for much of the area, but observation on an increasing number of sites allows some estimation of their position to be made (Figs 3 and 4).

The hydrographic map of the area is more complex. It is evident that a number of watercourses, radiating from the hilltop or fed by an upper spring line (Bentley 1987), carried water down the hillside to discharge into the Thames, the Fleet and the Walbrook. The approximate course of some of these can be suggested from a variety of fragmentary evidence (Fig 4). Some have been partially observed, either directly (course 9 at Observation 16, p81) or implied by other features such as culverts (course 6 at Observation 15, p80; courses 7 and 8 at Sunlight Wharf, p60; course 9 at Observation 16, p81, and Observation 9, p76). Others are suggested by the contours; in general terms (course 1), by archaeologically observed irregularities in the natural contours (courses 2, 3 and 4 at Baynard's Castle, Hill *et al* 1980, fig 3), or by both (course 5, general contours to north and recorded archaeologically at Peter's Hill, p41). In addition, the outflow of watercourses along the Thames frontage may also be marked by the position of the later, medieval, inlets, which in some cases can be linked to the course of a stream (eg course 1 at Puddle Dock; Schofield 1984, 38).

It is probable that many of these channels were either man-made or at least artificially modified. Those with the most obvious effect upon the contours (courses 1, 5 and 9) are the most likely to have been pre-Roman streams, but considerably more work in the area is required if the situation is to be clarified.

In addition to the watercourses, a natural spring line existed on the slope, producing water at the interface between the London Clay and the overlying river gravels (Figs 3 and 4). This spring line was not only an important source of fresh water, but must also have been taken into account in the construction of any structures on the downslope, as the quantity of water produced, combined with the natural run-off from higher up the slope, is likely to have been considerable (see the siting of the Huggin Hill baths, p34).

The extent and character of the marginal land along the sides of the rivers, particularly the Thames, is unclear. The quantity of rain and spring water flowing down the hillside is likely to have resulted in the formation of at least some marshy areas along the foreshore in pre-Roman times. Indeed, there have been suggestions that well into the Roman period stretches of the waterfront were frequently waterlogged; for example, at Baynard's Castle the natural strand was 'colonised with reeds and sedges' (Hill *et al* 1980, 35) prior to the construction of the late Roman riverside wall (c AD 270). Furthermore, during most of the Roman period the Thames was subject to significant tidal fluctuations (Milne 1985, 81-4) and the low lying land behind the immediate river's edge, in those areas where it was not revetted, is likely to have been both marshy and inundated by the tide.

Part II: Discussion

1. THE PERIOD I COMPLEX (?1st to the 3rd century) (Fig 5)

1.1 Introduction

The evidence for Period I activity primarily derives from the Salvation Army Headquarters site (site 3, Fig 2), where a number of walls were stratified beneath the extensive chalk raft which marked the beginning of the Period II development (the evidence consists of Features 12, 14, 16, 25 to 28, 30, 32, 33, 35, 40; see Chapter 6 for details of both construction and sequence). An earlier observation in this area also produced evidence of possible Period I activity (Observation 8 - north wall; see Chapter 7, p74-5, for details of construction and reasons for association with the Salvation Army Headquarters). However, no evidence was found of earlier walls in the Peter's Hill excavation, which lay immediately to the west (site 1, Fig 2); occupation prior to the Period II complex was represented by a single rubbish pit (p39), probably dating from the late 1st or early 2nd century. To the south, on the Sunlight Wharf site, the land appears to have been low lying, at the very edge of the Thames, and it was not until reclamation for the riverside wall/Period II complex that the area was colonised (~57).

The structural sequence on the Salvation Army Headquarters site suggests that there may have been more than one phase to the construction and use of the site prior to the Period II complex (p69). Although this is too vague to amount to additional 'Periods' of activity, it should be noted that the term 'Period I' encompasses such evidence as is available for activity prior to the construction of the Period II complex in the late 3rd century. It would be a mistake to assume that events up to this point were simple; such a sequence of development is, however, all that is presently available.

1.2 The construction of the Complex (Fig 5)

The features recorded beneath the Period II chalk platform at the Salvation Army Headquarters site fell into two groups, on the basis of their known alignments and structural techniques (p169). It is possible to suggest that the main group formed part of an integrated structure or structures (Fig 5). The structural evidence consisted of a number of ragstone foundations, bonded with white cement. Where the bases of the foundations were observed, circular timber piles had been used to support them. The only surface encountered on the site lay to the east of the observed foundations, and consisted of gravel with horizontally laid fragments of broken tiles (Fig 5). Its character suggests that the area was probably external.

Other structural features pre-dating the Period II chalk raft did not have securely observed alignments, due to later collapse or insufficient archaeological observation (p69). The westernmost feature on the site was poorly recorded (Fig 5), and its alignment might be more a consequence of this than a genuine reflection of any change in structural activity (p69). However, two other features appear to have been constructed in a different fashion; the top of the features had been chamfered, to produce a curious 'bevelled' shape (Feature 14 on the Salvation Army Headquarters site, p67, and the northern wall of Observation 8, see discussion on p75). It is possible that these foundations formed part of a long east-west wall line (Fig 5), but it is not clear whether they were part of the same phase of construction as the rest of the structures discussed here; at no point were any direct relationships observed, other than the fact that all the features predated the Period II raft. Similarly, if more than one phase of activity is represented, it is not possible at present to order them chronologically.

1.3 Layout (Fig 5)

The plan of this phase is very incomplete; only relatively small areas of foundations were exposed and numerous possibilities arise for their reconstruction. However, a notable aspect of the layout of the foundations was the close proximity of the two parallel southern foundations (Fig 5). Both were 1.14m wide and kinked, with an interval of some 2,00m in the west, narrowing to *c* 1.00m east cf the kink, the foundations remaining parallel throughout (Fig 5). It is difficult to be certain what form of structure would have required such closely spaced elements, but the most likely interpretation would point to at least one, if not both, of the walls supporting a colonnade or similar feature, possibly as part of an ambulatory or portico. The easternmost north-south foundation on the site lay on exactly the same line as the kink in the northernmost of these foundations, suggesting that it may have formed a junction at that point (Fig 5). The additional width of the north-south foundation does not exclude this possibility; varying foundation widths may simply reflect the differing roles of the superstructure. This north-south foundation also corresponds with a possible change in the level of the contemporary ground surface. The only surface encountered to the east was probably external. No surfaces were observed to the west (Fig 5), which may be due to later truncation during the insertion of the Period II terrace, although if surfacing had been present at a comparable level with that to the east, some evidence should have survived (see Features 24 and 39, p67-8). Any such change in the level of the surfaces would not have been caused by the local terrain, which sloped downwards to the south. It might be suggested, therefore, that the surfaces to the west of the main north-south foundation (Fig 5) were at a higher level than those to the east, possibly reflecting a change from external to raised internal use.

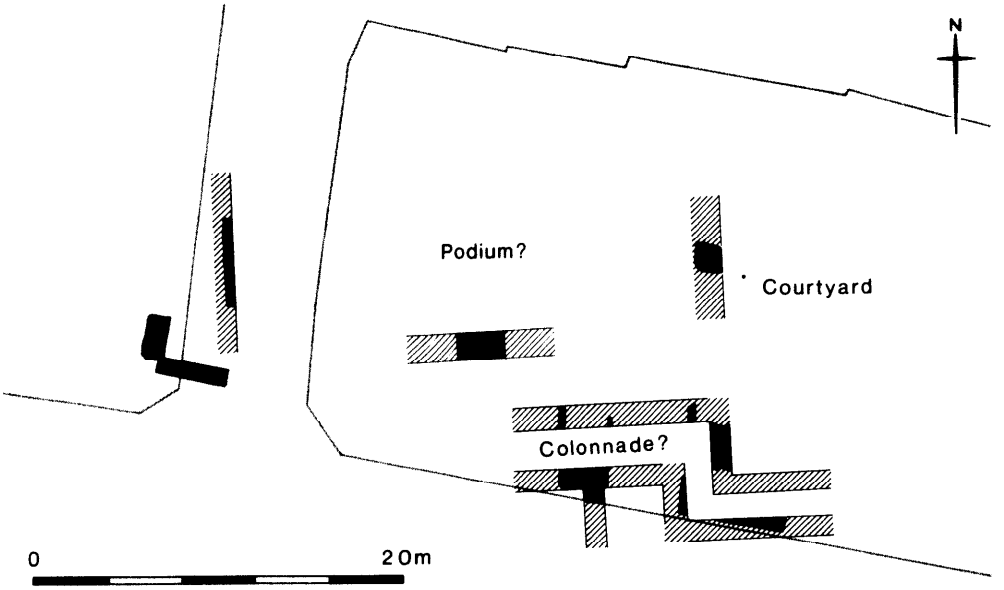


Fig 5 Period I complex; core area. The precise alignments of the foundations indicated in grey are not known. (1:400)

If the southern foundations were indeed part of a riverside ambulatory/portico, and the area to the east an external courtyard area, it is possible that the larger north-south foundation provided the eastern limit of a building lying to the west (Fig 5). The increased width of the north-south foundation might suggest that it supported an increased load, possibly the eastern facade of the structure where it faced onto the courtyard. In addition, the kinking of the southern ambulatory would have increased the length of this facade, thus enhancing its effect. The suggestion that the surfaces to the west were somewhat higher than those in the courtyard also suggests the possibility that the building was raised, as on a podium.

1.4 Extent (Fig 6)

The western and southern limits of the complex have been broadly identified (Chapter 1.1), but to the north and east its extent was unclear. To the north, the Period I complex could have been terraced into the hillside; the terracing of Period II probably removed any traces of more northerly structures (Fig 6), indeed it only survived in a very fragmentary form itself above the lowest, riverside, terrace (p26). In addition, much of the area to the north has been largely unexplored. Further north, some 100m from the waterfront, lay the east-west walls at Knightrider Street (Chapter 7, p77-87). Although not securely dated (p83), the walls appear to have been the first structural activity in the area, post-dating quarrying (p86). However, they lay on a very different alignment from the Period I structures (Fig 6), and are thought to have formed part of the Period II development (Fig 24, p26). Although by no means conclusive, it is suggested that the Period I complex did not extend this far north. Thus, it is felt most likely that the Period I complex was confined to the area of relatively level ground at the base of the hillside.

The eastern limit of the complex is even more problematic; it may or may not have continued to the east of the Salvation Army Headquarters site, no well observed archaeological investigation having taken place between here and Huggin Hill over 100m to the east (Fig 6).

1.5 Dating

No dating evidence was retrieved from either the construction or disuse of this phase. The demolition or levelling of these structures during the construction of the Period II complex, at the very end of the 3rd century (p27), provides only a very general *terminus ante quem* as it cannot be demonstrated that they were still in use at that date.

The complex was situated very close to the line of a suggested late 1st century western boundary to the town (p35). The dearth of contemporary activity further to the west (at Peter's Hill, p39) suggests that the Period I complex's location may have been governed by (or governed?) this feature, being constructed in the then south-west corner of the settlement (Fig 27b). If so, then it must have been laid out some time before the town boundary was moved further west in the late 2nd century (p36). This association, albeit tenuous, would give the Period I complex a 1st or early 2nd century construction date, similar to that of the major public baths complex at Huggin Hill, immediately to the east (p34).

1.6 Discussion (Figs 5-8)

The reconstruction of the plan of the Period I complex is inconclusive (Fig 5). The closely juxtaposed southern foundations are best reconstructed, in the author's view, as a riverside ambulatory or portico, probably constructed to utilise the waterfront vista. The increased width of the north-south foundation, on the eastern part of the site, might suggest that it supported a

more substantial wall than the other foundations; possibly the eastern facade of a building lying to the west and fronting on to the courtyard which lay immediately to the east. Similarly, the southward turn in the portico could have been intended to increase this eastern facade, by extending it across the width of the portico. There is also some suggestion that the floor levels to the west, within the structure, were raised.

The substantial size of the foundations, their careful preparation and the area over which they extended, indicates that the activity was almost certainly of public inspiration. The function of the complex, therefore, is best assessed in the light of a considerable body of evidence from the surrounding area, which suggests the general character of the development.

The main evidence consists of large quantities of re-used building material incorporated into later structures in the area (a detailed description of the re-used material is presented in Chapter 8).

The evidence comprises four principal groups:

(a) Dumps of almost pure building debris from the constructionof the Period II complex at Peter's Hill (Chapter 8.1). The debris contained bricks, tiles (including roofing tiles and soot covered roller-stamped flue tiles), painted plaster (including marble-effect splash decoration), *tesserae*, and marble veneers, all of which suggest that the structure, or structures, from which they derived were of an elaborate nature.

(b) Large stone blocks re-used in the Period II foundations (see Plates 2-4, Figs 13, 39, 40, 49, 50 and 61; Chapter 8.2) also suggest the presence of earlier substantial structures. The sheer quantity of stone used in the foundations indicates extensive use of this material, although there is no indication of its original structural role. Decorated stonework was recovered from Observation 7, which might point to some elaboration in the demolished monuments. At least one highly decorated piece might have been a fragment of an altar.

(c) The western stretch of the riverside wall at Baynard's Castle (site 4, Fig 2) contained fragments of a monumental arch and a Screen of Gods (Fig 7), two altars (Fig 8), and a frieze of 'Mother Goddesses' (Chapter 8.3).

(d) Finds of PP.BR.LON tile stamps from the area (not accurately provenanced; Marsden 1975, 70-71;

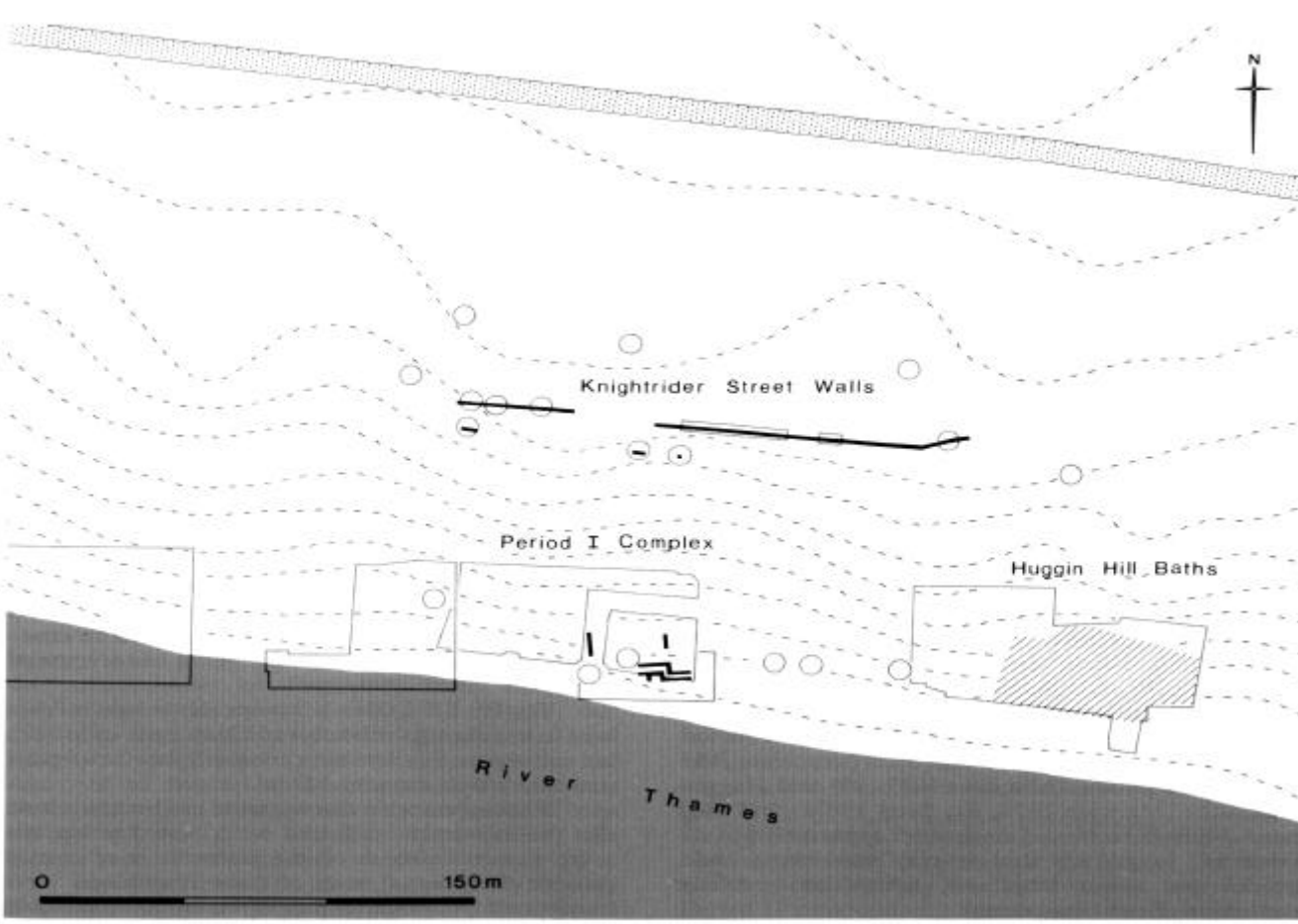


Fig 6 Period I complex and its environs. The walls in the Knightrider Street area lie on a different alignment from those of the Period I complex. Hatched area indicates approximate extent of Huggin Hill baths complex. (1:2500)

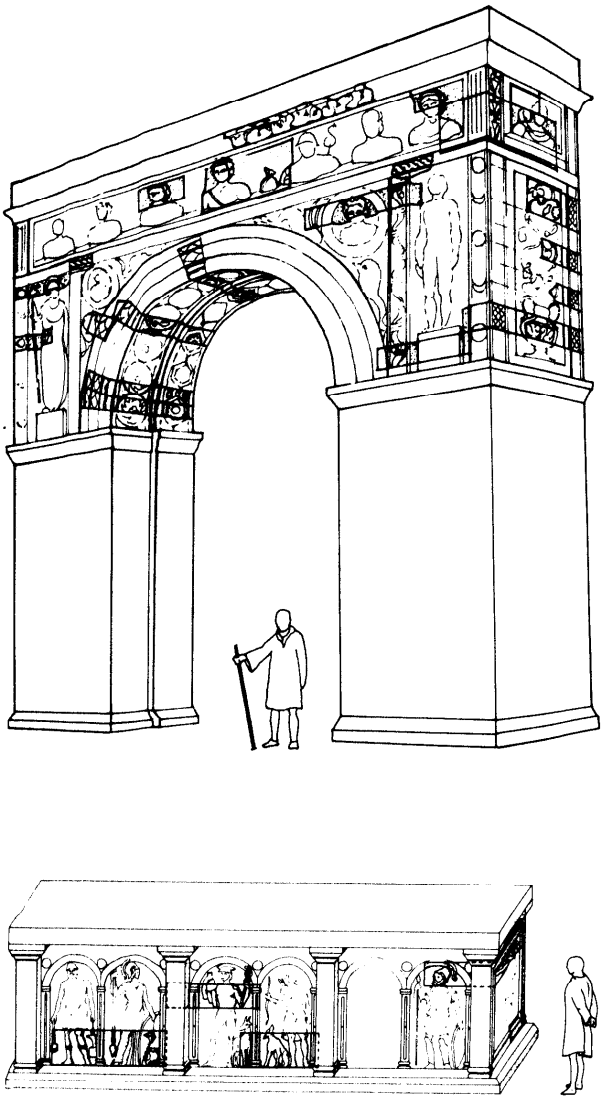


Fig 7 Reconstructions of the Monumental Arch (drawn by Tom Blagg), and the Screen of Gods (drawn by Sheila Gibson). The arch is shown as a free-standing monument, although none of the stones recovered came from the structure's base, and it is possible that the arch lay upon precinct walls, forming a monumental entranceway.

Merrifield 1983, 89), and within the residual building material at Peter's Hill (Chapter 8.1), may suggest the presence of public buildings or other public structures in the area, although the correspondence between such stamps and public building is not always demonstrable; PP.BR.LON stamps have been found in association with public works at the basilica (Betts pers comm), the 'Governor's palace' (Marsden 1975, 70) and Huggin Hill baths (Marsden 1976, 61; Betts 1987a), but they have also been recovered from other apparently private ventures, suggesting that it may have been their production, rather than use, which was publicly controlled (Betts pers comm).

Ascribing a date to the structures implied by this material is difficult as little independent dating evidence is available. The material re-used within the Period II complex was deposited *c* AD 294 (p27), and must therefore derive from structures prior to that date. The tiles within the re-used material at Peter's Hill included late 2nd or 3rd century forms (p100), while some of the marble inlays are thought to have been in use during the 3rd century *(ibid).* The rest of the marble appears to be of 1st or 2nd century date, but showed signs of re-use (p88). All of this material, however, was of a decorative or ancillary nature (eg wall decoration or heating), and thus the 3rd century date suggested may indicate a period of refurbishing rather than initial construction.

The material from the riverside wall is even more problematic, as the re-used material was found in what is thought to be a later addition to the main wall (p13), merely placing it after *c* AD 270 *(ibid).* This fragile dating framework means that it could equally well have derived from the Period II complex and it will be considered in both contexts (for Period II see p29, 91). The monuments have been broadly dated on stylistic grounds, but in most cases this offers no better than a general 2nd to 4th century date. The Severan date often mooted for these monuments is merely one option within this significantly broad range (p90-1). The exception to this is one of the altars, which has been suggested as dating from AD 251-3 or AD 253-9 (although some doubts might also be raised about the apparent precision of this date, p90). Interestingly, this altar records the rebuilding of a temple that had fallen into disrepair through old age, suggesting an earlier date for the original inception of the structure it adorned. As such it accords with the impression of the Peter's Hill material, in suggesting earlier structures which had been repaired or refurbished during the 3rd century.

It is interesting to note that all of the monuments re-used in the riverside wall were free-standing structures, or at least not necessarily integral to the building or complex which housed them: altars within temples, a free-standing screen within a courtyard, a monumental entrance or arch within a precinct, *etc.* It has been mentioned already that a 4th century construction date for this stretch of the riverside wall would make it possible that these monuments came from the Period II complex; their free-standing character also makes it possible that they were constructed at some earlier date (as the altars at least seem to indicate), and were retained within the Period II development. Indeed, none of the monuments can be said to have been produced by the same school of sculptors (Blagg 1980a, 182), possibly suggesting that they were installed at different times, and added to a changing complex of structures. Once again, the paucity of the evidence should not be mistaken for a simplistic constructional history.

The PB.BR.LON tile stamps are thought to have been in use during the late 1st and 2nd centuries (p100), but once again, this does not necessarily date the original structure which contained them.

Throughout this discussion it has been assumed that the monuments inferred were located within the south-western quarter of the town. It is of course possible that one or more of these assemblages were transported from another part of the town, especially as other demolition and/or cleaning-up programmes were being undertaken towards the end of the 3rd century: most notably the levelling of the basilica, and of the

Fig 8 Two altars recovered from the 4th century riverside wall at Baynard's Castle (Altar 1, to the left, and Altar 2). (Scale 2 x 0.10m)

so-called Governor's palace site at Cannon Street (see p38 for further discussion of these events). Nevertheless, it seems more likely that this large body of material was incorporated into the Period II complex and the later riverside wall because a substantial quantity of it derived from the locality. Most of the material was not easily portable, especially the stone blocks re-used in the Period II foundations and the riverside wall, many of which weighed half a ton or more. The cohesion of the groups - the 'fresh' uncontaminated nature of the assemblage of building material at Peter's Hill (p89), the sheer quantity of re-used blocks in the Period II foundations (p15), and the concentration of fragments from the same monuments in the riverside wall (p91) - suggest that they came from structures recently demolished. These same factors might also support the suggestion that the source of the material lay close by, as such cohesion is likely to have been less apparent if the material had been transported any great distance. Nevertheless, the sources cannot be definitively identified.

Assuming, however, that the majority of this material was derived from recently demolished structures within the south-west quarter of the town, and that these were of a substantial and public nature, the Period I complex and the major public baths at Huggin Hill (Fig 6) appear to represent likely candidates for their original location. In the case of the riverside wall monuments, if they all derived from the same source, the altars indicate that at least some building works were taking place during the mid-3rd century (p91). The demolition of the baths at Huggin Hill, however, appears to have taken place significantly earlier, probably in the late 2nd century (Marsden 1976, 22-3; Hammond et al forthcoming), and thus it seems unlikely to provide a context for the riverside wall material. If the structures implied by the re-used material in the Period II complex were recently demolished, then this demolition took place c AD 294; once again the earlier demolition date of Huggin Hill makes it an unlikely context. In addition, a comparison between the building material assemblages from Peter's Hill and those from the Huggin Hill baths strongly suggests that these *did not* derive from the same source (p89).

In contrast, the sequence on the Salvation Army Headquarters site suggests that the Period I complex had been deliberately levelled to make way for the Period II development; where wall lines existed, they were merely reduced to ground level and used to support the chalk raft of Period II in lieu of the pile preparation found elsewhere in that complex (p71). This would seem

to indicate that at least the final stages of the demolition occurred immediately prior to the Period II construction. Although by no means conclusive, the Period I complex as a whole, if not the actual structures identified at the Salvation Army Headquarters, perhaps offers the best context for the demolished structures' original location.

Any discussion of the function of the Period I complex is complicated, both by the lack of dating evidence and by doubts over the degree of certainty with which these re-used materials can be associated with its use. The following merely attempts to point to a few of the more obvious possibilities of what must remain, at present, an enigmatic public development.

The dumps of building debris at Peter's Hill seem to specify structures with heated rooms (flue tiles which showed clear signs of use) and some degree of decorative sophistication (marble cladding and painted plaster imitating the same). The heated rooms would seem to suggest the existence of a bath-building or palatial residence (the quality and quantity of the material seems to argue against it having been derived from a private development, such as a town-house). Could the original construction of the Period **I** complex have been some form of replacement for the Huggin Hill baths, which had been demolished around the end of the 2nd century? This seems unlikely, as there is no apparent reason why those baths would have been demolished if such facilities were still in demand. Furthermore, if the tentative late 1st or early 2nd century date for the Period I complex (p8) is accepted, then it would have been in existence prior to the Huggin Hill bath's demolition. (It should also be noted that the Peter's Hill assemblage was the most portable of the re-used material discussed here, and its association with the Period I complex consequently probably the most fragile.)

The monuments re-used in the riverside wall had a clear religious content (p91). It was common in the Roman world for both temples and isolated religious monuments, such as the monumental entrances or the Screen of Gods, to have been used in other than purely religious contexts. Baths, or palatial residences, for example, could contain such structures, the monumental entrance to the Kaiserthermen at Trier being a striking example (Krencher *et al* 1929). It was also common to find religious and bathing establishments constructed as part of the same development *(cf* examples in the Period II discussion, p29-30). It is not always possible to draw a sharp dividing line between secular and state development; religion permeated into all aspects of public enterprise (see Todd 1985, 56; MacMullen 1981, 57), and perhaps it is this juxtaposing of bathing and religious compounds that might offer the most attractive explanation of the London material.

The potential contradictions within this discussion simply serve to illustrate that it is not possible to favour conclusively the interpretation of a religious, a bathing, or a high quality residential complex at the present time, although the first seems likely to have formed at least part of the area's function. If any of the re-used material was not associated with the complex then its removal would cast a very different aspect upon the conclusions; for example, if the Peter's Hill dumps were not from the area, the lack of heated rooms might promote the idea of a temple precinct. It is also important to remember that the simplicity of the available structural sequence is unlikely to reflect the complicated history of the area's development; the rebuilding implied by the altars, the marbles, and the structural sequence on the Salvation Army Headquarters site, coupled with the possibility that free-standing monumental structures were constructed at different times, all suggest that the pre-Period II development of the area was both rich and varied: the Period I complex is, in fact, unlikely to have seen merely one phase either of construction or of use.

The historical context of the Period I complex is dealt with in Chapter 3.

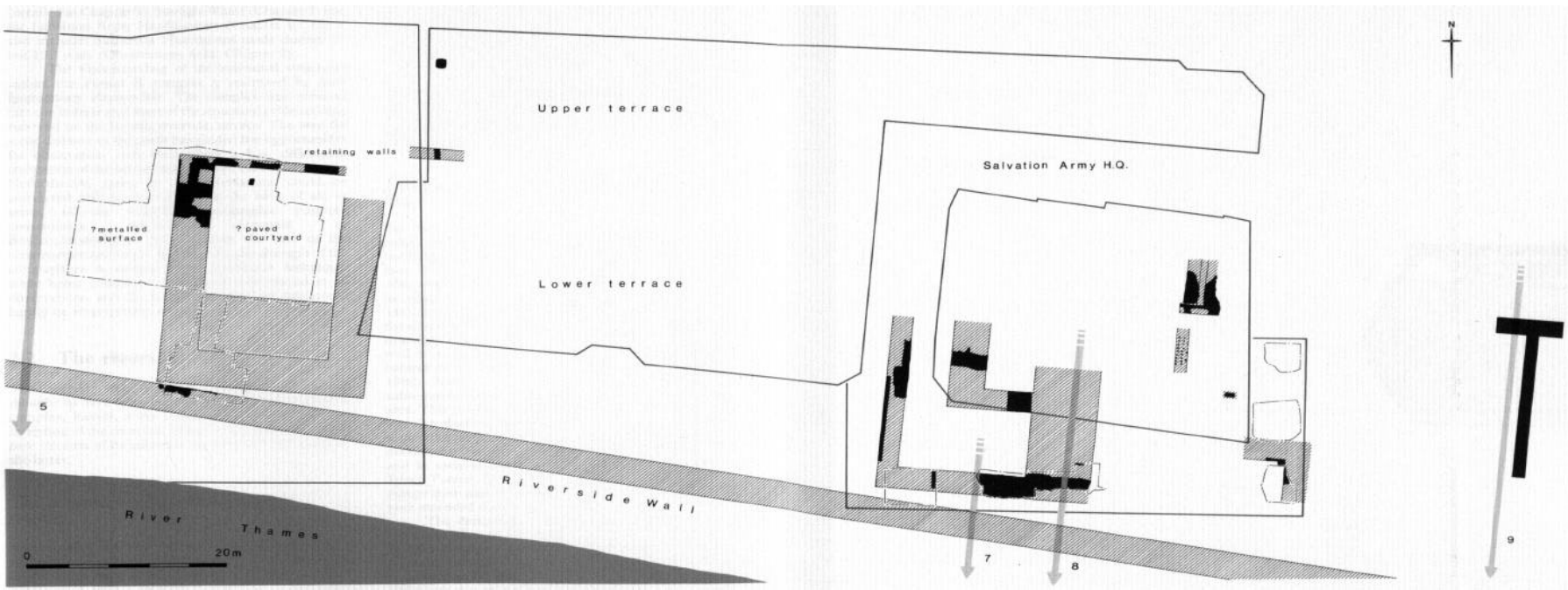


Fig 9 Period II complex; foundations in the core area. It is not clear what form the above-ground walls would have taken, but it is likely that the larger foundations supported more than one wall or colonnade. They appear to haveformed individual structures, all on the same alignment, but without continuous elements extending the length of the complex. The structures were clearly not on the same alignment as the slightly earlier riverside wall. Blue arrows indicate the possible watercourses (cf Fig 4). (1:400)

2. THE PERIOD II COMPLEX (late 3rd century) (Fig 9)

2.1 Introduction

The evidence for the Period II complex is more widespread than that of the Period I development. Primarily it comes from the excavations at Peter's Hill (detailed in Chapter 4), Sunlight Wharf (Chapter 5) and the Salvation Army Headquarters (Chapter 6), but it also includes numerous observations made during the last 150 years (Observations 6-24; Chapter 7).

The understanding of the individual structures within the Period II complex is restricted by their fragmentary observation. The complex was terraced into the hillside and most of the structural evidence only survived on the lowest, riverside, terrace. The area for some distance to the north has yielded few opportunities for observation and, even where it has, differential truncation of the hillside has removed the Roman strata. Nevertheless, many of the observations could be correlated with some certainty on the basis of all, or some, of the following: stratigraphic position, construction technique, alignment or dendrochronological date. In both the case of the construction technique and the date, the strength of the comparisons is striking; the construction technique, while being complicated, is closely reproduced in all observations, and the dendrochronological date could hardly be more precise or consistent.

2.2 The riverside wall

The riverside wall, although discussed here, is not thought to have been laid out as part of the Period II complex. Rather, it was constructed shortly before the inception of the complex. However, it merits discussion here because of its influence upon the riverside form of the latter.

The construction of a riverside wall (Fig 10)

A substantial east-west wall was constructed at the foot of the hillside at Peter's Hill (site 1, Fig 2), at the margin of the north bank of the Thames (Fig 9). It was well constructed, with a coursed concrete and rubble core, ragstone facing, tile courses and offsets (Fig 10; p40-41). The base of the foundation, however, was not observed (ibid).

The marked similarity of both fabric and alignment to the riverside defensive wall observed at Baynard's Castle in 1975, some 60m to the west (site 4, Fig 2; see Fig 24) (Hill *et al* 1980)[1], suggests that both were part of the same construction. Projected further eastward, the alignment of the Baynard's Castle and Peter's Hill wall would run immediately to the south of the Period II complex foundations at Sunlight Wharf (Figs 9 and 24). The identification with the Roman riverside wall is further supported by the relationship of the wall with the line of early medieval Upper Thames Street; the latter appears to have utilised the surviving wall as a southern kerb, when the street was laid out probably in the late 11th century (Hill *et al* 1980, 72; Williams 1986; Dyson 1989, 24; *cf* Steedman *et al* forthcoming).

No dating evidence was found at Peter's Hill for the construction of the riverside wall itself, but dumps against its northern face (see below) contained 3rd century pottery (p55) and pre-dated the construction of the Period II complex, which is dated to AD 294 (p27). Evidence from the Baynard's Castle excavation suggests that it was constructed *c* AD 255-70 (Sheldon & Tyers 1983; Hillam & Morgan 1986); a single pile from New Fresh Wharf has recently been dated to AD 268+, suggesting that a date late in the range is probable (Hillam forthcoming)[2].

Dumping to the north of the riverside wall (Figs 11 and 29)

On Peter's Hill a series of dumps, primarily of redeposited natural clay mixed with small quantities of building material, were deposited against the northern face of the riverside wall. The dumps extended some 10m north of the wall in the east of the site (Fig 11c), increasing to nearly twice that distance in the west (Fig 11 a), where they compensated for the natural slope of the area (Fig 21). It is not clear whether the dumps were originally intended to form a level platform behind the wall or, as has been suggested of similar deposits found behind the riverside wall at Baynard's Castle (Hill *et al* 1980, 36-7)[3], were part of a bank which was subsequently truncated by the Period II terracing of the area. This process of dumping at the foot of the hillside was also observed at Sunlight Wharf, where it extended some 10m north of the line of the riverside wall (p57), possibly further east at Observation 10 (Fig 11e; p76), and in excavations beneath Thames Street (Thames Street Tunnel; Richardson 1979, 261). If all of these dumps were part of the same process, then they would have extended over at least 250m.

The deposition of this material probably took place soon after the construction of the riverside wall (c AD 255-270; above), as the dumps at Peter's Hill sealed the wall's foundations (Fig 11 a)[4]. This would place them somewhat earlier than the Period II terracing (AD 294), suggesting that they were deposited in association with the riverwall, rather than with the subsequent terracing. This is supported by the character of the clay within the dumps, which differs from that of the natural hillside, and which it might have been expected to resemble if it had been deposited during the cutting of the Period II terraces (p41).

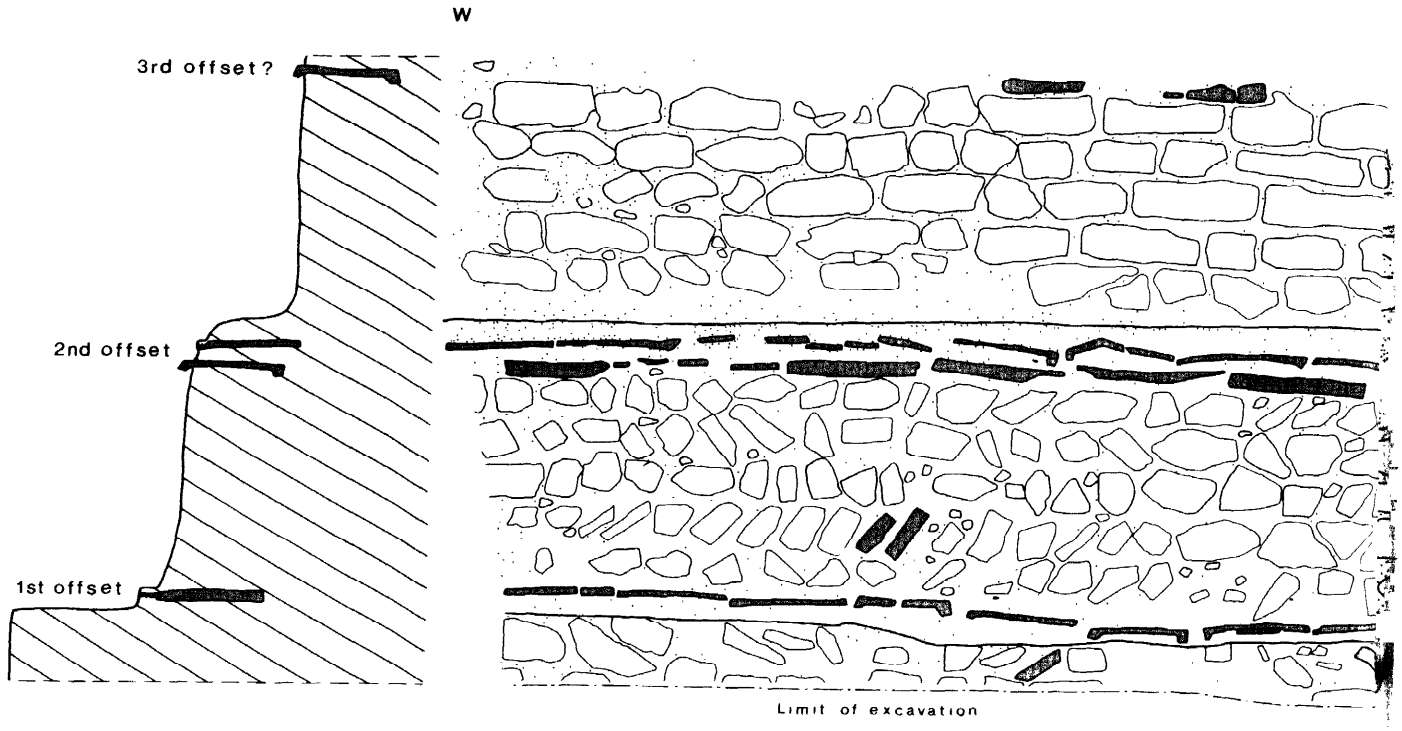


Fig 10 North face of the riverside wall at Peter's Hill. The ragstone facing was laid in a herringbone pattern below the 2nd off-set. Tile courses comprise inverted roofing tiles (tegulae), laid in alternate courses showing flange or profile. Heavy stippling indicates the layer of opus signinum. *(1:20)*

2.3 The construction of the complex

Terracing (Fig 11)

The Period II complex was founded on at least two terraces cut into the natural hillside, the lowest of which partly overlay the dumps behind the riverside wall, which may have been levelled as part of the process (above). Only at the Salvation Army Headquarters was the more northerly terrace observed in any detail, and even here only in section at the west end of the site (Fig 11 d). The chalk raft of the upper terrace lay some 2.75m above that of the lower (p64).

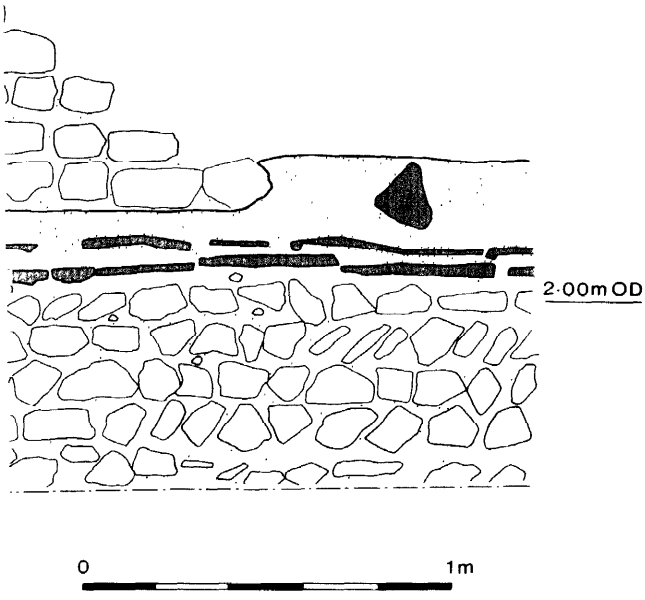
The terracing probably extended the length of the complex, but it was not delimited by a continuous terrace wall. Rather, a number of terrace walls were used, each of which lay at a slightly different point upon the slope, creating the impression of a series of smaller platforms within the whole (Fig 9). This is probably explained, at least in part, by the nature of the buildings and open areas on the terrace, which seem to have formed independent elements each occupying its own platform (p27-8).

These local differences were reinforced by the character of the retaining walls for the upper terraces, which also varied in construction: at Peter's Hill and Observation 6 the wall, some 0.9m thick, was constructed of tile, bonded with large quantities of *opus signinum*. The wall was well-built, with offset courses (Figs 12, 43 and 44). Some 8-9m to the east, at the western end of the Salvation Army Headquarters site, the terrace line had moved further north (Figs 9 and 11d), where the wall, some 1.02m thick, was constructed of ragstone and cement.

The lower terrace cutting did not attempt to achieve a simple level platform. Rather, it was tailored to suit the specific needs of individual foundations; at Peter's Hill, only the area that was to be occupied by the masonry foundation was extensively cut back into the hillside, forming a platform some 26m north-south behind the riverside wall (Figs 11 b and 29). The area immediately to the east of this was less disturbed, but a step was cut into the slope, at the point where the east-west terrace wall was to be constructed (Fig 11c).

The main foundations (summarised in Fig 13) (Plates l-4, Figs 13-18)

The structure of the lowest, riverside, platforms was highly elaborate. The reader is referred to the site sequences in Chapters 4-7 for detailed accounts of the structural evidence from each of the observations. The best example of the structural complexity came from the excavations at Peter's Hill (Chapter 4).



A large area of the complex was prepared with oak piles. These usually comprised circular timbers, complete boles, with bark still adhering (Figs 14, 15 and 17); at Sunlight Wharf, and to a lesser extent at Peter's Hill, a few squared timbers, cut to approximately the same size, were also used (Appendix 3). The timbers were very straight, and varied between 2m and 3.5m in length; considerable effort would have been required to drive these into the relatively stiff clay dumps and the natural hillside beneath. The pile heads were left projecting some 0.15m above the level of the terrace (Fig 13). The densely packed piles did not appear to have been arranged in either rows or arcs, although the areas examined were relatively restricted (Fig 15).

All the masonry foundations whose bases were actually observed were found to be supported by piles. At Peter's Hill, which was the only large-scale open area excavation, the piles appeared to be restricted to the line of the subsequent foundations, extending only some 0.4m either side of that line; they did not extend across the whole base of the terrace. They were, however, stepped out at the suggested corner of the foundation (Figs 33 and 34). This area almost exactly corresponded to that of the clay dumps behind the riverside wall (Fig 29), suggesting that the piles were used both for the line of the subsequent foundations *and* for the area of levelling dumps. At Sunlight Wharf, piles within the northernmost area also appeared merely to consolidate the clay dumps, with no indication of subsequent structural activity (p57). It would be incorrect, therefore, to suggest that the distribution of the piles accurately reflects intended wall-lines: the extensive piling observed on the Salvation Army Headquarters site (Fig 54) does not necessarily indicate foundation lines.

Observations of the higher terraces of the complex were extremely restricted (p26), but on the Salvation Army Headquarters site the timber piling was also seen on the northern terrace (Fig 11d). In this case it seems likely that it was intended to consolidate the dumped material at the south edge of that upper terrace; the piles again appear to correspond to general areas of consolidation, in addition to the specific lines of masonry footings.

All the piles were sealed by an extensive chalk raft; relatively pure chalk nodules were rammed around the pile heads to form a smooth and roughly level platform. At Peter's Hill the chalk was carefully rammed only in the area of the subsequent foundations; elsewhere it was left in a more nodular, uneven, state (Fig 16). This correspondence could not be tested elsewhere, as too small an area lay outside the lines of the masonry foundations on Sunlight Wharf, and no such record was made at the Salvation Army Headquarters site, although a photograph taken during the construction works of 1960 (reproduced as Fig 17) suggests that the chalk may have been rammed smooth in the area shown in the photograph; unfortunately, it is not known precisely which area of chalk this photograph shows.

Overlying the chalk raft was a second layer of chalk (Fig 13), noticeably less pure than the first, which had been rammed around a framework of horizontal timbers (Plate 1, Figs 35-7). This technique was observed at both Peter's Hill (p46) and Sunlight Wharf (p58); it is probable that its presence on the Salvation Army Headquarters site was missed due to the nature of the observations, although once again a photograph might indicate its existence in at least one area (Fig 17). A close relationship between the area of timber framing and the *opus signinum* setting for the subsequent masonry foundations (see below) strongly suggests that the areas outside the foundation lines were not framed. The timbers appear to have been removed after the deposition of the second chalk layer, and the resultant slots were backfilled with unconsolidated sands and clays (see p23-4).

The base of the main masonry foundations normally consisted of a single course of massive stone blocks, averaging 0.9 x 0.45 x 0.40m, set on an *opus signinum* and tile bedding (Fig 18) (for details see p48-50 for Peter's Hill and p58-61 for Sunlight Wharf; see also Chapter 2.4 for parallels). The blocks were only closely set along the margin of the foundation, with large gaps occurring in the core; these were filled with large fragments of tile and poured *opus signinum*. At the north end of the Peter's Hill foundation (p48), and along the south face of the east-west element at Sunlight Wharf (p58-9), the massive blocks increased to two courses, possibly strengthening these points.

At Peter's Hill the blocks were almost exclusively Lincolnshire Limestone, whereas those from Sunlight Wharf were more mixed, and included a number of sandstones (Appendix 2). However, given that these observations were some 75m apart, it is hardly surprising that different sources of material were utilised (see p11 for a discussion of their possible

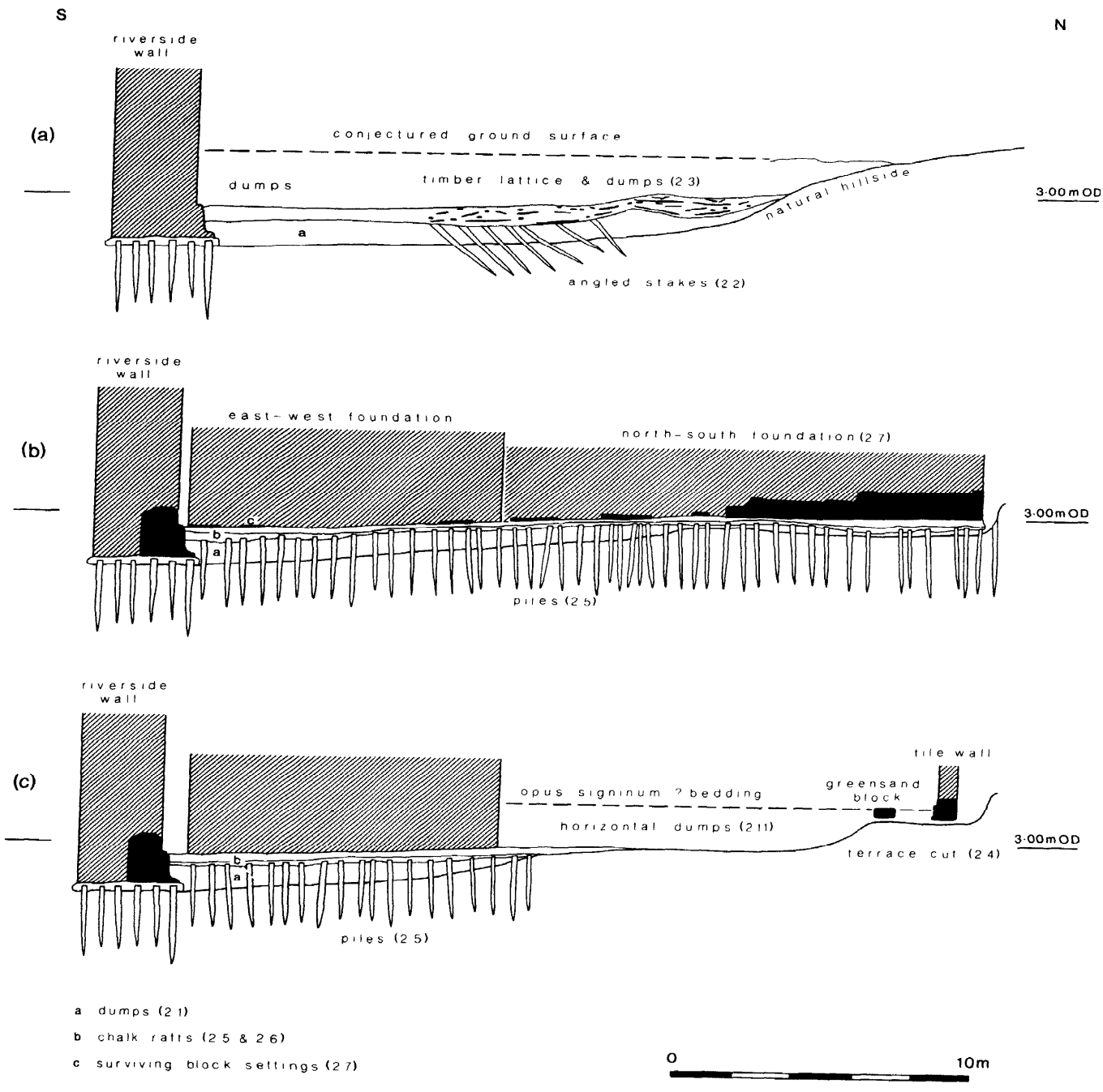
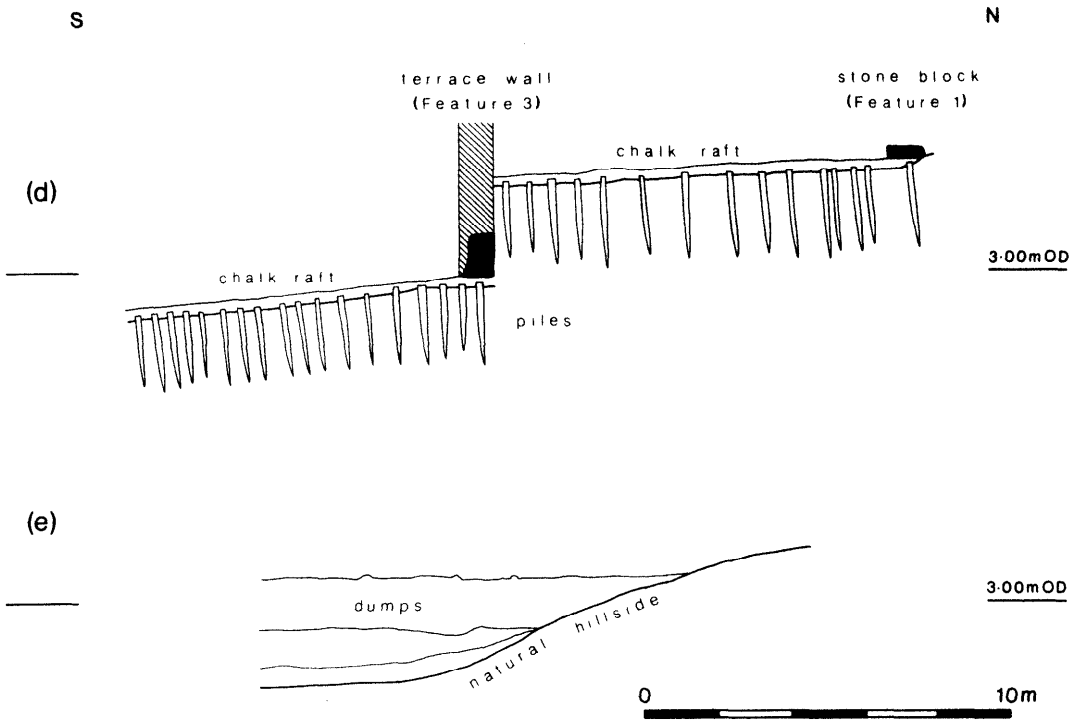


Fig 11 Reconstructed sections through the hillside at the time of the Period II complex. Profiles (a-c) are directly comparable, as they lie at corresponding points on the north-south slope. Numbering on profiles (a-c) refers to Peter's Hill phasing Groups (p39). Features annotated on profile (d) refer to Salvation Army Headquarters observations (p57). (Sections at 1:200)

(a) Peter's Hill, unaltered natural hillside, with timber lattice and dumping (2.3) consolidating the base of the slope, followed by the more extensive levelling dumps (2.10).

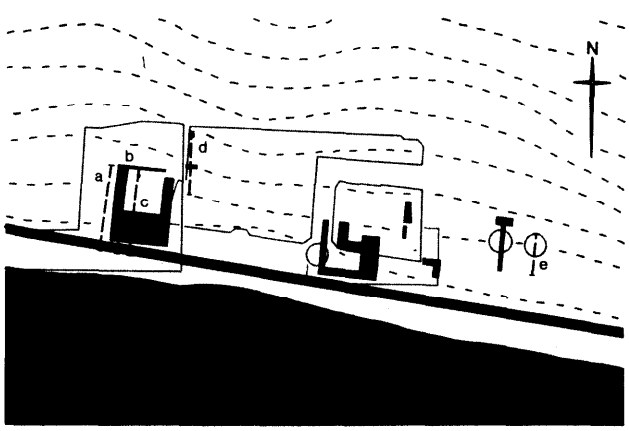
(b) Peter's Hill; slightly sloping platform created by the dumping (2.1), and the chalk rafts (2.5 and 2.6). Note the sharp profile of the terrace cut in the north, which was designed to accommodate the monumental foundation (2.7). Compare this with the more gradual profile shown in section c.

(c) Peter's Hill; dumping in the south (2.1) and the terrace cutting to the north (2.4) formed a roughly level terrace. The ground was then careful prepared with horizontal dumps (2.11). Note the platform within the terracing to the north for the east-west tile wall (also 2.11).



(d) Salvation Army Headquarters; section exposed at the western end of the site. In the centre a terrace wall divides the area to the south from a higher terrace to the north. Further north, a single stone block might indicate a more northerly terrace. (e) Lambeth Hill (Observation 10); a profile of the natural hillside with Roman levelling dumps. (Redrawn from Grimes 1968, fig 12.)

Location of sections 1:2500



provenance). The blocks were re-used, dressed faces for example being obscured within the core of the wall, but none of the material from Peter's Hill, Sunlight Wharf or the Salvation Army Headquarters showed any sign of being elaborately worked. This contrasts with Roach Smith's comments on Observation 7 (Chapter 7, p73), which suggest that stretch contained re-used stone of a highly decorated nature (Fig 61), possibly derived from a different part of the demolished structure(s).

The blocks formed a basic foundation for the construction of *petit appareil* work above: coursed ragstone rubble and concrete, with squared and regularly coursed ragstone facing, and tile coursing (Plates 2-4, Figs 39 and 49), a form of walling widely used in the provinces from the 2nd century onwards (Ward-Perkins 1981, 223,495; see also, Johnson 1976; 1983b). The foundations were constructed on a massive scale; the surviving fragment at Peter's Hill was 3.75m wide (Plates 2-3), whilst the east-west fragment at Sunlight Wharf was 2.3m thick (Plate 4), widening to over 6m where it turned north (Fig 48). None of the foundations survived above the level of the contemporary ground surface (see Chapter 2.8), standing to a maximum height of c 2m. At Peter's Hill a layer of *opus signinum* survived at this level (p49-50), capping the foundation and suggesting a break in the construction at that point; possibly between the above- and below-ground elements of the structure.

Raising the ground level within the complex.

Due to a concentration upon the recording of structural features in the early observations, and the lack of almost anything else within the excavation area of Sunlight Wharf, the only observation of a sequence above the chalk raft, other than the masonry foundations themselves, took place on the Peter's Hill excavation. Here, the area to the east of the main north-south masonry foundation (Fig 38) was carefully prepared with dumps of very fragmented building debris, which were rammed into highly compacted horizontal bands, each one some 0.15m thick (Fig 19). The sequence of bands raised the ground level by some 2m. The function

Fig 12 Peter's Hill; tile built terrace wall, looking east. Note the off-set course in the south and the discolouration of many of the tiles, which appear to have been re-used from a working hypocaust. The smoothed chalk platform, upon which the wall was constructed, can be seen in the right foreground. (Scale 2 x 0.10m)

of these compacted deposits is probably explained by the presence of an *opus signinum* bedding (Figs 20 and 41), which capped the sequence; its rigidity would have made it susceptible to differential subsidence, against which the compacted and horizontal character of the dumps would have formed some protection.

The surface of the *opus signinum* showed no clear signs of wear (Fig 20), which may support the suggestion that it was intended as a preparation for a final surface, rather than actually acted as one itself; for example in the precinct of the Temple of Claudius at Colchester, such a layer formed the bedding for a surface of small paving bricks (Drury 1984, 14). An alternative is that it formed a surface which saw little use - either as a result of a short life, or differential wear within the structure. However, the meticulous nature of the ground's preparation, contrasting with the lack of a smoothed finish to the *opus signinum*, argues that it was not intended for use as a surface (p51). It is not even clear if the area was internal or external; the Temple of Claudius example has already demonstrated the latter. Possibly it formed the bedding for a paved or flagged courtyard. Whatever else, the care involved in the

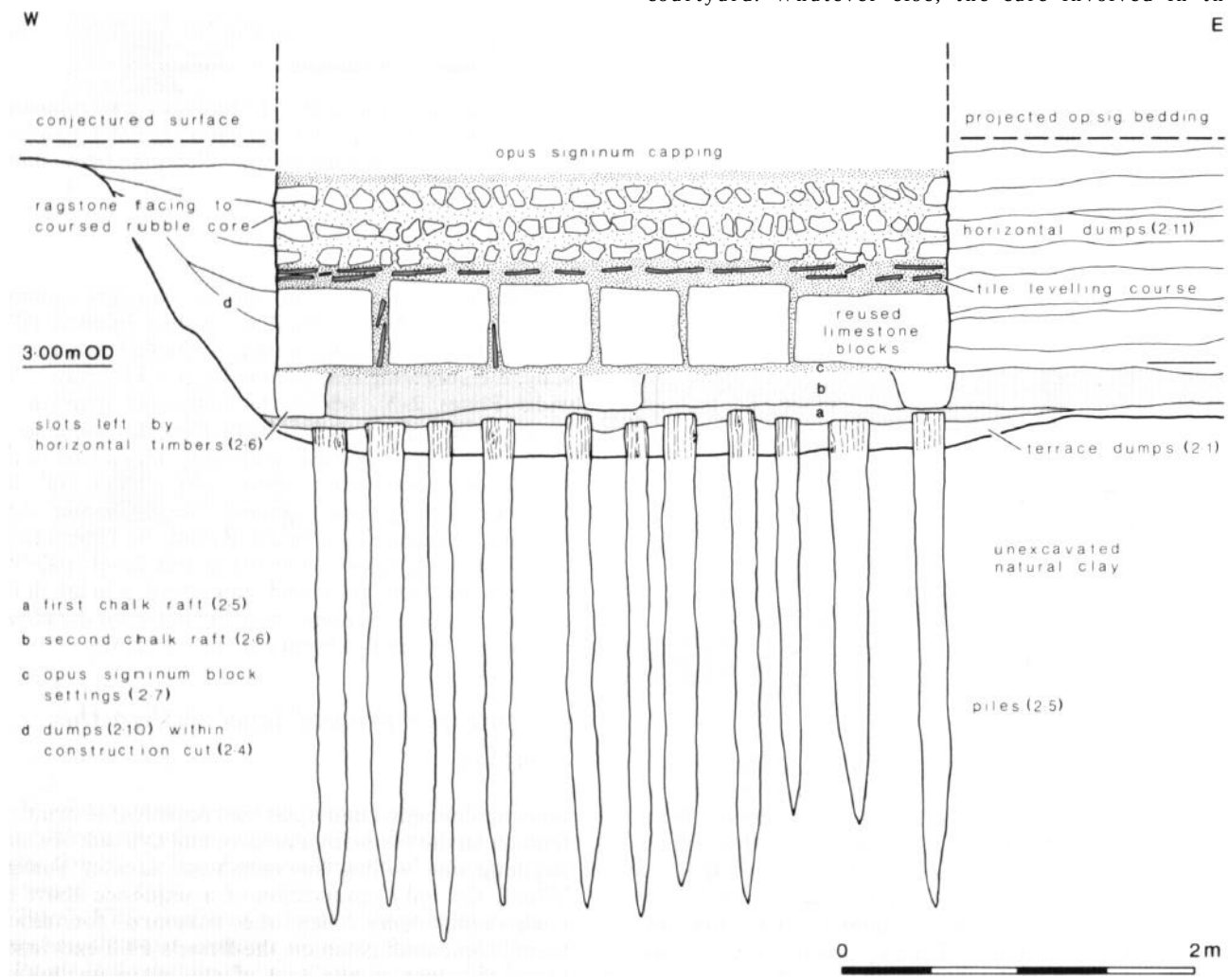


Fig 13 Reconstructed section through the masonry foundation on the Peter's Hill excavation. Eight stages can be identified in the construction of the foundation. Preparatory dumps and terracing (1) levelled the area for the pile preparation (2) (size conjecturedfrom Sunlight Wharf evidence, p57), which supported the first chalk raft (3). A second chalk raft (4) was horizontally braced with a timber framework (5), above which a single course of massive limestone blocks was placed (6). This, in turn, supported a coursed rubble core, with tile coursing (7), retained by a coursed ragstone facing (8). (1:40)

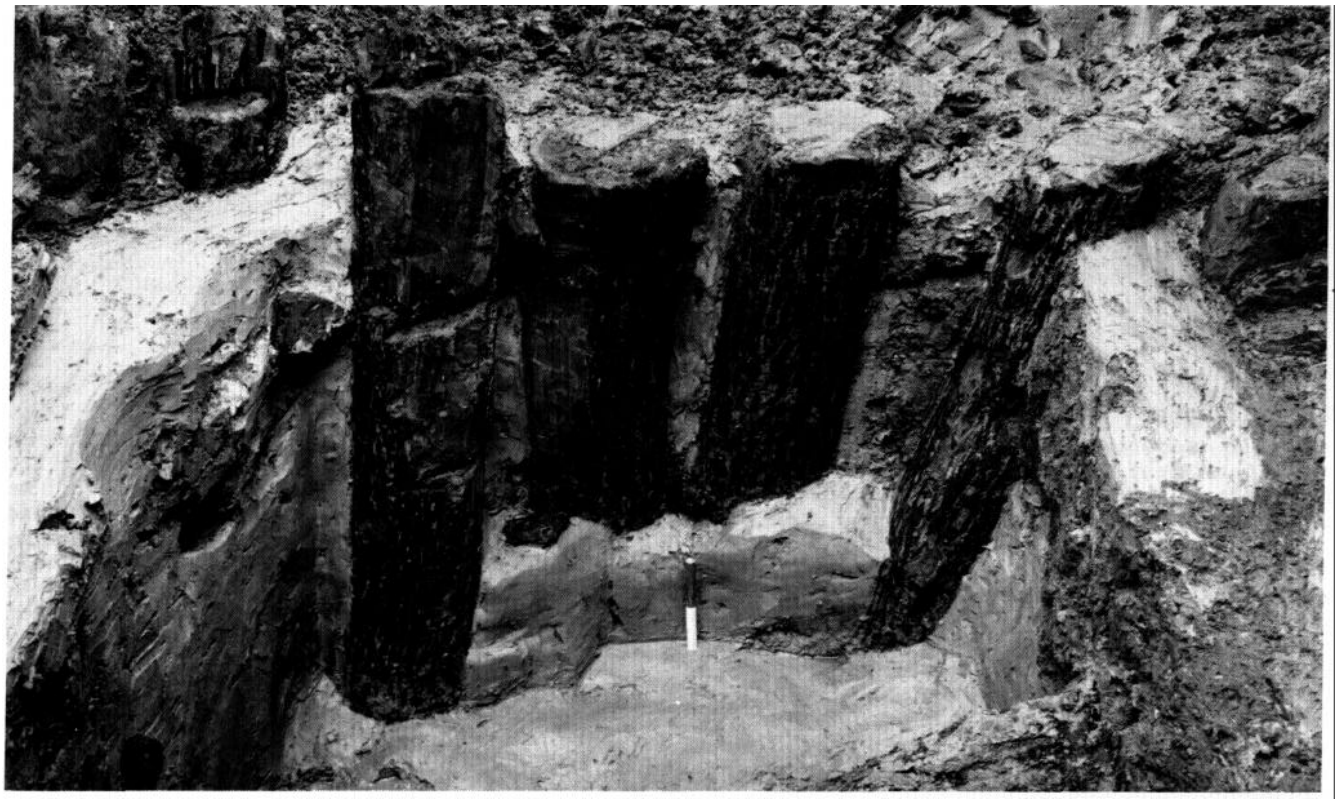


Fig 14 Peter's Hill; oak piles, driven into the compacted natural clay, in preparation for the masonry foundations (partially exposed during the watching brief). Note the intact bark still covering the timbers (only missing where damaged during the cutting of the sondage). Most of the piles were complete boles, between 3 and 4.5m in length. (Scale 2 x 0.10m)

preparation of the area suggests that it was of some importance.

Set within the compacted dumps was a single greensand block, finely dressed, its upper surface level with that of the *opus signinum* (Figs 21 and 42).[5] It seems likely that this supported a free standing feature, the form of which is less clear (column, statue, altar, *etc).* The nature of subsequent truncation does not allow us to be certain if any more bases existed, for example running parallel with the terrace wall to the north, and once again it is uncertain whether the feature was internal or external.

The ground to the west of the complex
(Plates 5-6, Figs 30-32)

The ground to the west of the north-south foundation on Peter's Hill (Fig 38) was carefully prepared (p41-43), but in a very different manner from that to the east (above). The area adjacent to the masonry foundations, and overlying the clay dumps that had been deposited behind the riverside wall, was prepared prior to the construction of the masonry foundations: angled stakes (Plate 5) were driven into the dumps immediately to the west of the main north-south masonry foundation, at the point where it turned to the east (p41). This process of consolidation was continued by a series of timber-laced dumps (Plate 6, Figs 30-2): a complicated lattice of re-used timbers was constructed by laying north-south rows of large baulks alternating with east-west rows of planks, the whole being interspersed with dumps of clay

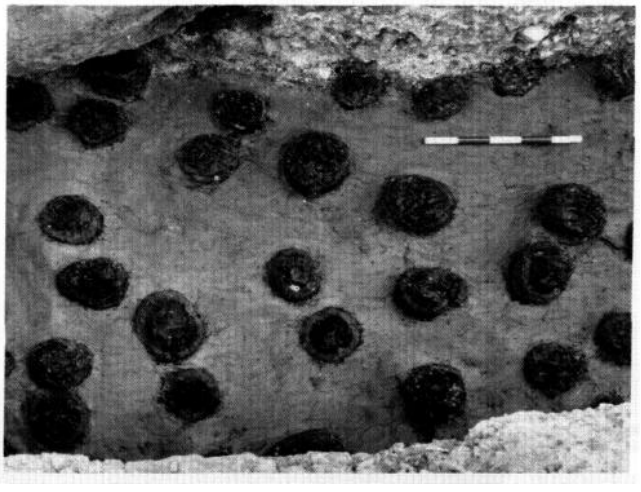


Fig 15 Peter's Hill; densely packed oak piles after the removal of the chalk raft. The lighter rings, at the edges of the piles, are sapwood surrounding darker heartwood. (Scale 5 x 0.10m)

Fig 16 Peter's Hill; first chalk raft showing an uneven (nodular) and uncompacted finish outside the line of the later foundation. (Scale 10 x 0.10m)

and gravel. These deposits infilled the area at the base of the slope, and only extended to the level of the base of the masonry foundation (Fig 11a). Their function appears to have been to consolidate the low-lying area immediately adjacent to the course of the main foundation, providing the latter with support against lateral movement.

The timber lattice was overlain by a series of less compacted gravel and sand dumps, which raised the area by *c* 2m, to the height of the surviving adjacent foundation, at which point the sequence was truncated. The character of the make-ups suggests that they were intended to support a widespread surface; however, this is unlikely to have been of the quality of that prepared so meticulously to the east of the foundation (above), and was perhaps composed of gravel. It is not clear whether this area was external to the complex proper (p26), but it was still carefully laid out, probably as part of the initial landscaping of the area for the presentation of the Period II monuments.

Drainage

Tile-built culverts were constructed as an integral part of the riverside foundation at Sunlight Wharf (Fig 22). A considerable amount of water would have been generated by the hillside's natural run-off and springline (p8), and any roofed areas within the complex would have intensified the need for adequate drainage. The presence of such drainage features need not be indicative that water supply, or disposal, was an aspect of the function of the complex. Elaborate culverts have been found elsewhere in structures whose function is unconnected with the use of water, for example the Temple of Claudius at Colchester (Drury 1984, 17), or

Fig 17 Salvation Army Headquarters; timber piles and chalk raft exposed during building works. Arrows indicate possible slots in the second *chalk raft: evidence of a horizontal timber framework. (Scale 6 x 1')*

Fig 18 Peter's Hill; tiles and opus signinum *were used to support a course of massive re-used limestone blocks in the monumental foundation. Blocks were positioned while the bedding was still wet, and their impressions can be seen in this bedding material - here ridges have been created as the material was forced up by the weight of the blocks. The blocks had been removed in antiquity. (Scale 2 x 0.10m)*

the defensive wall at Dax (Johnson 1983b, 269). Rather, the planning of the complex appears to have taken account of one of the major problems of its siting, the water run-off from the hillside.

2.4 Construction methods and their parallels (Fig 23)

Timber piles supporting a chalk raft

The technique of pile and chalk preparation is well recorded in the Roman period and has been explored in detail elsewhere (Grenier 1931; and more recently Hill *et al* 1980, 59-60; Johnson 1983b, 263-9). In particular, it has been associated with the construction of masonry walls in areas of geologically unstable ground, often when the land was of a low-lying or waterlogged nature. The comparison with the Period II complex seems obvious.

The use of a second chalk raft with horizontal timber framing

The use of a horizontal timber framework, retaining a second chalk raft, is an unusual constructional feature, although it does have parallels within the Roman world; Vitruvius advocated the use of lateral timbers of charred olive wood within foundations, as the timber 'remains serviceable even if buried underground or placed in water. Not only a city wall but also substructures and any internal walls which need to be made as thick as a city wall will last undamaged for ages if they have ties in

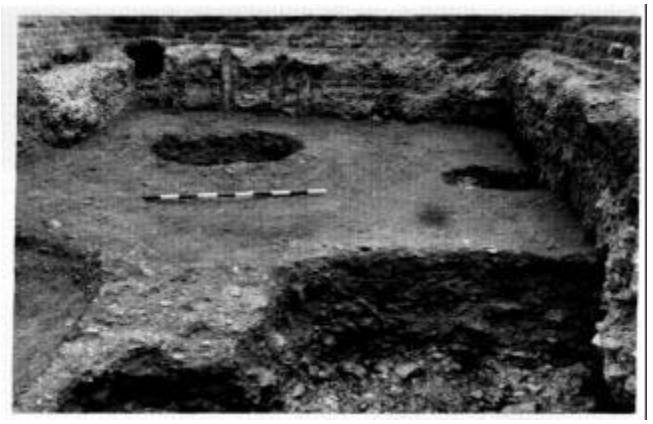


Fig 19 Peter's Hill; roughly level bands of heavily compacted building debris in the east of the site (Group 2.11). These deposits painstakingly consolidated the area prior to the laying of an opus signinum bedding layer (see Fig 20). (Scale 10 x 0.10m)

this way' (Vitruvius, Book I, V). However, this technique does not appear to have been extensively employed until the late 3rd century.

The technique has been recognised in Gaul, where the use of lateral timbers was noted as early as 1875 (Leger 1875, 108- 13). Since then the technique has been identified at other Gaulish sites, for example, in the late 3rd century defensive circuit at Bordeaux (Johnson 1983b, 268), in the external bastions of the later wall at Strasbourg (Johnson 1983b, 33), and at Dax, where 'the foundations rested on a bed of 0.3m square timbers of which only decayed fragments were found' (Blanchet 1907, 237). Timber beams have also been found in a number of the massive wall foundations on the Rhine frontier, for example, at Alésia and Breisach (Johnson 1989, 32).

In Britain, the use of a timber framework within foundation courses has been identified in many of the Saxon Shore Forts (Fig 23): Richborough (Bushe-Fox

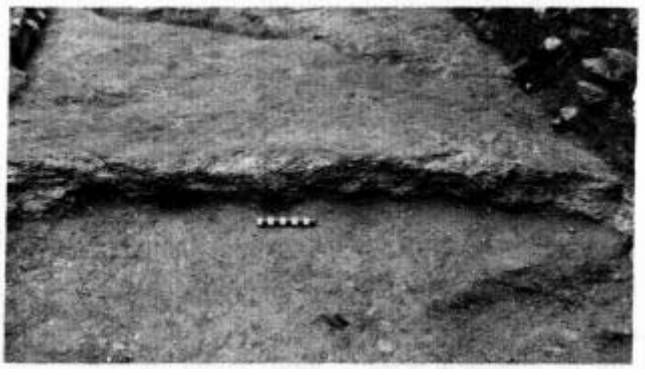


Fig 20 Peter's Hill; opus signinum bedding, poured in situ, *partially excavated to expose the heavily compacted make-up dumps beneath (cf Fig 19). This deposit was not noticeably worn and may have provided the base for a surface, such as flagging. (Scale 10 x 10mm)*

Fig 21 Peter's Hill; dressed block of greensand (foreground), set withie compacted dumps of building debris (Group 2.11). (A 19th century foundation dominates the centre of the picture.) Trone probably served as a free-standing pier or statue base (cf Fig 42). The tile built terrace wall lies to the right, and theth-south monumentalfoundation occupies the background. (Scale 5 x 0.10m)

Fig 22 Sunlight Wharf; culvert within-the monumental foundation (looking south-west). The base of the culvert utilised the re-used blocks of the monumental foundation. The sides were tile built for the first 0.3m, and then the core of the monumental foundation was faced with ragstone. (Scale 2 x 0.10m)

1928, 23nd pl xi fig 1; 1932a, 30, 50 and pl 1 and li), Pevenseyushe-Fox 1928, 23; 1932b), Porchester (Cunliffe 3, 221; 1975, 14-15), Burgh Castle (Bushe-Fox 19353; Taylor & Wilson 1961, 183; Cunliffe 1968, 66-ee also Johnson 1983a), and Bradwell-on-Sea (RCl 1923; Hull 1963).

At lhester, the foundation between bastions 14 and 15 ccted of:

> a baaft of timber and flint. Timber baulks 1 ft (0.3square were laid on a mortar bedding pars to the wall faces. Cross members were plact right angles with the intervening spaces crosaced. The spaces between the timbers wereced with flints and mortar, and the lateral timbwere faced externally with 1 ft (0.3m) of flint1 mortar masonry. (Fig 23b). (Cunliffe 1975)

An examinn of the evidence from Richborough also demonstraa close similarity:

> Abovne chalk packing was a layer of timber strapk, the holes for which were located in severe excavation sections. This was packed aroutith more chalk and loose flints, and above this fing, the wall was constructed. (Fig 23c). (John 1981, 24)

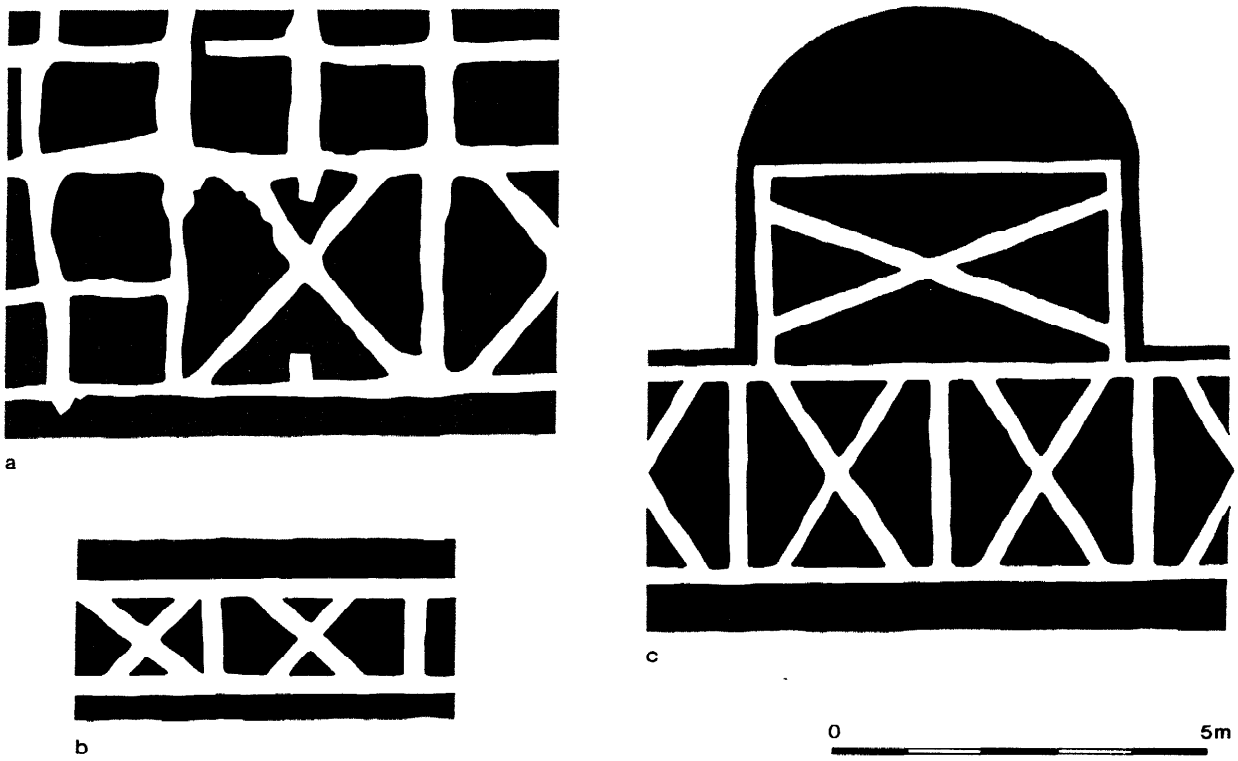


Fig 23 Packed chalk raft (grey), with negative impression of horizontal timber framework, used within monumental foundations: (a) the Period II complex at Peter's Hill; (b) the Saxon Shore Fort at Porchester (after Cunliffe 1975,fig 9); (c) the Saxon Shore Fort at Pevensey (after Cunliffe 1975, fig 10). (1 :100)

And at Pevensey a similar picture was recorded:

> The impressions of the beams in the surface of the chalk-and-flint foundation could be clearly seen. (Bushe-Fox 1932b, 60)
>
> The grooves can only represent the position of wooden beams long since decayed and the method of construction would seem to be as follows. A trench was first dug and filled with flint and chalk, and the beams, which appear to have been framed together, were laid upon the surface of this, the space between them being packed with chalk. The masonry wall was then built upon this foundation. *(op cit, 62)*

In all these cases the character of the foundations conforms to a common pattern of construction, in which a prerequisite was a stable and roughly level platform upon which to place the timber framework. Solid material, often chalk or flints, was rammed around the framework once in position. Even the size of the timbers appears to have been remarkably consistent: *c* 0.3m in cross-section (see Porchester, Richborough and Dax above; Burgh Castle, Bushe-Fox 1932b, 64; Pevensey, Bushe-Fox 1928, 23; the Period II complex, p46 and p58). This similarity might suggest the use of a standard timber size (Appendix 3).

The diagonal arrangement of timbers noted in this complex (Figs 23a, 35 and 37; p46), has also been recorded from a number of other sites (Fig 23; see also Leger 1875, 108-13, figs 1, *2)*. None of the commentators, in the previously published examples, have commented upon the variation of arrangements (from parallel to diagonal), primarily because the two have not previously been noted on the same site. There is no indication, however, that the structural function of the arrangements was in any way different. (For a possible explanation of the variation, see p26.)

Leger suggested, more than a century ago, that the function of the horizontal timber-framing was to increase the stability of the foundation, largely against the possibility of localised subsidence (1875,113). Since then, other commentators have followed this view, Bushe-Fox stating that 'the purpose of a timber-framing in this position was to consolidate the surface of the packing stones and chalk by preventing it from spreading out at the sides and thus forming an uneven and unstable foundation for the masonry above' (1932b, 62). Cunliffe reinforced this, saying that they would have imparted lateral strength to the wall, 'greatly reducing the possibility of subsidence cracks' (1975, 15), a suggestion echoed by Wilcox who stated that 'the longitudinal timbers also prevented the walls from sinking unevenly; they encouraged uniform settling and helped to prevent cracks' (1981, 27). The technique appears, therefore, to have been particularly well suited to use in waterlogged conditions, or in areas of unstable geological bedding. The Period II complex, which partly occupied an area ofmade-ground, and was clearly intended to support a substantial load, would seem to be consistent with this explanation.

In this complex, however, the timbers appear to have been removed prior to the construction of the masonry foundation (the timbers remained *in situ* in the Saxon Shore Fort examples, as was evidenced by the voided nature of the slots when found). The careful preparation of the area, principally by installing the oak piles and chalk raft, seems inconsistent with the removal of the timbers and, particularly, with the backfilling of the resultant slots with unconsolidated material. As the second chalk raft would not have provided a significant addition to the foundation -the first chalk raft served the purpose of sealing and binding together the piled area, and providing a stable platform upon which to construct the masonry foundation - the second chalk raft had no function beyond that of infilling the timber-framing. This suggests that the latter was originally intended to remain within the foundation and its removal would seem to indicate a signiftcant change of plan. At first glance it might appear that the removal of the timbers would have introduced lines of weakness into the foundation. It is possible, however, that the size of the stone blocks used within the basal course of the masonry foundations, which directly overlay the slots, offers a solution. In the areas in which the foundations survived there was no sign of even minor subsidence into the backfilled slots, which suggests that the unusually large size of the blocks resulted in only a very small percentage of their surface lying directly over one of the slots - thus spanning any potential problems.

This, in itself, does not seem to explain the removal of the timbers after the trouble of positioning them: why were they supplied in the first place? One possibility is that the foundations were initially constructed according to pre-determined specifications, based upon particular engineering teams' working practice (p21), in which timbers were considered essential for such a construction. The massive blocks used here would not have been available as a matter of course. None of the Saxon Shore forts, for example, employed such material, the core of the foundation being constructed directly on the chalk raft. It is possible, therefore, that the availability of the blocks may not have been taken into account when the programme was designed. However, once the blocks started to be incorporated, it would have become clear that the timbers were superfluous; the blocks provided an effective platform to which the timber framing could have added little. The amount of high-quality timber involved was substantial, and must have represented a considerable investment of resources, possibly explaining the effort expended in retrieving them (see Appendix 3). Although it is impossible to be certain as to the motives behind the removal of the timbers, it is clear that during the course of this carefully conceived and executed project, major changes arose both in plan and procedure.

The Period II complex was constructed from AD 294 onwards, and it is noticeable that the parallels for the use of timber framing also date from this period: the Saxon Shore Forts, Burgh Castle (after AD 250-75), Richborough (AD 275 +), Porchester (post AD 261) (all Johnson 1983b), and the Gallic town walls of Bordeaux (after AD 268; *op cit, 268-9)* and Dax (no firm dating evidence, but probably late 3rd century; *op cit,* 109). This suggests that the technique became extensively adopted in the late 3rd century, and its occurrence in a number of public works of this period has particular relevance to the London complex, and is further explored in the discussion of its function and historical context (Chapter 2.9).

Re-used blocks within the masonry foundations

The incorporation of re-used masonry within the basal courses of the foundations was a practice common in the late Roman world, the best known examples being the defensive circuits of the late Empire (Blagg 1983), notably in Gaul (summarised in Blanchet 1907 and Johnson 1983b, 112-3, 263-9; but see also Bayard and Massy 1983, 228-34 (Amiens), and Étienne 1962, 203-4 (Bordeaux)). In London, re-used masonry has been observed in the late Roman bastions (Maloney 1983, 105-l). Most of the Gallic town walls are suggested as being late 3rd century, or later; Beauvais, for example, probably post-dates AD 285-6 (Johnson 1976, 220), and Grenoble dates from the period of the Tetrarchy (Johnson 1983b, 104) (the most recent discussion of the Gallic evidence is in Johnson *op cit).* In these cases the pressure of circumstances, times of 'crisis', have often been given as the explanation for the demolition of earlier structures for building material. Johnson argues that defence was 'no longer symbolic either of the status of a town or of the pretensions to which it aspired' *(op cit,* 115), but rather was inspired by 'a realistic necessity' *(op cit,* 116), and there is little doubt that the stimulus of defence accounts for much of the re-used material. This may, however, be too simplistic a model; a number of non-defensive constructions were also undertaken at this time (see Chapter 2.9), and it is clear that re-used material could be incorporated into a variety of structures, particularly when it was derived from the refurbishment or reconstruction of an existing complex. An example of this comes from the East Forum Temple, Sabratha, where a large quantity of sandstone blocks from the Period I temple were re-used within the Period II foundations (Kendrick 1986, 58). It is interesting to note that the re-used stones were the plainer building blocks of the first temple; the more elaborate architectural fragments, such as the columns and decorated entablature were used within the Period II temple in something approaching their original role. It is evident, therefore, that the mere presence of re-used material does not presuppose that the London complex was defensive in function or that it was the product of a period of general instability and decay.

2.5 Layout (Figs 9 and 24)

The layout of the structural elements so far identified is shown in Figures 9 and 24. It is important to recognise that there are large areas in which no observations have taken place, and that the full extent of the complex is at present unknown (see Chapter 2.6). Nevertheless, it can be seen that, while not forming an easily identifiable pattern, the observed foundations do suggest a basic

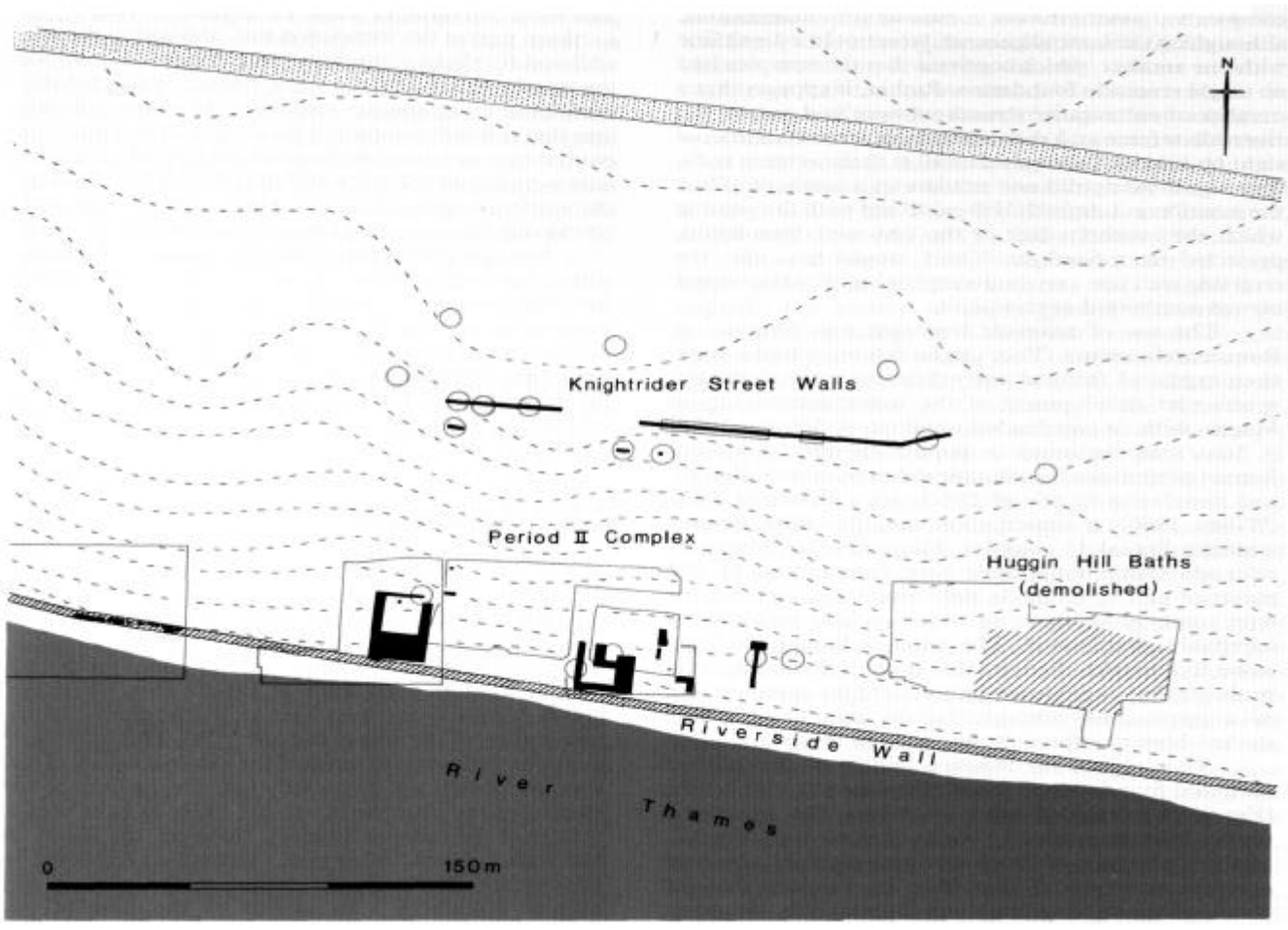


Fig 24 Period II complex and its environs. The long north wall at Knightrider Street probably formed the northern boundary for the complex. The angled western stretch of the riverside wall is a later addition, possibly constructed around the time of the Period II complex. Hatched area indicates approximate extent of Huggin Hill baths complex. (1:2500)

regularity within the complex as a whole. No single foundation can be traced over the known extent of the complex, or even over a substantial part of it, with the exception of the possible northern precinct wall, suggesting that the area comprised a number of discrete structures or enclosures. Even the terrace to the north lay at varying points on the slope (p14).

It is particularly interesting that along the southern frontage no common, or unified riverside facade was constructed, as might have been expected. The southern foundation at Sunlight Wharf does not appear to have extended as far west as Peter's Hill, as Observation 7 stated that the wall turned northward (p73). Roach Smith, who made this observation during the construction of a sewer beneath Upper Thames Street in 1840-1, stated that no other obstruction had been met during the sewer's construction between Blackfriars and this point (Roach Smith 1841a, 150). However, at Peter's Hill the sewer was observed in the modern excavation to have cut through the southern foundation, at a point where the masonry courses had been robbed out in antiquity, and where only the timber piles, chalk raft, and horizontal timber framing remained (Fig 37; p50). This suggests that the course of the foundations was only archaeologically visible in 1840-l when still extant as masonry, and raises the question of where else foundations might have crossed the line of the sewer and not been recognised at that time. Nevertheless, any riverside foundation would have to have been robbed out over a considerable distance, in fact all the way up to the Lambeth Hill junction, to have avoided detection during the cutting of the sewer. In addition, Roach Smith specifically stated that he observed an angle at Lambeth Hill and that 'the delay occasioned by the solidity and thickness of this wall, gave me an opportunity of making careful notes as to its construction and course.' (Roach Smith 1841a, 150). Thus a continuous riverside facade seems improbable.

It is also notable that the east-west foundations, both at Peter's Hill and at Sunlight Wharf, diverged from the course of the riverside wall (Fig 9). The

complex's southernmost east-west foundations, although on the same alignment, were not in a direct line with one another, which confirms that the complex had no single riverside foundation. Rather, it appears that a number of rectangular structures were laid out on the riverside terrace and that while these were constructed right up against the riverside wall at their western ends, they significantly did not emulate its alignment. Thus the junction at Lambeth Hill coincided with the point at which the southern face of the east-west foundation, projected from Sunlight Wharf, would have met the riverside wall line - no doubt explaining why the former turned northward at this point.

The use of riverside frontages was common in Roman architecture. They can be demonstrated to have been exploited from an early date, for example in the spectacular development of the waterfront at Lepcis Magna, with its colonnaded warehouses (Haynes 1956, p1 10a), and continued in popularity throughout the Roman period; see for example the even more elaborate and impressive facade of Diocletian's Palace at Split (Wilkes 1986), a construction roughly contemporary with the Period II complex. However, the complex's riverside facade must have been complicated by the presence of the riverside defensive wall, constructed only some 20 years or so before, which would have inevitably obscured it. The latter is thought to have stood to a height of c 8m (Hill *et al* 1980, fig 29). It is probable that its presence accounts for the apparent lack of a continuous riverside facade, and the possible inward-looking aspect of the complex (Fig 9).

The apparently massive width of the robbed east-west foundation at the south of the Peter's Hill site (Fig 9) is worthy of some attention. The horizontal timber framing spanned a width of some 10m (Fig 35), and the presence of block settings, patchily observed over the entire width (Fig 38; p50), suggests that the framing supported a foundation of that width. However, a change in the angle of the horizontal timber framing, from parallel to diagonal, in the south of the area (Fig 35; p46), might indicate that the platform was intended to carry more than one foundation. The southern diagonal framing was *c* 3.8m wide, which closely compares with the *c* 4m wide framing for the north-south foundation on the same site (Fig 38), possibly suggesting that the southern frame supported a foundation of similar size, running east-west. If so, a second foundation may have been supported on the northern part of the massive southern framing (Fig 9).

The difference in both the construction and position of the northern terrace wall, as between Peter's Hill and the Salvation Army Headquarters site (Fig 9; p51 and p64), suggests that some form of structural division lay between the two areas. The intervening area has never been observed, but the discovery of *opus signinum* and tile fragments immediately above the chalk raft in the extreme western section of the Salvation Army Headquarters site (Feature 4; p66) might indicate the presence of block settings similar to those identified on Peter's Hill (p50). If so, a north-south foundation might have been present in this area, lying approximately 12 to 16m to the east of the north-south foundation observed *on* Peter's Hill, and possibly forming a return of the southern foundation (Fig 9). If so, the increased width of the southern foundation may have been the result of a discrete structure, lying on the northern part of the foundation raft, and within the area enclosed by these conjectured foundations (Fig 9). To the north, the substantial tile terrace wall probably completed a rectangular enclosure. It was within this area that the well compacted building debris dumps, the poured *opus signinum* bedding and the free-standing pier base were found at Peter's Hill (Fig 9; p50-51). Possibly the enclosed ground was a high quality courtyard, containing free-standing features, such as statues *(ibid).*

Similar courtyards probably existed elsewhere within the complex, but the ground-plan is at present too fragmentary to identify them. Indeed, it is not possible to be suggest what form the structures at the eastern end of the complex took, except to say that they were also of monumental proportions, and that they give the impression of having formed a series of rectangular enclosures, be they delimiting internal or external spaces.

2.6 Extent (Fig 9)

The southern boundary of the complex was formed by the riverside wall - constructed only a few years earlier than the Period II complex and subsequently used to retain its southern terrace (p40).

The western boundary may have been formed by the north-south foundation at Peter's Hill, where the gravel dumps to the west were in sharp contrast to the preparation of the area to the east (p20). This difference might be explained in terms of the external nature of the area, and might not necessarily indicate the limit of the structures, as courtyards, *etc,* are likely to have been a feature of the complex (above). However, the failure of the chalk raft and timber piles - techniques employed to consolidate the dumped ground at the base of the hillside elsewhere - to extend to the west of the north-south foundation strongly suggests that the western limit of the complex may have been reached. This also coincides with the position of one of the possible streams that flowed into the Thames (Course 5 on Fig 4; p8). As such, this feature may have formed the effective western boundary of the development; potentially it would have been a difficult obstacle to straddle within the built-up area.

To the north, the structures were laid out on at least two terraces (p41), their extent being obscured by a combination of truncation and lack of observation. Some 100m to the north of the waterfront lay the long east-west wall at Knightrider Street (Chapter 7, p77-87) (Fig 24). The size and extent of the Knightrider Street walls suggests a public venture, and although the date of their construction is unreliable, varying from the 2nd to 4th centuries (p83), they lay on the same alignment as the Period I I structures in the riverside area (Fig 24) and it is probable that they formed part of that complex. The long northern wall possibly bounded the northern *temenos* of the complex, separating the relatively undeveloped land to the north from the built-up area of the complex to the south (p86).

To the east, the identification of the complex's limit is complicated by the lack of well observed evidence (Fig 24). Observation 9 would seem to be sufficiently similar to the main complex to be part of it

(p76), but Observation 11, some 35m further to the east, is less securely associated (p77). In either case, no evidence was found at Huggin Hill, which lay some 75m east of Observation 9, for any comparable late buildings, implying that the complex terminated somewhere between Observation 9 and that point. If the minimum option is adopted, and Observation 9 is taken as its easternmost point, while the north-south foundation at Peter's Hill is taken as marking its western end, then the complex would have extended along 145m of the waterfront, enclosing approximately 1.5 ha.

2.7 Dating

The Period II complex has been dated with some precision to AD 294, or later, on the basis of the dendrochronological analysis of the oak piles beneath the foundations at Peter's Hill and Sunlight Wharf (see Appendix 1 for details).[6] The piles were complete boles, not squared timbers, and thus had complete profiles from heartwood to sapwood. They were also still sheathed in bark, which suggests that they were not seasoned prior to use, as the bark would have been stripped off during the piling process, if it had not been removed for other uses already, such as tanning (Wacher 1978, 186). In addition, the similarity of the timber has been taken to suggest that it derived from the same area of woodland (possibly managed estate land, p101), and, therefore, that it had not been stockpiled prior to use. This assertion is reinforced by the distribution of the timbers in the complex; the timbers to the east, at Sunlight Wharf, are dated to the spring of AD 294 (very little of the AD 294 growth ring), whereas those at the western end of the complex were slightly later, sometime in the late spring or early summer (a partial AD 294 growth ring). This suggests that the foundations were laid from east to west, during the spring/summer of AD 294. As the piling was one of the first elements in the constructional process - only the terrace cutting taking place beforehand - this provides us with an exceptionally close date for the commencement of the project.

2.8 The intended appearance of the complex

Three factors are relevant to the interpretation of the form of the structure(s) supported by the very substantial foundations of Period II. First, the virtually identical construction techniques employed throughout the complex (including the nature of preparation), secondly, the scale of the foundations and, thirdly, the relationship of the structural elements to adjoining areas.

The width of the foundations (c 3.75m at Peter's Hill, possibly two foundations on a 10m wide raft in the south of that site, and varying between 2.30m and 6.30m at Sunlight Wharf) was greater than that found in most Roman structures. The closest parallel for walls of such substantial scale are defensive circuits, where late Roman walls have been observed to range from a common 2-3m to 4-6m in exceptional circumstances, as at Beaune (5m), Bordeaux (4-5m), Périgueux (4-6m) and Dax (4.25-4.5m) (Johnson 1983b, 268-9). Defensive circuits were not, however, the only context in which such large foundations were used. Vitruvius refers to the construction of massive foundations for 'not only a city wall but also substructures and any internal walls which need to be made as thick as a city wall' (Book I, V). One instance of this might be the foundation for the western precinct wall of the Temple of Claudius at Colchester, which was some 4.57m (15') thick (Lewis 1966, 134).

In a defensive role, foundations carried single large walls, but in other contexts they might have supported a variety of above-ground elements; the precinct foundation at Colchester supported both substantial piers for arches, and a separate thin screen wall (Lewis 1966, 134; Drury 1984, 27). In addition, the podium foundation at Colchester, some 4m thick, supported both the wall and colonnade of the temple (Drury 1984, 31). In the context of the Period II complex, the combination of a number of structural elements on a single foundation might have been regarded as structurally sound, especially given that the fear of subsidence appears to have conditioned most of the effort expended upon the foundations (timber piles, chalk raft, horizontal timber framing, and even the timber lattice to the west of the foundation at Peter's Hill), The need to integrate colonnades and walls is a vital aspect of any such construction; any strain between the elements could have a serious effect at roof level. In the Baths of Caracalla in Rome, for example, elaborate iron ties were used to integrate the portico of the *palaestra* with the main wall of the building (DeLaine 1985, 200). It was important, therefore, to avoid the possibility of independent movement between these elements, as would be caused by differential subsidence. It is argued, therefore, that in the Period II complex at least some of the foundations acted as plinths, supporting a combination of above-ground walls (of more normal proportions) and/or colonnades. The foundation would then be seen as integrating elements which were linked at roof level, helping to ensure that they did not settle unevenly; thus the massive foundations provided a practical solution to the problems posed by the siting of the complex.

The huge foundation raft at the south of the Peter's Hill site poses problems of a different nature. It has been suggested already that two foundations were supported on this single raft (p26), but even so the juxtaposition raises the question of their function. Their position, at the junction of the north-south foundation and a presumed east-west return, allows for a number of possibilities: for example, two east-west foundations, one returning to the north to form an enclosure, whilst the other supported a structure within that area. Alternatively, it may have been a special feature placed at the extreme south-west corner of the complex that dictated the increased width of the raft; for example, the base for a tower. Towers became popular within the late 3rd and 4th centuries, particularly in the construction of elaborate villas (see Mogorjelo, Ward-Perkins 1981, 467), and at palaces, for example in the waterfront facade of Diocletian's palace at Split (Wilkes 1986). A tower would have increased the visual impact of the complex from the river, and very effectively emphasised its extent (assuming that a similar structure lay at its eastern

termination). It may also have overcome some of the problems caused by the riverside wall obscuring much of the complex's frontage (p26).

The construction of substantial buildings on terraces is a well documented practice within Roman towns (MacDonald 1986, 135): for example, the circular library at Timgad (Raven 1984, 114), or the dramatic Baths of Caracalla in Rome (DeLaine 1985, 198). Terracing was a means of both utilising the area and exploiting its potential for display, factors which are unlikely to have been overlooked in the Period II development, given the scale of its construction. Once again, they may also have aided the builders in commanding a riverside aspect, despite the presence of the riverside wall.

Even though an exact understanding of the nature of their superstructures cannot be achieved, knowledge of their potential range is of significance when considering the function of the complex. The possible above-ground forms are numerous, ranging from simple ambulatories with two colonnades *(eg* the Kaiserthermen, Trier; Ward-Perkins 1981, 457), to precinct walls with engaged columns and integrated colonnades *(eg* the precinct wall of the Temple of Claudius, Colchester; Lewis 1966, 134). Even more elaborate structures would also have been possible, such as raised porticoes extending above the level of the surrounding courtyards, as at the Temple of Isis at Sabratha (Haynes 1956, 126-8).

In the late 3rd century, when the complex was constructed, a variety of architectural mediums would have presented themselves, not least the increased use of brick for larger public building programmes. In Rome, 'except for a few monuments of purely traditional character, such as the triumphal arches, squared stone masonry is hardly found after the middle of the second century' (Ward-Perkins 1981,436). Although there was 'no single, clear cut stream of development' in the western provinces *(op cit,* 437), it is worth noting that in Trier, at the close of the 3rd century, brick-faced concrete was a vital component of public architecture (Wightman 1970, 107). Brick could also be used in a variety of functional forms, in many instances replacing masonry; for example, brick columns were used in the contemporary *Verulamium* I temple, which was constructed c AD 300 (Wheeler & Wheeler 1936, 132). The use of a light-coloured rendering for brickwork was also current in the late 3rd century, as on the basilica at Trier (Ward-Perkins 1981, 445). There is no evidence that any of these techniques were employed here, but they illustrate the potentially dramatic nature of the construction; for example, lightly-coloured rendering could have been combined with the reflective qualities of the river to produce a startling effect.

Whatever their final form, the degree of preparation for the foundations, combined with their size, suggests that the structures placed upon them were themselves substantial.

2.9 The function of the Period II complex

As it has proven difficult to isolate individual structures, ascribing specific functions to the various areas of the Period II complex is hardly possible. The exception to this is the long wall in the Knightrider Street area, which may have formed part of a boundary wall, or less convincingly, a circus (p86-7). Furthermore, archaeological interpretations of buildings or complexes are often based upon their ground-plan, especially if few associated surfaces or artefacts survive (as is the case here). Unfortunately the layout of monumental structures, a category into which this complex certainly falls, is not readily interpreted on the basis of scattered observations. Even the relatively large excavation at Peter's Hill only comprised about 2% of the total area of the Period II complex (this assumes that the northern boundary was in the area of the Knightrider Street walls: if the complex terminated immediately to the north of the site and was confined to two terraces, the excavation would still have covered only some 5% of the total).

The public status of the venture, however, can hardly be disputed. A number of other factors can be identified which may help to elucidate the complex's function: its considerable size, its location in the south-western quarter of the town (removed from the earlier focus of the basilica and forum on the eastern hill), its multi-terrace layout, the use of large and possibly high quality open spaces, the likely grandeur of the above-ground structures, and its date of construction (late 3rd century). The known public building forms from the Roman world (MacDonald 1986, 111), therefore, can be considered in the light of these factors.

Not all public buildings provide plausible candidates. A theatre, utilising the natural slope of the hillside, might appear to be a suitable interpretation for a public structure in the area; parallels for hillside theatres from elsewhere within the Empire are certainly abundant, such as at Djemlia (Février 1971, 63). The presence of such a structure within this general area has been suggested by a number of authors (Fuentes 1986; Humphrey 1986, 431-2) although their actual choices seem very unlikely. The evidence from the complex, however, does not seem to be comparable with any known theatre plan, and as the Period II structures extended over more than 145m this function would seem highly improbable. Nevertheless, the possibility remains, however remote, that it formed a part of the development, combined with other monuments, such as baths *(eg* Tivoli; Hansen 1959, fig 7), temples *(eg* Altbachtal complex Trier; Lewis 1966, fig 110), or both (eg Alésia; Mangin 1981).

A *macellum* would also appear to be an extremely unlikely candidate, especially given the peripheral location of the complex within the town. The size of the Period II complex, coupled with the massive and probably elaborate nature of the above-ground elements, was surely upon too grand a scale for such a function. Furthermore, the late 3rd century date of the complex does not offer an attractive context, for at this time the town may well have been changing its commercial and redistribution functions (Milne 1985, 144-9).

It is also unlikely that the complex was *purely* defensive, in either inspiration or function; it was located upstream of the bridge, and therefore at the wrong end of the town to provide an effective defence against sea-borne attacks. A more plausible candidate for a late Roman defended enclave has already been advanced for the south-eastern corner of the walled town (Maloney 1980; Parnell 1985, 33-4); a location of considerably more strategic value than that of the Period II complex. In addition, the elaborate degree of preparation within the internal area of the complex, in particular the meticulously levelled area on Peter's Hill, finds no obvious parallel in fort construction.

More profitable areas for comparison can be found in other public structures: baths, temples, warehouses, mints, and palaces, either individually, or in some form of combination.

Baths and temples

The position of the complex on the hillside, just below the natural spring line (p8), would have provided a favourable location for the construction of a baths complex *(cf* Huggin Hill; Marsden 1976, 5). This exploitation of the natural hydrography has been demonstrated in many towns, where hillside sites were utilised for bathing establishments, for example, the Seaward Baths and the Baths of Oceanus at Sabratha (Haynes 1956, 121), or the Baths of Caracalla in Rome (DeLaine 1985, 196). The location of the complex, well away from the centre of the Roman town, would not have been unusual, as there are numerous examples of major public baths located on the very fringes of towns and well away from the principal thoroughfares *(eg* the Hunting Baths at Lepcis Magna, which lay some 200m outside the town boundary). An adequate supply of water was more important in the choice of site than its location within a town.

The architectural grandeur of baths buildings, and the use of open spaces in the form of courtyards, porticoes and *palaestra,* are well attested. The use of imposing facades was also a characteristic feature of such monuments, particularly in the later Roman period; the exterior of the Baths of Diocletian in Rome, constructed around AD 298-305/6, 'relied for (its) effect almost exclusively on the marshalling of the masonry masses' (Ward-Perkins 1981, 421).

The overall size of bathing establishments varied considerably throughout the Roman Empire, but the suggested size of the Period II complex, some 100 x 150m, provides no obstacle as similar sized, or even larger, complexes were being constructed around the same time; the Kaiserthermen in Trier, for example, was constructed sometime after AD 293 (Wightman 1985, 235), and covered some 220m x 130m, while the Baths of Diocletian in Rome, built *c* AD 298-305/6 (Ward-Perkins 1981, 418), extended over an area of some 350m x 300m. In comparison to these, the probable maximum extent of the Period II complex would appear to be large, but perhaps not exceptionally so. However, although the date of the Period II complex raises no problem in terms of parallels, the question of the need for such a massive public baths within late Roman London is possibly harder to explain; were resources really diverted to this task, and was the population of London and its locality sufficiently large to warrant such expenditure ? It would seem unlikely that the complex was exclusively used for this purpose.

The siting of a temple complex within the south-western corner of the town, away from the administrative focus of the town in the east, would also not have been unusual. Large temple enclosures were often removed to such areas - providing their own sense of focus. Similarly, a hillside setting would be appropriate; indeed, such locations were often sought for their dramatic effect. The magnificent Sanctuary of Hercules Victor at Tivoli (Hansen 1959, fig 7), or the Temple of Liber Pater and the Forum, Sabratha (Haynes 1956, pl 18), provide striking examples.

The arrangement of space within a temple precinct could also be extremely varied. The focus of such enclosures often lay in their courtyards and facades, rather than in the actual interior of their structures. Indeed, the temple buildings themselves frequently occupied less than 10°◦, of the entire complex, the rest being courtyards and ambulatories. The use of porticoes and ambulatories was a basic feature of most temple precincts, delimiting the various courtyards in which the shrines and temple structures were placed and creating their distinctive overall appearance. Porticoes were also often used to bind otherwise disparate elements together into a more cohesive whole, or to bring elements of different dates into unison with later modifications, such as at *Verulamium (Verulamium* I; Lewis 1966, 136). The complex might contain a variety of shrines and temples enclosed within a single *temenos.* The complexity of the ground plans of temple precincts, therefore, offers considerable scope for comparison.

The size of temple enclosures varied considerably; within Britain alone they varied between the massive 2.12ha *temenos* at the Temple of Claudius, Colchester (Drury 1984, fig 11) and the mere 0.07ha enclosure at Caerwent (Caerwent I; Lewis 1966, 132). The London complex, if a temple precinct was its exclusive function, covered *c* 1.5 ha. In addition to the evidence from the site itself, nearby sites suggest that a tradition of religious use can be documented for the area (see Observation 7 in Chapter 7, the monuments from the riverside wall, in Chapter 8.3, and the discussion of Period I's function, in Chapter 1.6). In addition, there is always the possibility of a combination of functions, an association attested elsewhere within the Roman world, as at Champlieu (Ward-Perkins 1981, 230, fig 140), or Alésia (Mangin 1981).

A trend in the construction, and/or renovation, of temple precincts in Britain in the last years of the 3rd century can be suggested; civilian temples survived well into the 4th century (Lewis 1966, 143), and there are examples of late 3rd century repairs and embellishments to temple complexes, notably the Insula XVI temple at *Verulamium* - which received an impressive new portico around AD 300 (Lewis 1966, 124) - and the refurbishment of the Temple of Claudius at Colchester - comprising alterations to the precinct and rebuilding of the temple, in the early 4th century (Drury 1984, 8). Indeed, a resurgence in both temple building and refurbishment seems to have taken place throughout the Roman Empire during the late 3rd century

(Warmington 1954; Fentress 1981), and there are individual examples of elaborate reconstructions on an even larger scale than that of the London complex, as at Grand (Burnand 1978, 339-44). Was the Period II complex a manifestation of this upsurge?

Administrative buildings

Large scale warehouses offer a promising analogy, especially given the waterfront location of the complex. Certainly architectural grandeur, as suggested for the complex, would not be out of place in such structures; for example the massive seaward facade of the Imperial warehouses at Lepcis Magna (Haynes 1956, pl 10a) illustrates the elaborate and visually impressive sophistication employed in supposedly functional structures. Constructions of a comparable date are particularly noteworthy; the *horrea* S Irminio at Trier (Fig 25) (Wightman 1970, 117-9; Rickman 1971, 264), and the *horrea* at Aquileia (Ward-Perkins 198 1,464) and Veldidena (Rickman 1971, 264-5; Ward-Perkins *loc cit),* were all constructed in the late 3rd or early 4th century. Architectural pretensions were evident in these constructions, notably in their facades (Fig 25), and the quality of their construction cannot wholly be viewed within the context of functional demand.

Structurally late Roman warehouses also exhibit a number of similarities to the Period II complex. Most were floored with simple hard-wearing solid mortar surfaces (Rickman 1971, 264; Wightman 1970, 118), rather than the elaborate raised floors of granaries; such flooring closely compares to the only area of surfacing found within the complex, the solid *opus signinum* bedding on Peter's Hill (p51, Figs 20 and 41). Their overall size also bears some comparison; *the horrea* S Irminio at Trier were *c* 85m in length, and earlier warehouses in Ostia, for example the *horrea* of Hortensius, were commonly around 100m (Meiggs 1973, 45, 281). Little is known about the internal arrangement of the structures at the west end of the London complex; the presence of a single column/pier base within the area (Figs 9 and 21) might be compared with the use of regularly arranged columns to divide the internal area of the late warehouses (S Irminio *horrea,* Fig 25), although a single pier is hardly conclusive.

The size of the foundations in the complex, however, argues for greater elaboration than was present in any of the other late Roman examples; the S. Irminio warehouse, one of the largest of the 4th century examples, had walls 1.65m thick (Rickman 1971, 264), with blind arcading rather than elaborate porticoes (Fig 25). Nevertheless, the paucity of excavated examples of late Roman warehouses does not allow for exhaustive comparisons, and there would seem to be sufficient variety in the construction, even in the few examples known, to suggest that architectural elaboration is likely to have varied according to location and association.

In the case of both treasuries and mints, the architectural form of the buildings is incompletely understood. In part this is because they were often located within larger complexes, where the specific association of function to structure is difficult to demonstrate archaeologically. In the case of mints, there is no reason to suppose the structures were of any elaboration. The absence of deposits associated with the use of the Period II complex - whether as a result of truncation or its incomplete nature (p31-2) - has resulted in a commensurate lack of associated artefacts. The latter would be the only way of positively identifying a mint. The association of a mint and/or treasury with the Period II complex, therefore, can only be based upon a historical model (below).

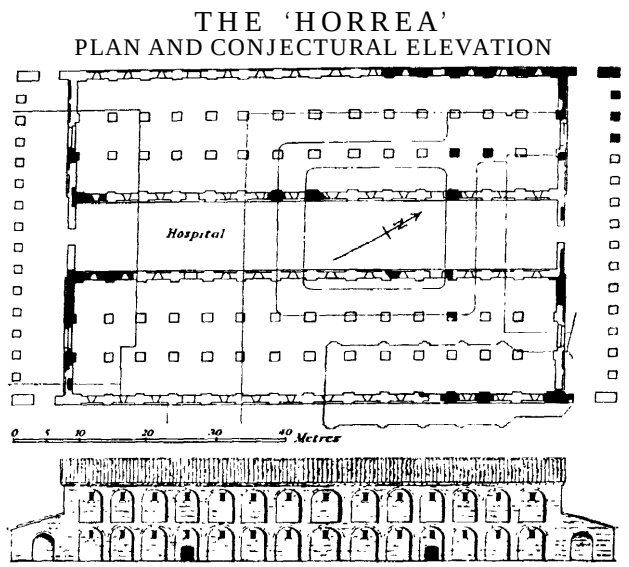


Fig 25 Ground-plan and conjectural elevation of the horrea S Irminio, Trier, late 3rd/early 4th century. The use of blind arcading belies the functional nature of the building.

Late Roman 'palaces'

The monumental nature of the complex, its considerable area, and the scale of the resources devoted to it at the end of the 3rd century, might suggest that it was intended to house more than one function. A number of combinations are possible, such as a temple-bath complex, but it is the multi-functional late Roman 'palace' complexes which would seem to offer the most striking comparison with both the scale and the character of the development. The term 'palace' is used here reservedly; it implies more than a single palatial residence, even with the addition of state rooms, that may have been so described in the early Empire. Within the context of the late Roman world it refers to a more multifarious development, which contained a number of military, state, and civic functions; military camps and imperial residencies being laid out along the same lines. Indeed, as Ward-Perkins has aptly stated, 'in the starkly militaristic climate of the late 3rd century it is hardly surprising that in many respects the distinction between monumental military and civil architecture was becoming increasingly hard to draw' (1981, 361). Furthermore, 'the old regional barriers were everywhere breaking down', and 'even allowing for the differences of climate and craftsmanship, of methods and materials, the formal requirements of an imperial

residence or a public bath-building were very much the same in Syria as on the Danube or in Gaul' *(op cit,* 441).

Earlier 'camps' of this kind, with a military and administrative role, had been constructed within the empire, for example at Lambesis (Ward-Perkins 1981, 361), but they became more common towards the end of the 3rd century, in particular, under the Tetrarchy, when palaces, military camps and imperial residences were established in many of the provincial capitals: Antioch, Nicomedia, Sirmium, Milan, Trier, Salonica (Thessalonike), Palmyra, etc (Ward-Perkins 1981, 441-54). Many of these sites are poorly understood at present, but some throw light upon this conglomeration of functional elements. Diocletian's Camp at Palmyra, for example, was constructed at the end of the 3rd century and contained military warehousing, temples, fora, residential quarters and elaborated arcaded colonnades, within a defended enclosure (Browning 1979, 184-90; Ward-Perkins 1981, 361). In Salonica, the Palace of Galerius (constructed AD 293-311) included within its boundaries state rooms, baths, temples, military areas and public amenities (Ward-Perkins 1981, 449-54). In addition, Diocletian's imperial residence at Split encompassed state, residential, bathing, religious, and military areas within its enclosure (Wilkes 1986).[7]

The siting of a palace complex within this quarter of the town would also seem plausible; the late 3rd century palace complex at Trier, for example, was situated in the eastern area of the town, away from its previous centre, and apparently making use of the free space that the area afforded for the construction of a lavish complex (Wightman 1985, 235). The topographic location of the London complex may also be significant, providing a spectacular setting for such a development. It was common for palaces to expend considerable effort on their visual impact; the elaborate nature of the seaward facade of Diocletian's palace at Split, constructed with massive arcades (Wilkes 1986, 63), offers the most notable example of a contemporary date. The scale of construction at Split, covering an area 180 x 216m, is also worthy of note. The palace at Trier also covered a considerable area - the Imperial Baths (Kaiserthermen) alone covering an area of some 220m x 130m (Wightman 1970, fig 6). In this context, the size of the London complex, some 150 x 100m, was not exceptional.

Historical context

Any argument concerning the historical context of the Period II complex depends upon the precision of its inception date, AD 294. It has been argued elsewhere (p27) that this date is secure, and thus provides a narrow historical framework within which to assess the function of the public building programme, but it should be recognised that a slight re-adjustment - to *c* AD 296/7 for example - would cast a different light upon the debate.

The date of AD 294 coincides with the brief reign of Allectus (Fig 26), who assumed control of the breakaway 'British Empire' in AD 293. Carausius, who had split Britain and parts of Gaul from the Roman Empire in AD 287, lost the Gaulish possessions in AD 293, and was deposed by Allectus in the same year. Allectus held control for just three years; in AD 296 Constantius reconquered Britain for the Empire.

The massive scale of the Period II complex indicates that considerable resources were expended on the work - far in excess of anything that might reasonably be assumed to have been the direct inspiration of the local administration - on a scale that can only be envisaged, within the context of the late 3rd century 'British Empire', in terms of direct control. The size of the enterprise indicates that the town occupied a special role within Britain at that time, possibly as the capital and administrative headquarters of the breakaway empire. As such, it provides a rare insight into this brief three-year period. This, in turn, may help to explain the function of the complex.

The need for a massive complex solely dedicated to either bathing or religion is hard to envisage within this context; were resources really diverted from the

Fig 26 Coin of Allectus, probably minted in London during his brief reign (AD 293-6).

Shore Forts for this purpose? Even if the programme took place after Constantius' reconquest, would such resources have been provided to these ends? Possibly a religious development might be more easily understood, with its roots in both the prestige and the social control of the administration. The relationship between beliefs and practical considerations is often difficult to assess; Allectus, for example, may have indeed felt that he needed all the help, spiritual as well as temporal, he could get.

The late 3rd/early 4th century warehouses found elsewhere in the Roman world formed part of the reorganisation of the late Imperial system, functioning as military stores and redistribution centres (Rickman 1971, 264-5). As such, the complex provides an interesting parallel; administrative reorganisation, which may have used London as its main base, could have provided the catalyst for the construction of similar stockpiling facilities. Similarly, a mint is known to have been founded in London by Carausius during the 280s, and continued in use after the reconquest of AD 296

(Shiel 1977; Salway 1981, 532). The original mint cannot have been on this site, as this suggests that it was in production prior to Allectus' reign; a site in the area of the Tower might provide a reasonable location (Parnell 1985, 33-4). However, Allectus' reorganisations may have involved the construction of a new mint, as part of an integrated complex of administrative buildings. As such, it may still have formed part of the initial planning of the complex, whether or not it ever moved to this location. A treasury is also known to have been in existence sometime after the reconquest of AD 296 (Not *Dig Occ* xi 37), and once again, it is possible that this was one of the intended functions of the complex.

The fact that Britain was not part of the Empire at this time does not mean that it ceased to require these functions; the very presence of the mint indicates the continued nature of the administration. Carausius and Allectus were more Roman, in their administrative and military outlook, than they were 'British'; there is no reason to see them as provincial outcasts. Allectus, given his suggested administrative background (Salway 1981, 306), may have attempted to centralise facilities along the lines current within the Roman Empire at this time (see also his coinage reforms; Shiel 1977 and Casey 1977).

Interestingly, the upsurge in the construction of 'palaces' and 'camps' under the Tetrarchy dates from c AD 293 onwards, with many of the developments not taking place until after *c* AD 300 (above); thus Allectus' development may have been one of the first manifestations of this late Roman tradition. It is probably too much to suggest that some of the inspiration for this form of administrative centralisation actually stemmed from developments in London, but it does suggest that Allectus was responsive to changes being undertaken elsewhere in the Roman world.

It is suggested, therefore, that the complex functioned as an administrative centre for the 'British Empire', commissioned by Allectus to house the primary functions of the late Roman state: armoury, treasury, mint, supply base, administrative offices, residential quarters, temples, public amenities, *etc*, within his capital and base, London. (See Chapter 3 for the impact of this programme within the town.)

2.10 The end of the Period II complex and later Roman activity

The exact date of the complex's demise is unknown. The massive masonry foundations were partially robbed, at Peter's Hill and Sunlight Wharf, during the early medieval period[8](p56). No evidence was found of late Roman robbing of the foundations; the removal of the superstructure, if it ever existed, is a different matter.

The absence of any decorative details, even redeposited in later intrusions, seems unusual, although not without comparison: at the Temple of Claudius, Colchester, very little material, either decorative or from the superstructure, survived in the archaeological record (Lewis 1966, 62). However, the absence of even small quantities of *tesserae*, plaster or other architectural decoration from the area of the London complex suggests that the process of truncation was either extremely thorough, or that the materials were not present in the first place, the complex not having been completed. The level of truncation, which extended almost uniformly below the level of the contemporary ground surface, leaves little room to test these suggestions. The only possible survival above the contemporary ground level was the *opus signinum* surface on Peter's Hill (Figs 13, 20 and 41), which capped the carefully prepared make-ups in the area (p50-51). It seems unlikely that a floor or surface of this nature would have been laid without the basic superstructure of the building having previously been constructed, unless perhaps the surface was to serve as a basic constructional platform itself. Even if the superstructure was completed, it does not preclude the possibility that the complex was never 'finished-off; for example, the Imperial baths at Trier, which were broadly contemporary in date, did not have their water pipes installed, the complex being adapted for use as a palace (Wightman 1970, 102). It is perhaps significant that the date of the Period II complex provides a historical context, in the reconquest of Britain by Constantius, for either a failure to complete, or a shift in function.

A late Roman domestic building found at Peter's Hill (p52-3), indicates that the area of the complex had probably ceased to serve any public function sometime during the 4th century. This has no direct bearing on whether the complex was ever completed; the possibility that such a substantial complex would have been abandoned or modified to this extent within fifty years cannot be convincingly ignored within a late Roman context. The late Roman domestic structure itself only survived in a very fragmentary form; it was at least partially constructed of timber, although it also re-used some of the Period II foundations, if not walls (p52) (Fig 46). Numerous earth floors and hearths were recorded within the building, and although it is not clear when this structure fell into disuse, the number of replacements suggest that it remained in use for an extended period of time. No other Roman strata survived truncation, so that it is impossible to be certain of the nature of the rest of the area at this time.

[1]The similarity is with the eastern stretch of walling, rather than the later western addition which contained the re-used monumental masonry. The foundation of the eastern wall was supported by squared timber piles and a chalk raft, which by analogy may have supported the wall at Peter's Hill (Fig 11).

[2]The 4th century date suggested in the original report (Hill *et al* 1980, 93) has been disproved by these more recent studies.

[3]The existence of a bank behind the riverside wall is discussed elsewhere (Williams in prep).

[4]The dumps themselves contained some 3rd century pottery, but it was not sufficiently diagnostic to establish a closer date of deposition (Fig 47).

[5]The opus *signinum* surfacing was truncated in this area, so that this relationship can only be suggested on the basis of comparative levels.

[6]The only ceramic dating came from Peter's Hill, and conforms to the more precise date offered by dendrochronology.

[7]It is interesting to note that in all the above examples a circus was attached to the palace development (Ward-Perkins *op cit);* the possible interpretation of the Knightrider Street walls as part of a circus, although not thought to be convincing (p000-000), might assume some significance in this context.

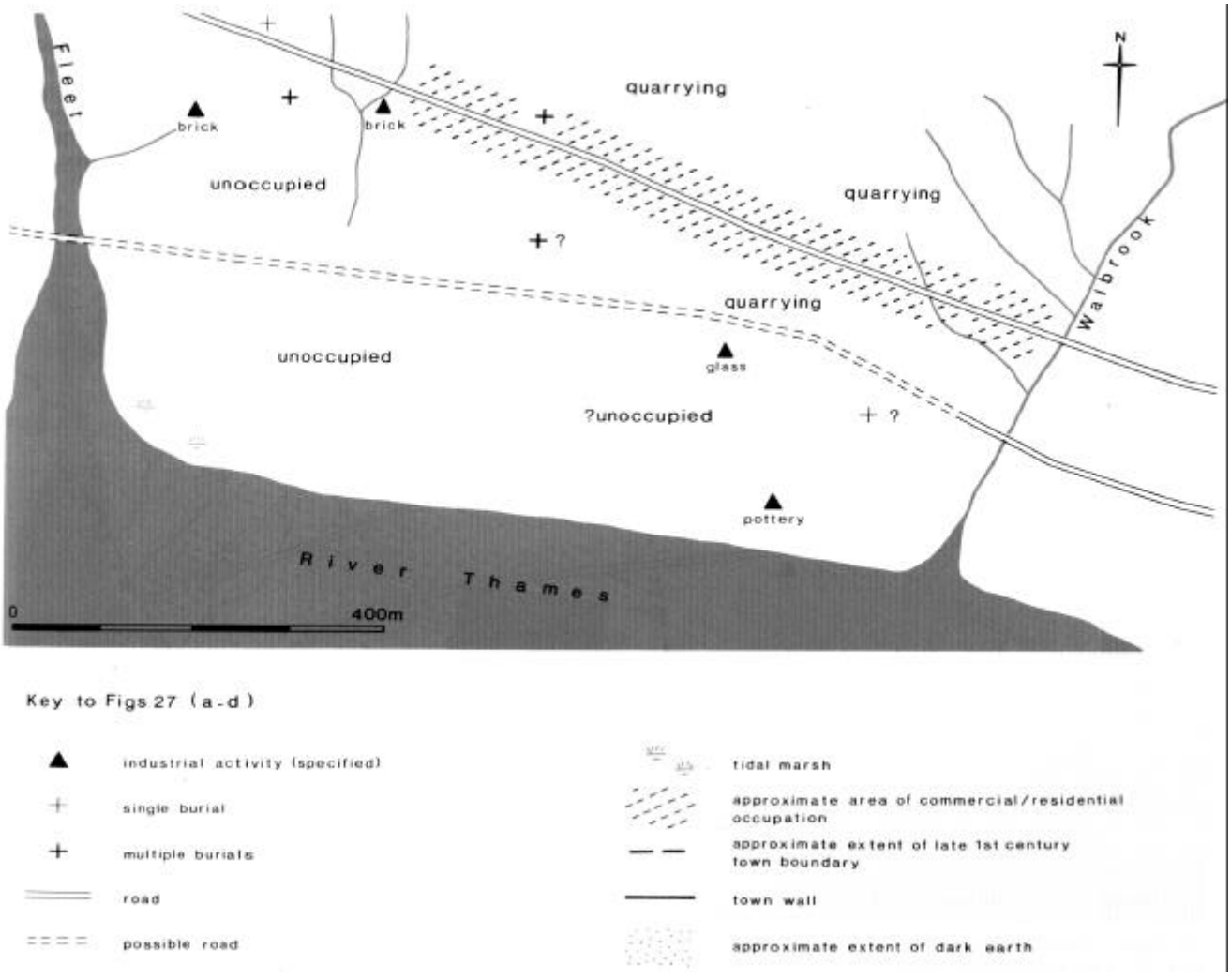
[8]The quality of the stone may have attracted early church builders, although the effort involved in removing it provided sufficient deterrence to prevent all the foundations from being robbed.

3. DISCUSSION: THE SOUTH-WEST QUARTER — DEVELOPMENT AND CONTEXT

The whole of the western settlement lay outside the original planned Roman town, which was probably confined, at the outset, to the area east of the Walbrook valley (Williams 1990 and forthcoming)'. The mid-1st century western suburb primarily consisted of strip-buildings, of a mixed residential and commercial function, in a ribbon-development along the main street leading from the town through Newgate (Fig 27a) (Perring & Roskams 1991). The rest of the western hill seems to have been sparsely occupied, except for a number of isolated activities of a suburban nature: industrial sites include a possible pottery production site at Sugar Loaf Court, in use up to c AD 60/70 (Barker 1986; Richardson 1987b), glass-working debris from Gateway House, deposited before c AD 70 (Shepherd forthcoming), and mid- 1 st century brick kilns at the Old Bailey (Bayliss 1988), and burials of a mid- 1st century date clustered around the main east-west road, although some cremation urns have been found close to the western bank of the Walbrook (RCHM 1928,155) (Fig 27a). In addition, a number of brickearth and gravel quarries were dug.

It was not long, however, before an area of land west of the Walbrook was included within the formal

Fig 27 Sequence offigures schematically representing the development of the south-west quarter of Roman London. *Streets indicated ran to Ludgate (south) and Newgate (north).*



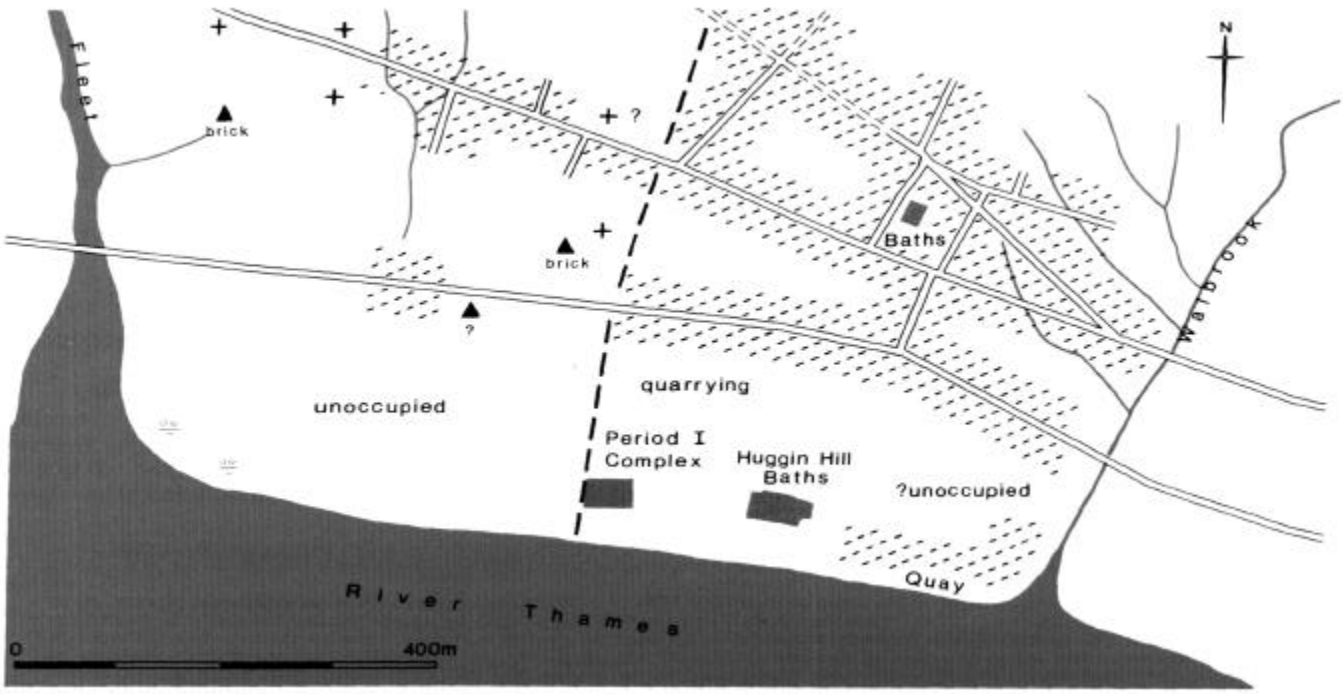
(a) Mid-1st century (c AD 50-5). The area was purely suburban, the formal town lay east of the Walbrook.

town. In recent years it has been convincingly argued (Maloney 1983; Bentley 1985; Perring & Roskams 1991) that a 1st century western boundary to the town was established to the west of the Walbrook, enclosing a smaller area than that protected by the later defensive circuit (Fig 27b). The precise date of this new western limit to the town is not known. However, the Sugar Loaf Court pottery production site was replaced by domestic buildings in c AD 70 (Barker 1986; Richardson 1987b), and the glass-making waste from Gateway House was found to pre-date domestic buildings of the same date (Shepherd 1986), suggesting that industrial activity was moved to new suburban locations in accordance with Roman law. The demise of these activities might thus provide a *terminus post quem* for the establishment of the boundary.

There may have been some planning of the newly enclosed land, particularly in the areas immediately to either side of the principal east-west streets, leading to Newgate and Ludgate (Fig 27b) (Per-ring & Roskams 1991).[2] The Flavian development of this area appears to have been vigorous, with commercial/domestic buildings rapidly occupying the major street frontages. To the south, a substantial waterfront revetment, found in a tunnel beneath Thames Street and dated to the mid-late Flavian period, c AD 80-90 (Richardson 1979, 261; Hillam 1980), suggests that the area underwent commercial development comparable with that of the eastern town of the same period (Milne 1985, 27-9).[3] The waterfront to the west of the new quays, within the newly delimited south-western comer of the town, was also rapidly developed. Here the extensive baths at Huggin Hill, begun in the late 1st century (possibly around AD 70) (Marsden 1976, 19-20), indicate a public control over the development of this area of waterfront; the date may also suggest that it was envisaged as part of the planned expansion and layout of the western town.[4]

The enclosure of land west of the Walbrook within a new town boundary seems to have been part of the expansion of commercial and social activities recognised elsewhere within the town (Marsden 1980, 40-l; Merrifield 1983, 61ff; Milne 1985, 143; Perring & Roskams 1991; Perring 1991). What is particularly interesting is the measure of control implied by the street planning, the waterfront development and the reservation of prime waterfront land for public amenities. The growth of the newly enclosed area was neither *ad* hoc, nor solely concerned with the simple development of a planned street system; a whole infrastructure appears to have been envisaged.[5]

The area within the new town boundary was not completely colonised: undeveloped land remained. The most notable cases were areas of continued quarrying - the district to the north of the Period I complex, for example, appears to have remained marginal land throughout the life of the Roman settlement, possibly due to its poor street access and the difficulty of infilling early suburban quarries - and the lower Walbrook valley, north of the waterfront zone, where the absence of early structural activity may have resulted from the



(b) Late 1st-early 2nd century (c AD 90-120). An area of land west of the W albrook was enclosed within the formal town c AD 70. This was rapidly infilled with residential/commercial buildings, quays, and public buildings, although some areas remained unoccupied. Suburban activities continued to the west of the new town boundary.

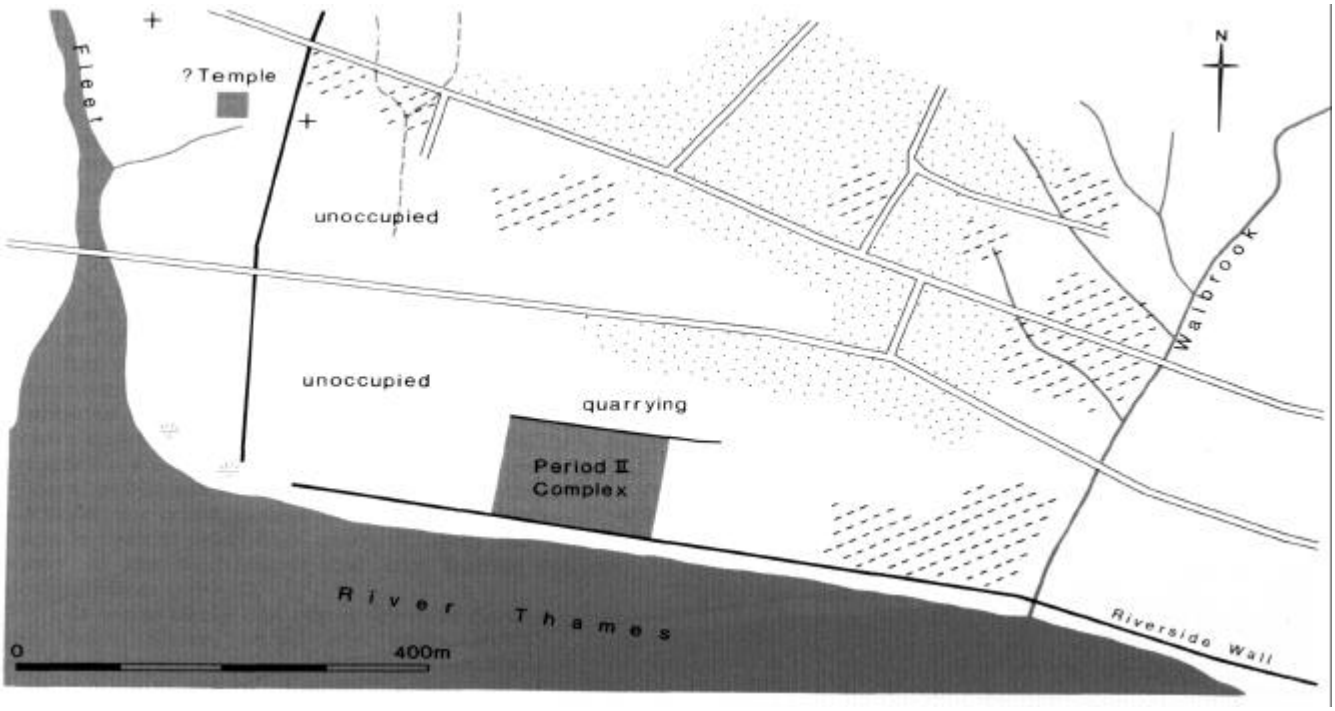
difficulty of colonising this steeply sloping terrain (Fig 27b).

A suburban area to the west of the new town boundary was still active, with continued ribbon-development along the main east-west streets leading out of the town (for the northern route, see Perring & Roskams 1991; for the southern, see Pye 1987). Burials continued to concentrate around the Newgate road (Fig 27b), while industrial activities continued to function in this suburban area (near the Old Bailey, Bayliss 1988; in the vicinity of St Paul's, RCHM 1928, 140).

The enclosed area of the western town appears to have flourished, with properties infilling the main frontages during the late 1st and early 2nd centuries. Excavations at Watling Court (Perring 1981; 1982; 1983; Perring & Roskams 199 1) suggest that pressure on land, particularly on main street frontages, increased during the late 1st century and that by the early 2nd century at the latest, the area had become densely occupied. The buildings appear to have been of good quality, and the provision of reception rooms may reflect the increased social needs of the householders.

To the south, at about the same time, the late 1st century, the Huggin Hill baths were elaborately and substantially extended (Marsden 1976, 29-30). This development, and the general late 1st/early 2nd century infilling of the town, provides a suitable context for the construction of the Period I complex (Chapter 1), which lay in the then extreme south-western corner of the town, to the west of the baths (Fig 27b). Substantial buildings, almost certainly of a public nature, were constructed on the lower slopes of the hillside. Although the function of the structures is not clear - a religious purpose has been tentatively identified (Chapter 1.6) - it is probable that they mark a continuation of the public development of the waterfront zone. Unfortunately, the construction date of the Period I complex is uncertain, and equally it is possible that the complex was part of the initial planning of the new western town, in the same manner as the original construction of the Huggin Hill baths, around AD 70 (above), extending the public control of the waterfront along the entire length of the newly enclosed area. Alternatively, the land might have been set aside for public use, without actually being developed at that time; certainly there are no indications that the area was occupied prior to the construction of the public buildings. In either case, the enlarged Huggin Hill baths, and probably the Period I buildings, would have dominated the waterfront of the western town by the early 2nd century.

In the mid to late 2nd century a noticeable shift occurred within the settlement, away from the main street frontages which had previously determined the location and development of properties. But this did not mark the demise of the area, for as the street frontage properties declined, and were covered with 'dark earth' (Perring & Roskams 1991), new areas began to be developed, most notably the lower Walbrook valley,



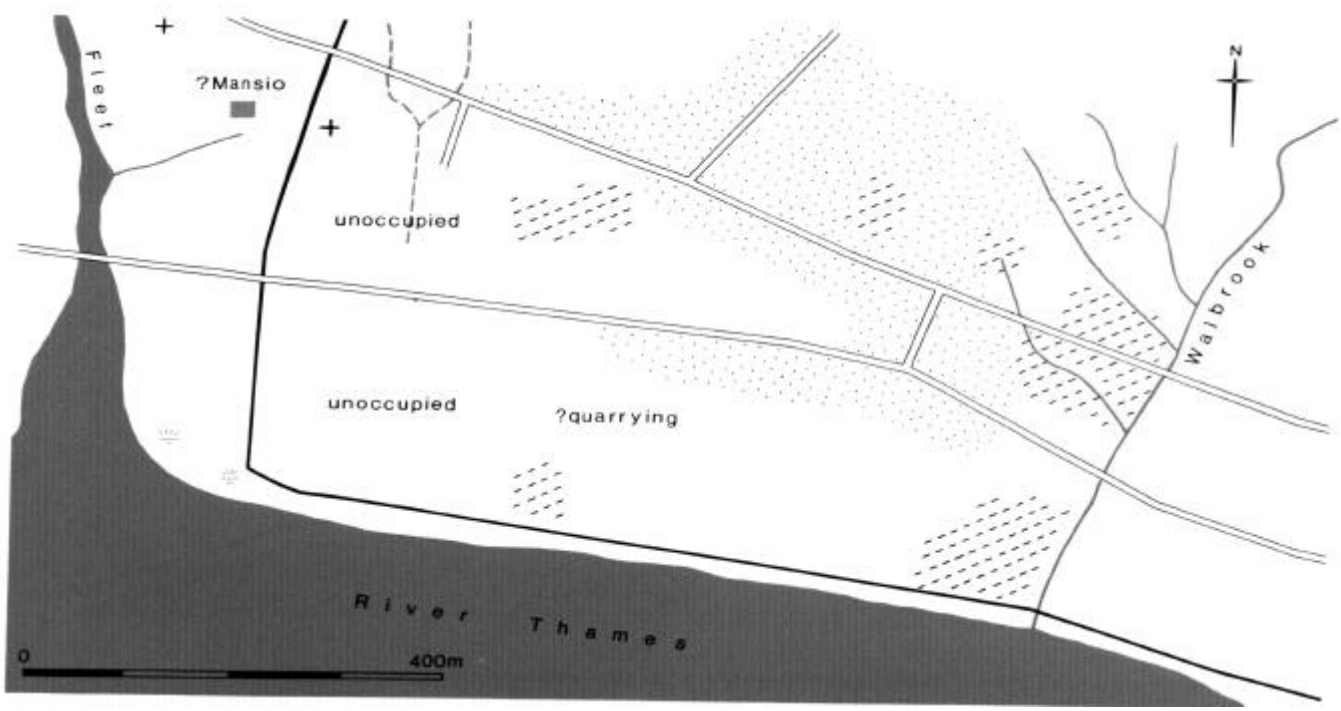
(c) Late 3rd century (AD 294). The expansion of the town c AD 200 continued westward when the landward defences were constructed, encompassing large areas within the circuit. A riverside wall, constructed c AD 255-270, resulted in the infilling of the Walbrook mouth, but probably left a gap in the marshy south-west corner. The Period II complex dominated the area. The pattern of residential occupation had changed significantly during the course of the 2nd and 3rd centuries, possibly with an emphasis upon the Walbrook valley.

where town-houses of some elaboration and status were constructed, for example at Skinner's Lane (Rowsome 1984) and Queen Street (Burch 1987). All of this can be seen as part of the transition to a significantly different late Roman town, the 'radically-altered urban landscape of the later settlement' (Yule 1982,246; see also Sheldon 1975; 1981; Marsden 1980, 110-7; 1985).

The western limit of the Roman town was extended again when a landward town wall was constructed in c AD 200 (Fig 27c). Its construction probably owed much to military pressure and Merrifield has observed that the western extension had sound tactical advantages, overlooking the steep drop to the valley of the Fleet (1983, 154). However, Luttwak's referral to 'civic dignity' (1976, 168) is probably not totally misplaced, and the resources involved certainly must reflect the perceived importance of the settlement. The defences considerably extended the area of the western town, enclosing another 60,000m^2 in the south-west quarter alone. However, this newly enclosed land appears to have remained sparsely occupied (Fig 27c).

Around the same time, the end of the 2nd century, the massive Huggin Hill baths complex was demolished (Marsden 1976, 22-3; Hammond et al forthcoming). That such a major public amenity was swept away suggests that the changes underway within the late Roman town were indeed far reaching. It is not clear what was happening to the Period I complex at this time, and it is possible that it was also in decline. However, the pattern was reversed. The monuments incorporated in the later riverside wall (Chapter 8.3) indicate noteworthy attempts to rebuild and/or refurbish during the 3rd century (3rd century marbles from Peter's Hill may also support this, p88). Although most of the monuments, such as the Screen of Gods and the Arch, are not closely dated (p91), they have often been ascribed to the Severan period; they may even owe much to Julia Domna's personal influence as the inspiration for the original programme of construction (Merrifield 1980, 203-4). This may have been the case, but it is equally true that the monuments might have been constructed at any time during the 3rd century (or even the 4th, p91). What is more certain is that a period of rebuilding took place in the mid-3rd century; temples are specifically mentioned on altars from the riverside wall as having been repaired at that time (p90).[6] This activity is particularly interesting as it occurs at a time when expenditure on public monuments is not thought to have been widespread. However, other evidence is coming to light for public works of this date, most notably the major redevelopment of the late Roman quays, now dated to c AD 240 (Brigham 1990a, 138). Thus, if the Period I complex was the source of the riverside wall monuments, it appears to have been upgraded in the middle of the 3rd century.

Elsewhere within the quarter there appears to have been continued occupation of the lower Walbrook valley (Fig 27d), attested by recently excavated 3rd century masonry buildings at Queen Street (Burch 1987) and Skinner's Lane (Rowsome 1984). At Huggin Hill, clay and timber buildings were constructed in the 3rd century, within the ruins of the earlier baths. Recent



(d) Mid-late 4th century (c AD 350-360). The gap in the south-western corner of the defensive circuit was infilled. The Period II complex, if it had ever been *completed, was now being re-used by domestic buildings. Elsewhere, the areas of occupation may have continued to contract.*

excavations have suggested that the status of these should not be underestimated (Rowsome *pers comm).*

Later in the 3rd century (c AD 270) a riverside wall was added to the defences of London (pl3), radically altering the riverside aspect of the area (Fig 27c). The wall ran along the margin of the river, probably just above the high water mark (Brigham 1990a, 140-l), but further south than most previous occupation in the western town.

In AD 294, *c* 20 years after the riverside wall's construction, the Period II complex was begun. It contained a number of massive structures, of a substantial and impressive nature, which were constructed on a series of riverside terraces (Chapter 2). Considerable efforts were made to adapt the site for such large-scale construction. The complex covered the area previously occupied by the Period I complex, but also extended westward along the waterfront, into land enclosed by the c AD 200 town wall (Fig 27c). To the north, a long wall at Knightrider Street (Chapter 7, p86-7) probably formed the northern limit to the development (p26), forming a boundary with the undeveloped area to the north (Fig 27c). The western and eastern boundaries of the development are less clear, but it covered an area of not less than 100 x 150m (15,000m^2, or 1.5 ha).

The siting of the Period II complex may have had much to do with the likelihood that the land was already in public ownership, while the combination of both a river and a hillside setting offered an attractive location for the complex. The emphasis upon grand scale in the Period II complex, suggested by the scale of the foundations uncovered, perhaps indicates that this was to be exploited; the complex was surely intended to be a dramatic monument within the late Roman townscape. Indeed, the effect of the building programme on the town as a whole must have been striking. The influx of a substantial workforce (for years, rather than months), must have had an impact upon both the local economy and supply networks.

The complex was probably constructed on the direct authority of Allectus; the size of the enterprise suggests generous public funding, on a scale that can only have been envisaged, within the context of the late 3rd century 'British Empire', in terms of direct control. Its function was probably closely linked to the administration of this empire. Therefore, it probably combined an administrative centre, including the centralised functions of a later Roman state, such as treasuries, warehouses, armouries and mints, with more general public amenities, such as baths and temples. In addition, the complex may also have been designed to include palatial residential quarters, along the lines of many of the multi-functional late Roman 'palace' developments (p30-2).

It seems likely that resources were diverted from the Saxon Shore, which was being enlarged and modified during the late 3rd century, to assist in the construction of the complex in London (see Williams 1991 for details). Allectus appears to have had a ready made workforce for his building campaigns, but what prompted him to transfer these resources to London? It seems improbable that work on the Shore forts conveniently finished precisely at the beginning of Allectus's reign, although if there had been some downturn in the work Allectus may have found it a useful way of occupying a ready made work-force. More likely, it implies a major shift of emphasis, a conscious re-deployment of resources in the face of direct competition for both raw materials and, more particularly, labour and skilled engineers.

The motives behind the construction of the complex appear to have gone beyond the mere desire to construct administrative buildings. The size of the foundations and the care with which they were constructed indicates a desire both to build impressive monuments, of some visual effect, and to build enduring structures. These are by no means the product of a regime on the brink of collapse. It is important that we should not judge the construction of this complex with the benefit of hindsight; Allectus did not know that his period of rule was to be so brief. The way the complex was constructed does not suggest 'jerry-built' buildings, thrown up to impress the populace with a new ruler. They were methodically constructed, with attention to detail. The very expenditure and time involved might have been intended to demonstrate both stability and commitment to the province, beyond that of mere exploitation. The balance between economic necessity (or ability) and political aims or the force of propaganda cannot easily be assessed, especially within the archaeological record. However, the impact of this undertaking - to build on such a massive scale when the whole future of the state was under threat - must have been dramatic. Permanency,' stability, and long-term development were surely as important in influencing decisions concerning the size of the construction as the practical needs of the buildings being erected *(cf* the British buildings constructed in Delhi during the 19th century). The complex may have been more than a functional building operation; it may have been intended as a very direct statement on the nature of the administration. The complex appears to have been the last flourishing of the so-called 'British Empire'.

The Period II complex was probably short-lived. Indeed, it may never have been completed (p31-2). The reconquest of Britain by Constantius in AD 296 undoubtedly marked a major shift in emphasis. London was no longer the capital of an Empire; once more, it had become the provincial capital for part of Britain. Within the wider context of the late 3rd century western empire it would have been of only local importance. Would Constantius have been willing to commit large quantities of resources, be they materials or labour, to the completion of a project begun by Allectus? As the emphasis shifted away from London and Britain (Salway 1981, 517), such resources as were available would have been assessed against a variety of projects, and an administrative complex in London is unlikely to have been one of the most important.

The complex, however, was at least close to completion; even if the superstructure had not been completed, the massive foundations had been constructed, dumps had raised the surrounding level to a consistent ground surface, and in places, surfacing, or at least bedding, had been laid. If Constantius halted the works, then all that work would have been achieved in 2-3 years, between AD 294 - 296. Possibly Constantius did complete the work, but there is no reason to assume that it was necessarily in the form originally intended; it

may, for example, have been both less elaborate and more functional, as at Trier, where the Kaiserthermen was laid out as a public baths and became a palace (p31). (See Williams 1991 for the suggestion that British craftsmen were transferred from this project to Gaul after the reconquest).

It is interesting to note that there appears to have been a major redevelopment of London at the end of the 3rd century. This involved the demolition of derelict or near derelict public buildings, most notably the basilica (Brigham 1990b, 77-9), the 'Governor's palace' (Marsden 1975, 77-8), and the monuments demolished prior to the construction of the Period II complex (p88-90). It is clear that Roman London in the last decades of the 3rd century was being cleared of those public buildings which had become obsolete, and was provided with new structures, mainly associated with its administrative role, probably including a mint. It is also perhaps interesting to note that these structures are associated with power and its control, rather than more 'civic' enterprises, such as baths or markets. Whether the clearance was part of Allectus's programme, which included the construction of new monuments in the south-western quarter of the town, or Constantius's, as part of a programme initiated after reconquest, is not apparent. Both form evocative images: a usurper clearing away the last vestiges of a derelict empire, to which he and his people no longer belonged, and replacing it with a new administrative, residential and religious complex; or, a returning power, absent for 12 years, who swiftly cleared derelict public buildings and restored a sense of order (or 'eternal light', as the Arras medallion would have it) which he perceived as having been lacking *(Pan Lat* XVII). In either case, the last decades of the 3rd century mark an important change in the fabric of the late Roman town.

Another building programme that may have been associated with a phase of 'reform' is the western stretch of the riverside wall at Baynard's Castle; from the point where the original build had terminated (p13), a wall, founded on fragments of re-used masonry, was constructed at an angle to the former, across the low-lying ground in the extreme south-west corner of the town, presumably to join the landward defences (Fig 27c). This stretch is undated, other than probably post-dating the main riverside wall, which has been dated to c AD 270 (p13). Two possibilities occur: that the later wall was constructed at the same time as the Period II complex (c AD 294), from fragments of decorated stonework not suitable for incorporation into the Period II foundations (which were otherwise almost exclusively fairly plain blocks, p89), or that it was constructed at some later, 4th century, date. As this stretch marked the completion of the western riverside defences it is tempting to suggest that it was part of either Allectus' or Constantius' programme of clearance and rationalisation, at the end of the 3rd century. However, until more conclusive dating evidence is obtained, a later 4th century modification is equally probable.

By the mid to late 4th century, a domestic building, of apparently no more than moderate status, had been constructed over part of the Period I I complex, reusing some of its foundations (p52). It seems likely that public building within the south-west quarter was already a thing of the past, although at Queen Street a 4th century masonry building (Burch 1987) suggests continued occupation of the lower Walbrook valley area (Fig 27d).

In conclusion, the south-western quarter cannot be viewed within the simple model of an isolated backwater; rather it included elements vital to the growth and development of the settlement as a whole. The public nature of large tracts of land behind the waterfront is demonstrable from the first incorporation of the area within the formal town, some time around AD 70, and the quarter clearly provided the location for some of the important public buildings of the settlement.

[1] Recognition of the settlement west of the Walbrook as suburban explains the apparent absence of such activity as suggested by Esmonde Cleary (1987, 17).

[2] Perring (forthcoming) suggests that this may have taken place slightly earlier, before the Boudiccan fire of AD60.

[3] Recent excavations at Thames Exchange (1988) have revealed further evidence for a well constructed timber quay, of late 1 st/early 2nd century construction (Kieron Tyler, pers comm).

[4] There is no indication of whether this site had been intended for a public baths from an earlier date, when the area was still suburban, hut it offered an attractive location.

[5] The controlled nature of this extension may go some way towards accounting for the growth of the Southwark suburb, south of the Thames, which appears to have only begun in earnest after *c* AD 75 (Sheldon & Schaaf 1984, 12-13; Esmonde Cleary 1987, 115-6; Heard *et al* 1990, 611); its importance only emerged after the original western suburb was incorporated into the town proper and subjected to its authority. Southwark may also have been better placed than the area beyond the new western town boundary to exploit the relationship with the still dominant eastern town.

[6] Merrifield's argument that the riverside wall monuments were part of a Severan building campaign and that 'Jerry-building' at that time necessitated a mid-3rd century period of rebuilding (1980, 204), assumes that the monuments and the complex which they embellished were constructed at the same time. However it is clear that any Severan embellishment, in itself unproven (p000), would not preclude a considerably earlier date for the original construction of the complex.

Part III: the archaeological evidence

This section offers a detailed discussion of the structural sequences on each of the sites and summarises the associated dating information. Where applicable, references are made to Archive reports, which are available on request to the Museum (see Appendix 4). The reader should refer to these for the full presentation and discussion of all the stratigraphic units. In the cases where the section derives from previously published works, full bibliographic references are provided.

4. PETER'S HILL

Grid ref: (TQ 3203 8091)
Site code: PET81
Archive report: T Williams (see Appendix 4 for availability).

4.1 The Site

The Peter's Hill site was excavated in 1981, before the building of the new City of London Boys' School (Fig *2).* No archaeological deposits survived in the northern part of the site due to truncation by 19th century cellars, whilst the areas fronting Bennet's Hill, to the west, and the Salvation Army Headquarters, to the east, lay outside the line of the new building and were not affected by the redevelopment (Fig 28). A large area, however, was still available for excavation and some 2-3m of stratigraphy survived beneath the basement slab throughout most of the area. Beneath the streets, Peter's Hill and Upper Thames Street, there was less truncation, and more than 7m of archaeological deposits survived.

In the available time it was not possible to excavate the whole stratigraphic sequence, but most areas were reduced to their earliest deposits (the initial terracing dumps) which were examined by sondage. An exception was the base of the sequence beneath Upper Thames Street, where it was not possible for safety reasons to proceed beyond the chalk raft. Despite the hope that an opportunity to examine earlier stratigraphy would arise during the subsequent watching brief, a change in the method of the construction of the new building, involving the insertion of piles in the area, prevented this, but the strata have survived in substantial areas beneath the modern development, and should be available for examination in the future.

The recorded activity on the Peter's Hill site has been divided into a number of Groups. Groups 1, 2 and 7 are Roman. (Groups 3 to 6 and 8 onwards detail the post-Roman sequence; the Group structure does not reflect the chronological development of the site, but is based upon the stratigraphic sequence, represented by a number of separate stratigraphic strands (DUA 1986).) Group 1 consists of a single isolated pit that pre-dates Group 2. Group 2 contains complicated structural evidence, sub-divided for the purposes of discussion (Group 2.1 to Group 2.13); each part contains evidence of one aspect of the construction sequence. Group 2 contains the evidence for the Period II complex on this site. Group 7 (sub-divided into Group 7.1 and Group 7.2), comprises a late Roman timber building, that post-dated, and possibly re-used, some of the Group 2 structures.

Fig 28 Peter's Hill; general view of the excavations (looking south-west) . The modern building behind the Wren Church is the site of the 1975 Baynard's Castle excavation. The photograph is taken from an upper balcony of the Salvation-Army Headquarters building, the site of the 1961 observations.

4.2 The Excavation

Early activity

A single rubbish pit (Group 1.1), cut into the natural clay at the base of the hillside, was the only feature identified as pre-dating the construction of the Group 2 complex. There were no horizontal strata associated with this feature, perhaps because it lay within the area truncated by Group 2 terracing (Group 2.4, Fig 29). However, the western part of the site, which was apparently not disturbed in that way, showed no signs of earlier activity, and no other intrusive features were found pre-dating Group 2 elsewhere on the site. In addition, the southern area of the site appears to have been low-lying in antiquity, before being reclaimed and levelled (Group 2.1) (see p13). Thus the whole of the area appears to have been sparsely occupied prior to the Group 2 activities.

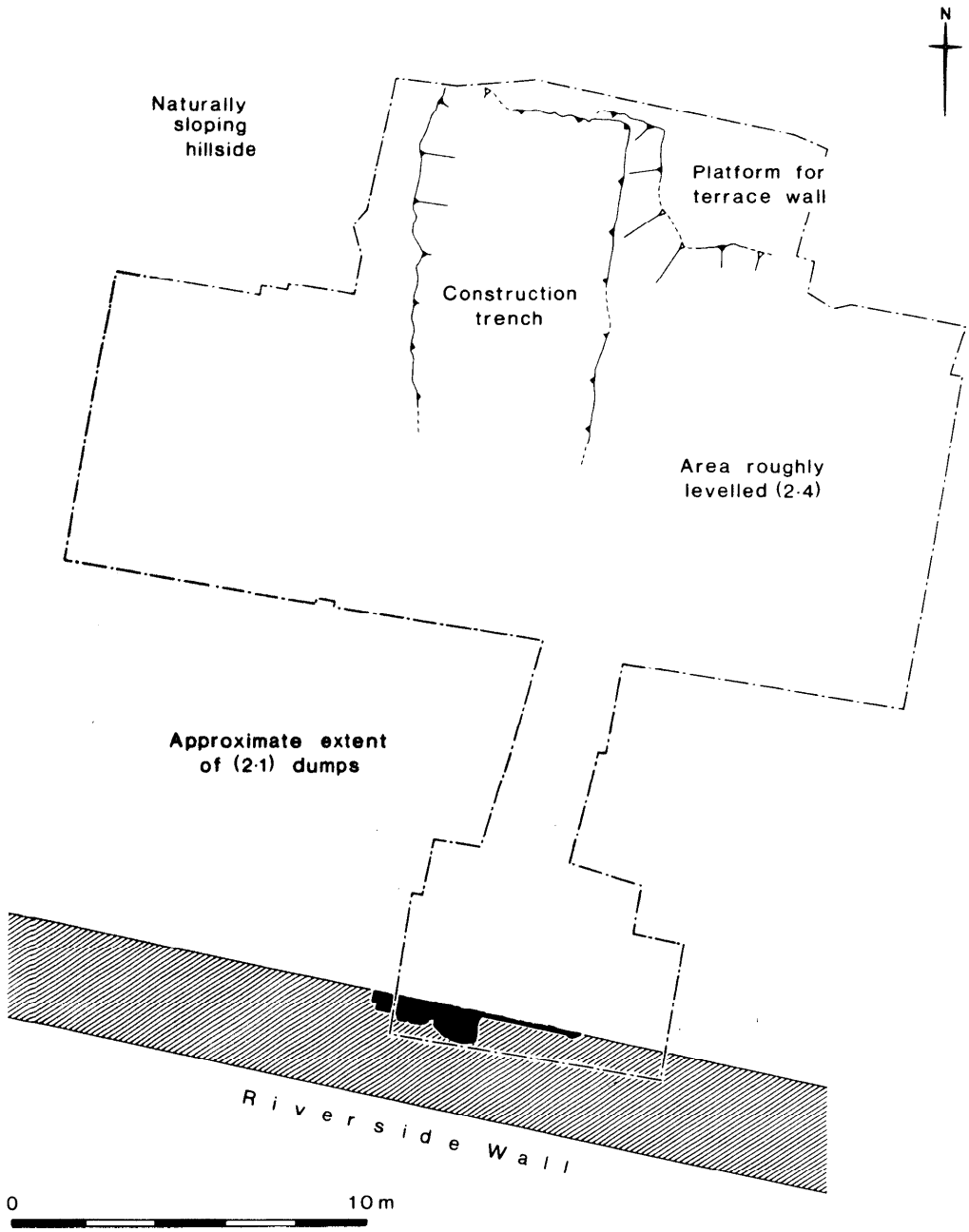


Fig 29 Peter's Hill; riverside wall to the south, with terrace formation to the north. The unaltered natural hillside sloped south-westwards. The terrace cutting was carefully planned to accommodate the Period II foundations; hence the construction trench for the massive north-south foundation, the undisturbed area left to support the tile built terrace wall, and the roughly levelled area for the compacted dumping sequence. (1:200)

Construction of a riverside wall and terracing activities to the north (Fig 29)

Riverside wall

At the extreme southern limit of the excavation an east-west wall of relatively complex construction was recorded (Group 2.1, Fig 10 and 29). The foundation could not be removed for safety reasons, so that it was not possible to examine its base, or to establish its relationship with the slope of the hillside. In the case of the latter, it is suggested that it lay close to the high water mark, since it was later eroded (Group 3.3), and was probably constructed on roughly level ground at the foot of the hillside (Fig 11).

The lowest observed element of the wall was a compacted raft of rubble (ragstone fragments - average size 0.25m x 0.25m x 0.15m - interspersed with small fragments and chips of ragstone). Above this the foundation was stepped back, with a single tile course *(tegulae)* immediately above this 1st offset (Fig 10). The facing above the 1st offset consisted of ragstones with thin profiles, laid in a rough herringbone pattern (Fig 10). At one point two tiles had been incorporated and occasionally large gaps between the stones had been infilled with flint pebbles. Above this were two courses

of *tegulae*. The lower course consisted of inverted tiles, orientated east-west (mainly whole), with their flanges lipping over the upper course of ragstones. The upper course was also inverted, but in this case laid north-south, into the body of the wall. The wall above the tiles was set back 0.2m, forming a second offset (at *c* 2.2m OD). The tile courses were bonded with the same mortar as the ragstone course below, The upper course, however, was sealed by a layer of hard *opus signinum*, which extended as a smooth 'coating' along the entire upper surface of the course (Fig 10), possibly indicating a levelling.

Above the 2nd offset, ragstone blocks were used to form a fair face, giving the appearance of a regular, coursed structure (Fig 10). This upper wail was surmounted by another course of inverted *tegulae*, which extended for the full width of the observed wall, with flanges running east-west; the most northerly tiles overlapped the northern face of the wall. It is possible that a 3rd offset may have occurred immediately above the upper tile course (which marked the surviving height of the wall), just as the 1st and 2nd offset, coincided with tile courses (Fig 10). There was a difference in the mortar used above and below the 2nd offset, probably reflecting different batches of mortar in the various constructional stages. It is not suggested that there were any significant breaks during the construction of the wall.

The core of the foundation consisted of ragstone rubble set in concrete, laid in roughly level bands. The core appears to have been bonded with the same material as the north face. The wall was broken through at one point during the excavation, revealing an incomplete width of 1.07m. The south face could not be examined as the wall formed the limit of the excavation area and could not be removed. There was no indication of the original height of the structure.

Dumping behind (north of) the riverside wall

The riverside wall retained a series of homogeneous blue-grey clay dumps (part of Group 2.1, Fig 29), which were deposited against its northern face. The dumps overlay the wall's rubble foundation course (Fig 11b) and infilled the cracks within its ragstone facing, indicating that they postdated it. The fact that the dumps sealed the foundation course may suggest that they were deposited soon after the wall had been constructed. The dumps, whose surface lay just below the 1st offset of the riverside wall, extended away from it, gradually declining in thickness until they petered out some 12m to the north (Figs 11 and 29). In the western area of the site the dumps extended further northward, probably compensating for the contours of the natural ground surface which sloped away towards the south-west (Fig 29); tip-lines within the dumps suggest that they were tipped from the north-east. The dumps therefore appear to have consolidated the low-lying and uneven ground at the base of the hillside, immediately behind the riverside wall.

Creation of a hillside terrace

A roughly level terrace was created at the base of the hillside by utilising the Group 2.1 dumping behind the riverside wall, which reclaimed low-lying ground, and terracing (Group 2.4) which cut into the base of the hillside (Fig 29). The latter probably occurred sometime after the Group 2.1 dumping; clay dug from the terracing to the north would have been brown in colour, whereas the material in Group 2.1 was blue-grey and contained some crushed building material, suggesting that it derived from elsewhere. The lack of any surfacing above the Group 2.1 dumps might argue that the interval between the two activities was short-lived, although clearance in advance of the Group 2.5 piling programme (p43), coupled with levelling of the area for the terrace, probably truncated any such evidence. The almost identical level achieved by the truncated dumps and the terrace cutting suggests that they eventually formed part of the same process, forming a terrace which extended some 26m north of the riverside wall (Figs 11 b and 29).

The completed terrace was associated with the construction of a substantial structure (Group 2.5 to 2.7) as the hillside on the west side of the site, beyond the point where the Group 2.7 foundation was to be constructed, was unaltered (Fig 11a). In addition, the terrace was only dug back the full 26m in the area of the actual foundation; in the area to the east it was only partially removed, leaving a higher platform for the construction of the northern terrace wall (Fig 29; also compare Figs 11 b and 11c). Observations of the Group 2.1 dumping also suggest that the natural hillside dropped away sharply immediately to the west of the site, as if the location of the structure was chosen to minimise the area that had to be reclaimed or levelled to the south.

Consolidation of the western area of the site (Figs 30-2)

The Group 2.1 dumps in the western part of the site were consolidated by the insertion of a number of stakes (Group 2.2) driven into the deposits from the south at a roughly 45° angle (Figs 11a and 14). These were arranged in distinct east-west rows and formed a band some 2.00m wide.

A few of the easternmost stakes were slightly deflected by the westernmost of the Group 2.5 piles, indicating that the piles had been driven in after the former. The incidence of the stakes shows, however, that they were carefully positioned to avoid the area that was to be consolidated by the Group 2.5 piles - intended to support the Group 2.7 foundation - suggesting that the angled stakes were designed to serve a different function. The proximity of these activities suggests that the stakes were used to consolidate the area immediately adjacent to the foundation, but did not form part of a base in their own right.

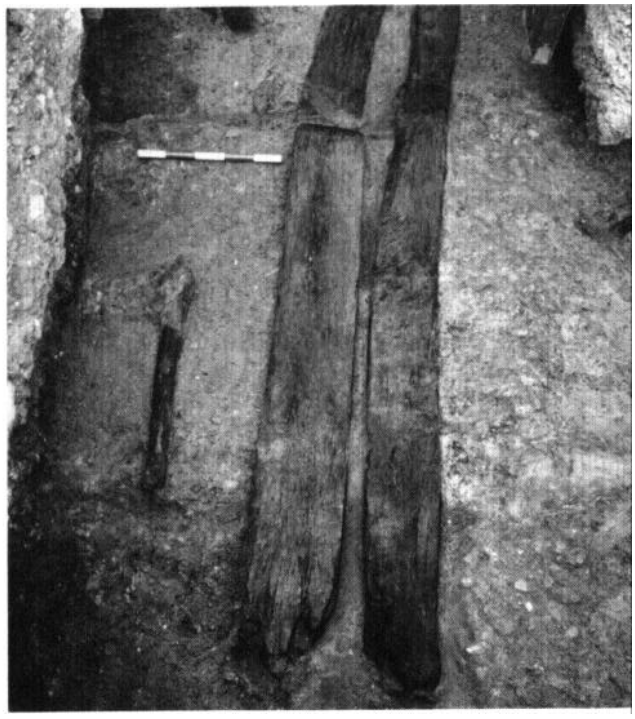
The stakes were then sealed with an alternating sequence of deposits (Group 2.3: Figs 11a and 30-2), consisting of

i) layers of timbers, orientated either north-south or east-west (the former usually stakes, the latter planks);

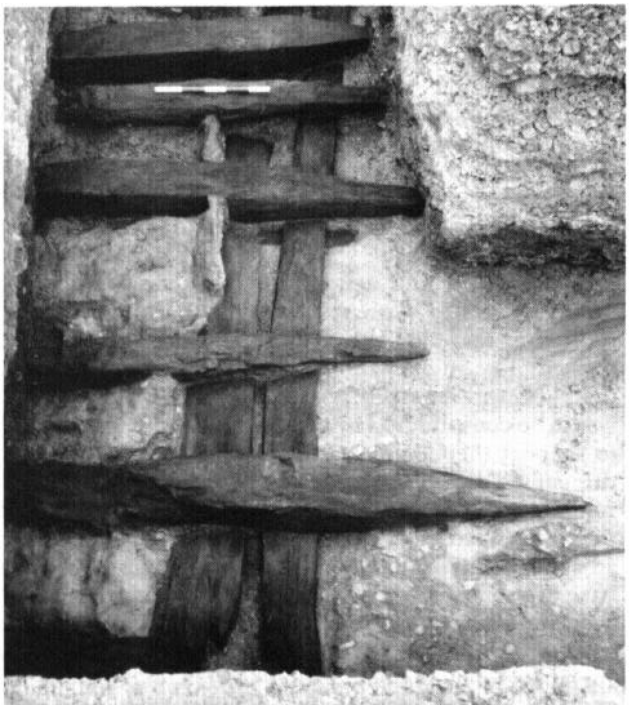
ii) dumps of sand or gravel (occasionally clay).

Fig 30 Peter's Hill; timber lattice (looking west) (Scale 5 x 0.10m)

(a) layer of sharpened timbers, laid on the natural clay.



(b) substantial planks laid horizontally on a bed of gravel and clay dumps, which sealed the sharpened timbers shown in (a).



(c) lattice of sharpened timbers, orientated north-south, overlying the east-west planks shown in (b). Intervening gravel and clay dumps can also be seen.

(d) layer of east-west planks. In the foreground, one of the north-south stakes shown in (c) is still visible. Many of the timbers showed signs of re-use.

Plate I Peter's Hill; timber slots and the second chalk raft (looking west). Note the sharp profiles of the 'slots' and the undisturbedfirst chalk raft, which formed their base. The timbers were placed directly upon the first raft, with the second raft packed around them. The oak pile support for the first raft is visible in the foreground. (Scale 5 x 0.10m)

Plate 2 Peter's Hill; monumental foundation seen from the south. The large gaps between the re-used blocks in the lowest course were infilled with a mixture of poured opus signinum and broken tiles. Above this was the coursed rubble core and ragstone facing of the main foundation. Photographed in strong sunlight. (Scale 10 x 0.10m)

Plate 3 Peter's Hill; north-south foundation, eastern elevation. (Scale 10 x 0.10m)

Plate 4 Sunlight Wharf; east-west monumental foundation, returning northwan Trench BX (looking east).. Re-used sandstone and limestone blocks formed the basal course, above which the structure sisted of coursed ragstone and concrete rubble, faced with roughly squared ragstone. A Victorian sewer, to the left, cut thgh the north-south foundation, but lay slightly too far north for the east-west foundation to have been observed during construction. (Scale 5 x 0.10m)

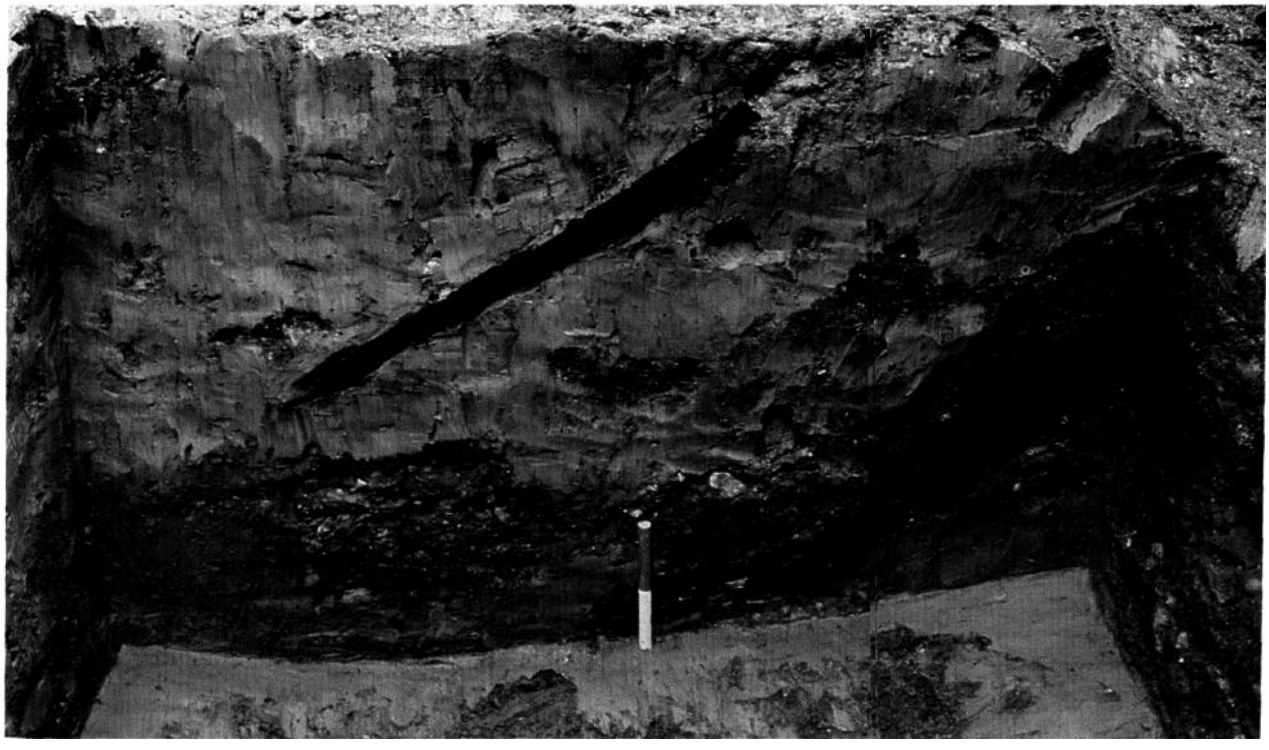


Plate 5 Peter's Hill; angled stakes driven through the dumps at the base of the hie (looking east). (Scale 2 x 0.10m)

Plate 6 Peter's Hill; a lattice of sharpened timbers, orientated north-south, overlying planks laid east-west (looking east). Some of the intervening gravel and clay dumps can also be seen. (Scale 5 x 0.10m)

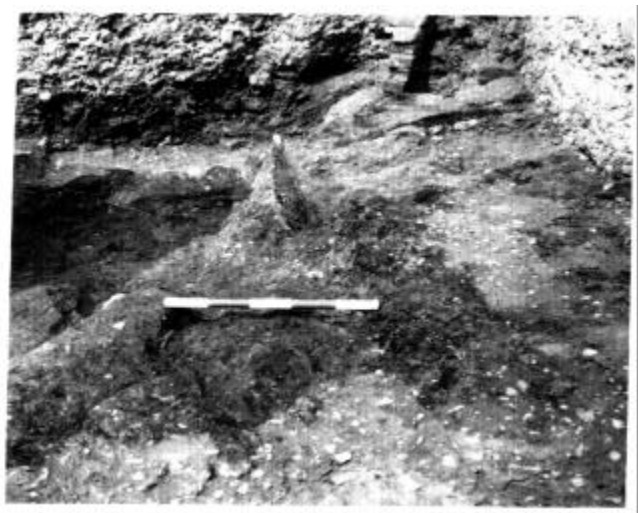


Fig 31 Peter's Hill; timber lattice to the north of Fig 30 (looking west). The absence of waterlogged deposits resulted in the timbers only surviving as traces of organic debris, interspersed within the clay and gravel dumps. (Scale 5 x 0.10m)

The timbers of one layer, with a few exceptions, did not touch those of another layer, but were separated by the intervening dumps (Fig 30). The timber lattice was not therefore constructed as a self-contained structure, with the dumps used as infilling, but was constructed in layers, with the dumping forming an integral part of the process. The horizontal sharpened timbers in the northern part of the area were not driven into the slope of the natural hillside, but were simply placed upon the underlying deposits; the natural clay slope showed no signs of having been disturbed by their insertion.

The majority of the timbers appeared to have been re-used. They often exhibited signs of having been raggedly broken prior to deposition, or had joints which were clearly superfluous to their function within the lattice; many of the timbers were also carefully finished-off (sharp cross-sections, carefully tapered points, well-cut planks, *etc).* The exceptions were some rough, circular timbers which appeared to have been largely unworked tree boles, which were probably used to supplement the re-used material. The more irregular timbers tended to be concentrated in the southern area of excavation, where the lattice was itself more irregular (Fig 32). The restricted areas of observation, however, did not allow any functional distinction to be discerned.

The lattice directly overlay the Group 2.1 consolidated make-up dumps and angled stakes, and was, in turn, completely sealed by the subsequent Group 2.10 dumping. These dumps tipped down towards the south-west, reflecting the slope of the natural ground surface (Fig 29), and largely compensated for it, although the ground still inclined gradually from north to south on completion.

The timber lattice would presumably have acted as a further strengthening of the ground, supporting it against both general subsidence and lateral shift caused by movement down the slope of the hillside. Its position, against the western corner of the Group 2.7 foundation and in a previously low-lying area, suggests that it was intended to protect the massive Group 2.7 foundation from subsidence.

Fig 32 Peter's Hill; timber lattice (to the left), respecting the western limit of the Group 2.5 pile foundation, in the south of the site (looking north). Here the lattice was less structured than to the north (cf Fig 30). (Scale 5 x 0.10m)

Timber piling (Group 2.5) (Fig 34)

Timber piles were driven into an extensive area of the prepared terrace (Fig 33). A north-south strip, some 5.20m wide, turned to the east at its southern end, forming a considerably wider east-west band, *c* 10m wide, though the angle between them was amorphously stepped rather than regular (Figs 33 and 34). The north-south element was very clearly defined and its western edge coincided with the eastern limit of the Group 2.3 timber lattice and the Group 2.2 angled stakes.

The majority of the piles (see Appendix 3 for details) were unsplit boles of oak, of a regular diameter *(c* 150-250mm) and very straight. Most still had bark adhering (Fig 14). It was not possible to record their full length, but those observed exceeded 1.75m. Some irregular timbers, only 3% of the total, were derived from a different source, and were re-used timbers, trimmed to approximately the same size as the boles. It is clear that the timbers had been selected for this foundation with some care. The only apparent variation within the piles was one of diameter, which corresponds with the use of larger piles within the wall line and smaller piles for the peripheral areas, principally the 'stepped' corner referred to above. Otherwise, the piles did not appear to have been arranged in any pattern, at least within the relatively restricted area of observation. The overall impression was one of random distribution, with some small areas blank and others clustered. The pile heads projected *c* 0.15m above the level of the terrace platform, allowing them to be keyed into the chalk raft which overlay them (Group 2.5).

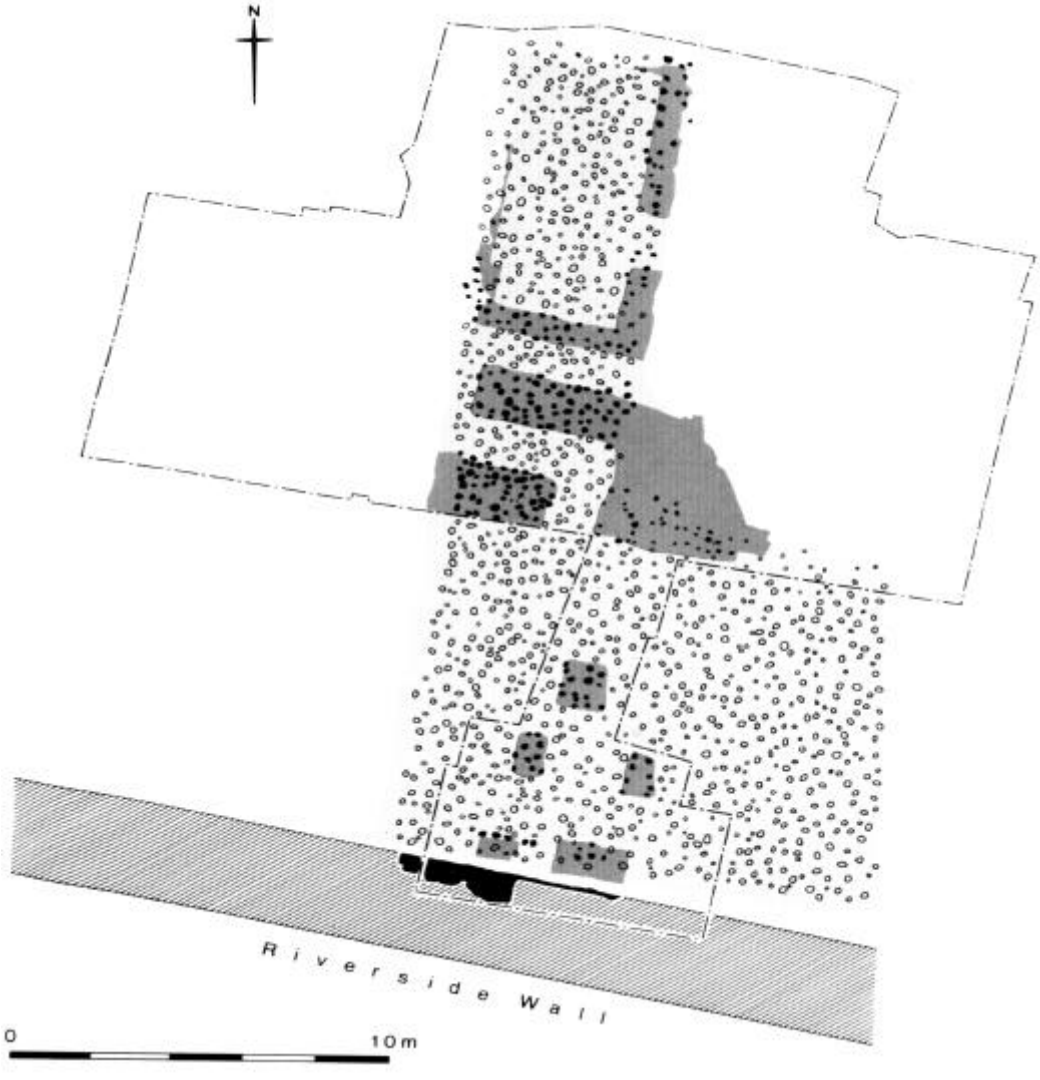


Fig 33 Peter's Hill; extent of timber piles and chalk raft foundation (Group 2.5). Piles were confined to the area of the terrace dumping (Group 2.1, Fig 29) and those areas directly beneath a subsequent masonry foundation. The conjectured nature of the evidence in the area of the masonry foundation indicated on Fig 38 is because the latter was not removed. (1 :200)

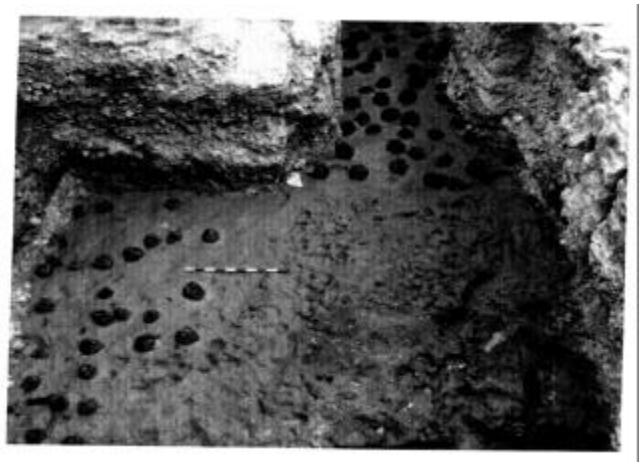


Fig 34 Peter's Hill; timber piles driven into the terrace at the base of the hillside (looking west). The preparation for the north-south (top) and east-west (left) foundations can be seen, with a 'stepped' area infilling the angle. (Scale 10 x 0.10m)

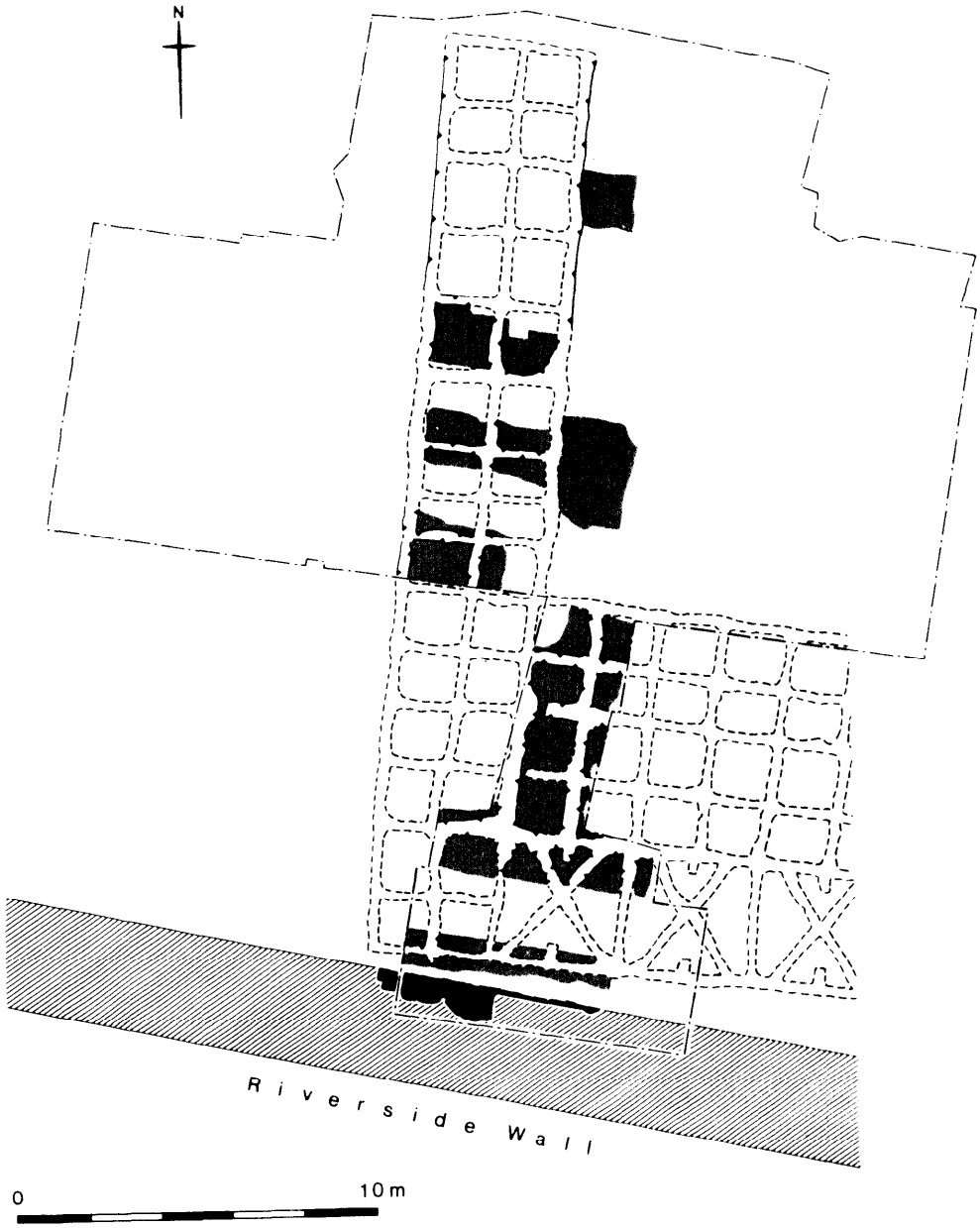


Fig 35 Peter's Hill; slots in the second chalk raft (all Group 2.6) indicate the position of horizontal timbers used to lace the foundation. The north-south/east-west pattern shifted through 45° in the south of the area. (1:200)

Chalk raft (Group 2.5)

The pile heads were sealed by a very compacted layer of chalk, approximately 0.20m thick, which was rammed flat in the vicinity of the piles, so that the surface of the chalk was roughly level with the top of the piles. The compaction of the chalk surface showed clear variations; in the areas directly overlying the piles it was rammed flat, with a smoothed upper surface, whereas to the east of the piles it was left in a rough, nodular form (Fig 16). The smoothed upper surface of the chalk doubtless resulted from the greater attention given to the preparation of the line of the Group 2.7 foundation, the more uneven chalk simply providing a general working platform. Indeed, this uneven chalk was the only element of the preparation for the Group 2.7 foundation which extended outside the line of the piles, and then only to the east; the chalk did not extend to the west of the pile line, emphasising the division between the ground to the east and west of the foundation (see below).

The function of the chalk raft was to provide a solid platform for construction; it did not form a level base, however, as the area still sloped, albeit gradually, from north to south.

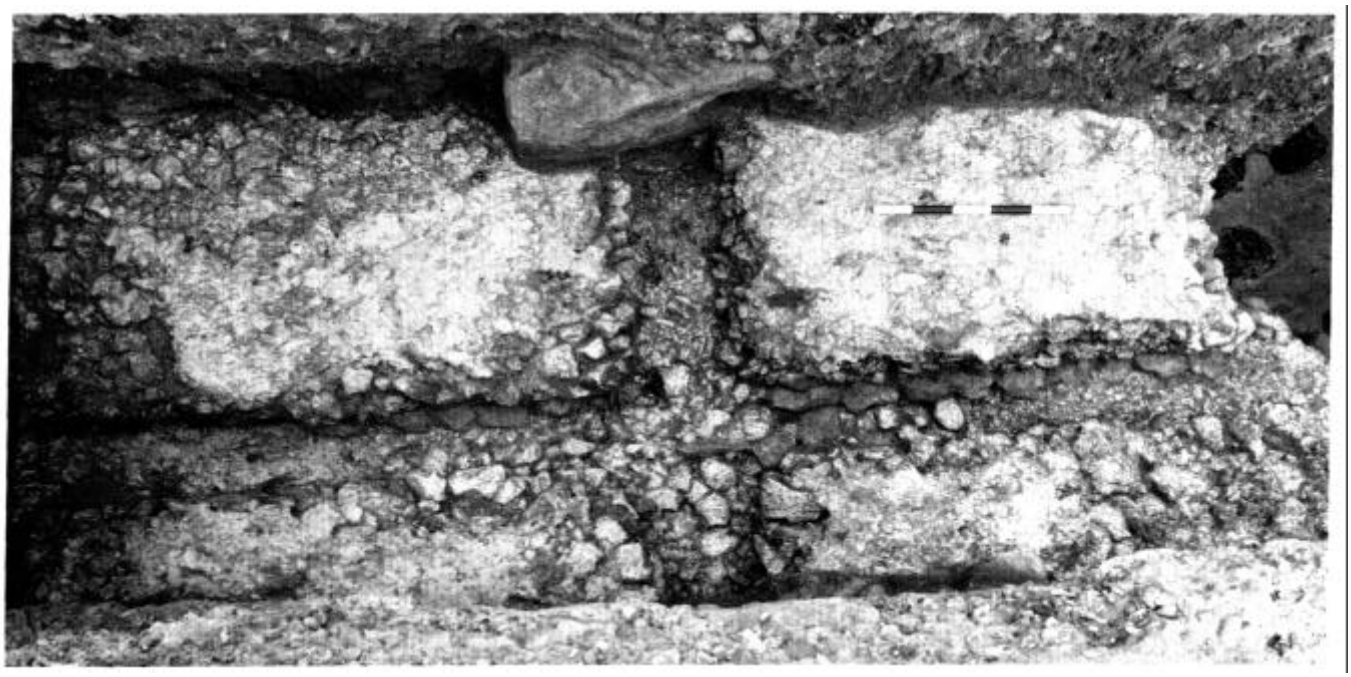


Fig 36 Peter's Hill; horizontal timbers, indicated by the slots, were supported by small fragments of tile, which were used to wedge or support the beams in place. The second chalk raft was packed around them. (Scale 5 x 0.10m)

Timber-framing and a second *chalk raft (Group 2.6)* (Figs 35-6)

A framework of horizontal timber beams was laid directly on to the Group 2.5 chalk raft in the area where the raft had been rammed smooth (the same area as the timber piling). The timbers themselves did not survive, but were represented by slots, *c* 0.30m wide and *c* 0.20 - 0.25m deep, within a second chalk raft (see below). These slots formed an intersecting pattern of features, orientated north-south and east-west in the northern part of the site, but shifting through 45º in the south (Fig 35).

The timbers must originally have been framed together as the slots indicate that they interconnected at sharp angles, and the second chalk raft, which was packed around them, showed no signs of filling angles at the junctions of the framework (Fig 35). In addition, the timbers had been positioned with some care as, in some cases, small fragments of tile or ragstone had been used to support them in place (Fig 36).

A second chalk raft was rammed around the *in situ* timbers, the surface of the chalk probably forming a level with that of the timbers. The chalk was similar in character to that of the first chalk raft, although towards the base of the layer there were small quantities of flint

Fig 37 Peter's Hill; southern area of the foundation, observed during the last stages of the excavation, when weather conditions were less than favourable. The diagonal pattern of the unexcavated slots can be seen. (Scale 10 x 0.10m)

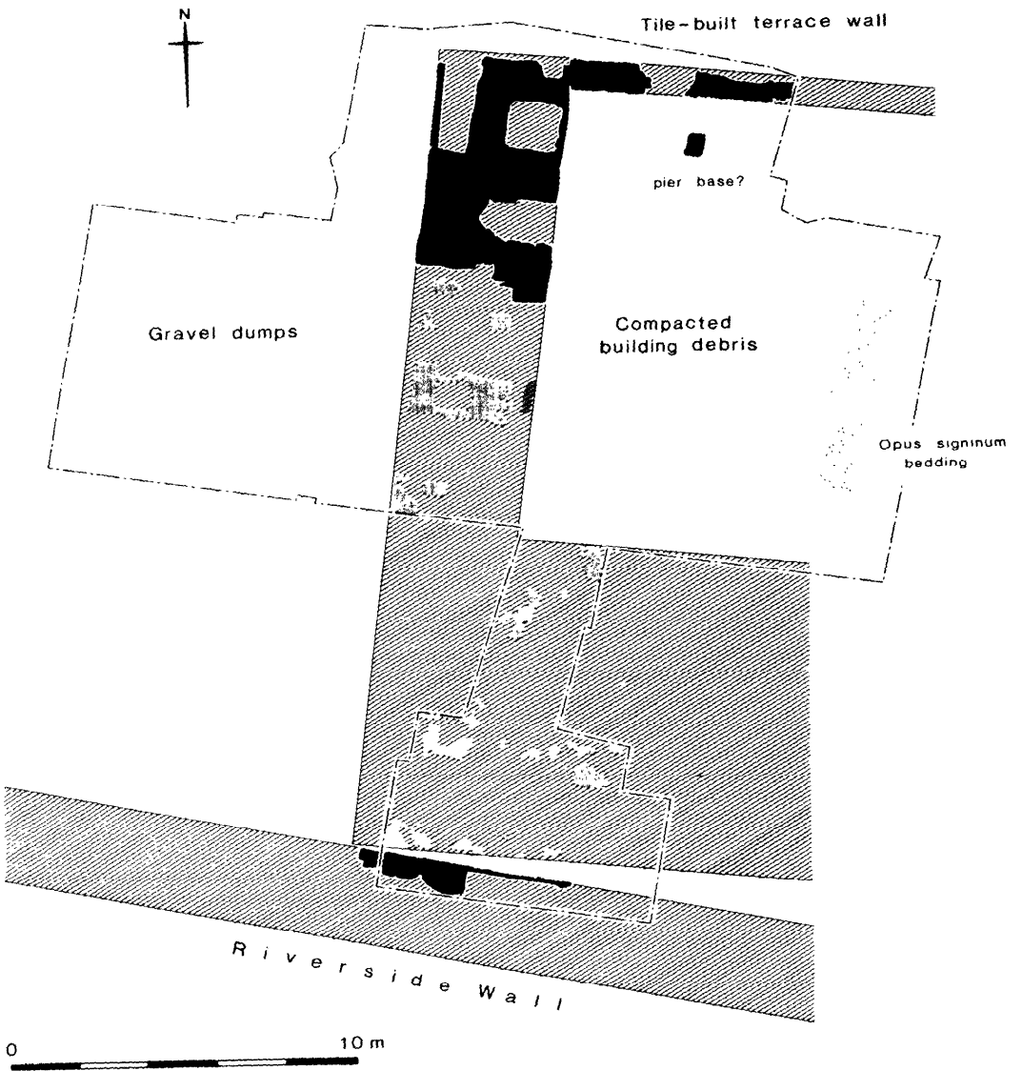


Fig 38 Peter's Hill; massive masonry foundations (Group 2.7). Conjecture has been aided by the surviving block settings (grey). ?External gravel dumps to the west (Group 2.10) and compacted dumps of building debris to the east (Group 2.11). The opus signinum bedding, preserved under an early medieval street, suggests that the entire eastern urea was surfaced with this material. (1 :200)

nodules and fragments of tile, ragstone and *opus signinum,* mixed with grey clay, giving the chalk a rather 'dirty' appearance. The surface of this chalk was, like the earlier surface, smoothed by the process of compaction. In this case, the horizontal timber framework and the chalk were the same width as the Group 2.7 foundation which sealed it.

After the compaction of the second chalk raft, the timber framework appears to have been removed. The slots left in the second chalk raft (Plate 1, Fig 36) were filled with relatively sterile clays, chalks and sands, which, combined with the absence of voids resulting from in *situ* decay, suggest that the slots had been deliberately backfilled after the timbers had been removed. The slot fills were sealed by the settings for the blocks in Group 2.7, indicating that the timbers had been removed before the rest of the foundation had been constructed. The slots were not consolidated in any way, in contrast with the care involved in the preparation of the foundation as a whole. The reason for the removal of the timbers is unknown, especially as the structural role of such a framework is attested elsewhere. However, where the Group 2.7 blocks survived, no subsidence occurred. It would appear, therefore; that the poorly consolidated slots had little effect upon the stability of the foundation, no doubt because of the substantial span of the blocks above them (see Chapter 2.4).

Masonry foundation (Group 2.7)
(Figs 38-40)

A substantial masonry foundation, some 3.75m wide in its surviving section, was constructed upon the elements outlined above; the foundation line directly overlay the timber piles, the smoothed chalk raft and the second chalk raft and the timber framework. The masonry foundation rested upon a layer of *opus signinum* which was poured over the second chalk raft and backfilled timber slots. The stone blocks of the foundations were internally supported by fragments of tile which also ensured that the blocks could be roughly levelled. Arranged in a single course, the stone blocks themselves were probably re-used. Above this the foundations consisted of a rubble and concrete core with a facing of squared ragstone blocks and tile courses. The uppermost course of the wall was capped by a further layer of *opus signinum*.

Bonding layer
A layer of *opus signinum* was poured directly onto the second chalk raft and the backfilled timber slots. It contained a number of horizontally laid fragments of tile, which appear to have been used to allow the stone blocks of the basal course of the foundation (see below) to be positioned whilst the *opus signinum* was still wet. Even so, some of the *opus signinum* was forced out under the considerable weight of the blocks, forming ridges between them (Fig 18). The tiles may also have ensured that the blocks could be roughly levelled.

Basal course
A single course of massive limestone blocks survived in the northern area of the site, over a distance of some 8.50m from north to south (Figs 38, 39, 40 and 49; Plates 2-4). At the northernmost point, the blocks 'stepped up', to three courses (Fig 39). Numerous spaces were left between the blocks within the core of the foundation, the largest some 0.81m wide. The placement of the blocks along the east and west faces was more careful, with few gaps, implying a 'facing' to this level of the foundation. The blocks were of widely varying dimensions; they were arranged by using their most common dimension in the vertical plane to form a roughly level platform. Nevertheless, this did not compensate for the gradual southward slope of the underlying chalk raft, and the foundation inclined from *c* 3.65m OD in the north to c 3.52m OD in the south, a fall of some 0.13m in 6.43m.

The impression of stone blocks within the *opus signinum* bedding, in areas where they had been subsequently robbed out, has enabled at least part of their original extent to be reconstructed (see below).

The blocks within the basal course exhibit a variety of finished faces, including some fine surfaces concealed within the body of the wall. These were of a workmanship in excess of that required for sealing within the core of the wall. In addition, some of the blocks showed signs of shaping inconsistent with their use within this foundation; for example, one block had squared corners and another an oval recess (Fig 39). It is not clear whether these stones were ever actually used in another structure, but they were clearly not originally intended for use in this foundation (see p89). Although

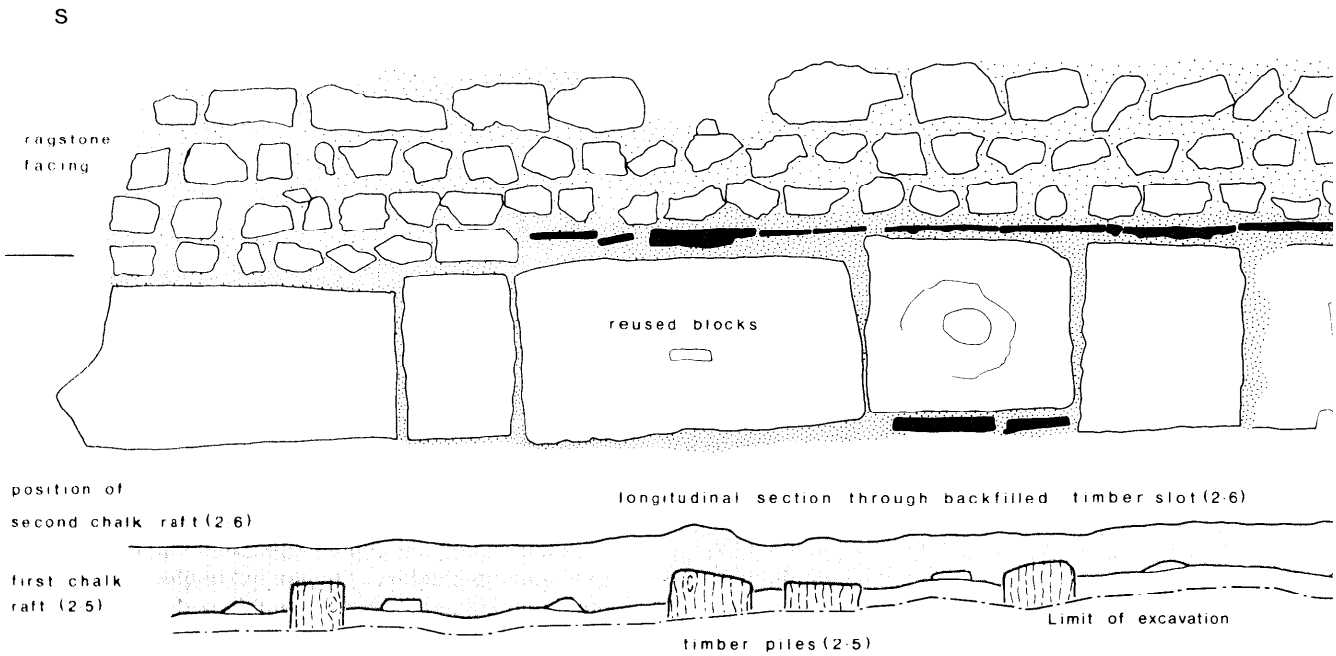


Fig 39 Peter's Hill; elevation of the eastern face of the monumental masonry foundation (Group 2.7). Note the 'stepping up' of the massive re-used blocks at the northern end of the foundation, and the tiles beneath one of the blocks, to level it roughly. The intermittent tile levelling course above the blocks was formed from inverted roofing tiles (tegulae). The second chalk raft is not visible here as the line of the elevation coincides with one of the backfilled north-south timber slots, which was framed within that raft. (1:20)

the blocks may be largely re-used, their size appears to have been utilised as an important part of the foundation technique; the blocks not only provided a solid foundation, but also allowed the weight of the structure to be spread.

The gaps left between the ill-fitting blocks (notably within the core of the basal course) had been infilled with opus *signinum* (Fig 40). Fragments of ragstone, and more commonly large fragments of tile, were also used, vertically set within the gaps (Fig 13). The tiles were usually *tegulae,* with the flanges removed, although some bonding bricks were used (one complete tile had been broken in antiquity and fragments inserted into different gaps). The tiles and ragstones presumably provided a more stable infill for the larger gaps. In addition, some of the largest spaces were also filled with a layer of horizontally laid tiles to provide a stable and level upper surface. Throughout the foundation the quantity and quality of the *opus signinum* deteriorated towards the base of the gaps, and in some places cavities were encountered. Additionally, towards the base of these gaps the *opus signinum* became mixed with loose grey silt. The *opus signinum* infilling appears to have been poured down between the blocks with little care, and without being forced down to fill the voids completely.

The general uniformity of the bonding/infilling material suggests that it was inserted as part of a single operation after the blocks had been positioned, rather than as a continuous process during the laying of the stones. The isolated patches of silt at the base of some of the gaps might indicate a short period of exposure during the interval between the laying of the blocks and the infilling.

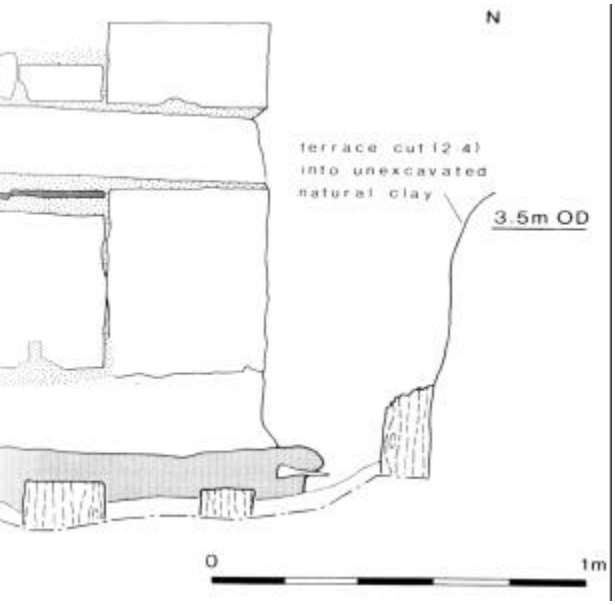


Fig 40 Peter's Hill; detail of limestone blocks in the massive foundation. Note Lewis holes. The dark material beneath the blocks was a backfield timber slot, beneath which the first chalk raft is visible. (Scale 2 x 0.10m)

Foundation core

A coursed masonry structure, which had been badly damaged by later activities, was erected on the block foundation. It consisted of courses of irregular, roughly squared, ragstones (average dimensions 0.16 x 0.11 x 0.08m), set in a matrix of very hard coarse yellow concrete, which contained frequent inclusions of coarse sand and fine pebbles. The ragstones were placed with their most regular surfaces uppermost and the mortar had been smoothed flat at these points, forming clearly definable courses within the structure as a whole (Fig 13, Plates 2-3). The eastern face of the foundation was faced with regularly squared blocks in well defined courses (Fig 39). The western face had been removed by later truncation.

At the northern end of the foundation a single tile course intervened between the course of massive blocks and the ragstone foundation. It extended *c* 2.85m southward from the northern limit of the foundation; only three ragstone courses were present in this area, in contrast to the four found to the south (Fig 39). The course consisted of a single layer of *tegulae,* with flanges removed, laid on bed. The tiles were bonded with the same mortar as the rest of the ragstone courses and the tile course was almost certainly laid as part of the same process, acting as a localised levelling operation as it was noticeable that the underlying course of blocks in this area was somewhat more uneven than to the south.

The ragstone courses also provided general levelling throughout the foundation. Given the size and shape of the blocks within the basal course, it would have been difficult to lay them in anything more than a roughly level course. The more flexible ragstone courses therefore appear to have been corrective, producing a nearly level platform in which the uppermost course dropped only 0.03m in 3.70m.

***Opus signinum* capping to the wall core**

The uppermost surviving ragstone course was capped by a layer of *opus signinum,* a material previously used only in the basal course of massive blocks. It had a

smooth and level upper surface, although it only survived in a very fragmentary condition. It may have formed a levelling-off point in the ragstone coursing, possibly suggesting that the nature of the structure above this point was of a different character. No mortar adhered the smooth surface of the layer, which might indicate the absence of further ragstone coursing. Similarly, no impressions were detected, suggesting that the *opus signinum* had been allowed to dry prior to the continuation of the structure. The level of this layer (maximum 4.09m OD) was marginally lower than that of the associated surfaces (4.30m OD - see below), which could imply that it marked the start of the superstructure (see Chapter 2.8).

Extent of the foundation

It is possible to envisage the original extent of the masonry foundation from the following evidence:

i) in those areas where the masonry foundation survived there is a demonstrable relationship between it (Fig 38), the timber piles (Fig 33), the smoothed chalk, and the timber framework (Fig 35), strongly suggesting that the distribution of these features can be taken as evidence of the position of the foundation;

ii) the *opus signinum* layer at the base of the foundation was still wet when the blocks were laid, and the impression of blocks could be seen where the blocks themselves had been robbed out in the early medieval period. The distribution of the block settings (Fig 38), corresponds to the area suggested in (i), above.

These factors suggest the existence of a comparable massive east-west foundation, returning eastward from the more fully surviving north-south feature (see p26).

The northern termination of the Group 2.7 foundation, where the massive blocks were extended to three courses (p48), occurred at the junction with the northern edge of the Group 2.4 terrace cut (Figs 11b, 38 and 39), suggesting that the foundation terminated at that point. For a full discussion of the possible layout of the structure, see Chapter 2.5.

Scaffolding, construction debris and weathering (Group 2.8 and 2.9)

In the gap between the western face of the foundation and the western limit of the terrace cut (Fig 13), a number of isolated post positions might provide evidence of scaffolding (Group 2.8, not illustrated). The gap also contained silts (Group 2.9), probably derived from the weathering of the natural to the west, suggesting that it was exposed for some time during construction. The silts were also interleaved with small quantities of mortar and ragstone chippings (also Group 2.9), which are thought to have derived from the construction of the rubble and concrete core of the foundation.

Dumping to the east and west of the main foundation, and terracing to the north

Ground to the west of the Group 2.7 foundation

The ground to the west of the Group 2.7 foundation originally had been consolidated with gravel dumps laced with timbers (Group 2.3 - p41). These were sealed, and the gap between the foundation and the terrace cut infilled, by a series of gravel and sand dumps (Group 2.l0), which substantially raised the level of the area by a maximum of 1.20m (within the excavation area - the depth may have been greater to the south). The deposits showed a tendency to slope downwards towards both the south and west, following the previously identified slope of the natural ground surface in this area (p41). They survived to a maximum height of *c* 3.00m OD, at which point they were truncated by medieval activity.

The dumps were broadly similar in character, except for the inclusion of some organic deposits which contained occupational debris. The latter are not considered as marking any major discontinuity within the dumping sequence, as the general character of the deposits above and below them showed no dissimilarities; rather, they may indicate a hiatus within the process of dumping, or simply reflect isolated rubbish disposal during the dumping sequence.

A notable exception to the main dumping sequence was a number of decayed timbers which were situated to the north of, and higher on the natural slope than, the timber lattice of Group 2.3 (Fig 31). They were badly decayed, due to then- position above the watertable, and it was therefore impossible to discern any details of cross-section or working marks. These timbers probably served a similar stabilising function to that of the timber lattice (Group 2.3) immediately to the south.

The dumping appears to represent a single phase of activity, raising the ground level to the west of the Group 2.7 foundation. There was no indication that any of the surviving deposits were used as a surface. If the suggested level of *c* 4.30m OD for the contemporary ground surface to the east is correct (p51), it is possible that as much as 1.3m has been lost. In the absence of associated surfacing it is difficult to speculate on the character of the area, although the composition of the dumps, combined with their relatively low compactions, suggests that the area was not intended to support rigid flooring and may well have been external (see Chapter 2.8).

The interface between this dumping and the timber lattice Group 2.3 was rather arbitrary. The deposits in Group 2.10 postdated the Group 2.7 foundation (a relationship that was not demonstrable for the Group 2.3 activity), but were composed of material very similar to that which intervened between the lattice timbers (Group 2.3). Furthermore, the decayed timbers within Group 2.10 suggest that it may also have been strengthened by horizontal timbers.

Ground to the east of the Group 2.7 foundation (Figs 41-2)

To the east of the Group 2.7 foundation the area was raised by a series of very heavily compacted dumps

composed of fine particles of building material (Group 2.11); primarily crushed opus *signinum*, mortar, tile, chalk and numerous fragments of marble veneer (Appendix 2; also Betts 1987b and Pritchard 1986), all of which were evenly distributed throughout the Group 2.11 dumping sequence. The dumps were laid in distinct bands of roughly uniform depth *(c* 0.15m) (Figs 13 and 19). The upper surface of each of the dumps had been very heavily compacted to form a solid and roughly flat surface. Tiles found on the surface of many of the dumps had been broken *in situ*, suggesting that considerable force had been used to tamp the deposits.

Over most of the site the dumps had been truncated by medieval activity, but beneath the later street of Peter's Hill they survived to a height of 4.25m OD, indicating an overall thickness for this phase of dumping of some 2.00m. In this area a layer of poured *opus signinum* capped the dumps (Figs 13, 20 and 41). The deposit, 0.10m thick, had a slightly uneven upper surface (at *c* 4.30m OD) which showed no clear indications of wear (see p18 for a discussion of its function). The area of the dumps was of considerable size (not less than 11.20m east-west by 14.50m north-south), which suggests that the *opus signinum* surface/ bedding may have originally extended over the whole area.

Fig 41 Peter's Hill; opus signinum bedding *surviving beneath the early medieval street of Peter's Hill. Destroyed by medieval church foundations (left) and a Victorian sewer (right). (Scale 5 x 0.10m)*

A single stone block (greensand) was found within the Group 2.11 dumps (Fig 21 and 42). The block was inserted during the dumping process, rather than at a later date, as it lay within a construction cut, cut into one dump and sealed by the next (Fig 42). As such, it was clearly intended to form an integral feature within the area. The block was placed upon a tile base, which served to level the block and indicates that some care was taken in the positioning of the stone. The block had a smooth, level surface, which was well dressed and marked by bisecting grooves, which formed a cross within the centre of the block (Fig 42). The surface of the block lay at *c* 4.34m OD, which compares with *c* 4.30m OD for the *opus signinum* surface discussed above, indicating that it stood slightly proud of, or level with, the final surface. As such, it may have provided a free-standing base/stylobate, possibly for a-column or statue (see p19).

Fig 42 Peter's Hill; greensand block, forming possible pier/column base (cf Fig 21). A faint cross is visible scored into the smooth upper surface of the block; the latter contrasts with the roughly tooled sides. The backfilled construction pit for the block is also visible. (Scale 2 x 0.10m)

Northern terrace wall (Figs 43-45)

Abutting the northern end of the Group 2.7 foundation was an east-west tile built wall (Group 2.11) (Figs 38, 43, 44 and 45). It was positioned on an artificial 'step', cut at the northern limit of the Group 2.4 terrace, which had been prepared for this construction (Figs 11c and 29). The chalk raft which was prepared for the main foundation (p45) also extended into this area, where it was rammed smooth in readiness for the tile-wall (Fig 44). Overlying the chalk was a layer of *opus signinum*, which formed the bedding for the wall. This deposit extended to the south of the subsequent wall line, where it contained numerous fragments of tile, probably debris derived from the construction of the wall.

The wall, some 0.9m wide, was well built and survived to a maximum height of l.00m (4.82m OD - truncated to 4.37m in the west). It was constructed of large tile fragments which were laid on bed, in neat courses, and bonded with large quantities of *opus*

signinum; the bonding material was not flush with the wall face, and had solidified in irregular patches over it (Fig 45). Many of the fragments were re-used flue-tiles, which had been discoloured black through use.

The wall was offset at two points: 80mm at *c* 4.30m OD and 70mm at *c* 4.65m OD (Figs 12 and 44). A spill of mortar sealed the lowest offset and spilled out for some distance over some of the compacted building debris dumps (p51), which had been dumped against the lowest levels of the wall (Fig 44). The upper courses of the wall were then constructed prior to the completion of the dumping sequence to the south. Thus a complicated constructional sequence was involved, possibly the result of one gang constructing the wall while another worked upon the compacted building debris dumps.

The wall can be inferred as having continued some distance to the east (Fig 9), since identical material was retrieved in the redeposited backfilling of a later sewer, constructed beneath Peter's Hill, which must have cut through the wall (Peter's Hill Group 11.3 - see also p72 for observations made by Charles Roach Smith during the construction of the sewer). It is probable that the structure retained a higher terrace immediately to the north.

Fig 43 Peter's Hill; junction between the built terrace wall (right) and the monumental may foundation (left). The former was constructed uporeries of chalk dumps which had been deposited against tastern face of the latter. (Scale 2 x 0.10m)

Late Roman timber building (Fig 46)

A series of compacted 'earth' floors and associated hearths (Group 7.1) indicated an internal area within the north-eastern corner of the Group 2 structures (Fig 46).

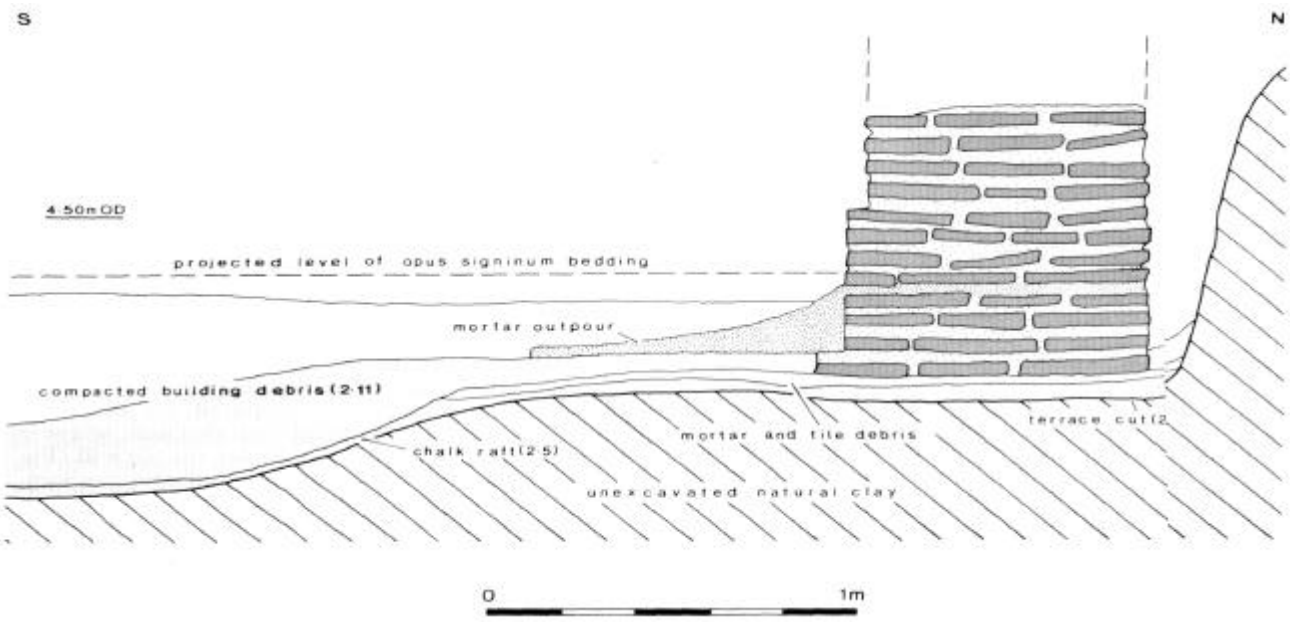


Fig 44 Peter's Hill; reconstructed section through the tile built terrace wall. The wall was constructed in twges, above and below a mortar outpouring. The chalk raft was only rammed smooth in the area of the wall; to the south is left in a rough state. (1 :20)

To the south, an east-west slot (Group 7.2) with ground fast posts may have been associated with these surfaces, possibly forming their southern limit. The tile-built northern terrace wall (Group 2.11) and part of the massive north-south foundation (Group 2.7) survived to a height greater than that of the earth floors and were probably re-used within the structure, either as foundations or as upstanding walls against which a lean-to was constructed. The structure covered an area of at least 8 x 6m.

The character of the surfaces and hearths suggested domestic occupation, a supposition reinforced by the abraded pottery found within the surfaces. The quality of these surfaces should not be underrated, although it is probable that there was never a single, uninterrupted surface; rather, they formed an interdependent group. The function of the hearths was not evident; no industrial waste was encountered in the associated debris and it is possible that they were domestic. The area around the hearths showed considerable signs of use but this cannot be taken to be representative of the structure as a whole, especially since only a small area survived later truncation.

Fig 45 Peter's Hill; detail of the tile built terrace wall, showing construction debris in the foreground. (Scale 2 x 0.10m)

Disuse and robbing of the structures

Our understanding of the disuse or destruction of the Group 2 structure is limited by the level of truncation that occurred in the area. There are, however, a few tantalising indications of subsequent conditions. As the construction of the foundation changed almost exactly at the point of truncation - a change suggested as reflecting the transition from below to above-ground construction (p50) - the superstructure might have been removed considerably earlier than the foundations, perhaps

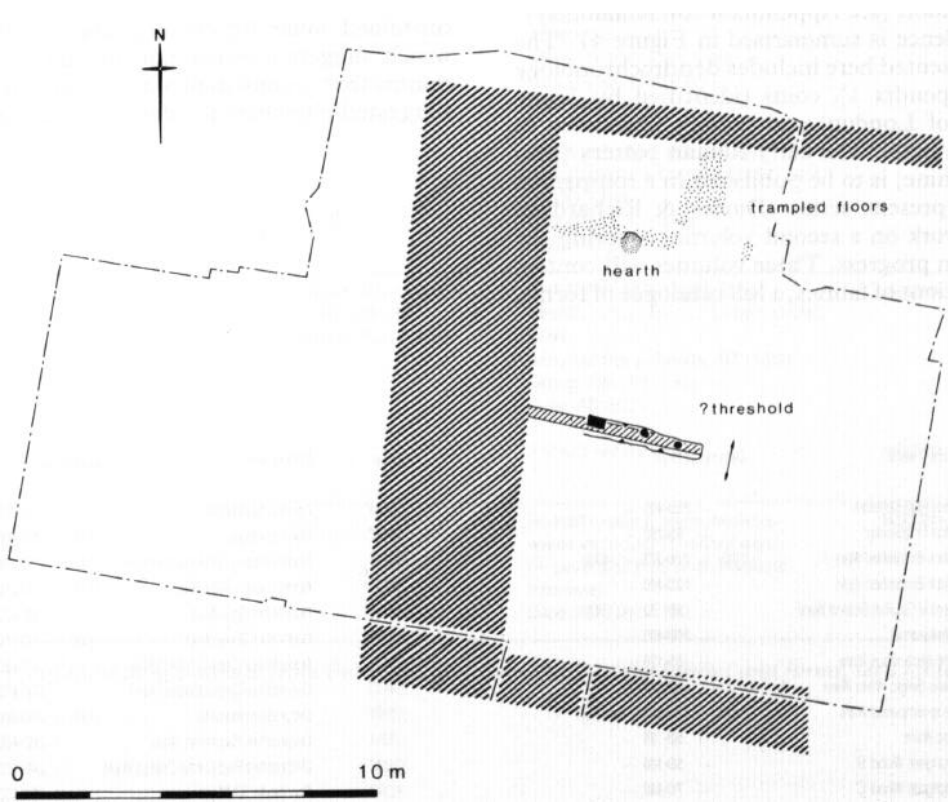


Fig 46 Peter's Hill; late Roman building (Group 7), c AD 350 +, possibly re-using some of the Period II foundations. An east-west post-in-trench wall may have been associated with an area of trampled 'earth' floors and hearths which survived truncation in the north of the area. (1:200)

during the later Roman period. The foundations themselves, only partially robbed, were not removed until the early medieval period (p56).

The late Roman domestic building, probably constructed in the second half of the 4th century (p56), appears to have re-used the north-south foundation and the east-west tile wall (above, Fig 46). The tile wall presumably survived above ground level at this time, as it supported the northern terrace. The massive north-south foundation, however, could have been used to support a timber beam and thus it cannot be inferred from this evidence that any of the massive masonry foundations carried above-ground elements into the later 4th century. Indeed, the re-use offers little indication of the survival or otherwise of the superstructure above the level of the foundations.

The sequence of occupation surfaces within the Group 7 building was truncated by early medieval activity and there is no clear indication of either the nature or the date of the building's demise.

4.3 Dating discussion (Fig 47)

(Adapted from the Archive Report by Barbara Davies.)

The extensive finds catalogues and illustrations published in traditional site reports have been omitted from this volume since its main themes are structural and topographical. Many items will be published in the forthcoming volumes on finds from London excavations (see below), and, in the meantime, copies of the detailed Archive Reports on the pottery are available from the Museum of London (see Appendix 4 for availability). The dating evidence is summarised in Figure 47. The information presented here includes dendrochronology (detailed in Appendix 1), coins (identified by Jenny Hall, Museum of London) and pottery (discussed in detail in Davies 1987). The early Roman pottery (pre-Flavian to Antonine) is to be published in a companion volume in the present series (Davies & Richardson forthcoming); work on a second volume, covering the later period, is in progress. These volumes will contain detailed descriptions of fabrics, a full catalogue of forms, and additional information about the characteristic composition of assemblages of different date. Here, therefore, it seems appropriate to include in Figure 47 a list of the main constituent wares (those clearly residual have been excluded), the date range assigned to the group as a ceramic assemblage, and data about the size of each group, expressed as a weight in kilograms. A key to the fabric codes themselves is provided in Figure 47, which also shows the date range currently assigned to each ware. It is hoped that this limited presentation will allow for future reassessment, should this become necessary as pottery research proceeds.

Early activity (Group 1)

It was not clear, on stratigraphic grounds alone, whether this feature pre-dated all of the Group 2 activities (p39). The pottery was, however, typical of Trajanic groups *(c* AD 100-120) throughout the City (Davies 1987, 1), and most probably represents the only trace of earlier activity on the site.

Riverside wall and dumping against its northern face (Group 2.1)

No dating evidence was retrieved from the actual construction levels of the riverside wall. A relatively small assemblage of pottery was found in the dumps to the north, which are thought to have been deposited soon after on stratigraphic grounds (p41). The majority were abraded 1st century forms, but the group also contained some 3rd century fabrics (Davies 1987, 2), which suggest a broad date for the deposition of the dumps that is consistent with the date of *c* AD 255-270 suggested elsewhere for the riverside wall (p13).

Code	Pottery ware	Dale range (AD)
AHFA	Alice Holt/Farnham	— 250-400 —
AHSU	Alice Holt/Surrey	— 55-160 —
BB1	Black-Burnished Ware 1	(105) — 120-275 — (400)
BBS	Black-Burnished style	— 120-400 —
CGGW	Central Gaulish Glared Ware	— 50- 70 — (90)
EIFL	Eifelkeramik	— 200-400 —
FMIC	Fine Micaceous Ware	— 55-120 —
GBWW	Gallo-Belgic White Ware	— 50- 70 —
GROG	Groig-tempered Ware	(50) — 150-250 — (400)
HOO	Hoo Ware	— 50- 95 —
HWB	Highgate Wood 'B'	— 50-100 —
HWC	Highgate Wood 'C'	— 70-160 —
KOAN	Koan amphora	— 50- 95 — (150)
LOEG	Local Eggshell Ware	— 70-120 —
LOMA	Local Marbled Ware	— 70-120 —
LOMI	Local Mica-dusted Ware	— 70-120 —

Code	Pottery ware	Date range (AD)
LONW	London-type Ware	— 70-120 —
MHAD	Much Hadham	(200) — 325-400 —
NACA	North African cylindrical amphora	(150) — 250-400 —
NGGW	North Gaulish Grey Ware	(150) — 180-250 — (400)
NKGW	North Kent Grey Ware	— 100-200 — (220)
NKSH	North Kent Shelly Ware	(55) — 80-150 —
NVCC	Nene Valley Colour Coated Ware	— 150-180 — (400)
OXCC	Oxfordshire Colour Coated Ware	— 270-400 —
OXMO	Oxfordshire mortaria	(130) — 230-400 —
OXPA	Oxfordshire Parchment Ware	— 200-400 —
OXRC	Oxfordshire Red Colour Coated Ware	— 240-400 —
PORD	Porchester 'D' Ware	— 350-400 —
RDBK	Ring-and-dot beakers	— 50- 90 — (100)
RHOD	Rhodian amphora	— 50-150 —
VRG	Verulamium Region Grey Ware	— 50-180 —
VRW	Verulamium Region White Ware	— 50-180 —

Structural context	Dendrochronology	coins	Pottery	Suggested date for phase
Pit (Group 1)	—	—	FMIC, HWC, LOMI RDBK, VRG, VRW Group size: 0.876 kg Date: AD 100- 120	early 2nd c.
Dumping behind (to N) of Riverside Wall (Group 2.1)	–	—	Chalk type 6 amphora, C186, HWB, HWC, KOAN, LOND, NGGW (+ 1 sherd post-medieval intrusive) Group size: 0.375 kg Date: AD 200 +	3rd c.
Consolidatlon and dumping, W part of site (Group 2.3)	–	—	GROG, HWB, HWC, LONW, VRW (+ 2 sherds early medieval intrusive) Group size: 0.853 kg Date: AD 100- 120	late 3rd c
Piles below masonry foundation (Group 2.5)	winter AD 293/4 (one) summer AD 294 (eleven) AD 294/5 (one)	—		AD 294
Timber framing and chalk raft below foundation (Group 2.6)	8 BC or later AD 35 or later (incomplete and probably roused)	—	AHFA, BB1, DR20, HWC, LOND, MHAD, NVCC, OXCC, OXRC, PORD (intrusive?), VRW (+ medieval sherds intrusive from later robbing) Group size: 1.358 kg Date: AD 270 +	AD 294 +
Construction debris from foundation (Group 2.9)	—	—	Group size: 0.049 kg	AD 294+
Deposits (?external) to W of foundation (Group 2.10)	—	—	AHFA, AHSU, BB1, C186, CGGW, DR20, FMIC, GBWW, GROG, H70?, HOO, HWB, HWC, KOAN, L555, LOEG, LOMA?, LOMI, NACA, NKSH, copy DR 38 (OXCC?), PE47 PORD (intrusive), RDBK, RHOD, VRG, VRW Group Size: 11.676 kg Date: AD 270 +	AD 294 +
Deposits (?internal to E of foundation (Group 2.11)	—	—	AHFA, BB1, BB2, BBS, NKGW, NVCC, OXCC?, OXPA?, OXRC, PE47 RHOD, VRW Group Size: 1.633 kg Date AD 300-350	AD 294 +
Internal surfaces (Group 7.1)	—	House of Constantine, AD 330-335 radiate, AD 250-300	AHFA, BB1, BB2, DR20, EIFL, MHAD, NACA, NVCC, OXMO, OXRC, VRW early medieval sherds, AD 1150+ Group size: 1.511 kg Date: AD 350+	mid/late 4th c.
Fill of beam slot (Group 7.2)	—	—	1 sherd not datable	mid/late 4th c.
Medieval robbing of Group 2 structures (Group 2.13)	–	—	Roman residual, early medieval wares including ?Thetford ware (+ several sherds post-medieval intrusive) Date: AD 1050-1150	11th/12th c.

Fig 47 Summary of the dating evidence from Peter's Hill. (For details of the fabrics and forms, see Davies & Richardson forthcoming.)

Construction of the complex

The dendrochronological date of AD 294 for the main timber piled foundation (Group 2.5)[1] provides an accurate construction date for the complex (Appendix 1).[2] The ceramic evidence would appear to support this date; wares of AD 270 + were found in association and these, coupled with the absence of later, distinctive, 4th century forms, would appear to support the argument that the complex was constructed in or around the last decade of the 3rd century (Davies 1987).

The derivation of the Group 2 dumps and variations in the pottery assemblages

A large quantity of the pottery retrieved from Group 2 was of abraded 1st and early 2nd century forms, the suggestion being that this material was redeposited as a result of the quarrying of earlier deposits (perhaps from higher on the hillside) for the levelling/terracing dumps within the complex. Many of the assemblages contained no late Roman material, despite being associated with this phase of construction and, therefore, by implication, dating to the end of the 3rd century. This would seem to indicate that the deposits were unadulterated by late Roman rubbish disposal; a fact that would appear to be consistent with the impression of order and care with which the construction was undertaken.

The largest assemblage of residual material (11,676 grams) was within Group 2.10, the dumped gravel and sand make-ups. This may be consistent with the scraping up of earlier material during quarrying on the slope to the north of the site. It would have been inappropriate to have dumped contemporary organic rubbish within these make-ups, as their *raison d'être* was not simply raising the ground level, but also consolidating it in a very through manner.

The exception to the general pattern of ceramic assemblages was the Group 2.11 dumps. These had elaborately consolidated the area to the east of the Group 2.7 foundation. The assemblage from these dumps contained very little residual material, with a proportionally larger group of late Roman wares (residual forms: 11.5% by weight, compared to 100% in Group 2.3 and 99% in Group 2.10). The explanation for this is probably the source of the material used in the dumping processes. The character of the Group 2.11 dumps, which were largely composed of crushed building material, contrasted with the predominantly gravel dumps of Group 2.3 and Group 2.10. The suggestion is that the gravels derived from terracing/ extraction elsewhere on the slope and the cultural material derived as a by-product of this action was, therefore, heavily residual. The Group 2.11 material, in contrast, appears to have derived from the demolition of a substantial building, including fragments of marble (veneer and moulding), which have also been suggested as being 3rd-century in date (Pritchard 1986,187). (The character of the building demolished is discussed in Chapter 8.1). The presence of 3rd century pottery within the Group 2.11 make-ups would, therefore, seem to be a result of it deriving from more contemporary activities than those of the gravel dumps.

The late Roman building (Group 7) and the disuse of the Period II complex

The construction of the Group 7 building, in the 'internal' area of the Group 2 complex, appears to have occurred some time after AD 330 (slightly worn coin of Constantine, AD 330-5), or more probably, after AD 350 (pottery). The assemblage contained very little early, residual, pottery (3.27% by eves and 3.07%, by weight), and 'the relative homogeneity of the Roman assemblage suggests that it is likely that the building was of late Roman date' (Davies 1987, 8). This homogeneity is also consistent with the interpretation of the deposits as occupation horizons. The abrasion of much of the late Roman pottery would also appear to be consistent with its position within the trampled floor surfaces of the building. The length of the building's occupation is unclear. Most of the pottery forms can only be placed within the broad framework of the mid-4th to the early 5th centuries AD. The number of replacement earth floors and hearths suggests that the occupation was of some duration, although the frequency with which such features were replaced is not sufficiently well understood to make any precise chronological statements.

The duration of the Group 2 occupation is unclear, as it is not known how long elapsed between the disuse of the Group 2 structures and the construction of the Group 7 building, although on this evidence, it would appear to have had a maximum life of some 50-70 years.

Robbing of the Period II foundations

The robbing of the Group 2.7 foundations occurred some time during the 10th and/or 11th centuries. There is no evidence to suggest that any part of the below-ground foundation was removed before that time. However, no date can be ascribed to the removal of the above-ground elements.

5. SUNLIGHT WHARF

Grid ref: (TQ 3210 8089)
Site code: SUN86.
Archive report: Tyler 1987 (see Appendix 4 for availability).

5.1 The Site

Between July and August 1986 five trenches were excavated as part of the redevelopment of Sunlight Wharf. The site lay immediately to the south of the Salvation Army Headquarters, beneath a disused stretch of Upper Thames Street (Fig 2).

Originally this area was to be covered by watching brief facilities, allowing access for the drawing of sections and the basic retrieval of material. Five areas were explored (Trenches BW, BX, BY, BZ and CA; Fig 48). However, after the machine excavation of two areas (Trenches BW and CA) it became clear that more substantial archaeological access was required. Two weeks were obtained to make a detailed record of Trench BX, which revealed a substantial structure. This time was adequate for the basic recording of the foundations exposed, but it did not allow for controlled excavation, and the feature was subsequently partially destroyed by the piling programme for the modern development (a substantial area of the foundation was, after negotiations, preserved between the pile positions). At a later date, a further area (Trench BY) was machine cleared by the developers and limited access was given for the preparation of plans and records of the exposed structures. Nevertheless, the time was insufficient to allow a fuller record of the stratigraphy to be completed, or for the removal of any of the structures under controlled conditions.

In the Archive Report for the site (Tyler 1987), Group 1 encompasses the Roman strata. It is subdivided into thirty-one parts (Groups 1.1 to 1.31; 1.1 to 1.9 in Trench BX, 1.10 to 1.20 in Trench BY, 1.21 to 1.24 in Trench BW, 1.25 to 1.27 in Trench BZ and 1.28 to 1.31 in Trench CA).

5.2 The Excavation

The sequences observed within the five trenches (BW-BZ and CA) were very closely comparable. The evidence is discussed below, under broad headings which characterise the constructional sequence.

Dumping to prepare the area

The earliest activity in each of the areas (Groups 1.1, 1.10, 1.21, 1.25, and 1.28) consisted of compacted dumps - mainly clays, with some silts and 'rubbish deposits' (oyster shells and crushed building debris). The surface of the dumps formed a roughly level platform, where exposed. They consolidated and raised the ground surface in the area, which would have lain at the foot of the natural hillside. Although not adequately observed, it is probable that they were part of the reclamation of an area of marginal land close to the contemporary river's edge (see p13).

Timber piling

Driven vertically into the consolidated dumps were a number of oak piles (Groups 1.2, 1.11, 1.22, 1.26 and 1.29), the heads of which projected some 0.15m above the level of the dumps. An insufficient area of piles was exposed to suggest any pattern to their arrangement. During the watching brief, however, they were observed to have extended over the whole of the area. The majority of the piles recorded were complete boles (71°), in most cases with the bark still adhering, and roughly sharpened to a point at their bases. A few timbers showed signs of re-use, with rectangular cross-sections (the proportion of the latter is artificially high as they were singled out for removal because of their unusual and potentially informative nature - the true ratio with the unworked boles would have been significantly lower if full retrieval had been possible).

The piles averaged 0.20m in diameter (minimum 0.15m - maximum 0.26m) and 2.73m in length (minimum 2m - maximum 3.60m). Thus, although within a broadly similar range, the sizes of the piles did not fit into a close group. In particular, there was considerable variation in the length of the piles - a factor which did not correlate with their diameter: the longest pile had the narrowest diameter. Once again, these variations are distorted by the high sampling of the re-used timbers, and the unworked timbers demonstrated a markedly tighter grouping of characteristics.

Chalk raft

The pile heads were surrounded by a very compacted layer of crushed and nodular chalk (Groups 1.3, 1.12, 1.23, 1.27 and 1.30). This had been rammed, forming a roughly level surface with the pile crowns. Where it served as a foundation for subsequent construction the upper surface of the chalk raft was smooth and roughly flat, forming a very solid base. Elsewhere, the finish to the chalk was noticeably more uneven, although it still provided a solid and compacted platform.

In the most northerly trench (BZ) the level of the chalk surface was approximately 3.9m OD, whilst in the other areas it varied between 2.4m and 2.6m OD. This difference, of approximately 1.5m, suggests that some form of terracing occurred towards the north end of the site. Elsewhere, the raft appears to have formed a roughly level platform, sloping down slightly towards the south.

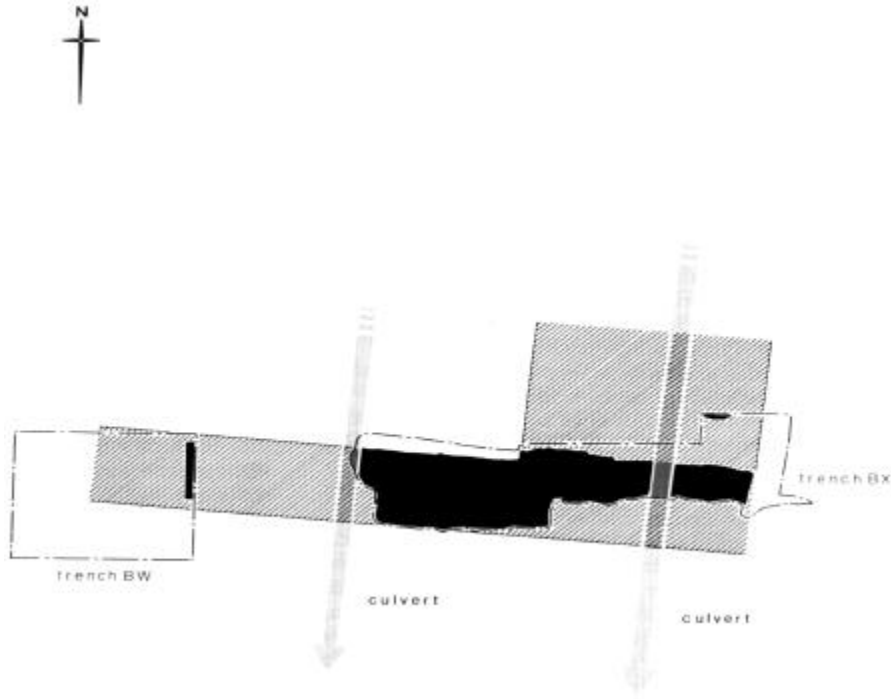


Fig 48 Sunlight Wharf; monumental foundations. Note that the eastern walls are of unknown width, having only been observed in *small trenches. The north-south foundation did not appear in Trench BZ, and it is probable that it turned east (?and/or west) at this point. Blue arrows indicate the possible watercourses (cf Fig 4). (1 :200)*

Foundations and culverts in Trenches BX and B W (Figs 49-52)

Timber-framing and a second chalk raft

In Trench BX a second compacted chalk raft directly overlay the first (part of Group 1.3). This layer, in contrast to the first, contained some impurities (small quantities of tile and larger proportions - up to 50% in one deposit - of crushed *opus signinum).* Nevertheless, it formed an equally substantial and solid foundation raft.

A series of slots in the second chalk raft formed an interconnecting pattern. These slots are interpreted as having been formed by timber beams placed upon the smooth surface of the first chalk raft, with the second raft being rammed in around them; in the straight sides of the slots the chalk nodules appeared to have been compacted against the timbers. The slots were orientated at a 45º angle to that of the foundation, forming a diagonal pattern.[3]

The slots were backfilled with clays, some of which contained a large quantity of molluscs, possibly deriving from foreshore material. These fills might suggest that the timbers had not decayed *in situ,* but were removed and the slots backfilled during the construction process.

For a discussion of the function of the timber lacing, see Chapter 2.4.

Bonding layer

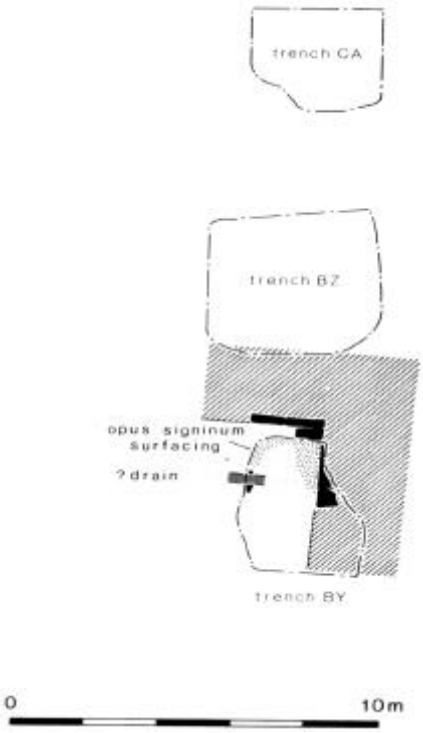
A layer of poured *opus signinum* (Group 1.5) overlay the upper chalk raft (Group 1.3) and sealed the backfilled slots (Group 1.4). This material was apparently still semi-liquid when the large stone blocks of the overlying Group 1.6 foundation (see below) were positioned, as the mortar was partially displaced and forced up the sides of the blocks by their weight. Large fragments of tile, laid on bed within the mortar, may have been used to provide support during the drying stage and/or acted as a rough levelling device (given the irregular size of the Group 1.6 blocks). Insufficient blocks, however, could be removed to test this hypothesis adequately.

In those areas where the overlying Group 1.6 blocks had subsequently been removed the line of the foundation could be seen where the *opus signinum* settings, with clear block impressions, remained.

Masonry foundation

Set on the *opus signinum* and tile base (Group 1.5) was a massive 'L-shaped' masonry foundation, some 2.30m wide (east-west) and 6.30m wide (north-south) (Plate 4, Figs 48-51). This comprised massive stone blocks, which supported a substantial ragstone and concrete foundation, laced with tile courses.

The massive stone blocks were laid in a single course, except along the eastern face of the north-south



Sa tkn the massive stone blocks (and sealing/ continue the the culverts of Groups 1.7 and 1.8; see below), s aas a substantial coursed foundation. The foundat was was faced with roughly squared ragstone blocks (agerage 0.15m x 0.1m x 0.1m), laid in courses and bon will with the same concrete as the core of the foundat Fig(Fig 50). There was some spatial variation in the mat. us11 used; in the south face of the east-west elementomaome roughly squared sandstone was employelthethough it was not clear in the limited area exposed theether there was any pattern in its use. The most noe diile difference occurred in the western face of the norbuthouth element, where the foundation was offset in step: steps above the third course (Fig 50). The conjoinirortnorthern face of the east-west foundation, which svedived to an equal height, clearly lacked any such fea. 'e.

Tbresore consisted of ragstone, chalk and brick rubble, sn coin coarse sandy concrete. This was roughly coursed, ar Fur 'bands' being observed, varying from 0.22m to 0m30m in thickness (Plate 4). Above this two courses ondillinding bricks extended between both faces of the ewestwest foundation, completely spanning its width. 'the the east, where these did not survive truncatiche the rectangular impressions of the first course wobseobserved in the upper mortar of the core, also indieg thog that they had extended to the east of the culvert (148). 48). Above the tile courses in the west, the remnants a Iii a further concrete and rubble course existed, icatilcating a vertical continuation of the foundatic

foundation, and also along the south face of the east-west foundation; in the west, where the upper elements of the foundation had been truncated, a layer of *opus signinum* with the impression of a second course of blocks indicates its continuation. The northern and western faces of the foundation, and the core of the structure, did not have this second course of blocks, and were continued in a different form (see below).

The blocks varied considerably in size - the largest observed being 1.38m x 0.43m x 0.26m, whilst the smallest was 0.43m x 0.27m x 0.93m. Most of the blocks were not, however, fully observed, as they were partially sealed within the body of the foundation, often with only one face exposed. Of the 31 blocks observed, 17 were limestone and the remainder sandstone (Appendix 2; see also Betts 1987a). The blocks were arranged with an irregular horizontal pattern, but where possible appear to have been placed with an emphasis upon the selection of similar dimensions for the vertical scale, providing a roughly level upper surface to the course (Figs 49 and 50).

The blocks showed numerous signs of re-use, in particular the presence of well dressed faces concealed within the body of the foundation. The blocks could not be fully observed during the excavation, but during the watching brief they were observed for signs of more elaborate workmanship or decoration. No such embellishments existed.

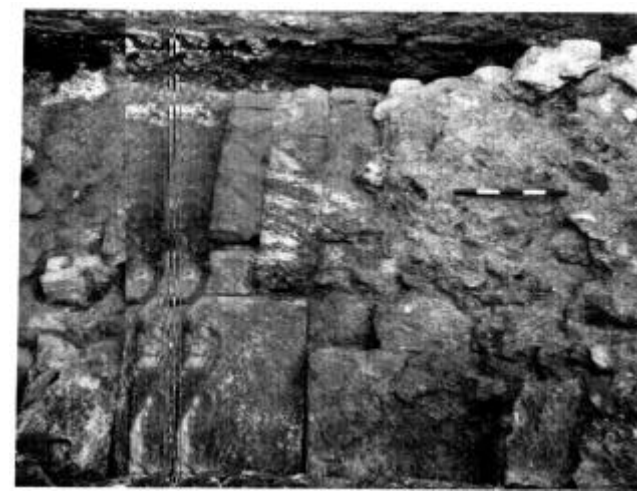


Fig 49 Wightlight Wharf; monumental foundation in Trench Boitheoith the Victorian sewer in the background (looking n). M). Massive re-used blocks were arranged in the basal ce tose to present their narrow sides to the face of the foundc. Two. To the left, where the blocks have been removed, tile tile and opus signinum block settings are visible. Tde rige right, the coursed ragstone rubble and concrete cd theff the foundation survives. (Scale 5 x 0.10m)

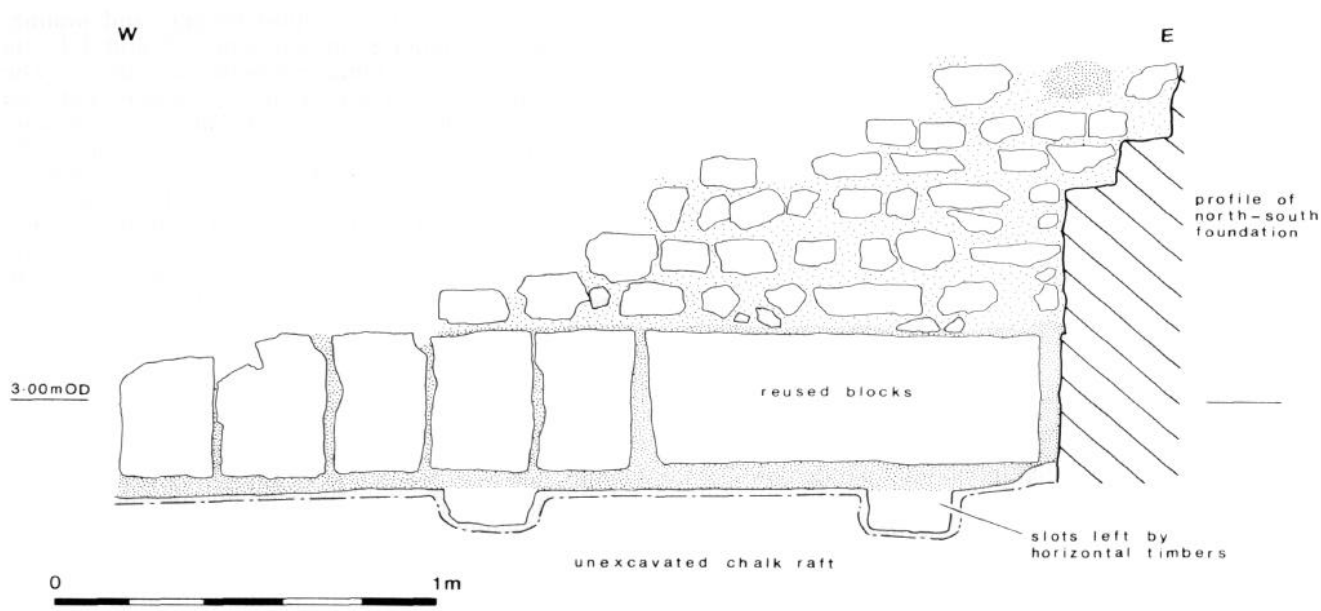


Fig 50 Sunlight Wharf; elevation of the northern face of the monumental masonry foundation in Trench BX. (1:20)

Culverts

A north-south culvert (Group 1.7) was constructed upon the stone blocks (Group 1.6), within the body of the foundation (Figs 22, 48, 51 and 52). The lower courses of the culvert walls were constructed from bonding bricks, mortared with a very hard *opus signinum*, whilst at a higher level it was continued by the main core of the foundation (Group 1.9), faced with squared ragstone blocks (Fig 52). The base of the culvert was constructed of tile fragments set in *opus signinum*, and sloped gently down towards the south. It is evident that construction of the culvert commenced prior to the core of the main foundation (Group 1.9) and that it was then incorporated within the latter's ragstone facing. Thus, the culvert appears to have formed an integral part of the initial construction of the foundation, rather than been a later insertion.

Fig 51 Sunlight Wharf; monumental foundation and culvert (looking south-west) - (Scale 10 x 0.10m)

To the west a second feature (Group 1.8) lay close to, and ran under, the limit of excavation. Three uneven courses of ragstone, bonded with a sandy mortar, abutted the basal course of stones in the foundation (Group 1.6) on their northern side. Above these, and extending into the core of the foundation above the Group 1.6 blocks, was a layer of tile fragments bonded with *opus signinum*. It is probable that this feature represents the remains of a second north-south culvert, in this case piercing the east-west foundation. No side walls survived, due to the later robbing of the foundation, but the similarity of the construction of the base with that of the Group 1.7 culvert strongly argues the case. The ragstone construction abutting the northern face of the foundation was probably designed to carry the culvert to the north.

The function of these culverts is discussed in Chapter 2.3 (p20-1).

Foundations in Trench BY (Fig 53)

In Trench BY a north-south foundation was uncovered (Figs 48 and 53). This was similar in construction to that already described in Trenches BX and BW (above); a layer of poured *opus signinum* (Group 1.13) with horizontally bedded tiles was laid directly onto the chalk

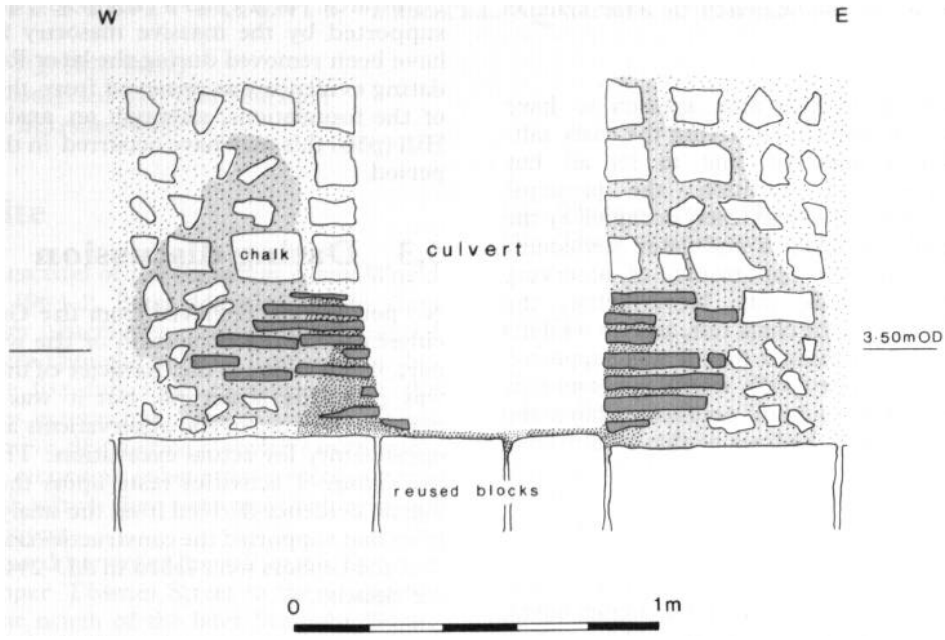


Fig 52 Sunlight Wharf; cross-section through the culvert in the north-south foundation in Trench BX. It was constructed as an integral part of the foundation, initially with tile courses and then with ragstone facing to the foundation core. (1:20)

platform. This layer acted as a base for a north-south masonry foundation (Groups 1.14, 1.15 and 1.16). The lowest (basal) course consisted of massive stone blocks (Group 1.14) set directly into the still wet bedding *opus signinum*. The core of the structure (Group 1.15) consisted of coursed ragstone and chalk rubble set in concrete. The western face was 'rendered' with a coarse sandy *opus signinum* (Group 1.16). The eastern face of the feature was not observed, so that a width for the foundation was not established. No second chalk raft or horizontal timbering was noted in this area, probably because of the limited nature of the observations.

Abutting the north-south foundation was another masonry feature, aligned east-west (Fig 48) (Groups 1.17, 1.18 and 1.19). This feature was only very partially observed, given its position at the edge of one of the modern pile holes, and understanding of it is necessarily limited. The basal course of the foundation consisted of massive stone blocks (Group 1.17), all greater than 0.45 x 0.50 x 0.92m. The blocks had been squared off and well dressed faces were concealed within the body of the structure, indicating re-use. This course had been partially removed in antiquity, possibly during the later medieval robbing of the area (p62). This foundation was not set into an *opus signinum* base, as the other features discussed had been, although the blocks themselves were bonded together by *opus signinum* (Group 1.19).

Overlying Groups 1.17, 1.18 and 1.19 was a possible poured *opus signinum* surface (Group 1.20), with an associated east-west drain/gutter (width 0.30m and depth 0.04m). The gutter was constructed of a single tile course set in the *opus signinum* surface (Fig 48). There was no indication of any higher elements to the feature, and its shallowness suggests that it formed a small gutter or eaves-drip.

Foundations in Trench CA

An enigmatic coursed brick structure (Group 1.31), bonded with *opus signinum*, directly overlay the Group 1.28 dumps; its relationship to the timber piles (Group 1.29) and the chalk platform (Group 1.30) was not recorded. Unfortunately, the scarcity of information concerning this feature does not allow its significance to be adequately assessed.

Trench BZ

In Trench BZ nothing was recorded overlying the make-up dumps, piles and chalk.

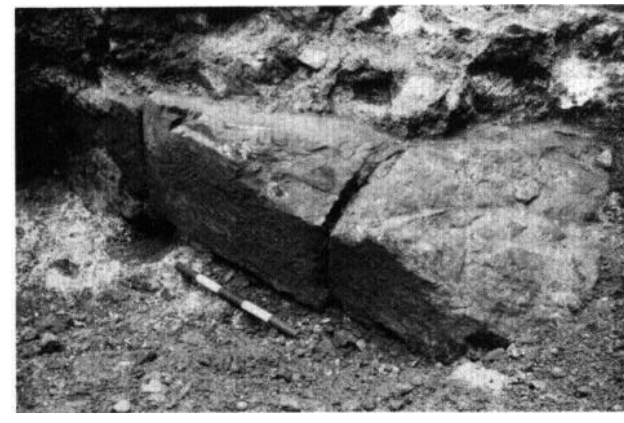


Fig 53 Sunlight Wharf; portion of monumental foundation uncovered during watching brief in Trench B Y (looking north-east). (Scale 5 x 0.10m)

Non-structural sequence above the chalk raft

The later truncation of this area appears to have removed all traces of material overlying the chalk raft; the latter probably survived due to its all but impenetrable nature. In addition, the principal excavation area, Trench **BX,** was solely occupied by the massive 'L-shaped' foundation and later intrusions, thus further reducing the opportunity of observing strata overlying the chalk raft. Nevertheless, the foundations bottomed on the chalk raft, and the western culvert's construction indicated that it was supported above the level of the raft (p60), which suggests that made-ground would have been necessary above the chalk raft, probably along the lines of that identified at Peter's Hill (p50).

Disuse and destruction

Our understanding of the disuse and destruction of the Group 1 structures is obscured by the level of truncation in the area. As at Peter's Hill (p53), the superstructure supported by the massive masonry foundations may have been removed during the later Roman period. No dating evidence was retrieved from the partial robbing of the foundations, although on analogy with Peter's Hill (p56) this may have occurred in the early medieval period.

5.3 Dating discussion

No pottery was retrieved from the Group 1 activities, either during the excavation or the watching brief. In part, this was due to the character of the deposits, which was primarily structural, but it was also due to the restricted nature of the observations and to the limited opportunity for actual excavation. Thus the dating of the Group 1 activities rests upon the dendrochronological evidence derived from the analysis of the timber piles that supported the construction raft. This indicates that the timbers were felled in AD 294 (see Appendix 1 for details).

6. SALVATION ARMY HEADQUARTERS

Grid ref: (TQ 3210 8092)
Original records compiled by Peter Marsden
Published works: Marsden 1967

6.1 The Site

During the construction of the Salvation Army World Headquarters in 1961-2, Peter Marsden of the then Guildhall Museum observed a number of substantial features which were thought to be of Roman date. No opportunity arose for full scale excavation and the watching brief was intermittent, due to staff pressures arising from extensive destruction elsewhere in the city. The bias towards recording substantial structures, and the variability with which they were recorded, resulted from these restrictions.

The site, located between Queen Victoria Street to the north and Upper Thames Street to the south, lay immediately to the north of the later Sunlight Wharf development. It was originally divided by the curving street of Lambeth Hill (Fig 2), properties on both sides of the street being redeveloped. The archaeological survival varied considerably over this area; in the area west of Lambeth Hill the strata were severely truncated and the pile foundations of Phase 2 were the only features to survive, apart from a deep archaeological sequence which had been preserved behind the basement wall at the western limit of the site (Fig 54). In contrast, to the east of Lambeth Hill a chalk raft and masonry foundations survived above the timber piles. This reflects differential basement levels across the site, the greater survival occurring in the property to the east of Lambeth Hill.

Due to the relatively restricted nature of the observations, the entire Archive Report is included here. The isolated structural elements are numbered from 1 to 54. In some cases the number pertains to more than one feature, such as the chalk raft and the superstructure above it. Features 22 and 23 are omitted here as they were not recorded in 1961-2, but were noted in earlier observations (Observation 8) which are covered in Chapter '7.

6.2 Observations at the Salvation Army Headquarters.

Report by Peter Marsden

The main Roman feature on the site comprised a system of chalk terraces, and using this as a datum it is possible to establish a partial chronology of building phases. Unfortunately it is not always clear which of the foundations beneath the terraces belonged to buildings pre-dating the terraces, and which were the foundations of buildings on the terraces. In describing the site, therefore, the features (all shown on Fig 56) have been separated into four groups:

(1) Those probably pre-dating the terracing (Phase 1).
(2) Those belonging to the terracing phase (Phase 2).
(3) Those of either Phases 1 or 2.
(4) Those of unknown phase.

Phase 1

These are structures that are believed to pre-date the lower chalk terrace. The main reason for attributing them to this phase is that they were on a different alignment from the walls of Phase 2, and one of the walls (Feature 36) underlying the chalk terrace was actually faced on its south side.

The recorded layout of the walls did not make any coherent plan, but fortunately a considerable proportion of the structures of this phase appear to survive in the southern part of the site and further site investigations will be possible in the future.

The main structures consisted of two parallel walls, between 2.28m (7ft 6in) and 1.52m (5ft) apart, which zig-zagged across part of the south end of the site (north wall, Features 25-28; south wall, Features 30, 33, 35). Each wall was built of ragstone and was 1.14m (3ft 9in) wide, was constructed in the grey silty clay, and, at least in the case of the southern wall, had a foundation of circular wooden piles. The southern wall also included some septaria nodules derived from the London Clay. The apparent absence of floors associated with the walls indicates that they were foundations, and apart from the fact they were on a different alignment from the walls upon the chalk terrace, there is strictly no reason to believe that they were not associated with the chalk terrace. However at their east end a portion of wall was found beneath the chalk terrace which was both a retaining wall and was faced only on its south side (Feature 36). Although only a short length of it was found there was some indication that it might have been curved as part of an apse. The wall was 1.01m (3ft 4in) thick and its south face was recorded for a height of about 0.61m (2ft). It had three double courses of red bonding tiles set in pink cement, separated by single courses of ragstone. The tile courses extended 0.61m (2ft) into the wall, at which point the wall construction merged into a structure of rag, flint and pebble concrete. The facing of the wall underlay the lower chalk terrace proving that this piece of walling pre-dated the terrace.

Exactly in line with the east face of one wall (Feature 28), but 8m to the north, lay the east face of a portion of masonry at least 1.52m (5ft) thick. This wall (Feature 40) was constructed of ragstone and white cement, with some patches of pink cement. Its north end petered out to become an irregular end in the hillside gravel. Its relationship to the chalk terrace was not found, but its alignment and the position of its east face following those of the other wall (Feature 28) strongly indicates that it was of Phase 1.

One other wall (Feature 16) on this alignment was located in the centre of the site, and is presumed to

belong to the same phase - particularly as it was adjacent to walls on the Phase 2 alignment. It was a ragstone foundation, of unknown thickness, which lay below the chalk terrace and was traced for a distance of 4.87m (16ft). It is not known if it had a foundation of wooden piles.

Phase 1: conclusions

Portions of the foundations of a building or buildings were found, but insufficient to establish its nature, whether domestic or public. The foundations suggest that these lay on some form of terrace whose level lay at about that of the lower chalk terrace of Phase 2, and that at the southern edge a retaining wall (Feature 36) formed the north edge of the next terrace down.

Phase 2

In this phase the hillside was terraced, and each terrace was floored with chalk. Upon this were built massive walls whose layout does not show the purpose or use of the structures.

Upper chalk terrace
This terrace (Feature 2) was only located at the extreme west end of the site. It was 9m wide (north-south), and was constructed of hard rammed chalk about 0.3m (1ft) thick, overlying a foundation of timber piles (now decayed) which had been sharpened to a point at their lower end. The terrace had been cut into sloping hillside, probably at about the junction of the river gravel and the underlying London Clay. The north end of the terrace lay at 6.27m (20.57ft) OD, and it gently sloped downwards towards the south end, perhaps to allow for a run-off of rain and ground water. The extent of this terrace is not known.

Gravel slope
Although the extent of the upper chalk terrace is not known, it is clear that it did not extend to the area east of Lambeth Hill, for it was there that the natural gravel was found to incline down, as if it was the natural slope. At the base of the gravel was found the northern edge of the lower chalk terrace at about 2.44m (8ft) OD. In this area, therefore, the gravel extended below its level at the west end of the site.

Astructure upon the upper terrace
At what appeared to be the northern edge of the upper chalk terrace there was found upon the chalk a reddish-brown sandstone plinth (Feature 1) with pink mortar adhering to it. The stone itself was 0.94m (3ft lin) long (east-west), 0.96m (3ft 2in) wide (north-south), 0.29m (11½in) thick, and had a chamfered upper corner on its north side. The base of the plinth lay 4.80m (15ft 9in) below Queen Victoria Street (whose level lay at 11.07m (36.32ft) OD), at 6.27m (20.57ft) OD. The significance of the stone is not absolutely clear, but it seems most likely that it was either the base of a boundary wall, perhaps fronting a street or an open area, or the base of a retaining wall separating the upper chalk terrace from an even higher terrace. It is difficult to judge which is correct, but the fact that the natural surface lay immediately below the chalk underlying the plinth, and that this terrace had been cut into a sloping hillside, is sufficient to suggest strongly that the stone formed the base of a retaining wall associated with an even higher terrace. It is worth noting that at the base of the retaining wall between the upper and lower chalk terraces there was also a block of stone.

Lower chalk terrace
The lower chalk terrace lay at about 2.84m (9ft 4in) above OD, and was constructed of rammed chalk between 0.l0m (4in) and 0.3m (12in) thick, often overlying a foundation of oak piles. At the west end of the site the terrace sloped gently down to the south end of the site. The chalk terrace appeared to have extended all over the southern half of the site, but in some places it was absent. In one place (Feature 39) two stone carved blocks were found in the chalk and evidently had been re-used. In another (Feature 4) was a 0.10m (4in) thick layer of *opus signinum* pink cement and tiles lying on the lower terrace, perhaps a repair.

At the west end of the site was a retaining wall (Feature 3) which separated the upper and lower terraces. It overlay the lower chalk terrace and was originally 1.0lm (3ft 4in) thick, though its southern face had been badly damaged. It was built of ragstone and cement, and contained at its base a stone block 0.71m (2ft 4in) wide (north-south) and 0.25m (l0in) thick, which appears to have been re-used, as was some mortar. The wall survived to a height of 1.22m (4ft), but as the difference between the two terrace levels was about 2.74m (9ft) it is presumed that this was its original height.

Structures on the lower chalk terrace
It is not absolutely clear which walls stood on the lower chalk terrace, for in some cases only the pile foundations remained, and it is possible that these once supported walls predating the lower terrace. The features can be grouped as follows:
(a) The walls that definitely survived on the lower terraces are Features 17/18, 23, 50/37 and the stepped structure (Features 42, 44, 45, 51).
(b) Structures that are likely to have stood on the lower terrace but had been destroyed are Features 5, 6/8/11/ 12, 7, 9/10, 20, 21.
(c) Structures which are most uncertain are Features 14, 22.

Structures definitely upon the lower chalk terrace
One of the main features was part of a north-south wall beneath the former Lambeth Hill (Features 17/18). Its northern part was more than 1.32m (4ft 4in) thick (Feature 18), though its western face had been removed by the Lambeth Hill sewer. It was standing to a height of

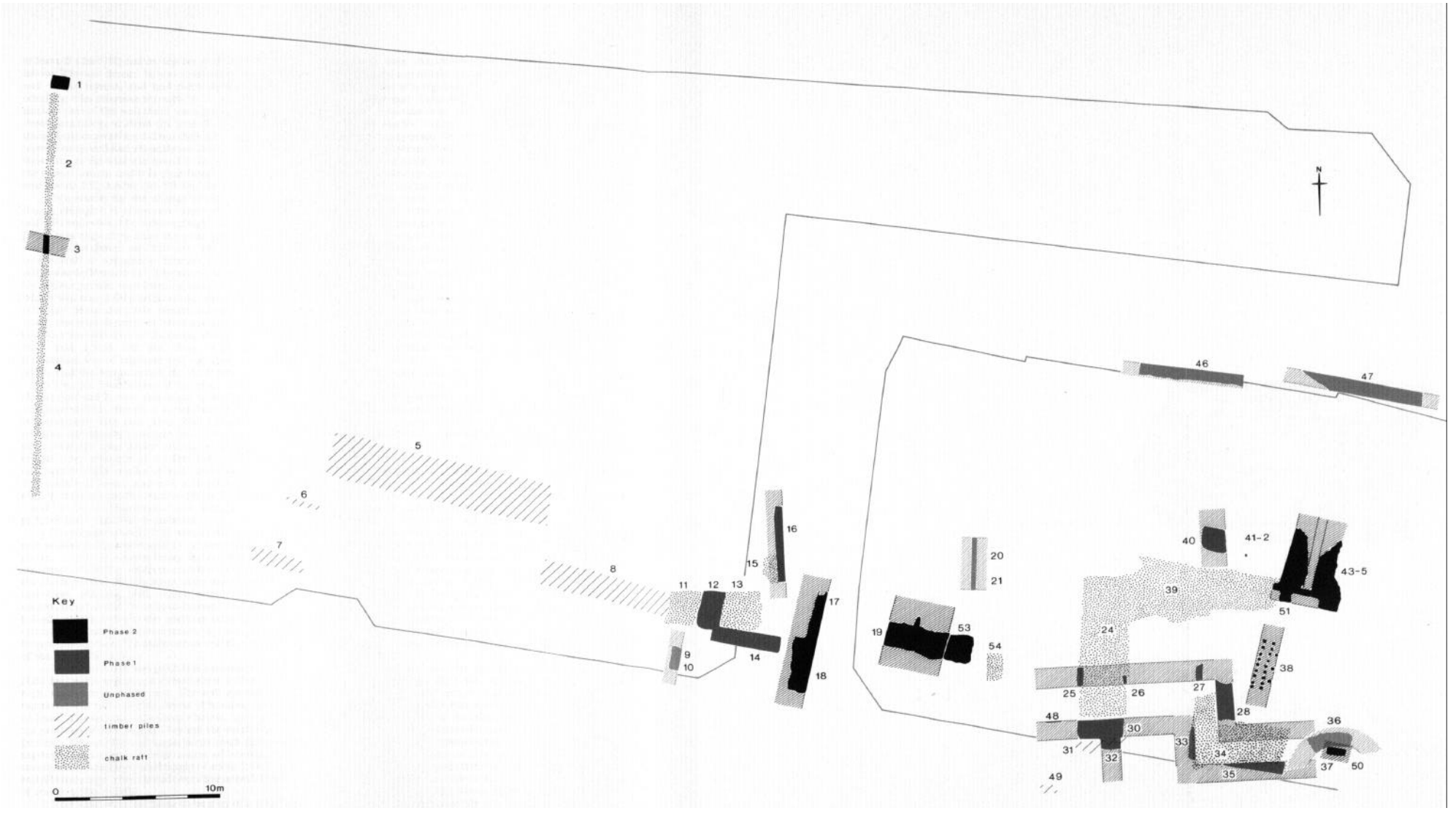


Fig 54 Salvation Army Headquarters; features recorded (numbered). (1:200)

at least 2.13m (7ft) and its top lay at about 2.13m (7ft) below Thames Street. It was constructed of ragstone and white cement, and had three double courses of bonding tiles running through it. At the base of the thicker part of the wall there was a layer of rectangular limestone blocks at about the level of the chalk terrace, though the excavations did not show if the wall lay on the terrace or indeed had a foundation of wooden piles. The west face of the wall was noted in 1840 in the centre of the sewer trench, and it is clear from this that the wall was about 1.52-1.67m (5ft-5ft 6in) thick.

No reason for the change in wall thickness was found, though it is of interest to note that the east-west wall (Features 6/8/11), indicated only by a foundation of piles, was aligned to meet the point where the north-south wall widened out, but only 4m from the north-south wall it apparently formed a corner and ran northwards (Feature 12). The east-west pile foundation lay in four parallel rows forming a zone 1.52m (5ft) wide which was traced for a distance of 8.38m (27ft 6in). The piles lay below the chalk terrace and were 0.3m (1in) apart, the piles themselves being circular in section and 0.1 0-0. 15m (4in-6in) in diameter, and between 1.21m (4ft) and 2.51m (8ft 3in) long. The north-south foundation was of ragstone and was about 1.21m (4ft) wide, and this too underlay the chalk terrace.

The pile foundations of two other east-west walls (Features 5 and 7) were also found running parallel with Features 6/8/11, though it is not clear if they were all contemporary with each other. Wall 5 must have been a particularly massive structure for its five rows of timber piles formed a zone 2.84m (9ft 4in) wide, and this was traced over a length of 13.41m (44ft) east-west. In contrast the rows of piles of wall 7 were only 0.68m (2ft 3in) wide and were traced over a distance of 3.2m (10ft 6in). Traces of a north-south wall were found (Features 9 and 10) but no description exists, though it is believed to have had a ragstone foundation.

To the east of wall 17/18 were a series of structures that appear to have belonged to the lower chalk terrace phase. The most extraordinary feature was a stepped structure, 43-45/51, which overlay the northern edge of the chalk terrace. At this point there was no trace of an east-west retaining wall, which might have been a continuation of wall 3. Instead it seems that the gravel hillside sloped down to the northern edge of the chalk terrace, and that the stepped structure, rising from west to east, overlay both the chalk terrace and the lower slope of the gravel hillside.

The lowest step was traced for a distance of 3.73m (12ft 3in) north-south, and it stood about 1.06m (3ft 6in) high, rising above the terrace. The wall was faced with ragstone, and had a double course of bonding tiles near its base. The wall, like the terrace below, lay just above the junction of the London Clay and the overlying river gravels. The middle and upper steps, each faced with ragstone containing a double course of bonding tiles, survived to a combined total height of about 0.91 m (3ft), and all three steps were spread over a horizontal distance of about 4.57m (15ft).

The steps were too large to be part of a staircase leading up either the hillside slope or the front of a building, and it is not possible to give a satisfactory explanation. It may of course have been a tiered terrace wall, but even this is still difficult to believe. The terracing did not follow the natural north-south hillside slope but lay at a right angle to it.

What may have been the southern edge of the stepped structure was represented by two rows of limestone blocks (Feature 43) aligned east-west which must have supported the south side of the steps. These two rows of stone blocks lay side by side and had a foundation of chalk, flint and ragstone. The blocks were of varied measurements: one being 0.5 x 0.6 x 0.33m (1 ft 8in x 2ft x 1ft 1in), and another 0.6 x 0.6m + (2ft x 2ft +). The blocks were set in pink cement, and the northernmost stone at the west end was overlaid by a course of red tiles set in pink cement. The rows of stone blocks were traced 2.81m (9ft 3in) eastwards from the face of the lowest step, and the last block at the east end had another block above it. The well tooled stone blocks probably had been re-used, for in many cases the tooling and shaping was hidden from view in the core of the rows of blocks. One block had a channel for a cramp. Indeed, another block was definitely re-used for it was part of an enormous plinth with its bevelled edge facing northwards into the stepped structure where it served no purpose. This plinth was about 2.13m (7ft) long, 0.6m (2ft) wide and 0.3m (1ft) thick. These stone blocks overlay the lower chalk terrace.

The line of the lowest step was followed by another ?wall/foundation (Feature 38) suggesting that the stepped structure may have continued south of the stone blocks in some form. Feature 38 comprised three rows of timber piles, apparently supporting the base of a ragstone wall 0.91m (3ft) wide, with *opus signinum* and a course of tiles on top. Two of the three rows of piles were densely positioned in a zone 0.68m (2ft 3in) wide, with the third row on the east side being of piles widely spaced. All the piles were 0.14m (6in) square in section. The sparse third row may represent a lower step rising eastwards on top of the chalk terrace.

A massive wall (Feature 23), 2.44m (8ft) thick, was recorded in 1928 in RCHM, but not located recently. It stood above the lower terrace, and was constructed of ragstone, with a foundation laid between two rows of contiguous piles about 4.27m (14ft) below Upper Thames Street. A few inches above the piles was a course of tiles, and about 0.6m (2ft) higher there was a second course. It seems not to have extended westwards to the north-south wall (Feature 18), but a series of piles (Feature 31) to the east may indicate a continuation of the wall.

The RCHM recorded the discovery in 1928 of a second wall (Feature 22) 1.37m (4ft 6in) wide and 4.57m (15ft) to the north of Feature 23. It probably had a thick bonding course of tiles just above the heads of its pile foundations, and above that the concrete and ragstone wall was apparently battered or coped back on its north and south sides, and terminated in a flat top 0.60m (2ft) wide. On the south face of this was a mass of puddled clay. It is difficult to judge the date of this wall, for it was not found recently. In view of the fact that the purpose of the structures on the site is unknown it would be misleading to suggest that the low level of the wall may be due to its demolition before the chalk terrace was constructed. It is possible that it was the foundation for some structure or monument on the lower terrace.

The wall was curiously similar, to some extent, to wall 14, whose phase is also uncertain. Wall 14 was built of ragstone with a double course of bonding tiles and was at least 1.01m (3ft 4in) wide. It was aligned east-west, but the incline of the bonding course suggests that it had fallen over to the south. It was traced for a length of 3.22m (10ft 7in), and along this length its top on the south side was clearly bevelled downwards, so that together with the inclined northern face it resembled in section the slope of wall 22. Its west end was overlaid by the lower chalk terrace, but its east end was apparently 0.15m (6in) above terrace level. In view of this it is possible that the flat tops of both walls 14 and 22 were made to accommodate the lower chalk terrace at that level, and that the walls themselves belong to a pre-terrace phase.

A remaining structure was located at the south-eastern corner of the site. Feature 37 was a sandstone block measuring 1.06m (3ft 6in) (east-west), 0.48m (1ft 7in) (north-south) and 0.34m (1 ft 1½ in) deep. It lay on the lower chalk terrace and may represent the position of a wall since beneath the terrace was a lot of building rubble which may have formed its foundation,

Conclusions

The massive structures of the terrace phase were no doubt part of some 'public' construction, but from this site alone there is really no clue either as to when it was constructed or to its function. Massive walls, the extensive terracing, and the 'stepped structure' do not seem to resemble a functional roofed building, and more nearly give the impression of a series of monumental structures on the terraces.

Catalogue of archaeological features on the site

Feature 1
A plinth of reddish-brown sandstone with *opus signinum* adhering to it (Feature 1) was found lying on the northern edge of the upper chalk terrace (Feature 2). It was 0.94m (3ft 1in) long (east-west), 0.96m (3ft 2in) wide (north-south), 0.29m (11½in) thick, and had a chamfered upper corner on the north side. The base of the plinth lay 4.8m (15ft 9in) below Queen Victoria Street, whose level lay at 10.57m OD (36.32ft). The plinth was later than the chalk terrace and so belongs to Phase 2. It is not clear if the plinth was once the visible northern edge of the platform, and was also the base of a wall, or was a re-used stone forming the base of a retaining wall, as was the case with Feature 3. Unfortunately a modern concrete foundation existed just north of the plinth, so destroying the crucial evidence.

Feature 2
The upper chalk terrace, 0.30m (1ft) thick, was constructed of hard rammed chalk. The terrace had been cut into the sloping hillside probably at about the junction of the London Clay and the natural gravel, and at 6.27m OD (20.57ft). The terrace sloped gently towards the south, perhaps to give a run-off of rainwater. Before the chalk was laid down the area had been covered with timber piles, with sharpened lower points. When found the piles had decayed. Phase 2.

Feature 3
Terrace wall, originally 1.01m (3ft 4in) thick, of ragstone and cement. It overlay the lower chalk terrace, and contained at its base a stone block 0.71m (2ft 4in) wide (north-south) and 0.25m (10in) thick. The terrace wall survived to a height of 1.10m (4ft), but as its base lay 0.23m (9in) below the upper terrace it is presumed that this was about the original height of the wall. It seems that the wall included re-used mortar. Phase 2.

Feature 4
The lower chalk terrace had been cut into the London Clay, and was constructed of rammed chalk between 0.10m (4in) and 0.3m (12in) thick, overlying a dense concentration of oak piles. The terrace sloped gently down to the south of the site where its surface lay at about 2.84m (9ft 4in) OD. At one point on the chalk terrace was found 0.1m (4in) of broken *opus signinum,* pink cement and tiles. Phase 2. The terrace was overlaid by thick deposits of grey soil. ER 861 - Finds from grey soil 0.1m (4in) thick immediately above the lower chalk platform.

Feature 5
A zone comprising five parallel rows of timber piles recorded over a length of 13.41m (44ft) roughly east-west. The zone was 2.84m (9ft 4in) wide. The relationship of the piles to the lower chalk terrace was not clear.

Feature 6
A single row of timber piles was recorded, and is presumably all that remains of a continuation of Features 8 and 11. This was presumably the foundation of a wall. The relationship of this row of piles to the chalk platform was not clear.

Feature 7
Rows of piles 0.68m (2ft 3in) wide were traced east-west for a distance of 3.2m (10ft 6in) and formed the foundation of a wall. Its relationship to the chalk terrace is not known.

Feature 8
Four parallel rows of timber piles forming a zone 1.52m (5ft) wide were traced for a distance of 8.38m (27ft 6in) and presumably formed the foundation of a wall. It extended eastwards as Feature 11, and westwards as Feature 6. Feature 11 lies below the lower chalk terrace. Piles 0.30m (1ft) apart, circular in section, 0.10-0. 15m (4in-6in) in diameter, and between 1.21m (4ft) and 2.51m (8ft 3in) long. One of the longest was pointed at both ends.

Feature 9
A foundation, not described. Probably of ragstone.

Feature 10
A wall, presumably the superstructure of Feature 9, but not described. Probably of ragstone.

Feature 11
Lower chalk terrace overlying many timber piles on the west side of the wall Feature 12. The dense piles were probably an extension of Feature 8, the foundation of a wall. The fact that the dense concentration of piles did not occur on the east side of Feature 12 suggests that the wall supported by Features 8 and 11 stopped at Feature 12.

Feature 12
A ragstone foundation 1.14m (3ft 9in) wide at its south end and 1.32m (4ft 4in) wide at its north end. It underlay the lower chalk terrace.
Feature 13
Lower chalk terrace with few piles below. The surface of the chalk terrace above the west end of the wall, Feature 14, was 4.87m (16ft) below the pavement of Upper Thames Street *(ie* at about 1.7m (5ft 7in) above OD).
Feature 14
A wall of ragstone with a double course of bonding tiles, at least 1.01m (3ft 4in) wide, which appeared to have fallen over to the south. It was traced for a length of 3.22m (10ft 7in) east-west. It is curious that its upper edges were similar in shape to the 1.52m (5ft) wall recorded in the RCHM on this site (Feature 22; see Observation 8) (ie the top of the wall was bevelled in section; see RCHM 1928, fig 17). Its west end was overlaid by the lower chalk terrace, while its east end was apparently 0.15m (6in) above the terrace level. It would seem to be a wall of Phase 1.
Feature 15
Area of the lower chalk terrace overlying the wall, Feature 16.
Feature 16
A ragstone foundation lying below the lower chalk terrace, uncovered for a length of 4.87m (16ft). Its alignment suggests that it is of phase 1, and dates from before the construction of the terrace.
Feature 17
A wall aligned north-south, 0.46m (1 ft 6in) wide and at least 2.13m (7ft) high. It was constructed of ragstone and white cement, and had three double courses of bonding tiles running through it. It overlay the lower chalk terrace.
Feature 18
A continuation of the wall, Feature 17, the top of which lay about 2.13m (7ft) below the modern street. It was here more than 1.32m (4ft 4in) thick, though its western face had been cut away when the sewer was constructed beneath Lambeth Hill. The wall was standing 2.13m (7ft) high, and was constructed of ragstone with double courses of bonding tiles, all set in white cement. At the base of the wall was a layer of several rectangular blocks of limestone. The base of the wall was level with the lower chalk terrace, though the excavation was not deep enough to establish whether or not the wall lay upon a foundation of timber piles. The west face of the wall was recorded when the Lambeth Hill sewer was excavated (sewer plans 378, 315), and it seems that the wall was about 1.52m (5ft) thick. No reason for the change in wall thickness, from Feature 17 to Feature 18, was found, unless it related to the end of the wall, Features 11 and 18.
Feature 19
A massive strong foundation of ragstone, broken Roman tiles, and pink cement. Edges were found on the west and east sides, and possibly on the south side, so that it was clearly 3.66m (12ft) wide (east-west). The layers of cement and stone show that the foundation is inclined towards the river (like Feature 14).
Feature 20
A foundation of ragstone with soft brown-yellow cement about 1.06m (3ft 6in) wide, and aligned roughly east-west.
Feature 21
Immediately south of Feature 20 was a ragstone wall with a double course of bonding tiles, all set in hard cement. The wall was more that 0.76m (2ft 6in) thick (north-south measurement).
Feature 22
A wall recorded in RCHM (Observation 8), but not found recently.
Feature 23
A wall recorded in RCHM (Observation 8), but not found recently.
Feature 24
The lower chalk terrace built on oak piles, about 0.30m (1ft) apart.
Feature 25
A ragstone foundation 1.14m (3ft 9in) wide, lying below the chalk terrace. The alignment indicates that this pre-dates the chalk terrace.
Feature 26
A portion of a ragstone foundation, Feature 25, below the chalk terrace.
Feature 27
Portion of the ragstone foundation, Feature 25, below the chalk terrace.
Feature 28
A north-south foundation 1.06m (3ft 6in) wide, found below the chalk terrace. A part of a building, Feature 25.
Feature 29
The lower chalk terrace overlying the earlier walls.
Feature 30
A ragstone foundation 1.14m (3ft 9in) wide lying below the chalk terrace. This is parallel to the wall, Feature 25, and is presumably of the same phase,
Feature 31
Oak piles, possibly the pile foundation of the chalk terrace, or a continuation of the wall, Feature 23.
Feature 32
A ragstone foundation 1.14m (3ft 9in) wide below the chalk terrace. A continuation of Feature 30.
Feature 33
A ragstone foundation containing *septaria* nodules, built on circular piles, the whole structure built in grey silt. It lay below the chalk terrace.
Feature 34
Part of the chalk terrace.
Feature 35
A ragstone foundation in grey silt, part of Feature 33, below the chalk terrace.
Feature 36
A retaining wall faced on its south side only, but there was some indication that it might have been curved as part of an apse. The south face had three double courses of bonding tiles set in pink cement, separated by single courses of ragstone. The tile courses extended 0.6m (2ft) into the wall, but the wall merged into a structure of rag, flint and pebble concrete 1.01m (3ft 4in) thick. About 0.6m (2ft) of the vertical height of the wall face was found. This wall underlay the lower chalk terrace, and clearly pre-dated the terrace.
Feature 37
A sandstone block found on top of the lower chalk terrace measured 1.06m (3ft 6in) (east-west), 0.48m (1 ft 7in) (north-south), and 0.34m (1ft 1½in) deep, and may represent the position of a wall since beneath the chalk terrace was much building rubble.

Feature 38

Three rows of piles aligned roughly north-south, about 0.91m (3ft) wide, and apparently supporting the base of a ragstone wall 0.91m (3ft) wide, with *opus signinum* and a course of tiles on top. Two of the three rows of piles were densely positioned in a zone 0.68m (2ft 3in) wide, with the third row on the east side being widely spaced. All the piles were squared and measured 0.15m (6in) by 0.15m (6in). This was presumably a wall foundation that was contemporary with the lowest step of the stepped structure, Feature 44, for it continued the line of the step.

Feature 39

In the chalk terrace were found two stone blocks which presumably had been re-used for they appeared to serve no useful purpose.

Feature 40

A piece of masonry with a face on the east side measured at least 1.52m (5ft) wide (east-west). It was constructed of ragstone and white cement, with some patches of pink cement. The north end petered out irregularly, presumably because the wall was stepped down the steep gravel slope towards the river. Its eastern face was on the same alignment as Feature 28, and also on the same line, suggesting that it too pre-dated the chalk terrace and belonged to phase 1.

Feature 41

A 'tiled area in gravel' lay immediately east of the wall, Feature 40. It comprised a great number of horizontal broken Roman tiles against the wall face, and extending for some distance away. It was therefore probably either contemporary with or earlier than the wall, and so should also pre-date the chalk terrace.

Feature 42

A circular oak pile overlaid by a lump of *opus signinum*.

Feature 43

Two rows of limestone blocks formed the southern edge of a stepped structure. The blocks had a foundation of chalk, flint and ragstone, and lay just south of the northern edge of the lower chalk terrace. The blocks were of varied measurements: one was 0.5m x 0.6m x 0.33m (1ft 8in x 2ft + x 1 ft 1 in) thick; another was 0.6m x 0.6m + (2ft x 2ft +). The blocks were set in pink cement, and the northernmost stone at the west end was overlaid by a course of red tiles set in pink cement. The stone blocks were traced for a distance of 2.81m (9ft 3in), and the last stone block at the east end had another block above it. At least some of the stones had been re-used, for one was evidently part of a plinth, its bevelled edge facing northwards into the stepped structure. This plinth was about 2.13m (7ft) long, 0.60m (2ft) wide and 0.30m (2ft) thick. Another stone had a channel for a cramp. The stone blocks evidently acted as a retaining wall for the gravel which underlay the steps on the north side.

Feature 44

The lowest step of the stepped structure was traced for a distance of 3.73m (12ft 3in) north-south, and it was 1.06m (3ft 6in) high, rising above the chalk terrace. The wall was faced with ragstone, and had a double course of bonding tiles near its base- The wall base, like the chalk terrace, lay at about the junction of the London Clay and the overlying river gravel. It would seem that the natural gravel to the north of the steps sloped upwards, and was not here terraced as was the hillside to the west of Lambeth Hill.

Feature 45

The middle and upper steps of the stepped structure, each faced with ragstone and with a double course of bonding tiles. The upper two steps survived to a combined total height of about 0.91m (3ft), and the three steps combined were spread over a horizontal distance of about 4.57m (15ft).

Feature 46

A ragstone wall, 0.91m (3ft) thick, with double or triple courses of bonding tiles, aligned approximately east-west along the top of the gravel slope. The wall was standing into the late Saxon-early medieval period and it formed the foundation of a succession of post-Roman frontage walls. The east end of the wall was squared off as if for a door jamb. Its north face was plastered.

Feature 47

A wall of ragstone, 0.90m (3ft) thick, traced for 4.57m (15ft), with a construction like that of Feature 46. It lay at the top of the gravel slope, and was a foundation for a succession of post-Roman frontage walls. It was aligned roughly east-west, but was not quite in alignment with the neighbouring wall, Feature 46. Instead it curved away slightly to the north of Feature 46. The wall stood to a height of 1.67m (5ft 6in), but its foundation was not uncovered. Both walls, Features 46 and 47, not only followed the post-Roman street frontage but also followed the parish boundary between St Mary Mounthaw and St Mary Somerset, which even followed the kink represented by the slight misalignment of the two walls. There seems to be little doubt that when the parish boundary was established the Roman walls or their rebuildings were visible. In fact this is confirmed by the discovery of rubbish deposits containing late Saxon-early medieval imported red painted pottery, which were piled up against the north face of the wall. Immediately east of this wall was a 1.98m (6ft 6in) length of post-Roman chalk wall following the Roman wall line and also post-medieval brickwork, and east of this was a further 1.52m (5ft) of apparently Roman wall which had been faced on the south side with knapped flint (the north face was not found). The highest point of the Roman wall lay about 1.52m (5ft) below the new Lambeth Hill Street level.

Feature 48

A ragstone wall aligned east-west, perhaps a continuation of Feature 30. (Not illustrated as not clearly located.)

Feature 49

Six wooden piles, round in section, three in each of two rows. They lay under the modern pavement of Upper Thames Street, and seem to have been the foundation of a wall which no longer existed.

Feature 50

Below the lower chalk terrace, Feature 51, and against the south face of the wall, Feature 36, was a mass of Roman building rubble, including a considerable quantity of chalk. Perhaps a foundation for a wall otherwise represented by the stone block, Feature 37.

Feature 51

The northern edge of the lower chalk terrace lay at the junction of the gravel terrace and the London Clay. The northern edge was found 0.60m (2ft) north of the stone blocks of Feature 43. The chalk terrace seems to have overlaid a foundation of oak piles. Adjacent to Feature 36 the chalk terrace was 0.15m (6in) thick.

Feature 52
A roughly built ragstone-lined east-west drain overlying a Roman wall, Feature 44. Finds from the lower filling of the drain (ER 768) show that it was of post-medieval date.
Feature 53
On the east side of Feature 19 was discovered a foundation whose edges were not found. It was constructed of ragstone and cement, and was traced for a distance of 1.6m (5ft 3in). (Not illustrated as not clearly located.)
Feature 54
The chalk terrace was found at a depth of about 3.66m (12ft). At this point there was perhaps a wall of ragstone with broken tiles set in yellow and pink concrete. There were possibly two single bonding courses of tiles, but these may simply have been materials used to construct the terrace. The foundation was of wooden piles 3.35m (11 ft) long, circular in section and 0.23m (9in) in diameter, but cut to a point at both ends.

6.3 Dating discussion

The timber piles were not sampled and no other dating material was retrieved from the site.

6.4 Additional comments

Some features were not commented upon in Peter Marsden's report (Chapter 6.2, above), and warrant some discussion here. In addition, some of the correlations made there can be questioned, as can the interpreted relationship between the pile preparation of the area, and the position of subsequent foundations.

Phase 1 (Fig 54)

Eastern part of the site during Phase 1 – additional feature
Immediately to the east of Feature 40 was an area of gravel, with horizontally laid fragments of broken tiles (Feature 41). This feature appears to have formed an area of surfacing, presumably external. Although its absolute level was not noted and it is not clear whether the north-south wall (40) cut through the surface, or was contemporary with its use, it is likely that it also belongs to this phase of activity.

Western part of the site during Phase 1
Marsden refers to no pre-Phase 2 features in this area in the discussion section, although some features are said to be pre-Phase 2 in their catalogue entries. Feature 12, a ragstone foundation 1.15m wide at its southern end and 1.32m wide at its northern, was recorded as underlying the chalk terrace (p67) (the only comment on this feature comes in discussion of Phase 2, p65). The alignment of this feature seems open to some debate, not least as it appears to have been plotted without any account of the changing width of the structure (Fig 54).

Immediately to the east of Feature 12 was another ragstone foundation, aligned east-west, but which appeared to have fallen over to the south (Feature 14). This wall contained a double course of bonding tiles and was originally at least 1.00m in width. Its top appeared to have been smoothed off, with bevelled edges (in the same manner as the north wall of Observation 8, p75). This feature was partially overlain by the chalk raft at its western end, while to the east it projected some 0.15m above the surface of the chalk (ibid).

Initially, at least, there seems to be a case for suggesting that the pre-Phase 2 structures in this area were on a different alignment from those to the east (Fig 54). It is possible, however, given the ambiguity of both the description and plotting of these features, that they were part of the same development and that the apparent alignment of the western walls is misleading. This suggestion might be reinforced by the bevelled nature of Feature 14, which compares with Feature 22 (north wall Observation 8, see p75), lying within the eastern part of the site. It is not clear whether these foundations were part of the same development identified elsewhere on the site, or part of a separate structure. In either case, they argue the complexity of this early sequence.

Another problematic structure is Feature 36. This foundation underlay the Phase 2 chalk raft, apparently having been levelled during the latter's construction. Its description (p67) suggests that it may have been apsidal, although this is not stated with any certainty. It lay close to the eastern limit of the site (Fig 54), near to the double walls of the Phase 1 structure. It is difficult to see how it can have formed part of that structure, and as such forms the most cogent argument for more than one period of building prior to the deposition of the Phase 2 chalk raft. The implications of this are explored in the discussion of the Period I complex (Chapter 1.3, p7-8).

The fact that Phase 1 features have not been identified in the western area of the site, west of Lambeth Hill (Fig 54), may be a result of the increased level of truncation in the area (p63), combined with the relatively restricted observation. However, pile foundations for Phase 2 were observed, and the piles were only employed in those areas where earlier walls were not present - elsewhere Phase 1 walls had been merely levelled off to provide the basis for the chalk raft which the piles supported. This suggests that no Phase 1 walls existed west of those presently identified.

Phase 1 forms the principal evidence for the Period I complex. As such, its layout, reconstruction and function are explored in Chapter 1.

Phase 2 (Fig 54)

The Phase 1 foundations were partially demolished prior to the deposition of an extensive layer of chalk, which formed the basis for an extensive constructional platform. Although it was not clear what relationship the Phase 1 structures had with the natural hillside, it is clear that in Phase 2 the hillside was terraced.

Lower terrace
In the observations in which the material beneath the chalk raft was noted (Features 8, 50 and 54) the ground

had been levelled or made up with building debris. The observations span the site and suggest that the area had been levelled prior to the construction of the raft. Whether this material derived from the demolition of the Phase 1 structures is unknown, but it bears comparison with the material used for levelling the southern area of the Peter's Hill site, in advance of the construction of the chalk raft on that site (p41).

The lower chalk raft (Features 4, 11, 13, 15, 24, 29, 34, 51 and 54; Fig 54), was rammed around the heads of timber piles, except in those areas where the chalk directly overlay the levelled walls of Phase 1 (in the case of Feature 34 piles were not mentioned, but once again, the chalk primarily overlay Phase 1 walls – Fig 54). The piles appear to have been complete boles of oak (Fig 17). Both ends of the piles of Feature 24 were said to have been sharpened; it would seem reasonable to sharpen their bases, but the sharpening of the tops would seem unlikely. It is probable that this statement results from a misinterpretation of the decay of the pile heads, a phenomenon noted on the adjacent sites (p43). The chalk raft was observed to cover an extensive area of the southern terrace (Fig 54).

A number of timber piles were also observed, without the overlying chalk platform being recorded in association (Features 5, 6, 7 and 8 - Fig 54). These observations were restricted to the western part of the site, suggesting that the area had been subjected to an increased level of truncation (p63). This is supported by the section at the western limit of the site, where an increased level of survival was present due to the protection offered by the adjoining property, and the piles were not only seen to cover the entire width of the lower terrace, but also to be supporting an unbroken chalk raft (Fig 11 d).

Marsden (p65) suggests that the piles (Features 5, 6, 7 and 8) were associated with specific structural elements, but the lack of correlation with structural elements in the eastern half of the site, where fragments of the masonry foundations were actually preserved, suggests that the piles formed a more general foundation raft; Feature 24, for example, was an extensive raft supported by timber piles over its entire area, but with no suggestion of a foundation above it. The apparent banded arrangement of the piling on the eastern half of the site, is likely to have been a consequence of the nature of the observations, within builders' trenches, rather than a true reflection of the original construction. Thus the piles were used to consolidate the lower terrace where the ground level had been raised from the Phase 1 activities, rather than directly form the base for individual structural elements.

The surface of the rammed chalk raft, although relatively even, was not intended to function as a surface in its own right; first, the surface sloped downward, gently, to the south (p64), and secondly, although care was taken roughly to level the surface of the raft, the result was by no means perfect, and some of the collapsed or levelled Phase 1 features, such as Feature 14, partially projected above the level of the raft's surface (p67). It is unlikely that the structures built directly upon the raft would have had no below ground foundations. Analogy with the detailed sequence excavated at Peter's Hill and Sunlight Wharf suggests that the raft functioned as a foundation level, upon which structural elements were laid out, but which was then raised by substantial dumped deposits (p50 and p62).

One of the few photographs that survives from the site (Fig 17) shows the timber piles and chalk raft in an unknown area of the site. The chalk raft appears to be quite thick, possibly about 0.3m, and extends well above the surviving pile heads. At Peter's Hill and Sunlight Wharf, the first chalk raft was flush with the pile heads, and it was only when the second chalk raft was present that the chalk extended above that level (about 0.15m, to give a combined thickness of about 0.3m; p46 and p58). This would suggest that a second chalk raft was also present here. Furthermore, regular sided slots might just be seen in Figure 17, running from the top of the chalk, down to approximately the level of the pile heads; once again on analogy with Peter's Hill and Sunlight Wharf, these could be seen as the slots left by the horizontal timber framework, in which the beams were placed directly onto the first raft (level with the pile heads), with the second chalk layer then packed around them (Peter's Hill, p46, Fig 13, Plate 1 and Sunlight Wharf, p58, Fig 50). This interpretation, although speculative, suggests the presence of these structural features on the site. There is little doubt that it was also present beneath the Phase 2 foundations observed elsewhere on the site; it would have been difficult to detect in a watching brief, especially if the foundations could not be removed under controlled conditions.

In conclusion, the chalk raft, supported by piles and levelled Phase 1 structures, formed an extensive preparation of the lower terrace of the hillside. The area was carefully prepared, with all the made ground being substantially consolidated. In some areas a second chalk raft, with timber framing, was used to support the massive masonry foundations, but elsewhere the piles and a single chalk raft probably formed a more widespread preparation. This latter use specifically counters Marsden's suggestion (p65) that there was a direct relationship between the piles and subsequent masonry foundations. Instead, unless proven otherwise, piles, and piles and chalk, can only be said to indicate the terracing and consolidation, as at Sunlight Wharf (p61-2).

Features 43, 44, 45 and 51

There are a number of problems with the interpretation of these features, not least their apparently confusing construction (p68-9). The so-called 'steps' are more likely to have been simply offset courses, similar to those identified in the north-south wall at Sunlight Wharf (Fig 50 and p59). Interestingly, the off-sets began approximately 1m above the level of the chalk raft in both foundations. The ragstone facing with tile courses was also very similar. It is suggested that this feature was merely another north-south foundation, which terminated at the north, where it meet the hillside, in the same fashion as the north-south foundation at Peter's Hill (Fig 39, p49).

Feature 4 (part of)

On the lower terrace recorded in section at the western end of the site (Fig 11d), was an area of *opus signinum*,

pink cement and tiles overlying the chalk raft (p66). The horizontal extent of this layer, some 0.10m thick, was not recorded, but it appears to have been very similar to the bedding material used for the massive masonry foundations found on other sites (the block settings; Peter's Hill, p48 and Sunlight Wharf, p58). Furthermore, it was overlain by a thick deposit of grey soil (p66), which may have been backfill after the large stone blocks had been robbed out *(cf* Peter's Hill, p53).

General discussion of Phase 2

The hillside in this area was carefully prepared in advance of this phase of activity. Phase 1 walls were partially demolished, being levelled to the height roughly equal with that of the chalk raft's surface. In these areas, the lower chalk terrace was laid directly onto the levelled walls, which acted as its support; in those areas where Phase 1 walls were not present, the ground was prepared by an extensive dumping and piling programme prior to the deposition of the chalk raft. The surface of the chalk raft, although relatively even, was clearly not intended to function as a surface in its own right, and the area was probably made up by additional dumping, as was the case on the Peter's Hill site (p50).

The structures laid out on the lower terrace appear to have formed a regular pattern of construction, with a common alignment (Fig 54). They also appear to have been constructed in a very similar fashion, including pile and chalk foundations, probably a second chalk raft with timber lacing, large re-used blocks of limestone in the basal course, *opus signinum* bonding and a coursed ragstone rubble foundation above the blocks, faced with squared ragstone with tile coursing.

To the north, an upper terrace was laid out, also supported by a piled chalk raft. This was separated from the lower terrace by a retaining wall. This terrace, however, did not extend across the full width of the site, and its eastern limit is not known. What is apparent is that in the easternmost part of the site the hillside took the form of a sloping gravel bank (Fig 54). At the northern limit of the upper chalk terrace was an enigmatic block (Feature 1, p66) which might indicate that a further terrace existed to the north. No other structures were positively identified on the upper terrace.

Features not phased (Fig 54)

Walls on the eastern gravel slope

At the top of the gravel slope, which stood in the eastern part of the site in place of the upper chalk terrace, two walls were observed, Features 46 and 47 (Fig 54). These walls, both *c* 0.90m wide, were constructed in a similar fashion, comprising mortared ragstone with double or triple bonding tile courses (the foundations of both walls were not observed). The western wall (46) was aligned roughly east-west and was finished off at its eastern end, as if for a door jamb (p68). The northern face of the wall was plastered *(ibid).* The eastern wall (47) was not directly aligned with it, but rather ran slightly to the north (Fig 54). No surfaces were found in association with these structures.

The features are thought to be contemporary, given the similarity of both their construction and dimensions, but their relationship with the rest of the activity in the area remains problematic; they could have formed part of either the Phase 1 or Phase 2 occupation of the site, or indeed, any other activity in the area. The plaster face of wall 46 suggests that the structure may have been associated with occupation of an internal character; it did not form part of a terrace structure.

Features in the south-western corner of the site

In the south of the site a ragstone foundation (Feature 9) and overlying wall (Feature 10) were recorded, although not in any great detail. There is no indication which phase they related to, as neither their level nor relationship to the chalk raft were recorded.

Feature 38

In the south of the site a north-south foundation was observed (Feature 38, p68, Fig 54). The wall was supported by squared timber piles, rather than the circular ones observed elsewhere beneath the chalk terrace, which suggests that this feature may have been constructed at a different time. However, the relationship of these events is less than clear.

7. EARLIER OBSERVATIONS

A number of observations were made during the 19th and early 20th centuries in the vicinity of the excavations discussed in Chapters 4 to 6. Where possible the original records have been used here. The quality and reliability of the records vary considerably. Nevertheless, they provide important additional insights into the development of the area. The relationship of the observations to the Period I and II complexes is explored in Chapter 9.

Some observations listed in the Merrifield gazetteer were part of the Salvation Army Headquarters site, and have already been discussed in detail in Chapter 6 (sites 11 O-3 and 116; Merrifield 1965, 220-3).

Observation 6: Peter's Hill

RCHM 1928, 141 (Plan A 169)
City Sewer Plan 373
Merrifield 1965, 220

An east-west wall was observed in 1845, during the cutting of the sewer beneath Peter's Hill (Fig 2). No record was made of the construction or size of the structure, although its position was approximately marked on City Sewer Plan No 373. Merrifield (1965, 220) suggested that this wall was part of the ragstone and cement terrace wall found on the Salvation Army Headquarters site, immediately to the east (Salvation Army Headquarters Feature 3, p66, Fig 54). During the Peter's Hill excavation, however, the backfill of the sewer was re-excavated and a large quantity of bonding brick and re-used flue tile bonded with *opus signinum* was found in the sewer trench backflll at the point indicated on the sewer plan. This suggests that the wall was entirely different from the Salvation Army terrace wall; rather it was a continuation of the terrace wall observed further to the west on the Peter's Hill site, which was constructed from precisely the same materials (p51, Fig 45). The terrace walls on Peter's Hill and the Salvation Army Headquarters site lay at different points on the hillside, the former being lower on the slope; the discovery that the wall observed in the sewer was part of the lower terrace indicates that the change between the two terrace walls must have occurred to the east of the sewer (Fig 62).

Observation 7: Lambeth Hill (including a discussion of further observations in Upper Thames Street)

Roach Smith 1841a, 150-151
Roach Smith 1859, 18-19
RCHM 1928, 92-3
City Sewer Plan 315
Marsden 1967, 149-151
Merrifield 1965, 222

This forms one of the most significant early observations in the area. Made in 1840, during the construction of an east-west sewer beneath Upper Thames Street (Figs 2 and 55), it records a 'massive' masonry structure. The original reports of Charles Roach Smith are detailed below.*

> The workmen employed in excavating for sewerage in Upper Thames Street, advanced without impediment from Blackfriars to the foot

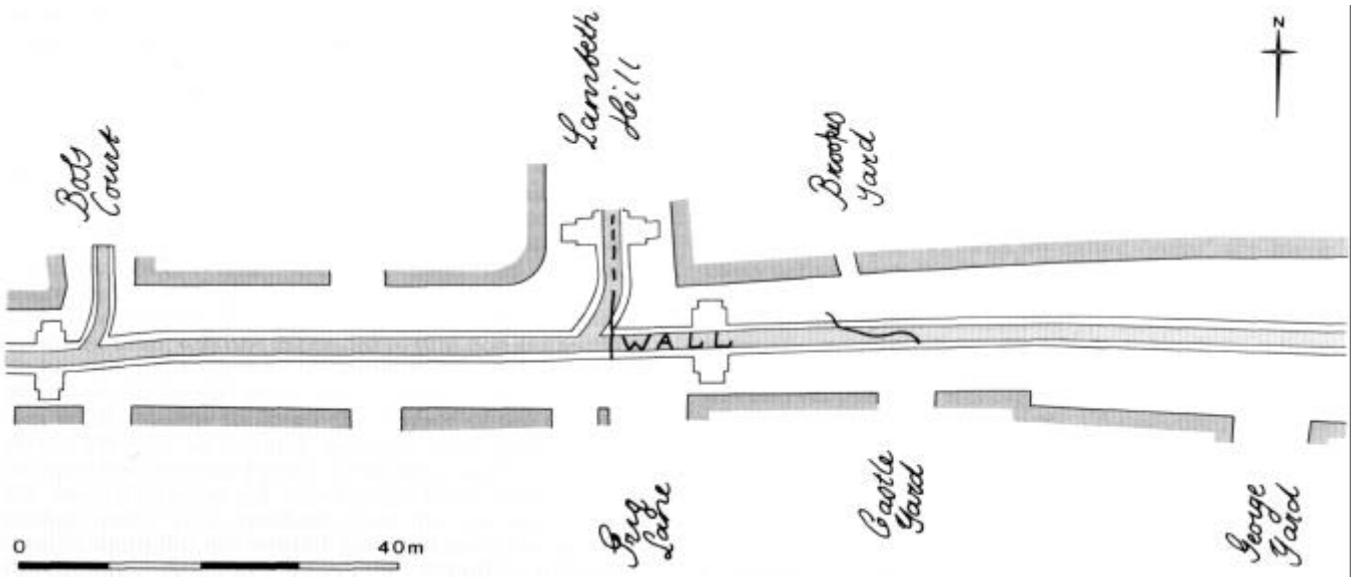


Fig 55 The 1840 City Sewer Plan 315, showing works beneath Upper Thames Street and Lambeth Hill. The grey tone indicates building lines; the blue represents the course of the sewer. The notes are by Charles Roach Smith. (1 :400)

> of Lambeth Hill, where they were obstructed by the remains of a wall of extraordinary strength, which formed an angle at Lambeth Hill and Thames Street. (Roach Smith 1859, 18.)
>
> Upon this wall the contractor for the sewers was obliged to open his course to a depth of about twenty feet; so that the greater portion of the structure had to be overthrown, to the great consumption of time and labour. The delay occasioned by the solidity and thickness of this wall, gave me an opportunity of making careful notes as to its construction and course.
>
> It extends (as far as I had means of observing) from Lambeth Hill to Queenhithe, with occasional breaks. In thickness it measured from eight to ten feet. The height from the bottom of the sewer was about eight feet, in some places more or less; it reached to within about nine feet from the present street, and three[5] from that which indicates the period of the fire of London, in this district easily recognised. In some places, the ground-work of the houses destroyed by the fire of 1666 abut on the wall. The foundation was made in the following manner. Oaken piles were first used; upon these was laid a stratum of chalk and stones, and then a course of hewn sand-stones, from three to four feet, by two and two and a half feet, firmly cemented with the well known compound of quicklime, sand, and pounded tile. Upon this solid substructure was built the wall, composed of rag and flint, with layers of red and yellow, plain and curved-edge tiles. The mortar throughout was quite equal in strength to the tiles, from which it could not be separated by force.
>
> One of the most remarkable features of this wall is the evidence it affords of the existence of an anterior building, which for some cause or other must have been destroyed. Many of the large stones above mentioned are sculptured and ornamented with mouldings, which denote their prior use in a frieze or entablature of an edifice, the magnitude of which may be conceived from the fact of these stones weighing, in many instances, upwards of half a ton. Whatever might have been the nature of this structure, its site, or cause of its overthrow, we have no means of determining. . . . I observed, also, that fragments of sculptured marble had been worked into the wall, and also a portion of a stone carved with an elegant ornament of the trellis-work pattern, the compartments being filled alternately with leaves and fruit. This had apparently belonged to an altar. (Roach Smith 1841a, 150-l)

Roach Smith also made some additional comments in his diary (Roach Smith 1841 b, 113) which were not published in his accounts of the discovery.

> There are marks in these of the machinery used in carrying them . . . [followed by a sketch of a bar-cramp hole] . . . One of these found at the turning up Lambeth Hill is of Portland or Purbeck or Petworth marble (?) which is worthy of note. It has been smoothed on one side and is about 4 feet long and I think, was quite under the mass of Roman work the mortar of reddish colour adheres most strongly to it.

The description of the north-south foundation beneath Lambeth Hill, and its immediate eastern return, leaves little doubt that they formed part of the Period II complex; circular piles, chalk raft, a single course of massive re-used blocks bonded with a 'well known compound of quicklime, sand and pounded tile', presumably opus *signinum,* tile coursing, ragstone facing, and a rubble core, are all part of the distinctive Period II construction. In addition, the massive scale of the construction is in keeping with that development. Conversely, the position of the foundation, fairly well established from the sewer plan, dimensions, contemporary street plans, etc, just to the north of the projected line of the riverside wall (Fig 62), strongly argues against its association with that feature. Furthermore, the re-used masonry in the foundation also argues that it was not part of the riverside wall, which did not employ this material in its 3rd century construction (the only use of re-used material came with a later western addition to the wall - see Williams in prep).

Roach Smith's suggestion that the foundation he observed forming an angle at Lambeth Hill extended eastward to Queenhithe, 'with occasional breaks' (Roach Smith 1841a, 151), should be abandoned. There are a number of problems with this suggestion, and it is more likely that the foundations observed further to the east in Thames Street, at Queenhithe (previously cited as part of Observation 7) and near the junction with Queen Street (Merrifield gazetteer (1965) sites 123 and 124), were in fact part of the 3rd century riverside wall.

Recent excavations at Sunlight Wharf, immediately to the east of Lambeth Hill, have shown that another massive north-south foundation was broken through by the 1840 sewer (Fig 55). No mention of a second north-south wall was made by Roach Smith, which seems surprising considering the substantial width of the structure (p58). In his diaries, however, Roach Smith notes that it was not always possible to visit the site every day. He first noted the discovery of the walls at Lambeth Hill on 14 August 1840; further notes were made on 18, 21, and 25 to 29 August inclusive and the 2 September (Roach Smith 1841b, 115-9). On the 9 September he records the death of his sister *(op cit,* 119). He was away from 10 to 15 September, returning to Thames Street on the 16th when walls were being encountered opposite Queenhithe *(op cit,* 129). Further records were made on the 28 and 30 September *(op cit,* 129-31). There was then a break until 26 December *(op cit,* 170) and 8 January 1841 *(op cit,* 171). Thus it is clear that substantial destruction took place, probably including the breaking through of the Sunlight Wharf foundation, while Roach Smith was not present.[6] He could not have traced a single wall along the course of the sewer.

Unfortunately, there is no record of where Roach Smith actually observed walls in this eastern 'continuation', only that some were observed near Queenhithe. Neither of the published accounts (Roach Smith 1841a; 1859) actually described these observations, the descriptive detail being confined to the Lambeth Hill foundation. Notes in his diary, however, offer some details of the walls observed, on his return to London, in the Queenhithe area,

> At Thames St. opposite the church at Queenhithe the excavators have found more Roman walls. In one, the extent of which or width is not seen, because it seems to commence about two feet from the church side of the sewerage. The tiles with the curved edges are thus used [sketch of two *tegulae* stacked one on another, flange on flange]; that is two are placed one on the other a practice I have before observed, This wall has much of chalk rubble and tile of a dense jet black surface as if subject to fire, and this has been visible for a great extent. It may be that this wall is late Roman. (Roach Smith 1841b, 129)

This description, although lacking the detail of the Lambeth Hill observation, suggests that the structure encountered here was somewhat different from that foundation. In particular, the re-used *tegulae* laid in double courses, flange on flange, were not observed at Lambeth Hill or indeed elsewhere in the Period II complex (individual *tegulae* fragments, with flanges intact, were occasionally employed, p49 and p59). However, this arrangement of tiles has been noted in the riverside wall, both at Peter's Hill (p40, Fig 10) and Baynard's Castle (Hill *et al* 1980, 32, 40, figs 16, 19 and 21).

Still further east, additional observations have also been linked with the Lambeth Hill wall (sites 123 and 124 in Merrifield 1965). Site 124 was noted by Roach Smith, who stated that 'in Thames Street, opposite Queen Street, about two years since, a wall, precisely similar in general character, was met with; and there is but little doubt of its having originally formed part of the same' (ie the Lambeth Hill foundation) (1841 a, 15 1; also 1859, 19). In the same year J T Smith recorded site 123, stating that 'In June, 1839, the labourers engaged in deepening a sewer in Thames Street, opposite Vintners' Hall, in the middle of the street, at a depth of 10 ft from the surface, discovered the perfect remains of an old Roman wall, running parallel with the line of the river. The wall was formed of alternate layers of flint, chalk, and flat tiles' (1861, 380). Neither of these observations was accurately located, simply depending on their proximity to known features or streets. As a result there must remain some doubt as to whether these were actually two separate observations, or references to the same feature (a point first made in VCH London 1909, 70).

The description of site 123, although sketchy, suggests a different construction method from that of the Lambeth Hill observation and the Period I I complex in general. No specific mention was made in these accounts of massive blocks of re-used masonry, a notable feature elsewhere. It is once again probable that a different structure from that recorded at Lambeth Hill was observed, possibly the riverside wall. Indeed, it is perhaps not surprising that some confusion took place between the foundations of the Period II complex and those of the riverside wall. The trench for the sewer probably did not expose the base of the foundations (except where it had to be deepened to break through the north-south foundation at Lambeth Hill) or the core of the foundations, as the structures ran east-west parallel with the line of the sewer. The facing of the Period II and riverside wall foundations was fairly similar (roughly squared ragstone facing with tile courses). It was at the base of the foundations that the most significant differences occurred (in the Period II complex large re-used blocks, and circular piles supporting the chalk raft; in the riverside wall, no re-used masonry, and squared piles). Also the width of the foundations, considerably greater in the Period II complex, would not have been available for comparison. Thus Roach Smith's comment that the wall opposite Queen Street was 'precisely similar in general character' (1841a, 151) is insufficient to suggest that they were actually part of the same structure.

The course of the sewer may initially appear to have lain too far north for the walls observed to have been part of the riverside wall; it has been possible to demonstrate that at Peter's Hill (Williams 1982, 29; 1986) and Baynard's Castle (Hill *et al* 1980, 72) the riverside wall formed the southern kerb of the early medieval Upper Thames Street. This suggests that the sewer, which ran down the middle of 19th century Upper Thames Street, would have passed to the north of the riverside wall. However, Roach Smith's account states that 'in some places, the ground-work of the houses destroyed by the fire of 1666 abut on the wall' (1841a, 151); the construction of the later medieval and post-medieval properties upon the riverside wall is another feature noted at both Peter's Hill (Williams 1986) and Baynard's Castle (Hill *et al* 1980, 72). This implies that the southern edge of the earlier Upper Thames Street was indeed observed - the confusion probably resulting from the widening of Upper Thames Street after the Great Fire;[7] in this area the Victorian sewer ran down the middle of the 19th century street, but down the southern edge of the medieval street.

It seems probable, therefore, that the walls observed some distance to the east of Lambeth Hill were not, as previously suggested, part of the structure identified at Lambeth Hill (which formed part of the Period II complex), but were part of another structure, most likely the 3rd century riverside wall. Thus Roach Smith's 'occasional breaks', which he suggested were because 'in some remote time it had been broken down' (1859, 19), are probably the result of breaks in observation, which obscured the fact that the walls were not part of a continuous structure, but were separate constructions.

See Chapter 8.2 (p89-90) for a discussion of the re-used stone in the Lambeth Hill foundation.

Observation 8: Brook's Yard

RCHM 1928, 93, fig 17
The Times, 18 June, 1925, 12
Merrifield 1965, 222-3

Also noted as Features 22 and 23 on Site 3 (Chapter 6, p67).

Two walls were observed, in 1924, running east-west across the line of a sewer inserted in Brook's Yard. The most detailed account of the findings came from *The Times*.

> ... workmen were constructing a pipe sewer from Lambeth Hill to connect with the main sewer that runs underneath Upper Thames Street. A shaft

was accordingly sunk to the depth of 16ft on the north side of the thoroughfare, just opposite to the opening of the narrow passage known as Brook's Yard, and a second shaft was made to the same level in the yard, 60ft to the north of the first.
A tunnel 6ft high and 4ft wide was then driven between the two.
Just under the side walk of Upper Thames Street the way was found to be barred by a wall and when, with great labour it had been tunnelled through, the manner of its building could be seen
At a distance of 8ft apart two parallel rows of piles had been driven into the ground. The piles in each row touched one another. Their diameter was 8 to 9 inches. Their tops were at a depth of 14ft from the street surface, so the excavation exposed 2ft of them. It was found impossible to "draw" them so they were cut off. They did not seem to have been squared, but, although quite sound at the core, they were somewhat decayed outside, where the wood could be easily pulled off in fibrous strings, so that it is just possible that the squared corners had disappeared. The space between the piles was filled with, and the wall above consisted of, rag-stone concrete of the hardest description, with courses of bonding tiles one and a half inches thick at intervals, one such course being just below the level of the top of the piles.
The operation in progress did not reveal to what depth this concrete descended and upon what foundation it rested. The whole 6ft of the masonry disclosed was evidently below the surface in Roman days as no "made ground" was met with at this depth, the soil consisting of loose muddy gravel in which the only "find" was a single fragment of roofing tile a little way inside the wall. Moreover, the course of red sandstone which has always been found forming a plinth at the ground level was not observed here. It was probably a foot or so above the top of the tunnel.
At a distance of 15ft to the north of this was a second wall, or, rather the foundations of one. It was parallel to the other, and it too was built between a row of piles. But these were spaced a little way apart, not contiguous like those of the greater wall. The width of this one was 5ft between the row of piles, but above them it rapidly decreased in thickness, so that at the point where it suddenly came to an end between 2ft and 3ft above them, it was only about 2ft wide. No trace of the superstructure remained. The concrete here was not nearly as hard as that of the other wall, so that it was possible without much difficulty to extract bricks unbroken. They were not impressed with any official or other stamp.
A remarkable feature of this construction was that on the side towards the river and the greater wall, it was protected by a thick facing of puddled clay. This fact suggests that the smaller wall was older than the other, as such a precaution against the action of river water would scarcely have been necessary if that mighty barrier has already been in existence.
The tunnel carried on for a further 30ft to the north, but no other wall was encountered.

This account, along with personal comments by Quintin Waddington, was paraphrased in the RCHM description of the site.

> The foundation was laid between two rows of contiguous piles the tops of which were 14 ft below the roadway in Thames Street; the total depth of the tunnel being 16 ft. The wall is of a concrete of Kentish rag-stone with a course of bricks a few inches below the tops of the piles. A second course of bricks was found 2 ft above that just described. Fifteen feet to the N. of the main wall, and parallel to it was a second wall 5 ft thick, and with the foundation also between two rows of piles, but set apart. A thick bonding course occurred just above the heads of the piles, and above this the wall was battered or coped back on both sides and finished with a flat top 2 ft wide. On the S face of this wall was a mass of puddled clay. (RCHM 1928, 93)

The location of these two walls, although not completely accurate, can be estimated from the City Sewer plans, and the measurements given in the descriptions, Their alignment, however, other than roughly east-west, is not known. The walls lay too far north (the southernmost being under the north side of Upper Thames Street) to have formed part of the riverside wall and thus they seem likely to have been part of either the Period I or II development. The description of the southern wall suggests that it may belong to Period II, being similar in respect of its ragstone and tile coursing and the pile foundation. Indeed, the latter is interesting as the piles were circular, the description of the decayed edges sounding very like the heartwood/sapwood distinction evident in all the complete boles found elsewhere (Peter's Hill, p43; Sunlight Wharf, p57).

There is no reason to assume that the two walls were part of the same structure or development. Indeed, the differences in construction technique suggest that they were not. The northern wall is less clearly part of Period II; the descriptions suggest that this foundation was somewhat lower, and may have been an earlier construction. It was also smaller than most of the Period II constructions. Its association with the Period I complex is not easily demonstrable, especially given the lack of clear alignment, but the pile foundations are comparable with those found on the Salvation Army Headquarters site and the basic construction technique and size would seem to make such an association possible, if not probable. Furthermore, the unusual 'battered' top of the wall is paralleled by Feature 14 from the Salvation Army Headquarters site (p67), which is also thought to have been part of the general Period I development (Chapter 1, p7).

The 'puddled clay' probably represents made-ground, infilling the area behind the northern foundation (very like the made ground found elsewhere in the Period II complex, see p 13).

Observation 9: Old Fish Street Hill

JBAA 1846, 45-6
RCHM 1928, 119
City Sewer Plan 373
Merrifield 1965, 223-4

> Mr C R Smith reported a recent discovery of some extremely solid and well-constructed foundations of Roman buildings, in Old Fish Street Hill, near the entrance into Thames-street, at a depth of sixteen feet. These works were brought to light by excavations made for a sewer. One wall, three to four feet thick, ran parallel to the street towards Thames-street, and another crossed it at right angles. In the latter was an arch [Fig 56] three feet wide and three and a half feet high, turned with tiles, seventeen inches by eight, projecting one over the other, the crown of the arch being formed by a single tile. The walls were built on large hewn stones, many of which had clearly been used previously in some other building, and these were laid upon wooden piles. By the side of the wall which ran parallel to the sewer, about sixteen feet from the arch, were several tiers of tiles, each tile measuring two feet by eighteen inches, placed upon massive hewn stones, one of which was four feet five inches in length, and was two feet wide, and two feet thick. Mr Smith regretted that circumstances did not admit of his making such researches as the magnitude and peculiarities of these subterranean remains required. The depth of the walls and the piles beneath, when compared with adjoining ground, shewed that the site had been low and boggy. Twenty paces higher up Old Fish Street Hill, the excavators came upon the native gravel, at a depth of five or six feet. *(JBAA* 1846, 45-6)

At the back of Roach Smith's diary (1841 b) a loose paper, presumably inserted at a later date, refers to this observation. The original contains no separate sentences, which have been inserted here for clarity. The spelling has been left. It was probably the work of one of Roach Smith's young helpers.

> They dug a littlee way up Old Fish Street Hill there was a large wall ran up the left hand side of the sewer as the one that went along Thames Street. There was also a few pieces of painted wall in the same sewer but not much colord. There were no signs were it came off the Walls. It came out of the looe rubbish grate. Chalk stones there and that other sort of morter. There were no sines of any more walls as I could see but the grate stone one which they never got out. They maide a little sewer cross to Mr. Fothergills where they found a wall all a cross the sewer about 6 feet wide. They went down on the top of it and no deeper but nothing found. There has been a few peces of painted wall found opposite the house that has been on fire but no signs of any walls. Nothing but dirt and rubbish.

This observation, made in 1844, was not accurately located, although City Sewer Plan 373 marks the position of the east-west element. However, although the precise alignment of the features is not known, the use of piles and massive stones in the basal course leaves little doubt that they were part of the Period II complex (Fig 9). The tile arch (Fig 56) may have been another drain/culvert within the foundations, as was found at Sunlight Wharf (Fig 52, p60). Similarly, the tile tiers could also have been part of the drain structure. Alternatively, the tile stacks might have been part of a hypocaust, the arch forming a stokehole or flue. The painted plaster referred to seems to have been generally within the debris.

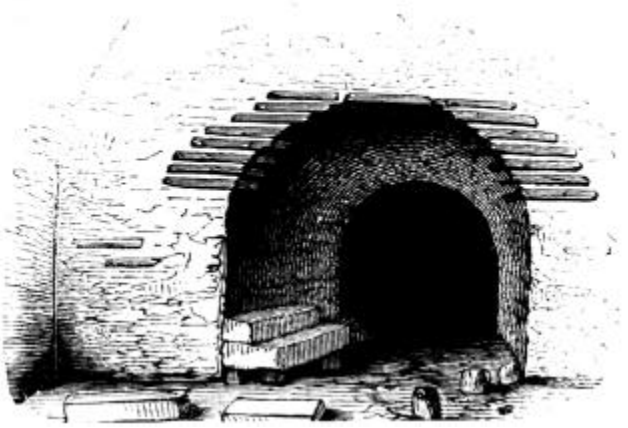


Fig 60 Culvert piercing the long *wall at Knightrider Street (Observation 16). (Scale 6 x 1')*

Observation 10: Lambeth Hill

Grimes 1968, 57-9, figs 12 and 13a

In 1962 excavations in the cellars on the east side of Lambeth Hill, and between Queen Victoria Street and Upper Thames Street (Fig 2), revealed part of the natural profile of the hillside. The hillside had been levelled with a series of dumps, downslope (Fig 11e). These consisted of Roman building debris, including stones, mortar, and fragments of wall plaster. 'The building debris was tightly packed and had the appearance of having been deliberately introduced' (Grimes 1968, 57).

This terracing action would seem to be directly comparable with that found at a similar position on the hillside at Peter's Hill and Sunlight Wharf. The materials used within the dumping also bear comparison. As such, it is probable that this marks a continuation of the dumps which were deposited behind the mid- to late-3rd century riverside wall (p13).

Observation 11: Fye Foot Lane

Merrifield 1965, 224

The information for this observation was taken by Merrifield from a City Sewer plan, although the plan number is not given and no other reference to the findings has been found.

> During sewer excavations [in ?1845] two stone walls were found running E-W across the street. The southern wall was 4ft [1.20m] thick, and the northern 5 ft [1.50m]. Further north, a Roman pavement was found at a depth of 4 ft. (Merrifield 1965,224)

The absence of detailed descriptive information for these foundations severely restricts their understanding. They were part of a structure, or structures, of some status, and their size suggests that they were part of a substantial, possibly public, building programme. However, they lay some distance to the east of the other Period I and II observations (Fig 2), and it is probable that they formed part of a separate development.

Observations 12-24: Knightrider Street

Between 1844 and 1961 a number of substantial walls were discovered in the vicinity of Knightrider Street. The first finds came in 1844 with the construction of sewers in Peter's Hill and Knightrider Street, although no detailed records appear to have been made at this time. The sewers were modified and/or extended in 1863, the additional observations being recorded in some detail by W H Black. Apart from a single observation in 1906, well recorded by Norman and Reader, the next opportunity to examine the area came after the Second World War during the redevelopment of bomb sites in the area. In 1955-6 this led to the construction of Old Change House, which was followed in 1961 by the major re-development of the area, monitored and recorded by the Guildhall Museum. The 1961 development also involved the redesigning of the existing street pattern; these changes are reflected in Figure 57, where the streets indicated are those of 1955, while the buildings are those of the post-1961 development. The former are particularly important, as many of the original records and published accounts refer to the streets for the location of the observations.

These discoveries have led to considerable speculation about the occupation of the area. It has been suggested that the observed walls formed a pair of parallel 'long walls', the most striking element being the northernmost, which curved away northeastward at its eastern end. Various authors have gone on to suggest that the northern 'long wall' fbrmed part of a boundary or precinct wall (Merrifield 1965, 92, 146; Morris 1982, 302), while most recently the 'parallel long walls' have been interpreted as part of a circus (Fuentes 1986; Humphrey 1986, 431-2). It is suggested here that the former is more probable, the northern wall forming a major boundary. The southern walls, in contrast, have been poorly observed and may have formed various independent structures within the area delimited by the northern wall. The case for a circus, however, cannot be ignored, and is discussed below (p86-7).

The Merrifield gazetteer (1965) summarised the evidence from these observations, although many were conflated into single entries, where it was suggested that the same wall was observed at different times; for example, during the 1863 sewer works and the 1961 redevelopment of the area. As a result it has been necessary to abandon the Merrifield gazetteer numbers and introduce a separate numbering system for the observations in this area: Observations 12-24 (Fig 57). In addition, the published positions of some observations have not taken into account all the available information, or made it clear that some of the walls cannot be located with any degree of certainty,

The fullest available description of each wall, taken from the original records of the observation, is given below (for their location see Fig 57).

The long northern wall

Observation 12 (observed 1961)

E R Book VIII, 38-40

> The above section lies across the long east-west Roman ragstone wall on this site at a point coinciding with the west frontage of Peter's Hill. Thus we have a further fragment of the wall a few feet further west of that found in the sewer excavations and recorded in the R.C.H.M [here Observations 13 and 14].
> The wall in section showed two constructions. The lower half was 4 feet wide and had evidently been constructed between upright vertical posts and planks. From the shape of the post-holes it was seen that they were not pointed at their bases but squared, and the posts did not seem to extend below the base of the wall or foundation [sketch in E R Book].
> The lower half of the wall in the section stood about 4' 2½ high, but was not constructed as strongly as the upper half which only existed to a height of 1' 3½, The upper half was constructed of rag and white cement with flint pebbles and was extremely hard. Its sides were extremely irregular and were slightly wider than the lower half of the wall. The decayed timbering did not continue up into the upper half.
>
> > The timber framing seems to have kept back the earth while the wall was being built. Thus the Roman pit "A" and "B" *E-R. 746* and *E.R. 747* predated the wall. Beside the upper part of the wall on the N side was another rubbish pit "C" *(E.R.748)* with the lines of rubbish or tip running up to the wall on the N side thus:-
> > [sketch E R Book]
> > Thus pit "C" is later or post dates the wall. ?Modern cement and rubble existed to a greater depth on the S side of the wall than on the north; and a shallow depression on that side, not associated with the wall, was found to contain Roman pottery *E. R. 749.*

This wall (Fig 58) was not accurately located, simply being indicated on a sketch drawing of the area in the E R Book, As the section apparently lay under the western frontage of the then Peter's Hill (above), it has a fairly accurate east-west position; its north-south position has been estimated from the sketch, but lacks precision (see p84 for implications concerning the regularity and alignment of the 'long wall').

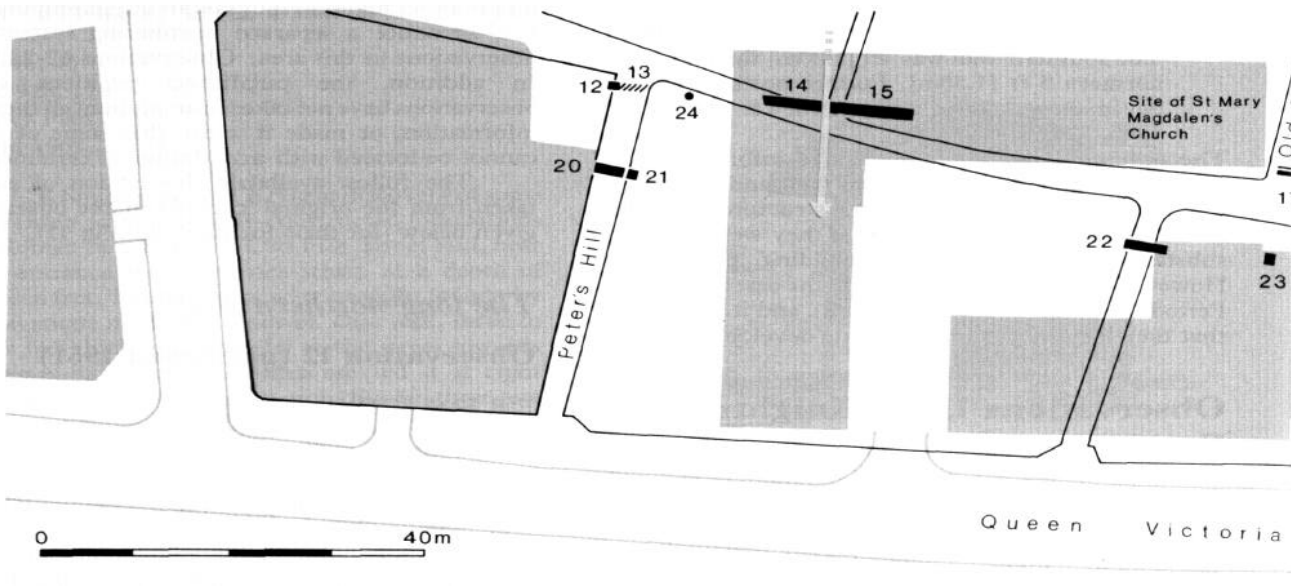


Fig 57 Observations in the Knightrider Street area. Modern buildings and street lines are shown in grey. The black street lines are those of the pre-1961 redevelopment of the area (reproduced from the 1951/2 Ordnance Survey Map, with the permission of the Controller of Her Majesty's Stationery Office; Crown Copyright). The lines shown are street edges, not including pavement lines. Feature 13 is hatched due to its conjectured status. (1:800)

The upper wall was slightly larger than the foundation, with an offset to the north; this might suggest that the wall had been rebuilt at some point, although, if the wall was constructed in stages, with the shuttered foundation first being constructed over some distance, and then the upper wall being placed upon it, it is possible that the slight offset was caused by a mis-alignment rather than by any extended chronological break or rebuilding works. It is unclear whether this change in construction provides any indication of the level of the contemporary ground surface, although the deposits in Pit 'C' lapped up against the wall at exactly this point, which might suggest that it does.

Observation 13 (observed in 1863)

Black 1866, 48

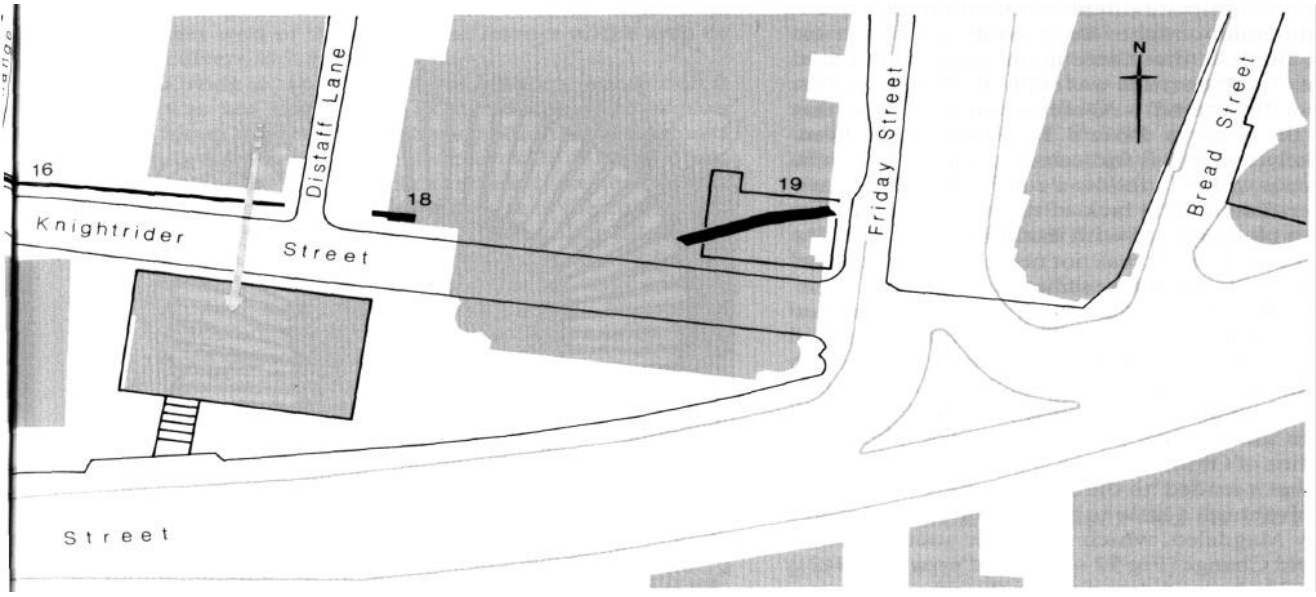
> It was on Thursday, the 25th June, that I was passing down St. Peter's Hill, out of Great Knightrider Street, to the Herald's College, by the back entrance, when I observed the workmen belonging to the City Sewers department excavating the ground for drainage, and casting up portions of Roman brick and concrete. I immediately caught up a piece of that brick, which I now produce, and took it into the college, calling the attention of my learned friends, the officers of arms, to the fact, that Roman foundations were disclosed.
>
> It was found to consist of a wall 3 feet 8 inches thick at the base, being rubble to the height of 3 feet from the footing, which stood in the gravel and sand of the bed of the Thames. Then followed Roman bricks, in courses, to the further height of 3 feet 10 inches; then rubble again to the height 2 feet 2 inches, diminishing in thickness from 3 feet 6 inches to 2 feet 9 inches at the top, which lay 5 feet 10 inches below the surface. of the ground, almost at the upper extremity of Peter's Hill. The wall, however, did not lie in a direction parallel to Knightrider Street, which bends somewhat northward at that place. Careful measurements were therefore taken, both across the "hill", and northward, at both ends of the line of the wall, to the front of the houses on the north side of Knightrider Street, so that its direction might be traced eastward or westward, to any other point where it might afterwards be traced.

As this feature was recorded with Observation 14, they will be discussed together.

Observation 14 (observed in 1863)

Black 1866, 49

> A few days afterwards, on the 7th July, a further portion was discovered on the northern side of the way in Great Knightrider Street,[8] exactly in the direction indicated by the former measurements. I produce small specimens of the Roman bricks obtained there, and observe that, from this spot, we found the wall tend to the exact line of the front wall of the parish church a little to the eastward,



whence I have been able to get a true base line for a southern wall of the City, above the "hills", and excluding all their slopes, and Thames Street, as might have been expected in the laying out and circumvallation of the primitive city.

Despite the references to measurements, none survive in the archaeological record. As a result, the precise locations of both Observations 13 and 14 are open to some debate, being entirely dependent on the above descriptions. In the RCHM report the description of Observation 13 has been attached to an east-west wall found in Peter's Hill, and indicated on the 1844 City Sewer Plan (1928, 141, Plan A 168).[9] However, there is some doubt as to whether the association of these records is correct. The sewer plan was probably amended soon after 1844 when the work was conducted, and Observation 15, also shown on the plan, was reported in 1846 (see below). However, other walls shown on the plan (notably Observation 22, below and Observation 6, p72) have no surviving description. Thus the wall marked on the sewer plan was probably observed some two decades before the account of the discovery of Observation 13. In addition, in 1961 two walls were observed crossing the line of Peter's Hill (Observations 12 and 21); these indicate that the sewer plan cannot be regarded as a complete record, since a sewer running up Peter's Hill would have exposed both structures, not just the one indicated - the absence of a more northerly wall on the plan does not mean one did not exist.

The descriptions of Observations 13 and 14 also contain a number of clues as to their location. The account of their discovery seems to suggest that they were part of the same wall, and lay in a direct east-west

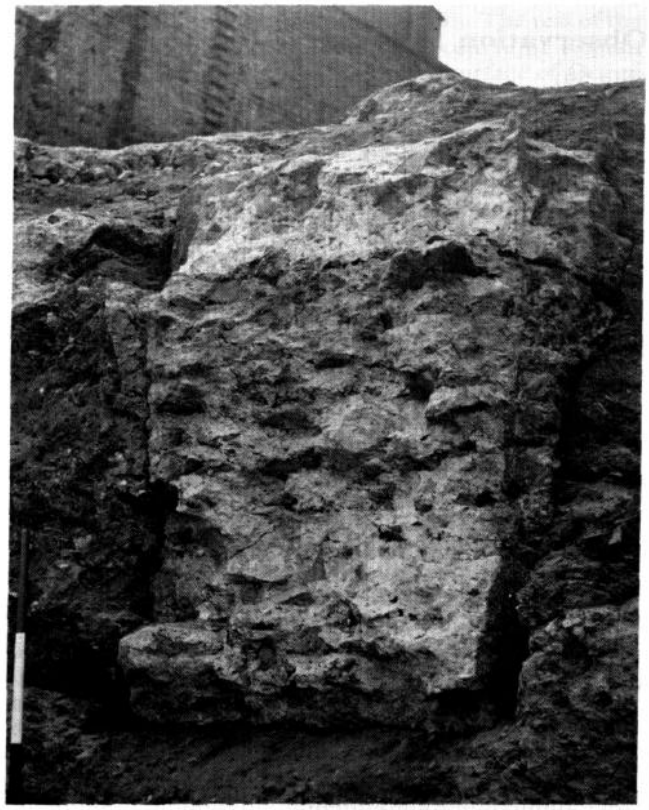


Fig 58 Cross-section of the northernmost of the Knightrider Street walls (Observation 12). (Scale 6 x 1')

line. The careful measurement of Observation 13, 'so that its direction might be traced eastward, or westward', suggests that there might have been some expectation of doing so; this was realised when 'a further portion was discovered' - Observation 14. Thus the course of the wall in Peter's Hill must have been approximately where it is indicated on Figure 57, for it to have been possible to follow a continuation of it into Knightrider Street. The lack of descriptive detail for Observation 14, compared with that for Observation 13, might also suggest that it was not necessary, as the walls were thought to be part of the same structure. It was also stated that Observation 13 was found at 'the upper [northern] extremity of Peter's Hill', which would seem to confirm this. In addition, the wall did not run parallel with Knightrider Street because it 'bends somewhat northward at that place', suggesting that the observation was close to the junction of the streets (Fig 57).

The line of Observation 14 is also suggested by the comment that it tended 'to the exact line of the front wall of the parish church a little to the eastward'; the church of St Mary Magdalen, which lay at the south-western comer of Old Change (Fig 57 - also Wild's map of 1842), is the most likely candidate for the church.

In conclusion, Merrifield's suggestion that Observation 13 was associated with Observation 12 (correlated as site 93 in his 1965 gazetteer), would seem to be most likely. The locations of these observations are far from precise and they are represented as such on Figure 57.

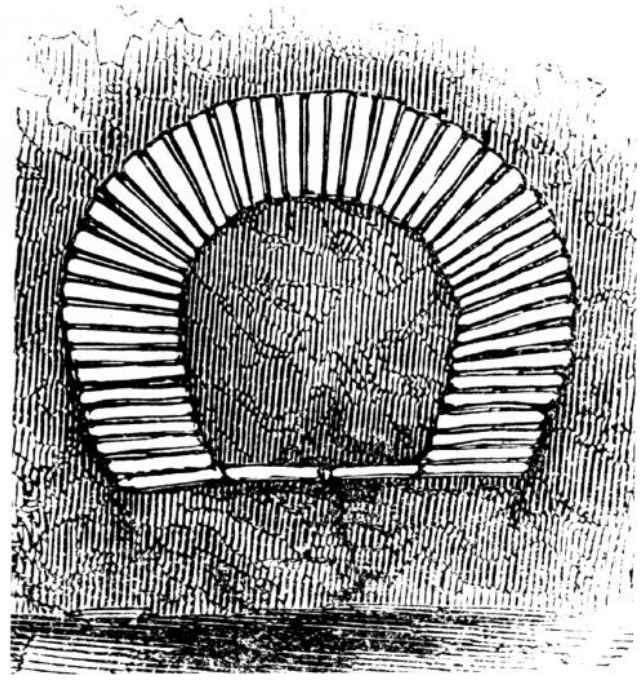


Fig 59 Cross-section of the culvert in Observation 15; drawn in 1928.

Observation 15 (observed in 1844)

(Fig 59)

Price 1846
City Sewer Plan 373

> The sketch [Fig 59] represents a relic of Roman London, somewhat similar to the one you have recorded in the *Journal* of April [Observation 9, p76], and I think from your description, at no very great distance either in locality or time of discovery. But as some of its details present a little variety, I have ventured to trouble you with the present communication. This arch, which of the kind is perhaps the most perfect yet discovered in the city, was found in front of No 15, Little Knightrider Street, in August last [1845], during the progress of operations for a new sewer, The wall, (Kentish rag) in which it occurred, presented itself on the south side of the excavation. It appeared to take a circular or slanting direction from south to north-east. The arch, which was formed of tiles about twelve inches long, measured (inside) three feet by two at widest; its base was about fourteen feet from the level of the street. The interior was filled up with loose earth for more than a spade's length. The opening at the side represents a portion of the wall (four feet six inches thick) which was then in process of tunnelling. (Price 1846).

It is probable that this wall was an earlier, and more complete, sighting of Observation 14. The latter lay in the vicinity, but clearly did not expose any feature as noteworthy as the culvert. This correlation was also made by Merrifield in his gazetteer (descriptions conflated under site 94).

The location of Observation 15 is given by the City Sewer Plan 373, but the drawing is not precisely accurate (see discussion of Observation 6, p72). The description of the wall as being in front of No 15 Little Knightrider Street, however, does accord with the general position indicated on the sewer plan. Nevertheless, the precise position is not known, and most importantly, it is quite possible that the north-south position of the wall is open to minor adjustment *(ibid).*

Observation 16 (observed in 1955)

(Fig 60)

E R Book III, 38-40, 46

> Attention was first drawn to the above site [Old Change House] by a member of the public who noticed a brick arch that has been exposed in the southern face of the builders' excavation. Close examination found this arch to be Roman while revealing that nearly the full E-W stretch of the southern face exposed the northern edge of a massive Roman foundation wall. The structure stood to a height of six feet and had been used in places as a foundation for the 18th and 19th century walls. Recent brickwork rested at one point on the only remaining original tile bonding

course. The wall was traced for a distance of 68 feet west of the W internal corner of the arch or culvert as it proved to be.

Owing to the nature of the builders' excavation it was not possible to expose a complete section along the face, but it was noticed that the ground directly beneath the Roman wall changed from brickearth at the eastern extremity to clean ballast at the west. At a point 15ft west of the culvert the brickearth dipped away leaving a gulley filled with layers of approx 1" thickness of sand and ballast alternately. These overlay a thicker layer of sand (approx 8 ins) that rested on ballast. This strata extended for a distance of 9 ft and appeared to have been deposited by running water.

Mr Merrifield made the following calculations on the 26th July. (E R Book III, 38-40)

There follows a series of measurements which quite accurately locate the culvert in relation to a nearby church. A sketch of the culvert indicates that it was 3ft 0½ in high by 2ft wide (internally). The tiles used in its construction were 1 ft 1½ in x 10½ in and 11 in x 8½ in (E R Book III, 46).

An additional comment, made a few days later, stated that 'the builders' underpining excavations along the southern boundary exposed a further section of the massive Roman wall extending to the west. This then provided a stretch of wall extending from east to west of the site, a distance of 125 ft.' (E R Book III, 46).

The re-use of the 'long wall' by 18th and 19th century buildings, and presumably by earlier medieval properties, is reflected by the correspondence between the wall and the property frontages at this point (Fig 57 - note the street lines illustrated are street edges, and do not include pavement lines). Although the wall was intermittently observed, this relationship suggests that it originally extended the full width of the site. It is this stretch of wall which has always been convincingly advanced in support of the idea of a single east-west long wall, and as evidence for the absence of crosswalls adjoining it. It is clear that while the former is probably correct, the absence of crosswalls only applies to the northern face of the structures as this observation did not expose the width of the wall, let alone its southern face.

The description of the waterlain deposits probably indicates one of the watercourses flowing down the hillside in this area (p8, Fig 4). Its juxtaposition with the culvert suggests that the latter was intended to carry water through the major obstruction of the 'long wall', thus preventing waterlogged conditions developing to the north.

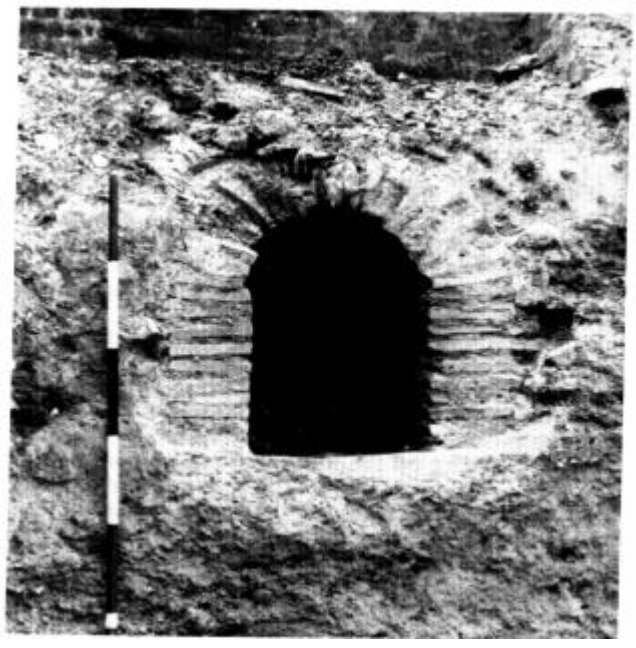


Fig 60 Culvert piercing the long wall at Knightrider Street (Observation 16). (Scale 6 x 1')

Observation 17 (observedin 1961)

E R Book VIII, 22-4, 62

During the present excavations, a length of 24ft dins of the S face of what is undoubtedly the same wall [Observation 16] has been exposed. Most of what remains is the foundation and slightly set back from it is one course of neatly squared rag stones (similar to the face of the Cripplegate fort wall). And lying on the stones and set back 1½ inches is a course of Roman bricks. The rest of the wall has been destroyed. The course of Roman bricks is roughly level with the surface of Queen Victoria Street to the south of the site. The rag is set in a yellow cement and the wall is of very solid and tough construction. (E R Book VIII, 23-24)

The records also state that 'the contractors first uncovered the wall a few days ago but unfortunately the Museum Assistant was not on the spot. The large fragments of wall were moved to another part of the site'. The records suggest that these fragments came from the area immediately to the west of the observed wall, implying a continuation in that direction. A wall, probably this stretch, was recorded as lying 32' 4" to the north of Observation 23 (E R Book VIII, 62). No further details appear to have been recorded at that time.

The plotting of this wall has proved problematic. According to a sketch in the E R Book (VIII, 22), the wall appeared to lie to the west of Old Change Hill (Fig 57). However, a more detailed sketch (on the same page), included detailed measurements from Old Change House; when plotted these indicated that the wall in fact lay immediately to the east of Old Change Hill. It has been decided to plot the wall in this latter position, partly because the second sketch appears to be more accurate, including as it does detailed measurements, and also because the re-development of the area involved the removal of many of the streets, which may have lead to some disorientation during the construction of the much more general first sketch. Nevertheless, the possibility remains that this observation lay somewhat further east (where it was placed by Merrifield 1965 - site 95).

The new location given for this wall introduces the interesting possibility that it was an observation of the south face, which was all that was seen here, of the same wall whose northern face had been observed in 1955 (Observation 16). The plotted position of Observation 17 conforms exactly with the projected line of Observation 16.

Observation 18 (observed in 1956)

E R Book IV, 31-3 *(E R 365)*

> Stone wall was composed of limestone - extremely well bonded. Only the core remained - there were no facing stones at all - nor any signs of buttresses. [sketch]
> Part of the wall was removed by the contractors. [sketch]

On the north face which was the only one visible during the excavation, there were no signs of the inlets for wooden posts which were noted on the portion of wall found in Friday Street (cf RCHM 1928, 120) [Observation 19]. But only about 6ft of the north face was visible, the rest being unexcavated.
The stone wall appears to have been destroyed when the brick wall was built. The latter was joined to the eastern end of the stone wall.

This wall appears to form an easterly continuation of Observation 16, which had been observed the year before.

Observation 19 (observed in 1905)

Norman & Reader 1906, 219-222

> An interesting discovery of a massive wall was made in August, 1905, at the western corner of the junction of Knightrider Street with Friday Street. We were told of this by Mr Allan B Walters, the architect of the new buildings which have been erected on the site of Nos 81, 83, and 85, and he kindly gave us every opportunity of making an inspection.
> This wall was particularly interesting on account of its construction between a framework of half poles and planks, a well-known Roman method, but one which does not appear to have been recorded in London. It ran throughout the width of the ground for a length of 51 feet 6 inches, crossing diagonally from Knightrider Street to Friday Street, beneath the roadways of which it appeared to continue. It was 4 feet in thickness and 9 feet high, and had its foundations resting on the ballast at a depth of 21 feet from the present street level. It was solidly built of Kentish rag, the stone being of irregular size and shape laid at random, but forming a flat face particularly on the south side; on the north it was somewhat less regular. The spaces between the stones were well filled with mortar. The stones varied in size from 8 inches to quite small fragments, being closely packed so that the joints were not very wide. At distances of 4 feet were the semicircular grooves formed by half-poles, which were 6 inches in diameter; these ran vertically up both sides of the wall and opposite to each other. The mortar had been poured freely into the wooden framework, forming smooth and regular grooves, and bearing on the face the impress of the planks and the division between them, which showed that the planks had measured from 9 to 10 inches in width.
> The original upper portion of the wall appeared to have been destroyed, but resting loosely on the top of what remained were two Roman tiles. There were, however, so far as we could see no tiles in the construction of the wall either as bonds or built in singly.
> We were told that not long ago, in constructing a sewer in Friday Street, the continuation of this wall crossing the roadway was met with. It will be seen by plan that this wall does not run in a straight line, but about two-thirds of its length from Knightrider Street it deflects somewhat towards the east. Apparently it formed an enclosure wall of some sort, and from the great depth at which its base rests it may be presumed to belong to an early period of the Roman occupation.

The unusual angle of this wall is discussed below (p85).

The southern walls

Observation 20 (observed in 1844-5)

City Sewer Plan 373

An east-west wall was marked at this point on City Sewer Plan 373, but no recorded description of this feature is available, In the RCHM report the description of Observation 13 was associated with this observation, but this seems unlikely (see Observation 13, p78).

Observation 21 (observed in 1961)

E R Book VIII, 40
E R Book VIII, 67

> On the east side of St. Peter's Hill and at a point 37' 7 *[sic]* south of the long east-west wall described above [Observation 12] was seen a ragstone foundation 4' 4½" wide the base of which lay 2-3 feet above the base of the foundation of the great E-W wall. The deep modern basement had removed all but the bottom one foot of this second wall. (E R Book VIII, 40)
> In cleaning up the southern long wall where it is exposed under Peter's Hill, a pit was found on the N side of the wall and dug through the undisturbed brick-earth beside the wall. One tile course (Roman) was exposed at the top of the wall and below that one course of rag blocks which may have formed the N face of the wall. The rest of the wall was foundation only and the vertical side of the foundation in the sand, gravel and brick-earth strongly suggests that the foundation had been

built between horizontal planking as with the northern long wall. The pit was almost certainly later than the wall. *E.R.786.* Pottery of the 4th century from the pit on the N side of the wall. (E R Book VIII, 67)

The reference to the wall lying 37ft 7 in to the south of the north wall (Observation 12) may have been a mistake; the accompanying sketch indicates that the distance between the two walls was 30ft 7 in. This measurement seems to accord more closely with the position of Observation 12, and would place this observation in line with Observation 20, which lay immediately to the west, beneath Peter's Hill (Observation 20's position is reasonably well secured from the City Sewer Plan - above). Unfortunately Observation 20 has no description, but it is probable that Observation 21 formed an easterly continuation of the structure, given their proximity and general alignment.

The second reference was not clearly equated in the E R Book with this observation, although the description implies this. It is clear that no vertical posts, or the impression of horizontal shuttering, were actually identified at this point; only that the vertical sides of the foundation have been taken to imply them. Although the foundation was probably trench-built, neither shuttering, nor in particular vertical retaining posts were necessarily employed. Trench-built foundations were common throughout the Roman period, and many were shuttered without the use of posts; thus the mere fact that the foundation had vertical sides does not demonstrate the presence of the post and shutter technique.

Observation 22 (observed in 1844-5)

City Sewer Plan 373

The position of an east-west wall is indicated on the City Sewer Plan 373. No further details appear to have been recorded.

Observation 23 (observed in 1961)

E R Book VIII, 62

> Excavations have just been completed and in the section across the long Roman wall, another wall of exactly the same construction 32'4 south of the long wall, has been uncovered south of the main wall.
> [sketch]
> Both walls are constructed of ragstone and a hard cement, all mixed, not in layers as in the Roman City wall.

The sketch indicates that the wall was seen in section 80ft west of St Nicholas Church, and 32ft 4in south of the northern wall (probably Observation 17). Its surviving thickness was 4ft, but its northern face had been destroyed by a modern foundation.

Observation 24 (observed in 1961)

E R Book VIII, 24

In 1961 an observation was made of another east-west wall, near the eastern limit of Peter's Hill. This observation was not accurately located, but was sketched in the approximate position indicated on Figure 57; it appears to have lain close to, and possibly south of, the line of the northern 'long wall'.

> In the section was seen a N-S section across the base of the foundations of a wall. The cement was brown and contained mostly Roman brick and chalk, but a few lumps of rag did exist. The foundation at this point was found to be 6 feet wide. The wall here was so different from the rest that has been uncovered that there is some doubt about it being part of the "long wall". (E R Book VIII, 24).

This wall has often been omitted from accounts of the area, as it does not seem to tit into the accepted pattern of development. However, it is an important observation as it suggests that at least one substantial structure lay very close to the line of the long north wall. Its construction, although not extensively documented, is sufficient to indicate that it was different in both technique and size from the features associated with the long north wall. Indeed, the width of the foundation, some 1.82m (6ft), indicates the largest structure so far discovered in the Knightrider Street area.

Dating discussion

The dating of the walls rests on a single observation (Observation 12) made in 1961. This stated that the foundation overlay the backfilled Pits 'A' and 'B' (p77), which contained pottery of the late 1st or early 2nd century (Merrifield 1965, 216), providing a very general *terminus post quem* for this part of the northern wall. On the northern side of the wall, layers in Pit 'C' were deposited against the upper part of the wall (above the offset course), post-dating its construction *(ibid);* these deposits contained pottery of the late 3rd and 4th centuries (Merrifield *op cit),* indicating that this feature at least was still extant at that time. However, there is some argument as to whether the upper levels of the wall here were part of its original construction, or a later rebuild (p78).

The suggestion that the form of construction was likely to be of a late 1st or early 2nd century date (Marsden 1980, 105) would seem to have little substance, as ragstone, tile and good quality bonding material are present in structures of a wide date range (see p84).

In conclusion, the dating evidence is insufficient to isolate the periods either of construction or of use of the northern wall. A broad 2nd to 4th century date is possible for its construction, with at least some parts still standing in the 4th century. No dating evidence was conclusively associated with the southern walls, although it was noted at Observation 21 that a pit, thought to be later than the wall, contained pottery of the 4th century.

It has always been assumed that the walls observed in this area were contemporary, and while this has clearly never been established, the character of the development might argue that most, if not all, were part of the same development of the area. Nevertheless, the possibility that some features were later additions, modifications, or redevelopments should not be excluded.

General discussion

The descriptions of many of the observations are vague. The actual details recorded, such as type of stone, character and colour of mortar, etc, also vary from observation to observation. Similarly, the recording of the dimensions of the walls lacks consistency; in particular, the widths of the walls were not always noted, despite apparently being observed. The observations also took place at different times, which hampered correlations in the field. These limitations hinder a re-assessment of the claim that these portions of wall are parts of a single structure. The fact that most published accounts have adopted this interpretation, however, makes it appropriate to test the validity of that association here.

The similarity of the walls' construction has been much vaunted in the past. A superficial examination of the material suggests a basic similarity, if only because the finer details of construction are obscured by the lack of data. However, the descriptions of many fragments of Roman masonry fall into such broad descriptive categories: ragstone rubble, tile courses and possibly squared blocks for facing *(petit appareil).* These were all common elements of masonry foundations for a period in excess of three hundred years (Shepherd forthcoming; Milne 1985, 127-41; Ward-Perkins 1981, 223). Given the very small variations that appear to have existed within the Roman masonry wall tradition, one might expect the walls observed here to have shown at least this degree of cohesion, regardless of their functional or structural associations.

The long northern wall

The fact that there was some form of northern long wall seems indisputable, the *c* 40m stretch between Observations 16 and 18 leaving little doubt of its overall consistency. The walls to the west (Observations 12 to 15) were probably also part of this structure although some problems still remain. In the main these result from the somewhat suspect plotting of the observations. Their positions are reasonably securely located in the east-west axis, but are more questionable in the north-south. Observation 15 is located from a sketch on the City Sewer Plan, and a rough estimate of the position of Observation 12 has been made from a photograph. The descriptions of the walls suggest that they were aligned, hence the positioning of Observations 13 and 14. Thus they appear on Figure 57 to be slightly further north than Observations 16 to 18; if they were part of a long wall, it must have kinked slightly between Observations 15 and 16. Interestingly, it is at this point that an indentation in the slope of the hillside occurs (Fig 4). It is probably more likely, however, that Observations 12 to 15 lay slightly further south than their plotted position on Figure 57. This may be supported by the description of Observation 14 which states that 'we found the wall tend to the exact line of the front wall of the parish church a little to the eastward'; the church, St Mary Magdalen's (p78), lay at the corner of Old Change and was, in turn, directly in line with the properties on the eastern side of that street. These can been shown to have used the long wall as a foundation, the property line being dictated by the wall (Observation 16, p81). Thus a common alignment between Observation 14 and the front wall of the church may not be coincidental; rather, it may indicate that Observation 14 lay in a direct line with the long wall to the east. However, there is still sufficient ambiguity in the location of these features to plot them 'as found', so as not to obscure the issue.

The correspondence of the long wall with the position of medieval and later properties in the east introduces the possibility that the course of the wall could be conjectured on that basis. Early maps of the area (for example, Wild's map of 1842) indicate that the line of the Knightrider Street properties east of St Mary Magdalen's church was maintained until the junction with Bread Street, some 60m beyond Observation 18 (Fig 57). After that, although the line is roughly maintained, it becomes markedly more erratic. No reliable observations have been made on the projected line to Bread Street, although at that point 'a mass of masonry' was observed in 1844-5 (Observation 25; Merrifield 1965,219). Observation 19 lay to the north of this line, and it is quite possible that an easterly continuation of the long wall passed to the south of this site. Thus the later property development might be taken to suggest an eastern continuation of the long wall.[10]

The construction of the wall is also somewhat unclear. Courses of neatly squared ragstone blocks, presumably for facing the above-ground element (see below), were only noted in Observation 17. Tile courses were more common, being recorded in Observations 13, ?14, 16, 17 and ?18.[11] The foundation was probably trench-built, as it was recorded as cutting both through earlier features and through the natural hillside. However, the use of vertical posts and horizontal shuttering as part of the trench construction in Observations 12 and 19 is interesting, as many of the other observations of the northern long wall, which were otherwise carefully recorded, make no mention of this technique. In addition, the posts are carefully described as squared (Observation 12) and semi-circular (Observation 19), suggesting that the construction was not identical even in these cases. This, however, does not necessarily compromise the structural unity of the northern wall, as the technique may have been a response to changes in either geological or topographic conditions, in particular the increased steepness of the slope in these areas (Fig 4). The variety in the timbers used would not be improbable if the works were only carried out where required: the availability of timber might have been the most significant criterion for its selection, and its role within the shuttering would not have demanded any particular need for standardisation.

The wall was recorded as 1.21m (4ft) wide at Observations 12 and 19, which as we have just seen were of a somewhat different construction from the rest of the northern wall. Elsewhere widths of 1.11m (3ft 8in - Observation 13) and 1.37m (4ft 6in - Observation 15) were noted, The rather imprecise nature of these last two observations, and the lack of an observed width from others, leaves some doubt as to whether they indicate changes in build, or, possibly more likely, minor differences exaggerated by the poor archaeological record. However, other changes can be noted along the length of the wall. Two culverts were recorded in the northern wall line, at Observations 15 and 16. Both were tile built, but Observation 15 was drawn and described as a 'horseshoe form' (Fig 59), whereas the Observation 16 culvert was vertically sided with an arched roof (Fig 60). If the wall was of a single build, one might not expect such changes in construction along its course. Two possibilities occur: that the wall was constructed by different gangs, which led to minor changes over its length, or that it was not in fact a single construction at all, but something that was added to, possibly over an extended period of time. In the latter case the possible change in alignment between Observations 12 to 15 and 16 to 18 (above) might be significant, as might the relationship of the wall to the putative late 1st/2nd century town boundary. The eastern part of the wall lies within this boundary (Fig 27b), whereas the western part lies beyond it. This might suggest that the western stretch was an extension of the former, although it is equally possible that the whole wall was constructed after the town boundary had been extended. In conclusion, the present state of knowledge seems insufficient either to conclude that the wall had a straight course, or that it was definitely of a single build.

The easternmost observation, Observation 19, is the only feature to deviate from the general east-west alignment common to the other observations. It has already been noted (p84) that the long wall might have passed to the south of this observation, possibly continuing as far east as Bread Street. Observation 19, however, appears to have followed the local topography, turning north-eastwards as the general north-south slope of the hillside shifted to a north-west to south-east slope (Fig 4), and thus continuing to run directly across the angle of the slope. This relationship with the natural slope reinforces the suggestion that the wall functioned, at least in part, as a terrace wall; the description of the wall here (Norman & Reader 1906, 220) states that although the southern face was flat, the northern was irregular, possibly the result of the southern face being exposed at a level below that of the northern. If the long wall did pass by to the south, what then was the relationship of Observation 19 to that boundary? It is most likely that it actually argues against the continuation of the long wall to the south, suggesting rather that it was deflected upon this course in response to the changing topography. However, it is possible that two walls might have existed in this area, one continuing on an east-west course to the south, and the second terracing the changing slope to the north, possibly for some additional building works outside the original boundary, Possibilities are rife, and it is important not to allow a single theory, or particularly a single chronology, to hamper further consideration of the area.

Whatever its constructional history, the long northern wall does not seem to have formed part of a simple building, or buildings, as no cross-walls joined the structure, despite the considerable lengths observed (40m of the northern face and 7.45m of the southern). As such, the wall almost certainly formed a boundary between the relatively flat ground immediately to the north, and the more steeply sloping hillside which fell away to the south (Fig 4). The solidity of the wall's construction suggests that it supported an above-ground element; a suggestion supported by the surviving height of 2.74m (9ft) of Observation 19, and by the offset at Observation 12. It is probable, therefore, that the northern wall served a dual function; retaining the ground to the north, and forming an above-ground 'long wall' that provided a very tangible boundary to the development to the south (see below). The culverts were probably designed to carry the small streams running down the hillside through the obstruction of the long wall (Fig 4), and it is reasonable to suppose that they would have been constructed where required.

The southern walls

There is some doubt as to whether the southern walls formed a single 'long wall', similar to that postulated to the north. In the first instance it seems unlikely that the walls were indeed parallel. On only two occasions were both a northern and southern wall exposed at the same time; Observation 21 was recorded as lying 9.32m (30ft 7in) south of Observation 12, whereas Observation 23 was said to lie 9.85m (32ft 4in) south of Observation 17. This tends to suggest that the southern walls were not a consistent distance from, or therefore parallel with, the northern long wall (Fig 57), although an inaccuracy within the archaeological record cannot be excluded.

The absence of cross-walls in these southern observations does not carry the same weight as with the northern wall. In the case of the latter, sufficient of the face was exposed to make their absence conspicuous (p84). In contrast, the southern walls were only observed in section, or at best over very restricted distances; hardly sufficient to preclude the existence of cross-walls.

The descriptions of the southern walls are particularly poor, and it is not possible to argue conclusively either for or against constructional similarities. The only recorded wall widths, excepting for the moment Observation 24, were 1.31m (4ft 4½in) for Observation 21, and 1.21m (4ft) for Observation 23; these are certainly no more erratic than those of the north wall (above).

The most intriguing observation is that of Observation 24, which was different from the northern 'long wall', but lay very close to its line (Fig 57). Although the structure of which it was a part is not at present understood, it implies that substantial building activity took place close to the line of the northern wall, and between it and the supposed southern wall. Two possibilities seem to present themselves: that a long southern wall existed (Observations 20-23 inclusive), possibly on a slightly divergent alignment from the

northern wait, with at least some structural activity between the two (observation 24), or alternatively, that the idea of second long wall to the south has obscured the more simple interpretation, that the walls were part of independent structures whose position may have been in part dictated, or influenced, by their proximity to the boundary wall. In the second option two building areas might be suggested at present: Observations 20 and 21, possibly including Observation 24, and Observations 22 an 23. This hypothesis would account for the slight divergence of alignment noted between these walls; separate structures, in such close proximity, are likely to have shared the same basic alignment but not necessarily an identical one.

The size of the foundations once again suggest that they might have performed more than a simple retaining role, and numerous possibilities ensue, including features such as enclosed colonnades, which could have provided a dramatic architectural feature within the public development of the area (see p37). The alternative suggestion of independent structures is even more difficult to reconstruct in view of the limited nature of the observations, but the hillside setting would have provided an ideal location for many decorative or visual structures, such as shrines or temples, which would have complemented the public area which they overlooked.

Conclusions

The walls appear to be closely related to the exploitation of the hillside. Although dating evidence is scanty, the walls lay on a noticeably different alignment from that of the Period I complex (Fig 6), whereas they seem to conform to that of the late 3rd century Period II complex' (Fig 24). It seems probable that they were in use with the Period II complex, and most likely they formed part of that development.

It has been suggested elsewhere that the walls were part of a circus, and this might offer an attractive interpretation in light of the suggested function of the Period II complex as a administrative centre/palace (see p31 for the relationship between these structures and circuses in the late Roman world). However, there are a number of problems with this interpretation and although it cannot be discounted, it remains in the author's view somewhat doubtful (see discussion below). More plausibly, the northern long wall provided a northern boundary to this area of public land, delimiting, possibly even screening it, from the quarries and open ground to the north (the suggestion that the walls enclosed a compound has already been put forward by Morris 1982, 302 - referring to a possible location for the late Roman treasury). Immediately to the south of this boundary wall, the southern walls probably represent further 'public' structures. These were of a substantial nature, but unknown function, and could have encompassed anything from individual buildings to terraced colonnades.

These structures, and possibly the boundary wall itself, need not have been part a single phase construction. Any expansion, or rebuilding, might have been a mirror of the expansion of public building to the south, where, in the late 3rd century, the Period II complex was extended into the area enclosed by the c AD 200 town wall (p37).

Thus it is possible to suggest a very different account of the development of the area from the one offered by the 'two parallel walls' theory. Individual elements of this interpretation may prove to be too simplistic, or indeed incorrect; we should beware of allowing a single long wall, and some walls of a broadly similar alignment, to condition our perceptions of what is clearly a complicated structural sequence. Nevertheless, although not comprehensive, being limited by the vicissitudes of the primary archaeological records, a model of public development would seem highly probable. This, in turn, can be set within the context of the more closely dated public building development to the south (see Chapter 2, p28-32).

As a footnote to this discussion it is necessary to examine the most recent interpretation of the walls in this area, the suggestion that they formed part of a circus. Fuentes first suggested in 1986 that the 'parallel' walls observed in the area of Knightrider Street were part of the southern range of a circus, aligned east-west across the slope of the hillside (Fuentes 1986, fig 3). He conjectured that 'the greater thickness' of the southern wall (a fact which is not demonstrable, p84-5) was because it retained a 'higher structure' or 'had to resist a greater thrust', suggesting that 'these early parallel walls served as supports for a north-facing seating stand for a circus' (1986, 146). It is implicit in his discussion that he accepts that all the walls observed were part of a single structure, an assumption which has already been contested.

Humphrey, also writing in 1986, was somewhat more circumspect in associating these walls with a circus. He points to the favourable location that the area afforded, and notes that the distance between the two walls, some 9.3m, compares with examples in other circuses, such as Arles (8.65m) and Vienne (8.5m) (Humphrey 1986, 431). The only important objection Humphrey sees to the walls forming part of a circus came from the easternmost wall, Observation 19, which 'is not aligned with the sections to the west and which, because of its bend, does not match the plan of any known circus substructures' *(op cit,* 432). He accepts that this makes the entire hypothesis less convincing and concludes, that 'a circus in London must remain only an intriguing possibility, not yet proven by the walls that have been found' *(ibid).*

It can be argued that there are a number of points which detract from the interpretation of the walls as part of a circus, of which the alignment of Observation 19 is only one. The problems are, in fact, manifold:

i) The construction of the walls varies between the north and south elements (p83). Such variety would seem not to fit the hypothesis that the walls were part of a single structure.

ii) There is no evidence that the southern walls were of a greater width than the northern element, and the suggestion that the southern walls were larger so as to retain the structure cannot be demonstrated.

iii) The possibly divergent alignment of the northern wall from those to the south indicates that these structures may not have actually been parallel at all (p85).

iv) The area to the north of the walls contained an extensive area of quarrying (p86), which would have fallen in the middle of the reconstructed circus. Fuentes quotes Observations 28 and 29 (Merrifield 1965, 213) and Marsden (1980, 201), when stating that the quarries had been infilled by the late 1st century and, therefore, present no impediment to the circus hypothesis. Observations 28 and 29, however, make no mention of dating evidence and Grimes's original records, from which those gazetteer entries were drawn, suggest that the quarrying extended into the 3rd and 4th centuries (Grimes 1968, 145-6). Although the dating of these activities is by no means conclusive, it is difficult to demonstrate that a hiatus occurred corresponding to the use of the area within a circus. Indeed, the presence of 4th century wares within the quarry pits' latest backfills (Grimes *op cit)* might argue that no such break took place.
v) An undated north-south wall in Sermon Lane (Observation 26; Merrifield 1965, 213) forms a rather sudden western limit for the circus. Fuentes (1986, 146) argues that it may have formed the western end of the structure, despite the fact that an eastern return in the wall is supposed to have been observed in a position too far north for the reconstruction. This anomaly is explained as resulting from the kink, westward, in Sermon Lane: 'at the point where its [the Sermon Lane wall] southern end terminated, the turn here may have been more imagined than real' (1986, 146). This would seem to be a rather simple way of removing evidence that is otherwise inconsistent. Even if this is accepted as the western end of the circus, it would make the London circus 54m shorter than that at Jerash (Fuentes' own example; 1986, 146), which was one of the shortest circuses in the Empire. Although this is not impossible, it would seem unlikely.

Alternatively, the putative circus could have been of a different date from the Sermon Lane wall (and another wall at Observation 27; Merrifield *op cit),* thus enabling the reconstruction to be extended further to the west. However, a westward extension seems to take little account of the problems of the natural topography; Humphrey stated that 'it is striking that no other Roman building remains of this period have been found in this area or farther west up to the city wall, so that theoretically the structure could have extended that far, a little more than 400m in length. The terrain was suitably flat.' *(op cit,* 431-2). An examination of the contours on Figure 4, however, shows that the ground fell away steeply towards the Fleet River, some 100m to the west of Observation 12, and even in that distance a sizable kink within the contours, possibly caused by one of the many streams flowing down the hillside (Fig 4), would probably have made the ground immediately to the west of Observation 12 very uneven.

Although the suggestion of a circus cannot, and perhaps should not, be dismissed, there appears to be a considerable number of obstacles to such an interpretation. Given these problems, the reconstruction of the walls as part of a circus is questioned.

8. OTHER EVIDENCE FOR PUBLIC MONUMENTS IN THE AREA

In addition to the direct evidence presented for substantial public structures in Chapters 4 to 7, a number of other monuments, mostly of a public nature, can be inferred from building material re-used in later structures. The material discussed in Chapters 8.1 and 8.2 was re-used during the construction of the Period II complex; the Period I complex can be explored, therefore, as a possible source of the material. The stonework retrieved from the riverside wall (Chapter 8.3), however, was not associated with the construction of the late 3rd century Period II complex. It lay in a stretch of riverside wall which is not closely dated (sometime after c AD 275, p13), and, as such, both the Period I and IX complexes offer potential settings for the demolished monuments.

8.1 Building material redeposited during the construction of the Period II complex at Peter's Hill

Evidence

The discussion here centres on inferences drawn from re-used building material at Peter's Hill; in particular, the large assemblage from the Group 2.11 compacted dumps. The building material from all the excavations is discussed in Appendix 2, but in this context Ian Betts has kindly provided some comments which are included below.

The majority of the ceramic building material from the late 3rd century public building complex at Peter's Hill was dated to the late 1st/early 2nd century (Appendix 2, p100). PPBRLON stamped tiles, from Groups 2.6, 2.10, 2.11, and 2.13, are also thought to date from this period. In addition, there are relief-patterned box flue tiles of late 1 st-2nd century date in Groups 2.3, 2.10, 2.11 and 2.13. This material was associated with residual pottery of a similar date (Davies 1987) and was probably derived from earlier strata re-deposited here as part of the terracing action for the Period II complex (p41). As such, the material does not appear to be sufficiently diagnostic, either in terms of form, date range or source, to draw any direct inferences about the structures from which it may have derived,'* except that the PBBRLON stamps may indicate the presence of a public building within the area (but see p10).

The material from the compacted Period II make-up dumps, in the eastern area of the site, and that used in the construction of the Period II northern terrace wall (all Group 2.11) warrant further attention. This material was noticeably different from that found elsewhere within the Period II construction; it contained large quantities both of ceramic building materials and marbles. Although this assemblage contained some of the late 1 st/early 2nd century pottery found in the other make-up dumps, the pottery forms were primarily confined to those of late 2nd and 3rd century date (Fig 47), and small quantities of *tegulae* and *imbrices* in a fabric dated to the late 2nd/3rd century, or later, were also found (type 2456; 300 grams or 0.5º.of the flue tiles within the 2.11 assemblage).

The Group 2.11 assemblage was made up of a number of different materials:

(a) A large group of ceramic building material. The assemblage also included three relief-patterned tiles.

(b) Twenty white limestone *tesserae; tesserae* were not found elsewhere on the site.

(c) Painted plaster. This included a number of examples of splash decoration, in various styles; a technique which was intended 'to give an impression of the fine marble wall-veneers' (Liversidge 1968, 87).

(d) A large quantity of ornamental stone, mainly in the form of marble veneers, but also including one moulding and several thicker slabs (Appendix 2; see also Pritchard 1984; 1986). The assemblage consisted of a variety of white marble and limestones (of various grain sizes), along with a number of imported marbles. Many of the fragments had traces of mortar adhering to broken edges, suggesting that some had been re-used before their redeposition within the Group 2.11 dumps. Some of the marble was not earlier than the 3rd century, although others are thought to have been 1 st or 2nd century (p 100). It is possible that the latter were stockpiled prior to their use in the same structure as the 3rd century material (Pritchard 1986, 187), but the degree of re-use, noted above, would possibly provide a more logical explanation for their presence within this assemblage.

Implications for the demolished structures

Ian Betts writes:

> The material from the Group 2.11 dumps appears to have derived from a building, or buildings, constructed, or refurbished, no earlier than the late 2nd or 3rd century. Presumably, this structure was stone and tile built, judging from the presence of large amounts of bonding brick. Bonding bricks were commonly used as levelling courses in stone built structures. It may also be suggested that the structures had some areas roofed with tile.
>
> The diversity of decorative stone types indicates that the building in which they had been used must have been of considerable importance. The occurrence of box flue tile suggests that they were installed in a bath-house or heated room. It is just possible that this was an official government building judging from the presence of the PPBRLON stamps. (See Chapter 1.6 for implications for Period I structures.)

The marbles are worthy of emphasis, as they comprise the most varied assemblage of imported stone so far found in Britain. It is evident that the structure from which they came was of considerable decorative grandeur. Marble has been noted within a wide range of buildings, for example at Colchester, where a quantity of imported stone was used at the Temple of Claudius, in the southern range of the enclosure (Drury 1984,

34-5). It is probable, given the range of material, that it came from a public building programme; the black and white diorite, for example, 'featured extensively in Imperial architecture of the 2nd and 3rd centuries' (Pritchard 1986, 188 after Gnoli 1971, 124).

The cohesion of the ceramic building materials, the imported decorative stone and the associated pottery (p56) from the Group 2.11 dumps suggests that the material probably came from the demolition of a single building, or group of closely related buildings, rather than accumulated as part of the general re-deposition of building material through terracing actions (as has been suggested for the rest of the building debris found in the construction levels at Peter's Hill, p88). Therefore, it is possible to speculate on the original location of the demolished structure(s), which, considering the cohesion of the assemblage, might have been located in the general vicinity of the Peter's Hill site.

The only known monument of a suitable character - *ie* substantial, well-appointed and probably public - within the area was the extensive bath-house found at Huggin Hill (Fig 9). The bath-house, constructed in two phases beginning c AD 70, was demolished not earlier than the late 2nd century (Marsden 1975, 22-3). However, a comparison of the building material from Group 2.11 and demolition debris from Huggin Hill (detailed in Betts 1987a) has led Ian Betts to write:

> 'the material from Group 2.11 at Peter's Hill almost certainly does not come from the Huggin Hill baths. There is a far greater variety of imported decorative stone types at Peter's Hill. The two relief-patterned box flue tiles present, dies 12 and 101 (see Betts *et al* forthcoming), are not found at the Huggin Hill baths. Distinctive, thin (9-15mm), combed box flue tiles in fabric 2451, found at Peter's Hill, are totally absent from the Huggin Hill baths; nor are there any later Roman ceramic brick and tile fabric types from the latter. The surviving painted wall plaster also shows marked differences. The distinctive plain pale purple wall plaster found at Huggin Hill was totally absent from the Peter's Hill assemblage. In contrast, wall plaster with splash decoration, in various styles, was found at Peter's Hill but no wall plaster with this decorative technique was found at Huggin Hill. Peter's Hill also produced a small quantity of slate, possibly used for roofing; none is known from Huggin Hill. In conclusion, it can be said that the building material in Group 2.11 is very unlikely to have come from Huggin Hill.'

As the baths complex at Huggin Hill does not appear to have been the source of the Group 2.11 building material, another possibility can be considered: that the material was derived from the demolition of the Period I complex. Certainly the status of the material and the implied public character would seem to be compatible, and the Period I complex was levelled as part of the Period II construction (p71). The date of the material might also be considered comparable, with the late late 1st/early 2nd century tiles and some of the marbles deriving from the original construction of the complex, and the later marbles (and the re-used marbles) representing repairs to its fabric. The implications of any possible association are explored in greater depth in the Period I discussion (Chapter 1.6).

8.2 Re-used masonry in the Period II complex foundations

The excavations of the Period II complex at Peter's Hill, Sunlight Wharf, and the Salvation Army Headquarters produced evidence for the re-use of large stone blocks within the basal course of the massive foundations. In all cases the blocks were not elaborately worked pieces, but rather were roughly dressed stones, their re-use indicated by the presence of their dressed faces within the body of the foundation. In no case were any decorated stones observed, and nothing comparable with the material found in the later riverside wall (Chapter 8.3) was encountered.

None of the stones gave any direct indication of the structure, or structures, from which they originally derived, other than that the size of the blocks suggests that they came from a structure of some solidity and status. The source of the material is unknown, but it is interesting to compare it with the stones found in the later riverside wall. It is suggested that the latter were of some architectural status in their own right, and may have belonged to structures that survived the refurbishment of the complex in which they were originally situated (p91). The same cannot be said about the blocks from the foundations within the Period II complex, which were of an altogether more basic form. It is tempting to suggest, therefore, that the undecorated stones might have derived from elements of the Period I complex which were cleared away as part of the Period II redevelopment of the area. An example of a similar pattern of re-use comes from Sabratha, where plain sandstone blocks from the Period I East Forum Temple were used within the base of the Period II foundations, whilst the more decorative or elaborate elements of the Period I structure, such as the columns, appear to have been used in an above-ground structural role within the Period II temple (Kendrick 1986, 58).

The only exception among the undecorated bulk of the re-used stonework came from Observation 7, a foundation observed by Roach Smith beneath Upper Thames Street in 1840 (Chapter 7.2). Here decorated stonework was uncovered, but it is not clear exactly how much originally existed; some stones merely exhibited signs of re-use, such as dressed surfaces or cramp holes, not unlike those found at Peter's Hill and Sunlight Wharf (see above). However, a few more elaborate pieces were present, Roach Smith notes in his diary that he 'wrote to Mr Kelsey to have the sculptured stones found at Thames Street preserved. It is very annoying that while I am regarding with jealousy, no means are adopted to save any of these interesting remains from destruction. Already one of the best has been sent to Canard's Wharf to be used again for building!!!' (1841 b, 117-8). Unfortunately there is no means of quantifying the amount of decorated stonework that was present. The description of the finds indicates that there were fragments of marble pilaster, and at least one carved stone with a trellis decoration; the latter was saved and is now at the British Museum (Fig 61; BM Acc No 185b 7/14).

The original structural role of the stones is not clear. Roach Smith suggested that the carved stone came from an altar (1841a, 151), and it is possible that the

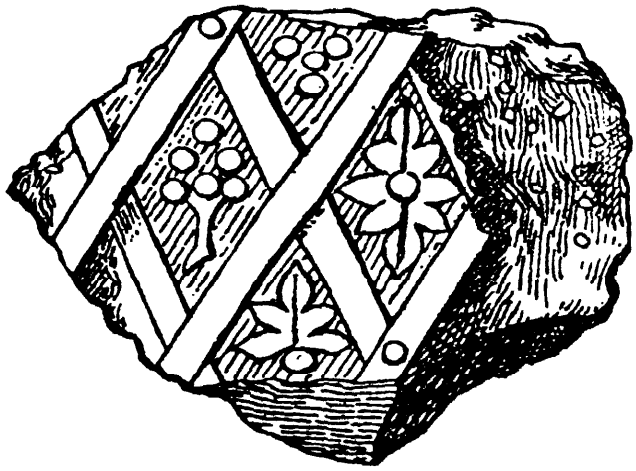


Fig 61 Fragment of trellis-ornament, re-used in the foundation at Observation 7. Found in 1840. (Illustration from VCH London 1909, fig 23.)

decorated stones came from portable features, such as altars, or decorative details, such as the pilasters. There was no suggestion that major architectural stonework, such as column drums or architraves, was present. The majority of the stonework appears to have been massive undecorated blocks, and can be seen in the same context as the re-used stonework at Peter's Hill and Sunlight Wharf, discussed above.

8.3 Re-used masonry in the 4th century riverside wall at Baynard's Castle

The westernmost stretch of the riverside wall exposed at Baynard's Castle (Site 4, Fig 2) contained a large quantity of re-used masonry. This material has been presented and extensively discussed elsewhere (Blagg 1977 and 1980a; Dimes 1980; Hassall 1980; Merrifield 1980). It is pertinent, however, to remind ourselves of the evidence presented in those works, which will allow us to draw some detailed inferences concerning structures that may have originally stood in the south-western quarter of the town.

It is clear that the dating of many of these fragments is of a broader range than has been presented in recent surveys; the Severan date advanced for some of the monuments owed much to the desire to see Julia Domna's personal influence as the inspiration for the structure's construction (Merrifield 1980, 203-4). The present study suggests that a wider range of possibilities are available, and these are examined below.

Altars

Two altars were recovered from this stretch of the riverside wall. In both cases the inscriptions are incomplete, and this has led to some speculation over their original form, but Hassall (l980) has carefully and skilfully discussed the main alternatives and advanced the most plausible reconstructions.

> Altar 1 (Fig 8a): 'Aquilinus the emperor's freedman and Mercator and Audax and Graecus restored this temple which had fallen down through old age for (or to) Jupiter best and greatest'

Hassall prefers Jupiter, although there are other possibilities (Hassall 1980, 196).

> Altar 2 (Fig 8b): 'In honour of the divine *(ie* imperial) house, Marcus Martiannius Pulcher, deputy (2) imperial propraetorian legate of two emperors ordered the temple of Isis . . . which had fallen down through old age, to be restored'

The incomplete fragment of the dedication read C[. . .]/TIS, which Hassall states could be reconstructed as 'c[um xys]/tis', meaning 'with its porticoes'. The uncertainty of the letters led Hassall to leave this option out of his final reconstruction (Hassall 1980, 197).

The inscriptions suggest a degree of provincial governmental involvement in temple re-building, especially if the reading of the first, mentioning the Imperial freedman Aquilinus, is correct.

The dates of the altars are problematic. Hassall points to the fact that Altar 2 was set up at a period when there were two Emperors, The list of Governors is well known from the 1 st and 2nd centuries, and Pulcher does not appear, whilst the title of the office was altered in the 4th century, suggesting that the altar must have dated from the joint rulerships of AD 251-3 or AD 253-9 *(op cit,* 198).[13]

Altar 1 was not datable.

Screen of Gods

Some of the re-used material has been reconstructed as a free-standing Screen of Gods (Fig 7b) (for a detailed description see Blagg 1980a, 126, 175-82). Blagg found it difficult to assign a firm date to this monument as 'its ornament lacks diagnostic detail, and while the sculpture does not show the characteristic features of Late Antique art in the Mediterranean, this could just as well be accounted for by provincial conservatism. It would seem rash to say anything more exact than that it probably belongs to the 2nd or 3rd centuries' *(op cit,* 182).

Monumental arch

The second monument reconstructed from the re-used stones at Blackfriars was a monumental Arch (Fig 7a) (for a detailed description, see Blagg 1980a, 125-6, 175-82). Blagg was more confident about advancing a stylistic date for this work, suggesting 'that the London Arch is not earlier in date than late Antonine, or, more probably, Severan in date' *(op cit,* 180). He offers the context of Severus' visit to Britain in AD 208- 11 as a background for the monument's construction *(loc cit),* although he is at pains to point out that 'it must be observed that the Arch could be considerably later, and only *the terminus ante quem* provided by the re-use of the stones in the riverside wall, with an allowance for a

reasonable time during which the Arch was standing, can set a lower limit for its construction' *(loc cit).* Indeed, the parallel which he cites for the Arch is that of the Arch of Galerius, from Thessaloniki, which is dated AD 305- 11 *(op cit,* 177). It would seem, therefore, that although a Severan date has usually been attached to this monument in published commentaries, a later date is not unlikely. [14]

'*Mother Goddesses*'

The rather unusual depiction of four 'mother goddesses' also found re-used in the riverside wall adds little to this discussion, other than possibly to reinforce the suggested religious character of many of the features.

Discussion

The construction date of the stretch of riverside wall containing these monuments is open to some debate, but it can probably be broadly placed within the 4th century (Williams in prep). The stones were all in very good condition, suggesting that the structures from which they derived had been demolished just before their incorporation into the river wall. In addition, all sides of the Arch were represented in the assemblage recovered, which Blagg (1980a, 183) suggests was a result of the stones being derived from a stockpile, rather than after a long period of dereliction, or re-use elsewhere.

It can be suggested that the monuments from which these large fragments of stonework derived were probably located in the general vicinity of this stretch of the riverside wall, partly on the grounds of the cohesion of the group, which consisted of a large number of blocks from the same structures, and partly due to the size of the individual stones, which are unlikely to have been moved farther than was necessary. The stockpiling of stones might suggest, however, that their original location was not immediately adjacent to this stretch of walling, as it was not possible to quarry the stones directly from their original location (Blagg 1980a, 193).

That all of the above monuments probably derived from public building programmes seems beyond dispute. The altars would appear to reinforce this public aspect, as they specifically referred to temples restored by agents of the imperial government (Hassall 1980, 198).

The altars derived from temple structures. The Screen of Gods might also have been used in such a context, placed within a *temenos* to provide a free-standing embellishment to the precinct, such as at Volubilis (Ksar Pharaoun, Morocco) where a free-standing decorated altar, some 4m in length, stood in the precinct of the Capitol (Brooke 1976, 65), or at the Temple of Lenus-Mars, Trier (Ward-Perkins 1981, 229). Nevertheless, the possibility that the Screen stood within other forms of monumental complex, such as baths, which also utilised a variety of open spaces, precincts and courtyards, cannot be discounted.

The surviving fragments of the Monumental Arch were restricted to the upper elements of the monument, and it is not possible, therefore, to be certain whether the structure was free-standing, as it is usually reconstructed (Fig 7a), or set upon walls, forming the entrance to a precinct. The Arch was clearly religious in inspiration, rather than triumphal, but its context could as easily have been secular; the use of monumental archways as entrances to religious precincts was widespread in the Empire - notable examples include the Arch of Antoninus at Sbeitla, Tunisia (Duval & Baratte 1973), and the Temple of Isis (Haynes 1956, 127) and the Antonine Temple (Haynes 1956, 110), both from Sabratha, Libya - but they were also employed as monumental entrances to secular building complexes, for example, to the palatial Kaiserthermen complex at Trier, where 'the main entrance . . . had a monumental plan not unlike that of a city gate or triumphal arch' (Wightman 1970, 101). Neither is the Arch necessarily indicative of a single role, as the association of baths and temples is also well attested within the Roman world, for example the complex of Champlieu in France (Ward-Perkins 1981, 230), or the establishment at Bath (Cunliffe & Davenport 1985). The marked religious content of the decorative motifs used on the London Arch may, however, coupled with its association with other religious monuments in the riverside wall, tend to favour the interpretation that its original context was as the entrance to a religious enclosure.

The fact that the Arch, Screen and altars are thought to have survived into the 4th century, to be 'quarried' for the extension to the riverside wall, is not incompatible with their original construction as part of the Period I complex. Given the levelling of that phase by the greatly enlarged Period II development, towards the end of the 3rd century, it is possible that these monuments, being largely free-standing or peripheral structures with a high degree of intrinsic architectural and decorative value, would have been preserved within the rebuilt complex. Indeed, it would seem unlikely that such monuments would have been destroyed, unlike the dilapidated temple/bath buildings themselves. The retention of such monuments is a practice demonstrated elsewhere, for example at *Verulamium,* where during the rebuilding of the *temenos* and the addition of annexes to Temple I, in c AD 300, the entrance structure was maintained despite major replanning (Lewis 1966, 134). Furthermore, porticoes were often employed within a late Roman context to link differing elements into a cohesive whole (Todd 1985, 58) and the amalgamation of Period I monuments into the second period of the complex, would not, on these grounds at least, present any major interpretative problems.

9. CORRELATION OF EARLIER OBSERVATIONS WITH THE PERIOD II COMPLEX

The correlation of evidence for the Period II complex, from so many disparate observations, is naturally problematic. However, there are a number of factors which allow most of the observations to be compared, and their association to be demonstrated or rejected. The most obvious correlations have already been made during the presentation of the evidence in Chapters 4 to 7.

The strength of the correlations lies in the similarity of structural technique of the masonry foundations and the nature of their preparation. In addition, where dendrochronological dating is available, strong chronological ties can be demonstrated. Furthermore, similarities in alignment can also be used, although in many cases this last criterion is deceptive; many of the early observations were recorded with only the most general east-west or north-south alignment and their apparent uniformity of alignment is, in reality, a result of their appearance on the same overall plan, Figure 62. They are, however, clearly indicated on that illustration.

The majority of the observations incorporated into Period II are considered to be reasonably secure. There are, however, a number of observations whose correlation with the complex needs to be more circumspect. In some cases this arises from the original records, particularly those features observed earlier this century; in other cases confusion could result from the differing structural functions the foundations were to perform.

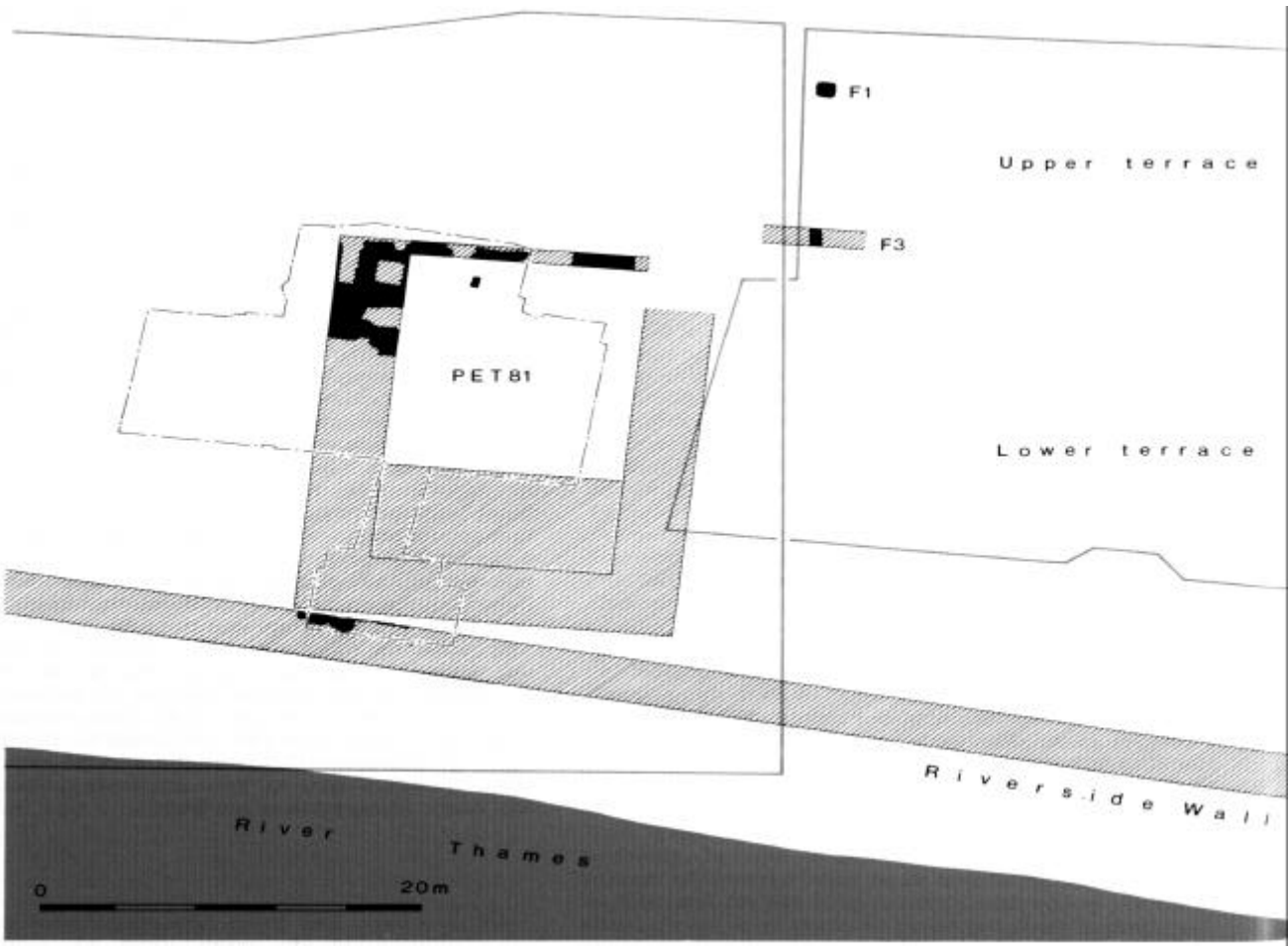


Fig 62 Period II complex; numbered observations for correlation. Numbers 6-8 refer to Observations (cf Fig 2); numbers prefaced by F refer to features recorded on the Salvation Army site (cf Fig 54) (1 :400)

9.1 Peter's Hill and Sunlight Wharf

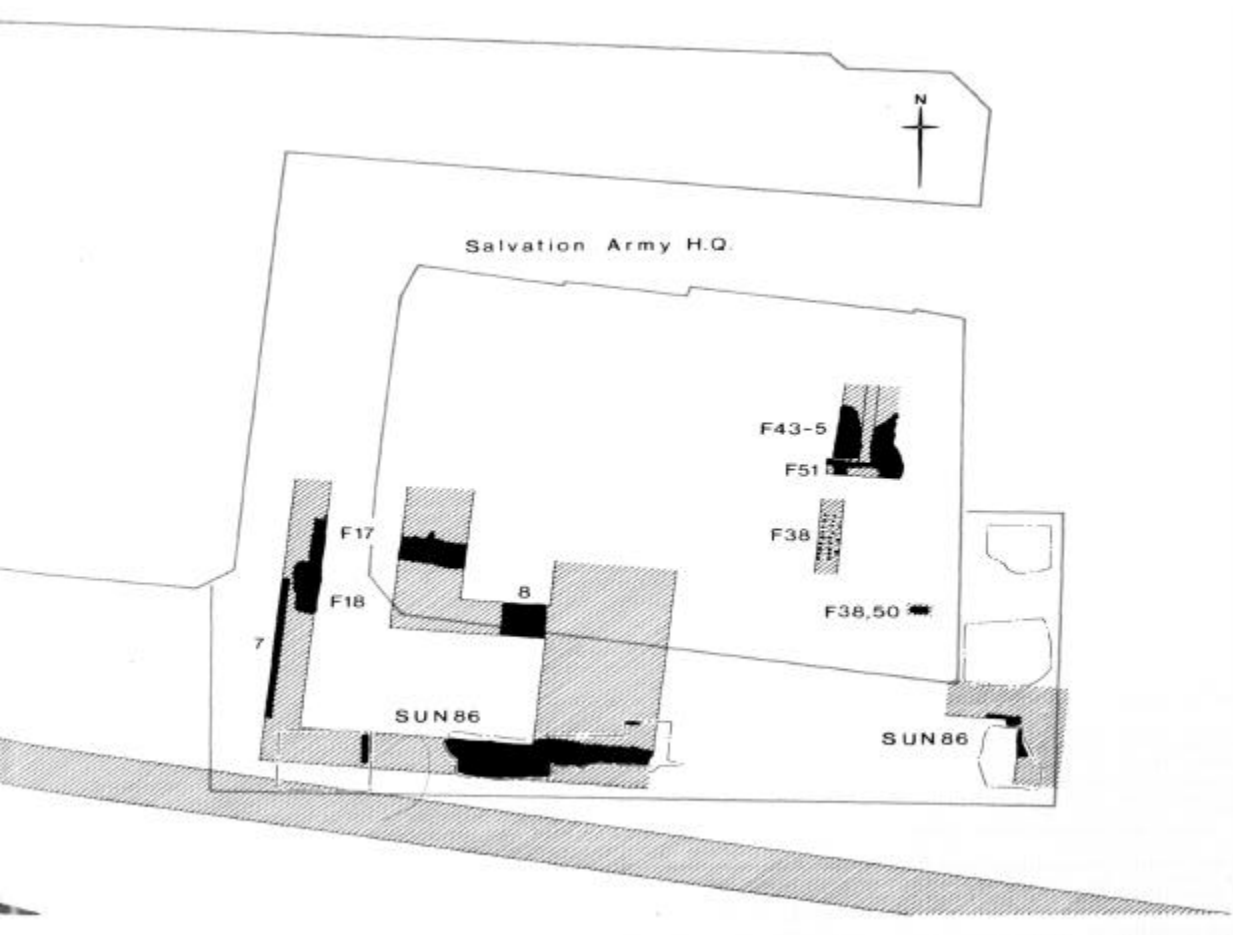
The association between the monumental foundations on these sites seems clear; in addition to their constructional similarity, the piles beneath the chalk raft on both sites have been dated by dendrochronology to the same year, AD 294 (Hillam, Appendix 1).

9.2 Salvation Army Headquarters (Phase 2)

In the absence of any dating framework, comparisons rely heavily upon construction technique and alignment. In the case of the former, the chalk raft supported by circular timbers, apparently complete boles, forms a good basis for the association. In addition, where the construction of the foundation above the raft was recorded in detail (in particular Features 17 and 18) it consisted of a basal course of re-used, undecorated, large stone blocks supporting a concrete rubble core faced with ragstone. The similarity of the features described with those at Peter's Hill and Sunlight Wharf strongly suggests that the features were part of the same phase of construction. In addition, the alignment of those features accurately plotted on the Salvation Army Headquarters site seems to match exactly those of Sunlight Wharf, to the south (Fig 62).

9.3 Observation 7

The relationship of this observation with the main east-west foundation at Sunlight Wharf and Features 17 and 18 on the Salvation Army Headquarters site is less certain.



It is probable that Features 17 and 18 on the Salvation Army Headquarters site (p67), which lay beneath the line of the original Lambeth Hill (Fig 54), and the north-south element of the foundation observed by Roach Smith in a sewer beneath the same street (Observation 7, p724), were two parts of the same foundation. Their descriptions are similar, and they appear to have a close correspondence of alignment (Fig 62). The foundations are plotted on Figure 62, which suggests that the north-south foundation observed was relatively narrow, only some 1.8m wide. However, the plotting of these observations is fraught with difficulties. In the first case, there are some doubts about the accuracy of the plotting of Features 17 and 18 (p67). Secondly, it is by no means clear what the line Roach Smith marked on the sewer plan (Fig 55) actually indicates; was it the west face, the alignment of the structure, or its eastern face? In this case, the line has been taken to be the western face of the wall, as first encountered by Roach Smith. The issue is further complicated by Roach Smith's description of the find (p72-3), which suggests that the wall was 8 to 10 feet thick (2.44 - 3.04m). Thus, although plotted according to the available evidence, it is felt likely that the foundation illustrated is too narrow, and that the original structure was slightly wider, and probably similar to the 2.3m of its suggested eastern continuation at Sunlight Wharf (below).

The eastern continuation of the Observation 7 wall, recorded during the Victorian sewer construction, almost certainly formed a western continuation of the east-west foundation observed immediately to the east on Sunlight Wharf (Fig 62). Indeed, at the latter, the sewer was actually observed (p59). (See also p73-4 for problems with Roach Smith's account of the eastern continuation.)

9.4 Observation 9

Observation 9 lay just to the east of the Salvation Army Headquarters site (Figs 2 and 9). Its construction, including timber piles and massive re-used blocks (p76), coupled with the close proximity to the rest of-the Period II complex, strongly suggests that the features recorded in this observation were part of that development.

9.5 Observation 11

This is possibly the most difficult observation to integrate within either the Period I or Period II scheme. The description of the features is poor (Chapter 7, p76), indeed, even their exact alignment cannot be demonstrated. The substantial width of the foundations, in excess of 1.50m, has been taken to suggest a public development (p77), but this is hardly sufficient to be confident about any correlation with either the Period I or Period II complex. As the features lay some distance to the east, it is as likely that they were part of a separate development in the area.

[1] The timbers from the consolidation of the 2.1 dumps produced too few rings for dendrochronological analysis. The dendrochronological analysis of the horizontal timbers used within the 2.3 dumps produced dates centred in the 1 st century, reinforcing the suggestion (p000) that they were re-used from an earlier structure.

[2] A more detailed discussion of this date is made in Part 4.6, where the precision of the date is argued, and in Appendix 1, where the evidence is presented.

[3] The framing was very incompletely observed; the area was not excavated and the framing beneath the foundation was not examined. As most of the trench was occupied by extant foundations, the framing was only observed in the restricted areas of robbing, and where it projected from beneath the foundations.

[4] Passages have only been omitted where they were duplicated in the various reports. In particular the 1859 report of ten repeats verbatim the 1841a account.

[5] Cited as six feet in Roach Smith's 1859 report (1859, 18).

[6] He was also well aware of the unreliability of Information during his absences. Commenting on the works in Lower Thames Street he stated 'that contractors for public works are not the persons to be expected to understand and report upon such matters, or that it is not at all improbable substantial mural foundations might have been rooted up and carted away, as those in Upper Thames Street were, in perfect silence on the part of the contractors and their employers.' (Roach Smith 1859, 19)

[7] The street was extensively widened below London bridge (Bell 1923, 248), but it was probably aIso widened in the Queenhithe area, where it appears noticeably broader, on early maps, than the stretch to the west.

Knightrider Street is divided into Little and Great Knightrider Street. The latter actually lay some distance to the west, but it is clear that Black made a mistake in using the term 'Great' in this context; he already had confused the distinction, stating that he turned out of Great Knightrider Street into Peter's Hill (p000), when Peter's Hill joins Little Knightrider Street to both east and west. In addition, the alignment and proximity of Observation 14 to St Mary Magdalen's church, which lay at the south-western corner of Old Change (p000 - Fig 57), indicates it must have lain in Little Knightrider Street, If it had lain some distance away to the west, in Great Knightrider Street, it would have been too far north to have aligned with any church, and could hardly have been described as being 'a little distance' from the church.

[9] The RCHM report, despite mentioning Observation 14 in the description on page 141, only marks the position of Observation I5 m Knightrider Street (observed in 1844 and also on the City Sewer Plan).

[10] This introduces an interesting problem of survival and early medieval property development; why, if St Mary Magdalen's church and the properties to the east were laid out on the long wall, and the course of Knightrider Street was determined by it, did the street curve to the north once it had passed to the west of the church? (Fig 57). The survival of the wall beneath Peter's Hill and elsewhere suggests that it was still extant beyond that point, so that some other reason is needed to explain this early medieval deflection.

[11] The absence of any mention in Observation 18 might be an oversight, considering the close association it was supposed to have had with Observation 16.

[12] Ian Betts writes, 'there is a superficial similarity between the residual material in groups 2.1 to 2.10 (inclusive) and that found in the demolition of the Huggin Hill baths (Fig 2): for example, the presence of Purbeck and Carrara Marble at both sites, and two common relief-patterned box flue tile patterns (dies 42 and 85). However, there are some significant differences. Relief-patterned dies 5A and 27 were found at Huggin Hill, but not Peter's Hill, whereas dies 3, 8, 12 and 91 were found at Peter's Hill but not Huggin Hill. At Huggin Hill, considerable quantities of pale purple wall plaster were found on parts of the site, but no plaster of this colour was found at Peter's Hill. It is possible that the Peter's Hill material could have derived from the western part of the bath-house, which also lacked wall plaster of this colour, but it is more likely that the material, clearly residual and associated with 1st and 2nd century pottery (p000), derived from general debris imported with the dumped deposits.'

[13] A further period of joint emperorship occurred at the end of the 3rd century, with the rule of Diocletian and Maximian (AD 286-305). It is not known exactly when the reorganisation of the provincial government structure took place, other than that it had taken place by AD 314 (Mann 1961, 316-7). It is possible, therefore, that a period of joint emperorship in the late 3rd/early 4th century could have existed before the new titles were introduced; indeed, there is evidence to suggest that a provincial governor in the north was present between AI) 296-305 (Salway 1981, 317 - referring to an inscription from Birdoswald. It is possible, therefore, that the altar dates from the late, rather than mid, 3rd century, although the latter still seems more probable.

[14] Within this context it is vital that the 'accepted' dates of the riverside wall monuments are perceived for what they are, suggestions based upon historical models.

Appendices

Appendix 1: tree-ring dating of oak timbers from Peter's Hill and Sunlight Wharf

by Jennifer Hillam (Sheffield University)

Introduction and methods

Seventeen tree-ring samples from Peter's Hill were examined in 1983. The excavation was at the west end of Thames Street, near Baynard's Castle, a site which already had produced timbers from the Roman riverside wall for analysis (Morgan 1980; Sheldon & Tyers 1983). The Peter's Hill samples were mostly from foundation piles, but two were taken from timbers which formed a lattice structure. During excavation there was no evidence that any of the timbers were re-used. The tree-ring analysis was undertaken to determine the dates of the piles and the lattice timbers, and hence their relationship to other Roman structures in the vicinity, such as the riverside wall.

The oak piles at Sunlight Wharf were excavated in 1986 from a structure close to, and on a similar alignment to, the pile structure at Peter's Hill. It was hoped that tree-ring analysis, carried out in 1987, would determine whether or not the samples from the two sites were from the same structure.

The samples were prepared, measured and crossmatched following the method given by Hillam (1985). During the Peter's Hill study, the ring widths along only one radius were measured but, because the ring patterns were often short and crossmatching between them sometimes proved difficult, two radii per sample were occasionally measured, and the two sets of measurements averaged. Since then, it has become general policy at Sheffield to measure two radii on all roundwood samples with less than about 80 rings in order to improve the quality of the crossmatching. Therefore when the Sunlight Wharf samples were measured in 1987, two radii were measured on all the samples.

The ring sequences were crossmatched visually by comparing graphs plotted by hand, and by computer using the CROS program (Baillie & Pilcher 1973). The latter gives results as *t* values; values over 3.5 indicate a match, provided that the visual match between the graphs is acceptable (Baillie 1982, 82-5).

The relating of the tree-ring dates to the felling dates of the timbers was simplified by the presence of bark on the majority of the samples. If bark edge was not present, felling dates were estimated using the sapwood estimate of 10-55 rings (Hillam *et al* 1987). In the complete absence of sapwood, the addition of 10 rings to the date of the outer ring gives the probable *terminus post quem* for felling.

Results

1. Peter's Hill

The samples from the lattice structure (1535, 1536) had 102 and 107 + rings respectively. Both timbers had been split from larger trees, and had only heartwood rings (Fig 65b). With the exception of 1307, which had 103 rings, the piles had 50 to 74 annual growth rings. All but

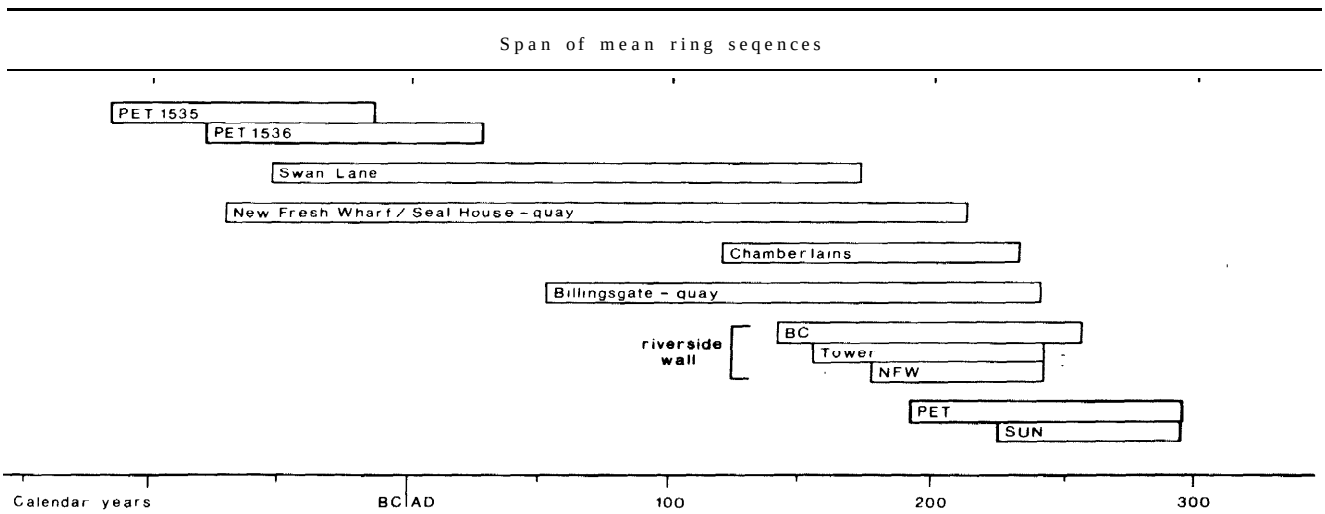


Fig 63 Temporal relationship of the Sunlight Wharf (SUN) and Peter's Hill (PET) ring sequences to those from other sites in London. Each bar represents a site chronology, except PET 1535 and 1536 which are individual ring sequences. BC - Baynard's Castle; Tower - Tower of London; NFW - New Fresh Wharf. The Chamberlains Wharf data were supplied by Ian Tyers; references to other chronologies are given in Figs 66 and 67.

two of the piles had complete sapwood, and often bark was present. Generally the outer rings were not complete, indicating that the timbers had been felled in late spring or early summer. (The widths of the incomplete rings were not measured so that in Figure 65 the number of rings for summer-felled samples is an underestimate by one year.) One of the timbers, 1307, was definitely felled in winter or early spring, whilst the season of felling of 1297 was indeterminable. The samples without bark edge, 1361 and 1365, were trimmed roundwood samples with 4 and 5 sapwood rings respectively.

The inner rings of samples 1551, 1558 and 1569 were not measured because of a band of very narrow rings. In addition, 1551 had an injury mark on the ring prior to the start of measurement.

Visual comparison showed that many of the ring sequences crossmatched, and that the narrow rings mentioned above were contemporary. A site master curve was made from ten sequences but was abandoned because it seemed too complacent (that is, showed little variation in width from year to year). At this stage, second radii were measured for three of the samples (1297, 1307, 1369). A master of 104 years was then made from four sequences (PETMEAN2: 1297M, 1307M, 1365, 1369M). When unmatched sequences were tested against the master, an additional three samples were found to match (1304, 1477, 1551). A new site master (PETMEAN3) was made and the process repeated. This rime another five samples (1350, 1367, 1467, 1558, 1569) were added to produce a final site master curve of 104 years (PETMEAN4).

The Peter's Hill ring sequences and the master curves were compared with dated reference chronologies. Although matching with the individual ring sequences was poor, the masters gave consistently good results, particularly with other London chronologies, when they spanned the period AD 191-294 (Fig 66). The two worked timbers from the lattice structure were earlier in date with 1535 ending in 18 BC, and 1536 in AD 25 (Figs 63 and 67). No dating was obtained for the roundwood sample 1361.

Examination of the tree-ring dates (Figs 64 and 65) indicates that most of the pile sequences end in AD 293, but that the spring vessels of AD 294 were also present. The winter-felled timber, 1307, was felled AD 293/4, whilst 1297 ended in 294, and was felled in 294 or possibly 295. The pile timbers were therefore not felled at exactly the same time, but they could have been felled within a few weeks of each other. Oak trees produce spring wood in about April, and this production of large vessels is completed by the end of May (Baillie 1982, fig 2.1), but the start of spring wood formation can vary from tree to tree. It can even vary around the circumference of the same tree, so that a sample might appear 'winter-felled' in one section and 'summer-felled' in another. It is therefore not necessary to postulate a long period of storage or stockpiling for the Peter's Hill piles.

Estimation of precise felling dates for the two lattice timbers is impossible because of the absence of sapwood, but 1535 was probably felled some time after 8 BC and 1536 after AD 35.

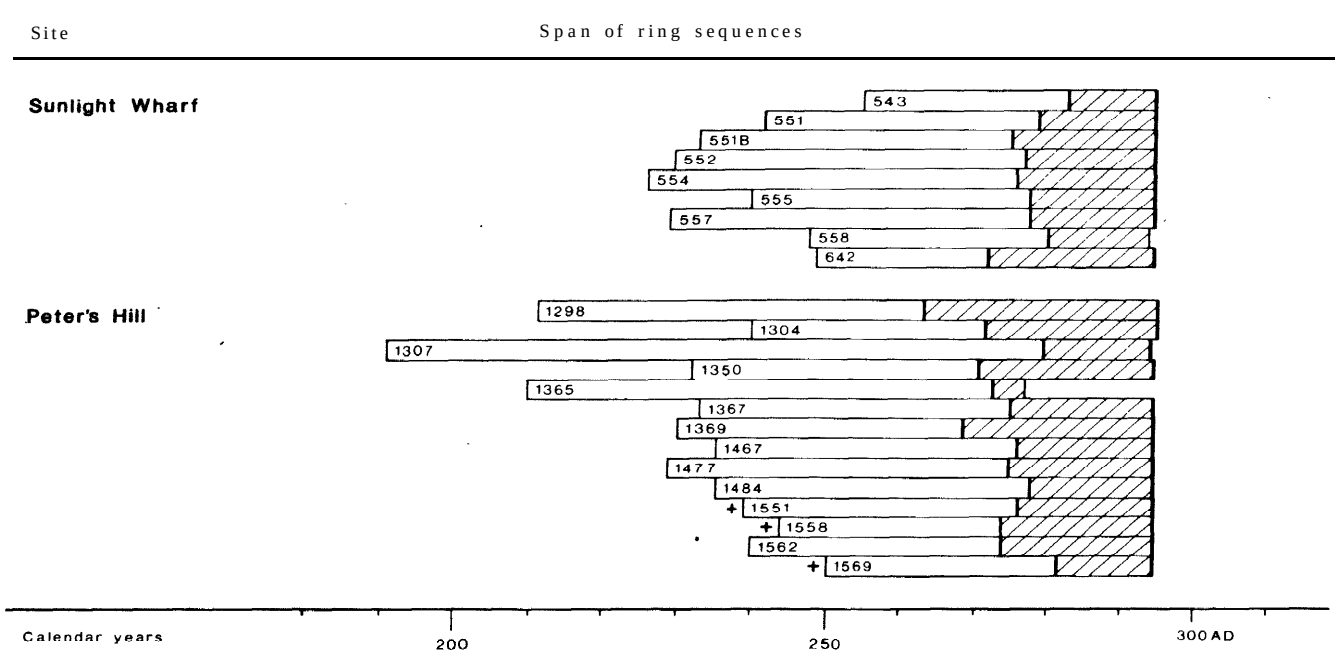


Fig 64 Bar diagram showing the relative positions of the matching ring sequences from Sunlight Wharf and Peter's Hill. White bar - heartwood rings; hatching - sapwood; + - unmeasured rings present on sample.

Context number	Total rings	Sapwood rings	Average ring width (mm)	Dimensions (mm)	Comments	Sketched cross-section	Date span	Felling date
(a) Sunlight Wharf								
543		13	2.31	230 x 185			254-93	w 293/4
551		13-17	1.80	225 x 220			241-93	w 293/4
551B		16-21	1.52	220 x 215			232-93	w 293/4
552		17-19	1.19	170 x 160			229-93	w 293/4?
554		10	1.27	200 x 180			225-93	w 293/4?
555		17-18	1.90	230 x 220			239-93	w 293/4?
556		–	1.79	270 x 215	worked timber		–	–
557		16-18	1.48	215 x 200			228-93	w 293/4
558		9-14	2.23	195 x 190			247-92	–
640		16	1.41	180 x 170			–	–
641		yes	–	160 x 140	rejected		–	–
642		18-23	1.55,	170 x 160			248-93	w 293/4
644		18	1.49	190 x 170	trimmed on parts of sample		–	–
(b) Peter's Hilt								
1297	74	31-33	1.14				221-94	294/5 season unknown
1304	54	23	1.66				240-93	s 294
1307	103	14-15	1.16		trimmed		191-293	w 293/4
1350	62	24	1.88				232-93	s 294
1361	55	4	1.54		trimmed or damaged		–	–
1365	67	5	1.90		halved and trimmed		210-76	–
1367	61	20	1.62				233-93	s 294
1369	64	19-26	1.69				230-93	s 294
1467	59	19	1.71		halved		235-93	s 294
1477	65	20	1.70		trimmed		229-93	s 294
1484	59	17	1.68		halved		235-93	s 294
1551	+55	19	1.07		halved and trimmed injured AD238		+239-93	s 294
1558	+50	21	1.64				+244-93	s 294
1562	64	21	1.47				230-93	s 294
1569	+-54	13	1.08		halved		+240-93	s 294
(c) Peter's Hill lattice structure								
1535	102	-	1.41	140 x 110	worked timber from lattice		119-18BC	after 8 BC
1536	+107	–	1.13	140 x 120	As 1535		82BC-AD25	after AD 35

Fig 65 Details of the samples: a. Sunlight Wharf; b. Peter's Hill, Sketches not to scale; + - unmeasured rings present on sample. Where the amount of sapwood varies around the circumference, the maximum and minimum numbers of rings are given. (Note that incomplete outer rings are not included in the ring totals or sapwood totals.) Unless otherwise stated, dates are AD. w - felled winter/early spring; s - felled late spring/summer.

2. Sunlight Wharf

Of the 13 samples from this site, 641 was rejected because its rings were too narrow to count accurately, and 556 was a worked timber with 106 heartwood rings. The remainder were roundwood samples with 40 to 69 rings (Fig 65a). These samples either had bark or appeared to have bark edge. (The outer one or two rings had occasionally been damaged during excavation or sampling). The timbers had been felled in winter or early spring. None of the roundwood timbers had been trimmed with the exception of 644, which had been dressed but retained bark edge at some points on the circumference.

Several of the sequences crassmatched (Fig 64). A site master of 69 years (SUN1) was constructed using data from 551, 551B, 552, 554, 555, 557, and 558. When the unmatched sequences were tested against the master, another two sequences, 543 and 642, were found to match.

Comparison of the Sunlight Wharf and Peter's Hill masters showed that the ring patterns from the two sites were very similar. The comparison between SUN1 and PETMEAN4, for example, gave a *t* value of 8.2. This match dates SUN1 to AD 225-293. SUN1 also gives a weak agreement with the two German chronologies at this date, but the sequence is too late in date to match the other London chronologies by which Peter's Hill was dated (Fig 63 and 66). No reliable dating was found for the worked timber, 556.

The two site masters were combined to give a single chronology which contains 19 sequences and dates to AD 191-294. (All the tree-rung data from Peter's Hill and Sunlight Wharf are stored at the Sheffield Dendrochronology Laboratory, where they can be consulted.)

The outer ring of all the matched Sunlight Wharf timbers except 558 is AD 293, so that the timbers were felled in the winter/early spring of AD 293/4. 558 ends in AD 292, but bark edge was queried for this sample so it too is probably contemporary,

Relationship between the two sites and the dating of the roundwood structures

In physical appearance the roundwood samples from the two sites are similar. They mostly belong to the same age range of 50-70 years, and many have similar dimensions. When their cross-sections are compared by eye, diagnostic ring patterns can be detected. Computer comparison of the ring patterns confirms this similarity since some of the highest t values were obtained between sites rather than within the same site. PET1477 against SUN551B, for example, gives a *t* value of 7.6. It seems likely therefore that the roundwood timbers are foundation piles from the same structure, and that the timbers came from the same area of woodland.

A closer examination of the felling dates (Fig 67) shows that all the dated timbers from Sunlight Wharf were felled in the winter or early spring of 293/4. One of the Peter's Hill timbers, 1307, was also felled at this time, but the majority were felled in the late spring-early summer of 294. The only possible exception is 1297, which was felled in the spring/summer of 294 or the winter of 295. It seems likely therefore that all the timbers were felled in 294, but that the Sunlight. Wharf timbers could have been. felled a few weeks earlier than those at Peter's Hill.

It is unlikely that the timbers would have been seasoned. Hollstein (1980) lists several examples where Roman timbers of known historical date have been dared dendrochronologically, and there is no difference between the felling and construction dates. Apart from the fact that there would be no need to season the oak foundation piles, two other factors must he considered. First, if the timbers had been cut and stored for seasoning, it is probable that the bark would have been removed for tanning, or that it would have been knocked off during piling. Second, the timbers sampled for tree-ring analysis represent a small percentage of those found during the two excavations, which suggest that a very large number of piles would have been required for

Chronology	t values				
	PET2	PET3	PET4	SUN	SUN/PET
London:					
Baynards Castle (Morgan 1980)	3.9	4.2	4.1	*	4.3
Billingsgate (Hillam 1987)	5.4	5.3	5.1	*	4.5
Chamberlains Wharf (Tyers pers comm)	3.8	3.8	3.8	*	3.3
City/Southwark (SDL/Tyers)	4.8	5.2	5.0	3.1	5.1
New Fresh Wharf (SDL)	5.3	5.4	5.3	*	3.4
Tower of London (SDL)	43	4.3	3.8	*	3.4
Sunlight Wharf, SUN1	5.0	6.9	8.2	—	—
Germany:					
south (Becker 1981)	2.9	3.2	3.4	3.4	3.7
west (Hollstein 1980)	3.7	4.2	3.9	3.2	4.2
Ireland:					
Teeorry (Baillie & Pilcher pers comm)	4.3	4.1	3.8	1.9	3.2

Fig 66 Dating the pilesfrom Peter's Hill (PET) and Sunlight Wharf (SUN) : t *values for comparisons between these sites and dated reference chronologies. * - overlap of* 30 *years or less; SDL - Sheffield Dendrochronology Laboratory, unpublished data.*

Chronology	t values	
	1535	1536
City/Southwark (SDL/Tyers)	5.0	5.0
New Fresh Wharf/Seal House (SDL)	2.6	3.5
Peninsular House (Hillam 1986)	5.3	4.5
Pudding Lane (Hillam 1986)	4.1	3.2
Roman London (SOL)	4.3	5.1

Fig 67 Dating 1535 (119-18 BC) and 1536 (82 BC - AD 25) from the Peter's Hill lattice structure. SDL - Sheffield Dendrochronology Laboratory, unpublished data.

the structure. If they had come from a timber yard where they had been seasoning, it is more likely that a variety of felling dates would have been obtained. Instead, the single felling date of 294, plus the likelihood that the timbers came from the same woodland, suggests that the timbers were cut and used almost immediately, first at the Sunlight Wharf end of the structure then at Peter's Hill.

Relationship with other Roman structures

The relationship between Peter's Hill/ Sunlight Wharf and other ring sequences from 2nd and 3rd century London sites is shown in Figure 63. The two worked timbers from Peter's Hill were felled after 8 BC and after AD 35 but, because the number of missing heartwood rings is unknown, felling could have been much later. However their early date suggest that, unlike the piles, the lattice timbers were re-used,

The piles, felled in 294, represent the latest structure from London dated by dendrochronology. The timbers from the riverside wall, sampled at Baynard's Castle, New Fresh Wharf and the Tower of London, were probably felled in the period AD 255-70 (Hillam & Morgan 1986; Sheldon & Tyers 1983), so that this structure is earlier than the foundation piles at Peter's Hill and Sunlight Wharf. The 3rd century quay at New Fresh Wharf and Billingsgate Lorry Park (Hillam 1987b) and the structure at Chamberlains Wharf in Southwark (Tyers pers comm) are also earlier in date.

The apparent absence of Roman timbers from London or elsewhere in Britain, which are later in date than those at Peter's Hill and Sunlight Wharf, may be explained by the following factors. One, the 2nd/3rd centuries saw the change in building material from timber to stone; and two, timber supplies must have diminished dramatically because of the large quantities of wood used in the 1st and 2nd centuries, such as in the massive 1st century quays at Pudding Lane (Milne 1985).

Dendrochronological implications of the study

The study involved samples with relatively short ring sequences. It became apparent during the analysis of the Peter's Hill samples that the quality of the crossmatching could be improved if two sets of measurements were made along different radii. This has now become general policy at Sheffield when shorter ring sequences are examined, and was certainly successful with the Sunlight Wharf samples.

Examination of the quality of agreement between the master curves from Peter's Hill shows that it is PETMEAN3, the master containing seven sequences, which is most suitable for absolute dating (Fig 66). However PETMEAN4, with 12 sequences, is better when compared with Sunlight Wharf, This indicates that for dating samples from the same site or structure, it is better to have a master curve containing as many ring sequences as possible. But for absolute dating using reference chronologies from different: areas or even countries, such a master may not be ideal since it incorporates a growth signal with too much local information.

Conclusions

Tree-ring analysis of samples from Peter's Hill and Sunlight Wharf shows that both groups of roundwood piles were felled between AD 293 and 295, and probably in the late spring of 294, but the Sunlight Wharf timbers were felled a few weeks earlier. All aspects of the two groups of timbers are otherwise similar, and it is therefore suggested that the foundation piles belong to the same structure. Since seasoning is unlikely, the structure was probably built in mid 294, starting with the Sunlight Wharf end of the structure.

The two timbers from the lattice structure at Peter's Hill were felled some time after 8 BC and after AD 35. Even allowing for missing heartwood rings, these timbers are likely to be re-used.

Appendix 2: The building material

by Ian Betts

This section primarily deals with the building material from Peter's Hill, which provided most of the building material associated with the construction of the late 3rd century Period II complex. Some additional information was obtained from Sunlight Wharf. These sites have a detailed Building Materials Archive Report (Betts 1987b; see Appendix 4 for availability); for details of the relief-patterned flue tiles, see Betts *et al* in preparation.

For comments regarding the potential significance of this material in reconstructing earlier buildings, see Chapter 8.1 and 8.2.

Ceramic building material

A vast quantity of Roman building material was recovered from Peter's Hill, some 2005 kilograms from the Roman levels alone, together with substantial amounts from residual contexts. Unfortunately, the

majority of ceramic building material was recorded and discarded when the fabric type collection was still in its infancy; however, all the keyed flue tiles were retained, along with bricks and tiles with various kinds of marks. Thus it has been possible to check through the remaining material for rare fabric types.

The majority of the ceramic building material from Peter's Hill consisted of brick (656 kilos; 46.4%), and roofing tiles (435 kilos; 30.8%). In addition, a relatively small quantity of flue tiles were found (88 kilos; 6.2%). There were two major concentrations of building debris, the Group 2.11 compacted dumps and the Group 2.10 gravel dumps, which lay to the east and west of the main 2.7 foundation respectively.

Group 2.11 produced the largest quantity of ceramic building material on the site, a total of 580 kilos (41% of the total assemblage). Brick was the most common ceramic building material (292 kilos, 50.3% of the 2.11 assemblage and 44.5% of the total brick assemblage), but there were also substantial amounts of roofing tiles (134 kilos; 30.9% total site assemblage) and flue tiles (58 kilos, 67% of the total site assemblage). These flue tiles had scored, combed or relief-patterned keying (dies 12 and 101).

The Group 2.10 dumps contained 522 kilos of ceramic building materials (36.9% of the total assemblage). Here there were roughly equal quantities of roofing tiles (214 kilos; 41%) of the 2.10 assemblage, 49.2% of the total site assemblage) and bricks (196 kilos; 37.5% of the 2.10 assemblage, 29.8% of the total site assemblage). Only 24 kilos (4.6% of the 2.10 assemblage) of flue tiles were retrieved. Again these had scored, combed or relief-patterned keying (dies 3, 8, 12, 85 and 91). One pattern, die 91, is unique to Peter's Hill.

The rest of the site assemblage (22%) was fairly evenly distributed over the other sub-Groups. The most notable find was a single *tegula* fragment in a rare fabric (type 3019), of AD 100-120 date, found in the masonry foundation (Group 2.7).

Dating

The majority of the ceramic brick and tile was of 1st-early 2nd century date. This would explain the presence of late 1st/early 2nd century PPBRLON stamped tiles from Groups 2.6, 2.10, 2.11, and 2.13. In addition, there are relief-patterned box flue tiles of late 1st-2nd century date in Groups 2.3, 2.10, 2.11 and 2.13. In the Group 2.11 assemblage, however, small quantities of *tegula* and *imbrex* in a fabric dated to the late 2nd/3rd century, or later, were found (type 2456; 300 grams or 0.5% of the flue tiles within the 2.11 assemblage).

Relief-patterned flue tile

A total of 13 relief-patterned tiles were found in Period 2 contexts at Peter's Hill:

Die	*Period*
3	2.10, 2.13
8	2.10
12	2.10, 2.11, 2.13
42	2.3
85	2.10, 2.13
91	2.10
93	2.13
101	2.11 (two)

Die 91, together with Die 90, which came from a post-Roman context, is unique in Britain.

Decorative stone

A large group of decorative stone work was found at Peter's Hill, most of which derived from the Group 2.11 dumps (69 out of 72 examples). The stones are listed below, together with their provenance, where known:

(i) *Igneous rocks*
Diorite. Probably Eastern desert, Egypt.
Gabbro or Dolerite.

(ii) *Metamorphic rocks*
Coarse white marble. Various quarries in the Aegean, or Turkey.
Carrara type marble. Luni, Tuscany in Northern Italy.
Cipollino. Island of Euboea off the eastern coast of Greece.
'Aquitaine' marble. Quarried near St. Girons, southern France.
Pavonzzetto. Quarried near Docimium in Phrygia, Turkey.
Portasanta? Island of Chios, in the Aegean.
Misc. Marble. Source uncertain.

(iii) *Sedimentary Rocks*
Dark Carboniferous Limestone. Found in various regions of Europe, similar to 'Tournai' marble.
Fine buff limestone. Possibly Somerset.
'Wealden' shale. Probably the Weald.
Purbeck marble. Isle of Purbeck, Dorset

Dating

The date of the original use of this stonework is not easily established, but the black and white 'Aquitaine' marble *(marmon celticurn)* suggests a date no earlier than the 3rd century, as this material is not thought to have been exported from Rome until that date (Pritchard 1986, 187). The Carrara-type marbles are, in contrast, thought to have been in marked decline during the 2nd century *(lot cit).*

Re-used stone blocks within the Period II masonry foundations

Although a number of samples were taken from the Group 2.7 foundation at Peter's Hill, only one fragment appears to have survived for study. However, from a visual identification on site recorded in the site archive, it was thought that all the stones were of the same material. The sampled fragment was a coarse shelly oolitic Lincolnshire limestone (from context 1938), comparable with Barnack Stone in the Geological Museum's reference collection (identification by Dr R W Sanderson).

More stone samples were obtained from the Period II complex foundations at Sunlight Wharf (samples were taken from Groups 1.6, 1.9, 1.14 and 1.17). A number of different stone types were recognised in the field, and each was sampled. The most numerous was identified by Dr Sanderson as a coarse shelly oolitic limestone, of Barnack type. Other relatively frequent types were Lower Greensand limestone (Kentish Rag), and sandstone (Hassock). Infrequent types were tufa, and a single fragment of Upper Greensand, possibly Gatton Stone. At present there are no reliable date ranges for the use of stone types in London during the Roman period, although it is interesting to note that Upper Greensand has not previously been found in a Roman context in London.

Slate roofing?

A number of fragments of grey-coloured slate occur in Group 2.11. Although no nail holes are present, these are possibly parts of roofing slates. Roofing slates, assumed to be of Roman date, were found in late Saxon deposits at St Magnus House (Rhodes 1986, 245), but this is the first occurrence of slate in sealed contexts from Roman London. The presence of slates here, together with decorative stonework, would suggest that they originated from a building of particular importance.

Appendix 3: timber supplies

Two groups of timbers were found in the Period II complex; first, the piles which supported the chalk raft foundation, and secondly, the horizontal timber beams used to lace the foundation courses (evidence from both Peter's Hill and Sunlight Wharf for these assemblages).

Piles

(For dendrochronological and species information see Appendix 1.)

Statistically, the Sunlight Wharf material provides a somewhat biased sample, as pressures of time during the collection of the samples meant that unusual timbers were nearly always investigated, whereas the rest of the timbers, an overwhelming majority, could only be analysed from a few representative samples. The Peter's Hill assemblage provides a rather more balanced picture as all of the piles observed were accorded the same treatment,

The Peter's Hill assemblage

Total assemblage comprised 231 piles.

Shape	Number	%
circular	63	27.3
sub-circular	107	46.3
quarter-round	1	0.4
oval	43	18.6
square	5	2.2
unknown	12	5.2

Diameter	Number	%
< 100mm	2	0.9
100 < 150mm	15	6.5
150 < 200	168	72.7
200 < 250	42	18.2
unknown	4	1.7

All the piles were identified as oak. A few (2.6%) showed signs of re-use, being squared down from larger originals. Most, however, appear to have been complete boles (92.2%), with the bark still present in most cases. The size of the piles was also broadly similar, some 90.9% falling in the range 150-250mm. All of the piles were very straight (Fig 14) and varied in length between *c* 2.0-3.6m (evidence from Sunlight Wharf). The timbers were also of a consistent age when felled (Appendix 1).

It is difficult to estimate the quantity of piles required for the whole of the Period II complex, but just the area examined at Peter's Hill required some 650 linear metres of timber. By connecting the observed foundations a figure in excess of 4,000 linear metres would have been required. This in turn may only represent a relatively small proportion of the complex's overall needs, possibly as little as 20%.

There can be little doubt that the construction of the Period II complex would have produced a substantial demand for new timber of a very consistent type, *ie* oak, with straight boles in excess of 2m, and with a diameter of 150-250mm. Could this material have been obtained, in such quantities, from the selective felling of natural woodland, or was it derived from managed, estate, woodland? The similarity of the timbers, especially their ages, certainly seems to suggest the latter.

Horizontal timber beams

Although none of the actual timbers survived, clear impressions in the second chalk raft enable us to reconstruct some aspects of their original appearance. (The slots are considered an accurate reflection of the original timbers as they were formed by chalk packed against the *in situ* timbers, which, when removed, left sharp vertical impressions - in a few instances the slots had been disturbed, and these have been ignored for the purposes of this discussion.)

The impressions indicated that the timber baulks had been 0.29-0.30m square. This dimension is directly comparable with the timbers used to lace the foundations of other structures of this date; in particular the Saxon Shore forts and town walls in Gaul (compared

with the Period II complex p21-4 and Fig 23). The fact that all the known examples closely respect the dimension 0.29-0.30m suggests that it may be of some significance. The similarity of this dimension with the *pes monetalis* (0.296m) would also seem too striking to be ignored. It is possible that this indicates that a standard pre-cut size was used for such baulks. This would, in turn, suggest an organised and standardised supply industry. However, it is also possible that this is a reflection of the same workforce/craftsmen travelling from one project to the next (see p37).

The quantity of timber required for the Period II complex was, once again, considerable. In this case it is not clear, if the baulks were being removed, exactly how many would have been required at any one time. However, the comer foundation at Peter's Hill required some 150 linear metres of 0.30m square timbers, and this could easily represent as little as 5% of the total requirement.

Appendix 4: Archive Reports - availability

The following Department of Urban Archaeology Level III Archive Reports, detailing the structural sequences, have been cited in the text. They are identified by their alphanumeric site code;

BC75	Baynard House/Queen Victoria Street
MM74	Baynard House/Queen Victoria Street
PCH85	l-3 St Paul's Churchyard/15 Creed Lane
PET81	Peter's Hill/Castle Baynard Street/Upper Thames Street
QUN85	61 Queen Street
SKI83	3 Skinner's Lane/36-9 Queen Street
SLO82	Beaver House/ Sugar Loaf Court
SUN86	Sunlight wharf/Upper Thames Street
TST78	Tunnel Upper Thames Street
WAT78	Watling Court

In addition, for each site, a Finds Appraisal and a Building Materials Report are also available. These can be obtained by citing the site code.

Copies of these reports are available on request. Details concerning both the field and finds department archives can be obtained by writing to;
The Archive Officer,
The Department of Urban Archaeology,
The Museum of London,
London Wall,
LONDON EC2Y 5HN.

Appendix 5: Site numbering (Fig 2)

Three excavations, Peter's Hill (Site 1), Sunlight Wharf (Site 2), and the Salvation Army Headquarters (Site 3), form the basis of this report. These sites are normally referred to by name. Other sites referred to by name are the riverside wall excavation at Baynard's Castle (Site 4), and the Huggin Hill bath house (Site 5).

A considerable body of evidence for this report also comes from earlier observations, many of which have no easily identified site names. Most were allocated numbers by Merrifield in his gazetteer (Merrifield 1965), but some observations, particularly in the Knightrider Street area, are not satisfactorily served due to conflated descriptions. In addition, some observations noted in Guildhall Museum records were not transposed into the Merrifleld system. It has been necessary, therefore, to re-number the observations and a single numbering system has been adopted throughout (Observations 6-29). The only exception to this is the recent excavations mentioned in passing during the general discussion of the area (Chapter 3); these are simply referred to by site name and DUA site code (see Appendix 4).

Abbreviations:
Merri = Merrifield gazetteer (Merrifield 1965)
Grimes = Grimes (1968)
RCHM = Royal Commission (RCHM 1928)
DUA = site code allocated by the Department of Urban Archaeology

Site	Name	Merri	Grimes	RCHM	DUA
Principal sites					
1	Peter's Hill	–	–	–	PET81
2	Sunlight Wharf	–	–	–	SUN86
3	Salvation Army HQ	110-113 & 116	–	–	–
Major excavations in the vicinity					
4	Baynard's Castle	–	–	–	BC75
5	Huggin Hill	119-121	–	–	DMT88
Principal observations					
6	Peter's Hill sewer	109	–	169	–
7	Lambeth Hill	114	–	W41	–
8	Brook's Yard	115	–	W41	–
9	Old Fish St Hill	117	–	170	–
10	Lambeth Hill east	–	32	–	–
11	Fye Foot Lane	118	–	–	–
Observations in the Knightrider Street area					
12	Peter's Hill	93	–	–	–
13	Peter's Hill	93	–	?168	–
14	Knightrider St	94	–	167	–
15	Knightrider St	94	–	167	–
16	Knightrider St	97	–	–	–
17	Knightrider St	95/96	–	–	–
18	Knightrider St	98	–	–	–
19	Friday St	99	–	165	–
20	Peter's Hill	100	–	?168	–
21	Peter's Hill	100	–	–	–
22	Old Change Hill	101	–	166	–
23	–	102	–	–	–
24	–	–	–	–	–
Other sites referred to in the text					
25	Bread Street	103	–	162	–
26	Sermon Lane	81	–	171	–
27	Knightrider St	82	–	–	–
28	Carter Lane	83	–	–	–
29	Cannon St	84	–	–	–

Other sites referred to in the text (not on Fig 2)
Gateway House (Merrifield site 85)

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Abbreviations
City Sewer Plans - Records Office, Guildhall, Corporation of London
E R Book - Guildhall Museum Excavation Record Day Book Unpublished, Museum of London
JBAA - Journal of the British Archaeological Association
Not Dig Occ - Notitia Dignitatum Occidentalis, edited by Seeck (1896)
Pan Lat - Panegyrici Latini, edited by R A B Mynors (1964) Oxford

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