

London's Waterfront 1100–1666: excavations in Thames Street, London, 1974–84

John Schofield, Lyn Blackmore and Jacqui Pearce, with Tony Dyson



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with contributions by

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Cover illustrations: below, the early 13th-century waterfront at Billingsgate (now on display at the Museum of London); above, a stone angel corbel probably from the medieval St Botolph Billingsgate church, found in earth-moving debris from the Billingsgate site which had been transported to Essex

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Summary

This publication brings together the archaeological and documentary evidence for a number of medieval and post-medieval secular properties and a parish church on four waterfront sites excavated in Thames Street in the City of London by the Museum of London in 1974–84: from west to east, Swan Lane (site A), Seal House (site B), New Fresh Wharf (site C) and Billingsgate Lorry Park (site D) (for locations, see Figure 12 and Figure 13). Here the findings for the period 1100 to 1666 (the Great Fire of London) are presented.

The waterfront excavations in London, which began in 1972, have produced great advances in our knowledge about the nature of reclamation on the river bank and extension of properties into the river. The inclusion of thousands of artefacts and pottery sherds in the reclamation and foreshore deposits are an unequalled catalogue of the material culture of medieval London; and the carpentry of the wooden revetments tells us about medieval buildings which have otherwise not survived in London (and some examples are earlier than the earliest standing buildings in other medieval towns). The excavation narrative is arranged in four consecutive periods from 1100 to 1666. The nature of London's waterfront, including its public buildings and Thames Street itself, is considered for each period; the developing relationship of the waterfront area to the rest of the medieval and Tudor City of London is also outlined.

The wider area of the study is the waterfront south of Thames Street between the sites of the 11th-century All Hallows the Great church in the west (today just to the east of Cannon Street railway station viaduct) and the probably 10th-century Billingsgate dock in the east, a length of about 475m (about 1550ft). Just over half way along this length of waterfront, the north end of medieval London Bridge met the bank of the river and the street. The focus of research is two blocks of properties, eight tenements upstream of the Bridge, labelled for this study Tenements 1–8; and a second block downstream of the bridge, labelled Tenements 9–16. Generally it was only the parts nearest to Thames Street, which would have contained the most important buildings, which were excavated; documents, early views and maps provide context and setting. Excavations here of 1974 to 1984 are the main focus of this study, but more recent excavations of 2003–6 on some of the same properties and nearby are fitted into the narrative, with their complementary results.

Between 1100 and 1666 the waterfront of the City of London, between Thames Street and the River Thames, literally grew by extension into the river until fossilised by the erection of stone river walls. By the end of the main period of reclamation, around 1450, the new land south of the street could be up to 100m wide, formed by innumerable expansions on private properties, which had the effect of making indented inlets or docks for ships at Queenhithe and Billingsgate. Earth and rubbish were used to make the reclamation units, which are often dated by the dendrochronology of timbers used in the waterfront structures (Figure 1).



Figure 1 The early 13th-century waterfront excavated on the Billingsgate site, 1982,looking north from the river side. The section of revetment on the left (D:Waterfront 14), dated by dendrochronology to about 1235, was later conserved and displayed in the Medieval Gallery of the Museum of London

Over the five and a half centuries studied here, changes in the topography, building design and material culture

Period	Properties and buildings, building materials	Pottery	Non-ceramic artefacts
M1 1100–1200/1220	extensive reclamation; buildings of stone and timber on the reclaimed land; dyehouses	London-type wares predominate	a limited range, but already the main categories of household fittings and clothing (shoes)
M2 1200–1350	more reclamation; subdivision of waterfront properties (more tenants); tiled roofs from 1200, brick appears before 1350; possible first example of glazed window	Kingston-type ware 1230, Surrey-Hants ware 1270; decline of Andenne ware and Rhenish ware imports; shift to wares from S France and Mediterranean	apparent abundance of artefacts thrown away, perhaps a consumer culture
M3 1350–1500	more subdivision; some large houses on the reclaimed land, including two livery company halls; dyehouses and brew houses interchangeable	London-type wares decline; increased import of stonewares from Rhineland	from documentary sources, massive imports of objects of all kinds, household and trade
P1 1500–1666	houses now 3–4 storeys tall; warehouses named as room functions; Dutch wall tiles a feature of buildings on site D	several types of Continental pottery, a more European culture	artefacts of this period not in this study; for future analysis

Table 1 Observed changes over time on the study sites in Thames Street

of the studied properties south of Thames Street can be observed (Table 1).

The documentary history of these tenements is among the richest that can be provided for any secular properties in the City. The history of owners and tenants can be reconstructed, and information compared with the archaeological findings to study public and private space, the network of waterfront alleys, the components of tenements and the process of subdivision, specialised buildings and equipment, warehouses and cranes. There are also detectable differences in land use above and below the Bridge, particularly from the 16th century onwards. The establishment of the Legal Quays by the Elizabethan government in 1559 was probably instrumental in moving the landing places for foreign goods downstream of the bridge. This government act changed the London topography.

The study addresses several major questions. The reclamation units contained thousands of medieval and Tudor artefacts (Figure 2), and hundreds of kilos of native and foreign pottery. Where did the pottery and artefacts come from? Do they have any significance in their locations behind waterfront revetments or on foreshores, or are they all hopelessly mixed up because they were mixed up before they were brought here?

Two of the study sites, Swan Lane and Seal House (sites A and B), were particularly fruitful in this regard, and many of their major landfill units were dated by dendrochronology. Coins were present but being always residual were not useful for dating the strata. No local concentrations of individual types of artefact was noticed. The soil for the reclamation dumps was probably gathered from rubbish tips on properties all over the city; their sources cannot now be specified (except in one case of a possibly royal source for dumps at Baynard's Castle at the west end of the City waterfront). Reclamation along the foreshore included dumps containing large amounts of broken pottery from the second half of the 11th century. From the pottery, the conclusion has been that reclamation dumps were usually of slightly mixed date, whereas the foreshores contained more contemporary material. It is not possible to rely on the finds from a particular reclamation dump to date its deposition by themselves; nor, as they were almost certainly brought from further afield, can they tell us about activities taking place in a particular waterfront tenement. The foreshores are no better, and their strata have been more fluid during their long existence.

Objects can however speak. The thousands of medieval and post-medieval artefacts tell us about specific aspects of culture, fashion and religious beliefs. The range of these everyday things, the evidence of mass production of, for example, buckles, belt fittings and dress ornaments, and the sheer number of near-identical items bear witness to the thriving market for the consumption of goods that documentary sources attest. Many of the artefacts were probably imported objects, but research has yet to show this by analysis of them. We can explore how the finds on London waterfront sites in general contribute to a suggestion that the early modern consumer revolution and consumerism began not in the 18th century, but in the late Middle Ages. Along with a consumer society came fashion,which can be detected in the objects.

Objects are intimate evidence of the beliefs of Londoners, whether an elaborate pilgrim souvenir from Canterbury or seals from indulgences, buried with









Figure 2 Artefacts from reclamation deposits: clockwise from top left, a group of armorial mounts with identical shields, found probably surrounded by coarse cloth on site A, probably mid 15th century, from horse harness or for fitting to swords; a 17th-century Metropolitan ware jug from site D; fragment of a 16th-century tin-glazed floor tile made in Antwerp, from site D; and a shoe from an 12th-century reclamation deposit at site B, with an embroidered vamp stripe. For detailed information on the objects, see the figures showing them later in this text

people. At the beginning of the 16th century England seems to have been one of the most Catholic countries in Europe. A study of pilgrim badges largely from the waterfront sites as a whole has shown that badges from 39 sites in Britain and 109 sites in Continental Europe, from Vadstena in Sweden to Bari in Italy, have been found in London; and many come from the sites in this volume. The medieval waterfront silts also produced the Billingsgate trumpet (so called from the site where it was found), one of the earliest surviving examples of a medieval musical instrument from Europe, and the only known example of a medieval European straight trumpet (Figure 3).



Figure 3 The Billingsgate trumpet, the only known example of a medieval European straight trumpet; found during earth-moving on the Billingsgate site, 1984. It may have been lost from a ship in the period 1260–1350

Next, there is a wish to study the the functions of the buildings and open areas on the study sites. What did the interiors of the buildings look like? How did they change over time? To what extent is this illustrated by the artefacts? To what extent can each property and new development be linked to specific owners or occupiers, as mentioned in the documentary record?

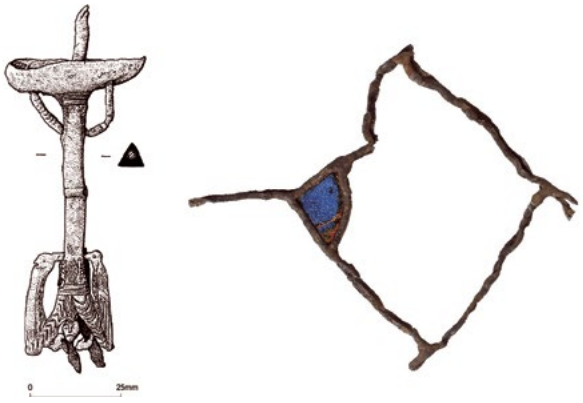

Figure 4 Household fittings and equipment from the Swan Lane site: left, an iron and lead candlestick with birds and possibly human figures, perhaps 12th-century, from a reclamation dump of 1180–1270; right, a fragment of window cames with coloured glass, from a reclamation deposit of 1270–1330



Figure 5 Native and foreign 17th-century pottery from a drain on the New Fresh Wharf site, perhaps from the household of William Widmore, plasterer

The deep deposits along the waterfront, by comparison with those in most of the rest of the City of London, mean that buildings survive well; though the buildings have been altered many times and inevitably replaced during the centuries. Stone buildings, perhaps with vaulted undercrofts, were built on the reclaimed land by 1200; at Swan Lane they included a large dyehouse, active for a prolonged period. Timbers reused in waterfront structures tell us about early buildings on land; in particular, that the techniques of constructing buildings with timber frames of squared timbers and a range of joints was developed in London in the late 12th century. Important examples are found on two of the sites in this study of buildings with low walls of stone or clay which would have supported timber frames in the second half of the 13th century, a major development in medieval building technology. This study summarises what the waterfront excavations since 1972 contribute to a history of domestic buildings in London and Britain from 1100 to 1666. Their rooms and spaces include vaulted undercrofts, halls, outbuildings and yards; there is detailed evidence of doorways and windows, stairs, tile floors, and household fittings and equipment (Figure 4). As a group, the excavated buildings provide an important collection of dated examples from the waterfront area to match others now being produced by other large archaeological projects in the City, for instance the study of the east end of Cheapside and Poultry published in 2011. We can now compare areas of the City through their medieval and Tudor building stock. This is an analysis of London's former townscape at a new level which did not seem possible a few decades ago.

The pottery in and around the buildings is generally homogeneous, and ways have not yet been found to analyse pottery in order to illustrate activities or the uses of buildings at any one moment or over time, with the notable and encouraging exceptions of the two specific exercises studying 17th-century pottery and artefacts in a drain at site C (New Fresh Wharf) (Figure 5) and scattered through several buildings and another drain at site D (Billingsgate) (Figure 6). From the rich evidence on the Billingsgate site, we can begin to elucidate the functions of rooms and spaces at a level not often possible on sites in London or elsewhere, by a conjunction of examination of the buildings, the artefacts within them, and the documentary evidence.



Figure 6 From a drain on the Billingsgate site full of artefacts, part of the household effects probably destroyed in the Great Fire: a Raeren stonware statuette of a woman with an elaborate head dress and a pewter lid from a Westerwald stoneware mug



Figure 7 Detail from the panorama of 1647 by Wenceslaus Hollar, showing cloths hanging from poles on a building on the waterfront side of the Swan Lane (site A) site, probably part of a documented rebuilding of the property in or after 1638 as a house and dyeing establishment. The archaeological excavation took place in the area of buildings behind the waterfront



Figure 8 Seventeenth-century tin-glazed wall tile from site D, from a building probably destroyed in the Great Fire of 1666. These tiles may have been made in the Netherlands or in Britain; they are evidence of strong cultural links with Holland

Study of the pottery shows trade and cultural links with many places around the North Sea and deep into the Rhineland; pottery made in the London area in the 12th and 13th centuries is found in British towns up to the north of Scotland, and in present-day Norway, Sweden and Denmark. This monograph presents a detailed study of the native and foreign pottery found on two of the sites, Swan Lane and Seal House for the period 1100 to 1666.

These tenements were a mixture of domestic and work buildings from the start. Industries or crafts which made or processed things are evident in the 12th-century dyeworks on the Swan Lane site, a possible fish-drying house at Seal House, and other industrial buildings to be explored in the future from debris within them. We publish a room by room inventory of Dyers' Hall, on the Swan Lane site, in 1602. What is probably another dyeworks on the waterfront south of the site is shown by Hollar in 1647 and is identified with known construction works on the site in this part, of 1638 or shortly after (Figure 7).

The dyeing industry, requiring a large amount of river water, was a feature of the area upstream of the north end of London Bridge from the 12th century, and continued to be so until the Great Fire. By the 14th century its facilities were shared with brewing establishments, which had become complexes of equal size by 1600. In the 14th to 17th centuries there was probably an industrial tone to the properties south of Thames Street, which would influence the landuse and form of the private and corporate buildings. Some buildings on site D destroyed in the Great Fire of 1666 however had Dutch tiles in their rooms (Figure 8); perhaps a fashionable European tone in richer houses among the utilitarian buildings of the waterfront.

St Botolph Billingsgate, first mentioned around 1140, expanded to the south in the middle of the 15th century through a grant to the parish by John Reynewell, mayor 1426–7, or his trustees by 1456 at the latest; a grave in the new extension contained two skeletons, and one may be Reynewell himself (Figure 9). The church extension included an existing stone building a few metres to the south, which was then incorporated into the body of the church. The function of this building, now the southernmost part of the church, is not clear, but is suggested to have formed a fraternity hall. Many aspects of the internal features and decoration of the church can be reconstructed from the survival of its accounts from the late 16th century up to the Great Fire. One intriguing find was made during the earth-moving during construction at Billingsgate in 1983–4: an impressive stone corbel carved with an angel holding a shield bearing a merchant's mark, probably from



Figure 9 Is this skeleton John Reynewell, mayor of London in 1426–7? In the extension southwards of St Botolph's in the 15th century, this man and a woman were buried in brick tombs in the middle of the new space, probably facing a new altar. The man may be the sponsor of the extension, John Reynewell (d 1445). He was a prominent City merchant who rebuilt the drawbridge gate of London Bridge during his mayoralty

the church, and possibly from the roof of Reynewell's extension (Figure 10).

Sixty-nine people were buried in the south part of the parish church of St Botolph which was excavated on the Billingsgate site. They are probably of mid 15th to mid 17th-century date. The degree of survival of human remains was good, and they form a valuable group of parish interments. In general the people had the range of skeletal pathologies and conditions seen in other contemporary London populations (Figure 11), though without evidence of tuberculosis or syphilis as might be expected. Fractures were few, though one young man had survived a blunt blow to his head and an older man had a deformity of his right hand which might have been from damage to his tendons. Various sorts of osteoarthritis and one case of gout were recorded.



Figure 10 The angel corbel found on a landfill site in the lower Thames valley, to which earth from the Billingsgate site was transported in 1983–4; probably from St Botolph's church

The results of the excavations are compared to others in London and elsewhere. From the large campaigns of urban excavation in London since the 1970s, we now have published reports on many sites. The history of this waterfront zone of the City can be compared with central sites around Cheapside, to see how the two zones were different in their buildings, material culture and development. The results from London are also compared to work on the archaeology of waterfront areas in other towns and cities for this period, both in Britain and abroad.

Though there have been many archaeological excavations along Thames Street, the archaeological resource remains in quantity and must be protected. This study proposes that some thought should be given to the preservation of the long reservoir of deep strata, from the Roman period onwards, which lies beneath most of the line of the present Upper and Lower Thames Street. A final section of this monograph presents a series of section drawings and elevations of the deep strata excavated on two of the sites, Seal House and New Fresh Wharf. They show the deposits of all the recorded periods since the Roman in the 2nd century, and serve not only to demonstrate the depth of archaeogical deposit here which is unparalleled in London, but also to be part of the archive behind other previously-published studies of the sites in Roman and Anglo-Saxon times, and their large archive of artefacts and records which is held by the Museum of London.

Fundamentally, this is an account of four excavations carried out at a crucial time, the first decade of reasonable archaeological provision in the City of London; and of their artefactual material, the study



Figure 11 Details from the analysis of human remains at Billingsgate: above, multiple linear enamel hypoplastic defects in the mandibular canines and premolars of skeleton D[301], a juvenile of 6–11 years; below, evidence of Diffuse Idiopathic Skeletal Hyperostosis (DISH) on the spine of skeleton D[783], possibly John Reynewell

of which laid the foundations of many kinds of archaeological research in London and by imitation elsewhere in the decades which followed, and which continues to do so 40 years later. The four excavations in this study form a starting-point for further study of the material culture of the whole City because of the wealth of information recovered and the length of the archaeological sequences recorded.

Acknowledgements

The main author of the site narratives and discussion sections dealing with the topography of the waterfront and its buildings is John Schofield, incorporating the detailed documentary history of the sites by Tony Dyson and supplementary documentary research by Stephen Freeth. The other principal authors are Lyn Blackmore, who studied the medieval and post-medieval pottery from Swan Lane (site A) and Seal House (site B); and Jacqui Pearce, who studied the pottery from New Fresh Wharf (site C) and one group from Billingsgate (site D). She also provided the pottery report for the more recent excavations of 2006–9 at Riverbank House, which replaced the Swan Lane building of 1982, now published separately, which is drawn on.

Brian Hobley was head of the Department of Urban Archaeology (DUA) of Guildhall Museum (from 1975, part of the Museum of London) during the whole excavation period. At New Fresh Wharf the supervisor of Areas I and II in 1974 was Gerald Clewley and the project manager David Browne; the supervisor of Area III in 1975 was John Schofield. The main assistants for both were Richard Blurton, Peter Ellis, Louise Miller, Chrissie Milne, Gustav Milne, Graham Troilett and Des Woods. We are grateful for much assistance by Jeff Moulden of the City Surveyor's Department. The watching brief of 1978 which was recorded as Areas IV and V was conducted by Louise Miller; the project manager was John Schofield.

At Seal House in 1974 the excavation took place by permission of the Fishmongers' Company. It was organised by David Browne; the supervisor was John Schofield, with assistants Tom Chilton, Geoff Parnell, Mark Redknap, Alan Thompson, Graham Troilett and Des Woods; the Finds Assistants were Hilary Kent, Merry Morgan and Lesley Morgan. Assistance was also provided at week-ends by members of the City of London Archaeological Society. We gratefully acknowledge the help of the Assistant Surveyor to the Fishmongers' Company, Mr J Hicks. The excavation and writing of the first draft excavation report was funded by the Department of the Environment, and parts of the post-excavation research by the Fishmongers' Company.

At Swan Lane in 1981 the excavation was organised by John Schofield and the supervisor of both the initial excavation trench and the later watching brief during construction in 1982 was Geoff Egan. He was assisted in the excavation by Hester White, Tim Williams and others; and during the watching brief by Ron Harris and members of the Society of Thames Mudlarks metal detector group. Both phases of work were permitted by Edger Investments Ltd and the watching brief was assisted by a grant from the City of London Archaeological Trust (CoLAT). Post-excavation pottery analysis on both the Seal House and Swan Lane sites was later made possible by grants from the Girdlers' Company and the Dyers' Company. Archive site reports are by Geoff Egan and Liz Popescu (Shepherd).

At Billingsgate in 1982 access to the site was negotiated by Brian Hobley and John Schofield. John Schofield was the project manager. The sheet piling was designed and inserted by Bryan Packman Marcel, structural engineers. The supervisor was Steve Roskams and the finds supervisor Margrethe de Neergaard. The excavation was funded by the Department of the Environment, the Corporation of the City of London, CoLAT and by a scheme of the Manpower Services Commission, part of the Department of Employment which functioned to promote employment in the years 1973–87. This enabled young people both with archaeological qualifications and without qualifications to be employed on the excavation or in the finds processing shed. The archaeologists who worked for extended periods on the excavation included Derek Gadd, Portia Askew, Dick Bluer, Prince Chitwood, Deirdre Moriarty, Jenny Norton, Julian Hill, Dick Malt, Brian Alvey, Andrew Westman, Sue Rivière, Marie Barker, Ian Blair, Peter Rowsome, Mark Burch, Mariella Ryan, Ralph Isserlin, Marie Nally, Clare Midgley, Peter Stott, Val Horsman and Jez Reeve. Rose Johnson was engaged as a conservator specifically for the site. All four excavations were funded at least in part by the Department of the Environment (later English Heritage); we thank especially Brian Davison. This department also funded dendrochronological analysis of all four sites at the University of Sheffield, which was undertaken by Ruth Morgan, Jennifer Hillam and Cathy Groves (Tyers). The text of the site narrative for Billingsgate (site D) is based

on a draft by Trevor Brigham from the archive report by Steve Roskams. The watching brief on the construction site was conducted by Geoff Egan.

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Reproduction of the drawings of artefacts from their appearance in the *Medieval finds from excavations in London* catalogues was kindly agreed to by the present publishers of those catalogues, Boydell & Brewer, and by Sean Waterman of the Picture Library at the Museum of London, which generously waived reproduction fees and produced new colour photographs of many items. The documentary research by Tony Dyson and later by Stephen Freeth was undertaken at the Corporation of London Record Office; Guildhall Library; London Metropolitan Archives and at the halls of several livery companies. The colour photographs of objects used in the following figures are copyright of the Museum of London: Figures 31, 38, 53, 62–3, 70, 74, 89, 90, 98, 101, 106, 116, 122, 128, 166, 191, 236–7.

1. The report: introduction

1.1 The four study sites

This report has three main themes or subjects: the development of the waterfront of the City of London near the north end of medieval London Bridge from about 1100 to 1666; the lives of the inhabitants of two stretches of medieval properties, above and below the Bridge, during the same five and a half centuries; and how the thousands of artefacts and tens of thousands of pottery sherds in the reclamation deposits on these sites provide many insights into the lives of people all over the City and sometimes further afield.

The project brings together the archaeological and documentary evidence for a number of medieval and post-medieval secular properties and a parish church on four waterfront sites excavated by the Museum of London in 1974–84. All four sites lie to the south of Thames Street and have river frontages. They are close together. On the west, upstream side of both medieval and modern London Bridge are Swan Lane (now [2018] Riverbank House) and Seal House (now the Fishmongers' Hall extension, by Holford Associates, but about to be redeveloped), while New Fresh Wharf (now St Magnus House, 1978–81 by R Seifert and Partners) and the Billingsgate lorry park (now the Northern and Shell Building, built as Simon Montagu House in 1983–5 by Covell Matthews Wheatley Partnership) are on the east, downstream side of both bridges (Figure 12). The four sites have been given initial codes of A–D from west to east regardless of the date of excavation as shown in Table 2, which also gives their main archive references (Museum of London archaeological site codes).

All the land south of Thames Street has been reclaimed from the river, in many stages since the Roman period. The Roman and Saxon features of the sites, all waterfronts or riverside embankments, have already

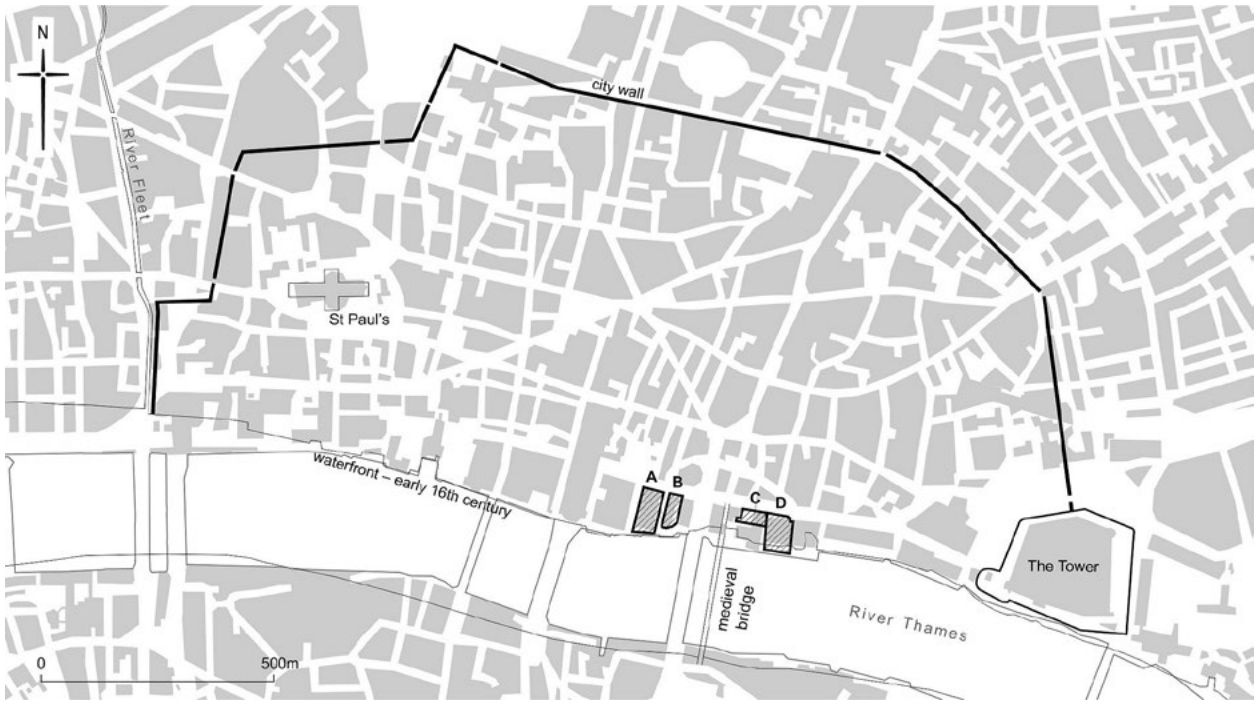


Figure 12 The City of London, showing the four sites in the study (A: Swan Lane, B: Seal House, C:New Fresh Wharf, D:Billingsgate) (1:12,500)

Prefix	Site codes	Address
A	SWA81	Swan Lane Car Park, 95–103 Upper Thames Street, EC4, 1981–2
B	SH74	Seal House, 106–108 Upper Thames Street, EC4, 1974, 1976
C	NFW74, SM75, FRE78	New Fresh Wharf, 2–6 Lower Thames Street, EC3, 1974–8
D	BIG82 (exc), BWB83 (earth moving)	Billingsgate Fishmarket lorry park, Lower Thames Street, EC3, 1982–4

Table 2 The four study sites: their prefixes used in this text, their Museum of London site codes, and addresses at the time of excavation

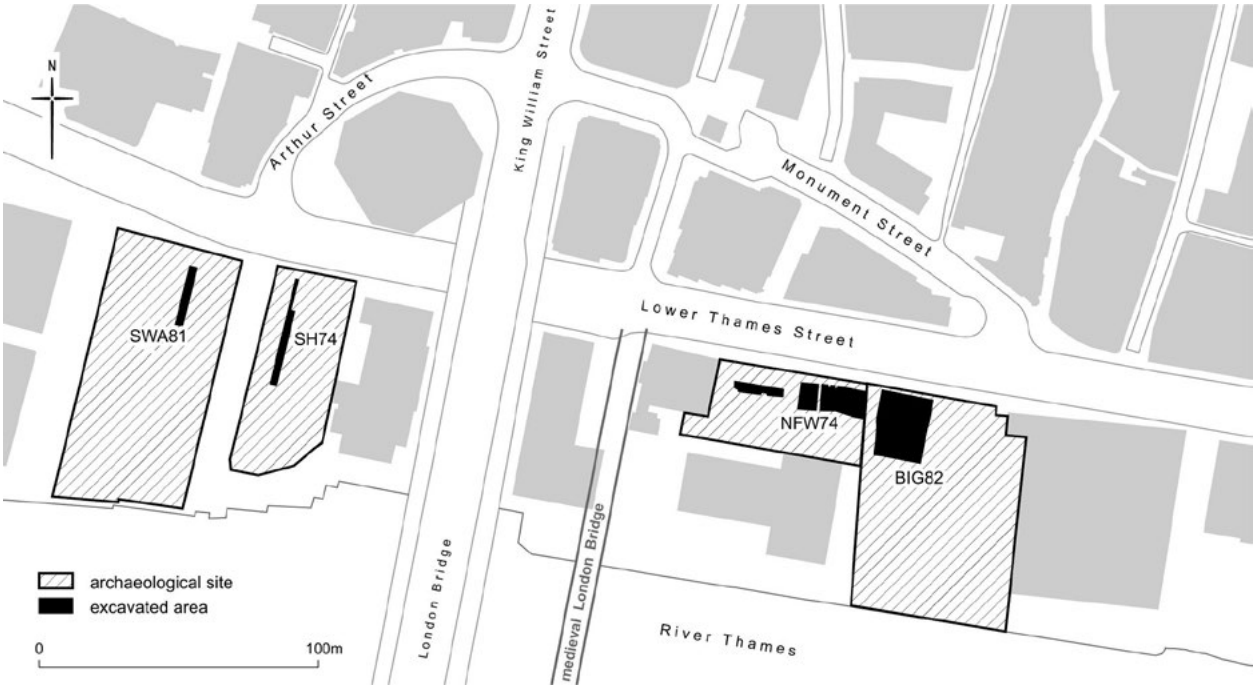


Figure 13 The sites of the four excavations south of Thames Street, in their relation to the modern and medieval London Bridges. The Museum of London sitecodes are used to identify the sites: from west to east, SWA81=Swan Lane, SH74=Seal House, NFW74=New Fresh Wharf (main trenches only) and BIG82=Billingsgate Lorry Park. The Billingsgate watching brief (BWB83) was of the larger remainder of the Billingsgate site (1:2,500)

been published.[1] The study area is the strip of land south of Thames Street, from a block on the west side of Swan Lane in the west to Billingsgate in the east, in the medieval and post-medieval periods to 1666. Besides the four study sites, this strip includes the north end of the medieval London Bridge of 1176–1209 (which until demolition in the 1830s lay at the foot of Fish Street Hill, slightly downstream of the present bridge), Fishmongers' Hall (1833) and a second church, St Magnus the Martyr (1668–84), which still stands as rebuilt by Wren after the Great Fire of 1666. Fishmongers' Hall can be traced back to the 14th century; St Magnus to the 11th century.

The location of the four excavations of 1974–84 in Thames Street, given here as Figure 13, shows their relationship to the modern London Bridge (1973) and the alignment of the medieval London Bridge. The present bridge is on the line of London Bridge of 1831, constructed next to and upstream of the medieval bridge, which was then demolished. Since the 19th century, the change of street name from Upper to Lower Thames Street has been at the bridge.

Post-War development of Thames Street, which has itself been progressively widened and straightened out, has been intense. In 1997 Simon Bradley noted 'outside the bombed area to the north, no area of the City has changed as much in recent years as Upper and Lower Thames Street.'[2] From 1972, the north bank of the Thames within the City of London, the site of the Roman, Anglo-Saxon, medieval and post-medieval port, was excavated on a number of sites as they were developed. There was a similar emphasis, though overall less excavation, on the south bank of the Thames in Southwark, Bermondsey and Rotherhithe. The various stages of Roman reclamation and waterfronts on the north, City bank have been elucidated on several sites, and it now seems likely that virtually all the riverside of the Roman city had a formal waterfront of some sort.[3] The Anglo-Saxon waterfront of the 10th and 11th centuries was studied on the sites around the bridgehead and reported in 1992.[4] Excavations in 1972–2015 of medieval and post-medieval parts of the waterfront on both banks of the Thames will provide setting and parallels throughout the present work.

A wider group of 14 sites which are discussed in this report are shown in Figure 14, part of the map of 1747 by John Rocque.[5] This shows the waterfront on both banks of the Thames for about 700m either side of the medieval and post-medieval bridge. The key to the numbering of the sites, and their main archaeological publication,

[1] Miller *et al.* 1986; Brigham 1990; Steedman *et al.* 1992.

[2] Bradley and Pevsner 1997, 613.
[3] Brigham 1990, 136–7.
[4] Steedman *et al.* 1992.
[5] Hyde 1982.

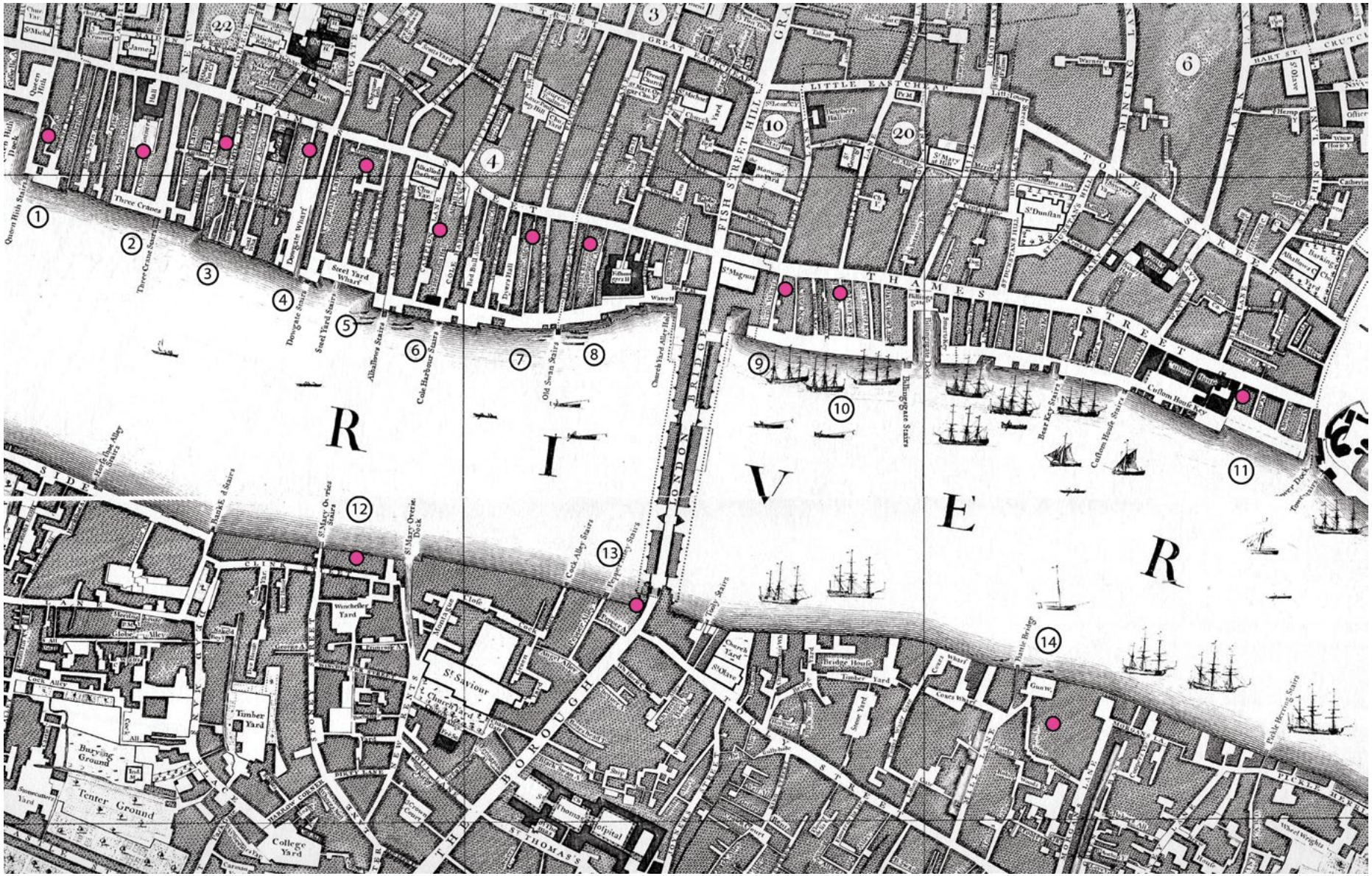


Figure 14 The central area of the waterfront of London, showing the main sites used in this study (based on Rocque 1747, from Hyde 1982). For key to the archaeological sites shown, see Table 3

Number on Figure 14	Site	Main publication
1	Bull Wharf	Ayre and Wroe-Brown 2015a, 2015b
2	Vintners' Hall and surroundings	Schofield with Maloney 1998, 297–8
3	Thames Exchange	Milne 1992
4	Walbrook	Schofield with Maloney 1998, 86
5	Steelyard	Schofield with Maloney 1998, 259–60
6	Watermark Place	Fowler and Mackinder 2014
7	Swan Lane/Riverbank House	this report; Mackinder 2015
8	Seal House	this report
9	New Fresh Wharf	
10	Billingsgate Lorry Park	
11	Custom House	Tatton-Brown 1975
12	Winchester Palace	Seeley *et al.* 2006
13	London Bridge south end	Watson *et al.* 2001
14	Dunley's Place and Fastolf Place	Blatherwick and Bluer 2009
Sites on the north bank of the Thames to the west of those shown on Figure 14		
	Trig Lane	Milne and Milne 1982
	Millennium Bridge	Ayre and Wroe-Brown 2002
	Baynard's Castle	Schofield with Maloney 1998, 84–5
	Blackfriars Station Thameslink	Stafford and Teague 2016

Table 3 The wider group of archaeological sites on both banks of the River Thames which are discussed in this report

is given in Table 3. A small number of further sites on both banks west of Queenhithe are mentioned in the text, but they are beyond the boundary of the map; they are also listed in Table 3.

The Roman, Saxon and medieval periods (to about 1500) have been explored on a good number of London waterfront sites. Post-medieval strata have been reported piecemeal from various of these sites, and studies of the Southwark and Bermondsey waterfront on the south bank downstream of London Bridge have been of both the medieval and post-medieval periods.[6] But the archaeology of the post-medieval London waterfront, like that of post-medieval London in general, is only now being developed. The period between about 1500 and 1666 is one of four project-wide periods studied here, with the principal space given to the large excavation at Billingsgate and what it revealed. Reporting the archaeology of the study sites after the Great Fire of 1666 is fully intended but will be a separate publication.[7]

At the end of each of the major periods reported here, a discussion will be presented concerning the findings, restricted to the following topics: the chronology and character of the reclamation process; the nature of buildings on the reclaimed land, suggesting their functions if possible; notable aspects of the pottery and non-ceramic finds recovered from the study sites; comparable findings on other excavated waterfront sites, on both banks of the Thames in the area of the City of London; and comparison of the development of Thames Street around the north end of London Bridge with other areas of the City.

One important caveat is necessary. The introduction to each of the periods of the study, from the 12th century to 1666, will briefly place the excavated remains in context within the general development of the port of London. But this is not principally a study of the medieval and later facilities comprising the places where river- and sea-going boats and ships docked, such as Queenhithe and Billingsgate. This monograph is a study of the reclamation and land uses on waterfront properties immediately above and below London Bridge in the period 1100–1666. As will be seen, there is evidence for specific activities which required a waterfront location; but no real evidence on these sites of port installations in the sense of places where large ships docked. This is principally a study of land uses which could be found between the major inlets and trading places on the London waterfront. These private properties were however part of the network of landing and distribution of imported goods of all kinds, and probable points of bringing together goods for export.

1.2 The topographical framework of the excavations: properties and parishes

The focus of the project comprises two blocks of eight tenements: the first block upstream of the medieval bridge, labelled for this study Tenements 1–8; and a second block downstream of the bridge, labelled Tenements 9–16. Within these two blocks, the archaeological work reported here took place in 1974 to 1984 on Tenements 1–4 and 6 upstream of the bridge;

[6] Ayre and Wroe-Brown 2002, 58–63; Egan 2005, Blatherwick and Bluer 2009.
[7] Schofield in prep.

Tenement	Excavation	Parish
		WEST
1*	Swan Lane, site A, 1981–2	All Hallows the Less
2*	|	
3*	|	St Laurence Pountney
4*	|	
5		
Ebbgate (Swan Lane)		
6*	Seal House, site B, 1974	St Martin Orgar
7		
8		
Fishmongers' Hall and other properties		St Michael Crooked Lane
BRIDGE [medieval]		
St Magnus church		St Magnus
9	St Magnus site [SM75], part of site C, 1975	
10*	|	
Rothersgate	|	
11*	|	St Botolph Billingsgate
12*	New Fresh Wharf [NFW74] and watching brief [FRE78], parts of site C, 1974, 1978	
13*	|	
14*	|	
15* [inc St Botolph's church and wharf]	Billingsgate Lorry Park [BIG82], site D, 1982	
16	machine-excavated 1983–4 [BWB83]	
other properties		
BILLINGSGATE DOCK	[medieval inlet is beneath the market building of 1875]	EAST

Figure 15 Outline of medieval and post-medieval properties and major topographical features in the study area, from documentary evidence. *=the tenements which lay in the principal excavations of 1974–84

and on Tenements 10–16 downstream (Figure 15). Further excavations around the edges of the Swan Lane site (site A) in 2006–9 recorded details of Tenements 1–4 and of Tenement 5.[8] Strata comprising Tenement 16, forming part of the Billingsgate lorry park development site but east of the part excavated, were removed by machine during the construction work of 1983; some archaeological records were made and many artefacts retrieved. Documentary study principally from 1975 to about 1985 researched all 16 tenements in the two blocks, so that for Tenements 7–8 above the bridge and 9 below the bridge, which were not excavated, the documentary history is presented here.

A column in Figure 15 shows how the tenements in the study lay in six medieval parishes, from All Hallows the Less in the west to St Botolph Billingsgate in the east. The eight tenements which are the focus of the present report lay in three parishes. The parish boundaries, which are a useful topographical framework for reconstruction of individual properties, are known by the time of the map of the post-Fire City by Ogilby and Morgan in 1676 (Figure 16). From west to east, the parishes in the west, upstream half are All Hallows the Less (Tenements 1–2), St Lawrence Pountney (Tenements 3–5) and St Martin Orgar (Tenements 6–8). Immediately east of Tenement 8 lay medieval Fishmongers' Hall (in the medieval parish of St Michael Crooked Lane), beneath the present building of 1832–5. The medieval and later Hall is not studied in detail here, but noted incidentally and in its major periods of rebuilding as a notable building on the waterfront. Downstream of the line of the Roman and medieval bridges, the properties lay in the parishes of St Magnus the Martyr (Tenements 9–10) and St Botolph Billingsgate (Tenements 11–16). Figure 16 also shows the numbering of the tenements in the project, in their post-Fire context, and provides a key to the many waterfront alleys.

1.3 The circumstances of the excavations 1974–84

The term 'study sites' refers to the four principal excavations (sites A to D), from Swan Lane upstream of the bridges (Roman to modern) to Billingsgate downstream of them. The circumstances of the four excavations of 1974–84 are now described in their chronological order: New Fresh Wharf (site C), Seal House (site B), Swan Lane (site A) and the excavation

[8] Mackinder 2015.

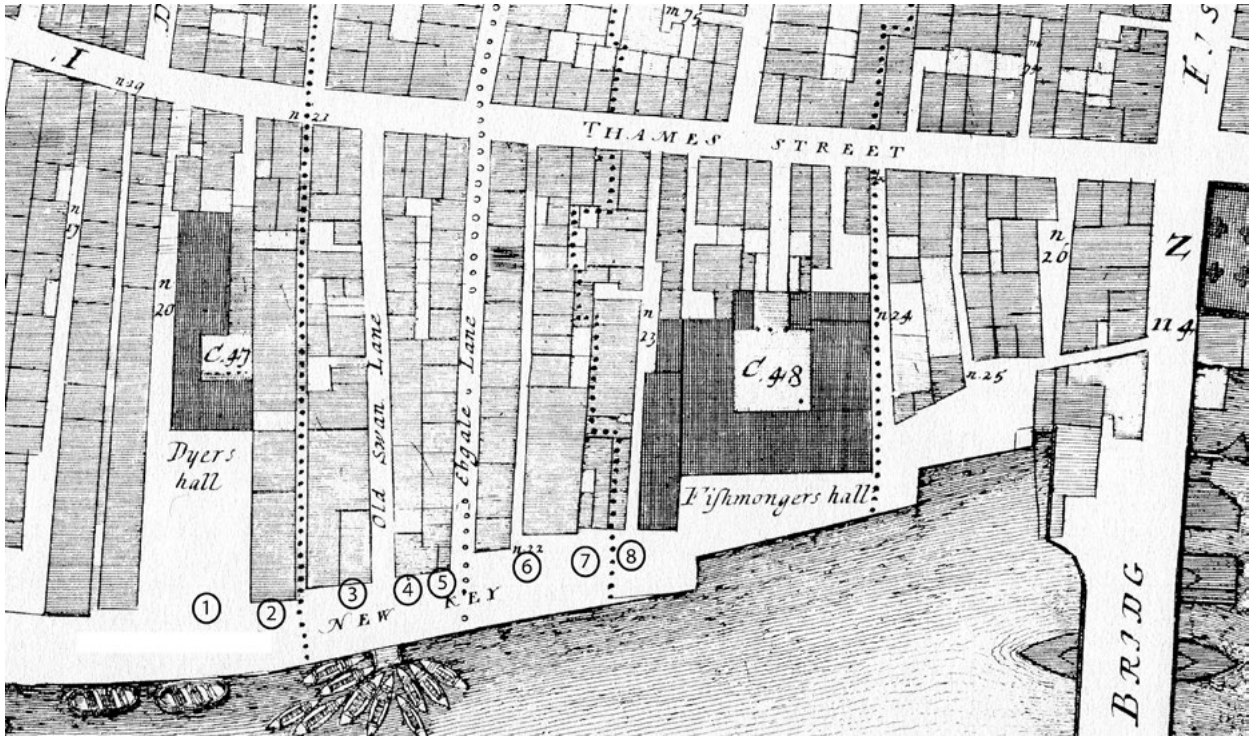


Figure 16 The bridgehead zone on Ogilby and Morgan's map of 1676 (LMA); the numbering of tenements in this study has been added
A, west of London Bridge;

Key:

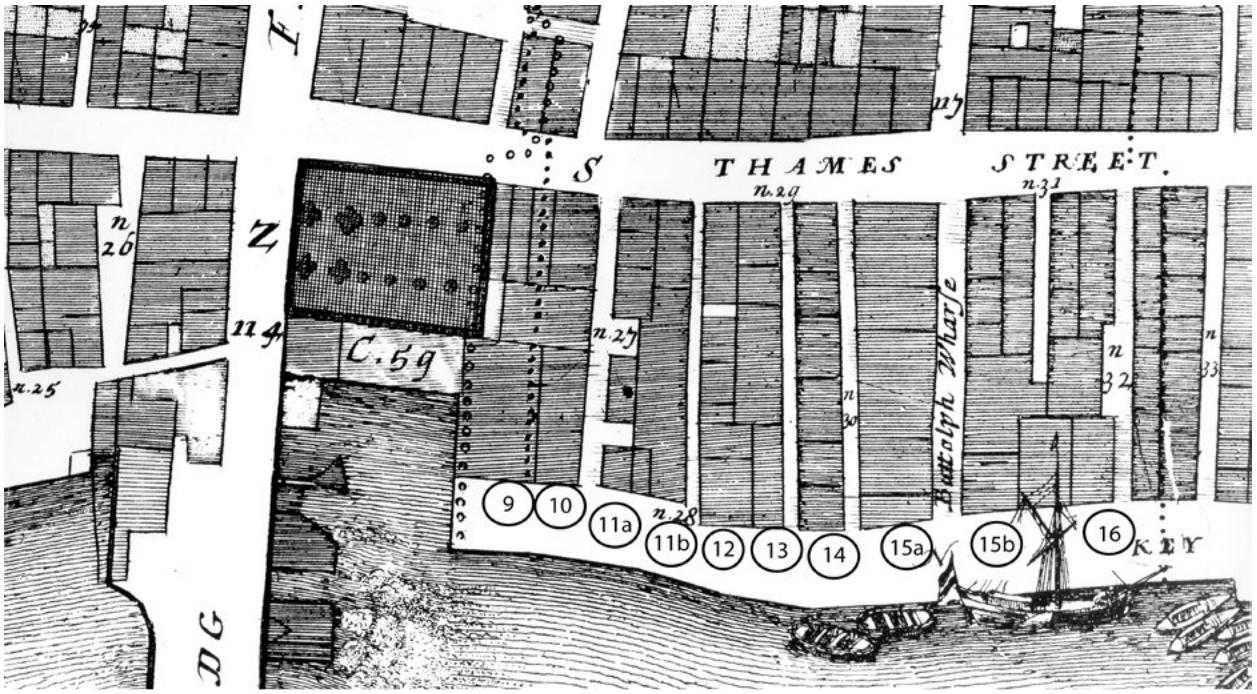
Prominent buildings:
C47 Dyers' Hall
C48 Fishmongers' Hall
C59 St Magnus the Martyr

Alleys:
n17 Campion Lane
n19 Angel Alley
n20 White Cock Alley
n21 George alley
n22 Black Raven Alley
n23 Wheatsheaf Alley
n24 Red Cross Alley
n25 Church Yard Alley
n26 Gully Hole
n27 FreshWharf
n28 Grant's Quay
n29 Cox's quay
n30 Hammond's Quay
n31 Lyon's quay
n32 Great Somer's Quay

and salvage work during construction at Billingsgate Lorry Park (site D). Sites A, B and the first part of site C were excavated by the Guildhall Museum, which merged with the London Museum to form the new Museum of London in 1975; thus the excavations of the watching brief on site C and the major excavation on site D were by the Museum of London, where the archive for all four sites is now housed.

The excavation at New Fresh Wharf (site C) in Lower Thames Street took place in 1974, about 50m east of the Wren church of St Magnus the Martyr, which marked the north end of the medieval and post-medieval London Bridge until its replacement in 1832. Two adjacent areas, Areas I and II, were excavated in the yard of the New Fresh Wharf complex of 1957 (basements had removed strata between the yard and the present river) (MoL sitecode NFW74; Figure 17). Area I to the east uncovered medieval and post-medieval buildings, and Area II was machine-excavated down to the Saxon embankments, which were then excavated. The Roman waterfront was found, as it had been at Custom House, 270m to the east, in the previous year.[9] Though the Roman period is not the focus of reporting here, the waterfront is shown in the sections of strata of the whole site given below, Figure 287 and Figure 288. In 1975, after the demolition of the New Fresh Wharf building and older buildings against Lower Thames Street in the northwest corner of the site, thus giving greater access, a narrow trench 18m long by 3m wide was cut by machine to the west of the former excavation, specifically to pick up the Roman waterfront. This was called the St Magnus trench or excavation (SM75) in records, but later called Area III as it was analysed with the other parts of the New Fresh Wharf excavation. In 1978, a watching brief on the whole site (Fresh Wharf, FRE78) recorded details to the north (Area IV) and to the south, up to the north side of the 20th-century New Fresh Wharf building which lay between the excavated area and the present river (Area V).[10] Some details, including timbers of

[9] Tatton-Brown 1974.
[10] In the archive report for New Fresh Wharf (Miller 1980) and in the previous publication of the embankments and buildings of the 12th



B, east of London Bridge (scale 100ft = 1 inch). The lines of black dots are parish boundaries (compare Figure 15); the lines of open circles ward boundaries

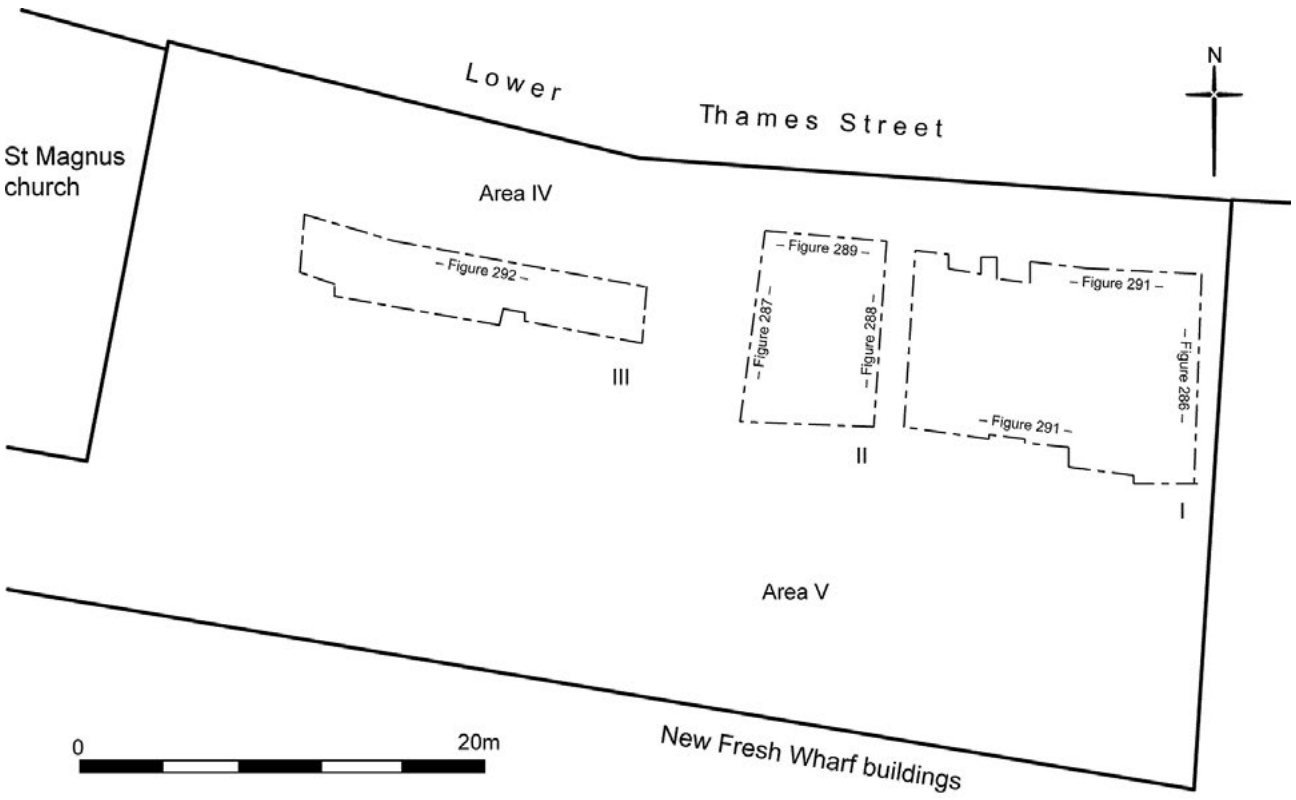


Figure 17 Site C: areas of excavation (Areas I to III) and areas watched during building work (Areas IV and V) and lines of sections

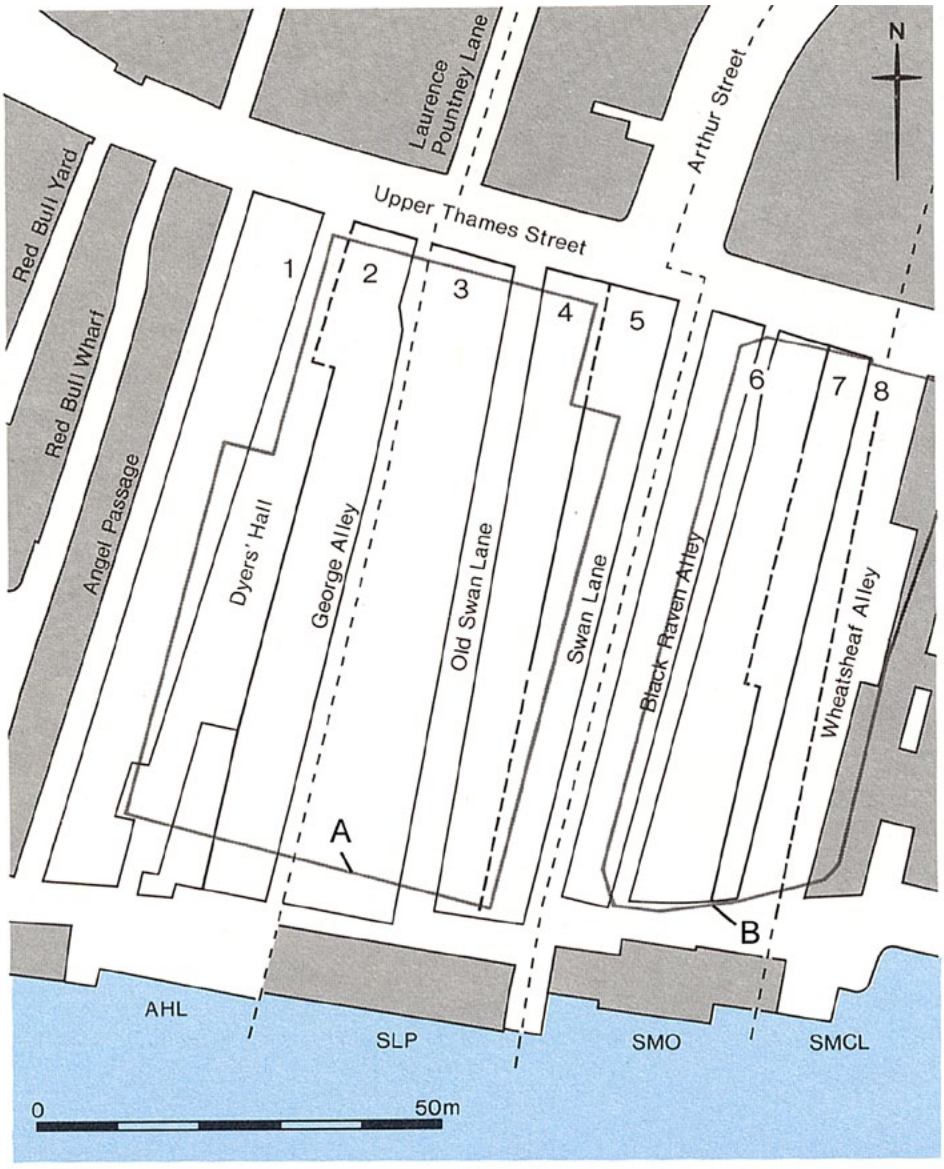


Figure 18 General plan of medieval tenements 1–8, with the outlines of the Swan Lane (A) and Seal House (B) excavation sites (based on Steedman *et al.* 1992, fig 53). The medieval property boundaries are approximate, and do not include minor variations. The medieval parishes are indicated with their boundaries as dashed lines: AHL=All Hallows the Less, SLP=St Laurence Pountney, SMO=St Martin Orgar, SMCL=St Michael Crooked Lane. The streets and lanes are as in the early 20th century

medieval waterfronts, remain beneath the present building of 1978–81.

Next to London Bridge, two excavations took place on properties west of Fishmongers' Hall. The first was Seal House (site B) in 1974, the second Swan Lane (site A) in 1981 (shown in their setting of medieval properties south of Thames Street in Figure 18). Excavation at Seal House, Upper Thames Street (site B, SH74), took place in 1974, with a watching brief during construction of the present building (offices originally forming an extension to the adjacent Fishmongers' Hall) in 1976 (Figure 19). The property made available in the advance of redevelopment by the Fishmongers' Company, nos 105–106 Upper Thames Street, comprised a concrete-floored open basement (the result of destruction in World War II) immediately to the west of the standing and still occupied building called Seal House (a late 19th-century building at no. 108 Upper Thames Street). It should be noted that in all cases except the very few where otherwise stated, the name 'Seal House' in the present report refers to the open basement on the west side of the standing building called Seal House. This was bordered on the west by Black Raven Alley; in 1974 the narrow strip between the Alley and Swan Lane (no. 104 Upper Thames Street until its destruction in the War) was occupied by a few derelict buildings. The Museum hoped to investigate medieval buildings along the line of Black Raven Alley, which ran north–south approximately 1m from the west edge of the trench. Excavation was limited to a trench 26m north–south by 3m wide, with an additional trench 1m wide for a further 14m northwards from the northwest corner of the main trench (the width being governed by the

century (Steedman *et al.* 1992) a system of naming the excavated buildings with letters A onwards was adopted. This has been changed to numbers to fit with the narrative of the other sites. The correspondence between the two systems is given below in Table 94.

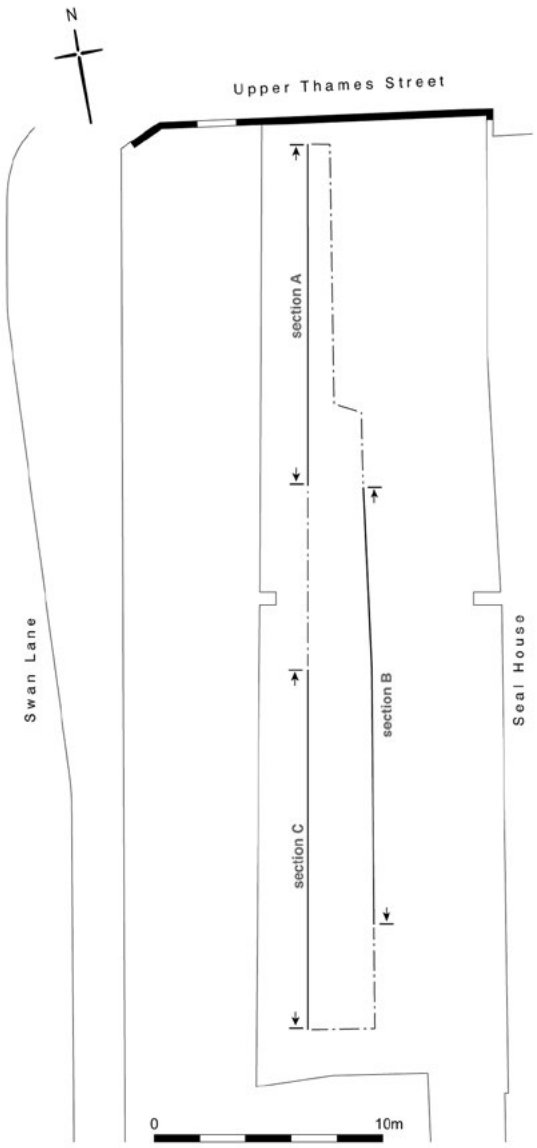


Figure 19 Site B (Seal House): trench outline and section lines: west side, northern half (Section A, Figure 282); west side, southern half (Section C, Figure 283); east side (Section B, Figure 284) (1:300)



Figure 20 Site B (Seal House) during excavation in 1974, looking north

reported slight foundations of the adjacent building) to locate the 2nd-century Roman waterfront, which had previously been uncovered at New Fresh Wharf, about 160m to the east, in a comparable position just south of Lower Thames Street.[11] The trench at Seal House (shown in the early stages of excavation, Figure 20) produced an uninterrupted north–south section 40m long on its west side.[12]

Seal House showed the considerable potential of sites south of Upper Thames Street, and excavation of a north–south trench in the basement of an existing multistorey car park across Swan Lane immediately to the west (95–103 Upper Thames Street, site A, 'Swan Lane', SWA81) in 1981, in the shallow basement of a functioning multi-storey car park of 1961, was designed to pick up a similar sequence of revetments if possible (Figure 21). The position of a trench 39m long and mostly 3m wide was a direct consequence of the excavation and experience of Seal House, about 20m to the east, seven years before. It was designed to investigate the Roman and later waterfronts as near as safely to the north end of the car park building, which remained in use. After this excavation, a 7-month watching brief on the 4000 sq m site of the former car park took place during the early stages of redevelopment, in difficult and constrained conditions. In 2006–9, after demolition of the 1982 building, excavation again took place around the periphery of that building, where strata from the Roman period onwards had survived, as part

[11] Miller *et al.* 1986; Brigham 1990, 107–11.

[12] Initial post-excavation work on the Seal House site in 1975 produced a set of drawings designed for publication but not published at the time. The waterfronts were given Roman numerals (Waterfronts I–III) and the buildings were given letters (Buildings A to Q). These naming conventions have changed for the present publication: the waterfronts have Arabic numerals, and so do the buildings (B:Waterfront 1; B:Building 1). The sections drawn for publication in 1975–7 showing the strata on both sides of the trench are reproduced here, with their lettered buildings, as Figure 282 to Figure 284. The correspondence between the numbering of Seal House buildings in this report and the original lettered series is given in Table 93 below, to aid interrogation of the original records.



Figure 21 Site A (Swan Lane): the standing multi-storey car park (second building from the right) from the southeast, photographed in 1981 as excavation began inside it. The offices built by then on the site of the adjacent 1974 excavation at site B (Seal House) can be seen on the extreme right. Beyond the Swan Lane car park (demolished 1982) is Mondial House of 1969–76, built to be the largest telephone exchange in Europe but quickly outdated and demolished in 2005. The Guildhall Museum was not able to record there in 1970 for lack of resources. The small amount of remaining strata was excavated in 2005–7 (Fowler and Mackinder 2014). Behind to the north, the visible blocks of the 1960s have also been replaced since 1981

of the construction of a new building called Riverbank House.[13]

The fourth and largest site in this study is that of Billingsgate Lorry Park, also called Billingsgate for short, which lay east of London Bridge between the New Fresh Wharf site and the Billingsgate Fishmarket building of 1875 (which closed in 1981). The intended redevelopment of both the 1875 building and the land to the west, a lorry park made over the sites of several 19th-century warehouses destroyed in World War II, was known in the late 1970s.[14] This larger scheme was stopped by the Listing of the Fishmarket building by government minister Michael Heseltine in 1981. Development was then intended for the lorry park only. The case for excavation had been prepared in 1980, and an 11-month excavation began in March 1982. From recent excavations to west and east it was known that the lorry park was an area of potential from the Roman period onwards, about 45m east–west by 55m north–south and up to 8m deep. In 1982, there was no feeling by national or local authorities, as there would be after 1990, that such deposits demanded special care, attention or preservation. The Museum placed a large area of excavation in the northwest corner of the lorry park, where it would investigate the Roman and Saxon waterfronts and medieval buildings of Botolph Wharf above, including part of the parish church of St Botolph Billingsgate, destroyed in the Great Fire of 1666 and not rebuilt. This trench, which required the inserting of a rectangular cofferdam before excavation to enable removal of up to 6m of deposits, comprised about one quarter of the area of the lorry park, and measured 19.53m east–west by 23.95m north–south (Figure 22; Figure 23; BIG82). After the excavation, access was allowed to the site during machine-clearance of the larger remainder of the site, and recording took place under constrained conditions in 1983 and early 1984 (the Billingsgate watching brief, BWB83; Figure 24).[15]

[13] Mackinder 2015; for a plan of the 2006–9 trenches, the excavation trench of 1982 (part of site A) and the nearby site B (Seal House) trench, see fig 3 there.

[14] Here we acknowledge first diplomatic efforts by Museum colleagues Max Hebditch and Hugh Chapman in the 1970s.

[15] The excavation is the subject of a BBC TV Chronicle production, broadcast in 1984. The Museum is grateful to the BBC colleagues



Figure 22 Site D (Billingsgate): the site after initial cleaning in 1982, showing the outline of pre-Fire buildings largely covered with debris of the Great Fire. These deposits were directly beneath the 19th-century buildings, the cellar walls of which, surrounding the excavation, were used to retain the upper 3m of strata. The cofferdam was designed for the archaeological project

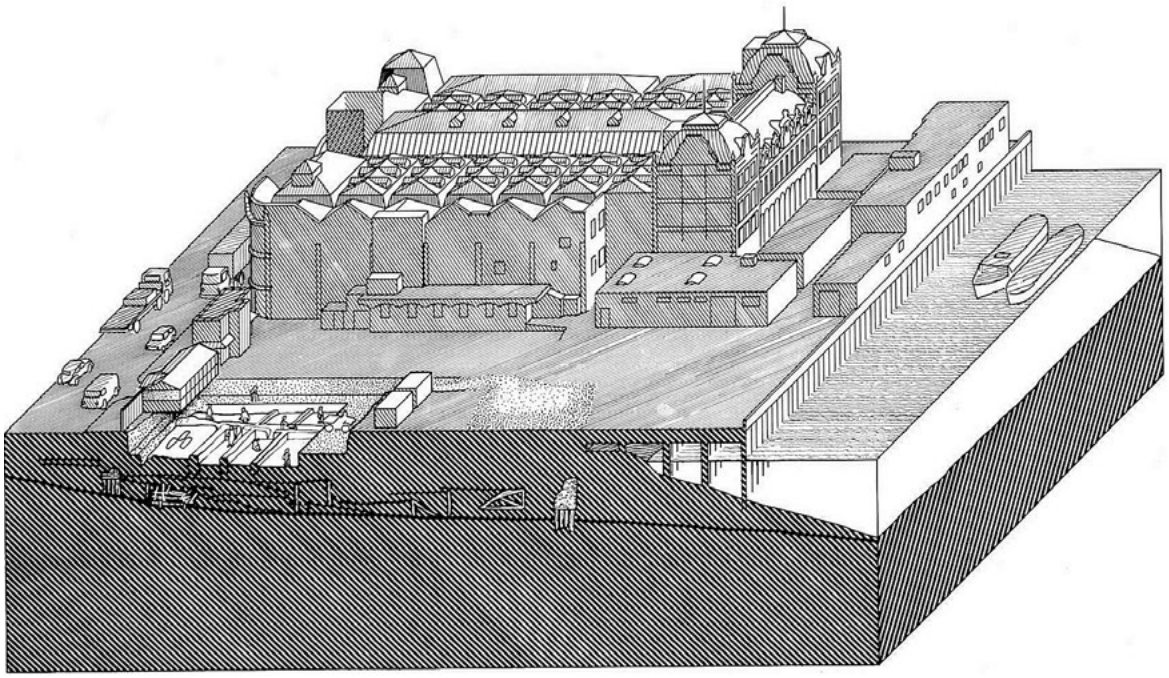


Figure 23 Sketch produced in 1982 to illustrate the position of the Billingsgate excavation (site D) within the Billingsgate Lorry Park and its relation to the expected sequence of Roman, Saxon and medieval waterfront reclamation beneath (based on excavations elsewhere in Thames Street in the years 1974–81). In the background, the Billingsgate Fishmarket building of 1875 which lies on the site of the medieval and post-Fire Billingsgate dock. The Billingsgate watching brief comprised pressurised monitoring of the removal of the other three quarters of the lorry park site by earth-moving machines



Figure 24 Destruction of the strata east and south of the site D (Billingsgate) excavation during redevelopment, 1983. This view looks southeast; at the rear is the 1875 Billingsgate Fishmarket building (compare Figure 23)

Many lorry-loads of spoil were taken to landfill sites east of London, where a large number of finds was recovered.[16]

This partial publication is a result of the sporadic work on the project since the 1970s and the fact that excavation on all the component sites, to varying extents, preceded the availability of computers in archaeological work in London. Nowadays, for instance in the even larger Spitalfields project of 1991–2007 published in 2015,[17] immense datasets can be manipulated and understood, and published in a reasonable time, because the excavations and their material were completely computerised from the start. In contrast, the first three excavations in the present study, sites A to C of 1974 to 1981, were excavated before the archaeologists of the Museum had a computer at all.

1.4. The pottery and artefacts from the study sites

The main waterfront dumps and foreshores from the study sites and from other waterfront sites (ie south of Thames Street) excavated or observed in the period 1960–74 are summarised in Table 4. These rich deposits provide a detailed and chronologically ordered array of London's material culture in artefacts from the middle of the 12th century to the opening of the 16th century. This is an evolving study. So far from the present project sites A and B can contribute several large stratigraphic groups of ceramic and non-ceramic objects, principally the dumps behind and in front of waterfront walls or revetments. There are no large groups from site C, and so far only one group from site D has been studied for its ceramics only. But this table shows how the waterfront excavations since 1960 are providing accurately-dated groups of artefacts to illustrate the material history of the City of London and its surroundings. The table deals only with major groups recorded up to 1982, and can no doubt be supplemented and extended by further groups excavated since those studied in this project; that we leave to others.

For this study, the pottery specialists have listed notable sherds which either have made a contribution to previously published ceramic corpora from London, or which should have the same status and will hopefully be published in the future; these are called <P> profiles and numbered within each site: thus A<P1> from Swan Lane, site A. The current listing of the notable medieval and post-medieval sherds is given in Table 64 (site A), Table 65 (site B) and (Table 81) (site C). A detailed account of the study of pottery for this volume, and discussion of overall results, is given in section 6.6. As in other pottery studies, two terms are used here to describe different calculations as to the likely number of complete pots in a context: ENV - Estimated Number of Vessels, EVE - Estimated Vessel Equivalent. The first of these is a minimum vessel count based on the

who made this programme, since (in the absence of legislation which followed in 1990) it was a private screening at the BBC of the 'unfinished' programme in 1983 to the developers which ensured archaeological access to the earth-moving to retrieve finds. The programme ended on this 'encouraging' note. The programme is now on line: https://www.youtube.com/watch?v=F4TJfGudEus.

[16] For a basic account of the BWB83 watching brief, Egan and Pritchard 1991, 6–8. One landfill site, where the angel corbel reported here was recovered by Guy de la Bedoyère, is now covered by the large shopping centre at Thurrock. It probably contains other finds from the Billingsgate site.

[17] Harward *et al.* 2015.

Date from ceramics and dendrochronology	Deposit	References for other sites
12th century (mostly first half)	Public Cleansing Depot 1960, medieval foreshore	Vince 1985, 86
1140–60	B: groups behind Waterfront 1	
1140–80, 1170–1180/1200	A: Group 24 and Group 26	
1170–1200	A: Group 42	
1180–93	B: groups behind Waterfront 2	
1203–15	B: groups behind Waterfront 3	
c. 1235	D: groups behind Waterfront 14	
1270–1300	B: groups behind presumed Waterfront 4	
1270–1350, probably early 14th c	A: Group 61	
1290–1350	A: Group 74	
early 14th c	Custom House Group C2	Tatton-Brown 1975; Vince 1985
1325–32	D: period 12.1 refurbishment of Botolph Wharf	
c. 1340	Trig Lane Group 7	Milne and Milne 1982, 21–4; Vince 1985; Milne 1992, 70–1
1350–1400	A: Group 85	
c. 1380	Trig Lane Group 11	Milne and Milne 1982, 29–35; Vince 1985, 86; Milne 1992, 74–5
c. 1440	Trig Lane Group 15	Milne and Milne 1982, 38–42; Vince 1985, 86
1450–1500	A: Group 100	
1450–1500	A: Group 102	
1450–1500	A: Group 103	

Table 4 Summary of main reclamation dumps and foreshores with finds from the study sites, as dated by the pottery in them and dendrochronology when available, with major groups of pottery and artefacts from other previous London waterfront excavations

Volume	Swan Lane	Seal House	New Fresh Wharf (all sitecodes)	Billingsgate Lorry Park excavation (BIG82)	Billingsgate Lorry Park earth moving (BWB83)	Totals
Knives and scabbards (1987)	76	24	0	21	130	251
Shoes and pattens (1988)	14	16	0	0	0	
Dress accessories (1992)	503	2	1	104	696	1306
Textiles and clothing (1992)	10	2	2	8	5	27
Medieval horse (1995)	81	11	0	16	98	206
Medieval household (1998)	218	23	2	59	370	672
Pilgrim souvenirs (1998)	63	0	0	7	119	189
Totals	965	78	5	215	1418	2681

Table 5 Numbers of medieval small finds from the study sites published in the seven volumes of the Medieval finds series, 1987–98

Authors of the catalogues:
Knives and scabbards: Cowgill *et al.* 1987
Shoes and pattens: Grew and de Neergaard 1988
Dress accessories: Egan and Pritchard 1991
Textiles and clothing: Crowfoot *et al.* 1992
Medieval horse: Clark 1995
Medieval household: Egan 1998
Pilgrim souvenirs: Spencer 1998

number of sherds demonstrably from the same vessel; the second is based on the proportion of rim present for each recognisable vessel.

A special note is required about the pottery analysis for the largest site, Billingsgate (site D). Funds have not yet been obtained for the desired full pottery analysis; the required sum is very large. The phases of the detailed Billingsgate sequence are dated by coins, dendrochronology and documentary references where appropriate. Pottery evidence is included when sherds from that phase have been studied in research on specific wares during the last four decades: on late medieval Hertfordshire glazed ware, London-type ware, Kingston-type ware, south Hertfordshire-type greyware and shelly-sandy ware.[18] This may be rectified in the future.

[18] Jenner and Vince 1983 (LMHG); Pearce *et al.* 1985 (LOND); Pearce and Vince 1988 (KING); Blackmore and Pearce 2010 (SHER, SWG). The study of Mill Green ware by Pearce *et al.* 1982 appeared while the Billingsgate site was being excavated, so contains no material from that site.

Since the beginning of concerted archaeological excavations of the London waterfront in 1972, the immense number of the recovered artefacts has inhibited their detailed publication. One solution was to publish the structures on the site with very little associated study of the artefacts; that would come later. And it largely did: the thousands of artefacts available for study in the 1980s and 1990s were assessed and catalogues of selected groups of artefacts (knives and scabbards; shoes; dress accessories) produced: a series of seven volumes called *Medieval finds from excavations in London*, which appeared between 1987 and 1998. Others were discussed but never came together. These catalogues were of excavated material dating from about 1150 to about 1450; they included items from excavations all over the City of London, but the great majority were from waterfront excavations. A similar solution, after many excavations in a multiperiod British city, has been adopted at York, where a single volume study of 6000 medieval artefacts, from four major excavations of the 1970s and 1980s, was published in 2002.[19]

The contribution of the study sites to the *Medieval finds* volumes is summarised in Table 5. The numbers in this table are only the selected, catalogued items; there were also other fragments or other examples not catalogued. From the four sites a total of 2681 objects have been studied and published. It is notable that just under 53% of them came from the watching brief, carried out under extremely arduous conditions, at Billingsgate in 1983–4.

A selection from this group of already published medieval artefacts illustrates the narrative (listed as <S1> to <S135>),[20] and we point out occasions when the location and character of artefacts is significant in the history of the individual sites. The medieval and post-medieval floor tiles and wall tiles from the sites have figured in publications in the decades since the excavations; notably in two corpora of tiles from the whole London region. A pavement of 'Westminster' floor tiles (so called because they were first recognised in the muniment room at Westminster Abbey) found in a building on the Seal House site (below, Gp B74, section 4.3), which is so far a unique occurrence in a secular London medieval building, was published as part of a catalogue of these tiles in 2002; and tin-glazed wall tiles from the sites were included in a corpus published in 2010.[21] Apart from floor- and wall-tiles, a small number of the objects from these sites which might date from after 1500 have so far been studied; there are two detailed analyses of rich groups of objects from a drain of the 1630s on site D, published in 2009,[22] and from a drain on site C, also of the 1630s, published in 2014.[23]

Environmental evidence, including the study of animal bones, seeds and micro-organisms, does not figure here. This is a source of regret. Hopefully such a study can start in the future, certainly for the animal bones.

1.5 Organisation of this report, conventions, abbreviations and codes

The project as a whole, covered by this and an intended future report, has periods which are listed in Table 6. These are arbitrary and porous divisions to aid presentation and discussion of a large amount of detailed and sometimes complicated evidence. Apart from the Great Fire of London of 1666, which marks the end of period P1, there were no major events in the history of the site, which is principally one of reclamation and continuous building from the 12th century to the 18th century (and beyond). One advantage of this dating scheme (periods M1–M3 and P1–P3) is that similar schemes are used by other archaeological reports on sites in London and its environs, both published and in progress, and thus development of the medieval and post-medieval City of London and its region can be studied at the wider level.

period M1	1100 to 1220
period M2	1220 to 1350
period M3	1350 to 1500
period P1	1500 to 1666
period P2	1666 to about 1750
period P3	about 1750 to about 1900

Table 6 Overall periods for this project, including those to be used in the future report on the periods after 1666 (Schofield in prep)

The excavation narratives for the four component sites are based on archive reports written by the supervisors of the original excavations in 1974–82; they vary in method as the writing of such reports was evolving through those years. Links are maintained in this text with the original numbering of periods and phases in the archive reports, which are held at the Museum of London Archaeological Archive (formerly LAARC). Thus a little explanation about the archive writing systems is necessary here. The sites are lettered A–D. The division of strata into periods within each site, established in the archive report, is retained, and reported in the form 'period A1'. The Swan Lane (site A) reporting is based on an archive report which was about the post-Roman strata only,[24] and it begins with period 1 (here,

[19] Ottaway and Rogers 2002.
[20] A small number of these selected artefacts are not illustrated here but are in their previous publications.
[21] Betts 2002; Betts and Weinstein 2010.
[22] Schofield and Pearce 2009.
[23] Schofield and Pearce 2014.
[24] Shepherd 1991.

period A1). The Seal House (site B) reporting is based on an archive report which started with remains of the Roman period,[25] so the reporting starts with period 3 (here, period B3) in that archive report. Each period comprises stratigraphic groups (though the approach and numbering system is different, reflecting a change in methodology in the 1980s): a stratigraphic group is a group of contexts which are interpreted together, reflecting an action in the past (the building of a wall or waterfront revetment). In the present text, all group numbers are prefixed by their site letter, for example A52.2 (for site A) or B73 (for site B). The major reclamation units, with their many finds, are also called 'Group A74' or 'Gp 74'. Individual contexts are always placed in square brackets, as 'B[331] from B50'.

Because New Fresh Wharf (site C) was excavated in three phases over the years 1974–8, it has three Museum of London excavation site codes (NFW74, SM75 and FRE78). As all three sequences of context numbers start at 1, there are three similar numbering sets. Rationalisation of these into one sequence would cause unnecessary confusion in consulting the archive of site records and finds. The following arrangment is therefore employed. The letters of the site code, in lower-case, precede the context number where it is mentioned: so nfw[208], sm[101], fre[578]. All of these are within site C.

This is a study of the river and land alongside it, so there are occasional references to heights above sea level. These are heights above the present Ordnance Datum, and are abbreviated OD.

For each stratigraphic group producing pottery and artefacts, there are usually two tables. The first is a dating table, which summarises pottery, coins (medieval and post-medieval only; residual Roman coins are not listed) and dendrochronology. This is called simply a Table. The dating tables start at Table 95. The second is a table of artefacts (small finds) from that group which have been published in the *Medieval finds* catalogue series. These tables are called Artefact Tables (1–38). All but one of the *Medieval finds* catalogues used a common system of numbering the objects in the catalogue, which is cited here against each object so that its publication can be followed. The identity of an individual accessioned non-ceramic artefact (a shoe, fish-hook, or brooch) is given in the form B<265>, which is an accessioned find, a padlock, from site B. The context in which this artefact was found is given in the relevant Artefact Table. The cataloguing employed

Numbering	Meaning	Explanation
period A1	period 1 at site A (Swan Lane)	a period of construction or deposition of strata, human or natural (e.g. foreshores)
A74, A52.2, also called 'Group A74' or 'Gp 74'	stratigraphic group of contexts from site A (Swan Lane); sometimes further subdivided in the archive report	a contiguous group of layers or other features from a specific part of the site; the finds from such a group are usually considered together for their date or significance
B[331]	individual context [331] from site B (Seal House)	individual context numbers are given in this publication only when there is further information reported here, e.g. pottery or finds, or something specific to note
A<P1>	a series of selected pottery profiles from site A (Swan Lane)	these profiles (in four series, one for each site) will form the basis of a future study
B<265>	accessioned non-ceramic artefact from site B (Seal House)	the Museum system of accessioning finds, still used; artefacts are numbered in an individual series for each excavation (note these are the original accession numbers, under which the artefacts are stored, not the numbers they received when incorporated into published catalogues)
<S1>	selected artefacts from sites A and B illustrated here	a selection of non-ceramic artefacts largely from the published *Medieval finds from excavation in London* catalogue series (1987–98); the purpose is to provide a sample of the variety of artefacts behind the studied waterfront reclamation dumps of 1100–1450
Abbreviations in tables	COIN=coins recovered (R=Roman, M=medieval); DEND=dendrochronological samples; MCBM=medieval ceramic building material; MPOT=medieval pottery; PIPE=clay tobacco pipe; ROM=Roman; PPOT=post-medieval pottery	

Table 7 Numbering conventions used in this publication, and abbreviations for types of archaeological evidence used in the dating Tables

[25] Schofield 2016, revised edition replacing first draft of 1975.

in one of the volumes, *Shoes and pattens* (Grew and de Neergaard 1988) was different: the examples are listed according to the number of the illustration in the book where they are found. Thus some of the published references to shoes will have sub-numbers, e.g. 112c. Otherwise shoes are not included in the detailed tables, as the system of reporting them was not the same. The 156 selected medieval artefacts which are illustrated, either by drawing or photography (just over 5% of those counted in Table 5), are numbered <S1> to <S156> and listed in Artefact Table 38. These numbers are added to the individual Artefact Tables in their place, so that the reader can find out which artefacts in each group have been illustrated here, and by looking at the Artefact Table, what other artefacts were found in the same context or those of the same phase. The majority of the illustrated artefacts are from the waterfront reclamation units and foreshores of the 12th to 15th century on sites A and B.

The numbering system just described is summarised in Table 7, to which is added a list of the abbreviations for different kinds of archaeological evidence as used in the dating tables.

In this text the 'raw' date provided by dendrochronology is given for each waterfront, but as there may have been an unknown amount of reuse of timbers from earlier structures on land or on the waterfront, and an unknown period of storage of the cut timber before it was used, a notional 10–20 years should be added to the date derived from dendrochronology to establish the date of construction.

Two tables in section 6.6 below explain the pottery terms used in the main text and in the tables. Table 59 ists the pottery wares, with their acronyms which are used in the tables and occasionally in the text; Table 60 lists the main forms with their acronyms. The current (2018) form of these tables can be found at http://www.mola.org.uk/medieval-and-post-medieval-pottery-codes.

Sections of the strata and elevations of walls drawn during the excavations of sites B and C are given in part 8.1 of the text. These include features of other periods, for instance the Roman waterfront and walls of the period after 1666; thus these sections are of use for checking or researching further into the Roman and Saxon periods on these sites, which were reported in previous publications.[26] At present the archive system of labels for the buildings on these two sites is retained on the drawings (letters instead of numbers within each sitecode). Concordance tables between the two systems of labelling the buildings (letters used during the post-excavation work of 1974–2000, numbers used for this report after 2000) are given in Table 93 (site B) and Table 94 (site C).

The fact that the four project sites were written up in slightly different ways, within the evolving post-excavation system at the Department of Urban Archaeology of the Museum (active 1974–91, thereafter part of MoLAS), means that there are four period structures to consider. Table 8 shows the broad concordance between the periods on the sites for the years 1100 to 1666, and what the periods are called. This can aid the reader throughout the following text.

The documentary evidence has been studied, like the archaeological material, over a period of four decades. During that time the manuscript holdings of Guildhall Library (GL) in the City of London became part of London Metropolitan Archives (LMA), and almost all were reclassified (a few remain to be done). A small number of documentary references in the text

Overall period	Site A: Swan Lane	Site B: Seal House	Site C: New Fresh Wharf	Site D: Billingsgate Lorry Park
M1: 1100 to 1200 [1220 on site A]	A1 1150–about 1220 A2 1150–about 1220	B3 1100–1180 B4 1180–92	C3. to C3.4 1080–1200	D6–D7 1108–1200
M2: 1200 [1220 on site A] to 1350	A3 to A5 1220–1350	B5 to B7.2 1200–1350	C3.5 to C4.2 1200–1350	D8 to D12.7 1200–1350
M3: 1350 to 1500	A6 1350–1400 A7 1400–1500	B7.3 to B8.1 1350–1500	C4.3 to C4.5 1350–1500	D12.8 to D15.2 1350–1500
P1: 1500 to 1666	A8 *c* 1500	B8.2 to 8.4 1500–1666	C4.6 to C4.8 1500–1666	D15.3 to D16.7 1500–1666

Table 8 Concordance of periods between the four sites, within the four overall periods of the study

[26] For these bridgehead sites in the Roman period, Miller *et al.* 1986, Brigham 1990; for the Saxon period, Steedman *et al.* 1992.

below have not been revised with their current LMA references, but they can be found in LMA. In this text the word *tenement*, especially when cited as Tenement 1 or Tenement 2 etc, signifies a coherent medieval property, in all the studied cases stretching from Thames Street to the river; rather than meaning a building designed for multiple occupation, as generally used in analyses of 17th-century buildings in London and elsewhere. Some of the documentary research produced by this study, but not included in this volume, is to be found in the online archive for the project at www.colat.org.uk/london-waterfront/.

1.6 Research questions and comparisons

The questions which might be asked of the great amount of archaeological material from these four sites have developed in the 44 years since 1974. The present monograph attempts to address the following research questions (or groups of questions) among others:

1. What are the main characteristics of this waterfront area in the medieval and Tudor periods, and what do they say about the port of London within its European trading network?
2. Where did the pottery and artefacts incorporated into reclamation units come from? Do the pottery and artefacts have any significance in their locations behind waterfront revetments or on foreshores, or are they all hopelessly mixed up because they were mixed up before they were brought here?
3. What do the hundreds of medieval and post-medieval artefacts, at least those now studied, tell us about specific aspects of culture, fashion and religious beliefs?What is the potential for further research into the pottery and non-ceramic artefacts?
4. What were the functions of the buildings and open areas? How did they change over time? To what extent is this illustrated by the pottery and artefacts? To what extent can each property and new development be linked to specific owners or occupiers, as specified in the documentary record? Can the study of buildings and the artefacts in them, when combined with detailed documentary evidence, suggest the functions of excavated buildings?
5. What material evidence is there for trade? Can this be related to documentary sources? Can the pottery demonstrate trade connections with specific countries? Does the pottery testify to changes in products/sources of supply over a long period of time?
6. What is the history of the industrial aspects of this area from the 12th century to 1666? Was the area south of Thames Street a medieval industrial suburb of the City?
7. What is the history of the parish church of St Botolph Billingsgate, and how did it function in this special waterfront location?
8. What are the biological characteristics of the group of human skeletons buried in St Botolph Billingsgate?
9. How do the general nature and development of the study sites compare to those of other contemporary domestic sites in London or elsewhere?

It is hoped that this report, on a group of waterfront sites around the north end of medieval London Bridge, will stand as a companion to other monographs which have studied the archaeology of an area of the medieval and later City of London. There have been several, but two stand out to be compared with the present series of findings in their property and building histories, their pottery and artefacts: the area around Guildhall excavated in 1985–99 and published in 2007; and excavations at Poultry and the east end of Cheapside excavated in 1987–96 and published in 2011.[27] With the present study as a third, these are type sites for understanding the development of the City of London and the lives of its inhabitants through five and a half centuries, from 1100 to 1666, as explained by archaeological and documentary study.

These questions are considered again at the end of the report in Chapter 6. There are no doubt other archaeological and historical questions which can now be put to this material, but those we leave to the reader.

[27] Bowsher *et al.* 2007; Burch *et al.* 2011.

2. Period M1 (1100–1200, 1220 on site A)

2.1 The port of London 1100–1200

During the 12th century, London was an important port with British and Continental connections, but information on its trade is sparse, and until recently has come more from documentary than from archaeological sources.[1] But now the picture is changing. Archaeological work in many medieval European cities on rivers or coasts around the Baltic and the North Sea has demonstrated the importance, in the era before air transport, of the ship and links across the sea. This is shown by the distribution throughout west European ports of three types of utilitarian 12th- and 13th-century pottery made in the London area and marketed through London, which furnishes a map of some of London's trading contacts and partners (Figure 25).[2] Archaeological work has also produced evidence of imports of pottery in the 12th century from Germany, France and the Low Countries.[3] By 1200 there were merchants of several other important European cities resident or staying for periods in London: over 30 from Dublin, for instance, and others from Flanders and possibly Genoa (where there was an English community, including Londoners).[4] Danes and Norwegians had privileges in 12th-century London which may have been established before the Conquest, in Cnut's time; merchants from Rouen had brought or sent wine to Dowgate then or shortly after. At this time medieval western Europe was a traders' unity, so that 'news of London and of Riga, or of Valencia and Trebizond [at the east end of the Black Sea], could be exchanged and compared'.[5] The map also shows a thriving coastal trade around south and east Britain. By 1200, coal from Newcastle was a significant import into London. Of much greater importance and value would have been the requirement for a colossal amount of English and Continental building stone for the cathedral and 18 religious houses including seven hospitals which made London at this period 'the pre-eminent English concentration of innovative religious and charitable institutions'.[6] Similarly, the majority of the sites of town-houses established by bishops of England and Wales and secular lords in London during the 12th century was concentrated in the City or immediately across the bridge in Southwark, demonstrating their attraction to the sources of native and foreign goods; though none was in the waterfront or port area, many were close by.[7]

The centres of commercial and business life on the 12th-century waterfront were, from west to east, Queenhithe, the Steelyard (with Dowgate), the bridge and Billingsgate. Points of development of the waterfront were also marked by three parish churches south of Thames Street, all built on the reclaimed land or the edge of it, probably by being based on the underlying 3rd-century Roman riverside wall (Figure 26). One of these, St Magnus, was at the head of London Bridge, and two others, All Hallows the Great and St Botolph, were next to points of public access to the river and its commercial traffic.

Only a little is known about the appearance or development of Queenhithe in the 12th century. Presumably it comprised an open space based on reclamation of the 10th and 11th centuries out from the ruins of the Roman riverside wall. Excavations at Bull Wharf have found a stone river wall of the early 12th century forming the east side of the Queenhithe dock, and the reclamation behind it to the east had reached 40m south of Thames Street by 1181.[8] This length of reclamation is the largest so far recorded archaeologically for a 12th-century site, suggesting perhaps that reclamation might be greatest in length near the official landing places.

To the east at Dowgate, the mouth of the Walbrook stream as it met the Thames 450m upstream of the bridge, the merchants of Rouen were established probably before the Norman Conquest. Excavation at Walbrook Wharf in Upper Thames Street in 1959–60 by E Rutter and P Marsden recorded a late Saxon waterfront and 'a great amount of pottery of the 10th to 13th centuries, much of it foreign red-painted ware, Pingsdorf and other German wares'.[9] After about 1170 merchants of Cologne had an establishment here; the depot of Cologne later became the Steelyard for merchants from all German cities. The word *Hansa* meaning a group of merchants was written down officially for the first time in an English royal document of 1267.[10] The site of the Steelyard, now beneath the raised vaults of the 19th-century Cannon Street railway station, was investigated in 1987–8. On Saxon embankments were fragmentary remains of a masonry building 10.3m wide

[1] Eg Nightingale 1995, 34–42 (the spice trade and pepperers); Keene in Burch and Treveil 2011, 231–5.
[2] Blackmore and Pearce 2010, 8–9, fig 3.
[3] Vince 1985; Blackmore 1999a, 50–1; 1999b, 48–52.
[4] Brooke and Keir 1975, 265–75; Bartlett 1993, 182–3.
[5] Bartlett 1993, 196.
[6] Keene 2000, 203, 211. For the sources of stone used in building 12th-century St Paul's, Schofield 2011, 98–9.
[7] Schofield 2017a.
[8] Ayre and Wroe-Brown 2002, 18.
[9] Schofield with Maloney 1998, 86 (site GM156).
[10] Scammell 1981, 38–85. For the early charters concerning the Cologne merchants in London, Huffman 1998, 13–16.



Figure 25 Finds in Europe of three types of pottery made in the London area in the 12th and 13th centuries: LOND=London-type ware, LCOAR=coarse London-type ware, SSW=shelly-sandy ware (Blackmore and Pearce 2010, fig 3)

east–west and at least 17m long north–south, probably of late 12th-century date, which would seem to be the Guildhall of the merchants of Cologne.[11] It stood with its gable probably against medieval Thames Street, and had an arcade of stone pillars dividing a central space from an east aisle. Next to the west, though with Cousin Lane intervening by the end of the medieval period, was the inlet of Dowgate.

The Steelyard lay above the bridge; but by the middle of the 12th century the bridge, in whatever form it then took, perhaps formed the upstream end of the city's main port area on the north bank. In 1160 a French poet spoke of his hero visiting the port; he 'goes straight up to London beneath the bridge, and there displays his wares'.[12] Details of the 11th- and 12th-century bridges have come from excavations. In 1984 excavation at the Fenning's Wharf/Topping Wharf site

[11] Site UTA87; Keene 1989; Schofield 2003, 23 and fig 22; Schofield with Maloney 1998, 259–60.

[12] Brooke and Keir 1975, 158–9.

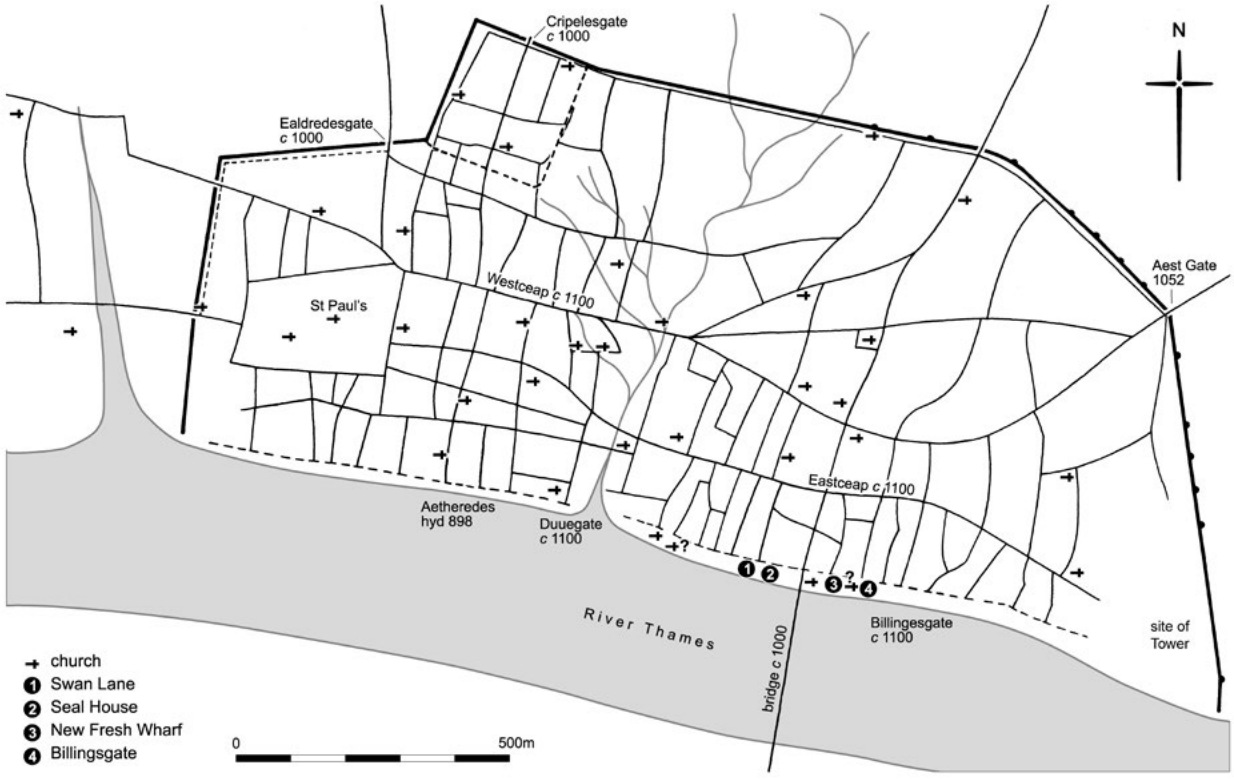


Figure 26 The City of London around 1100, showing the main features of the city and the excavations in the study area (1:12,500)

which investigated the south Late Saxon and medieval bridgehead found a timber bridge abutment, probably originally in the form of a rectangular timber structure filled with chalk rubble and clay, datable to the late 11th or early 12th century. On top of it were traces of two successive rectangular timber abutment structures, both dating to the second half of the 12th century.[13] The abutment lay beneath the east half of the wider south end of the stone bridge of 1176–1209 which replaced it. The prevalent assumption is that the 12th-century timber bridge was roughly on the same alignment as its stone successor, i.e. it touched the two river banks at the same points.

By the time the stone bridge is shown in panoramas of the 16th century, it had 19 piers, with a chapel of St Thomas (rebuilt in the 1380s) on the eleventh pier from the south, thus not quite in the middle of the structure.[14] Gustav Milne has suggested that there was originally a twentieth pier at the north end, buried in land reclamation of the 13th century, which if true would put the central larger pier and the chapel in the middle of the whole bridge.[15] There is certainly space for this; the arch from the original (11th-century) bank to this extra pier would start on its north side roughly where the

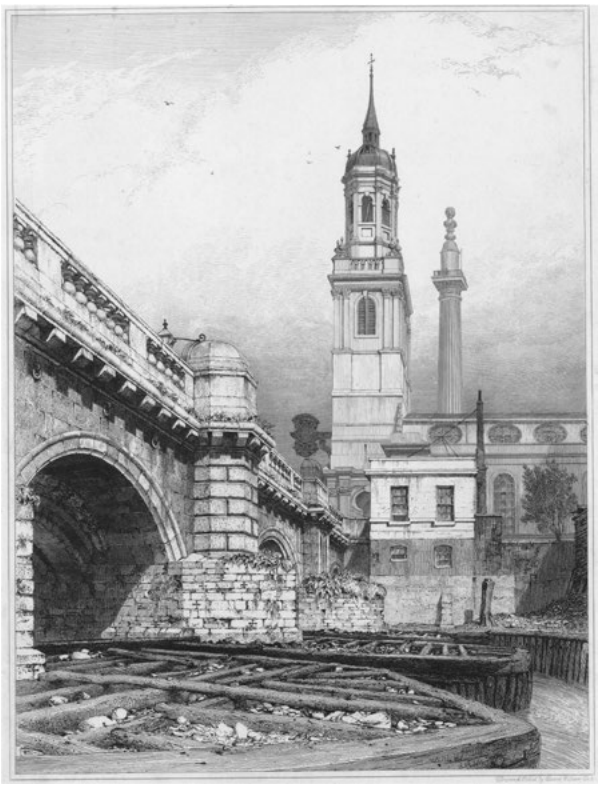


Figure 27 The north end of London Bridge and St Magnus's church as rebuilt by Wren, in 1831 by L B Cooke (© British Museum: BM, 1880,1113.1577). The balustrade and octagonal piers of the Bridge are by Dance in 1759; the arches below are 12th- or 13th-century

[13] Watson *et al.* 2001, 76–8.
[14] For the history of London Bridge from the 12th century to the 19th, Home 1931.
[15] Milne 2003, 83.



Figure 28 Two arches at the north end of London Bridge during demolition of the bridge, looking west, 1833 (Anonymous; © British Museum: BM, 1880,1113.5864). These survived; they were probably the details recorded when this part was again exposed in 1921 and 1937. Behind, the present Fishmongers' Hall is being built

medieval tower of St Magnus, if later incorporated into the present Wren tower (which is likely), was standing (Figure 27). The original way over the medieval bridge therefore could have started next to the church tower in the 12th century. If these suggestions are correct, the first arch may survive in the small space immediately outside the end of St Magnus.

Archaeological observations of the north end of the medieval bridge are few, though there are many drawings of it being destroyed in the 1830s (Figure 28). In 1921 it was found that the first arch on the north side (as it was then described; perhaps it was really the second) had survived in later consolidation of the ground, and it was briefly re-exposed at Adelaide House, which still stands at the north end of the present bridge. As New Fresh Wharf was being redeveloped in 1937, Frank Cottrill observed the east part of a cutwater or starling of the Bridge, now interpreted as part of the rebuilding of 1757–62.[16] The details seen in 1921 and 1937 were probably the lower cutwater parts of the fragment shown in Figure 28.

The stone bridge was presumably more of an obstruction to boats than its predecessor. It has been suggested that Queenhithe was the more important of the city's two public quays before the stone bridge was built; the implication being that after 1209, Queenhithe lost out to Billingsgate partly because of the bridge. The 12th-century form of Billingsgate dock is even less known than that at Queenhithe, and is probably more destroyed. The north wall of the Billingsgate Fishmarket building of 1875 coincides with the line of the Roman riverside wall, as found in a small excavation of 1985 in the alley on its east side;[17] the fishmarket has deep basements which have removed a large and unknown volume of Roman and later foreshores and revetments. But some suggestions can be made. A property south of Thames Street and bordering the river in the parish of St Mary at Hill, the parish which embraced both sides of Billingsgate dock, was measured as 103ft (31.4m) long in 1147–67;[18] this would all be reclamation south of the street. By the middle of the 12th century, therefore, Billingsgate would have resembled Queenhithe in being an indentation in the waterfront. The situation documented after the Fire in 1667 was probably medieval in origin, in that only the north and west sides were officially Billingsgate, the east side being a private property, Smart's Quay.[19] This may have led to different forms of construction of the sides of the inlet, with the public side being in stone, from the earliest period.

Ships of any size must have either stayed in the river or perhaps docked at Billingsgate; but it is also possible that the more formal arrangements for ships along the London waterfront were developed in response to developments in the design of sea-going ships. The

[16] Schofield with Maloney 1998, site GM125; Watson *et al.* 2001, 170–1. In 1975, when preparing for the excavation in the cleared New Fresh Wharf site, John Schofield asked for permission to relocate the excavation of 1937, the site of which was now available; this was refused, on the grounds that his excavation (site C, Area III) should be principally of the Roman quayside.

[17] Brigham 1990, 126.

[18] Hodgett 1971, no..232.

[19] Jones 1966, i, 195, n1. 'Mr Smerttes key' is first mentioned by name in 1512–13 (Harben 1910, 536).

dominant tradition in shipbuilding in early medieval north Europe was that of the clinker-built, keeled vessel, of which many examples have been excavated in Europe and Scandinavia. Large carriers are known from the 12th century in Norway, including a fragment from Bergen. A second type of cargo ship called the cog, based on the alternative carvel method of construction, was used on both sides of the Danish peninsula in the 11th century, and widely used by Flemish and German merchants by 1200 in all waters from the Baltic to the Mediterranean.[20] The cog was higher than its predecessors, so would have required a proper wharf, not a beach. One belonging to a merchant from Cologne was allowed to visit Boston (Lincs) in 1213.[21] Evidence for cog vessels in the Thames is so far slight; three planks suggested from their features to be from a cog were found in 1994 reused in a cesspit at Westminster, after an intermediate period of other use in a building, and were dated by dendrochronology to the 13th century.[22] The form was noteworthy to contemporaries: a graffito in the church of St Helen and St Giles Rainham, a village now in the borough of Havering east of the City, may represent a two-masted cog; it is probably medieval, perhaps as late as 1500.[23] We can assume that the cog ship form was known in London by 1200, as it was at Ipswich (Suffolk) and Sandwich (Kent);[24] and by then the practice of beaching ships was a thing of the past.

The overall duration of this period is placed, as in the heading to this chapter, in 1100–1200. But strata assigned to the period on site A contain pottery seemingly from about 1220. This refinement, which came out during analysis, is left as it is. The boundaries between all the chronological periods are porous and indeed subject to change if there is future research.

2.2 Swan Lane (site A) in period M1 (1100–1200, possibly to 1220)

The Swan Lane site (A) was excavated in 1981, with a watching brief, often under unsuitable conditions, following in 1982. In 2006–9 the building of 1982 was demolished, and in better circumstances a number of small trenches were excavated around the perimeter of the intended new building, now (2018) Riverbank House. In many ways this later excavation, now published, contributes to understanding and more precise dating of the material recorded in 1981–2.[25] The waterfront structures and buildings recorded on the Riverbank House site are numbered in their own sequences, and preceded here by the letter R.

Before describing the detailed archaeological findings from the 12th century onwards, it is important to note a topographical feature of significance which lay between sites A and B: that is Ebbgate, an access point to the river. This was evidently of early date, of the early 12th century and almost certainly before. *Ebbegate* is mentioned in the 15th-century cartulary of Holy Trinity Priory Aldgate as the place where, during the time of the second prior Ralph in 1147–67, the priory owned land forming the northwest corner of the junction between Thames Street and St Martin's Lane (now lost, but which formed a northwards continuation of Swan Lane across Thames Street, approximating to the south end of the present Arthur Street).[26] At this time there would not have been much of a lane south of Thames Street, since reclamation had not proceeded very far. It therefore seems likely that Ebbgate was an access point to the river, presumably through the ruin of the 3rd-century Roman riverside city wall (a length of which was recorded in the Riverbank House excavation, on the north side of site A),[27] at the east end of embankments and facilities which may have stretched west all the way to the mouth of the Walbrook at Dowgate. In other words, the simple 11th-century embankment found at Swan Lane is the equivalent of that found in 1960 at the Public Cleansing Depot by Walbrook. Further, the east end of the Swan Lane embankment at Ebbgate coincided with the ward boundary between Dowgate and Bridge wards, the units of local administration which were generally in place by 1100.[28] The ward boundary is shown running down Ebbgate on Ogilby and Morgan's map of 1676 (Figure 16A). Ebbgate, and the end of the 11th-century embankment, were clearly a local landmark. To the east again, in the short distance from Ebbgate to the various successors of the Roman bridge, there was no known activity on the late Saxon foreshore. But activity on both sites A and B picked up around 1150, before the bridge was rebuilt in 1176.

In the analysis of the post-Roman strata from the whole site the strata for site A were ordered by periods which were fairly arbitrary 50-year bands, beginning about 1100.[29] Thus period A1 was thought to be 1100–50 and period A2 1150–1200. After detailed analysis of the dating evidence, particularly the pottery, these two 'site periods' are now both placed in the second half of the 12th century, though they remain consecutive: the remains assigned to period A1 were before those of period A2, which may have lasted a little into the 13th century. The end of period M1 at Swan Lane is therefore

[20] Scammell 1981, 77–8; Crumlin-Pedersen 1985, 88–92; Hutchinson 1994, 15–20; Bill and Roesdahl 2007, 277–85; for a recent survey, Ayers 2016, 150–1.
[21] Bartlett 2000, 362.
[22] Goodburn 1997.
[23] Cherry *et al.* 2005, 186.
[24] Clarke *et al.* 2010, 74–5.
[25] Mackinder 2015.
[26] Hodgett 1971, no. 394.
[27] Mackinder 2015, 8–9.
[28] Dyson 1989; Steedman *et al.* 1992, 95, 121–31.
[29] Shepherd 1991.

placed around 1220; the end of the period at the other sites is considered under the reporting for each site.

The five tenements or properties which occupied the site and space to the east in the medieval period, numbered Tenements 1 to 5 within this study, are thought, on archaeological grounds, to have been in place by the end of the 12th century, probably during its second half. The excavation of 1981, and the wider watching brief, recorded parts of Tenements 1 to 4 and Old Swan Alley which lay between Tenements 3 and 4. No archaeological evidence was recorded at the time for Tenement 5, which lies under the west pavement of the present, widened Swan Lane on the east side of the excavation site; but some evidence has come since from the later excavations around the perimeter when the building of 1981 was demolished: the Riverbank House excavations of 2006–9.

Where possible, the waterfronts, buildings, reclamation dumps and foreshores are assigned to the excavated portions of Tenements 1 to 4. The proposed correlation of waterfronts to buildings and open areas that is made in this study was not evident at the time of excavation due to the recording conditions. The main features of period M1 on site A comprise 13 buildings (A:Buildings 1 to 13) and three waterfront structures (A:Waterfronts 8 to 10).

Waterfronts and new buildings, period A1 (1150–about 1220)

For this first period on site A, the fragmentary evidence was reported in 1992.[30] The numbering of waterfront revetments (called Waterfronts) for site A starts with the eighth, A:Waterfront 8; the previous seven structures were of Roman and Saxon date. The remains attributed to the first period within the 12th century, period A1, lay at the north end of the site. They comprise two timber revetments (A:Waterfronts 8 and 9, though there was little evidence for the former) and fragmentary evidence for structures on the new embankment (A:Buildings 1–4 and A:Open Areas 1–2) (not illustrated).

The dating of A:Waterfront 8 and A:Waterfront 9 is hindered by the fact that the recording conditions made it difficult to distinguish between material retained by these waterfronts and those which followed. A dendrochronological date of 1042+ was however obtained for a timber from A:Waterfront 8 (A[3018]).[31] The dumps behind this revetment (A34) and behind its successor to the south (A35) could not be clearly differentiated, and both contained pottery dating to the late 12th century; A34 contained a sherd (21g) of coarse London-type ware, from the neck of an early rounded jug with white slip decoration (from A[332]). The use of vertical planks or staves in the revetment front of A:Waterfront 9 is a construction technique of the 12th century, as seen at site B and site D. No foreshores of this period were observed.

Pottery from A:Building 1 comprises two base sherds of pottery code SSW (57g), which date the structure to after 1140. No dating evidence was recovered for A:Buildings 2 to 4 or A:Open Areas 1–2. Cut into reclamation dumps at the north end of the 1981 trench was a pit (A46.24), containing 12 small sherds (77g) of pottery dating to the mid 12th century. It was infilled with mixed burnt and unburnt clay and flints, possibly hearth material and this, together with an overlying dump including fuller's earth (A46.25), could indicate an early phase of cloth processing (see below). Also cut into the reclamation dumps, just to the south, was a group of features dug to hold timbers (A46.34–38). The four small sherds of pottery from these layers (46g) could all date to before *c.* 1150 and at least one is residual.

To the south again was a sequence of dumping (A46.14, A46.18–19, A46.20, A46.22–3). It included what are described as clay floors with traces of burning and these may relate to subsequent hearth activity. Cut through them was a shallow pit (A46.20), filled with a mixed deposit including some building material, perhaps originally intended to house a hearth. The pottery from these deposits amounts to 25 sherds (477g). Most sherds are from locally made jugs in the early rounded style dating to the mid/later 12th century; of the two examples with pellet decoration,[32] one was found in A46.18, the other in A46.19 and A46.23. The latest finds are two sherds from a London-type ware jug decorated in the North French style, and dating to after 1170 (A46.20–1). Other wares are limited, but include a sherd of red-painted/Pingsdorf-type ware (A46.18).

The dating evidence for period A1, a range of local and regional types of pottery, is summarised in Table 95. General discussion is deferred until the end of reporting on period A2, so that the two periods, probably both dating to between 1150 and about 1220, are considered together.

Waterfronts, foreshores and buildings, period A2 (1150–about 1220)

In a second site-specific period assigned to the second half of the 12th century (period A2), there were more units of reclamation, but new buildings on the reclaimed land can be assigned to perceptible properties or tenements, and the division of the excavated site into five medieval tenements, clearly visible by the end of the period, begins to be evident (Table 9).

A:Waterfront 10

A late 12th-century waterfront (A:Waterfront 10) incorporated several north–south as well as east–west riverwalls of timber, forming the indented south frontage of all four tenements (Figure 29). For simplicity the revetments are reported as a group here, though the individual elements were probably built at different times within the period, as each tenement rebuilt its revetment and the owner or occupier thought of extending it. As far as could be observed in the salvage recording conditions, the southmost parts of the waterfront structure lay about 19m south of the previous waterfront, A:Waterfront 9; it is possible that there were intervening stages of reclamation, within the second half of the 12th century.

[30] Steedman *et al.* 1992, 81–4.
[31] Hillam 1992, 160.
[32] cf. Pearce and Vince 1985, fig 17, no.28.

Period A2: 1150–1220	
A:Waterfront 10	1142+
foreshores and dumps Groups A24, A26, A28, A30	1140–1200
Tenement 1	
A:Building 5	no dating evidence
Tenement 2	
A:Building 6	1050–1150 residual, placed in early 12th century
Tenement 3	
E wall of Tenement 3	dendro date 1145–89; pot 1180–1225
A:Building 7	1140–1220
A:Open Areas 3–4, A:Buildings 8–10	No evidence
A:Building 11	1170–1200
reclamation Group A42 on Tenements 3 and 4	1170–1200
Tenement 4	
A:Open Area 5	1150–1350 (some intrusive sherds)
A:Building 12	No evidence
A:Open Area 6	No evidence
A:Building 13	1180–1220

Table 9 Site A: summary dating of land use units, period A2 (1150–1200, perhaps 1220 for A:Buildings 7 and 13)

The westmost revetment relating to Tenement 1 was a front-braced post and plank structure (A30.1), although its footing was not observed and its full nature is therefore unknown. To the northeast was a horizontal timber (A28.1), presumably a baseplate running east–west, although no details were observed. It formed the revetment for Tenement 2. The next recorded element was a north–south revetment (A29.1), formed of a squared horizontal beam with a groove in its upper surface, two associated horizontal planks surviving. The lowest of these was set into the groove in the baseplate. Several posts may have been jointed into the baseplate and it is possible that this part was back-braced. A series of drains (A36, not illustrated) led towards this area from buildings to the north.

To the southeast was an east–west line of at least five upright posts, forming the revetment (A31.1) for Tenement 3. They originally held horizontal planks, the whole structure apparently being front-braced. No baseplate was observed. Further southeast were the remains of another revetment (A33.1), with two vertical posts showing traces of planks against their north faces. There is no recorded information relating to braces. These formed the narrow frontage for Old Swan Lane. The revetment for Tenement 4 lay slightly further north (A32.1), with three vertical square posts and no surviving planks or bracing. Dendrochronological dates for A:Waterfront 10 are 1123+ and 1142+, the latter date from timber A[532C] which was in the dumping behind the frontage.[33] An overall date in the second half of the 12th century for the construction of the waterfront is indicated. A continuation of the revetment east to form the riverside end of Tenement 5 was recorded in one of the Riverbank House trenches in 2006–9 (R:Waterfronts 5 and 6); this was also dated to the late 12th century.[34]

Four major foreshore or reclamation deposits were assigned to the second half of the 12th century. As they each corresponded to the entire width of the site, labels for them are not shown on the plan, Figure 29. They were in two pairs (ie foreshore and reclamation), both in the north part of the site, with the first pair north of the second. The first was divided into a foreshore (Gp A24), dated ceramically to 1140–80 (three sherds, 308g; Table 96) and over it a dump (Gp A26), which contained 66 sherds of pottery (977g). The artefacts are listed in Artefact Table 1 and Artefact Table 2 respectively. The pottery is mainly of local origin, with a range of 12th-century cooking pots/jars, a bowl and part of a lamp in LOGR. Also present are sherds from six jugs and two spouted pitchers, one in Andenne ware, the other in Stamford ware, represented by a decorated handle (A<P1>). The group is dated to after 1170 by two sherds of SHER; a sherd of Mill Green ware from A[2157] is considered intrusive. The foreshore also contained 16 Roman coins, with dates from the early 2nd century to the late 4th century.

To the south was another pair of deposits, a foreshore (Gp A28; 45 sherds, 584g; Table 97) and a reclamation dump over that (Gp A30; six sherds, 200g; Table 98). Most of the pottery from these dumps is similar to that from Gp A24 and Gp A26, but a few sherds date to after 1170–80. These derive from a London-type ware jug in the Rouen style and a jug from north France (in Gp A28) and the rim of a very large SHER storage jar (in Gp A30). The dating of these ware types give a *terminus post quem* for the latest dumps on the foreshore, between *c.* 1180 and the early 13th century. The artefacts from Gp A28 are listed in Artefact Table 3, and one object, a horseshoe, from Gp A30 in Artefact Table 4. All four of these groups of finds are from the full width of the site, since recovery was difficult in the watching brief.

Group A28, of 1180–1200, produced the one of the earliest examples from London of a medieval lead token, a type of artefact which was to be common throughout the major reclamation and foreshore dumps on the Swan Lane site. These tokens have not yet been studied in detail and their usefulness for dating strata is problematic. Their occurrence and numbers in the major stratigraphic groups from the opening of the 13th century to the late 15th century at Swan Lane are given in Table 99; they await future research.

Behind A:Waterfront 10, on Tenements 3, 4 and the lane between, the dumps observed in the watching brief were

[33] Hillam 1992, 160.
[34] Mackinder 2015, 23.

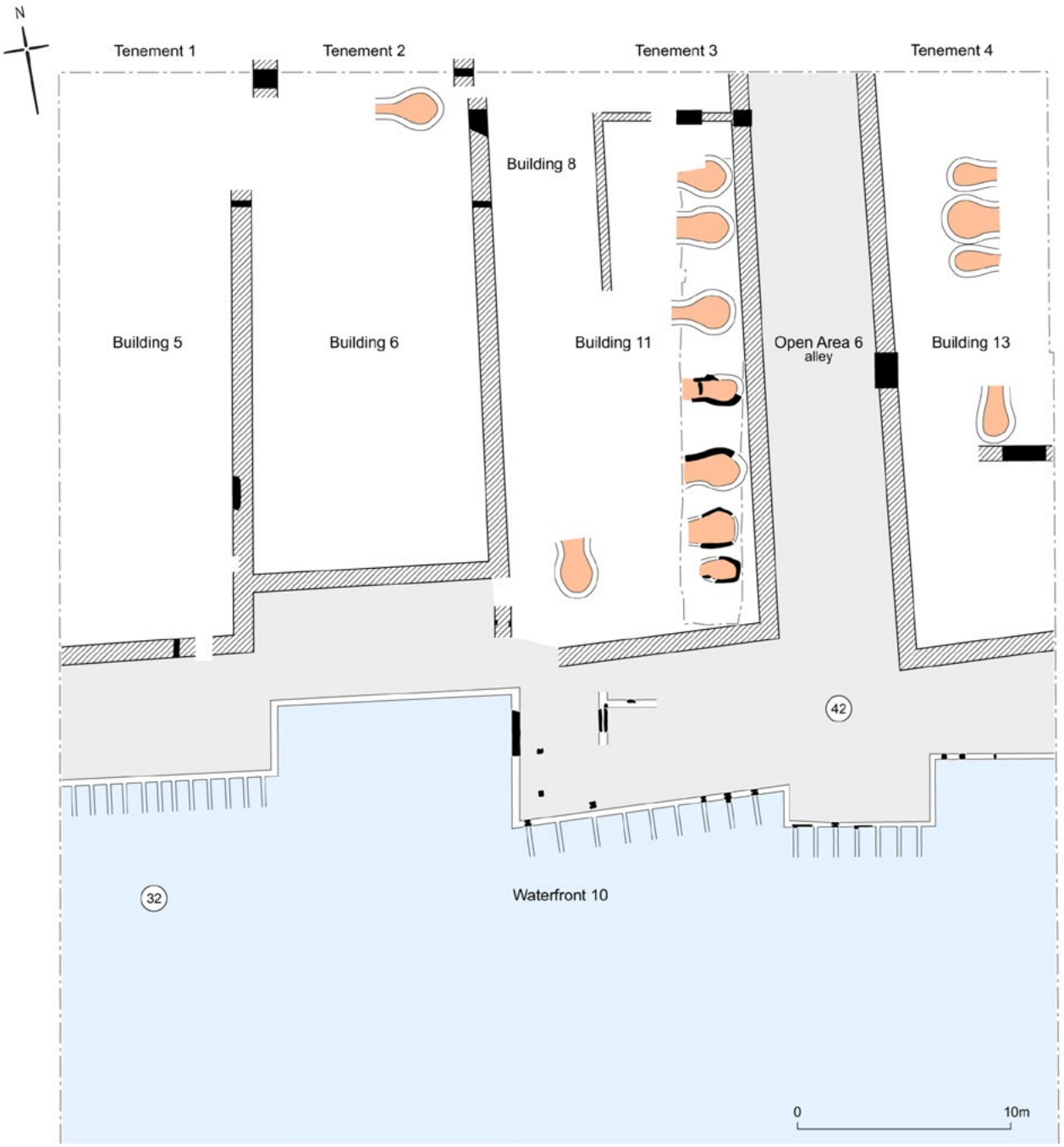


Figure 29 Site A: period A2 (mid-late 12thc), site plan (1:300). The numbers in circles indicate the general positions of the reclamation and foreshore Groups A32 and A42

grouped as Gp A42. These yielded a total of 111 sherds (90 ENV, 2138g) (Table 100). Most comprise London-type wares (LCALC; LCOAR (for a complete example of a jug in this ware from the Museum collection, Figure 30); LOND) and early medieval coarsewares that went out of use *c.* 1150 but a few pieces of SHER, NFM and Rouen ware are also present and indicate a deposition date of after 1170. Other imports include ANDE and sherds from two blue-grey/Paffrath-type ware *Kugeltöpfe*.

Because of the recording conditions, the revetments and the majority of foreshores and reclamation dumps of this period can only be studied within the whole site, not within individual tenements. One further dump (A42) can be assigned to the reclamation at the south ends of Tenements 3 and 4 only. A summary of the period is given in Table 10.

Reclamation Group A42 on Tenements 3 and 4 of 1170–1200 produced two notable artefacts, an iron mounted lock (a very early example) and an ash bowl (<S1–S2>, Figure 31; for all the accessioned non-ceramic artefacts from this stratigraphic group, see Artefact Table 5).

By 1200, near the end of period A2, the indentation of A:Waterfront 10 reflected the property boundaries which were implied by buildings in the following period. The protruding

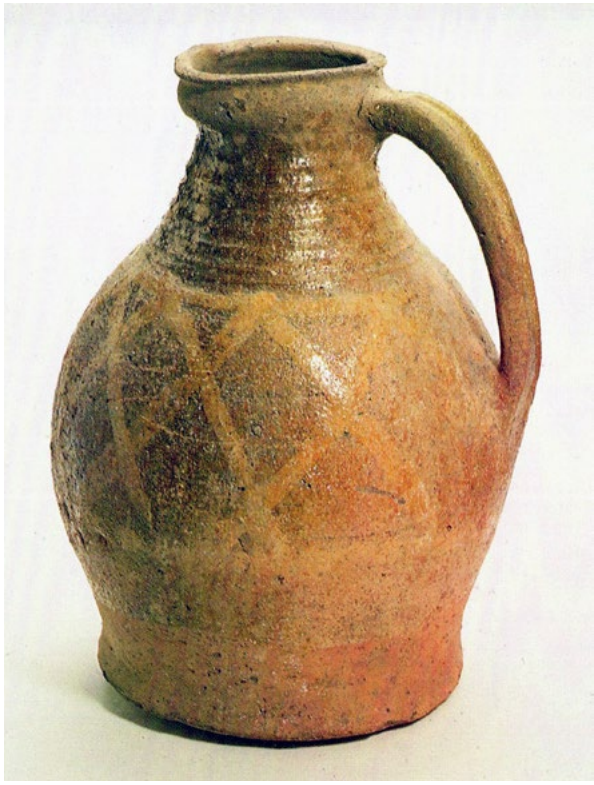


Figure 30 An LCOAR EAS early rounded jug, MoL A25849

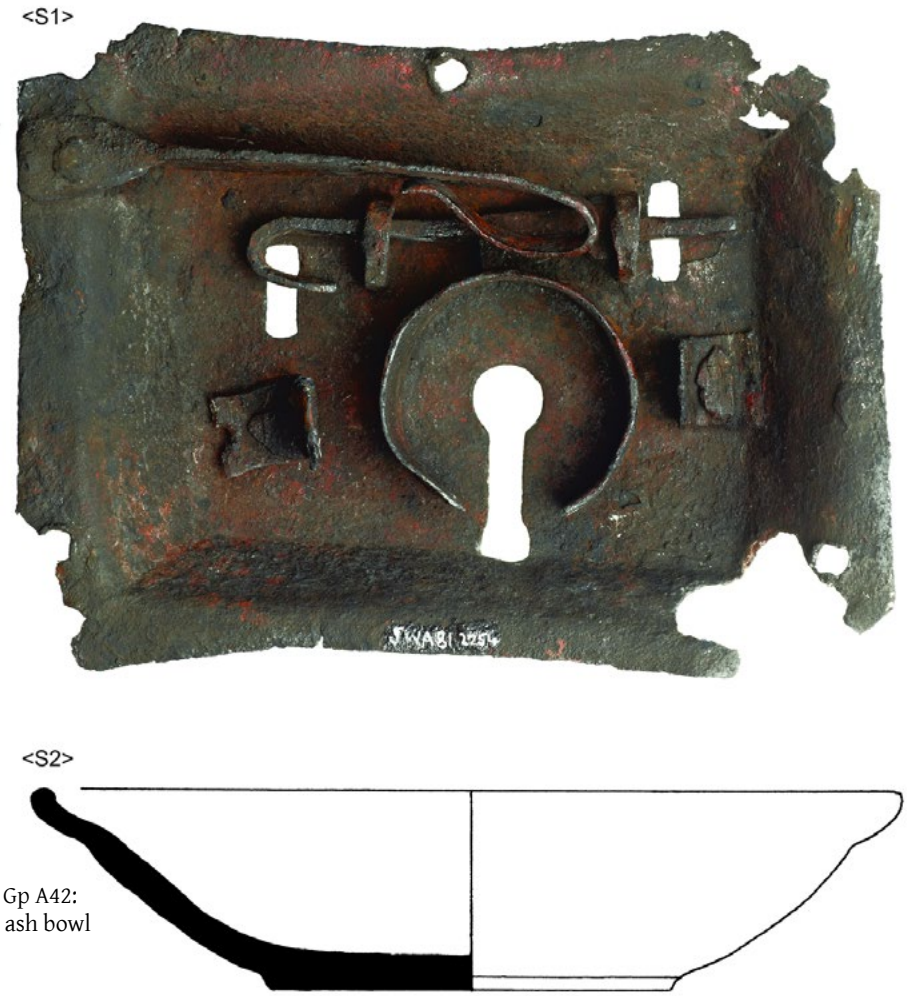


Figure 31 Site A: objects from Gp A42: iron mounted lock (1:1), and an ash bowl (1:2) (<S1–S2>)

Period A2, revetment, dumps and foreshores				
Landuse	**Group**	**Evidence**		**Date**
Waterfront 10	A29–33	DEND		1123+, 1142+
Foreshores and dumps:	A24 (over full width of site)	MPOT		1140–1180
	A26 (over full width of site)	MPOT		1140–1150
	A28 (over full width of site)	MPOT		1180–1200
	A30 (over full width of site)	MPOT COIN	coin of Henry II	1170–1200 1158–80 (coin)
	A42 (Tenements 3 and 4)	MPOT		1170–1200
	A32 (Tenement 1)		No evidence	

Table 10 Site A: summary of dating evidence for revetments, dumps and foreshores, period A2 (1150–1200, perhaps 1220)

section of Waterfront 10 towards the east side of the site aligned with the end of an alley coming down to the Thames between two substantial buildings. Both of these contained numerous hearths indicating industrial activity, which are described in the next section, in their places on Tenements 3 and 4. The remains of buildings and open areas on top of the reclaimed land are now described, moving from Tenement 1 on the west to Tenement 4 on the east; the ceramic evidence around the buildings seems to stretch to about 1220. This would be logical, the use of the buildings being later than the construction of the reclamation units.

Tenement 1

(plan for Tenements 1 to 4, Figure 29)

A:Building 5

Three wall fragments formed the east wall of Tenement 1 and the west wall of Tenement 2. At the far north end of the site was a north–south chalk foundation (A 47.1) which reused an earlier Roman revetment as a footing, and cut through deposits forming the Saxon embankment. Offset to the southwest (perhaps intentionally, implying an east–west division between the two, or two parallel walls or perhaps simply the result of watching brief recording) was another north–south aligned chalk foundation (A47.8), thought to link with another to the south (A47.9). The south limit of the building (A:Building 5) may have been formed by an east–west chalk foundation (A47.10). No internal deposits were recorded, and no dating evidence is available.

Tenement 2

A:Building 6

Three structural elements (A:Building 6) survived along the property division between Tenements 2 and 3 (Figure 29). To the north (A47.2) was a north–south chalk foundation and offset to the south and east was a chalk foundation (A47.16), again running north–south. Aligned with this to the south was a north–south chalk foundation (A47.11), again reusing part of the underlying Roman revetment for support. Above was a layer of gravel (A47.12), which may represent a hiatus in construction, with a sand bedding and Reigate stone wall above (A47.14), offset onto the east side of the underlying foundation.

Above an earlier hearth within underlying A:Building 2 was a surface associated with a tile and brickearth hearth (A45.19), which could have served a domestic function in A:Building 6. The burning surface itself had been truncated and the alignment of the hearth is uncertain. Above them was a make-up dump (A45.20), which could relate to later activity, subsequently truncated, or could be a floor replacement within this building; it contained a single base sherd from a cooking pot in SSW (22g). Just to the south, at about the same level, were further internal surfaces (A47.15), abutting the west wall, of sand, clay and mortar. The meagre dating evidence is given in Table 101.

What was probably a continuation of the east and west walls of A:Building 6, and a joining wall along the street frontage, were recorded at the north end of Tenement 2 in the Riverbank House excavation of 2006–9 (R:Building 2). The excavators propose that this building was in place by about 1100, as it cut through deposits containing pottery of the previous half century;[35] but it is probably safer to place its construction in the first half of the 12th century. During the second half of the century this building was rebuilt or repaired along the same boundaries (R:Building 3).[36]

Tenement 3

The dumps in A:Open Area 2 prepared the ground for what may have been a single building project which has been divided into several buildings within the east and west sides of the property.

The east wall of Tenement 3 was observed in the controlled trench (Figure 29). Following some slumping (A47.22), a foundation trench was dug (A47.23 and 47.34). Within it were squared timber piles (A47.24–26) overlain by a timber raft and ballast to support the weight of the overlying wall. No dendrochronological samples were taken from the supporting piles, but the pottery (119 sherds, 487g) comprises the greater part of a Rouen jug (A<P2>) and sherds from five jugs in London-type ware, all dating to the late 12th or early 13th century (A47.23). The ragstone wall itself (A47.27) ran roughly north–south and aligned with a major and consistent property boundary reflected in waterfront development

[35] Mackinder 2015, 14–15.
[36] Mackinder 2015, 18–19.

to the south. The continuation of the wall southwards was reflected in a line of timber shuttering (A47.28–33), the dendrochronological date from which was 1145–89, together with a reused 11th-century timber. A quantity of pottery was recovered from Gp 47.30 (128 sherds, 109 ENV, 1.897kg). Most of this comprises residual Roman and early medieval material, but two sherds of SHER date the group to after 1170. Also present are part of a dish or chafing dish in LCALC with incised decoration on the rim and inside the bowl (A<P3>) and three sherds from a whiteware jug that is rather coarser than the French fabric NFM. The latter have a patchy green glaze and may be early in the Kingston tradition, but are still likely to be intrusive. A separate observation to the east (A47.38) was of similar construction and indicates the width of the wall. Another chalk and ragstone foundation (A47.19) to the north lay on the same line, and an east–west chalk foundation (A47.18) may have formed an internal division within the property. A sequence of internal and external deposits was recorded across the west part of Tenement 3, apparently associated with the west wall and at the same approximate level as the hearths within A:Building 11 (see below).

In the Riverbank House excavation, fragments of two stone buildings which were probably at the head of Tenement 3 were recorded as foundations of chalk, Kentish ragstone, chalk and flint (R:Buildings 5, 6). They were not well dated, but perhaps of the 12th century.[37]

A:Building 7 and A:Open Area 3

(not illustrated)

A series of clay surfaces (A45.14) abutted the west wall of Tenement 3, having slumped slightly. These suggested a covered, internal area and have been assigned to A:Building 7. The only pottery recovered was a single sherd of SSW, which has a date range of 1140 to 1220 (Table 102). Cut into the Saxon bank to the east was another feature (A45.15), its apparently waterlaid fills suggesting that it had been left open and was perhaps a gully or drain, in an external area, A:Open Area 3. It may have related to a gravel surface (A45.17) to the east, which may have formed an external area associated with the building or a hard-wearing internal surface. A:Open Area 2 to the east may still have been in use. If A:Building 7 and A:Open Area 3 were contemporary, the building cannot have been more than about 4m wide east–west, suggesting a flimsy structure such as a shed, possibly open on one side, running along the east side of A:Building 6. No pottery or artefacts were found in this area.

A:Building 8

Make-up dumps (A45.21–23) sealed the earlier, external activity in the area. Immediately above was a thin, compressed layer of charcoal (A45.24), perhaps related to a clay surface (A45.26) to the east which also had traces of charcoal above it. Cut through this were two stakes, and the floor may have abutted a clay wall (A46.6), which was heavily distorted and appeared to form an internal division within Tenement 3, lying roughly in the centre (A:Building 8; Figure 29). A clay floor with charcoal tread above (A46.5) could relate to this building. No pottery or finds were associated with it. A:Building 8 may have been a subdivision of the larger A:Building 11, which is described shortly below.

A:Open Area 4, A:Buildings 9 and 10

These minimal traces, largely without finds, are reported in the online supplement to the text (section 'Swan Lane').

A:Building 11

A complex sequence of 50 hearths was excavated within the controlled trench along the east side of Tenement 3. Most of the individual hearths were about 3m wide, and keyhole-shaped in plan, with a kerb of rooftiles or masonry, and an internal area of pitched rooftile fragments with a burned mortar surface (Figure 29; Figure 32). Some yellowish material along one side of the best-preserved hearth (Figure 32) was identified as montmorillonite (fuller's earth),[38] and then identified in deposits throughout the sequence. The hearths were often replaced, and one sequence of six successive and superimposed hearths survived. Further, similar evidence was revealed in the watching brief, together with more examples of fuller's earth.[39]

Whether these industrial activities took place within a building with walls on all sides is uncertain and the clay walls located in the centre of the property could have supported an open-sided shed. The west area (A:Buildings 7 to 10) may have been for access or related storage. A building (A:Building 11) which had at least one wall, on the east, of masonry, and a series of hearths within. The hearths, at least in their early stages, abutted the east wall, and some later ones cut into the wall.

The presence of gullies or pitting in the centre of the property is also unexpected, given their close proximity to the hearths, although the metalling (in Open Area 3) here would seem an appropriately hard-wearing surface for industrial use. The drains at the south end of the property presumably led waste water and other material from the dyeing process into the river. The pottery from this area comprised 281 sherds (167 ENV, 3.244kg); in many contexts the sherds are very small and also few in number. Cooking pots and jars amount to 68 and 23 examples respectively. They include 37 small sherds from a LOND cooking pot and another in SSW with triple grouped thumbing on the rim.[40] Jugs are represented by up to 72 examples. Other forms comprise a possible spouted pitcher, a bowl in SHER and a curfew in SSW. Most of the group dates to the second half of the 12th century and a peak of activity around 1170–1200 might be envisaged. On the whole the pottery offers few clues to the industrial activity that was taking place in A:Building 11, but the base of a large SHER jar, possibly of bunghole form (A<P4>), was found in A48.58; the vessel is heavily abraded inside and could have served some industrial purpose. A similar jar was found in a late 12th century context at Bishopsgate, but other London finds are from contexts dated to between *c.* 1270 and 1320.[41] The sherds from A[383] appear to have some post-depositional sooting,

[37] Mackinder 2015, 18–19.

[38] Identified by P Henderson of the Mineralogy Department of the Natural History Museum: see also Robertson 1986, 97–8, table 2.

[39] Egan 1991, 12–15.

[40] Cf. Blackmore and Pearce 2010, fig 27, no.92, fig 29, nos 105–6.

[41] Blackmore and Pearce 2010, fig 91, no.1058; fig 88, nos 1050–1; fig 90, no. 1055.



Figure 32 Site A: detail of hearth A[329] in A:Building 11 (0.5m scale; east to top). The deposit of fuller's earth is the lighter layer along the left-hand side of the hearth

while a number of others have white mortar-like deposits on the surfaces and over the breaks and may have been incorporated into the hearth structures; this is especially obvious on the finds from A[355] and on a few sherds from A[361]. Sherds from the same early rounded jug with pellet decoration on red slip under a clear glaze were found in A[238C] and in A[359], and sherds from other vessels were almost certainly scattered through various contexts, so that the real total of vessels is probably nearer 145 than 167. Other finds include a fragment of irregular tile or part of a louver with sooting in the under/inner side and a dull green glaze on the outer wall (A[224]; fabric 2273).

The dating evidence for period A2 on Tenement 3 is given in Table 102 (A46.21, and various sub-groups of A48). Although two sherds of possible Kingston-type ware would appear to be intrusive, most of the assemblage dates to between 1180 and 1200/1220.

Tenement 4

A:Open Area 5, A:Building 12 and isolated foundations

(not illustrated)

To the east of the site were make-up dumps (A46.26–28, 46.30, 46.32 and 46.39) with associated clay surfacing. One (A46.29) seems to have been in preparation for the hearth activity in A:Building 13. Above was another make-up (A46.31), perhaps for subsequent activity such as a hearth, or perhaps destruction material from an earlier building. One dump (A47.32) may have lain within a cut. Taken together, these deposits form Open Area 5. This is taken to be the earliest clear manifestation of a major alley from Thames Street to the river. The only pottery is a single sherd of London-type ware (16g; Table 103).

A group of fragments postdating A:Open Area 5, are interpreted as foundation piers, although their relationship to walls to the north is uncertain. No pottery was associated with the structure. Their bases all lay at roughly the same level and they have been assigned to A:Building 12.

Lying on the approximate west edge of Tenement 4 were two chalk foundation fragments. The northmost (A47.40), which may have run north–south, cut through reclamation dumps associated with A:Waterfront 10, but no associated surfacing survived. To the south and slightly to the east was an east–west ragstone foundation (A47.41). Along the east edge of the site were three similar, and also apparently early, chalk foundations. To the north was an east–west foundation or pier base (A47.48), cutting through the south edge of the Saxon embankment. Just to the south of it, roughly evenly spaced, were two further fragments (A47.49). No related surfaces survived.

A:Open Area 6

Abutting the wall to the west of the alley was a series of layers which were probably external surfaces (A47.45). The first was of grey mortar and could relate to the construction of the foundation. Above, to the west, was a series of layers of unspecified constituents, culminating in a layer of gravel, which formed an alley or path leading down towards the river. No pottery or artefacts were found in this area.

A:Building 13

Above the earlier pier bases along the east side of the alley and the west edge of Tenement 4 (A47.40–41) were dumps (A47.43), including disturbed foundation material and implying ground reduction. The associated pottery comprises two small sherds (11g) from London-type ware jugs, one decorated in the north French style and dating to after 1180. To the west a substantial piled chalk foundation was dug through these dumps (A47.47), supporting a ragstone wall and again forming the east limit of the property. It may be that this was a later feature, although an earlier one would probably have lain in the same position.

On Tenement 4, four wall or foundation fragments, running north–south, apparently ran parallel to each other and do not form identifiable buildings. They may relate to several phases of construction and perhaps more than one subdivision of the property. Deposits and foundations apparently relating to this stage of development are assigned to A:Building 13. The northmost foundation (A47.7) may in fact have been of two builds, chalk at the base and ragstone and chalk above. Slightly misaligned to the southwest was another foundation (A47.37) of similar description. To the southwest of this was another foundation (A47.39) of chalk supported on softwood stakes.

Above A:Building 12 to the west was a make-up dump (A47.50) in preparation for subsequent construction; the one sherd (3g) of shell-tempered pottery from it is probably residual. Cutting through it to the south was what may have been a robber trench (A47.51) running east–west with another, later (A47.53). Just to the west of this 'robbing' were some disturbed deposits (A47.52), perhaps associated with it. This is taken to be evidence of a partition wall within A:Building 13, dividing room A (south) from room B (north). The south limit of the building is conjectured as lying 5m to the north of

the line of A:Waterfront 10, to allow waterfront access behind the building.

To the south of the internal wall in room A were make-up dumps, floor and occupation debris (A50.16), some of which may have come from nearby hearths. These lay at about the same level as those to the north, but were possibly within a different room or perhaps even a different building. Within room B was a sequence of hearth activity. A series of three hearths to the north (A50.1–3) were in flat-based construction cuts with rubble and brickearth bases, overlain by brickearth burning surfaces strengthened with vertically set tiles aligned east–west. The kerbs were of rooftiles or ragstone. Make-up dumps (A46.27, 47.27–28) may have related. The central hearth (A50.2) seems to have had three phases of use. The burning surface of the northmost hearth was covered by a mixed deposit including building material, overlain by a thin band of mortar (A50.4). The lack of burning suggests that this was not a renewal of the burning surface, but it was truncated at the level of the hearth's kerb which may have removed such burning. However, a similar deposit (A50.5) lay above the burning surface of the central hearth, and in this case the deposit apparently represented its destruction.

Above the northmost hearths were thin layers of charcoal, silt and mortar (A55.16), which apparently related to their destruction. These had been cut into by two flat-based cuts, within which was chalky mortar to the north and brickearth to the south. Sealing these were thin bands of tread or occupation debris (A55.17).[42] In the same area was a series of thin silt layers (A55.18) although their interpretation and exact location is uncertain. Another feature (A55.19), unlocated and poorly described, apparently postdated the hearth sequence; the seven sherds of pottery (151g) range from 12th- to 16th-century in date. Just to the south of these hearths was another possible hearth structure (A50.9), although this may simply have been disturbed hearth material, or may have slumped down from its original position (not illustrated). Above it was more disturbed hearth material (A50.10).

To the east of the west wall of Tenement 4 a dump (A47.43; see above) was at the same level as, and possibly contemporary with, a heavily truncated hearth of red burnt brickearth (A50.11). A series of horizontal gravel layers (A47.45), not recorded in detail, lay above and were originally interpreted as forming a road surface, but may have been internal and associated with industrial use.

Just to the southeast and at about the same level was another hearth (A50.6). Within a flat-based construction cut, the hearth consisted of a thin band of chalk fragments in silt, overlain by brickearth with vertically set rooftile fragments aligned north–south, perhaps implying that the hearth opening lay to the north. Above was a mortar burning surface, overlain by a thin surface (A50.7) and destruction debris or make-up (A50.8). Three sherds of SSW pottery (55g) were recovered from A50.7. The west area was sealed by a series of surfaces and trample (A47.54) which contained two small sherds of London-type ware (3g) and a number of tiny fragments of Mill Green ware (14g), the latter taken to be intrusive. Cut into this floor sequence to the east and possibly related to it was another hearth (A50.12). Within a flat-based cut was a chalk and ragstone base, overlain by flat ragstones. The feature was sealed by destruction debris (A50.13).

The dating evidence for period A2 on Tenement 4 and the adjacent lane is given in Table 103. As on the other tenements excavated in 1981, a general date of 1150–1220 is proposed, and the few later sherds from A47.54 and A55.19 are intrusive.

Tenement 5

Tenement 5 lay outside the area excavated in 1981–2, on its east side. In one of the Riverbank House trenches of 2006–9 traces of a 12th-century timber building were recorded (R:Building 4). This had walls of staves, and one floorboard survived. Only a northwest corner and walls up to 2m long were recorded, so it may have been a small ancillary structure such as a tank. None of the timbers taken from it could be dated by dendrochronology, but an associated layer produced a coin of 1161–80.[43] The structure would have been behind buildings fronting onto Thames Street.

2.3 Seal House (site B) in period M1 (1100–1200)

The following text dealing with period M1 at Seal House (site B) (site specific periods B3 and B4) is based on the previously published account of 1992,[44] with revisions to the ceramic dating. Three north–south section drawings of the two long sides of the excavation trench are placed in Figure 282 to Figure 284. Figure 282 and Figure 283 together comprise the entire west section, 39m long; and Figure 284 comprises about half of the east section; for the positions of these sections see Figure 19. An overall table of the phases which comprise these two periods (site periods B3, B4), covering the 12th century, is given as Table 11.

The main developments of this period are two waterfront extensions, marked by revetments in different styles, on Tenement 6 (B:Waterfronts 1 and 2); with a stone building (B:Building 1) erected on the reclaimed land, probably to function with the first waterfront.

Silting, B:Waterfront 1 and B:Building 1, 1140–c 1180 (period B3)

The stratigraphic groups assigned to period B3 are given in Table 11, and the detailed dating evidence in Table 12.

Post-Roman silting

The silting-up over the disused Roman quay, which started in the 3rd century, continued with the deposition of gravel interleaved with layers of organic material (period B3.1; Gps B7, B9). Within these layers, but imperfectly recorded because of restricted access, were many cut oak twigs which may have

[42] These references to Group A55 and its components are from the archive report by Liz Shepherd (Popescu) (1991). G Egan has A55 as a reclamation deposit, so there is duplication. When followed by sub-numbers, e.g. A55.17, these groups are from the analysis by Shepherd.

[43] Mackinder 2015, 20.

[44] Steedman *et al.* 1992, 89–93. The archive report for Seal House is Schofield 2016, revising a draft of 1975.

Period and phase	Group	Interpretation
B3.1	B7	river gravel, post-Roman
	B9	silting and gravel, foreshore
B3.2	B10	slight structure on foreshore, possibly part of B:Waterfront 1 or a previous structure
B3.3	B11	silting over structure of Gp 10
	B17	silting in S sondage, below level of B:Waterfront 1
B3.4	B12	B:Waterfront 1 internal brace braces
	B14	B:Waterfront 1 sillbeam, pad supports and associated gravel layer
	B5	reclamation dumping at N end of trench, nearest street
	B18	arbitrary division of reclamation S of Gp 5 but N of Group 19
	B19	B:Waterfront 1 dumping behind, S of Gp 18, to line of cut which robbed Waterfront 1
	B36	B:Building 1 construction
B4.1	B20	robbing of B:Waterfront 1 and dumping behind B:Waterfront 2
B4.2	B21	isolated timbers, possibly from B:Waterfront 2
	B22	clay deposit probably part of reclamation for B:Waterfront 2
	B23	possible flooring of B:Waterfront 2
	B24	dumping behind B:Waterfront 2
	B26	B:Waterfront 2 timbers
	B27	timbers on foreshore in front of B:Waterfront 2
	B28	wood fragments in silts probably from B:Waterfront 2
	B30	cruciform structures part of B:Waterfront 2

Table 11 Site B: stratigraphic groups in period M1 (Seal House periods B3 and 4)

been the remains of hurdles, perhaps consolidation of the foreshore. Finds included a German coin of *c.* 1080–1100.[45] The pottery amounts to 192 sherds (145 ENV, 2.963kg), most of which is from Gp B9 deposits (167 sherds, 2.51kg). The bulk of the material comprises handmade regional coarsewares in the early medieval tradition (106 sherds), including the thumbed rim from a jar in EMSS (B<P1>), the rim of a jar in LOGR with rouletted decoration (B<P2>). With the exception of one sherd from an early rounded jug, all the London-type wares (54 sherds) are of the coarse variety (LCOAR, LCOAR GRIT, LCOAR SHEL), including two cooking pots in LCOAR SHEL (B<P3>, B<P4>). Also present are nine sherds of SSW, a few sherds of Andenne ware, Normandy gritty ware and red-painted/Pingsdorf-type ware, including one large base sherd (B[620]). As a whole these deposits can be dated to *c.* 1130–50, and two small sherds of SHER (in B[620]) are considered intrusive. A timber structure was laid on the foreshore (period B3.2; Gp B10), consisting of large planks running east–west with squared timbers driven vertically between and on either side of them. There was no directly associated pottery. During excavation this was thought to be part of B:Waterfront 1 to the south, but it is equally likely that it represents an earlier structure on the foreshore; its extent is unknown, and it was not observed in the watching brief of limited excavation by the builders east and west of the trench. Given its indeterminate character, it was not given a waterfront number.

The structure was covered by layers of silt and gravel; a small sondage was also dug to the south, lower than the succeeding B:Waterfront 1, and found the same kind of foreshore or riverine deposits (period B3.3; Gps B11, B17; shown in section, Figure 282) containing 390 sherds of pottery (328 ENV, 7.139kg). Those from Gp B11 (28 sherds) are quite early in character, with nothing definitely later than 1150. The much larger group B17 (B[524]), however, contains relatively few early medieval wares and a high proportion of London-type wares (292 sherds, 234 ENV, 5.458kg), here mainly of the finer variety (LOND). Most sherds are from jugs, with part of a spouted pitcher in LCOAR; a few jars and cooking pots are also present, togerther with part of a LOND dripping dish with looped handle (B<P5>), and a crudely made LOND bottle-like vessel similar to 12th-century finds from the Fleet Valley and St Mary Clerkenwell.[46] Other coarsewares include cooking pots and part of a curfew in SSW. Several finds date to after 1170–80, such as south Herts-type greyware (26 sherds) and London ware jugs in the Rouen and North French styles (120 sherds, 84 ENV). The latter include a sherd with applied nicked ribs that is very like finds from B[483] (see below) and other later contexts. Also of note is a bridge-spouted jug in developed Stamford ware (B<P6> from B[524]). Imports comprise seven sherds of Andenne ware, north French ware, Rouen ware and red-painted/Pingsdorf-type ware. In addition to the 12th-century finds there are up to four intrusive sherds from London ware highly decorated jugs and a base sherd from a Kingston-type ware jug all from B[524], which should date to after 1240.

B:Waterfront 1

A period of land reclamation followed (Figure 33).[47] About 5m south of the possible plank-and-post structure, the base plate of B:Waterfront 1 was placed directly on the foreshore, with its upper surface at between –1.04 and –1.13m OD (Figure 34). This oak timber, running east–west, was at least 2.7m long (it crossed the narrow trench and went into both sides), and 0.5m by 0.36m in section. A longitudinal notch of a slight V-shape had been cut along its upper surface, presumably designed to hold vertically set staves (reconstructed in Figure 35). There was evidence of both front and back-bracing associated with this revetment (front wall). Four cruciform braces, retained by stakes driven into the sloping surface of the earlier foreshore, would have helped to brace the upright stave frontage; they

[45] Stott 1991, 320, no. 165.

[46] Blackmore 1993.

[47] See also the east side of the excavation, Figure 284, Waterfront I.

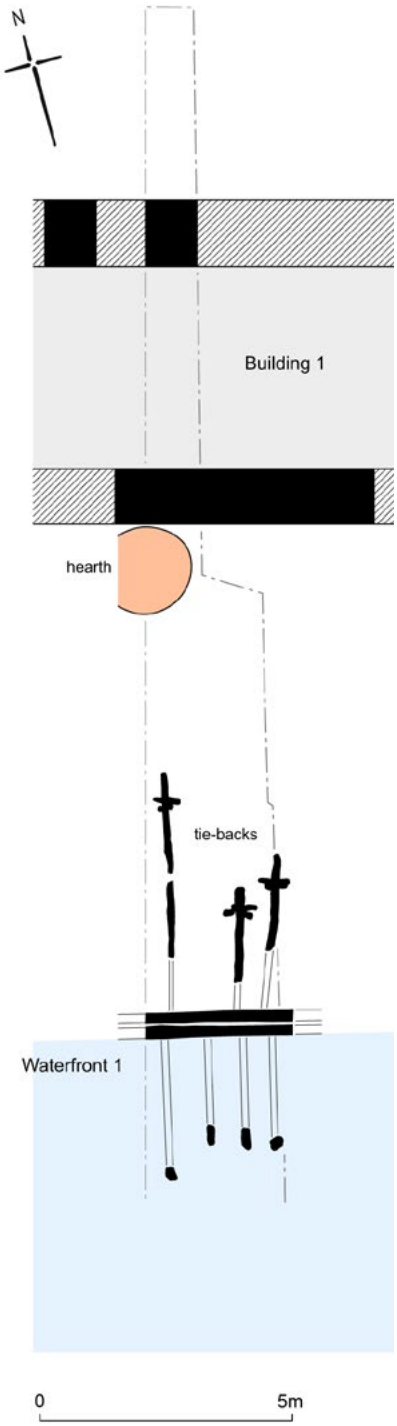


Figure 33 Site B: period 3 features, comprising B:Waterfront 1 and B:Building 1, 1140–c 1180 (1:150)



Figure 34 Site B: base of B:Waterfront 1, looking north, with three of the angled pads on the foreshore in the foreground (0.2m and 0.5m scales)

were retained at distances of between 2m and 5m north of the base plate, the longest reusing stakes from the earlier structure. Between 2m and 2.5m south of the base plate, four pads, each made of two plank fragments, were set into the foreshore at an angle to serve as the base for missing diagonal front braces (period B3.4; Gps B12, B14) (Figure 34). While the braces which were buried within the dumped material retained by the revetment were undoubtedly primary to the construction, the front-braces may well have been added at a later date as extra support. The cruciform braces were covered by a thick layer of organic dumping, which extended from the line of the revetment to the extreme north end of the excavation trench. This rose from *c.* 1m OD at the edge of the cut (resulting from the later robbing of the revetment face), to a relatively level surface of around 2m OD, 7.5m to the north (Gps B5, B18 and B19, which were an arbitrary division of the homogeneous strata into three contiguous blocks, north to south). If the revetment had originally supported a level surface it would have been over 3m high (the disposition of the main timbers and a reconstruction shown in Figure 35); but this would have required many timbers of this length for the diagonal supports or shores, so it is perhaps more likely that the reclaimed surface sloped down as it neared the revetment and the waterfront's edge. Light grey-brown and black silt and gravel formed a contemporary foreshore south of the base plate.

In this case the dating table for period B3 (Table 12) is brought into the main text as an example and illustration of the character of the Dating Tables. Eleven timbers from B:Waterfront 1 were sampled for dendrochronology, and five produced dated ring sequences.[48] They comprised two from the cruciform brace structures behind the frontage (B[582, 611]), the large sillbeam B[596], and two of the angled pads formerly (it is proposed) beneath diagonal braces on the shore (B[637] and B[640]). Of these only B[582], from one of the braces, had sapwood indicating a probable felling date of sometime in 1133–70. Putting together the dendrochronological date and the ceramic dates from Gps B18 and B19, a date of 1140–60 for the construction of B:Waterfront 1 is adopted hereafter.[49] Its use, with B:Building 1, would have been until sometime between 1163 and 1197 (the date of B:Waterfront 2), possibly after 1180 based on some Rouen pottery.

No pottery was associated with Gp B12, but Gps B5, B14, B18 and B19 yielded another large group of 376 sherds (305 ENV, 6.111kg). Early medieval coarsewares are still well represented in most contexts, comprising 59% of the total (62.5% by weight). They include sherds from jars/cooking pots in LSS, EMS, EMSS (B<P7>), EMSH (B<P8>, B<P9>), EMCH, EMFL, ESUR and LOGR, and three vessels with rouletted decoration: a jar in EMGR (B<P10>), and two pitchers in LOGR (B<P11>). Other forms include a socketed bowl, dishes and part of a battered LOGR spike lamp. Later coarsewares include

[48] Also Hillam 1992, 156, fig 72.
[49] Blackmore and Pearce 2010, Table 2 and 306–7.

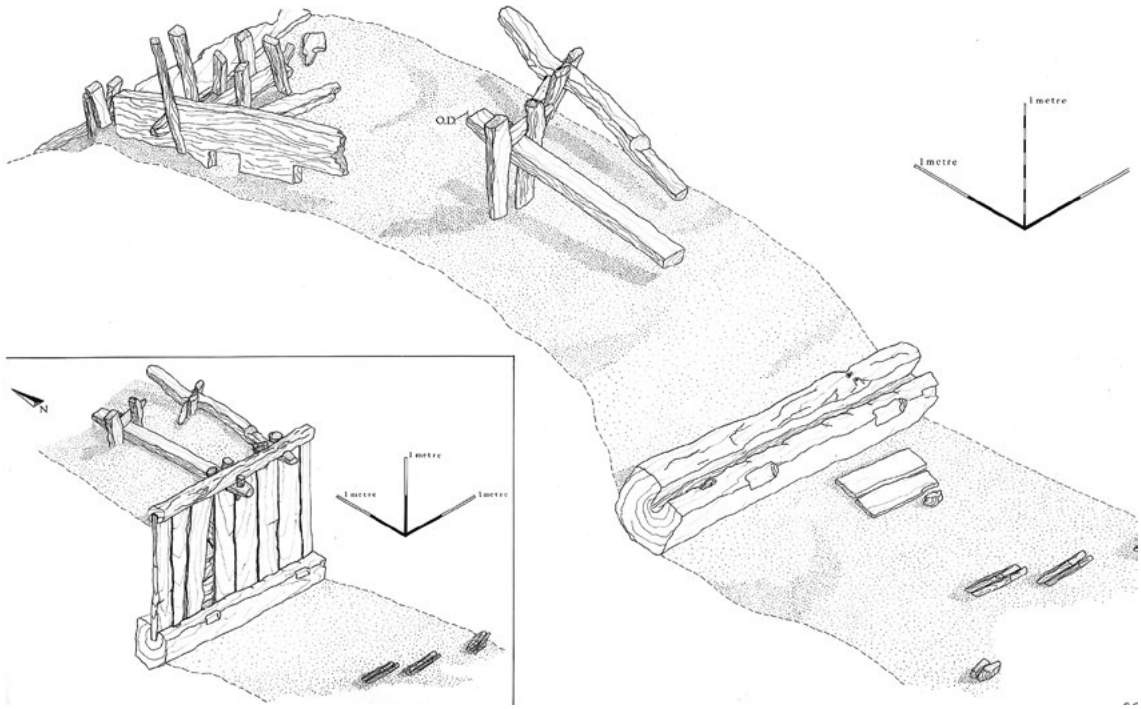


Figure 35 Site B: isometric view of B:Waterfront 1, and (inset) a reconstruction

sherds from a number of cooking pots/jars and bowl in SSW (B<P12>). This ware amounts to *c.* 8% of the sherds (*c* 7% by weight); there is, however, no south Herts-type greyware. London-type ware (45 sherds), coarse London-type ware (34 sherds) and LCALC (two sherds) together comprise *c.* 21–22% of the group by both sherd count and weight). Early rounded jugs are the main form, including a handle with twisted inlay in LCALC (B<P13>); sherds from four spouted pitchers are also present, three with rouletted decoration (LCOAR, LOND). Five sherds from four jugs in the Rouen- and North French-style

Landuse (period)	Group	Context	Evidence	Number of sherds/ weight (gm)	Description	Date
B3.1 silting/ foreshore	7	618	MPOT	25/453	ANDE SPP; EMS CP; EMSH CP; EMSS BOWL FLAR, CP; ESUR CP; LCOAR CP; LOGR JAR; NORG JUG; REDP JAR	1080–1150
B3.1 silting/ foreshore	9	620		81/1288	ANDE SPP; EGS JAR; EMGR JAR; EMS JAR; EMSH DISH, JAR; EMSS CP, JAR; ESUR BOWL, CP; LCALC JUG; LCOAR JAR, JAR SM, JUG; LCOAR GRIT JAR; LCOAR SHEL CP; LOGR JAR; LOND EAS; JUG; LSS CP; REDP BUF JAR; SHER CP; SSW CP	1140–1150
B3.1	9	620	COIN		HENRY IV (Germany)	1056–1105
B3.1	9	627	MPOT	84/1144	ANDE SPP; EMFL JAR; EMGR JAR; EMS CP; EMSH CP, JAR; EMSS CP; ESUR CP, JAR; LCOAR JAR, JUG; LCOAR CALC JAR; LOGR JAR; LOND EAS JUG ERND; LSS JAR; REDP BUF JAR; REDP OLV JAR; SSW CP	1140–1150
B3.3 Silting/ foreshore	11	513	MPOT		EMGR CP; EMS JAR; EMSH CP, JAR ST; EMSS CP; ESUR CP; LCOAR JAR; LOND EAS JUG; LSS CP; REDP JAR	1080+1150

Landuse (period)	Group	Context	Evidence	Number of sherds/ weight (gm)	Description	Date
B3.3	11	514	MPOT	7/87	ANDE SPP; ESUR JAR; LOGR CP; REDP OLV JAR	1140–1150
B3.3 Silting/ foreshore	17	524	MPOT	360/6495	DEVS JUG SP; EMS CP; EMSH CP; EMSS CP; ESUR CP; KING JUG; LCALC JUG ERND; LCOAR CP, JAR, SPP; LCOAR CP SM; LCOAR CALC JUG; LCOAR EAS JUG, JUG EBAL; LOGR CP; LOND BOT BAL, CP, DISH DRIP, PIP; LOND JUG, JUG BAL, JUG SQU; LOND EAS JUG EBAL, JUG ERND; LOND HD JUG, JUG BAL; LOND NFR JUG, JUG BAL; LOND PELL JUG EBAL; LOND ROU JUG BAL; NFM JUG BAL; REDP JAR; ROUE JUG BAL; SHER CP, JUG; SSW CP, CP SM, CURF	1180–1240
B3.2	17	642	MPOT	2/18	LOND EAS JUG ERND; LOGR JAR	1140–1150
B3.4 B:Waterfront 1	12	brace structure 582	DEND			1133–70
B3.4	5	400	MPOT	23/414	EMSH CP; ESUR CP; LCOAR CP, JUG; LCOAR CALC CP; LOGR CP; LOND JAR; LSS CP; REDP OLV JAR; THET JAR	1100–1150
B3.4	5	578	MPOT	3/84	EMSS JAR; ESUR JAR	1050–1150
B3.4	5	622	MPOT	10/246	EMSH CP; ESUR CP; LCOAR JUG; LOND EAS JUG ERND; REDP OLV JAR; SSW CP, JAR	1140–1150
B3.4	14	595	MPOT	2/7	ANDE SPP	
B3.4	14	635		29/415	EMS JAR; EMSH JAR; ESUR JAR; LCOAR JUG; LCOAR CALC JUG; LCOAR GRIT JAR; LOND JAR; LOND JUG BAL; LOND EAS JUG ERND; LSS JAR; NFRE JAR; REDP JAR; SSW JAR	
B3.4	18	407	MPOT	99/1643	ANDE PTCH; BLGR MISC; EMCR CRUC; EMGR JAR; EMS CP; EMSH CP, DISH FLAR; EMSS CP; ESUR CP; LOGR CP, DISH, LAMP; LOND JUG BAL; LOND EAS JUG; LOND NFR JUG; REDP JAR; REDP BUF JAR; SATH JAR ST; SSW BOWL FLAR, CP; STAM BOT, PTCH; THET CP; THET JAR	Most are 1140–1150 but 11 sherds are 1180+
B3.4	19	451	MPOT	197/3390	ANDE SPP; EMCH CP; EMFL CP; EMGR MISC; EMS CP; EMSH CP; EMSS CP; ESUR BOWL SOCK; ESUR CP, DISH; LCALC CP, JUG, SPP; LCOAR EAS JUG ERND; LOGR CP, CP EV, SPP; LOND SPP; LOND EAS JUG ERND; LOND JUG EBAL; LOND ROU JUG BAL?; LSS CP; REDP BUF JAR; REDP OLV JAR; SATH PTCH; SSW CP; STAM PTCH; THET CP; WINC? PTCH	Most are 1140–1170 but one sherd could be 1180+
B3.4	19	451	PPOT	3/25	BORDY? PIP	1550–1700, intrusive

Table 12 Site B: dating Table for period B3 (1140–80 with some intrusion)

date to after 1180 and are either intrusive or must have been very new when discarded. Non-local wares include sherds from a Stamford ware bottle (B<P14>), and a large pitcher with rouletted and applied red slip decoration, ascribed to Winchester (B<P15>). Imports comprise spouted pitchers in Andenne ware (B<P16>); red-painted/Pingsdorf-type ware, blue-grey/Paffrath-type ware and North French unglazed ware are also present. The bulk of this assemblage dates to the second and third quarters of the 12th century and agrees well with the dendrochronological dating. Three sherds from a 16th- or 17th-century Surrey-Hampshire border ware pipkin in B19 are clearly intrusive.

There were quantities of Roman artefacts in the silts. This may be because the excavation, in the restricted access of the bottom of the archaeological trench, went into Roman silts, but this cannot be determined. Gp B2 contained 11 Roman shoes or parts of them; Gp 14, which seemed to date from the time of construction of B:Waterfront 1 in the 12th century, contained 42 Roman shoes or parts of them, and 15 Roman bone pins.

B:Building 1

On top of the dumping lay two parallel east–west foundations, each 1.2m wide and of chalk, with shallow foundation trenches (B:Building 1; Figure 33; Figure 36; Gp B36).[50] They appear to have been the bases for substantial walls, later robbed, giving an internal north–south width to the space between the two walls of over 4m; observations during the watching brief imply a length east–west of at least 6.5m. The two foundations recorded were parallel to the medieval street to the north. Since the frontage of the latter lay some distance north of the existing site boundary, it seems likely that the observed foundations were a middle or possibly spine wall and the south wall of a large stone building at the head of the medieval property. Internal surfaces of rammed, decomposed sandstone, charcoal and sands in thin bands were recorded. Just to the south, the external area also had several superimposed hearths at 1.92m OD, south of which the ground sloped, or had been eroded, to the revetment frontage. Although it is not intrinsically dated (no pottery was found in its strata), B:Building 1 is placed here with B:Waterfront 1, i.e. of the decades 1140–60; it was built on the reclaimed land.

As found, B:Building 1 lay at the street end of Tenement 6, on Thames Street. The wide tenement was bisected by an alley, later Black Raven Alley, from the 14th century, but it is not known if there was an alley in this position in the 12th century. The stone building may have stood only on the east side of the property, taking up half the frontage, or if larger it might have incorporated an entrance and crossed the site of the alley westwards and occupied the entire head of the property; thus forming a prominent corner between medieval Thames Street and Ebbgate. Whatever the case, it is evidence that a stone building lay south of Thames Street, on the reclaimed land, probably in the middle of the 12th century. This would have fixed the line of Thames Street itself, more than any (lost) timber predecessor would have done. Several masonry buildings of the 12th century also fronting onto Thames Street were recorded west of Swan Lane in the Riverbank House excavations of 2006–9, but the dating evidence for them is not further specific.[51] We can imagine both sides of Thames Street upstream of the bridge, for its first 100m westwards in the study area, having at least occasional buildings with stone ground floors by 1150.

Robbing of B:Waterfront 1, construction of B:Waterfront 2 (c 1180–1200) (period B4)

The stratigraphic groups assigned to period B4 are given in Table 11 above, and the detailed dating evidence for period B4 is given in Table 104.

B:Waterfront 1 was robbed (period B4.1, B20), all the superstructure except for the severed braces being removed, and the shoreline was extended about 7m to a second structure of different design, B:Waterfront 2 (Figure 36; Figure 37; period B4.2, B21–4, B26–8, B30).[52] A substantial vertical oak post, 0.34m square in section, tapering slightly towards the top and with grooves on all sides but the south, was set in the foreshore. Horizontal planks fitted into the grooves to form the frontage, whilst a smaller grooved post behind would have engaged with planks running north from the large post, with further planks running from it westwards, presumably to form boxes. Later robbing associated with the construction of the subsequent revetment (B:Waterfront 3) had removed most of the planking east of the large post, though there was no groove on the smaller post to suggest that the arrangement of boxes behind the frontage had continued in that direction. The design of B:Waterfront 2 presumably allowed for the creation of a vertical frontage, perhaps with its top at a level of around 1.20m OD, stabilised by infilled compartments behind. Organic material, silt and rubbish filled the area behind the revetment and the intervening space between it and the robbing cut of B:Waterfront 1 behind it and to the north. Various timbers consolidated the dumped material, including a cruciform brace perhaps robbed from the previous revetment. Two further compartments formed of smaller piles and timbers lay to the south of the main timber, with east–west lines of single planks on edge forming a breakwater or groin consolidating the foreshore in front of the revetment wall. Silting to the south of B:Waterfront 2, found beneath the subsequent B:Waterfront 3, was presumably of this period. No directly associated stratigraphy on top of the reclamation could be identified to the north.

Eight timbers were sampled for dendrochronology from B:Waterfront 2, and four ring sequences were dated (Table 104, dating table for period B4).[53] One timber, the large post B[469], had sapwood which indicated a probable felling date range of 1163–92. Little pottery was certainly associated with the construction of B:Waterfront 2, with only 21 sherds (539g) from B30. These are typical of the first half of the 12th century, with nothing that need be later than 1150/70; it is likely that this material is residual. A large amount of pottery was however recovered from the deposits which overlay the previous B:Waterfront 1 and which may be reclamation infill behind B:Waterfront 2 (B20), totalling 823 sherds (596 ENV, 13.163kg; at least three sherds, one imported, appear to be missing). Over half these are from B[483], the uppermost

[50] In section, Figure 282, Building A.

[51] Mackinder 2015, 16–25.

[52] In section, Figure 283, Waterfront II.

[53] Also Hillam 1992, 156, fig 72.

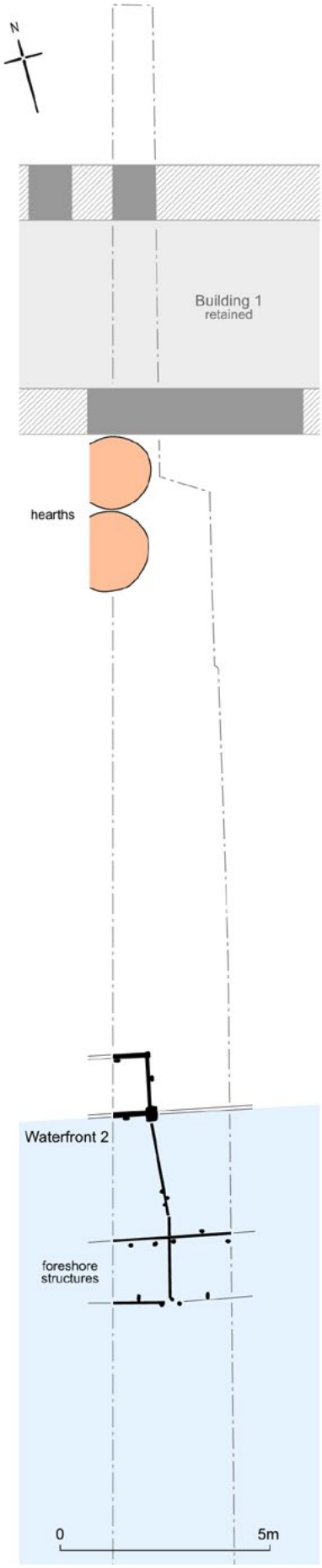


Figure 36 Site B: period 3, B:Waterfront 2 and B:Building 1, c. 1200 (1:150)

dump behind B:Waterfront 2, which contained 437 sherds (306 ENV, 7.207kg) and dates to after 1180. The construction of B:Waterfront 2 is therefore adjusted to 1180–92.

As a whole, the group comprises a mix of local, regional and imported wares, the latter mainly from Germany and the Low Countries (ANDE, BLGR, REDP, RHGR); only six sherds of French pottery are present (NFM, NFRE). Late Saxon/early medieval wares together amount to *c.* 17% by both sherd count and weight and much of the group would appear to comprise mid-12th century material. Of note are a cooking pot, a dish and part of a curfew in EMSH (B<P17>, B<P18>), a LOGR cooking pot with incised wavy line decoration (B<P19>) and a LOGR spouted pitcher with rouletted decoration (B<P20>) (references for the previous publication of many of these sherds are given in Table 65). The contemporary coarsewares comprise SSW (up to 147 ENV; 23.5% by sherd count, 31.5% by weight), and SHER (22 ENV; 3.8% by sherd count, 4.2% by weight). Most are cooking pots and jars (B<P21> to B<P27>), but a few other forms are present. These comprise a bowl, a dish and a frying pan in SSW (B<P28>, B<P29>) and a jug with rouletted decoration in SHER (B<P30>). Also present is part of a crucible. The bulk of the group comprises London-area pottery (51% by sherd count, *c.* 42% by weight), with jugs accounting for 238 of the 289 vessels represented. There are also sherds from three LCOAR spouted pitchers with rouletted decoration (B<P31>) and two possible tripod pitchers (LOND, LCALC). Most jugs are in the early style (163 ENV) and typical of the period 1150–1200; up to four are of large squat form. Forms dating to after 1180 are represented by sherds from up to 23 jugs in the north French style and two in the Rouen style. Most of these, including a large early baluster jug with applied nicked/rouletted ribs (B<P32>), are from B[483], although a few are from B[536]. Other London wares include three possible dripping dishes (LCOAR, LOND), one with pinked rim (B<P33>) and a chafing dish (B<P34>). Non-local wares include Thetford ware, sherds from a Winchester-type jug also found in period B3.4, Gp B19 and developed Stamford ware. Most of the 32 imports are from Germany and the Low Countries (ANDE, BLGR, REDP, RHGR), with only six sherds of French pottery (NFM, NFRE). The dumps behind B:Waterfront 2 also produced securely-stratified pieces of medieval rooftile, in the three known styles of the 12th century: shouldered peg, curved and flanged. This demonstrates that roofs of buildings in the City had tiles in the 1180s and 1190s, before local legislation required their use in 1212.[54]

Presumably B:Building 1 to the north continued to function with B:Waterfront 2; its quayside area had been increased, a generation after the construction of B:Waterfront 1 which delimited the original waterfront area for the building.

Objects from period M1 from site B

Studied objects from the groups in period M1 at site B (Gps B5, B9, B11, B19 and B20) are listed in Artefact Table 6. From the lower post-Roman silting (Gp B9) came two horseshoes[55] and a prick spur; from the upper silting which preceded B:Waterfront 1 (Gp B11) a shoe; from the reclamation dumping behind the waterfront (Gps B5 and B19) a horseshoe, a knife, a

[54] Schofield 2003, 33–4.
[55] One with pronounced wear on the toe: B<328> [620], Clark 1995, 83–4 and fig 60.



Figure 37 Site B: north or landward side of the part of B:Waterfront 2 in the excavation trench, looking south (0.5m scale)

pricket candlestick and five shoes; and from layers disturbed by the robbing of B:Waterfront 1 to erect B:Waterfront 2 (so perhaps the same as the foregoing) (Gp B20) a knife, a buckle, two hinges, a strap mount, a padlock key and another pricket candlestick. The shoes are studied in the *Medieval finds* volume on shoes and pattens.[56] One example illustrated here is from Gp B19, its deposition dated to 1140–60 by the date of B:Waterfront 1: an ankle-shoe with a vamp stripe embroidered with silk in three colours, red, white and green (Figure 38).



Figure 38 Site B: shoe B[451] <207> from Gp B19, reclamation dumping behind B:Waterfront 1; date of deposit 1140–60. Length of vamp stripe 115mm

2.4 New Fresh Wharf (site C) in period M1, 1100–1200

The excavations at New Fresh Wharf (site C) in 1974–8 comprised three Areas, I–III from east to west, in 1974–5; followed by a watching brief on the site under construction, which resulted in the formation of Areas IV to the north and V to the south of the excavated trenches, in 1978. All the excavations and observations were in the north third of the site, against Lower Thames Street; the middle and southern thirds of the New Fresh Wharf site were occupied by the New Fresh Wharf building (of early 20th-century date, perhaps 1937; rebuilt in the early 1950s) which had destroyed all deposits with its several floors of vaults.

For clarity, some information about the recording is repeated here. Because the site was excavated or observed in three phases over the years 1974–8, it has three Museum of London excavation site codes (NFW74,

[56] Grew and de Neergaard 1988, figs 5, 6, 8, 10, 16, 114.

SM75 and FRE78). As all three sequences of context numbers start at 1, there are three similar numbering sets. Rationalisation of these into one sequence would cause unnecessary confusion in consulting the archive of site records and finds. The following arrangment is therefore employed. The letters of the site code, in lower-case, precede the context number where it is mentioned: so nfw[208], sm[101], fre[578]. All these are part of what is called site C in this monograph. The archaeological recording included the drawing of a number of sections of the strata on many sides of the three areas, mostly undertaken by Louise Miller and later prepared for publication by her and others, which are placed at the end of this volume (Figure 285 to Figure 292).

The excavations lay within Tenements 9 to 14 as set out in this study (Figure 15).[57] The strata of period M1 were grouped into three phases in the archive report, within the site-specific period C3 (earlier periods comprised the 3rd-century Roman waterfront and 11th-century Saxon embankments above them). These are period C3 phases 2 to 4 (Table 13). This was an attempt to consider the whole New Fresh Wharf excavation, which comprised five areas now considered as a single site. Thus deposits of each 'group', essentially a phase of activity, were found across the whole site. As the strata are reported here by tenement (ie Tenements 9 to 14), the evidence is presented for the phases C3.2 to C3.4 on each tenement in turn.

Period (archive report)	Main features	Date
C3.2	embankments; possible building [not numbered]	1080–1150
C3.3	river silting	1100–1150
C3.4	revetments, dumping, Thames Street and Rederesgate; C:Waterfront 1, C:Buildings 1 to 5	1050–1200, dendro 1084+, 1130+

Table 13 Site C: periods of the excavated strata corresponding to period M1 (1100–1200)

Tenement 9

The west limit of archaeological excavation, the west end of Area III, was about 10m east of the standing east end of St Magnus church (built 1668–84). This meant that only the east edge of the medieval property Tenement 9, which was next to the church, was investigated.

In period M1 the area which would become Tenement 9 by the middle of the 13th century was an indentation in the log and earth embankment, filling with silt (sm[192]). A large group of pottery from the silt (118 sherds, 78 ENV (Minimum Number of Vessels), 2082g), dated to *c.* 1050–80 (Table 105). This consists mostly of early medieval handmade wares, with early medieval sand- and shell-tempered ware (EMSS) the most common (22.9% of all sherds, 25.6% ENV, 26.7% weight). Early Surrey ware (ESUR) and early medieval sand-tempered ware (EMS) are also well represented, together with sherds from various other wares made in or close to the London region. Jars or cooking pots dominate, with only one sherd from a bowl, in EMSS, identified. Part of one cooking pot in ESUR has regular thumbing around the rim (C<P1>). The absence of London-type wares in a group of this size strongly favours final deposition before *c.* 1080. A reasonable quantity of imported pottery (42 sherds in all) is in keeping with the waterfront location and trends observed at site C throughout the medieval period. These comprise chiefly Continental wares, with sherds from spouted pitchers in Andenne-type ware (ANDE) and red-painted ware (REDP OLV and REDP BUF). These fine table wares were found alongside sherds from glazed pitchers in Stamford-type ware (STAM), made in Lincolnshire, and from large storage jars in Thetford-type ware (THET), from Norfolk. A single sherd of shell-sandy ware (SSW, *c.* 1140–1220) may be intrusive, but equally dates from the later part of the period.

Tenement 10 and the inlet on its west side

At the west end of Area III, silting over the edge of the earlier embankment was overlain by further timbers, planks and cut branches, packed in clay (archive period C3.2). These formed a rough platform as wide as the property, though only fragments of the upper surface survived as scattered groups of horizontal planks (Figure 39) (sm[49], sm[55], sm[95]). There was probably some form of revetment along the east side of the inlet, though this had been later removed. A fragment of plank flooring fre[592] was sampled for dendrochronology and produced a date-range of AD 833–971 with a felling date of AD 993±9, so it was residual, an old plank reused.[58] West of the platform was a timber structure which may have been the base of a riverstair; an east–west horizontal timber at 0.25m OD, 1.84m long and with a crosssection of 180mm by 10mm, had two mortises which fitted onto square tenons on the tops of two driven vertical piles, with crosssections of 155mm by 100mm. Vertical stakes on either side of the beam may also have been parts of the same structure (sm[109]). It probably led down to the waterside from Tenement 10. The inlet gradually filled with river silts over a long period, until the 13th century (sm[146], sm[102]).

The boundary between Tenement 10 and Tenement 11 to its east had been clearly defined since the 11th century. A 3.06m-long edgeset plank was set to the north of seven upright timbers, three of which were surviving posts from a previous and underlying late 10th- or early 11th-century jetty structure, and several more stakes lay south of it, having been driven into the dumps.[59] A portion of a treetrunk with roots lay over

[57] In the publication of the Saxon strata to about 1200 (Steedman *et al.* 1992) the excavated tenements are numbered 1–6 (the supposition being there was one tenement to the west, not excavated). Thus Tenement 9 in the present study was called Tenement 1 in these early reports; Tenement 14 was called Tenement 6. The archive report for New Fresh Wharf for the periods considered here (1100–1666) is Schofield 2017b.

[58] Hillam 1992, 158.

[59] Illustrated in Steedman *et al.* 1992, fig 12.



Figure 39 Site C: plan in the earlier part of period M1 (1100–1200) on Tenements 9 to 14 (Steedman *et al.* 1992, fig 17, amended) (1:200)

the earlier dumps, and this and the other timbers were sealed by a layer of clean grey gravel. Timbers to the south may have marked the low embanking revetment which formed the river's edge. Surfaces of an alley 1.9m wide ran down the west side of the timber fence; they were of mortar, patches of burnt and unburnt clay and chalk or ragstone rubble, reinforced with beech piles. From pottery in the embankment layers, it seems that this alley down the side of the property, south of Thames Street, was in place by the first half of the 12th century. This alley was variously called *Roderesgate*, Rothersgate, Rethersgate or Rothersgate (Rethersgate) Lane, and it formed the boundary between the two parishes of St Magnus (to the west) and St Botolph (to the east).

A total of 572 sherds (296 ENV, 7799g, 4.7 EVE) were recovered from contexts on Tenement 10 in this period, making this by far the largest assemblage of post-Roman pottery from site C. Context sm[101], dumped material behind a medieval revetment presumed to the south, is a large group of 240 sherds, almost half the total recovered from Tenement 10 features in all of period M1. It is dated to c. 1080–1150 by sherds from London-type ware jugs and cooking pots (LCOAR, LCOAR CALC and LOND), but includes a wide range of early medieval handmade wares from various sources in the London region and Home Counties, the most common of which is early medieval sand- and shell-tempered ware (EMSS; 1000–1150). Cooking pots are the main forms in all these wares, with some sherds from spouted pitchers and bowls or dishes. Items of note are part of a spouted pitcher with incised decoration in EMSH (C<P2>) and cooking pot rims in the same fabric (C<P3> C<P4>), as well as cooking pots in late Saxon shelly ware (LSS C<P5>, C<P6>) and part of a cooking pot with rim-stabbing in early medieval chalk-tempered ware (EMCH C<P7>).There are also sherds from non-local wares, imported from the Rhineland (spouted pitchers in REDP and ANDE), France (NORG: C<P8> C<P9>) and from East Anglia (THET: C<P10> C<P11>).

Pottery from the C3.4 embankment on Tenement 10 comes from four contexts, all of which are dated to c. 1050–1150. Two are of medium size (ie with between 30 and 100 sherds in each) and they include a similar range of fabrics and forms to those recorded in phase C3.2, although without any London-type wares. Part of a storage jar in Thetford-type ware (THET) has the broad bands of applied thumbed strips typical of this industry (C<P12>). A similar dating was obtained for the pottery from the stairs, although the infilling of the inlet (phase C3.5) is dated later, with a latest date of c. 1170–1240 for context sm[146]. This is based on the presence of sherds of south Herts-type greyware (SHER), and jugs in London-type ware decorated in the north French (LOND NFR) and Rouen styles (LOND ROU), all of which are first found in London during the last quarter of the 12th century.[60] These are intermixed with sherds from earlier handmade coarsewares, such as part of a bowl in EMSH (C<P13>), but the quantity and range of London-type wares is typical of this period; by this time they had become one of the more common fabrics used across the London area. They include decorated handles from two jugs (C<P14>, C<P15>). Other items of note are part of a bowl in SHER FL (C<P16>) and a cooking pot in shelly-sandy ware (SSW C<P17>).

[60] Blackmore and Pearce 2010, 204–5; Pearce *et al.* 1985, 131–2.

The dating evidence for Tenement 10 and the inlet is summarised in Table 106.

Tenement 11

Tenement 11 lay to the east of Rothersgate. The property, whose width is shown on Ogilby and Morgan's map of 1676 as some 72ft (22.0m), was considerably wider than its neighbours to the east, and comprised certainly one, and quite possibly both, of the two wharves (*hwervos*) with adjacent land at (*apud*) *Rederesgate* which the prior and convent of Holy Trinity Aldgate leased in 1107/8–47 to Brunlocus and his wife Leviarda, Aduinus the son of Brunloc, and to Levieva the daughter of Leviarda and their heirs, to be held under one tenure for as long as the lessees wished at a rent of 25s pa. Between 1147 and 1167 the lease of the two wharves and land was reissued, this time to Brunlocus and his heirs, on the same terms, although the annual rent was reduced to 22s.[61] Both deeds were endorsed '*Magni Martiris*' in a mid- to late 12th-century hand, and, at some date after 1372, 'Frosseswarf'; '*modo abbas de Graciis*' (now the abbot of (St Mary) Graces) being added to the later deed at the same time. The allusions to Fresh Wharf and to St Mary Graces (see below) would certainly indicate that the leases concerned Tenement 11, but (unless the parish boundary had shifted since the later 12th century) the reference to St Magnus Martyr would also imply that they involved property on the west side of Rothersgate as well as the east side. The evidence for Tenements 9 and 10 on the west side of the lane neither confirms nor excludes this possibility, but the unusual width and the later medieval tenurial subdivision of Tenement 11 would suggest that it was itself large enough to have comprised both of the wharves specified in the early 12th-century leases.

C:Waterfront 1

In period C3.2, the upper brushwood of the earlier 11th-century embankment[62] was sealed by organic silt about 0.4m thick. Over this deposit were various stakes and posts, with plank fragments and spreads of clay, presumably acting as consolidation of the area, over which were arrangements of ragstone, tile and chalk fragments at 1.3m OD, with tips of organic silt sloping to the west (sm[37, 51, 85, 103, 108]). One of the timbers sm[130] was felled after AD 910. The area adjacent to the boundary fence between Tenements 10 and 11 was levelled with thin layers of clay and gravel, through which were driven posts between 0.58m and 1.51m in length and with crosssections of up to 230mm by 90mm. East of the boundary fence there were eight planks up to 0.7m long laid into the ground, which could have been part of a path leading to the river, and there were traces of what may have been a cobbled surface nearby. These deposits lay to the north of a vertical cut line, 1.6m high with traces of timber at its base, which must represent the position of a robbed revetment. A piece of waste timber fre[597] used as a chopping block and subsequently incorporated in the boundary fence had a felling date of after 1055.

One metre south of the robbing cut marking the line of the vertical revetment on Tenement 11, a new revetment was

[61] TNA: PRO, E40/7309; E40/7361. The second grant was also recorded by the priory in its 15th-century cartulary: Hodgett 1971, no. 257.
[62] Described in Steedman *et al.* 1992, 104–5.

constructed to run east–west; edgeset horizontal planks, a total of 2.1m long with crosssections of 420mm by 10mm (C:Waterfront 1; Figure 40). They would have originally been retained by uprights, but these were not seen over the short length of revetment recorded. Behind this revetment were dumped organic silts, and the uppermost layer was of oyster shells in fine grey sand. The dumps were consolidated by random timbers, four of which may well have been parts of the previous revetment; two planks up to 3.1m long could have come from the earlier frontage, whilst the remaining two may have been fragments of a backbracing arrangement. One of the possible brace fragments, that with a 150mm-square mortise cut through it, was sampled for dendrochronology, and provided a date of 1084+ (fre[576]).[63]

C:Buildings 1 and 2

Two buildings (or possibly a building and a yard enclosed by a stone wall) were constructed at the north end of the property on the reclaimed land (Figure 40). These are called C:Buildings 1 and 2, though the plan or footprint of C:Building 1 as given by its walls may suggest it was not a roofed building, but an enclosed space or yard.

Only the west wall of C:Building 1 was observed, running down the line of the boundary with Tenement 10 to the west and the rough alley (Rothersgate) which was forming along it. A foundation of chalk rubble with layers of mortar, silt and gravel 0.88m or more wide was recorded at various points for a length of nearly 14m. At the north end it lay over the truncated Roman riverside wall, onto which the foundation had encroached. Here was a small area of mortar floor fre[620]. On its east side, C:Building 1 shared the boundary (west) wall of C:Building 2, giving the former a width of 4.5–5.5m.

C:Building 2 survived to a greater extent, being 17.6m long north–south and between 5m and 5.6m wide, with two rooms. The north wall also lay on the remnants of the Roman riverside wall. The east wall was occasionally based on horizontal timbers. At the southeast corner of the building, the chalk foundations of both the east and the south walls were reinforced by layers of squared timbers within the foundation, with a fragment of ragstone wall above; it had brown rendering on its south face. To the south, the ground sloped down towards the river. North of the building, layers of compacted sand and gravel lay at 3.54m OD and are proposed to be part of medieval Thames Street. This level of about 3.5m OD for the medieval street can be taken as general for the bridgehead area. Thames Street was remarkably flat throughout much of its length; at the extreme west end, outside Baynard's Castle, the street was found to be also at about 3.5m OD.[64] But as will be argued below in section 6.1, it seems to have undulated between the points where major lanes met it from the north. The present road surface near the bridge is at 6.5m OD, 3m higher than in the 12th century.

Silts generally ascribed to period C3.4 were found at the south end of Tenement 11. The top of these silts was measured at Ordnance Datum about 22.6m south of Thames Street, which may roughly indicate the level of the river bed immediately south of the tenement around 1200.

Overall, 102 sherds of medieval pottery were recorded in contexts associated with Tenement 11 (67 ENV, 2354 g, 4.1 EVE). Most of this comes from the phase 3.2 embankment and revetment (all but three sherds), and was found in five contexts, four of them small (ie fewer than 30 sherds) and one of medium size (sm[37]), which is dated to c. 1170–1220. This is the latest context in this phase, with sherds of 12th-century SHER, SSW, LOND and LCOAR CALC mixed in with early medieval handmade coarsewares and imports. The remaining contexts span the period c. 970–1150, but none includes any fabrics introduced later than c. 1050 (ie no London-type wares). Amongst the more notable items is part of a rounded dish in EMS (C<P18>) and several vessels in LSS, including a flared dish (C<P19>) and cooking pots or jars (C<P20>–C<P25>; The rim of a spouted pitcher in Stamford-type ware (STAM) was also found in the same context (sm[103]; C<P26>). A similar range of fabrics was found in context sm[108], including part of a cooking pot in EMSS (C<P27>), and a dish and bowl in LSS (C<P28> C<P29>).

The dating evidence for Tenement 11 in period M1 is summarised in Table 107. The two stone buildings C:Building 1 and 2 were not well dated. One layer associated with C:Building 1, fre[620], is dated to c. 1050–1150 by three sherds. The foundation construction technique of both buildings, of chalk blocks interleaved with gravel (and in this case supported by timbers), is one generally found on stone buildings in London up to about 1200.[65] The pottery suggests that reclamation on this property and its stone buildings date to the middle of the 12th century. The documentary reference to Brunlocus, who was granted two wharves in Roderesgate by Holy Trinity Priory sometime between 1107/8 and 1147, shows that by the beginning of the century, this wide property (which is identified with the two wharves) was a commercial asset. This grant was renewed sometime between 1147 and 1167. Perhaps C:Building 1 and C:Building 2 were constructed by the time of the second grant; or if not, they probably were shortly after.

Tenement 12

Possible timber building and C:Waterfront 2

On Tenement 12, the south face of the 11th-century embankment was consolidated on the west side by substantial planks and other timbers, lying along the boundary with Tenement 11 (period C3.2). Black gravelly silts and a thick layer of clay scaled these layers, incorporating various stakes, larger posts, and random planks. These organic and clay layers continued to the south, further consolidated with numerous horizontal timbers and several long posts, up to 120mm square in section, driven at angles down into the base of the dumping. Near its south limit in the east the clay contained many horizontal timbers lying north–south at about 1.5m OD, the east boundary being marked by a rough fence of planks. Undulating spreads of brown organic material with wood chips and oyster shells lay over the uppermost dumps, and were seen to extend several metres further south. Over these were various structural features which might suggest the truncated remains of a building (Figure 41);[66] an edge-set plank lay perpendicular to an east–west lline of large ragstone blocks and flint rubble with a further north–south line of rubble at right angles to it. Within the area defined by this

[63] Steedman *et al.* 1992, 158 and fig 73.
[64] Hill *et al.* 1980, fig 12.
[65] Schofield *et al.* 1990, 164–5.
[66] Steedman *et al.* 1992, figs 17–18.

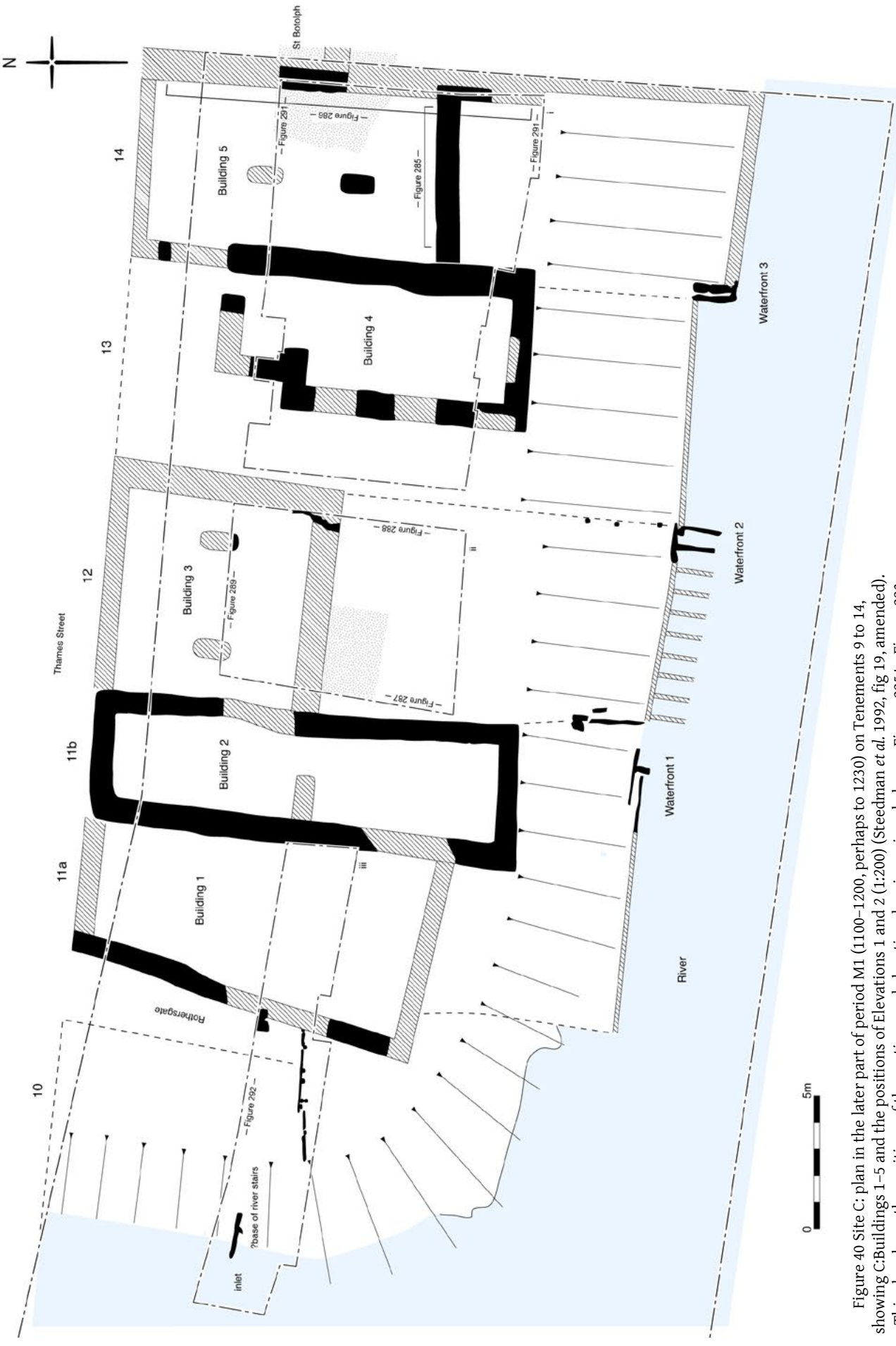


Figure 40 Site C: plan in the later part of period M1 (1100–1200, perhaps to 1230) on Tenements 9 to 14, showing C:Buildings 1–5 and the positions of Elevations 1 and 2 (1:200) (Steedman *et al.* 1992, fig 19, amended). This also shows the positions of the sections and elevation drawings given below as Figure 285 to Figure 289 and Figure 291 to Figure 292



Figure 41 Site C: excavation in progress of the possible timber building above the embankment on Tenement 12, looking south

rubble were two timber plates, one of which (0.6 x 0.4 x 0.1m) rested on small silver birch posts, and two rectangular posts. One post was within the north–south line of rubble, and the other projected above two horizontal plank fragments, 0.68m and 0.74m long, which may have been all that remained of a timber floor; the lines of rubble could have served as the bases for timber walls. South of the structural remains, and over the spreads of organic material, were two layers of flint cobbles and ragstone pebbles in a peaty silt forming a cobbled surface at 1.7m OD. This was traced south for about 3m, by which point it had sloped down to 1.45m OD. The cobbles seemed to have an east limit about half way across the property, and the underlying clay layer had its east edge marked by horizontal timbers and posts 150mm in diameter, while a line of posts, at 1.5m intervals, ran from there to the east boundary. Traces of cobbled surfaces were also found further south on the east side (nfw [45, 48, 59, 89, 106, 108, 124, 128, 129, 199]).

About 2m south of the presumed line of the period C3.2 revetment on this tenement, a new revetment (C:Waterfront 2; Figure 40) was constructed in period C3.4. A 3.66m–long oak timber, 350mm square, was set upright in the foreshore on the boundary between this property and Tenement 13 (fre [8004]). It presumably engaged with edgeset planks to the west. The east face of the upright contained a vertical groove 2.94m long, beginning 0.66m up from the foot. This must have contained the plank facing of the Tenement 13 revetment, for which there was no other evidence. This post is remarkable for its length, showing that the top of the revetment was at least 3m high above the contemporary foreshore, at 1.43m OD (and may have been higher, the top of the post was damaged or decayed). The post was sampled for dendrochronology and produced a date for its felling of between 1166 and 1211.[67]

C:Building 3

At the north end of the tenement were the remains of C:Building 3 (period C3.4). A single course of chalk blocks set in mortar, 2m north–south, which represented the southeast corner of the building. North of this, and about 1.2m west of the projected line of the east wall, a 0.67mwide foundation of chalk, one course high (nfw[160]), seen in section on the north side of Area II (Figure 289), is presumed to have been a column base or post pad. A possible counterpart to this lay a few metres to the west, though all that remained was a charred plank about 0.70m long which may have been the base for another postpad or column; it lay a similar distance away from the east wall of C:Building 2 on the adjacent property. Nothing survived of internal surfaces. The north wall is presumed to have been on the same line as the north wall of C:Building 2 on Tenement 10 to the west, fronting onto Thames Street, giving an external length north–south of 9m, with the building occupying the full width of the tenement. To the south of the building, the ground was covered with layers of oyster shells, extending part of the way down the slope towards the revetment.

A total of 325 sherds (182 ENV, 5417 g, 3.8 EVE) were recovered from 10 contexts (Table 108). Two contexts are of medium size (nfw[124] and nfw[48]), and one (nfw[129]) is large (over 100 sherds). The pottery spans the 10th to late 12th centuries, with most fabrics identified in production and use *c.* 1050–1150. There are sherd-links between contexts nfw[124] and nfw[129], both of which include a small number of sherds that are later than the bulk of the fabrics present. The medium-sized context nfw[124] has one sherd from a LOND PELL jug, which is usually dated *c.* 1140–1220, and the large context nfw[129] has single small sherds from a plain LOND jug, as well as part of a jug in LOND ROU, which is dated to *c.* 1170–1280, and a sherd from a cooking pot in SHER, dated to *c.* 1170–1350. Without these few 12th-century or later sherds, each context would be dated to *c.* 1050–80. It is possible that the later sherds are intrusive in each case.

There are sherds from wares imported from the Continent and East Anglia, with a relatively large number of spouted pitchers; in ANDE from nfw[45] and nfw[129] (C<P30–1>), and there are also sherds from spouted pitchers in NORG from north France, one of them with diamond rouletting (C<P32–3>). Connected in function (serving wine) is part of a beaker in REDP from nfw[124] (C<P34>). Part of a spouted pitcher in REDP from the same context has painted decoration (C<P35>) and a pitcher in THET from Norfolk has applied thumbed strips around the body (C<P36>). There are also sherds from pitchers in NFRE, which is less frequently found in London (C<P37–8>).

A wide range of handmade coarsewares is represented, used chiefly for the production of the jars or cooking pots that provided the everyday ceramic staple. The earliest is LSS (c 900–1050), with EMS introduced c. 970 and continuing throughout the 11th century, mainly in the form of cooking pots: C<P39–41>. There are also sherds from a jar with thumbed applied strips in EMS (C<P21>) and spouted pitchers (C<P43>). The flinty fabric EMFL was introduced at the same date and finds from Tenement 12 include mainly cooking pots: C<P44>. EMSS, a shell-tempered variant of EMS, was first used in London c. 1000 and remained one of the more common everyday fabrics until the mid 12th century, especially for cooking pots (C<P45>). The shell-tempered EMSH is also well represented on Tenement 12 at this date, in a range of forms including bowls (C<P46–7>) and cooking pots (C<P48–50>). There are also sherds from spouted pitchers C<P51–3>, with incised decoration. Other common fabrics are ESUR (C<P54–5>) and LOGR (C<P56–7>, part of a spouted pitcher with

[67] Hillam 1992, 160.

rouletted decoration). EMCH is also relatively common in this group, mostly as cooking pots, some of them with thumbed rims (C<P58–62>).

The dating evidence for Tenement 12 is summarised in Table 108. The date of construction of the stone C:Building 3 is placed in the 12th century, though there is very little specific evidence; presumably, though not certainly, in the second half of the century to match its neighbours along Thames Street. The only dating evidence comes from the possible timber building and embankment beneath it, not from the fragmentary remains of the stone building itself.

Tenement 13

C:Building 4

Cutting into new dumping of silt and clay reinforced with stakes (fre[186]; nfw[71]; fre[328]) were the foundations of C:Building 4, which measured 6.1m east–west by 12.8m north–south, with two rooms, the smaller north one measuring 2m by 3m internally, and the south 4.2m by 8.18m internally (Figure 40). It did not extend over the full width of the tenement, being built against the east boundary, leaving a cobbled gap of 2.5m between it and the west boundary. The building did not extend to the Thames Street frontage, there being an intervening area of dumped clay and pebbles. The foundations were, for the most part, 1m (roughly 3ft) wide, with layers of chalk blocks alternating with layers of gravel, incorporating occasional horizontal timbers and at one point based on timbers of the Roman quay beneath. These would have appeared in the bottom of the foundation trench and would have been impossible to remove. Above the foundations the walls were of ragstone and some Roman tile, with 0.25mwide offsets on the west sides of both east and west walls, i.e. internal to the east wall and external to the west wall (Figure 42). The east wall was rendered internally. The main or south room had fragments of flooring including a compact layer of cobbles and pebbles at 1.77m OD; but no dating material was recovered from inside the building. External surfaces (nfw[104], [132]) produced pottery.

A total of 167 sherds were recorded from Tenement 13 in M1 (57 ENV, 3434g, 0.53 EVE). One context only was recorded in phase 3.2: fre[186], which is dated to *c.* 1000–1150 and includes 67 sherds from a large spouted pitcher in SATH from East Anglia, never a very common fabric in London (C<P63>). The latest date for Tenement 13 in period M1 comes from nfw[60], deposited *c.* 1240–1350, on the basis of sherds from a jug in LOND with white slip decoration. These 13th-century introductions were found here alongside early medieval handmade coarsewares typical of London use in the 11th and early 12th centuries, including part of a cooking pot in ESUR (C<P64>).

The dating evidence for Tenement 13 in period M1 is given in Table 109. To summarise, a stone building C:Building 4 was erected on Tenement 13 probably in the second half of the 12th century. It had a narrow cobbled yard to the west, but the line of the 12th-century riverfront on this property is not known and is conjectured by comparison with the neighbouring properties. The building is unusual in being set back slightly from Thames Street, with a small block or room at the street end, the larger room behind.



Figure 42 Site C: west wall of C:Building 4, looking north (scale in centimetres). This shows a detail of 12th-century construction: the foundation of chalk was wider, with an offset on the inner side (right). The wall above included other types of stone

Tenement 14

C:Building 5 and C:Waterfront 2; use of a foundation thought to be the west end of St Botolph's church

In period C3.4 a stone building, C:Building 5, was constructed on Tenement 14 (Figure 40). C:Building 5 shared the east wall of C:Building 4 on the adjacent Tenement 13, which preceded it in construction. A new ragstone wall built on chalk footings at 2.35m OD was recorded in section cutting into the Roman riverside wall, and this extended C:Building 5 beyond the north end of C:Building 4 up to the Thames Street frontage. The east wall of C:Building 5 also made use of a preexisting wall, a length of north–south walling comprising the southwest corner of a building which lay to the east; this building is interpreted as the church of St Botolph (more of this building and wall was found in 1982 on the Billingsgate site immediately adjacent to the east). This wall was of hammerdressed ragstone over a foundation of coursed ragstone and gravel incorporating horizontal timbers (drawn in the elevation of the walls comprising the east side of Area I, Figure 286; context nfw[202]). It had an offset (external ledge) to the west at 2.31m OD, and quoin stones formed the southwest corner of the earlier building (Figure 43, an extract from Figure 286). The west end of St Botolph, as defined by the recorded stone foundation on site C and the suggested medieval street line, would be about 7.2m (22ft) long north to south.

Within the two parallel walls which comprised the west and east boundaries of C:Building 5 a crosswall, and foundations interpreted as the bases for vaulting, were recorded (view from the south during excavation, Figure 44). The crosswall comprised an east–west foundation of chalk blocks alternating with layers of gravel (nfw[262]), with at its east end the remains of a stone threshold (a flat surface of stones) across it, with one remaining stone of the door jamb (Figure 44). The width of the doorway is unknown because of later building

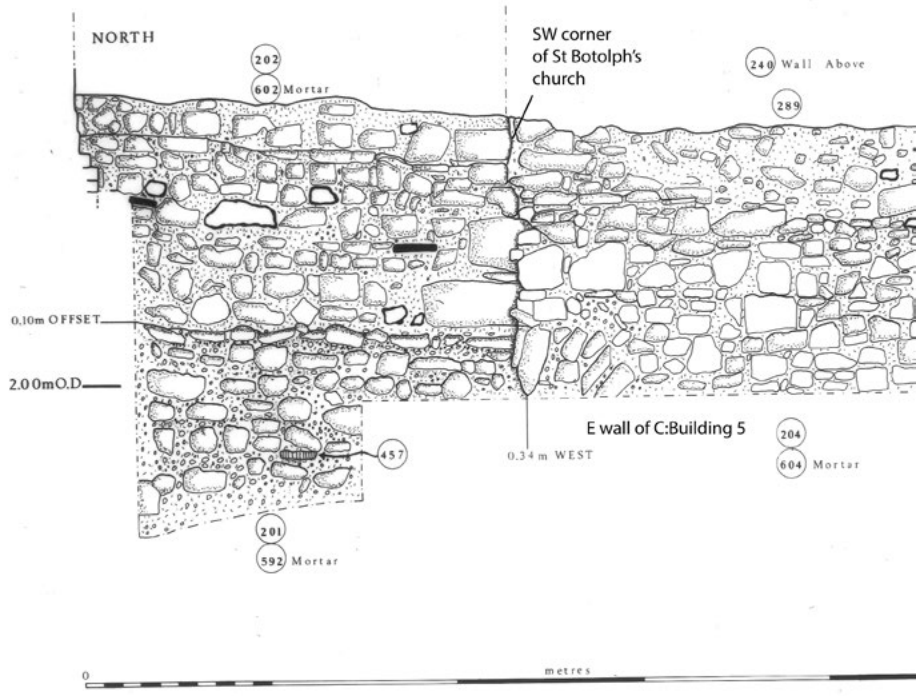


Figure 43 Site C: extract from drawing of walls on the east side of the site (the complete drawing is Figure 286), showing the southwest corner of St Botolph's church forming part of the property boundary, with its quoins, and the later east wall of C:Building 5 abutting it, incorporating part of an arch in the foundation. Contrary to what the style of the drawing implies, the wall on the left projected out towards the viewer. The line of this elevation is shown on Figure 40

(the replacement C:Building 11 of the 16th century removed any wall on its west side). The north side of this foundation and the doorway are shown in elevation in Figure 285.

A foundation of ragstone and mortar which probably formed a pier base was recorded roughly in the centre of the area enclosed by these walls, and another may have lain further north, its south edge partially visible in the north baulk (Figure 289); these bases may have supported piers for a vault of three by two bays. The construction of later buildings truncated much of the internal surfacing associated with this building, though several predominantly clay dumps, with scant remains of a burnt clay floor overlying them at 2.37m OD, may have been primary. South of the cross wall it was not clear if the area was internal or external; several driven posts there, perhaps connected with a structure providing access to the waterfront, could equally well have been piling for a later building.

An observation of the contemporary stone river wall south of C:Building 5 (C:Waterfront 3) is noted here, though the activity of reclamation would have preceded the construction of C:Building 5 on top of it. Projecting over a metre south of the presumed line of the Tenement 13 river frontage was a north–south length of ashlar walling surviving to 0.8m OD, observed in the watching brief (Figure 45). Two courses were recorded, based on an oak plate 230mm thick and 820mm wide, and resting directly on earlier riverlaid deposits. The oak plate (fre[10001]) was sampled and dated by dendrochronology to 1130+, at least 20–30 outer rings of the sample being unmeasurable. Three of the blocks were chamfered along the south edge, which is assumed to have turned to the east from here; a short pile stood at its furthest recorded point in that direction. This formed a river wall across Tenement 14, and dumped deposits of silt were recorded to north and east of it.

The earliest pottery present is LSS (including cooking pot C<P65>), occurring alongside early medieval handmade wares of 11th- to early 12th-century date. Amongst these are EMSS cooking pot C<P66> from nfw[77], and a bowl in the same fabric from nfw[123] (C<P67>). Context nfw[62] is later, dating to c. 1250–1300, although one sherd out of the three present is earlier (STAM, c. 1050–1150), so possibly residual. All are imported wares, two from France (SAIU and ROUE) and the earlier STAM vessel from Lincolnshire.

The dating evidence for Tenement 14 is summarised in Table 110. Though two layers (nfw [18] and nfw[62]) produced pottery later than 1200, all other layers produced pottery of before 1200, the construction of C:Building 5 is assigned to the project period M1, of the 12th century. The first of these layers nfw[18] was silting which could have been churned about. One important relationship between the excavated buildings is that C:Building 5 used as part of its east boundary the pre-existing foundation of what must be the west end of the church of St Botolph Billingsgate, further excavated eight years later on site D immediately to the east. The elevation (Figure 43) of masonry with quoins, it is suggested, formed the southwest corner of the church. The church is first mentioned in the 1140s (see next section); so C:Building 5 is dated to the same period, within the 12th century.

The doorway at its southeast corner led to the wharf, a few yards away. The basement storey of the building may have been vaulted. This arrangement of a stone building laid out so that its narrow end communicated directly with the adjacent wharf is so far unique in a London context, but the arrangement was probably common. There is a parallel with a 13th-century building with a vaulted undercroft at Sandwich, for which a similar position in relation to the wharf in that town is proposed.[68]

[68] Clarke *et al.* 2010, 96–7.

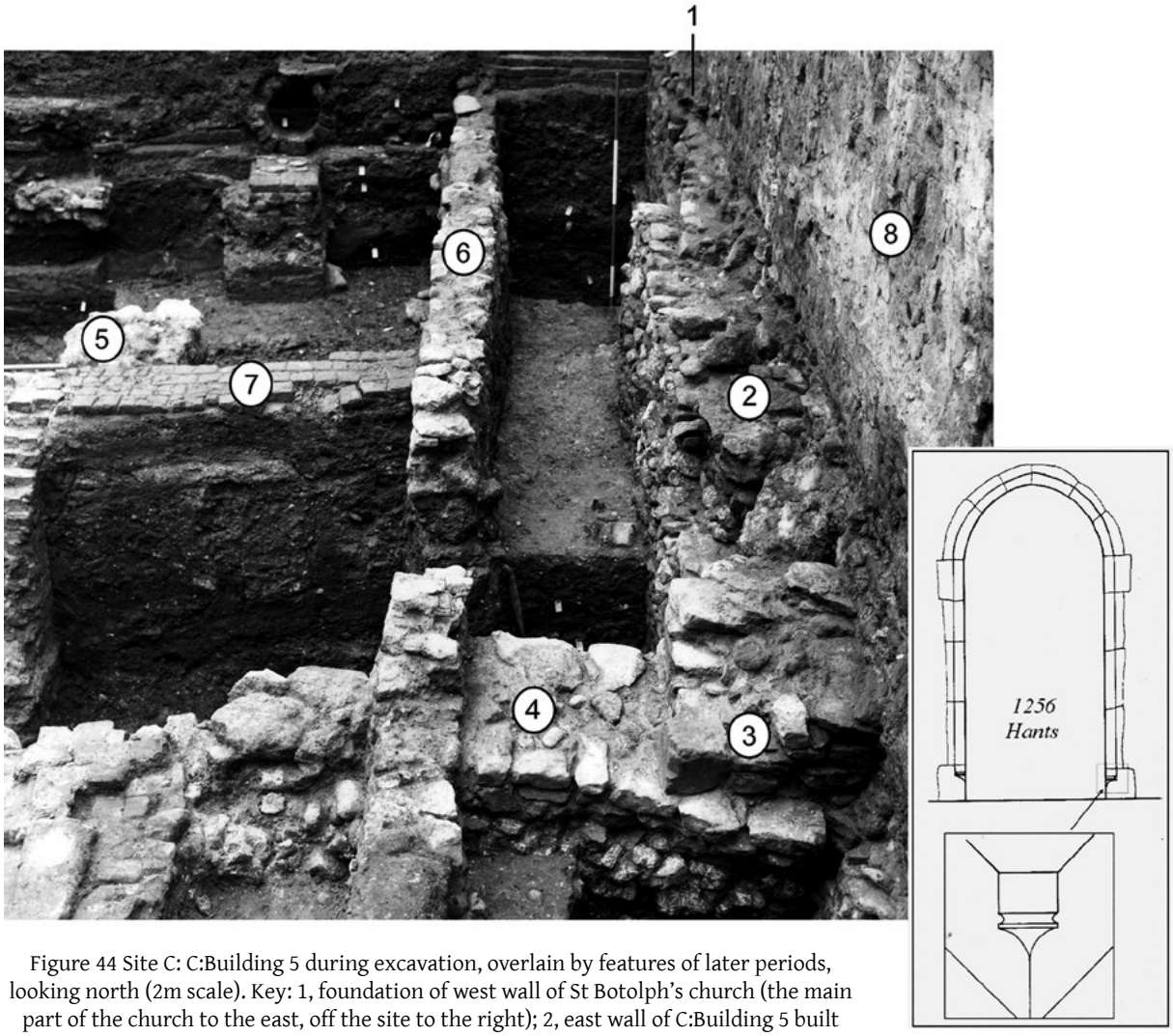


Figure 44 Site C: C:Building 5 during excavation, overlain by features of later periods, looking north (2m scale). Key: 1, foundation of west wall of St Botolph's church (the main part of the church to the east, off the site to the right); 2, east wall of C:Building 5 built out south from the southwest corner of the church; 3, east jamb of doorway of C:Building 5; 4, south wall of C:Building 5; 5, foundation for southern of two vaulting piers within C:Building 5; 6, internal wall of later C:Building 11; 7, brick floor within C:Building 11; 8, post-Fire and 19th-century east wall of former basement on Fresh Wharf, forming the east side of Area I of the excavation in 1974. Right, a parallel for the doorway from Hall 2005 (King John's House, Ramsey, c. 1256)



Figure 45 Site C: ashlar walling from the river frontage of Tenement 14 (C:Waterfront 3), of the 12th century, recorded when disturbed during machine excavation for the future building; probably looking south (0.5m scale)

2.5 Billingsgate Lorry Park (site D) in period M1 (1100–1200)

Tenement 15

Tenement 15 differed fundamentally from the others in the sequence in that it was in no sense a 'private' tenure but the site of two public or communal amenities: the church of St Botolph Billingsgate and the common quay of Botolph's Wharf. The use of the term 'tenement' is therefore retained only for convenience of reference and also to denote the entire plot as shared by church and Wharf. Both are first recorded in a document which purports to be a charter of William I confirming the London possessions of Westminster Abbey but which

is a forgery, probably dating from the 1140s when such activity flourished at the Abbey.[69] One of the properties mentioned by the charter, near the head of London Bridge, had allegedly been granted to the Abbey before the Conquest by one Alfwold *de porta Sancti Botulphi*; whatever the validity of this claim, which may be real, it at least suffices to establish the existence of both Wharf and church by the mid 12th century at the latest. *Porta Sancti Botulphi* is in fact a literal translation of the vernacular form *Botuluesgat*', or 'Botolph's Gate', which occurs in *c.* 1201 in connection with royal customs accounted for at the Exchequer. The Wharf is next referred to in 1270 as the west neighbour of Tenement 16 and was described as a 'common quay of the City of London' (*kayum commune civitatis London*).[70] Only the major and earliest established harbours of Queenhithe and Billingsgate ranked as common quays along with Botolph Wharf throughout the medieval period, and the evidence of the receipt of royal customs in 1201 confirms Botolph Wharf's similar status at an earlier date.

The archaeological remains of this period are described for clarity as on two sides of a central inlet, that is on Tenements 15a (to the west) and 15b (to the east). Such an internal division is not evident in the earliest documentary records, but the inlet is the basis of the medieval and post-medieval Botolph Wharf lane which divided the broad tenement into two facing north–south strips of buildings. The periods up to and including period D7 on the site have been previously published in greater detail,[71] and only a summary will be given here.

The first post-Roman embankments had been constructed *c.* 1040 over the later silts which sealed the 3rd-century Roman quay. The embankments were divided by a revetted inlet or hard, which exploited a mid 3rd-century gap in the Roman quay, and led to the creation of Tenements 15a and 15b to the west and east respectively. These waterfronts were replaced in the second half of the 11th century by extended and raised embankments of clay and timber which create an informal frontage, hardly doing anything more than delimiting the deposits laid against the decayed foundations of the Roman riverside wall (D:Waterfronts 6 and 7).[72] It seems likely that the embankments were at least partly submerged at high tide, so they were not prominent. Dendrochronology dated many timbers from these revetments; one timber from D:Waterfront 6 (D[5625]) had sapwood and its felling could be dated to '*c.* 1059–64'. The excavation report published in

Phase	Construction	Dating evidence	Date
D6.1	stave revetment, D:Waterfront 8	DEND	timbers felled around 1108
D6.2	new W lining for inlet, part of D:Waterfront 8		
D6.3	surfacing of inlet		
D6.4	rebuilding of E bank, D:Waterfront 9	DEND	timber felled around 1071
D6.5	tieback brace		
D6.6	dumps behind revetment		
D6.7	modification of E side of inlet		
D7.1	revetment across the inlet, D:Waterfront 10	DEND	*c* 1143–83
D7.2	dumping behind revetment	SHER: 6747; SSW: 4221, 4285, 6747	1140–1220
D7.3	foreshore deposition		
D7.4	new drain in the inlet	SSW: 6637	1140–1220
D7.5	extension of the E bank to S, D:Waterfront 11	DEND	1139+
D7.6	tieback braces for the D7.1 revetment	SSW: 6548, 6559, 6566	1140–1220
D7.7	foreshores to the W and S	LOND: 4128; SHER: 6507; SSW: 4128, 4437, 5072, 6507	1140–1220
D7.8	new tieback braces for the D6.1 and D7.1 revetments	SSW: 4747, 6372, 6524	1140–1220
D7.9	N–S revetment replacing that in D7.5		
D7.10	mortar surface in the N	LOND: 4714; SSW: 4714, 4763	1140–1220
D7.11	gravel surface	SSW: 4330	1140–1220
D7.12	gravel surface and dumping	LOND: 4014; SSW: 4032	1140–1220
D7.13	new tieback braces replacing those in D7.8	SSW: 6460	1140–1220
D7.14	possible building in NE, D:Structure 1		
D7.15	surfaces in NE	SSW: 6134	1140–1220
D7.16	robber trench removing staves of D6.1	SHER: 4727; SSW: 4748	1140–1220

Table 14. Site D: periods D6 and D7 (12th century), stratigraphic phases and dating evidence

[69] *Cal Chart Rolls*, iv, 330–6; Chaplais 1961.
[70] HR 4/57.
[71] Steedman *et al.* 1992, 48–71.
[72] Steedman *et al.* 1992, 56–7.

1992 dated D:Waterfronts 6 and 7 to after *c.* 1080–90; though this date appears to be too early for some of the associated pottery forms as presently understood.[73]

For the present project, period M1 (1100–1200) at Billingsgate comprises periods D6 (early to mid 12th century) and D7 (mid to late 12th century). As structured here following the archive report, each period comprises several 'phases', which are not site-wide but are discrete groups of strata (often quite large) similar to the groups established in analysis on the Swan Lane site. Thus period D6 comprises phases D6.1 to D6.7, and D7 comprises D7.1 to D7.16. The phases and their dating evidence are given in Table 14.

D:Waterfronts 8 and 9 (period D6: early to mid 12th century, possibly after 1120s)

In the west of the site, a set of three base plates was inserted in an east–west cut (D6.1), directly above the line of the earlier D:Waterfront 6.[74] The longest was 5.2m, though the eastmost had been truncated near the inlet. Each had a groove in its upper surface to accommodate vertical staves. Piles set on the south side of the plates prevented slippage in that direction and the cut was then packed with pebbly silt and clay. This is designated D:Waterfront 8 (Figure 46). Timbers packed in grey clay were placed behind it, comprising branches and some worked fragments including planks and domestic base plates. Shell-flecked peat overlay the dump, possibly a build-up in a tidal zone, sloping from a level of 0.9m OD down to -0.3m OD beside the river. Further clayey organic dumps brought the upper level to 1.1m OD in the north. These dumps were capped with a gravel foreshore beside the revetment in the south. Extensive, though shallow, cuts were inserted into the foreshore in front of D:Waterfront 8. Some were direct replacements of others but all would originally have contained substantial timbers, although only the stakes and wedges associated with them survived later robbing. They suggest the position of open-work platforms, landing stages or mooring posts, and a possible frontbracing timber opposite the junction of two of the baseplates. Sand and gravel foreshores accumulated around these successively replaced features throughout the rest of the period. At the same time, the west side of the inlet was reconstructed, 1.2m east of its predecessor (D6.2). Eleven piles up to 2.6m in length were then placed in the cut, forming a lining 7.4m long. Cuts for timber cladding survived west of the pile line, though little survived. Piles and cladding together made up the west side of the inlet, and these are also part of D:Waterfront 8 (Figure 46). Twenty-four timbers from D:Waterfront 8 were sampled for dendrochronology, and one had bark on it, enabling an accurate date of felling of within a few years of 1108 to be obtained.[75]

On the east side of the inlet were four upright timbers, three thin boards and one larger squared pile, packed with clayey silt and further dumps, into which a further 26 piles were then inserted (D:Waterfront 9, D6.4, Figure 46). Light grey sticky clay was packed between these members in the south to hold in place wattles woven around the uprights, creating a continuous panel 2.5m long. Planks, including a high proportion of reused house and boat timbers, were set to the north and south of this panel to complete the cladding. The reused house timbers included baseplates, studs and posts.[76] Ten timbers were sampled for dendrochronology, but all except one lacked sapwood. They could only suggest that D:Waterfront 9 was broadly contemporary with D:Waterfront 8, i.e. of about 1108, though some silting in the inlet intervened between the construction of the two waterfront sections.[77]

While D:Waterfront 9 could be slightly later than D:Waterfront 8, it is best to consider them both to be after about 1108 and possibly of the 1120s or later. The small amount of pottery may be from use of the structures. The study of Shelly-sandy ware and South Herts greywares published in 2010 suggested that the pottery in layers associated with both waterfronts 'would now be considered typical of the period 1100–50 (and possibly closer to 1150)'.[78] These two stages of amendment to the waterfront (D:Waterfronts 8 and 9) were accompanied by phases of repair, dumping behind the structures and foreshores (D6.3, D6.5–7).

D:Waterfronts 10 and 11, and D:Structure 1 (period D7: mid to late 12th century)

The inlet was blocked by a substantial back-braced stave revetment (D:Waterfront 10, D7.1), with a similar north–south structure (D:Waterfront 11, D7.5) constructed at its east limit to extend Tenement 15b (Figure 47). The two grooved base plates of these revetments were reused, and their resemblance to those of D:Waterfront 8 suggests that they may have been of similar origin. Fourteen timbers from D:Waterfront 10 included three with the transition to softwood, and a date of *c.* 1143–83 is proposed. Two timbers from D:Waterfront 11 were sampled, but only a date of felling after 1139 for one of them could be obtained.[79] Periods of repair, foreshores and dumping behind these revetments followed (D7.2–3, D7.6–8).

The staves of D:Waterfront 11 were removed and replaced by a crude earthfast post-and-plank revetment of reused house and boat timbers (D7.9). A timber-lined drain was also constructed in the blocked inlet (D7.4), overlooked by a small building or structure (D:Structure 1, D7.14) erected on Tenement 15b and gravel surfaces (D7.10–12, D7.15). The remains of D:Structure 1 were limited in extent. An area of brickearth was laid at a level of around 2m OD (D7.14). It was exposed to heat in one area and the trodden occupation layer on top incorporated flecking, suggesting associated burning, perhaps the result of industrial activity. A shallow post-hole was inserted at the edge of the surface in the north, and to its south was an east–west line of three shallow cuts which appeared to bound the brickearth. These features and the character of the layer suggest an internal clay floor.[80] Driven stakes inserted into the floor suggest internal divisions. The shallowness of the cuts implies a framed superstructure

[73] Hillam 1992, 146–50; Steedman *et al.* 1992, 56, 59; Blackmore and Pearce 2010, 69.
[74] Steedman *et al.* 1992, 59.
[75] Hillam 1992, 150–1, 168–9.
[76] Studied by Brigham 1992.
[77] Hillam 1992, 151–2.
[78] Blackmore and Pearce 2010, 299.
[79] Hillam 1992, 152–3; Milne 1992, 28–9.
[80] The floor is shown in Steedman *et al.* 1992, fig 42 (where the structure is called Building 1).

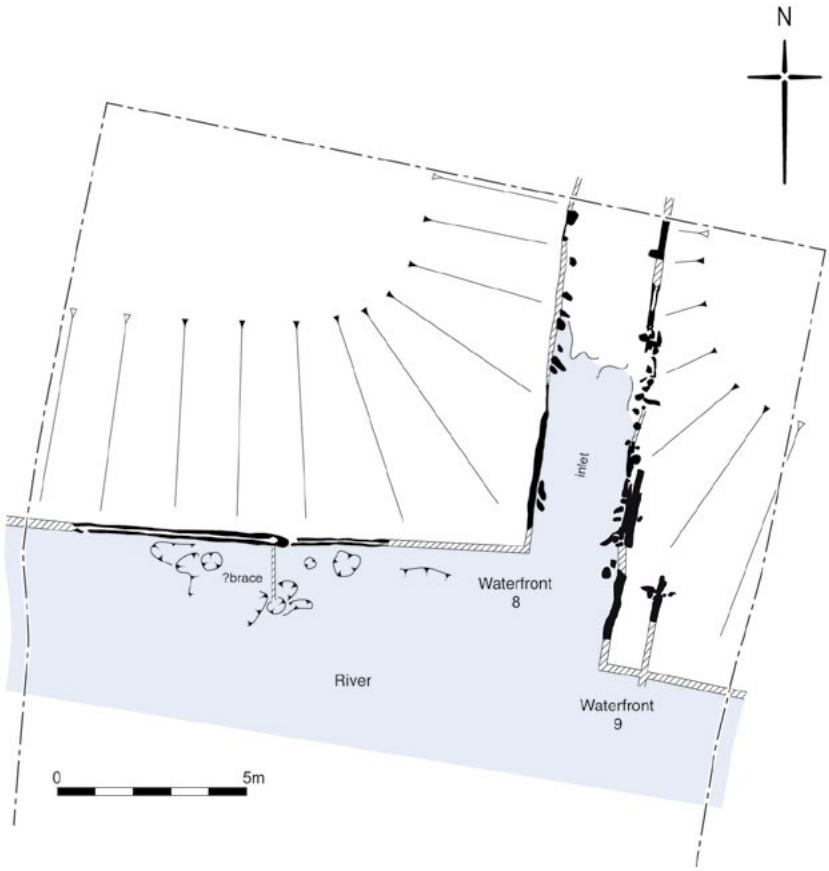


Figure 46 Site D: D:Waterfronts 8 and 9 (Steedman *et al.* 1992, fig 31) (1:200)

rather than freestanding earth-fast posts, the remainder of the building presumably lying off the site to the north and east. It may have had an entrance at its southwest corner into an alleyway along its west side.

The fence line to its west was then modified, organic material being dumped on its site (period D7.15; not illustrated). However, further yellow brickearth above suggests the insertion of another floor, petering out to the south, where it appeared to be bounded by a large post-hole. The replacement structure followed the lines of D:Structure 1 closely and was probably a second phase of the same structure. The more substantial element to the north with which both are assumed to have been associated may have remained unaltered. It has not, therefore, been allocated a separate building number. Like its predecessor, the floor was exposed to heat at one point on its surface, the trample above corresponding with a mixed deposit of silt and brickearth spreading to the south, which probably derived from the floor's disturbance. It may be that the replacement building was open to the river on this side. Above this tread was pebbly silt, the pebbles especially concentrated in the east, which may have formed a rough external metalling, flanking the building. To the west organic dumps followed by charcoal and sand spreads accumulated in the inlet and against the east property boundary, presumably the result of activities off site to the north.

Dendrochronology dates the timbers incorporated into D:Waterfront 10 to between 1144 and 1183. Its base plate appears to have been reused, a conclusion already implied by the structural evidence and supporting further the suggestion that it was removed from D:Waterfront 8 to the west. It would therefore seem that period D7 started some time early in the second half of the 12th century. No diagnostic material was included among the initial timbers of D:Waterfront 11, of which several were reused, one possibly a two-hundred-year-old relic. However, a fragmentary plank from a tieback later added behind D:Waterfront 11 was dated to 1172–1216. Since further modifications followed this, and since D:Structure 1 was constructed in the northeast corner of the site at a similarly late stage and was then rebuilt in a second phase, period D7 stretched to the end of the 12th century and quite probably into the early 13th.

The general height of the wharves, in terms of modern Ordnance Datum, can be suggested by the survival of floor levels in the small D:Structure 1, at about 1.7m OD. This is remarkably similar to the suggested initial floor levels in and around the first Westminster Hall of the 1080s, which were at about 2.1m OD, probably just above the usual level of the adjacent river.[81]

The history of St Botolph's church is summarised in section 4.5 below. The church is first mentioned by or around 1140, and it would have stood at the north edge of the site, largely under the present pavement of Lower Thames Street. What is probably the west end of the church, a deep stone foundation, was found on the adjacent site C (New Fresh Wharf) in 1974, on its east boundary (the elevation shown in Figure 43 and the larger drawing in Figure 286). The excavators recorded the

[81] Thomas *et al.* 2006, 49.

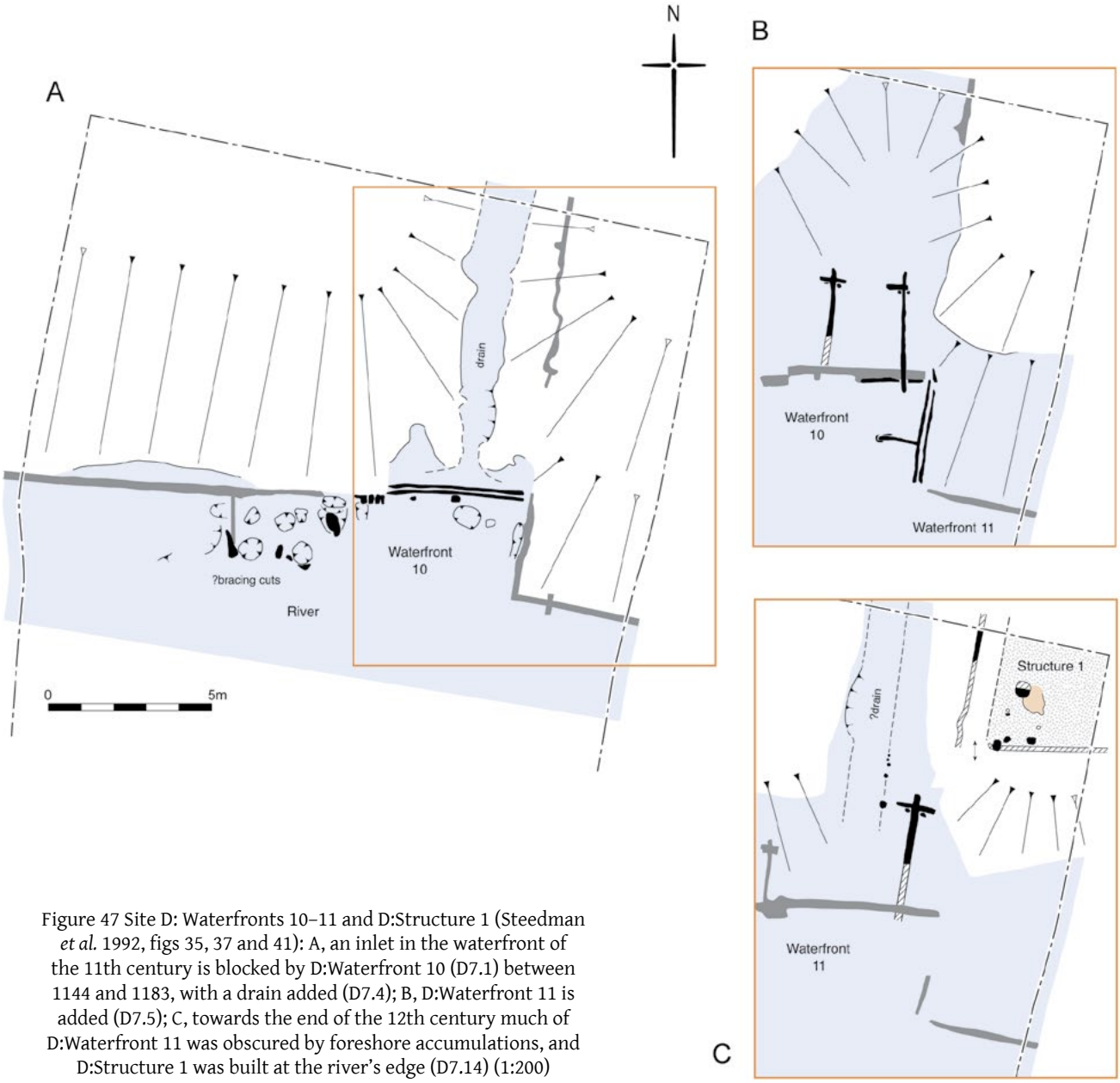


Figure 47 Site D: Waterfronts 10–11 and D:Structure 1 (Steedman *et al.* 1992, figs 35, 37 and 41): A, an inlet in the waterfront of the 11th century is blocked by D:Waterfront 10 (D7.1) between 1144 and 1183, with a drain added (D7.4); B, D:Waterfront 11 is added (D7.5); C, towards the end of the 12th century much of D:Waterfront 11 was obscured by foreshore accumulations, and D:Structure 1 was built at the river's edge (D7.14) (1:200)

first south wall of St Botolph's in period D13.1 of the second half of the 14th century, but it is based on a foundation of earlier character. It is proposed that the church had a stone south wall on the same alignment in the 12th century as in the 14th century, when it was rebuilt. From the elevation drawn on the adjacent site C (Figure 286), an internal floor level of about 2.3m OD for the 12th-century church may be suggested, but not strongly. The recording of what is proposed to be the foundation of the west end of the church on site C in 1974 and the position of the proposed medieval street frontage, as shown in Figure 40 and Figure 83, argues that the west end of the church was about 7.2m (22ft) north–south, quite possibly from its first building in stone by 1140. The early documentary history of the church is given below with its history to the end of the medieval period, in section 4.5; very little is known of it in the 12th century.

Recorded artefacts from periods D6.1, D7.3, D7.7, D7.10 and D7.13 are listed in Artefact Table 7. Four objects came from layers of the earlier part of the century, period D6: a loop hasp probably used in connection with a padlock or a simple bolt for a door; two knives and a new form, for the time, of decorated brass pin for women's dress or hair D<3405>. The head is made of a blob of glass, intentionally coloured green by adding copper to the lead oxide and silica.[82] From the later part of the century, period D7, came two iron keys, four needles, a second bronze pin D<2867> with a head of black glass, apparently the first of its type to be excavated from London; a finger ring of copper alloy with a bezel holding a tiny oval of glass; a complete iron horseshoe; and a fragment of copper-alloy mount probably from a box or cupboard.

[82] Egan and Pritchard 1991, 297–9 for both pins.

2.6 Discussion: the waterfront of London in the 12th century

A summary of developments on all four sites during period M1 (1100–1200, perhaps to 1220 on site A) is given in Table 15.

Reclamation, waterfront structures and Thames Street

It is clear now, after more than 40 years of archaeological investigation of the strip of land south of Upper and Lower Thames Street, that land reclamation took place in the 12th century all along the street, on its south side, between the hithes of Queenhithe to the west and Billingsgate to the east. This reclamation zone or strip was based on the 10th-century centres for shipping and landing goods and people at Queenhithe, Dowgate, and Billingsgate which formed centres of activity within it.[83] Perhaps the reclamation spread out from these original stimuli so that by the 12th century the entire bank from Queenhithe to Billingsgate was being reclaimed; but equally, there are hints that long stretches of the waterfront outside the commercial epicentres were being embanked, and had slight timber buildings on them, from the 10th century. By the middle of the 12th century, two other landing-places were developing inside this network: Ebbgate, just upstream of London Bridge, and Botolph Wharf, just below it.

The embankments of the 10th to 12th centuries were not continuous, but localised features, their location bearing a definite relationship with the earliest recorded centres of trading activity.[84] Local points of public congregation would also have been provided by the four churches which lay on the waterfront side of the ruined and probably almost totally obscured 3rd-century Roman riverside wall, that is with their foundations in the silts or intruding into the stout framework of the Roman quay south of the wall: from west to east, All Hallows the Great (called *Semannescyrce* in 1100–7), All Hallows the Less (first mentioned 1240), St Magnus the Martyr ('the stone church near the bridge' of 1067) and St Botolph Billingsgate (by the 1140s).[85] All Hallows the Great may have been part of the area frequented by foreign merchants which stretched west across the mouth of the Walbrook to the cookshops of the shore at Vintry. It has been suggested that this was an area where the foreigners were compelled to stay, so the king's officers could extract tolls and exercise royal rights of pre-exemption in acquiring goods and luxuries. Such a restriction broke down from the middle of the 13th century.[86] There is probably significance in the finding here, immediately east of the present Southwark Bridge, of a large quantity of Continental (Rhineland) red-painted and blue-grey wares on the 11th- or 12th-century embankment in 1960.[87] This would support the idea of an area of foreign merchants.

In 1244 the City stated that it was common to extend wharves towards the current of water 'and this was permissible by all custom because thus their lands and tenements could be protected against the sea ebbing and flowing night and day'.[88] Excavation has now revealed the history and prehistory of this 'custom'; the north bank of the river both above and below the bridge developed especially in the 12th century, though near landing stages and at important points of access to the river there may have been rudimentary reinforcements of the shoreline in the previous century.

Between the churches of St Magnus and St Botolph the 12th-century frontage of the south side of Thames Street was based on the 3rd-century riverside wall. But there was a slight change in direction at Rothersgate, which led onto the reclaimed land in the 11th century. Going east from the bridge and St Magnus, a walker along the street would change direction slightly more to the north from Rothersgate onwards. At present the reason for this remains obscure; it could be a change

Site A	Site B	Bridge	Site C	Site D
after 1150: A:Waterfronts 8–10; A:Buildings 1–13 (periods A1, A2). Tenements 1–5 formed by 1220	from about 1160: B:Waterfronts 1–2; B:Building 1 (periods B3 to B4.2). Tenement 6 formed by 1200	rebuilt in stone 1176–1209	from about 1150: C:Waterfront 1; C:Buildings 1–5 (periods C3.2 to C3.4). Tenements 9 to 14 formed by 1200, latest strata possibly *c* 1230	St Botolph's church in place by 1140. From about 1150: D:Waterfronts 8–11; D:Structure 1 (periods D6.1 to D6.7, D7.1 to D7.16) Tenement 15 (Botolph Wharf) established by 1150; Tenement 16 probably later

Table 15. Summary of development of the sites in period M1 (1100–1200, about 1220 on site A, latest strata on site C possibly around 1230), and London Bridge (rebuilt 1176–1209) which lay between the two pairs of sites

[83] For the embankments of the 10th and 11th centuries on the study sites, Steedman *et al.* 1992.
[84] Dyson 1985, 20–1.
[85] Harben 1918, 17–18, 16, 375 respectively for the first three.
[86] Keene 2000, 197–8.
[87] Schofield with Maloney 1998, 86 (site GM156); Vince 1985, 26–7.
[88] Chew and Weinbaum 1970, no. 343.

in direction of the underlying Roman riverside wall, below ground but directing the topography into the 11th century and therefore later (see the plan of the tenements here in the next period, Figure 83).

Some hints may be gained about the layout of Botolph Wharf, but not much at this earliest period. In the early part of the century, low timber-fronted embankments lay south of the Roman riverside wall and south of St Botolph's church, but they were no different in character from those on nearby private properties. In the second half of the century, with D:Waterfronts 10 and 11, more substantial timber revetments may indicate the development of the Wharf as a public landing place. Around 1201, some form of royal custom was taken on goods at 'Botolph's Gate'. A few yards upstream, the new stone bridge across the Thames was just being finished, linking the city with its hinterland to the south and east. Thus people and goods being landed at Botolph Wharf could quickly step onto or start journeys from the bridge nearby.

One of the earliest documentary references is to Tenement 11 sometime between 1107/8 and 1147 when a Brunlocus was granted two wharves at *Rederesgate*, quite possibly an opening, perhaps even of Roman date, in the ruins of the Roman riverside wall. Holy Trinity Priory, which owned it, charged a large rent of 25s pa. Stone buildings C:1 and C:2 were erected here. At the same time or shortly after other properties between this tenement and Botolph Wharf also had stone buildings, and would have had quayside areas which perhaps handled goods. But upstream of the bridge, and upstream of Ebbgate, large dyehouses could be found on Tenements 3 and 4, also in the second half of the 12th century. London produced cloth in the 12th century, though it is thought mostly at the lower end of the quality range. The cloth-finishing industry is known to have had one centre in Cannon Street, 100m north of the tenements, during the 13th century; dyeing and fulling (which often took place in the same establishment) can now be seen to be in place nearby on the waterfront by 1200, and possibly from 1150.

The riverwards edge of the 12th-century waterfront was almost all composed of timber structures along the river bank, with stone walls only sparsely present; it seems likely that Queenhithe and Billingsgate were marked by sections of stone river walls, but this is not yet established for the latter (and is perhaps unknowable, as the deposits have been destroyed). Next to Botolph Wharf, which had embankments of timber, the probably 12th-century C:Building 5 had a wharf of stone, but this was exceptional among ordinary secular properties at this early period.

The 12th-century developments on the study sites can be placed in context, west and east, by comparing them with results from excavations on other private properties between the more public centres already mentioned. At Bull Wharf on the east side of Queenhithe (BUF90), the dock was widened to the east and reclamation pushed out further into the river on the south during the first half of the 12th century; the riverfront was rebuilt in 1145–7 and again between 1165 and 1170. During the 12th century, the waterfront advanced a total of 29m. East of the present north approach to Southwark Bridge, the site of Thames Exchange was excavated in 1988 (TEX88). Several 12th-century revetments were recorded, together with a 12th-century building interpreted as a warehouse, later replaced by another building. Here the 12th-century reclamation, possibly in only one stage, reached a distance of 30m from the street. The site became the major passenger terminal of Three Cranes Wharf in the later medieval period.[89]

Upstream of Queenhithe there is evidence for 12th-century activity on the waterfront, but not for very far west of the hithe. The grid of streets possibly of late 9th-century origin south of St Paul's came down to the river and the Roman riverside wall; but mercantile activity of the time seems confined to Queenhithe at the southeast corner of the grid (and so far, on the east side of the inlet only). Excavation about 200m west of Queenhithe on the site of the north abutment of the present Millennium Bridge found foreshores and timber revetments of uncertain date in the first half of the 13th century. They were reclamation units on either side of medieval Bosse Alley, which seems to have originated as a point of access to the foreshore in the 11th century, like Ebbgate and other access points. Any concerted activity on the 12th-century riverbank here would have lain by medieval Thames Street, in an area not investigated; but it seems that this part of Thames Street, and the foreshore immediately south of it, was outside the area of commercial activity and largescale reclamation around Queenhithe.[90] Some distance further west, there was little activity on the foreshore until the Blackfriars precinct established its riverside wall in the early 14th century.[91]

The intensity of reclamation on the north bank especially between Queenhithe and Billingsgate contrasts with much less development of this kind on the south bank, both west and east of the bridge. On the south bank to the west of and away from the bridgehead, most of the land near the water was not built on, and waterfront defences were probably sporadic, associated only with notable residences. Excavation for the south end of the Millennium Bridge found scattered timbers on the 12th-century foreshore, and revetments only from the

[89] Milne 1992; Rutledge 1994.
[90] Ayre and Wroe-Brown 2002, 20–3.
[91] Stafford and Teague 2016; Holder 2017, 32–5.

early and middle parts of the 14th century.[92] Opposite the west pair of study sites, near the bridge, there was consolidation of the riverbank in the 12th century. The bridge seems to have been rebuilt at the south end in the last two decades of the 11th century, or possibly in the opening years of the 12th century. Immediately west of the religious house of St Mary Overie on the south bank, which had a stone river wall, the bank had been consolidated probably when the land was acquired by the bishop of Winchester in 1147. An existing complex of stone buildings was taken over and expanded by Henry of Blois; here Archbishop Thomas Becket stayed before leaving on his final journey to Canterbury in 1170.[93] The development of the south river bank east of the bridge in the 12th century is little known, largely because of the frequent damage there by floods in later centuries. The earliest recorded timber revetments are contemporary with the abutment of the stone bridge, matching the river wall on the other side of 1190, and of a similar date.[94] Next to the south end of the bridge, there were probably several notable houses, at least from the 13th century and possibly earlier.[95] They may have had stone river walls, but there is no present information.

The variety of construction in stone and timber of waterfront structures is paralleled in other contemporary ports (many of which are shown on the map of contacts demonstrated through pottery of the period, Figure 25). Eleventh- and 12th-century embankments and jetties, perhaps for commercial purposes, have been excavated in a number of sea and river ports in Britain, Ireland and on the Continent, for instance at Bristol (where in the second half of the 12th century a waterfront area downstream of the town's bridge was rapidly developed on the River Avon),[96] Norwich (where a 10th-century surface of timber brushwood at a site next to the River Wensum in Fishergate resembles that excavated on Tenement 12 at site C),[97] Dublin,[98] Bergen (Norway; from the late 12th century),[99] Utrecht (Netherlands),[100] Lübeck (Germany),[101] Schleswig (Germany)[102] and Gdańsk (Poland).[103] These structures are mostly simple fences, sometimes supported by dumps of stone rubble and earth, and stone walls were perhaps rare: that of shortly before 1120 in Dublin was marvelled at.[104] Hartlepool has produced 12th-century walls both along the shore and apparently jutting out into the water as jetties, and reclamation in Bristol in the 12th and 13th centuries used stone walls.[105] There are examples from excavations elsewhere in Europe, such as at Stralsund (Germany).[106] Amsterdam emerged as a place after floods of 1170–93 with dams and dykes; its development as a town followed.[107] In the Mediterranean, at Genoa, quayside walls, protuding jetties and a long mole were of stone from the 12th century.[108] No doubt local circumstances of availability of materials affected the choice in most cases.

There is some evidence that the waterfront area around London Bridge was assuming a distinctive character, but perhaps not yet much different from inland sites (that is, north of Thames Street). As yet, we do not have much information about the density of settlement within the walls in the 12th-century city. Vince has shown that pottery of the late 11th and early 12th centuries is found just about all over the intramural area, though presumably some of these findspots are in post-12th century contexts and therefore the pottery is residual, having been displaced by being in soil carted around.[109] Many of the city's parish churches were in place by this time, indicating local points of settlement. But as in contemporary Rome (at least in the first half of the century), the overall pattern of settlement may have been patchy, clumps of buildings separated by open spaces.[110]

Even so, the development of Thames Street in its central section on either side of the north end of the bridge in the 12th century has similarities with that of the main inland market street of Poultry, the eastward extension of Cheapside. The main frontages to Poultry were developed from the late 10th or 11th century, first with small timber buildings, some in rows and at right angles to the street, and later by a pronounced density of stone buildings from the late 12th century.[111] As might be expected, stone buildings are one index of wealth. On the bridgehead sites, there is an evident increase in building activity in the second half of the century, as signified by the stone buildings on sites A to C and the various rapid extensions of the waterfront areas at Botolph Wharf on site D. This development of stone buildings and new riverfront structures was at the same time as the rebuilding of the bridge in stone in 1176–1209, and the appearance of stone river walls in places on the south bank near the bridge. The second half of the 12th century was a period when stone

[92] Ayre and Wroe-Brown 2002, 51–3.
[93] Seeley *et al.* 2006, 22–31.
[94] Watson *et al.* 2000, 72–4.
[95] Schofield 2005, 231–2.
[96] Ponsford 1985; Leech 2014, 18–19.
[97] Ayers 1985, 1994, 1999; Shelley 2005.
[98] Wallace 1985a, 1985b.
[99] Harris 1973; Herteig 1981, 1985b; Myearvoll 1991; Øye 1999.
[100] De Groot and Hoekstra 1985.
[101] Gläser 1999a, 1999b.
[102] Vogel 1999.
[103] Zbierski 1985; Paner 1999a, 1999b.
[104] Wallace 1985a, 117.
[105] Daniels 2010, 151; Jones 1991, 19–23.
[106] Kulessa 1999.
[107] Baart 2001.
[108] Melli 1996, 58–124.
[109] Vince 1991, 424, fig 8.9.
[110] Wickham 2015, 115–20.
[111] D Keene in Burch *et al.* 2011, 96, 118–19.

buildings and constructions became widespread in the City.

Buildings and their functions on the study sites; pottery and artefacts

The functions of the buildings on the embankments can be explored, though hardly for the timber structures. D:Structure 1 contained an area of its brickearth floor which had been exposed to heat, and traces of stakes in the floor suggest internal divisions. Its walls were probably a framed structure rather than freestanding earth-fast posts. Far more grandly, A:Building 8 was probably a large dyehouse, and equally probably so were its two neighbours. Other functions for the stone buildings are not known, though they would have been partly domestic, that is lived in. They probably included small shops to the street. It is possible that C:Building 3 on Tenement 9 and C:Building 5 on Tenement 12 were vaulted. As found in 2006–9, the buildings at the heads of Tenements 2 and 3 west of Ebbgate were of stone, at least in their front walls.[112] Stone buildings were probably scattered along Thames Street at points, for instance at Vintry where wine was landed and at the Steelyard. An outlier to the west appears to have been a notable building, possibly including a cellar, which was used for storing the king's wine from 1205 and possibly earlier; this lay in Kyngeswatergate, later Boss Alley immediately west of Trig Lane (on the site of the northern abutment of the Millennium Bridge), excavated in 1974–6.[113]

Twelfth-century buildings of one or more storeys in stone above ground have survived in quantity in a number of major Continental European cities, for instance Ghent, Regensburg and Prague;[114] and in smaller but important towns such as Angers, Cluny and Rouen.[115] At Bruges, several probably 12th-century stone undercrofts survive in later houses along or near the waterfront of the Spiegelrei.[116] The houses in these Continental cities often supply details lacking in the fragmentary London remains, such as stairs, windows, chimneys and other internal features. But they share a general similarity of character, in sizes, the occasional use of vaulting in cellars, and the relationship of the building to the street. The 12th-century stone buildings of London are further compared with those in other major European cities in the essay on the buildings from the site, section 6.2 below.

As reconstructed here, 12th-century St Botolph's church perhaps measured 15.6m long by 7.2m wide (51ft x 22ft) externally. This is comparable to other small 12th-century churches: the surviving church of St Mary Magdalene, East Ham, of about 1130 has a length (of nave and tower) of 24.4m (80ft) and width of 5.8m (19ft); the 12th-century crypt below the earliest part of the priory church of St John Clerkenwell is only 12.8m (42ft) long and 7m (23ft) wide. If the tower were subtracted from the East Ham church, it would be almost the same size as St Botolph's. There is no clear evidence that St Botolph's had its west tower from the beginning, as it certainly did by the 16th century; but the stout stone foundation for the west end, recorded on site C in 1974 and of 12th- or 13th-century date, could well have supported a tower in this position. The development of St Botolph's church over the whole period 1100–1666 is discussed in section 6.2.

The main deposits of this period which produced finds are listed in Table 16. The non-ceramic artefacts of this period are listed in seven Artefact Tables and examples illustrated in two figures (Figure 31; Figure 38).

From the second half of the 12th century, the bridgehead sites provide a large body of well-stratified pottery of importance for dating deposits across the City. The pottery of this period is considered in detail in section 6.6. On site A, local wares predominate, but from about 1150 there are far more imports, including Andenne ware, blue-grey/Paffrath-type ware, red-painted/Pingsdorf-type ware and north French monochrome ware jugs. Site B produced imports from Germany and the Low Countries with a small amount from Normandy. One suggestion, however (in section 6.6 below), is that a lack of imported pottery from northern France in period M1 (1100–1220) on sites A and B, immediately upstream of London Bridge, may be because it is usually thought the French wine trade was concentrated west of the Walbrook. Thus the pottery coming from London waterfront sites in the 12th century is beginning to tell us about international trade and traders; perhaps in the future this will include more on where they congregated and lived on the waterfront (a foreign area on the embankment west of All Hallows the Great in the century has already been identified by the occurrence of amounts of red-painted wares from the Rhineland recorded in 1960).

The artefacts of this period on the sites are small in number by comparison to the riches of succeeding periods, but they furnish a significant corpus of 12th-century objects illustrating home and work, and as such are notable because so few ordinary objects of the century have been published for London or elsewhere. They include shoes, candlesticks, door furniture, wooden objects such as bowls, pins, jewellery and the first of many horseshoes. Just as in the later

[112] Mackinder 2015, 18, fig 14.
[113] T Dyson in Milne and Milne 1982, 5.
[114] Laleman and Raveschot 1994, Strobel 1976, Dragoun *et al.* 2003 respectively. Klápště 2016 summarises the Prague examples.
[115] Letellier and Biguet 2002, Garrigou Grandchamp *et al.* 1997, Cailleux 2011 respectively.
[116] Van Eenhooge 2001.

Group	Date	Pottery, coins and dendro	Non-ceramic artefacts
A24	1140–80	Table 96	Artefact Table 1
A26	1140–50 with intrusions	Table 96	Artefact Table 2
A28	1180–1200	Table 97	Artefact Table 3
A30	1170–1200+	Table 98	Artefact Table 4
A42	1170–1200	Table 100	Artefact Table 5
Period A2 on Tenement 2	1140–1220	Table 101	
Period A2 on Tenement 3	1180–1220 with intrusions	Table 102	
Period A2 on Tenement 4	1150–1220 with intrusions	Table 103	
B5, B11, B19, B20	1100–1200		Artefact Table 6
Period B3	1140–80 with intrusions	Table 12	
Period B4	1180–1200	Table 104	
C:Tenement 9 in period M1	1050–80	Table 105	
C:Tenement 10 in period M1	1080–1150	Table 106	
C:Tenement 11 in period M1	1170–1220	Table 107	
C:Tenement 12 in period M1	1170–1250	Table 108	
C:Tenement 13 in period M1	1170–1220	Table 109	
C:Tenement 14 in period M1	1170–1220 with intrusions	Table 110	
D, period M1	1100–1200		Artefact Table 7

Table 16 Dating evidence and artefacts from period M1

periods, these objects (and the pottery) in the soil of the reclamation units must have come from unknown places across the built-up area of the city (the topic is discussed in section 6.4 below).

To conclude for this period, London's trading waterfront in the 12th century stretched mainly from Queenhithe in the west to Billingsgate in the east, both of which were already indentations in the waterfront. West of Queenhithe was St Paul's Wharf where the large amounts of stone for the cathedral would be landed during the century. Between Queenhithe and Billingsgate, which divided the trade between them according to commodity, the waterfront expanded on private properties, and there were centres of expansion at four churches and the Steelyard, all on reclaimed land. By 1100 it was already established practice to use rubbish from the City, both from domestic and manufacturing sites, to help consolidate the shore and reclaim space at the expense of the river. This reclamation process was accelerated in the 12th century, so that more ground was claimed from the river in this period than in each of the others which were to follow.

3. Period M2 1200–1350

3.1 The port of London 1200–1350

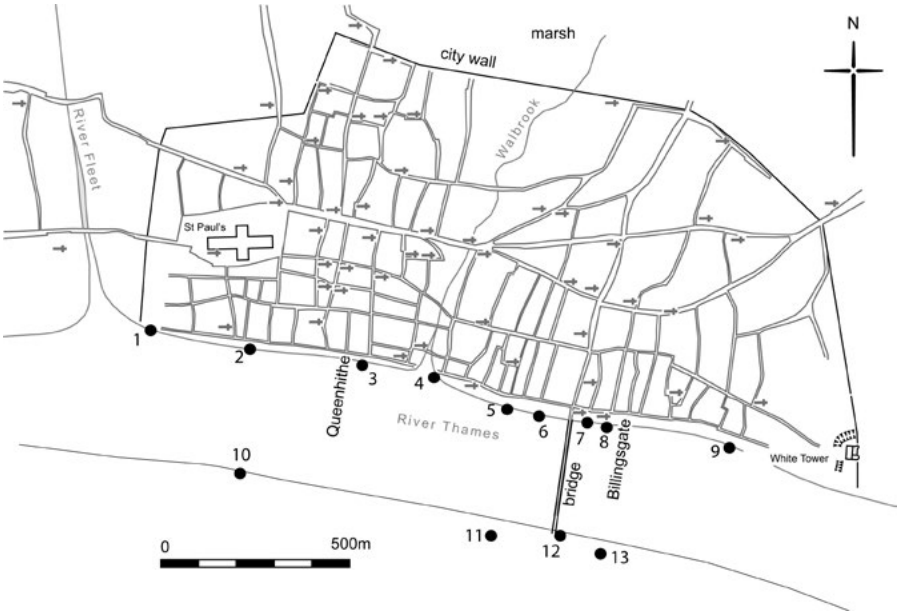
By 1200 London was the capital and the largest city of England, with a population in 1200 of 40,000 according to a contemporary estimate.[1] During the 13th and early 14th centuries, it grew in wealth from its position as the country's largest port. Overseas trade grew in volume and contacts widened: with Gascony (southwest France), the Low Countries, the Rhineland, Italy and Spain. English ships were trading in the Baltic by the 13th century;[2] and by 1270, in theory at least, London was 'the chief town of an empire which stretched to the Pyrenees'.[3] Confirmation of London's foreign contacts is provided by the variety of foreign pottery found in the City and its environs. French pottery, mainly from Saintonge in southwest France, is common by about 1270; there are small amounts of Spanish, Italian and other Mediterranean pottery.[4] There are occasional finds of Islamic-style glass vessels before 1200, and glass flasks and goblets from the Middle East from then onwards, which presumably came via Mediterranean ports.[5] Italian merchants were serving the English royal court in 1223.[6] Italian companies based on London were favoured by Edward I and were prominent in supplying the royal household. In 1281 three galleys, two Genoese and one Majorcan, left the port of London with wool.[7] From 1276 to 1284 about 30 Spanish merchants had their debts to Londoners properly enrolled in London; by the 1320s there may have been the nucleus of a small colony or settlement in the City, though it would be later affected by Edward III's political adventures.[8] A long-established and strong trade with the Baltic continued; the Hanse merchants of Lübeck and Hamburg were active in London in the 14th century. By 1350, however, much of London's cultural and material life was being shared with the Low Countries across the North Sea. Many Flemings migrated to London and England 'driven by floods, warfare, taxation, hunger, poverty and violence.'[9] These significant movements were a feature of the period after 1350, but perhaps had started in the two or three decades before. There was in addition, throughout the period, coastwise trade around eastern and southern England, which brought prosperity to other ports such as Southampton, Winchelsea (E Sussex), Dover and Sandwich (Kent).[10]

By the 1320s London also had most of the internal market in England in cloth, furs, wine and spices. In the 14th century the presence in London of many secular and religious lords, staying at their urban bases (often called 'inns'), would have made the city a centre of luxury and consumption, as was happening at the same time in Paris. By this time there was a tradition among the English nobility and country gentry that London was the source of their best clothes and furs. All this trading made the waterfront a prosperous district within the City. In 1319, a tax on merchandise, debts and jewellery shows that the richest wards (those paying most tax) were, in descending order, Dowgate, Vintry and Walbrook, the first two of which were on the waterfront and the third next to the north of Dowgate, bisected by its stream which would have allowed access some distance from the river by small boat.[11]

Ships or larger boats of this period, 1200 to 1350, have not yet been excavated on sites in and around the Thames, though fragments of smaller boats and barges are often found rebuilt into waterfront revetments or reinforcing the sides of creeks, or merely abandoned.[12] Ships bringing wine to London during the reign of Edward I (1272–1307) were up to 200 tons in capacity; a ship excavated at Bergen (Norway) and dated to around 1300 is estimated to have had a cargo capacity of about 150 tons.[13] A general view is that from the mid 12th to the mid 15th century, the carrying capacity of larger ships in north Europe increased, reaching about 450 tons at the later time.[14] Thus one archaeological objective would be to investigate whether the docking and repair facilities in London, if they could be found, responded over the period to the requirements of larger vessels.

The centres of commercial activity on the waterfront were those of the previous period; but little is known about the layout, building history or development of Queenhithe or Billingsgate at this time. Regulations at both places were largely about the selling of perishable commodities such as food, especially fish and grain. At Queenhithe, some information is given by its regulations in 1244, as recorded for the royal justices. A range of charges depending on the size of boats applied to the landing of various commodities: salt, saltfish (white or red herring and cod), fresh fish, brushwood or corn. Men of the Cinque Ports are mentioned several times, so their ships clearly came through the bridge. Two years later Queenhithe, previously a source of royal revenue, was leased to the mayor and citizens for an annual payment,

[1] Williams 1970, 317, quoting Peter de Blois in 1199.
[2] Barron 2004, 84–117; Scammell 1981, 58.
[3] Brooke 1989, 30.
[4] Vince 1985; Blackmore 1999b.
[5] R Tyson in Pitt *et al.* 2013, 93–113.
[6] Goldthwaite 2009, 27.
[7] Nightingale 1995, 105.
[8] Childs 1978, 15, 22–3.
[9] Barron and Saul 1995, 12 and passim. For comment, in slight disagreement, Bolton 1998, 30, n79.
[10] Martin and Martin 2004, 8.
[11] Spufford 2002, 74–7; Thrupp 1948, 116, table 9.
[12] Goodburn 2016 for a discovery of 2012.
[13] Marsden 1996, 30–1; Crumlin-Pedersen 1985, 87.
[14] Bill 2011, 332.



Key:

1 Blackfriars Thameslink
2 Millennium Bridge N bank and Trig Lane
3 Bull Wharf and Thames Exchange
4 Steelyard
5 Watermark Place, Riverbank house and Swan Lane (site A)
6 Seal House (site B)
7 New Fresh Wharf (site C)
8 Billingsgate (site D)
9 Custom House
10 Millennium Bridge S bank
11 Winchester Palace
12 London Bridge S end
13 Dunley Place and Rosary

Figure 48 The port of London in 1200; for details of reports on the sites on the north bank of the Thames, see Table 3. St Paul's cathedral is shown with its outline around 1300, when this is first known with certainty

and it therefore became the City's responsibility. Billingsgate is hardly mentioned in the enquiry of 1244, and in one case because the bailiffs of Queenhithe complained to the royal justices that 14 foreign ships with fish had recently moored at Billingsgate, contrary to the custom; the justices ordered that such ships should go to Queenhithe instead.[15] There must also have been considerable traffic coming downstream from the upper reaches of the Thames. In the 13th and 14th centuries royal concerns tried to ensure that ships and barges could reach Oxford from London; the passage of corn was to be made smoother from Wallingford.[16] Throughout the medieval and Tudor periods Billingsgate was a major landing place for people coming and going downstream: a regular ferry went to Gravesend from at least the late 13th century. Lease of the ferry went with a tenement called the Mermaid at Billingsgate in a lease of 1631; the Mermaid was a tavern.[17]

In 1244 similar customs were charged at Dowgate as at Queenhithe, for a similar range of commodities.[18] Wine seems to have been landed in the Vintry, since in 1301 the winedrawers were summoned before the mayor and the rates they could charge were agreed. For a tun full of wine they could charge 2d 'for drawing out of vessels on to the wharf and as far as the cellar on the wharf'; 2½d 'from the vessels to a cellar in any lane towards the Thames [i.e. between Thames Street and the river]; 3d 'from the vessels to a cellar in the high street of Tamystrete in the parish of St Martin [Vintry] and elsewhere in the neighbourhood'; 4d 'from the vessels to a cellar in the Ropery [further east along Thames Street, beyond Dowgate]'; and 8d 'from the vessels to a cellar through all the lanes within the City's gates', with higher rates for outside the City. These rates make sense if they are seen as increasing with distance from Vintry, the area of foreshore east of Queenhithe which is known to have been a centre of cookshops and possibly wine vaults in the 12th century.[19] So ships carrying wine would have come through the bridge, though they would probably then have unloaded their barrels into lighters or other smaller vessels such as barges. But they might have unloaded onto smaller vessels while being below the bridge, as must have happened in Paris.

During this period the bridge seems to have functioned without major alteration. There was a fire of 1212 or 1213 which damaged the south end and buildings on it. Excavations around the south abutment have revealed programmes of piling and repair of the adjacent foreshore and bank, against flooding and freak tides. Wardens who managed the bridge are known from the late 13th century; their operations were based in a compound called the Bridge House, on the south bank. The repair accounts and rentals of property in the City given or acquired to generate income survive from 1381–2, so the maintenance history of the bridge for the period up to 1350 is not known.[20]

The waterfront areas and the sites mentioned in this chapter (either here or in the discussion at the end) are shown in Figure 48; this also functions as the

[15] Barron 2004, 49; Chew and Weinbaum 1970, nos 248–68.
[16] Thacker 1914 [1968], i, 18–19, 268–70.
[17] Masters 1984, no. 7e; Jones 1966, i, 121–2.
[18] Chew and Weinbaum 1970, no. 261.
[19] *Cal L Bk C*, 114; Stow i, 238.
[20] Watson *et al.* 2001, 92–4; Harding and Wright 1995.

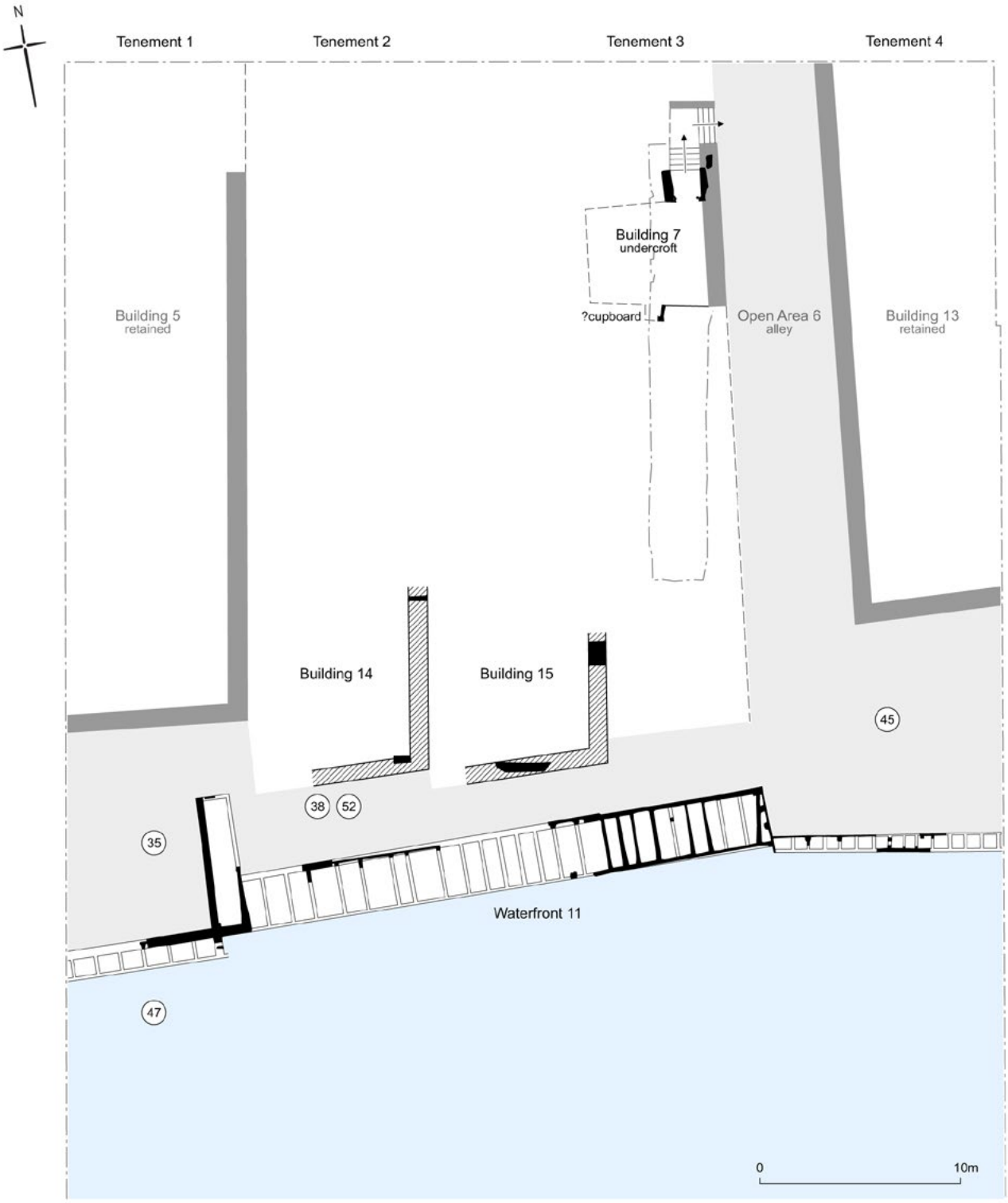


Figure 49 Site A: plan of period A3, 1220–50 (1:300). The numbers in circles indicate the general positions of reclamation and foreshore groups A35, A38, A52, A45 and A47

area map for the two periods which follow, M3 (1350–1500) and P1 (1500–1666). Documentary evidence about the owners and occupiers of these properties is available from the 13th or early 14th centuries (the earliest information in Table 29). In this period there are documentary references to people who had work and other connections in other parts of the City and occasionally elsewhere.

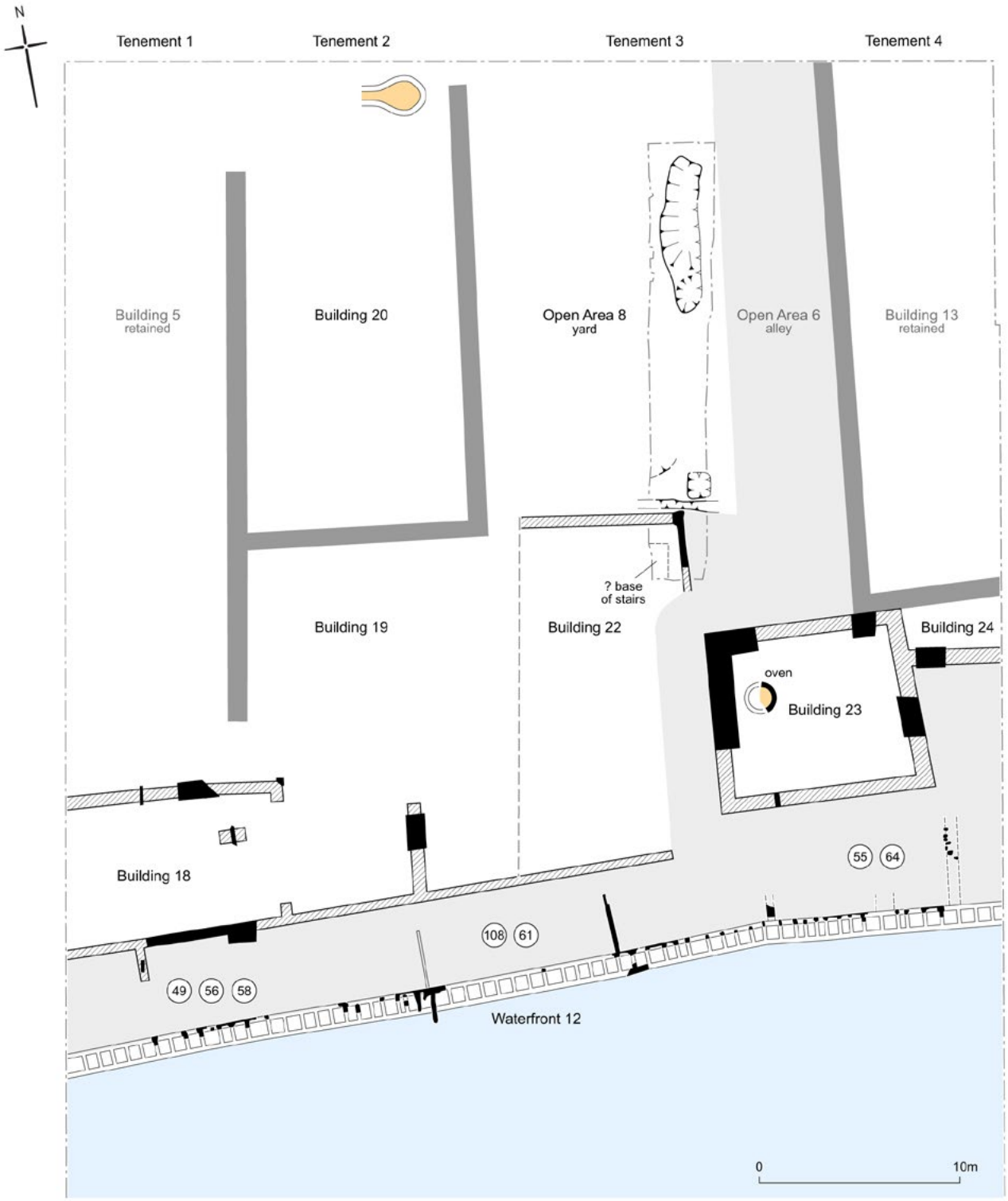


Figure 50 Site A: plan of period A4, 1250–1330 (1:300). The numbers in circles indicate the general positions of reclamation and foreshore groups A49, A56, A58, A108, A61, A55, A64

3.2 Swan Lane (site A) in period M2 (1220–1350)

For this period (M2), the reporting is structured by tenement. For Tenements 1 to 4, the documentary and archaeological evidence for the period up to about 1350 is presented, working from the relevant reclamation unit and revetment to the buildings; though in all cases the documentary evidence starts late in the period. The documentary history of Tenement 5 at this period is then given. The main features of period M2 on site A

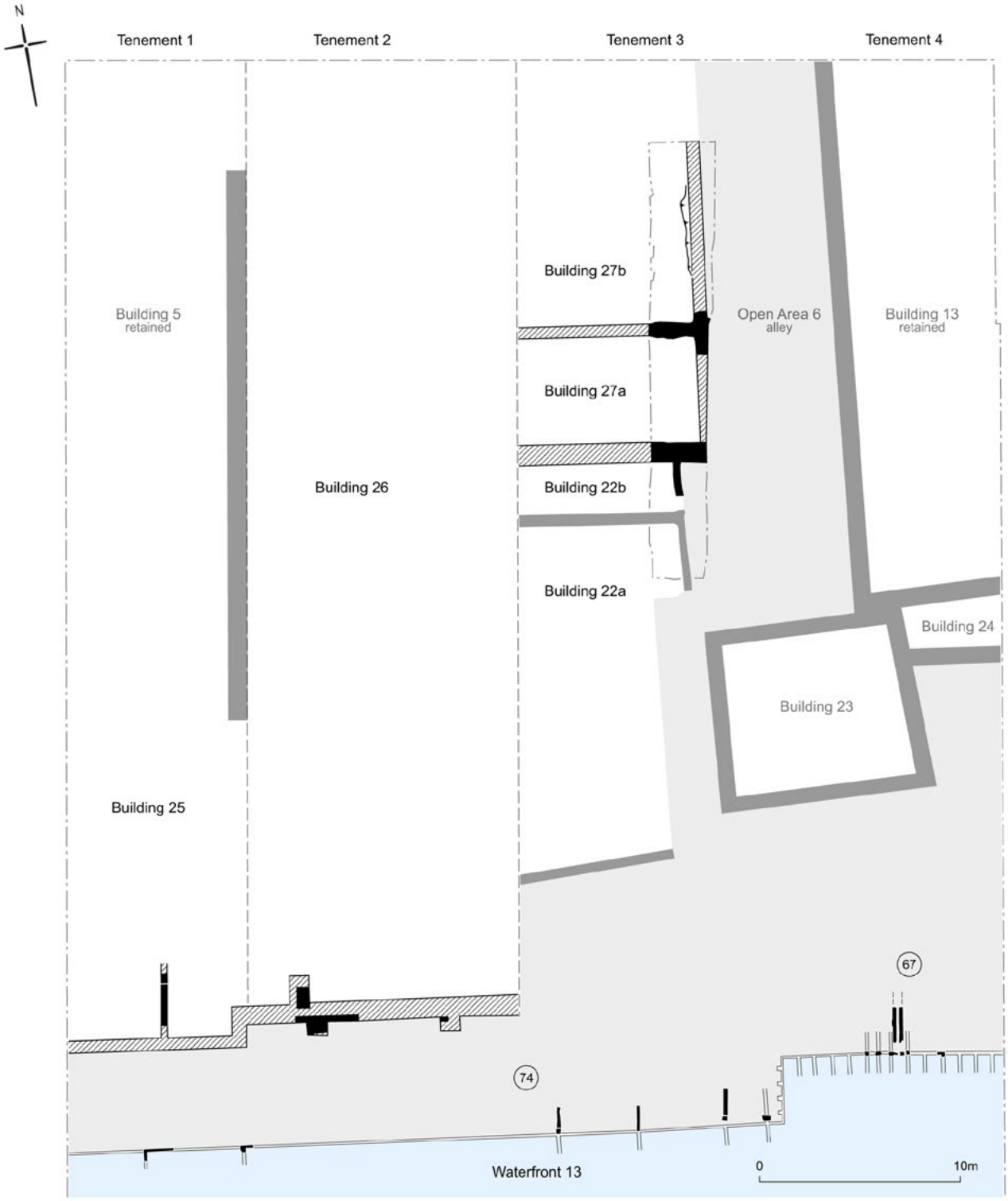


Figure 51 Site A: plan of period A5, 1300–50 (1:300). The numbers in circles indicate the general positions of reclamation groups A74 and A67

comprise 14 buildings (A:Buildings 14 to 27) and three waterfront structures (A:Waterfronts 11 to 13).

The site plans show all the tenements at roughly the same time within each of the relevant periods (A3 to A5), therefore demonstrating the general development of the site, and how each tenement related to its neighbours in the period 1220 to 1350. The three period divisions used in the archive report for site A are used here (Figure 49; Figure 50; Figure 51), but the

Period	Table	Group	Event	Dating
A3	Table 111	A35	Reclamation dump in front of Tenement 1, over A32	1180–1270
A3	Table 114	A38	Reclamation dump in front of Tenement 2	1180–1200+; coin of Henry II, presumably residual
A3	Table 114	A52	Reclamation dump in front of Tenements 2 and 3, later than A38	1180–1270
A3	Table 121	A45 [Egan]	Reclamation dump in front of Tenement 4	1170–1200, i.e. residual
A3		A47 [Egan]	foreshore in front of Tenement 1	
A4	Table 112	A49 [Egan]	reclamation dump in front of Tenement 1, over A47	1180–1270
A4		A56	foreshore in front of Tenement 1, possibly in front of a revetment [I.e. later than Groups 47 and 49)	
A4	Table 112	A58	reclamation dump in front of Tenement 1, over A56, later than Groups 47 and 49	1270–1350 with some 1340–1450
A4		A108	foreshore in front of Tenements 2 and 3	
A4		A61	reclamation dump in front of Tenements 2 and 3, over A108	1280–1350
A4	Table 122	A55 [Egan]	reclamation dump in front of Tenement 4	1180–1240
		A64	reclamation dump in front of east side of Tenement 4, contemporary with A55	
A5	Table 113	A70	reclamation dump in front of Tenement 1	1270–1350
		A72	foreshore in front of Tenements 2 and 3	
A5	Table 117	A74	reclamation dump in front of Tenements 2 and 3	after 1251 on coins; pot 1340–60
A5	Table 123	A67	reclamation dump in front of Tenement 4	1290–1350

Table 17 Site A: assignments of reclamation and foreshore dumps to individual tenements in period M2 (1200/20–1350), and their dates. A blank in the right-hand column indicates no archaeological evidence from that group. The dates of major deposits are further considered with documentary evidence in the period discussion below, Table 22

time periods assigned to them have been adjusted after detailed pottery dating. The 'periods' also overlap, reflecting uncertainty about the amount of time that would have occurred between a date ascribable to pottery and its deposition in a reclamation unit or foreshore.

For this period, the reclamation dumps and foreshores are tentatively assigned to individual properties as in Table 17. In certain cases a dump or foreshore can only be assigned to two adjacent tenements, not one. The archaeological dating evidence for these reclamation and foreshore groups will be repeated in tables dealing with the archaeological evidence for each of the Swan Lane Tenements 1–5, but this table is included here to show the nature and quality of evidence of the major waterfront groups from Swan Lane.

Tenement 1

The earliest documentary reference found to Tenement 1 occurs in the will of Isabel, widow of William de Leyre (sheriff in 1290–1: Barron 2004, 323), made on 6 April and proved on 17 October 1328, in which she bequeathed to her daughter Isabel for life 20s pa quitrent from the tenement inhabited by Simon de Swanlond and situated between the tenement of John Darmenters to the east and the tenement of Nicholas de Farndon to the west (CLA/023/CP/01/056/117). A deed of July 1329 relating to Tenement 2 to the east describes the Tenement 1 as currently in the ownership of Margery de Rokesle (/057/89), while a deed of January 1344, relating to the property to the west, refers to it as once belonging to Gregory de Rokesle (/071/1). This is presumably the de Rokesle who was mayor on eight occasions between 1274 and 1284 (and whose principal house in Lombard Street is now commemorated by a Blue Plaque). For the rest of the 14th century more is heard about the rents deriving from it than about the tenement itself. In his will made on 10 July 1355 and proved on 7 October 1356, Gregory, son of Gregory de Rokesle, left his property to be sold in order to establish with the proceeds a perpetual chaplain in the parish church, stipulating that part of the rent he received from John and Alice de Horsford for the tenement they held of him in Thames Street was to be put to the support of a chaplain to celebrate his soul during their lives, whereafter it should provide income for a perpetual chantry (/084/81). This 20s quitrent was evidently different from the one bequeathed by Isabel de Leyre in 1328, which had a distinct history: in his will made on 2 June 1366 Isabel's younger brother William bequeathed to his wife Agnes for life the 20s pa quitrent from the tenement lately held by John de Horsford, desiring that it be sold after her death (/094/92). It was subsequently acquired from William's executors by John Osekyn and Adam Fraunceys, mercer (mayor in 1352–4), and by Fraunceys's will of 26 August 1374, proved on 14 May 1375, provided with other income for the maintenance of two chaplains serving the chantry of Peter Fanelour in Edmonton church (/103/79).

On 3 December 1367 the City complained that Agnes, widow of [the second] William de Leyre, had a solar in the parish of All Hallows the Less which overhung the highway by 23ft (7.2m) in length and 10ft (3.05m) in width, gravely impeding the people living there and the common folk passing along the street and preventing the neighbours carting hay and straw and other victuals to their tenements (Chew and Kellaway 1973, no. 536). On the same date Thomas Whytcherch and William Whetele, tawyers, complained that she had a solar in the same parish, overhanging their land to a length of 16ft (4.9m) and width of 7ft (2.1m) so that they could not build their house upright (no. 537). We propose that these complaints concern Tenement 1. It seems possible that the buildings being complained of were erected before 1350. The first-mentioned solar probably overhung Thames Street. The second solar overhanging 7ft (2.1m) must have been along the side of the property. We cannot say from this reference whether the tawyers Whytecherch and Whetele occupied a tenement to the west of Tenement 1, or Tenement 3 within the project to the east, but it shows that tawyers were present here in 1367.

Reclamation and foreshores in period A3

The advance of Tenement 1, called A:Waterfront 11, is marked by an east–west post and plank revetment with raking braces (A37.7), extending over the whole site and reclaiming a total of 10m of land (Figure 49). The east side of Tenement 1 was defined by a north–south revetment (A37.8), the baseplate of which articulated with the south baseplate. The revetment, of post and plank construction, does not appear to have had any bracing either to the west or east and it is unclear how it withstood the pressure from dumped deposits to the west. To the east, forming the other side of the channel and the west side of the central advance, was another north–south revetment (A37.9). The channel was *c.* 1.5m wide and 7m north–south. Its function is unclear, but it may have been part of a drainage system.

As noted in period A1, A35 comprised a reclamation dump in front of Tenement 1, over the foreshore A32; material from it might have come from deposits behind the previous A:Waterfronts 8 and 9. The finds from A35 comprise half an iron horseshoe and nine sherds of pottery (294g), all of London-type ware. Eight are from baluster jugs (four in the Rouen style), while one is from a pipkin (Table 119). A foreshore was noticed in front of A:Waterfront 11 on Tenement 1, but nothing further is recorded about it and there are apparently no finds (Gp A47 [Egan]).

Three trenches along the outside of the west side of the site were excavated for Riverbank House in 2006–9. They found chalk footings running north–south, in two sections which do not quite align, so they are given two different building numbers (R:Buildings 9 and 10). South of them were fragments of a revetment, R:Waterfront 9, well-dated by dendrochronology to very soon after 1203. This structure probably formed part of A:Waterfront 11, providing better dating. A foreshore with material of *c.* 1180–1300 built up against its south side.[21]

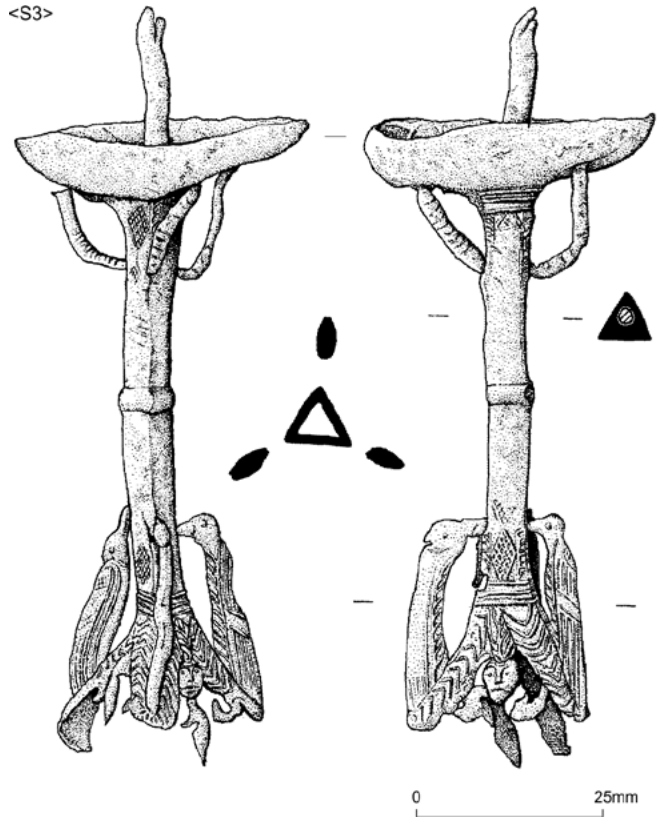


Figure 52 Site A: candlestick from Gp A49 (1:1) (<S3>). A lower part appears to be missing

Reclamation and foreshores in period A4: A:Waterfront 12

A:Waterfront 12 (Figure 50) formed a single, roughly straight frontage, forming an apparently unified feature over all five tenements. A north–south revetment (A39.10) may indicate an internal division within the reclamation. The area behind the revetment was backfilled with organic material. Few details of the construction of these revetments were recorded, but they were of post and planks, one (A39.10) having raking braces to the east. No baseplate was seen. Further to the east was another east–west element (A39.12, not illustrated), which was of vertical posts and a plank and may have formed a structure such as a drain or jetty. The east–west revetment continued (as A39.13) of post and plank construction, with front raking braces (the vertical front supported by diagonal braces down to the foreshore) and a baseplate.

Group A49 was a reclamation dump in front of Tenement 1, over Gp A47, datable to 1180–1270 (Table 112). It contained only four sherds (41g) from a London baluster jug in the North French style, and the top part of a fine lead and iron candlestick with decoration including representations of birds and possibly human figures (<S3>; Figure 52)[22] that was probably old when discarded. From its small size (as surviving, 98mm (just under 4 inches) tall), one wonders if it could be from a chandelier. The artefacts from Gp A49 are listed in Artefact Table 8.

[21] Mackinder 2015, 34–6.

[22] Egan 1998, 135–7.

Group A58 was a reclamation dump in front of Tenement 1, later than Gp A49. This is confirmed by the pottery (Table 112), which amounts to 36 sherds A[2052] (506g), including two sherds of Kingston-type ware, the first that might be considered not intrusive to the strata. Probably introduced at the very end of this phase of activity, one is from a jug, the other a cooking pot, A<P5>. The other sherds are mostly from London-type ware jugs, but include ten sherds from six cooking pots in SHER.

The Riverbank House excavations provide further but contrasting information. A revetment was seen to the south, R:Waterfront 17. The timbers sampled from the revetment did not have any sapwood, but from material associated with it and its place in the sequence, it is dated to 1225 ± 10 years.[23] This is before the assigned beginning of period A4 at about 1240. Perhaps the Riverbank House material is later than said, with a period of residuality.

A:Building 18 (assigned to period A4)

An undated series of foundations are illustrated in relation to A:Waterfront 12 on Tenement 1, although some could be part of later developments, and they have been assigned to Building 18 (Figure 50). Three foundations to the north (A53.4, 54.1 and 54.3) were built above reclamation dumps associated with A:Waterfront 11 and could relate to it, although their proximity to the channel forming the previous east limit of Tenement 1 makes this unlikely. They have therefore been assumed to relate to A:Waterfront 12, or later. The others (A54.4–5) lay to the south of the line of A:Waterfront 11 and this position is taken to suggest an association with A:Waterfront 12. The foundations do not form a coherent structure and could form the south limit of buildings to the north, moving progressively riverwards.

The northmost (A53.4) was an east–west foundation, probably of chalk. On the same line to the east was the corner of a Reigate stone foundation (A54.1), reusing the timbers of A:Waterfront 11 for support and perhaps forming the east limit of Tenement 1. To the south, parallel to the earlier foundation (A54.4) was another east–west Reigate stone foundation (A54.3). To the south was what may have formed two foundations, recorded as one (A54.4, chalk and ragstone). It reused timbers of A:Waterfront 11 for support and the larger element to the east may be to compensate for the soft deposits within the channel beneath. A southerly return of the east element may have been found (A54.5), also supported by earlier timbers (A37.7). It is possible that these foundations were all or partially later developments. There were no finds.

Revetments and foreshores in period A5

In period A5 (1300–50) fragments of revetment have been grouped as A:Waterfront 13, but there were large gaps between the observed portions (Figure 51). The advance of Tenement 1 is seen in two fragments of post and plank revetment (A41.1 and 41.2), reclaiming about 6m of land in front of A:Waterfront 12. Front raking braces supported the structure, although the related foreshore was not seen and their depth is therefore uncertain. The posts were noted to be of varying size, but no details of carpentry were recorded.

[23] Mackinder 2015, 41–2.

Group A70 was a reclamation dump in front of Tenement 1 (Table 113). Two deposits contained very similar groups of pottery (total 56 sherds, 45 ENV, 1099g), mainly comprising jugs in London-type ware (23 ENV, including two in the highly decorated style) and Kingston-type ware (five ENV) that date to the mid-13th century. Context A[888] is dated to after 1250 by proto-/near stoneware (EGS), while A[2000] also contains one small sherd of Mill Green ware dating to after 1270.

A:Building 25

Within Tenement 1, above earlier reclamation dumps, was a series of make-up dumps laid prior to building activity (A54.7) (Figure 51). A cut of unknown function was made through these (A54.9), filled with mixed material including building debris. Above it was a thick dump (A54.10) dated to the late 13th or early 14th centuries, of mixed material used as levelling. It was in preparation for a north–south wall, the ragstone or Reigate stone foundation of which survived (A54.11). Its width, at about 0.40m, suggests that it supported an internal wall within a building (A:Building 25). To the west was a clay make-up dump (A54.12), presumably to support internal surfaces which had subsequently been truncated. Perhaps A:Building 25 was an internal modification of the previous A:Building 18 (Figure 50). The dating evidence is summarised in Table 113. The pottery from A54.7 and A54.10 amounts to 20 sherds (15 ENV, 277g), all but one are from A54.7. No imports are present, but three sherds from two Scarborough ware vessels were found in A[1163] and A[2076]; unless intrusive, sherds of Mill Green ware and the first coarse Surrey-Hampshire border ware date the group to after 1270.

A summary dating table for Tenement 1 in the period 1200–1350 is given in Table 18.

Period A3: 1200–50	
A35 dump	1180–1270
Period A4: 1240–1300+	
Waterfront 12	dendro dates 1144+, 1125+
A49 dump	1180–1270
A58 dump	1240–70
Building 18	no dating evidence
Period A5: 1300–50	
A70 dump	1270–1300
Building 25	1270–1350

Table 18 Dating summary for Tenement 1, 1200–1350

Tenement 2

In a deed of April 1328 relating to Tenement 1 to the west, Tenement 2 was described as belonging to John Darmenters (CLA/023/CP/01/056/117). On 24 July 1329 a deed was enrolled by which Anketinus de Gisors and his wife Joan, once daughter of Adam atte Bowe, granted to Joan, widow of John de Armenters, draper, for life the tenement in All Hallows the Less which had come to Joan de Gisors on the death of her mother Alice, and which lay between Thames Street to the north and the Thames to the south (/057/89). Further deeds of June 1366 to September 1376 relating to Tenement 1 specify Lady Joan Darmenters as a former owner of Tenement 2 (/01/103/79, /104/167), and by late 1355 she would appear to have been replaced by Cecily, widow of Bartholomew Deumars

(Corder, sheriff in 1340–1: Barron 2004, 330), who held two messuages formerly belonging to John de Armynters in the parishes of All Hallows the Great and the Less, and who on 16 November 1355 was accused by the bishop of Winchester of having disseised him of 40s pa (Chew 1965, no. 117).

Revetments and foreshores in period A3

At this stage, Tenements 2 and 3 seem to have developed together, at least in terms of waterfront extension (the revetment A:Waterfront 11 across all the properties). Two extensive areas of the revetment were observed (A37, Figure 49). It was of post and plank construction with a baseplate supported on vertical piles driven into the foreshore, with large raking braces supported by a subsidiary baseplate and braced with horizontal north–south beams. The height of the structure, surviving to 2.4m OD, puts it above the level of estimated mean high water level (*c* 1.7m OD), although its full original height is uncertain. Some detail of the carpentry used was recorded. The vertical posts had tenons at their lower ends and slotted into half mortises in the baseplate. They were pegged from the landward side, the posts spaced *c.* 550–660mm apart. Planking in seven tiers was pegged top and bottom into the posts. The subsidiary baseplate supported horizontal ties into the main baseplate and raking braces which both tapered and curved at the top, fitting into 'shoe' shaped mortises and perhaps indicating reuse. The eastmost post was larger than the others and articulated with a north–south revetment to the east, although the exact sequence of development is unclear. The reclaimed land, about 7m from the previous south end of Tenement 3, was infilled with organic material.

Group A38 was a reclamation dump on Tenement 2. It contained a coin of Henry II datable to 1158–80, and 54 sherds of pottery (46 ENV, 957g). The contemporary wares mainly comprise London-area cooking pots and jugs dating to 1180–1220, including an unusual flanged rim from a large Rouen-style jug, A<P6>; also present are a few sherds of SHER and LIMP, one sherd of Stamford ware and one of Normandy glazed ware (NORM). Four small sherds of CBW from A[32] (A38.34) could be stratified, but a sherd from a Cheam ware rounded jug from A[2255] (A38) dates to after 1350 and should be intrusive. Four objects from this group are listed in Artefact Table 9. Group A52 [Egan] was a dump in front of A:Waterfront 10, presumed to be later than A38 which lay just to the north. This dump was also in front of A:Waterfront 10 on Tenement 3, i.e. it spanned two properties. As before, the pottery (15 sherds, 14 ENV, 323g) mainly comprises London-area jugs dating to the late 12th and 13th centuries, with a thumbed jug handle in Limpsfield ware and part of an imported red-painted/Pingsdorf-type ware jar (Table 114). Three artefacts from Gp A52 are listed in Artefact Table 10.

A:Building 14

Two foundations ran east–west across the south end of Tenement 2, assigned to Building 14 (Figure 49). The northmost (A53.17) was of chalk blocks and perhaps formed an early south end of the building. Just to the south of and running parallel to it was a foundation (A53.18) of similar description, reusing the timbers of the first advance of A:Waterfront 11 for support. Another chalk foundation running north–south to the north (A53.5) may have related to this stage of development, although its position in relation to the limits of the property is odd, lying just to the east of centre. Above it was an organic dump (A53.6), possibly reclamation or disturbed material. Above and to the east was another north–south ragstone foundation (A53.7) which could have formed the east limit of Tenement 2. There were no finds.

Revetments and foreshores in period A4

Tenements 2 and 3 continued to develop together. Several fragments of A:Waterfront 12 (Gp A39) formed the waterfront here and all lay on roughly the same line (Figure 50). Two of the elements were constructed of posts supporting planking above a baseplate, set above the earlier foreshore, with softwood packing. The posts were supported by front raking braces attached to a subsidiary baseplate. A horizontal tie may have linked the two baseplates. Beams from the north apparently protruded through the planking, perhaps forming tie back braces. The method of fixing the timbers is not certain, but the baseplate had mortises in its upper surface and at least one peghole. The planking overlapped clinker style, at least in some places, but no evidence of fixing nails or pegs was observed. The full height of the structure is uncertain.

Group A61 was a reclamation dump in front of Tenements 2 and 3 (Table 115). This yielded *c.* 250 sherds of pottery, some quite large (at least 197 ENV, 5.004kg) in a wide range of fabric types; sherds from some pots were scattered through two or more deposits. London-type wares are the dominant type, with 153 sherds (3.177kg). Most are from baluster jugs in the North French and Rouen styles, but one is of tulip-necked baluster form and dates to after 1270. Four pipkins, three cooking pots/jars and a dripping dish are also represented. Wheelthrown coarsewares in SSW, SHER and LIMP form the second main group (34 sherds, 772g), including a storage jar and a jug with thumbed handle in SHER (A<P7>, A<P8>). In third place are Surrey whitewares, with 18 sherds of KING, four of CBW and one of Earlswood-type ware (353g). Also present are 15 sherds of Mill Green ware (176g). The group also includes the highest number of imports so far, of which the contemporary finds comprise proto-/near-stoneware (EGS; some missing), including a jar or beaker and two drinking jugs (A<P9>, A<P10a, b, c>, A<P11>), Rouen-type ware (ROUE), Andalusian lustreware (ANDA; missing) and Saintonge polychrome ware, the latter the latest diagnostic type for dating purposes. As a group, the pottery points to a deposition date between *c.* 1280 and 1350 for these dumps, which are similar in character to Gp A74 and could well date to the early 14th century. Artefacts from A61 include dress accessories, a chesspiece (a pawn) and a pilgrim souvenir, a thumbnail-sized ampulla decorated with the pilgrim's scallop shell and a tiny portrait of Thomas Becket (<S4–S8>; Figure 53). They are all listed in Artefact Table 11.

A:Buildings 19 and 20, and Open Area 7

A north–south foundation, probably of chalk and ragstone (A53.29), lay within Tenement 2 and has been assigned to Building 19 (Figure 50). It seems too close to A:Waterfront 11 to relate and is therefore considered with A:Waterfront 12. This may simply have been an internal wall rather than the east limit of Tenement 2.

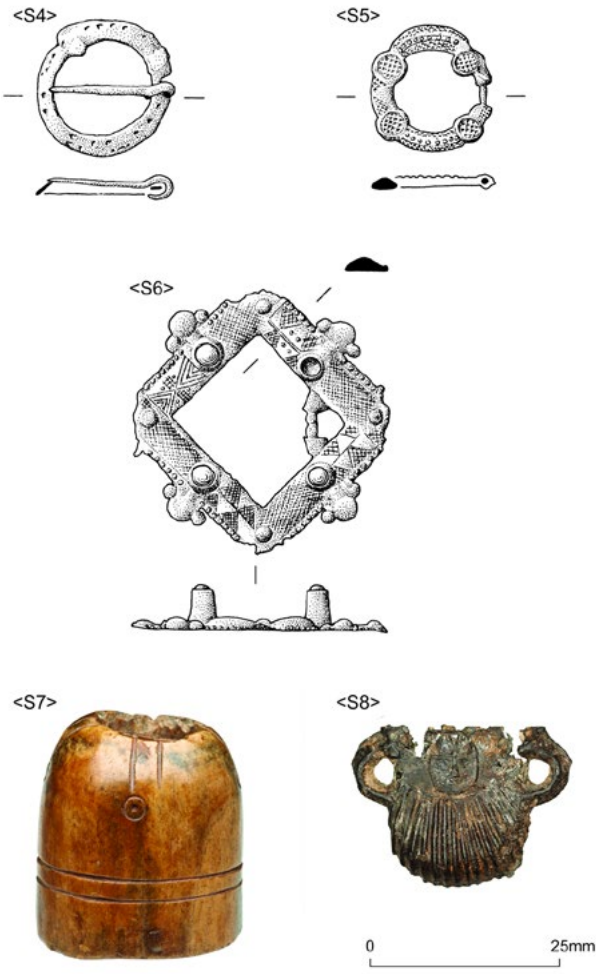


Figure 53 Site A: objects from Gp A61: dress accessories; bone chess piece, a pawn; and pilgrim souvenir (<S4–S8>) (1:1)

To the north were external and internal deposits of apparently similar date (ie 1250–1300). Above an earlier foundation (A47.16) was a cut, thought to be the result of robbing (A52.1). Within it was gravel, sealed by a series of layers recorded as one (A52.2), perhaps a gradual accumulation of material, or dumps and surfaces. This contained the only pottery from this area, a small residual sherd of early medieval date (3g). Cutting through these was a straight-sided pit (A52.3), filled with clays and silts and including some fuller's earth. The function of this feature is uncertain and it could perhaps result from robbing. These activities have been assigned to Open Area 7 (not illustrated).

The following internal deposits are assigned to A:Building 20, which is proposed to have stood in line with and to the north of A:Building 19 (Figure 50). The area was sealed by dumps of sand, then mortar and mixed debris (A52.4), in preparation for a hearth (A52.5). Two sherds of pottery (24g) were recovered from A52.4 which date the feature to after *c.* 1240, and two from the hearth itself (10g, both residual). The construction cut for the hearth was filled with a packing of clay and mixed material, above which was burnt clay. To the south was brickearth with large ragstone or sandstone fragments, possibly forming a kerb. Vertically set rooftiles, aligned east–west, were set into this with their broken edges to the base, forming a neat, even surface. The alignment of the tiles would suggest that the hearth opened to the east or west. Above the tiles was a burnt mortar surface, with subsequent bands of burning. A second surface of tiles were set horizontally, apparently glazed at the top and forming a floor or replacement burning surface. This was sealed by mixed dumps including mortar, brickearth and destruction debris (A52.6), indicating the destruction of the building. Deposits associated with A:Building 20 clearly overlay a wall of A:Building 6, suggesting, as no wall was found in a similar position above, that the building extended further to the east than previously, across the earlier boundary between Tenements 2 and 3. Perhaps the boundary was locally moved. The dating evidence for Tenement 2 in period A4 is given in Table 116. The pottery is residual, as the general date for period A4 is 1240–1300 or later.

Revetments and foreshores in period A5

Group A72 was a foreshore in front of both Tenements 2 and 3, but no contexts are assigned to it, and no artefacts were recovered. It is shown on Egan's diagram of the Swan Lane major deposits (e.g. in Egan and Pritchard 1991, fig 4) as south of, or later than, Group A61, and beneath A74 which is reported next.

Group A74 comprised a reclamation dump on Tenements 2 and 3 (the tenements could not be differentiated). It contained a large group of pottery, with at least 1257 sherds (936 ENV, 26.599kg) (Table 117). A wide range of fabrics and forms is present and the fact that sherds from the same Magrebhi ware jar were found in three deposits (A[2051], A[2070] A[2144]) suggests that other vessels are probably represented in two or more deposits. Although it was not possible to check this for all the finds, a scan of the Kingston ware jugs with bossed decoration showed, rather unexpectedly, a direct sherd link with period A6, waterfront development on Tenements 2/3 (A85; A<P21>). The composition of A74 is of some interest in that, in addition to an unusual cluster of Scarborough ware (below), London-type wares and Mill Green wares are almost equally represented by sherd count, although the former (406 sherds, 303 ENV) are dominant by weight (10.433kg). Jugs in the Rouen and north French styles are now in the minority, while at least five are in the highly decorated style, dating to after 1240. The latter include a sherd that, unusually for London wares, has repoussé raspberry bossed decoration (A<P12>). Numerous other types are also represented, including large rounded and conical jugs, a number of tulip-necked baluster jugs and part of an anthropomorphic jug. Other forms comprise drinking jugs (two of baluster form), cauldrons (A<P13>), dripping dishes (A<P14>), a condiment dish and part of a louver.

Mill Green wares, which date to after 1270, amount to 405 sherds (289 ENV, 6.060kg). They include numerous conical jugs, two/three with cabled cordons (A<P15>, A<P16>), another with sgraffito decoration (A<P17>), a jug rim with strap handle, the inner junction of which is randomly stabbed through from the inside (A<P18>); this method of keying in is most unusual on Mill Green wares.[24]

[24] Another jug that was apparently displayed in the 1986 Museum of London exhibition *Capital Gains* (A[2030]) is now missing.

Kingston wares are in third place by sherd count and weight (*c* 268 sherds, 221 ENV, 5.778kg). They include a variety of jugs, including two of metal copy form, five with polychrome decoration and 16 in the highly decorated style (A<P19>, A<P20>); up to seven further jugs have stamped boss decoration, including A<P21> (fleur-de-lis stamp), while one sherd is from a drinking jug. Forms associated with food preparation comprise cooking pots (A<P22>), pipkins, a frying pan (A<P23>), three dripping dishes (A<P24>, A<P25>, A<P26>), a skillet (A<P27>) and a bowl (A<P28>) (for details of previous illustrations of many of these sherds, see Table 67). Also present are sherds from three crucibles and 10 sherds (7 ENV, 212g) in the contemporary Earlswood-type ware. Coarse Surrey-Hampshire border ware amounts to only 25 sherds (25 ENV, 792g) and it is possible that some sherds of these, such as two large bowls/curfews (A<P29>, A<P30>) are in fact atypical Kingston wares. One small sherd from A[2022] was recorded as Cheam ware but could be intrusive. Other English wares are limited to 30 sherds of SHER (19 ENV, 921g), including two decorated handles (A<P31>, A<P32>), 22 sherds (730g) from up to seven Scarborough jugs, one possibly a knight jug (A<P33>, A<P34>, A<P35>).

Of the imports (87 sherds, 61 ENV, 1.412kg), the most common, as might be expected, is Saintonge ware, various varieties of which are present (SAIG, SAIM, SAIN, SAIP, SAIU; total 42 sherds, 27 ENV, 645g; A<P36>). There are also a few jug sherds in NFM (A<P37>, A<P38>, A<P39>). Much more unusual is the amount of Magrebhi ware (MAGR), with at least 11 sherds from up to eight faceted and carinated albarellos (A<P40–1>). This ware, which is usually dated to the late 13th and 14th centuries, was made in the Maghreb region of north Africa and has a buff body and a green alkaline glaze. It is very rare in London and even more so outside the capital. Although it also occurs at Trig Lane, the only other possible findspots since the creation of a central database for pottery records in 1995 are from the Guildhall site (GAG87 [13877], building 124, unpublished), possibly at the Baltic Exchange (BAX95 [1191], unpublished) and Aldgate (WCE01 [212]), all atypical finds. The concentration in this waterfront dump is thus of some interest. Other contemporary imports comprise proto-/near-stoneware (EGS; A<P42>), a Dutch redware skillet (A<P43>), and single sherds of Andalusian lustreware (ANFDA), archaic maiolica (ARCH), Spanish micaceous ware (SPAM) and Spanish amphora (SPOA; A<P44>). Wares dating to after 1300 are noted below.

The date of A74 is problematic. Of the 35 contexts, two date to after 1240, 23 date to after 1270, one to after 1280 and two to after 1290. Low Countries redwares began to reach London from *c.* 1300, but are more common after *c.* 1350; skillet A<P43>, present in contexts A[2061], [2137], [2141] and [2149], would normally be dated to after the later 14th or 15th century. Small, single sherds of Cheam whiteware and Siegburg stoneware (SIEG) from [2022] date this context to after 1350. Arguably the latest context is [2018], which includes a range of late 13th- to 14th-century wares, with one sherd from a Kingston ware jug that could date to after 1340, one sherd of Langerwehe stoneware (LANG) dating to after 1350, and one small sherd of Raeren stoneware dating to after 1480. These two latest finds are a tiny proportion of the whole, which amounts to over 1250 sherds dating to the late 13th/early 14th century. The group is very similar in character to the dump A61 in period A4, and it is quite possible that the pottery in the two dumps is, for the most part, broadly contemporary. If the Raeren stoneware is taken as intrusive, an end date of *c.* 1340/50–70 seems likely for this phase of dumping. Most sherds are from jugs, but a range of vessels used for cooking and storage is also present, together with part of a louver and two whiteware crucibles. Thirty-five coins of the 13th century were recovered, but are all residual (details in the online supplement). The latest were two of Alexander III of Scotland, current in 1250–80. There were also 85 lead tokens, not yet studied. The pottery and the stratigraphic position of the deposits would suggest that the reclamation dated to the first half of the 14th century, possibly with a small amount of later contamination due to the conditions under which recording took place.

Besides the pottery and coins, 266 objects from A74 have been studied (Artefact Table 12). A selection is presented here (Figure 54 to Figure 64); they comprise buckles and pieces of belts, rings, keys, household implements, knife blades and spoons, pilgrim souvenirs,[25] rowel spurs with fittings,[26] wooden bowls and other items (<S9–S56>). In this large group of finds there was no clear manufacturing waste, though broken articles may have been kept for recycling; this waterfront dump was primarily composed of domestic rubbish, possibly with tools from the world of work. The fact that most coins in this deposit date to the second half of the 13th century means that the other artefacts could also have been up to 100 years old when incorporated into the reclamation dump. It is therefore probably better to think of them as dating in origin from about 1250 to about 1350 (with the possible exception of a defaced seal, noted shortly, which may be earlier). A tentative date of about 1350 is suggested for the construction of the revetments on Tenements 2 and 3, with the reclamation dump A74, though, as always, if the latest material was itself in use or lying around for a period before incorporation into the deposit, the date of deposition could be later.

The artefacts in Group A74 are varied. A fragment of lead window came with a piece of glass adhering (A<2444>, Figure 64) is notable as being one of the earliest stratified medieval examples of its kind from a secular site in London. Little is known about the frequency of glass in windows in ordinary medieval buildings in the city, though London was probably ahead of other towns in its adoption. A house in Wood Street had two glazed windows, apparently of some age, in 1321.[27] A piece of lead window came has been found at Trig Lane in an earlier (or roughly contemporary, if the site A deposit is towards the beginning of its date range) waterfront dump of about 1280.[28]

The wooden bowls, locks and keys, spoons, knives and scabbards are standard domestic items. Some objects such as the shears and the flesh-hook may have been used in the shop, though shears were also used for cutting hair. There are many buckles, brooches, buttons and other metal attachments for

[25] Pilgrim souvenir <S50> is not illustrated here, being in poor condition, but is in Spenser 1998, 54.
[26] The rowel spurs with their fittings, <S48–49>, are not illustrated here but are in Clark 1995, figs 94 and 96.
[27] Chew and Kellaway 1973, no 255.
[28] Schofield 2003, 105–8; Milne and Milne 1982, 90.

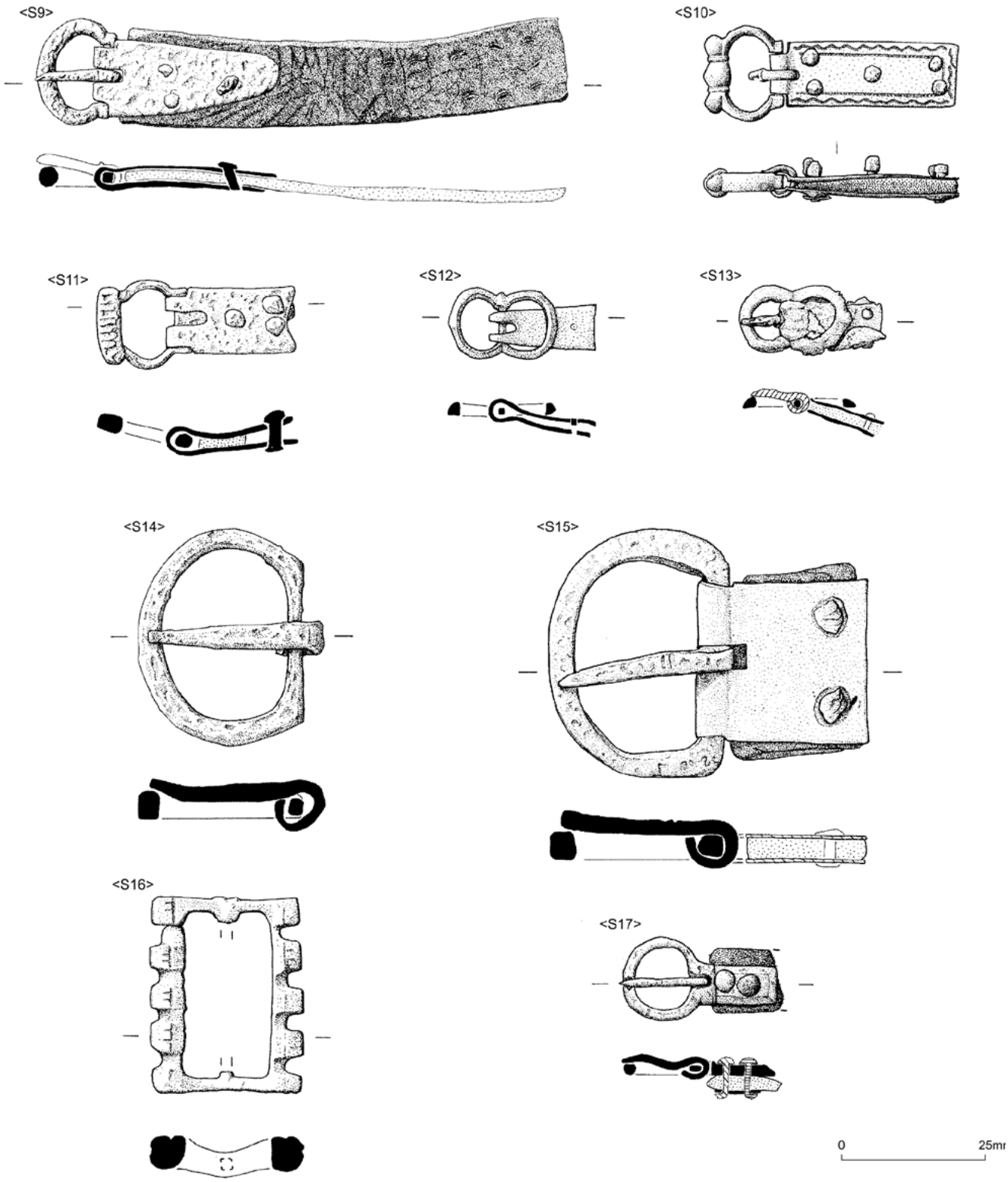


Figure 54 Site A: objects from Gp A74: dress accessories (<S9–S17>) (1:1)

clothing; but the significance if any of their frequency cannot be ascertained. Notable is a knife within a decorated scabbard bearing the name RICARDIE (<S44>).[29] A life-style of some status is indicated by the two rowel-spurs and the fragment of a large highly-decorated pewter brooch (A<442>, Figure 55);[30] and most of all perhaps by several rings, including one of brass with a multicoloured glass cameo showing either a scorpion or a crab (<S25>, Figure 55). The occurrence of twenty horseshoes presumably indicates that a pile or store of them had been thrown out. One further notable item from

[29] Cowgill *et al.* 1987, 122, fig 81.

[30] Egan and Pritchard 1991, 258–60.

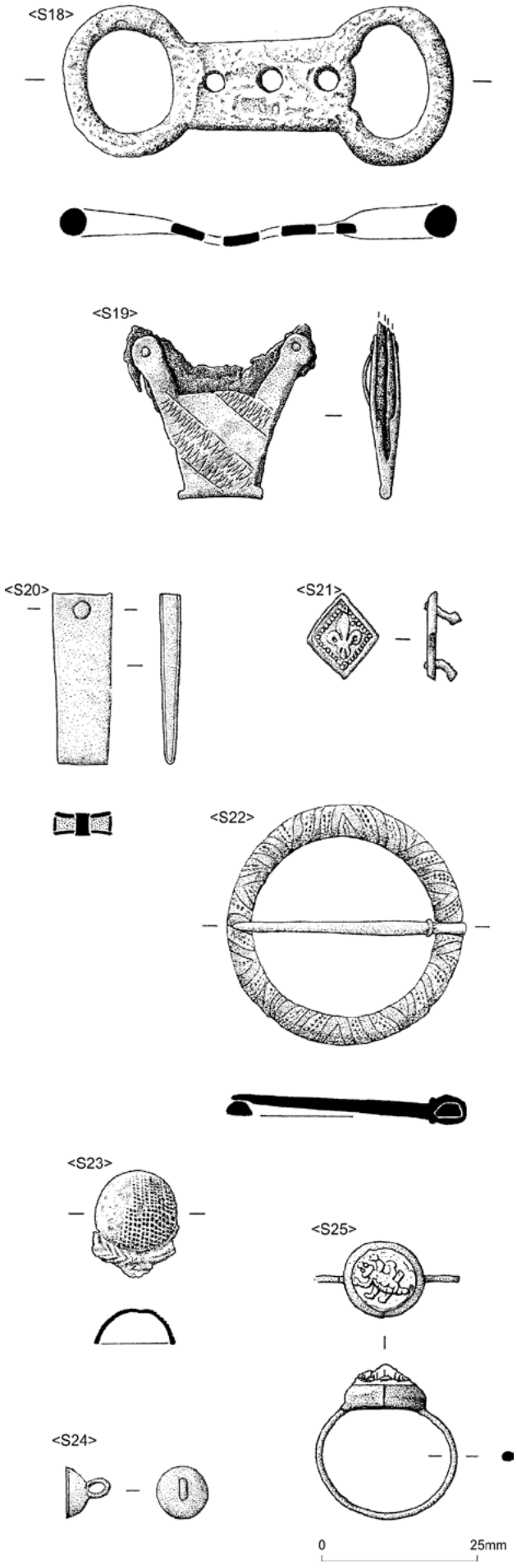


Figure 55 Site A: objects from Gp A74: buckle, strap-ends, mount with fleur-le-lis decoration, reversible annular brooch, fragment of an ornate pewter circular brooch, copper alloy button, brass ring with glass cameo of a scorpion or crab (<S18–S25> (1:1)

this group is a seal matrix or die A<446> (<S55>, Figure 63). This is of tin, and the design features a beast, probably meant to be a lion rampant, within a lettered border which reads S'WALTER [DE] REIGATE.[31] It may be of the early to mid 13th century, from its type (6.4 below).

This reclamation deposit provides an early stratigraphic group of pilgrim souvenir and secular badges, which have been generally in the past been found in the silts of the present river foreshore and therefore undatable. Seven badges were recovered, and five are illustrated here. Four come from the shrine of St Thomas at Canterbury (A<511>, A<443>, A<692>, A<691>, Figure 61, <S50–53>), and the fifth is a unique and important badge from the shrine of the Virgin of the Carmelite Friars at Toulouse (A<2150>, Figure 62, <S54>; see also below, 6.4).[32] The others (not illustrated) are fragments of a souvenir of the cult of the Three Kings at Cologne (A<2966>) and of a secular badge in the form of an axe (A<2871>).[33]

A:Building 26

Part of another building (A:Building 26, Figure 51) was formed by two chalk and ragstone foundations (A54.17 and 54.20). A buttress protruded from the latter foundation to the south. Above a dump of silt and gravel (A54.21) was a north–south ragstone foundation (A54.22), possibly forming another buttress and implying the presence of another internal wall, or simply another foundation. There were no finds in the layers assigned to this building; a broad date of 1290–1350 is given by the strata in the A74 reclamation dumps beneath it. A summary of the archaeological dating evidence for the development of Tenement 2 in the period M2 is given in Table 19.

[31] Spencer 1984, 378, fig 3 no.2.
[32] Spencer 1998, 242–3.
[33] Spencer 1998, 265, no. 259; 303, no. 300 respectively.

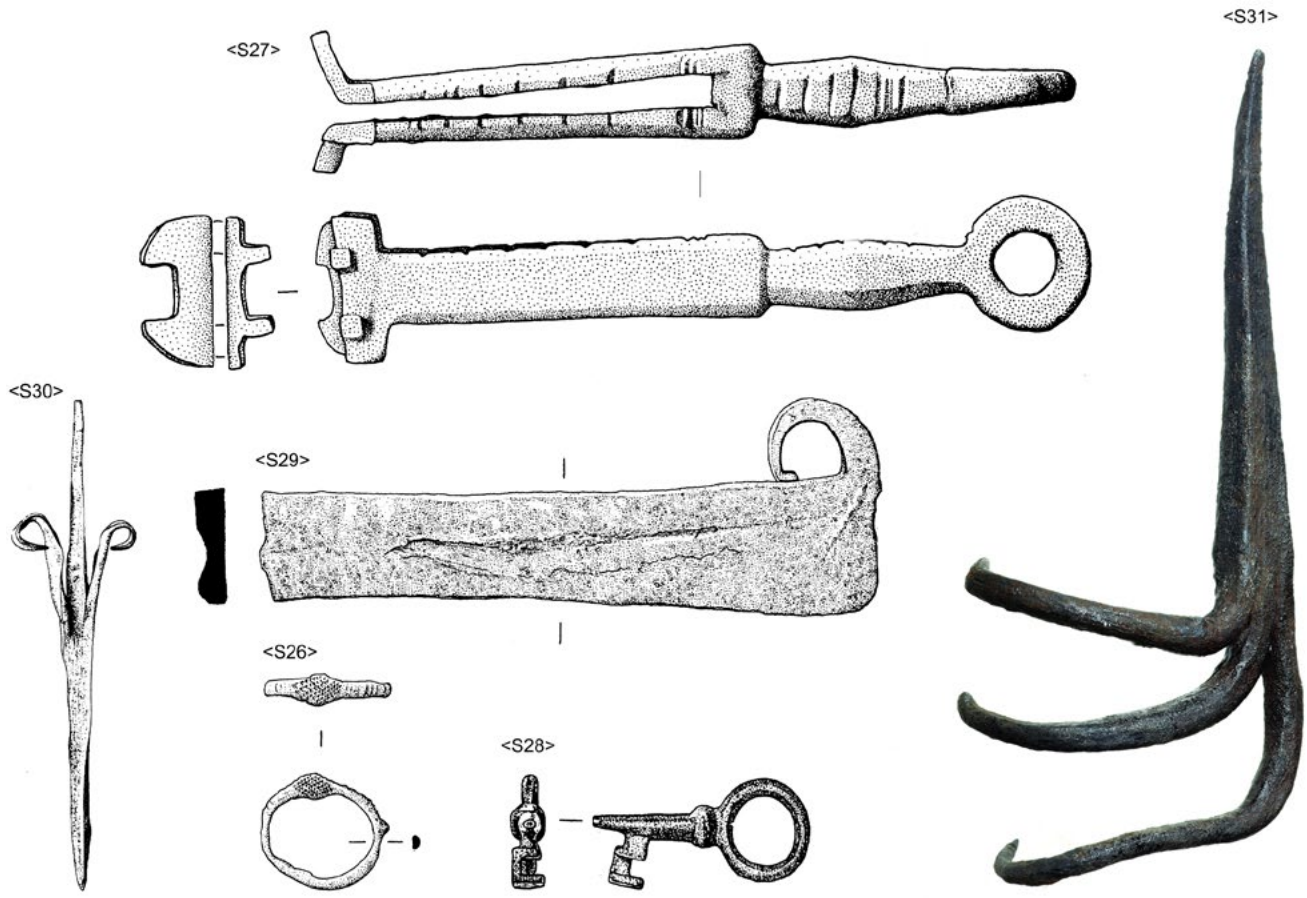


Figure 56 Site A: objects from Gp A74: dress accessory, keys, strike-a-light, pricket, flesh-hook (<S26–S31>) (1:1)

Period A3: 1200–50	
Building 14	
A38 dump	1180–1200 with later material
A52 dump later than A38	1230–70
Period A4: 1240–1300+	
Building 19	no dating evidence
Open Area 7	1050–1150
Building 20	1170–1220
A108 foreshore	no dating evidence
A61 dump over A108	1280–1350
Period A5: 1300–50	
A72 foreshore	no dating evidence
A74 dump	1290–1350 with some 1340–1360/1400
Building 26	no dating evidence

Table 19 Dating summary for Tenement 2, 1200–1350

Tenement 3

Nicholas de Farndon (or Faringdon) is named as the owner of Tenement 3 in a deed of July 1329 concerning Tenement 2 (CLA/023/CP/01/057/89). In his will made on 20 April and proved on 10 May 1361 Nicholas gave all his tenements in Thames Street in the parish of St Lawrence in the East, together with six marks per annum payable from tenements in the parish of All Hallows the Less, for the maintenance of a chantry for his soul and the souls of his grandfather, Nicholas de Farndone, his mother Roesia and others, at an annual cost of eight marks (/089/66). The location of the intended chantry is not specified in the will, but on 22 June 1364 William de Kelm, rector of SS Peter and Paul 'at Wood Street corner' (ie St Peter Wood Street, in the main area of goldsmiths in Cheapside) and three of his parishioners, who had been appointed by the will as receivers and keepers of his property in the parishes of All Hallows and St Lawrence, confirmed to Lawrence Brecham, chaplain of Faversham, ten marks for life for a chantry to be maintained by him in the church of SS Peter and Paul, from income received from the same tenements and rents forever (092/110).

Reclamation and foreshores in period A3

For the units of reclamation and foreshores on Tenement 3, see the section on Tenement 2 at this time, above. The rich array of objects, for instance from Gp A74, could equally have come from reclamation on Tenement 3 as on Tenement 2, or represent debris brought in from elsewhere in the city.

A:Buildings 15 and 16

Perhaps forming the south limit of buildings on Tenement 3 at this stage was another east–west chalk foundation (A53.19), linking with another chalk foundation (A53.28) to the northwest, probably an internal division within Tenement 3 rather than an external wall. These foundations are all termed A:Building 15 (Figure 49).

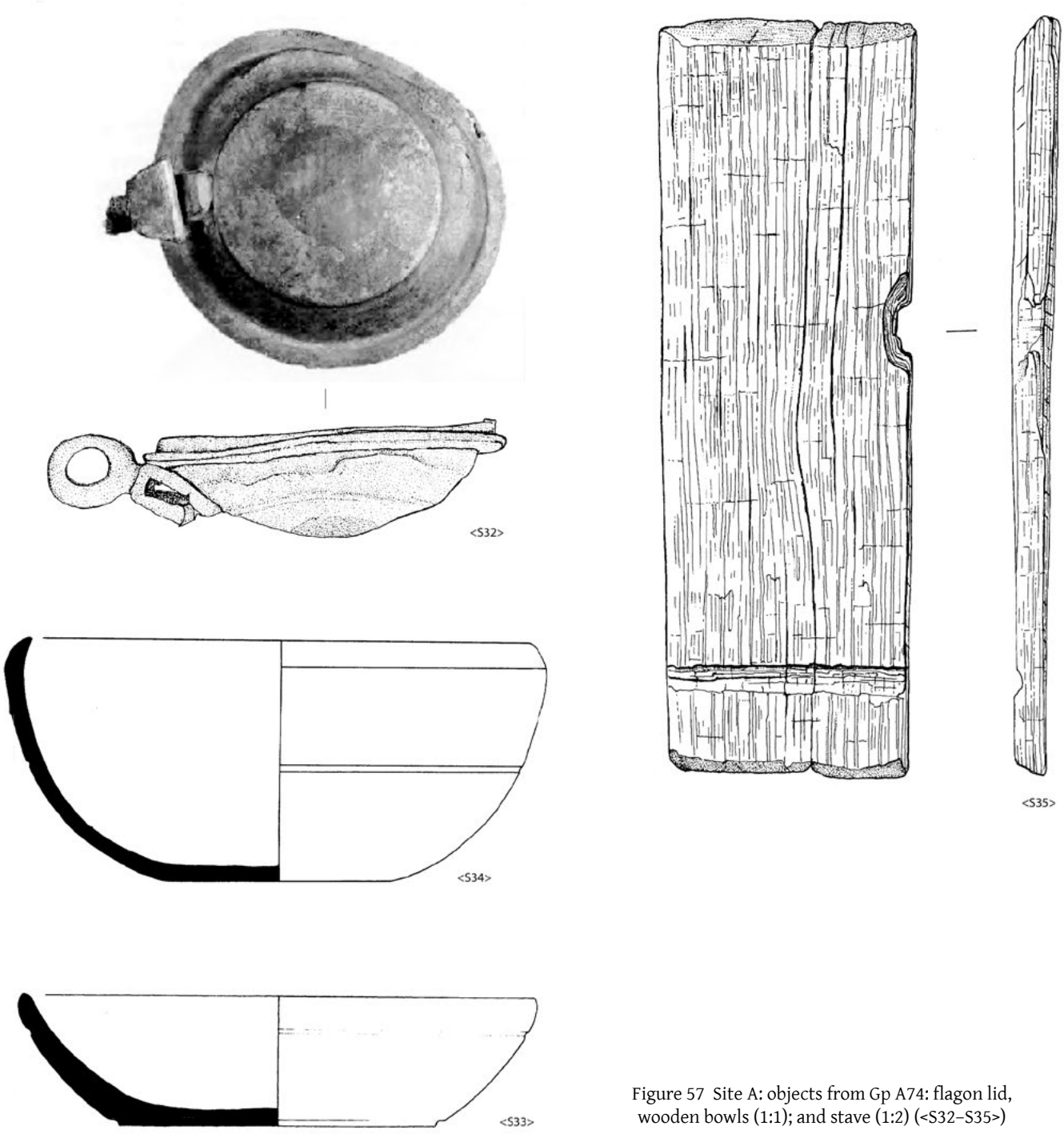


Figure 57 Site A: objects from Gp A74: flagon lid, wooden bowls (1:1); and stave (1:2) (<S32–S35>)

The fact that the latest hearths within A:Building 11 cut into the top of the previous east wall indicates that this wall was now out of use. The location of the pits within the property suggests that they extended eastwards, perhaps across the former structural line. A:Waterfront 11, however, could still suggest a property division maintained, and it has been assumed that the wall line has moved slightly eastwards, narrowing the alley to the east. A fragment of sandstone wall foundation (A47.35) abutting the east side of wall A47.27 may reflect such a change, and lay at roughly the right level.

Postdating the hearths was a sequence of deposits and features which may date to the early 13th century, and thus relate to A:Waterfront 11. A gradual transition from the hearths to pitting occurred, still apparently associated with clay floors and structural elements suggesting that these activities were taking place within a building (A:Building 16, not illustrated).

Cut into underlying hearth deposits was a roughly oval cut (A55.1) of unknown function, filled with mixed debris including charcoal and animal bone, suggesting it may have been for rubbish disposal; although first listed as medieval, the only pottery is of Roman date (A[219]). Above the pit were layers of trample (A55.2), containing residual medieval pottery (34 sherds, 226g) overlying a gravel make-up. The constituents of these and subsequent deposits are in marked contrast to those related to the hearths, which were largely brickearth based. Cutting into these layers was a roughly

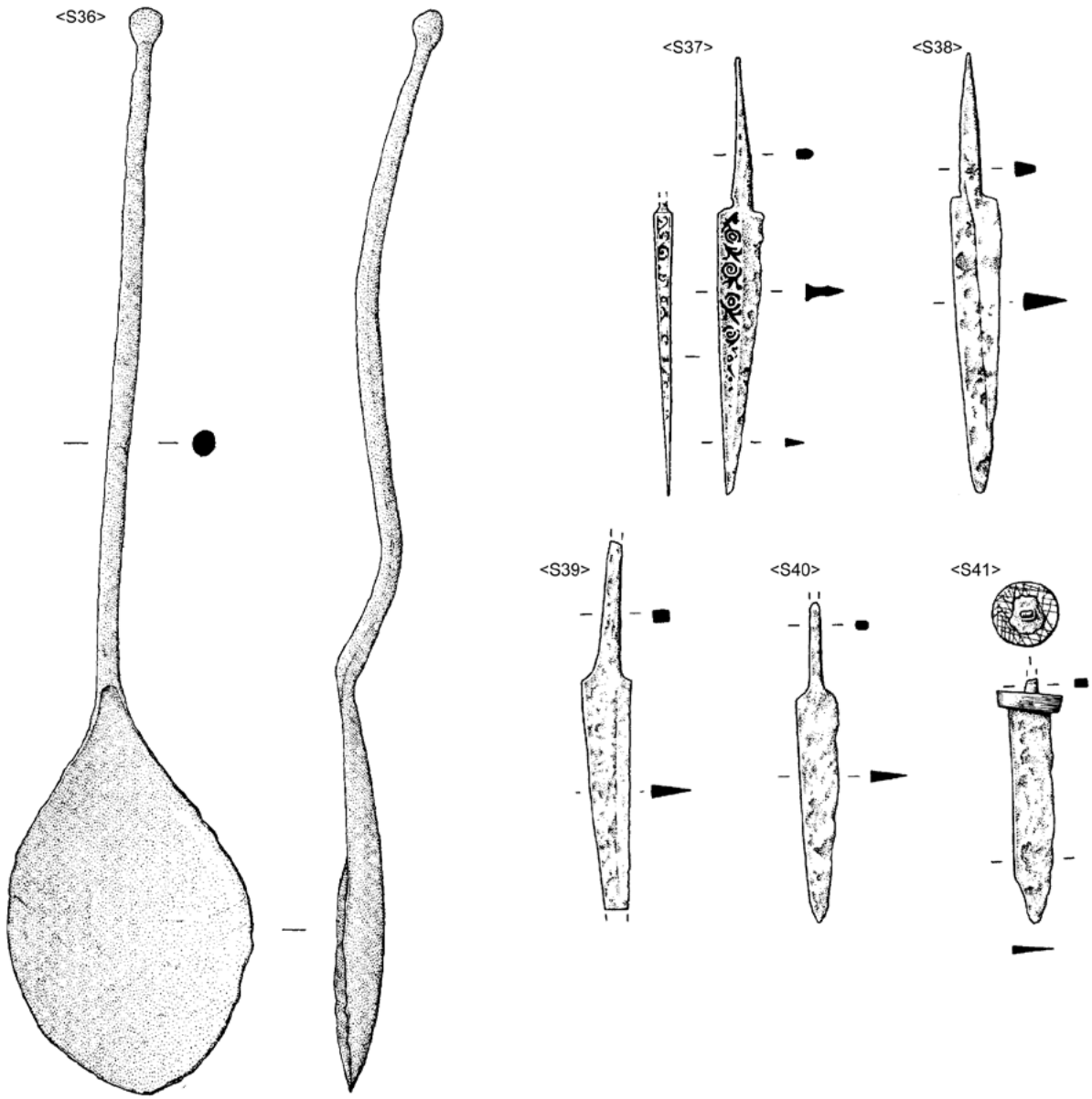


Figure 58 Site A: objects from Gp A74: spoon, knives (<S36–S41>) (1:1)

square pit (A55.3), filled with mixed brickearth and including several large fragments of ragstone, possibly disturbed from the hearth activity beneath. Above was a series of clay floors and charcoal tramples (A55.4–5) again with medieval pottery (2 sherds, 15g; 8 sherds, 60g) with other patches to the north (A55.8–9). Cut from this level was another pit (A55.6), sub-circular in plan and filled with redeposited mortar, some ragstone and flint. Above it was another cut of undetermined function (A55.7), filled with mixed brickearth and again with some mortar and building material. The pottery from both A55.9 (34 sherds, 539g) and A55.7 (five sherds, 52g) is very similar, comprising mainly London ware jugs, but including a few sherds from cooking pots in SSW and SHER that probably date to *c.* 1180–1220. These two groups contained five sherds and 34 sherds of pottery respectively (52g and 539g). The pottery from all these deposits is very similar, comprising mainly London ware jugs with a few sherds of SSW and SHER that probably date to *c.* 1180–1220. One sherd of EMFL from A55.7 is from the same pot as another found in A55.13. Above the clay floors was a possible structural element (A55.10) in the form of two lines of ragstones running east–west, rough hewn and embedded in pure clay. The associated pottery amounts to 49 sherds (550g) that is the same in date and character as the above. Above were more clay floors (A55.11) with four sherds (35g) of similar pottery. To the north of these was another possible structural element (A55.12), with east–west irregular courses of chalk rubble to the east and ragstone to the west. It contained a lens of yellow mortar and some tile and may have formed an internal wall, or may be the remains of disturbed and truncated horizontal layers.

A layer of destruction debris or make-up (A55.13) overlay the floors to the south; the nine sherds of pottery (36g) are all small but the same in character as those noted above, with sherds from the same EMFL jar as was found in A55.7. Above the structural element (A55.14) was another pit (A55.15), roughly rectangular in plan and filled with silt and clay, with some fuller's earth, presumably derived from underlying

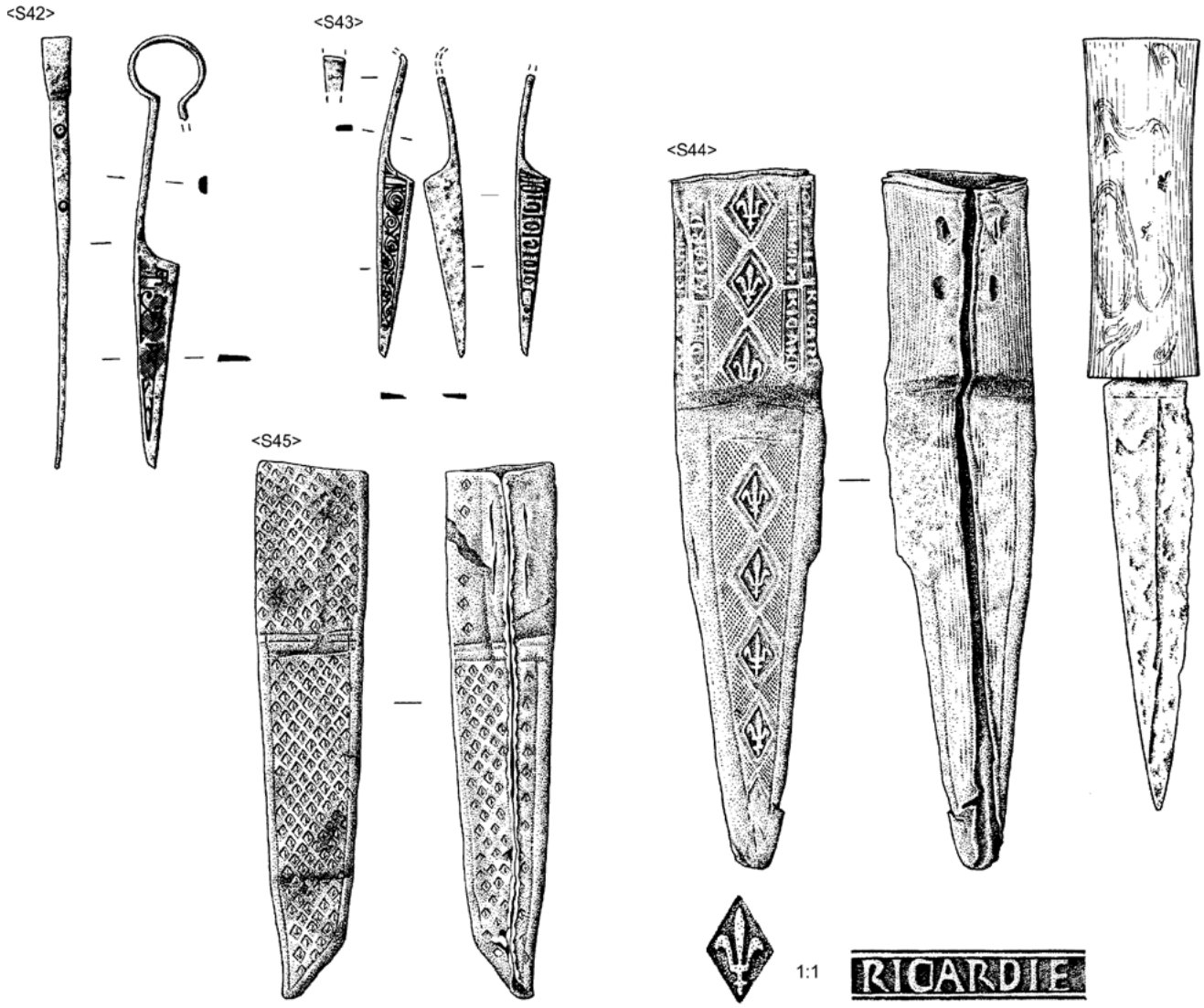


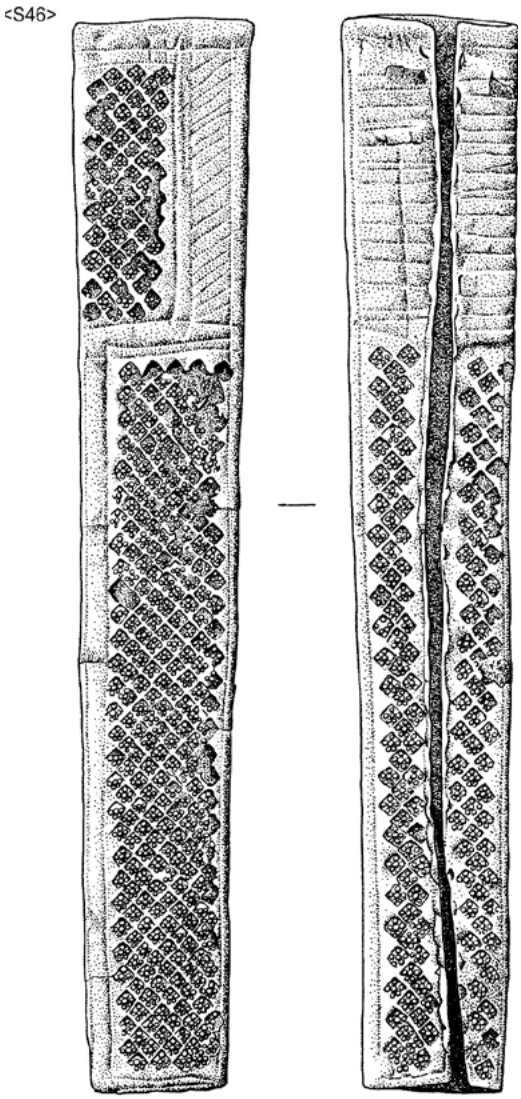
Figure 59 Site A: objects from Gp A74: shears (1:1); knife and the scabbard it was in [both <S44>], scabbard (<S42–S45>) (1:2)

deposits. The pottery from these two groups (eight sherds, 101g) is slightly earlier in character than that from other parts of this building. Another rectangular or linear cut lay above this (A55.16), which may have had a butt end to the west. Again, it was filled with a mixed deposit, including fuller's earth and perhaps robbed a structural feature; no pottery was found. The ceramic dating evidence from the groups described above, which comprises a mix of early medieval and late 12th-/early 13th-century pottery and appears to be redeposited, is listed in Table 122.

A:Building 17

Activity at the north end of the controlled trench also apparently dated to the early 13th century, although whether it was contemporary with the activities to the south of the trench (in A:Building 16) is unclear. Dating evidence suggests an early 13th-century date for a cellar which may have been a vaulted undercroft, lying within the boundaries of Tenement 3 and called A:Building 17 (Figure 49). This truncated the north part of the hearth sequence within A:Building 11 and thus A:Building 17 probably replaced part of the larger A:Building 11.

An east–west construction cut (A56.1) may have held a timber relating to an earlier phase of the cellar entrance and lying to the west of it. It was filled with a mixed deposit including some fuller's earth, presumably derived from underlying deposits, together with three sherds of earlier 12th-century pottery (90g) and six intrusive post-medieval sherds (138g). Truncating this feature to the east was a complex cut (A56.2) made for the insertion of the cellar itself. Another cut to the north related to the entrance and may have been a replacement for an earlier feature. The deeper parts of it on the west and east sides were for the insertion of walls (A56.9), with a postulated vestibule to the south, and steps leading upwards to the north. A series of graded cuts may have originally held stone steps, presumably later robbed, leading up to street level. The sandstone entrance walls (A56.9) enclosed an area of about 1.5m north–south and about 1m east–west. At the south ends of the walls were shaped stones, probably supporting shafts or columns framing the lower end of the stair, the circular shape being indicated by patches of mortar. A row of flat stones ran across the entrance itself.



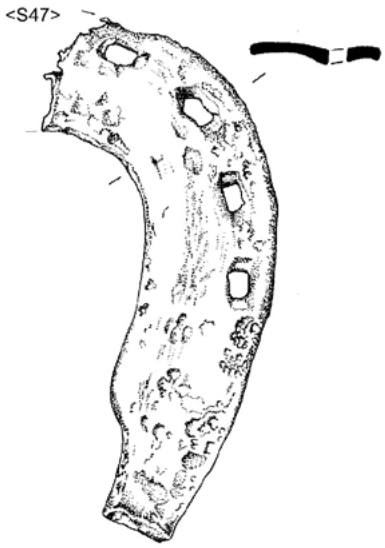


Figure 60 Site A: objects from Gp A74: scabbard, horseshoe (<S46–S47>) (1:2)

The main square or rectangular cut for the cellar sloped down towards the south and a circular hollow noted at the south end may have been intended to drain ground water away during construction. The east side of the cut exposed the west face of the underlying wall (A47.27), reusing it as the east wall. This wall was at least partially rebuilt with masonry (A58.1) of similar character and appearance to the underlying wall; no pottery was associated with these features.

The south end of the cellar was hard to define. The north face of the construction cut was said to be rendered with mortar 'directly onto the vertical soil face'. This must have led to dampness in what one could suppose to have been intended as a dry storage area, but despite attempts on site to locate it, no trace of walling of any kind could be found. To the southwest, south of the south wall, was a tile wall associated with a mortar spread (A56.6). It had an irregular east face and a neat west face, suggesting that it was exposed to the west. The L-shaped element to the south indicates a west return, perhaps suggesting a box-like recess. This feature could have formed an alternative access point to the cellar from the river side, although its insubstantial nature makes an interpretation as a cupboard more likely. The only pottery is a sherd from what was probably a large squat jug (13g) similar to a near-complete find from a context dated to pre 1220/1240 at Westminster Abbey.[34]

A series of make-up dumps (A56.3) were placed within the main construction cut, possibly forming a waterproof base for an organic surface above; these contained 27 sherds (350g) of 12th-century pottery, mainly London-type wares with a small amount of SHER). Above these were smaller patches of mortar (A56.4), perhaps rendering collapsed from the south wall. A cut (A56.5) to the north may have been the result of slumping. A clay floor (A56.10) covered part of the suggested vestibule area, forming a make-up for a postulated stone or timber floor capable of withstanding heavy wear. Another patch of clay floor to the south (A56.11) showed wear on its surface and there may have been a hinged door here leading into the cellar from the vestibule.

Within the central area of the cellar was another series of make-up dumps (A56.7). The inclusion of loose pieces of timber amongst these deposits may relate to an alteration of the structure. Above were further make-ups and floors (A56.8), including mortar, ragstone, tile and fuller's earth. A series of trodden floors followed. Some of the tiles were lying horizontally on the surface, although not forming a floor as such, and some were glazed. Only a small amount of pottery was recovered from the earlier of these deposits (21 sherds, 167g), but A56.8 contained 91 sherds (1.652kg), including an impressive handle from a large early rounded jug in London-type ware (A<P45>). The two groups are very like A56.3. It could be suggested (Figure 49) that the steps turned eastwards to open out onto the alley.

The dating evidence for period A3 on Tenement 3 is given in Table 118. As a whole, the pottery from this tenement (Gps A55, A56) amounts to 258 sherds (3.612kg). The majority comprise London wares dating to between 1150–70 (mainly jugs), with a few earlier 12th-century wares (mainly cooking pots and jars). A few pieces can be dated to after 1180, but there is nothing that need be later than *c.* 1200. No Kingston

[34] Platts 1976, 161, fig 13, no.31; cf. also Pearce *et al.* 1985, 23, fig 20, no.39.



Figure 61 Site A: objects from Gp A74: pilgrim souvenirs (<S51–S53>) (1:1). Ampulla <S51> displays the murder of Becket (left) and the saint himself on the other end. <S52> and <S53> are souvenirs showing the head reliquary of Becket

wares are present and imports are limited to 11 small sherds. The date of A:Building 17 is later than the late 12th-century buildings beneath it, so is placed in the early 13th century.

Revetments and foreshores in period A4

Groups A108 and A61 have been reported above for Tenement 3; the excavated strata and finds (from A61 only) probably also came partly from reclamation units at the south end of Tenement 4.

A:Open Area 8

The first deposits within the controlled trench of a mid to late 13th-century date relate to the destruction or redevelopment of the cellar A:Building 17 (Figure 50). The overlying group (A58) contained finds dating to the late 13th century, which suggest a date of mid 13th century for the destruction, placing it roughly contemporary with A:Waterfront 12.

A layer of rubble or destruction debris (A57.1) lay within the cellar's entrance area, apparently derived from its destruction. It contained one sherd of SHER (13g). This layer was sealed by a series of make-ups (A57.2), including building material and 45 sherds of pottery (34 ENV, 727g) dating to *c.* 1180–1200, probably dumped after the robbing of material from the stairs and entrance. Some burnt material was included. Cut into these deposits was a miscellaneous pit (A57.3), infilled with building material. To the south were further make-up dumps (A57.4), again including burnt material and building debris, with 17 sherds of medieval pottery (222g). More make-ups followed (A57.5), containing ten sherds of pottery (132g). Cutting the by now thick dumps was a large, miscellaneous feature (A57.6). It was filled with several deposits, including a dump of flints at the base, possibly robbed from an earlier building, although they bore no traces of mortar. They were dumped in two phases. Above the first were dumps of clay, building material, mortar and flints, broken tiles and a second flint dump; the associated pottery amounts to 12 sherds (121g). A further sequence of make-ups (A57.7) sealed the feature and included clay, powdered Reigate stone, gravel and building material, all overlain by an extensive deposit of gravel and building material, densely compacted for stability. Geoff Egan interpreted these as being stacked up against a wall to the east.

This sequence has been assigned to Open Area 8, which may have opened directly from the alley to the east (Open Area 6). In all 87 sherds of pottery (72 ENV, 1.221kg), of which 52 sherds (647g) are London-type wares, were recovered from the various deposits in this area (Table 119). Most are relatively small in size and with the exception of one sherd



Figure 62 Object from site A, Gp A74: pilgrim souvenir, Virgin of the Carmelite Friars, Toulouse (height 53mm) (<S54>)



Figure 63 Object from site A, Gp A74: seal matrix (<S55>) (diameter 31mm). The name S'WALTER [DE] REIGATE reads anti-clockwise from just above the upper slash



Figure 64 Object from site A, Gp A74: window came with quarter circle of blue grozed glass in one corner, (<S56>) (about 150mm by 150mm). The curved cames are doubled, suggesting they formed the corner of a design

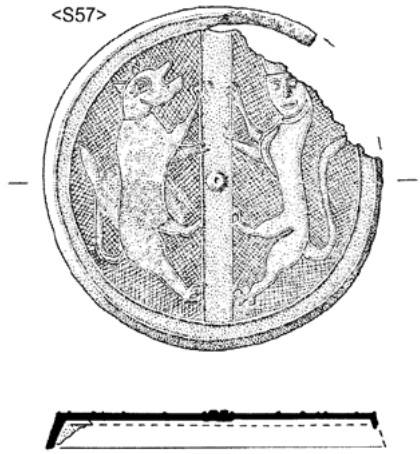


Figure 65 Object from site A, Gp A55: cased mirror (<S57>) (1:1)

of Kingston ware (A57.2) all could date to before 1240, and probably to before 1200; it is quite likely, therefore, that these sherds are redeposited.

A:Building 21 and Open Area 9

Cutting through the earlier hearth deposits was a chalk foundation (A58.3), with a butt end to the east, perhaps forming part of an arched foundation. Its relationship to other foundations is uncertain, although it was later rebuilt. The only pottery is a rim sherd of SSW (49g) which could be residual, although the ware continued in use until *c.* 1220. Running north–south along the east side of the trench was a chalk and ragstone foundation which may have turned eastwards at its north end (A58.4). Both of these foundations (A58.3–4) have been assigned to A:Building 21 (not illustrated).

In the centre of the south end of the trench was a square or rectangular pit (A58.5) filled with mixed debris including some building material. Its function is uncertain. To the south of the east–west foundation (A58.3) was a series of dumps (A58.6), the uppermost of which may have formed a surface, although the precise relationship to the surrounding foundations is uncertain. To the north of the foundation were further dumps (A58.7) which may relate to the construction of A:Building 27. A:Building 21 was now clearly sealed and widespread truncation had apparently occurred at this level. These deposits have been assigned to Open Area 9 (not

illustrated). The five sherds of pottery (128g) include one of Kingston ware dating to after 1240.

A:Building 22 and Open Area 10

In the southwest corner of the trench were two foundations, forming the corner of a building (A:Building 22) and running east–west and north–south (A58.19, Figure 50). The L-shaped construction trench may have been dug from the level of dumps A58.6. The foundation was of chalk fragments and flint nodules and supported chalk and ragstone walls (A58.21 and 58.41). The east face of the north–south element (A58.21) was external and showed signs of weathering.

Make-ups and floors (A58.6 and A58.22) relate to the use of the building. Within the observed room (room A), above the make-ups was a posthole or postpit (A58.2). It had been robbed out and may relate to the construction of the building. Abutting the wall and concealing the foundation offsets were make-up dumps (A58.22), including chalk and mortar. There was an indication that these were deposited around an internal feature within the room, perhaps a stair base. The uppermost dump may have served as a surface.

To the southeast a hearth (A49.5), lay directly above reclamation dumps associated with A:Waterfront 12. This was a reddened lens of burnt brickearth, without any tile support. It lay above the level of the uppermost hearth at the south end of A:Building 11 and its level suggests that it may have served a domestic function within A:Building 22. Very little pottery was associated with this building (three sherds, 25g), but as in OA8 and OA9, one is of Kingston ware dating to after *c.* 1240.

Cutting through the dumps in Open Area 9 to the north of A:Building 22 was a possible east–west drain (A58.8), the first in a series in roughly the same position and assigned, together with the deposits below, to Open Area 10 (not illustrated). Its sides were vertical, and it presumably flowed eastwards into the alley. Set along its north edge was a line of small, roughly hewn chalk blocks, subsequently replaced at least in part by ragstone and upright tiles and forming the lining. The drain may have been cleaned out before backfilling, with the shape of its base being altered in the process. No trace of waterlaid material was observed within it. Also cut from this level was a pit (A58.9), filled with silt and charcoal, chalk, mortar and clay. Its fills, which included three small sherds of medieval pottery (25g), levelled it up to the surrounding deposits, although its purpose is unclear.

Cutting through the dumps to the south was a linear feature (A58.11) running east–west. It had vertical sides and a fairly even base and ran up to the wall (A58.21) to the west, its relationship with it being unclear. It may have been a drain relating to an earlier phase of activity, and was filled with refuse including a large quantity of animal or fish bone and one sherd of medieval pottery (23g).

Just to the north of A:Building 22 was another east–west drain (A58.12) which replaced the earlier one (A58.8). Its south edge was formed by the wall itself, while the north edge was vertical with a flat base. It was stone-lined and ran into an external area to the east. It seems unlikely that a drain, unless carefully lined to be watertight, would have been constructed to flow against and erode a functioning foundation, and it could be suggested that all the drains were cut from a higher level. Lying to the east of the building was a cut (A58.26), the function of which is unclear. It contained a dump of flint nodules, with some ragstone and other building material, and one sherd of possible coarse Surrey Hampshire border ware (CBW).

The development of A:Building 22 and Open Area 10 continued into the 14th century. The dating evidence for period A4 on Tenement 3 is given in Table 119. In all, 120 sherds of pottery (101 ENV, 1.676kg) were recovered.

Revetments and foreshores in period A5, A:Waterfront 13

Three observations (A41.3, 41.5 and 41.6) indicated the waterfront advance in the central area (A:Waterfront 13) and are from Tenements 1–3 (Figure 51). Each was of a triangular brace with a north–south horizontal beam supporting two angled timbers. These apparently formed back braces but the position of the related revetment to the south is uncertain. The horizontal beams lay at varying levels and it could be suggested that the east–west revetment was constructed, dumps laid behind it, then the back braces inserted with further dumping above. One large, isolated post (A41.7) may have formed part of the same revetment. The east side of this property was defined by a north–south revetment (A41.13). A:Waterfront 13 continued to the east, slightly to the north, on Tenement 4 (Figure 51). A large drain (A42.32) in the centre of the site may relate to A:Waterfront 13 or A:Waterfront 14, but it is placed with A:Waterfront 14, as its most likely association.

The level of the waterfront at this stage is uncertain, but the structures survived to 1.20–1.80m OD. The reclamation dump Gp A74, reported above under Tenement 3, also formed the south of Tenement 4.

A:Building 27

A:Building 27 was constructed to the north of A:Building 22 (Figure 51). It consisted of an east–west arched chalk and ragstone foundation (A58.13) extending beyond the edges of the trench. Another ragstone foundation to the north of and parallel to this may relate (A58.14). These two elements formed two rooms (A and B) although no internal surfacing of this date survived within them. Cut into the flint dump beneath and to the northeast was a north–south feature, approximately 1m wide (A58.16). It had a butt end to the south against the central foundation and it may have returned eastwards at this point. It was filled with mixed deposits including building debris and thus may have been a robber trench, continuing the building line evident to the south, or perhaps an attempt at the retrieval of the underlying flints. In all 32 sherds of medieval pottery were recovered from these contexts (24 ENV, 431g; Table 120) of which London-type wares amount to 26 sherds. These are of late 12th- and 13th-century date, and include sherds from a range of baluster jugs and up to five large rounded jugs decorated in the north French style. Also present are single sherds of developed Stamford ware and the rim of a CBW cauldron, the latter dating to after 1270.

A:Building 22 continued

A:Building 22 was adapted with the addition of another room (room B) enclosed by a north–south free-standing ragstone wall (A58.28; Figure 51). The south end of this was of faced ragstone blocks, and fronted onto the drain, which seems to

have run internally within the room at this point. A make-up dump (A54.10) within the room may have been used as a floor. Room B lay above part of what had previously been an external area (Open Area 10), and filled the gap between A:Buildings 22 and 27. The relationship between the east wall of A:Building 22 and the south wall of A:Building 27 is uncertain. Sealing the posthole within room A was a make-up dump and clay floor (A58.24). It was overlain by a deposit of domestic rubbish, burnt in situ. The associated pottery (seven sherds, 55g) differs from the other groups noted above in that it comprises small sherds from three cooking pots in CBW and a bossed jug in LMHG. The former could be stratified, as small amounts of CBW have been noted in several other period M2 groups. The LMHG sherd may be intrusive, as this ware dates to after 1340, but it could perhaps be from the uppermost surface of the rubbish deposit.

A:Open Area 10 continued

Within Open Area 10 was a make-up, including a thin layer of mortar (A58.27) which supported a compacted gravel surface, suggesting a yard. The sequence of east–west drains already established continued. A third drain (A58.29) was added above the earlier ones. It ran east–west and no cut was recorded, but there was a layer of large horizontally laid rooftiles and flints, mortared into place. The flints formed the drain edging and it was filled with waterlaid silt. There was no indication if this drain was covered; it led out to the gravelled area to the east. The pottery amounts to 13 sherds (253g). Most is probably contemporary, with the base of a London baluster jug, five sherds of Kingston-type ware (KING), and one sherd of Earlswood-type ware. The latest finds are part of a KING metal copy jug and and the handle of a jug in Mill Green ware, both of which date to after 1270.

The dating evidence for period A5 on Tenement 3 is given in Table 120, and the summary archaeology of Tenement 3 in period M2 (1220–1350) is given in Table 20.

Period A3: 1220–50	
A52 dump	1180–1270
A:Building 15	no dating evidence
A:Building 16	1180–1220
A:Building 17	pottery 1180–1200; early 13th *c.* construction on stratigraphic grounds
Period A4: 1240–1300+	
A108 foreshore	no dating evidence
A61 dump over A108	1280–1350
A:Open Area 8	1240–1270
A:Building 21	1140–1220
A:Open Area 9	1240–70
A:Building 22	1240–70
A:Open Area 10	1270–1350
Period A5: 1300–50	
A74 dump	after 1251 on coins; pot 1340–60
A:Building 27	1270–1350; one sherd 1340–1450
A:Building 22 continued	no dating evidence
A:Open Area 10 continued	1270–1350

Table 20 Dating summary for Tenement 3, 1220–1350

Tenement 4

On 27 August 1246 Henry III granted to Abbot Richard and the convent of Westminster an annual rent of a 1 lb wax candle from a house in London next Ebbegate which was formerly of Walter Bukerel and was now in the king's hands by escheat after Walter was outlawed for robbery in the city; the rent was to be received from Halengrettus the crossbowman (*balistario*) and his heirs and assigns, who held the house by gift of the king (Westminster Abbey Muniments 13351; cf. also Chew and Weinbaum 1970, xxx–xxxi, no. 221). On 8 February 1253 King Henry confirmed the charter by which John le Faucuner de la Wade granted to John, son of Saer le Flemeng, the house which he himself had acquired from Halengrettus (*Cal Charter R 1226–57*, 418), and in 1274–5 John son of Saer was reported as having granted the house to Master Thomas de Lichfeud, who in turn had granted it to Geoffrey de la Fontayne, who now held it (*Rot Hundred*, 422).

In a deed relating to Tenement 5 before 1307 Geoffrey de Fonte is noted as a former occupant of Tenement 4 (CLA/023/CP/01/037/75), and on 4 March 1303 Henry de Fonte, perhaps his son, granted to Agatha de Fonte, once wife of Master Thomas a former royal cook (*cocus*), all the tenement he held in Thames Street (*Thamisestrete*) in the parish of St Lawrence between the tenement of Nicholas de Farndon to the west and the tenement once of Robert Staundone to the east, and extending from the street to the Thames (/031/33). On 30 June 1321 Robert Sperling and his wife Joan, Henry's widow, granted to William de Staneford, vintner, and his wife Roesia for the term of their lives all the tenement extending from Thames Street to the 'stream of water' (*rivulum aque*) of the Thames at an annual rent of 6m (050/101). Between 1328 and 1344 the documention of Tenement 5 to the east continues to refer to the tenement held and inhabited by William de Stanford (CLC/313/P/008/MS25271/22; /L/H/001/MS25121/13, nos 15–16, 138; CLA/023/CP/01/067/12; /071/109). In his will made on 11 March 1349 and proved on 4 May, William de Stanford left to his daughter Margaret, on the death of his wife Joan, all his tenement in Thames Street held by grant of Stephen [*sic*] de Stanford (/76/205).

By this date there were clearly two separate holdings on Tenement 4, for in his will, made four days earlier than William de Stanford's, on 7 March 1349 and proved on 11 May, William atte Welle, chandler, bequeathed his tenement at Ebbgate to his wife Gunnora for life, to be sold after her death and the proceeds divided between his children Peter, Gilbert, Joan and Agnes, and for pious uses (/76/256). This property is considered to be part of Tenement 4 because of its subsequent history (period M3 below).

Revetments and foreshores in period A3

Old Swan Lane and Tenement 4 also appear to have developed together at this point (Figure 49). The west limit was formed by a north–south revetment (A:Waterfront 11, A37.13) of post and plank construction, although apparently with no bracing. At its south end was an east–west revetment (A37.14), also of post and plank construction, with front raking braces tied into a subsidiary baseplate. No horizontal braces were recorded. The reclaimed land, about 5m from the south end of Tenement 4, was infilled with organic material (Gp A45 [Egan]). The dating evidence from Gp A45 is in Table 121, and

two artefacts (a hinge and a horseshoe) in Artefact Table 13. It is suggested that A:Building 13 of period M1 continued in use, though there was no direct evidence.

Revetments and foreshores in period A4

A:Waterfront 12 formed the south end of Tenement 4 as it did the others (Figure 50). Group A55 was a reclamation dump in front of Tenement 4 (Table 122). It contained a small amount of pottery comprising 13 sherds from London-type ware jugs and one of red-painted/Pingsdorf-type ware (144g). The deposition date is taken as sometime in the first half of the 13th century. From this dump came a cased mirror (<S57>, Figure 65; Artefact Table 14).

A:Building 23

The south end of the alley (Open Area 6) was now partially blocked with the construction of a building (A:Building 23, Figure 50). Three sides of a room or small building were recorded (A53.31), measuring internally 8m east–west and about 7m north–south with chalk and ragstone foundations. The south wall may also have been found (A53.34), consisting of coursed, dressed ragstone, although this could have formed part of a stone-lined drain. Similar stone-lined drains were observed to the north in Open Area 10. If this feature did not form the wall itself, the proximity to the line of A:Waterfront 12 suggests that the wall cannot have lain far away. Within the building was a domed oven (A53.32) with mortared ragstone walls supporting an arch made of rooftile fragments, roughly circular in plan. The observed height was about 1.25m and it measured 1.50m north–south. No sign of burning was observed in its base, although this and any associated floors may have been obscured by rubble. The shape might suggest that this was a bread oven. There was no dating evidence from A:Building 23.

A:Building 24

Adjacent to A:Building 22, at the south end of Tenement 4, was an east–west chalk and ragstone foundation (A53.33) which could have formed the south limit of a building (A:Building 24) at this point (Figure 50). There was no dating evidence.

Revetments and foreshores in period A5

The structures forming A:Waterfront 13 on Tenement 4 were seen in four parts (A41.13, 41.14, 41.15 and 41.16, Figure 51). A north–south revetment (A41.13) lay on the line of the property division between the lane and Tenement 4. It had vertical posts with planks on their east side, but no other details were recorded, and it survived to a height of 1.65m OD. The position of the planks suggests that the east property was developed before the central one.

The east side of this advance was defined by another north–south revetment (A41.14) of thin planks, with no details recorded. There was an apparent intermediate east–west advance (A41.15) before the waterfront's final form (A41.16). Few constructional details were recorded. This revetment was of post and plank construction, with posts set in a baseplate supporting vertical shuttering with horizontal timbers supporting the planking at the front. It had front raking braces, but no subsidiary baseplate was observed. Back braces supported the posts from behind, and were attached to the top of the posts. Apparently associated with this east property was a north–south timber drain (A41.22), which may have been V-shaped or may have collapsed into this form. It apparently cut through the line of the intermediate revetment (A41.15) and it may have linked with a drain to the north.

Group A67 was a reclamation dump at the south end of Tenement 4 (Table 123). It contained a relatively small amount of pottery (49 sherds, 685g); this is similar in character to that found in Open Area 10 on Tenement 3 (period A5), with London-type ware baluster jugs, a range of Surrey whitewares, including a Kingston jug with bossed decoration, and Mill Green ware. No imports are present, and very little SHER; with only three exceptions, all the sherds are from jugs. Artefacts from A67 are listed in Artefact Table 15.

In period A5, 1300–50, A:Building 23 and Open Area 6 may have continued in use; but there was no other archaeological evidence for the lane or buildings on Tenement 4 in this period. The history of Tenement 4 in the period M2 (1220–1350) is outlined in Table 21.

Tenement 4	
Period A3: 1200–50	
A45 (Egan) reclamation dump	no dating evidence
Period A4: 1240–1300+	
A55 reclamation dump	1180–1240
Building 23	no dating evidence
Building 24	no dating evidence
Period A5: 1300–50	
A67 reclamation dump	1290–1350

Table 21 Dating summary for Tenement 4, 1220–1350

Two lines of the contemporary waterfront was found in a Riverbank House trench. R:Waterfront 7 was dated by dendrochronology to 1196–1232, from a post which had been reused from some other structure. This revetment lined up with the contemporary B:Waterfront 3 about 25m to the east (below, 3.3), so the line of the waterfront about 1240 was consistent between these properties, west and east of Ebbegate and the landing stage which became the main landing point immediately above the bridge. This point of access, called a gate, is mentioned in 1246, as detailed in the discussion at the end of this period.

Tenement 5

The will of Nicholas de Wynton, proved on 9 November 1293, left to his daughter Margery assets including 1 mark from the houses of Robert de Standon *iuxta Eppegat'* (CLA/023/CP/01/022/64), and Staundon's own will, proved on 23 January 1296, bequeathed his capital messuage with anterior shops in the parish of St Lawrence at Ebbgate, now in the hands of Mr Gerard de Staundon from year to year at 4 marks pa until he recovers the 20 marks he had lent the testator, whose son Elyas was thereafter to hold it in perpetuity (/025/23). On 29 May 1307 was read a charter by which Thomas de Northampton, grocer (*piparius*), granted to Margery de Wileghby all that land with houses built on it and quay, which he held by grant of Elias, son of Robert de Staundon, in Thames Street, which extended from Thames Street to the Thames between Ebbegate to the east and the tenement once of Geoffrey ad fontem to the west, and rendered 1m pa each to the monks of St Saviour Bermondsey, the heirs of Nicholas de Wynton

and William le Seour and his heirs (/035/73, and *cf.* details of Tenement 4).

By late 1324 the tenement was in the ownership of Roger le Frowyk, goldsmith: on 25 November Richard, son and heir of Richard de Gloucestre, once alderman, acknowledged his grant to William de Wyklewode, rector of Boylestone, of all lands, tenements and rents which came to him on his father's death, including 13s 4d from the tenement held by Roger next Ebbgate (/053/44); and on 2 December William regranted the same to Richard and his wife Juliana, daughter of Walter Waldeshef (CLC/313/L/H/001/MS25121/25, no. 871). In his will enrolled on 30 May 1328 Roger de Frowyk bequeathed all his London property to his wife Idonea for life, leaving to John de Perndon and his wife Cecily and heirs forever the remainder of all that tenement at Ebbgate between the tenement which William de Stanford held and the lane (*venella*) called *Ebbegate* (CLA/023/CP/01/056/88; P/008/MS25271/22). Frowyk had evidently been in possession of the tenement longer than the four years actually documented, for it continued to be referred to as his former property as late as 1375 (CLA/023/CP/01/103/164).

On 13 November 1331 John de Perndon, son and heir of Thomas de Perndon, granted to John de Shrovesbury, dyer, and his wife Joan and their heirs all that tenement with shops and *kayum* for an annual rent of 2m (CLC/313/L/H/001/MS25121/13, nos 15, 16). On 10 February 1337 Perndon granted to Thomas atte Wyche, stockfishmonger, 5m pa quitrent from the same property (no. 1163), subsequently quitclaiming him on 1 March 1337 (nos 138, 1165). This quitrent was supplemented by another, of 4m, granted on 7 March (no. 1160). On 14 March Perndon again leased to Shrovesbury the entire tenement with houses, shops and adjacent quay for a term of years up to the following Easter and thence for 18 years at an annual rent of 9m (no. 1164). On 4 April 1337 Shrovesbury and his wife Joan granted to Thomas atte Wyche, stockfishmonger, his wife Agnes and Thomas's heirs forever the tenement which they held by grant of John son of Thomas Perndon, once corndealer (*bladarius*), at Ebbgate (CLA/023/CP/01/064/34), while on 9 April Perndon quitclaimed Wyche in the property, and in the total of 9m pa quitrent which his father used to receive (/064/63). On 8 November 1338 Thomas atte Wyche and his wife Agnes granted to William de Kent, tanner, heirs and assigns all the tenement with houses and shops on it and with adjacent quay, held by grant of John de Shrovesbury and his wife Joan (/065/76; /MS25121/13 no. 1166). This was regranted to Wyche on 10 January 1340 (CLA/023/CP/01/067/12; MS25121 no. 1180). Another version of the same grant notes the inclusion of all his stock (*staurum*), vats (*vasa*), utensils and other goods, chattels and moveables which William possessed there (no. 1167). On 31 March 1343 Wyche granted the premises to William de Borewelle and his wife Alice for a term of four years from St John's day following at an annual rent of 20m; Wyche was to protect it against wind and rain, and Borewelle to restore and keep it in good condition except against age and external fire. Wyche and his heirs were to pay nothing for easement of the quay of the tenement for any lading or unlading (*carkandum vel discarkandum*) (no. 165).

On 31 July 1344 Thomas atte Wyche and his wife Isabel granted to Mr Henry de Iddesworth, canon of St Paul's, and other executors of the will of Stephen de Gravesende, once bishop of London, all that tenement with houses and shops and adjacent quay which they held by grant of William de Kent at Ebbgate in the parish of St Laurence Pountney (CLA/023/CP/01/071/109; /MS25121/13, nos 1170, 1780). On 18 October 1344 the executors leased the property to William de Borewelle, mercer, for a term of five years from St John's Day 1344 for an annual rent of 20m (MS25121/13, no. 1168). On 10 November 1344 Cecily, once wife of John de Perndon, quitclaimed Gravesend's executors (CLA/023/CP/01/071/122; MS25121/13, no. 1169). The incomplete inspeximus of Ralph Stratford, bishop of London, datable only to 1344–7, records the establishment by Bishop Gravesend's executors of two chantries at St Paul's and lists the properties, including that acquired from Thomas atte Wyche and his wife Isabel next Ebbegate, from which £10 pa was to support the two Gravesend chantry chaplains (MS25121/1957); Edward III's licence in mortmain for this arrangement was issued on 16 October 1347 (MS25241/27).

Some details of the waterfronts on Tenement 5 were recorded in the Riverbank House trenches of 2006–9. By about 1240, Ebbgate probably led down to the foreshore between revetments on either side, that is wooden structures running north–south. A probable southeast corner of Tenement 5 dating to about 1240 (R:Waterfront 7) was found.[35]

Summary of site A in period M2 (1220–1350)

The development of Tenements 1 to 5 in 1220–1350, illustrated by the archaeological and historical work on site A (Swan Lane) in 1981–2 and the complementary work around it in 2006–9 as the site was developed again as Riverbank House, is summarised in Table 22. The period has been divided during analysis into three successive general parts, the site-specific periods A3 (plan, Figure 49), A4 (Figure 50) and A5 (Figure 51). Thus each of the five tenements has three consecutive phases within the decades 1220–1350, though survival of deposits varied. The allocation of reclamation and foreshore groups to these phases can only be speculative.

The archaeological remains on Tenement 1 were sparse. They comprise two new buildings (A:18 and A:25), which are poorly dated. The waterfront dumps and foreshores which can be associated, however roughly, with Tenement 1 at this period produced the outstanding but probably old (and rather small) lead and iron candlestick from reclamation dump Gp A49 (Figure 52). There are no direct links between the archaeological and documentary evidence; the latter supplies some details of owners and occupiers from 1328.

The documentary evidence for Tenement 2 to 1350 is similar to that for Tenement 1; outline information on owners from 1328, but no direct links with the archaeological evidence. Since A:Waterfront 13 seems to have crossed both Tenements 1 and 2, it is possible that they were developed at the same time. Group A74 was a large reclamation dump superseding A:Waterfront 12 and behind (i.e. contemporary with) A:Waterfront 13,

[35] Mackinder 2015, 28–9.

	Constructions and foreshores (all site A)	Documentary references	Comment, dating
Tenement 1	Wft 11; Bdg 5; reclamation A35; foreshore A47		A35 1180–1270
	Wft 12; Bdg 18; reclamation A49, A56, A58		A49 1180–1270; A58 1270–1350 with some 1350–1450
	Wft 13; Bdg 25	1328 Isabel de Leyre; 1367 complaints from neighbours about overhanging buildings	? some building either just before 1350 or just after
Tenement 2	Wft 11; Bdg 14; reclamation A38, A52		A38 1180–1200+; A52 1180–1270
	Wft 12; Bdgs 19, 20; reclamation A108, A61		A61 1280–1350
	Wft 13; Bdg 26; reclamation A74	1328 John Darmenters	A74 1340–60
Tenement 3	Wft 11; Bdgs 7, 15		
	Wft 12; OA 8; Bdg 22; reclamation A61		A61 1280–1350
	Wft 13; Bdgs 22a-b, 27a-b; reclamation A74	1329 Nicholas de Farndon	A74 1340–60
Tenement 4	Wft 11; Bdg 13, OA6; reclamation A45	1246 formerly of Walter Buckerel; divided into two parts before 1349	A45 1170–1200
	Wft 12; Bdgs 23, 24; reclamation A55, A64		A55 1180–1240
	Wft 13; reclamation A67		A67 1290–1350
Tenement 5	Not excavated 1981–2; R:Wft 7 (excavated 2006–9) probably formed the SE corner about 1240	1293 Nicholas de Wynton; contained shops 1296; 1331 John de Shrovesbury dyer; 1344 granted to St Paul's Cathedral	
Ebbgate [Swan Lane] on east			

Table 22 Summary of site A, period M2 (1220–1350); comparison of archaeological and documentary evidence

probably dating to the first half of the 14th century. The coins within it suggest that the refuse layers from which it was composed had been accumulating for some time, as they go back to the 1250s. The character of the finds, underlined by the presence of so many coins, suggests that the reclamation deposit was composed of refuse from properties of some standing, and it is tempting to assign some of this artefactual collection to the occupiers of Tenements 2 and 3, the properties containing the reclamation unit. In 1329 Tenement 2 Antekinus de Gisors and his wife Joan granted Tenement 2 to another Joan, the widow of draper John de Armenters; and in 1376 this second Joan was evidently referred to as Lady Joan Darmenters. If the draper de Armenters resided here, the fine objects might be from his household; but the objects in reclamation deposit A74 could equally be from Tenement 3, or indeed from the wider city.

On Tenement 3, the large building (A:11) used for industrial purposes, probably dyeing, in the second half of the 12th century was dismantled and its site partly redeveloped as a cellar (A:17) with a stair probably to the alley in the first half of the 13th century. No evidence of vaulting was recovered, but it is possible that this was a vaulted undercroft. Its construction is placed in the early 13th century. Unfortunately its length could not be established, and only the northeast part of it with the entrance up to the alley on its east was recorded. The documentary records for Tenement 3 survive only from 1329, and there is no evidence in them of land use on the tenement. In 1361 Nicholas de Farndon bequeathed the property to found a chantry, which three years later was in St Peter Westcheap.

The development of Tenement 4 and the associated alley is shown in the main period plans. Evidently development, as shown by building activity, was most intense on this tenement among the four excavated. In the first half of the 13th century, A:Building 13 lay on the east side of a wide alley (A:OA6) which led to the wharf (part of A:Waterfront 11). As reconstructed from the fragmentary evidence, the wharf was 11m broad north–south. During the second half of the 13th century, the lane was largely blocked by a new small rectangular building, A:Building 23, which had an oven in it, and a small extension was placed on the waterfront end of A:Building 13 (A:Building 24). As with several new buildings on Tenement 4, this may have reflected development around the south end of Ebbgate Lane, on the west side of the neighbouring Tenement 5. Since the landing place of Ebbgate may have spread along adjacent properties to the west, it is possible that Building 24 was a kitchen or bakehouse serving the public facility on the waterfront. In the subsequent period A5, of the first half of the 14th century, there was further reclamation on Tenement 4 but no recognised changes to the arrangement of buildings. The tenement had been split into two parts, however, by 1349, and the divisions recorded more accurately in subsequent periods suggest that the original division would have been into two parts north and south, i.e. with the south portion reached by the alley on the west side of the tenement. The only suggested function for one of the

tenements is that Tenement 5 was occupied by a dyer between 1331 and 1337. Thus the association with dyeing continued, but on a different tenement. The reference of 1343 to rights in the quay for lading or unlading is useful as a corroboration of the usual assumption that the open spaces at the riverside ends of these and other properties along the waterfront above London Bridge were in fact used for landing or shipping goods, no doubt in small boats.

3.3 Seal House (site B) in period M2 (1200–1350)

From this period onwards, the description of the site can be divided into its component medieval tenements, i.e. Tenements 6–8. The main excavation took place on Tenement 6, and there was a small amount of observation during the watching brief on Tenements 7 and 8, but of no significance.

Tenement 6

Tenement 6 was a large property, compared with most waterfront tenements and certainly with its immediate neighbours to the east; it measured at least 50ft (15.2m) wide along its Thames Street frontage, and at least 65ft (19.8m) along its river frontage on Ogilby and Morgan's map after the Fire in 1676 (Figure 16 above). By 1422, and quite probably since the mid 14th century, it was divided into east and west parts by an alley known first as *Puppes* or *Popes Alley* and by

Period and phase	Group	Interpretation	Proposed date
B5.1	B29	B:Waterfront 2 dumping, possibly during its working life but disturbed during robbing	pottery 1180–1200+
	B31a	Robbing of B:Waterfront 2	
	B32	B:Waterfront 3 timbers	pottery 1180–1220 with some sherds of after 1240; drain silt has pottery of 1240–70; dendro date of waterfront timbers 1195–1215
	B31b	Reclamation dumps behind W3	
	B33	B:Building 2 associated timbers	
	B34	B:Building 2, S wall	
	B35	B:Building 2, internal dumping	
	B37	B:Building 2, interior features including ragstone floor	
	B38	B:Drain 1, initial silting within	
B5.2	B39	further silting in B:Drain 1	1240+
	B53	foreshore silting against B:Waterfront 3	
	B41	occupation in B:Building 1	
B6.1	B42	B:Building 2 alterations	1240–70
B6.2 B40 amendments to B:Waterfront 3			1240–70 and possibly later
	B43	occupation on site of B:Building 2	
	B50	decomposition of B:Waterfront 3	
B6.3	B44	dumping within B:Building 2	1240–70 and possibly later
	B45	construction of B:Building 3	
B7.1	B47	demolition of B:Building 3	1270–1300
	B48	dump of clay over demolished B:Building 3	
	B49	general dumping (context [59])	
	B51	B:Waterfront 4; =B:Building 4 S wall (wall [124])	
	B67	buttress on S riverwards side of B:Waterfront 4	
	B54	dumping within B:Waterfront 4	
	B81	hearth [231] in B:Building 1	
	B88	wall [199] B:Building 5	
	B82	hearths inside B:Building 1	
B7.2	B55	B:Building 5 'phase 1'	1300–50, with intrusions in several layers
	B56	B:Building 5 yard (former B:Building 2)	
	B57	B:Building 4 hearths to N	
	B58	Gully	
	B59	B:Building 4 dumping, initial construction	
	B62	B:Building 4 hearths, base layer of clay and rubble	
	B63	B:Building 4 N wall	
	B65	B:Building 4 N wall	
	B76	B:Building 4 dumping	
	B77	B:Building 4 dumping	
	B82	B:Building 1 hearth rebuild	
	B89	B:Building 4 external surfaces	
	B71	B:Building 4 internal floor levels	
	B52a	foreshore S of B:Waterfront 4	
	B52b	reclamation behind a waterfront to the S of the trench (possibly B:Waterfront 5 as seen in watching brief)	

Table 23 Site B: stratigraphic groups in period M2 (1200–1350) on Tenement 6

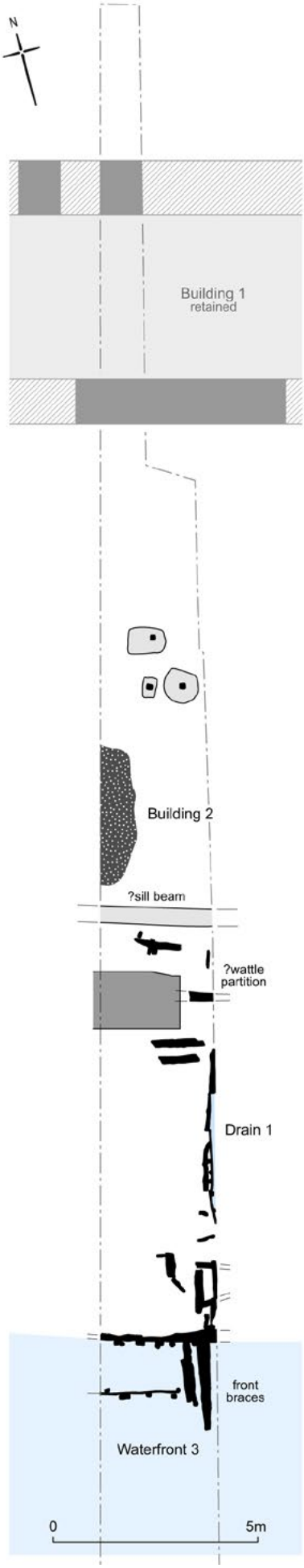


Figure 66 Site B: plan of B:Waterfront 3 and B:Buildings 1–2, period M2 (1:300)

1536 as Black Raven Alley, after the house on its east side which fronted on to Thames Street, the Black Raven.

In a deed enrolled in Husting on 28 January 1314 John de Wynton, son and heir of Nicholas de Wynton, quitclaimed Stephen de Abyndone and his heirs in the £10 pa quitrent payable to John from the tenement in Thames Street which he had recently granted to Stephen. The tenement was described as extending from the street to the river between the lane called Ebbegate to the west and the tenement once of William de Eure (Tenement 7) to the east (CLA/023/CP/01/042/90). On 15 February 1333 Stephen granted the property, similarly described and with Ebbegate referred to as a *viculum*, or little street, to John de Pulteney and his heirs for the render of a rose on St John's day annually (/061/96). On 2 February 1337 Robert de Welles, prior of St Mary Southwark, remitted John de Pulteney half of the 40s pa rent due to the priory in respect of a certain area of land next to Ebbegate which Prior Humphrey had granted to John Niger (Dean and Chapter of St Paul's Deeds, CLC/313/L/H/001/MS25121, no. 1389; CLA/023/CP/01/064/22).

In his will of 14 November 1348 Pulteney endowed his college of Corpus Christi, at the neighbouring church of St Laurence Pountney, with much of his property and rents in London; stipulating in addition that some of the income should support his chantry for three priests to be built on the north side of St Paul's cathedral (*Cal Wills*, i, 609–10; St Paul's chantry certificates, CLC/313/O/029/MS25526, fo. 4r). Tenement 6 was clearly included in the bequest: by April 1359 it was held by Geoffrey de Dittone of the Master of the church of St Laurence (CLA/023/CP/01/087/61).

Archaeological divisions in period M2 at Seal House

Period M2 was divided during analysis into three site-specific periods, period B5 (mid 13th century), B6 (mid to late 13th century) and B7, phases 7.1 and 7.2 only (1270–1350) (Table 23); after analysis of the pottery, the later phases of period B7 were placed in the next major period, M3 (1350–1500). The detailed dating evidence for period B5.1 to B7.2 is given in Table 124 (period B5.1), Table 125 (5.2), Table 126 (6.1), Table 127 (6.2), Table 128 (6.3), Table 129 (7.1) and Table 130 (7.2).

B:Waterfront 3

Period B5 was divided into two consecutive phases. In period B5.1, a new timber waterfront, B:Waterfront 3, and a substantial chalk foundation (B:Building 2) on the site of the previous B:Waterfront 2 seem to have been constructed together. The intervening space between the building and the new revetment was filled with a new unit of reclamation dumping (Figure 66).[36]

The superstructure of B:Waterfront 2 was largely removed; the timbers of the front were partially robbed out especially on the east side (Figure 284: B[572] is the main edge of the robbing trench) (B29, B31a). It is assumed here that the robbing or partial dismantling of B:Waterfront 2 was contemporary with the erection of its successor B:Waterfront 3 to the south, and thus helps to date the latter.

[36] B:Building 2 is shown in section in the west side of the excavation, Figure 283, Building B.

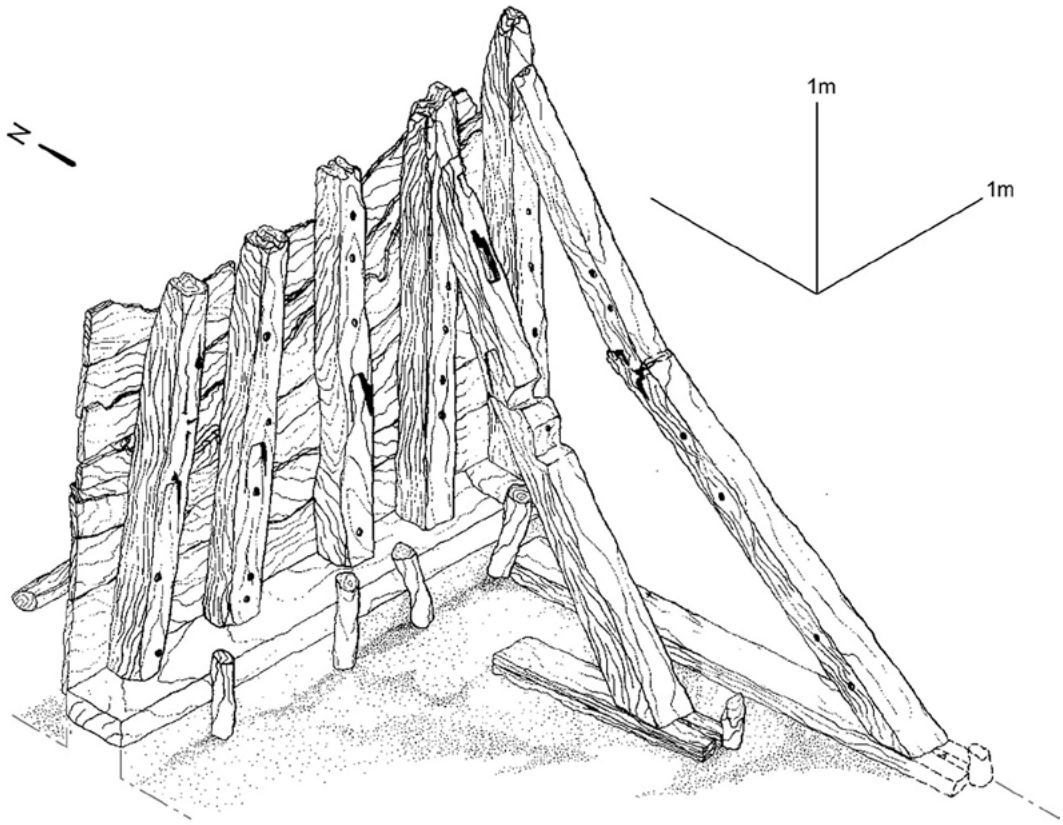


Figure 67 Site B:B:Waterfront 3, isometric drawing of the structure viewed from the southwest

The structure of B:Waterfront 3 (B32; Figure 66 to Figure 69) comprised a sillbeam of oak, at least 2.9m long with a section of 0.35 x 0.16m laid on the gravel.[37] In it mortises averaging 170 x 70mm had been cut through the sillbeam, at intervals of about 0.45m (1ft 6in). This beam was scarfed at the east end and overlay a continuing beam, the joint being supported by a third large beam which ran beneath the joint, in a groove in the gravel, at right angles and secured on the north inner side of the timber wall with a large peg. The third beam ran southwards to form the base-plate for the most easterly diagonal brace. The sillbeam was held in place, on the south side, with a row of beech piles each between 1m and 1.25m long, rammed into the gravel. Into the mortises in the sillbeam were slotted square oak verticals via pegged mortise and tenon joints, for which the pegs were driven into the sillbeam from the north and a slight counter-sinking to the south of each mortise aided the tightness of the joint. Five such verticals with their joints survived in the trench. On their north side planks were pegged, thicker planks towards the bottom and thinner, possibly reused, planks towards the top. An additional 'H' shape of timbers, which were pegged and mortised together (Figure 68), may be an internal reinforcement for the structure at this point. All the vertical posts and the easternmost of the raking braces had regular peg-holes along them; like on the contemporary D:Waterfront 14, they seem to be drilled through the timber and to be the holes used for pegs to attach boards. Three sherds of pottery were associated with this structure (B32). Two, including the handle of a baluster jug, are of London-type ware. The other, from a Kingston ware jug, dates to after 1240.

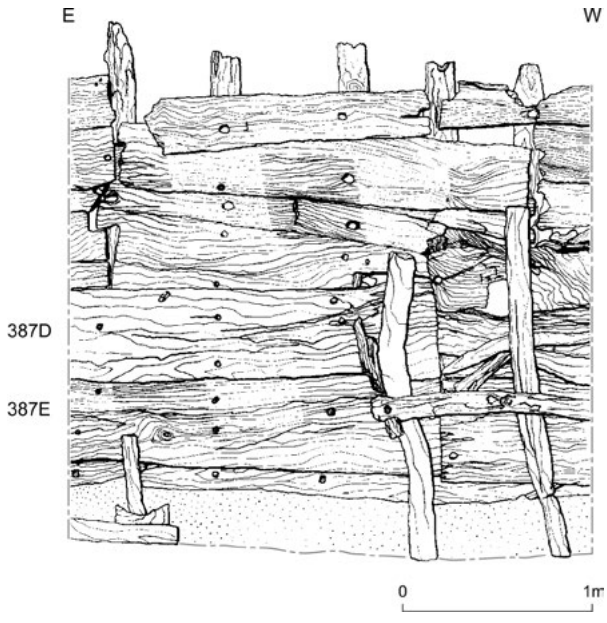


Figure 68 Site B:B:Waterfront 3, elevation of the north, internal side. This side formed the riverwards end of the reclamation unit and would be obscured when the area to be reclaimed was filled in. The two large timbers B[387D] and B[387E] are indicated

[37] B:Waterfront 3 is shown in section on both sides of the excavation, Figure 283 and Figure 284, Waterfront III.



Figure 69 Site B:B:Waterfront 3, looking northeast. This shows the mortises which may be from previous uses (the rectangular-sectioned block has been inserted by the excavators to support the medieval timber) (0.5m scale)

Fourteen samples were taken from the structure for dendrochronology, of which eight could be dated.[38] Two retained sapwood providing a felling range of 1195–1215. A single displaced timber which was probably part of the revetment construction was felled in the winter of 1202/3. The dendrochronological analysis also suggested, remarkably, that two of the timbers (B[387]D and E) were cut from the same tree (Figure 68). This must mean that they were always stacked together, wherever they came from, and would have been used first in this structure.

On the riverward side three different methods were used for the support of the waterfront. Each vertical was supported with a diagonal brace, though the braces survived only for the two easterly verticals. They probably fitted into rough mortises at the top of the verticals, as in the first medieval waterfront at Custom House,[39] though the joints had decayed with the tops. The most east, a carefully squared timber, ran at an angle of approximately 45° down to the timber supporting the joins of the two sillbeams, into which it was jointed with a pegged mortise and tenon; a beech pile anchored the south end of the base-plate. Next to the west, a new base-plate had to be inserted and similar jointing was found. Pegholes in both these diagonals indicate reuse. Other verticals to the west had a sloping groove or socket cut half way up their south sides to accept the top end of a missing diagonal brace. About 1.7m to the south of the plank wall and parallel to it, in the river silt, was a stretch of boarding secured with oak and beech piles, indicating a support in the silt for all three braces (possibly more, since both waterfront and board went into the west baulk).

Reclamation dumping behind B:Waterfront 3 was divided during excavation into three arbitrary layers (Figure 283: in stratigraphic order, B[484, 467, 394]; all Gp B31b). The silting towards the bottom of the dumping can be explained as the silting-up of the breakwaters of B:Waterfront 2 during their life-time; the transition from silt to organic dumping was not seen in the excavation and was recorded at the time as 'imperceptible'.

Reclamation dump B[394] and its underlying further abitrary layers or spits B[467] and B[484] (together, Gp B31b) contained a large amount of post-Roman pottery, amounting to at least 1044 sherds (751 ENV, 19.916+kg; a few sherds are missing). As a whole, early medieval wares are rare and London-type wares dominate (averaging 64.5% by sherd count, 56% by weight); SHER and SSW amount to 16.6% and 6.1% of the sherd count respectively (17.7% and 10% by present weight). The distribution of the pottery is described by layer.

The lowest arbitrary layer, B[484] contained at least 217 sherds (146 ENV, 4.243kg). There are few early medieval sherds and the contemporary coarsewares mainly comprise SSW (B<P38>;) and SHER (B<P39>, B<P40>, B<P41>, B<P42>, B<P43>). The former (some studied in thin section) comprise only 7.3% of the total sherds (6.6% by weight) but the latter amount to *c.* 23% by sherd count and *c.* 26% weight. London-type wares dominate (c 58% by sherd count, *c.* 57% by weight), mainly comprising jugs in the early style, the Rouen style (B<P44>, B<P45>, B<P46>) and the North French style (B<P47>, B<P48>). Also present are a few sherds from pipkins (B<P49>), a cooking pot and a dripping dish; of note are the base of a possible chafing dish (B<P50>), the leg of an aquamanile (B<P51>) and part of a louver in LCOAR (B<P52>). One small sherd is from a jug in the highly decorated style with panels in green and yellow, while four have white slip decoration. Imports are confined to single sherds of BLGR, REDP and NFM (B<P53>). Some cooking pot sherds first thought to be from Kingston were reidentified as being early Surrey ware, while one sherd said to be from a Kingston jug remains to be located. While the six sherds dating to after *c.* 1240 are insufficient to conclusively date the layer, they are nonetheless significant.

Some 349 sherds (255 ENV; *c.* 6.390kg) were recovered from B[467] (some sherds are missing). Few Roman or early medieval wares are present, and most sherds date to the late 12th/early 13th century. Cooking pots, jars and other kitchen equipment such as dripping dishes amount to just under half the group. SSW comprises 6.5% by sherd count (10.4% by weight; some studied in thin section. including B<P54>), while SHER totals 17.6% by sherd count (17% by weight). The latter include B<P55> and B<P56> and two jugs; two sherds of Limpsfield greyware were also found (B<P57>). London-type wares amount to 67.3% of the total sherds (63.6% by weight). These include a few cooking pots, pipkins and dripping dishes (B<P58>) and a curfew, but jugs are the most common,

[38] Morgan 1978; Milne 1992, 40–1, fig 37.
[39] Tatton-Brown 1974, 128, fig 12.



Figure 70 Site B: complete patten (overshoe) from B[467], Gp B31B, 1220–40

comprising just over half the assemblage. Several are in the early style, but most are in the Rouen and North French styles, dating to the later 12th- and earlier 13th centuries. The latest finds are sherds from up to eight LOND jugs with white-slipped decoration and three Kingston-type ware jugs, all of which date to after 1240). Imports comprise one sherd of ANDE and the rim of a Rhenish greyware jar (B<P59>). One notable object from B[467] was a complete patten (overshoe), perhaps adapted during its period of use for a left foot.[40]

The overlying deposit B[394] contained at least 469 sherds of medieval pottery (348 ENV, 9.163kg; some possibly now missing). The composition of the group differs from B[467] and B[484] in having a much higher proportion of imported pottery. The contemporary coarsewares mainly comprise cooking pots in SSW and SHER (B<P60>, B<P61>), with two bowls and four jugs in SHER (B<P62>, B<P63>, B<P64>). These two wares amount to *c.* 5% and *c.* 13% of the sherd count respectively (11.5% and 14.6% by weight). Also present is a single cooking pot in LIMP (B<P65>). London-type wares are again the dominant type (*c* 66% by sherd count, *c.* 50% by weight). They include a few cooking pots and pipkins, a dish, a lid and a storage jar, but almost all sherds are from jugs. A few are in the early style, but about 120 different examples are in the Rouen- and north French styles (B<P66>-B<P70>). More unusual forms include a squat jug that combines early-style and North French-style decoration (B<P71>). The body is decorated with bands of pellets under a white slip and green glaze, while the broad strap handle is decorated with an applied thumbed strip that continues onto the body between two combed 'sprays'. Another unusual sherd is from a highly decorated jug with an incised design of overlapping arcs (B<P72>). In addition there are sherds from up to ten LOND jugs with white slip decoration (B<P73>) and four Kingston ware jugs, both of which are usually dated to after 1240, while a handle from a probable drinking jug could date to *c.* 1270. It is unclear whether these date the group or are intrusive, but the latter is quite possible as two small sherds of 16th-/17th-century Surrey-Hampshire border ware and part of a modern drain are also present. These can be explained by the construction cut for a post-Fire brick well B[26] which dug through B[394], resulting in recording error. The imports from B[394] include sherds from several North French and Rouen jugs (B<P74>; B<P75>) and also a substantial part of a large Spanish amphora with rilled and ?rouletted decoration; sherds from the latter and B<P75> were also found in B[386] (period B7.1, B54).

Fragments of rooftile (again, all the usual types: shouldered peg, curved, flanged and ordinary pegtile) in fabric 2271 first appear in quantity in the dumps behind B:Waterfront 3. Rooftiles in this fabric have been found in sites around Cheapside from the late 12th century. Artefacts found behind B:Waterfront 3 (Gp B31b) are listed in Artefact Table 16 and considered after the reporting of B:Building 2 next.

Combination of the dendrochronological dates with the ceramics from the reclamation deposits suggests a construction date of about 1220–40 for B:Waterfront 3. Above the organic dumping, a wooden floor may have been laid, though there were no certain traces; some plank fragments were found in the subsequent destruction phase, and an east–west gully filled with gravel may be the relic of a sleeper beam for such flooring (Figure 66). A waterfront revetement of similar construction and date was found in 2006–9 at the south end of Tenement 4 across Ebbgate; here Waterfront 7 on Riverbank House lined up precisely with B:Waterfront 3, and there was a similarly large and varied collection of artefacts in the reclamation behind it.[41]

B:Building 2

From the west baulk section it seems likely that after the reclamation dump behind B:Waterfront 3 was laid, a

[40] Grew and de Neergaard 1988, 91–3.

[41] Mackinder 2015, 28–33.

substantial foundation of rammed chalk in mortar, with a little [unspecified] ragstone (Figure 283: B[284=592], Gp B34) was built running east–west, dug through the various periods of dumping down to the river gravels. This foundation touched the back of the box-structure of B:Waterfront 2, now obscured, but the latter seems to have been falling forward into the river of its own accord by this time (also shown in Figure 283). The foundation ran east from the west side of the trench, ended before the east baulk, and a timber with peg holes jammed into the end of the wall seemed to continue the line eastwards, perhaps with wattling. Other timbers nearby may be traces of flooring (Gp B33).

Initial surfaces both north and south of the foundation marked the new phase (Gp B35); of these, a layer of oysters B[433] sloped up north almost to the existing south wall of B:Building 1 (Figure 283). Four layers contained pottery, amounting to 90 sherds (1.157kg); approximately half of these are from B[414], a layer against the south side of the foundation and above the reclamation, which seems to contain the latest pottery. As usual, London wares dominate this group, with 75 sherds, of which 64 are from jugs; the exceptions are nine sherds from six cooking pots (LCOAR), a pipkin (LOND) and a dripping dish (LOND). Other wares comprise a few sherds of SSW and SHER (including a pipkin rim), a few fragments of early medieval pottery and one of North French monochrome ware. The bulk of the pottery dates from *c.* 1150/1180–1220, with several early style jugs in B[403] and B[433], but two sherds from a jug with white slip decoration and one small sherd of Kingston ware were found in B[414]. As similar sherds were present in the preceding groups, these finds are perhaps not unexpected, although their significance is unclear.

A north wall for B:Building 2 was not found, but in the area north of the proposed south wall were traces of occupation: the burnt ends of two removed posts and the probable robber-pit of a third; a trace of stone flooring over a layer of orange gravel; and a vertical-sided trench running east–west which may have held a sleeper-beam (Figure 66). These deposits (Gp B37) contained 27 sherds of pottery (63g). That from B[413] is all Roman, but B[402], B[411] the fragmentary stone floor and B[416] contained 27 sherds (mostly from B[402]), with a mix of jugs and coarsewares typical of the period 1170/80–1200/1240. The only import is a sherd of red-painted/Pingsdorf-type ware.

B:Drain 1

A timber drain was built just above the level of the waterfront revetment, running to the latter's edge where it tipped into the river (B:Drain 1; Gp B38). As the drain was bisected along its length by the shoring of the east baulk of the trench, only its west side was observed, and its connection with the top of the waterfront was difficult to establish. The drain was constructed without pegs or nails (Figure 66; Figure 71; elevation of its west side shown in the section of the east side of the trench, Figure 284, and an extract given here, Figure 72); the floor timbers were adzed into a slight V-section. Side timbers were neatly bevelled in the direction of flow of the water, and held in place by a series of stakes driven into the top of the organic dumping beneath. The north end was damaged by later intrusion, and the drain might originally have crossed the gap in the south wall of B:Building 2 to communicate with its interior, especially as it would be at

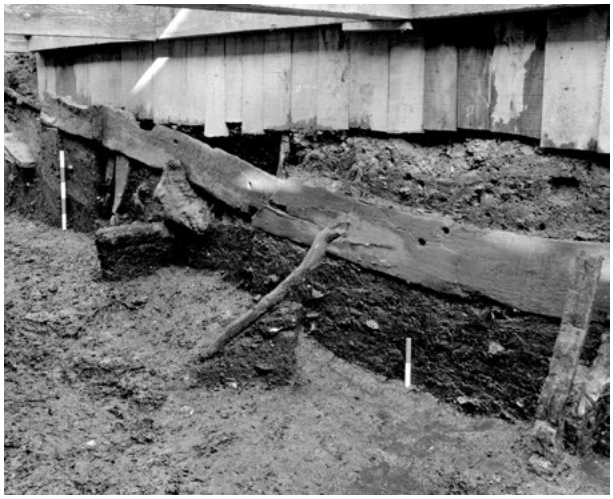


Figure 71 Site B: B:Drain 1 looking northeast, in excavation (0.5m, 0.2m scales)

roughly the same height (1.5m OD). This would then account for the gap in the wall, and it therefore seems possible that the drain functioned with B:Building 2, running between that building and the riverfront. The timber of the drain provided three dendrochronological samples, from trees felled after 1203. Seven small sherds (62g) from jugs in London-type ware (LOND) and cooking pots in LCOAR were recovered from the drain's initial fill B[476].

The level of the timber flooring around both sides of the chalk wall of B:Building 2, and the slightly decayed tops of the vertical supports of B:Waterfront 3, give a general height for the top of the latter of around 1.3–1.4m OD, compared with between 1m and 1.2m OD for B:Waterfront 2. Thus it may be suggested that the level of the reclaimed land forming the quayside was raised slightly in the construction of B:Waterfront 3 in the decades 1220–40.

The dating evidence for period B5.1 is given in Table 124 and studied objects from the waterfront dump Gp B31b in Artefact Table 16. Some of the more significant objects from behind B:Waterfront 3 or around B:Building 2 are shown in Figure 73. They comprise household implements, several leather scabbards, and half a horse bridle-bit (<S58–S66>). There were also shoes, including an adult's ankle shoe [484] <246> (Figure 74).

In period B5.2 (Gp B39) B:Drain 1 silted up until it was completely filled, and presumably obscured, by a deposit of silty grey clay with charcoal flecks. During the drain's lifetime several side-supports of timber stakes seem to have been added, driven into the top of the reclamation deposit. The pottery found in the drain amounts to 29 sherds (289g), of which 19 are from jugs in London-type ware; also present, however, are two sherds of Kingston ware and one of NFM. Contemporary coarsewares are limited to two sherds of SSW and SHER; there are also a few early medieval sherds. The Kingston ware would suggest a date of 1240 or later for the deposit.

Foreshore silting against B:Waterfront 3

During either or both of these phases (ie period B5.1 or B5.2), river silt accumulated against the riverwards side of the waterfront (Gp B53; B[509]). A total of 54 sherds (1298g) was

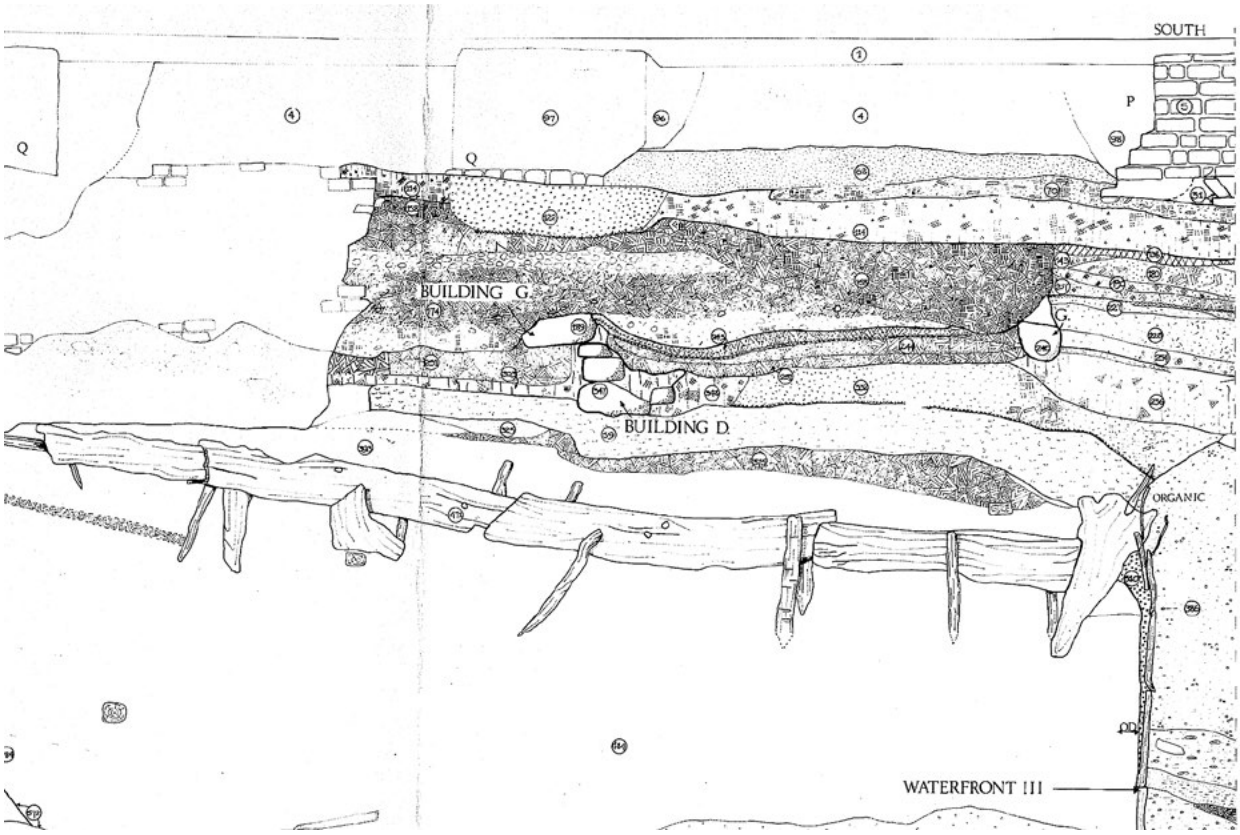


Figure 72 Site B: extract from the section drawing of the east side of the excavation, showing B:Drain 1 (context [471]), its connection with B:Waterfront 3 (Waterfront III) and buildings above (an extract from Figure 284)

recovered from B[509]. These include eight sherds from LOND jugs in the highly decorated style, two of Kingston ware, and one from a jug that appears to have been of pear- or waisted pear-shaped form. If this identification is correct, the sherd should date to the later 13th century, while the others date to after 1240.

B:Building 1 continued (or activity at the north end of B:Building 2)

At the head of the property, B:Building 1 seems to have continued in use during the lifetime of B:Waterfront 3 (Gp B41). A set of hearths of burnt clay interleaved with charcoal (B[370, 328]) were laid outside B:Building 1's south wall during the mid 13th century. It is possible that B:Building 2 extended up to this wall, and that the hearths were laid in B:Building 2. Nine contexts associated with this activity contained small amounts of pottery (42 sherds in all; 550g). Most sherds are typical of the later 12th and early 13th centuries, but B[315] includes three sherds of Kingston ware and one from a LOND jug with white slip decoration that should date to after 1240. The detailed dating evidence for these groups (B39, 41 and 53) is given in Table 125.

Alterations within B:Building 2 and period of use of B:Waterfront 3

Period B6 (mid to late 13th century) had three phases (Table 23). In period B6.1 (Gp B42) the interior of B:Building 2, behind and connected via the timber drain with B:Waterfront 3, was covered with a spread of oysters over 6m long, and then a mixed layer of green and brown clay, charcoal, random chalk blocks, gravel and oysters, cutting deeper in the centre of the excavated area and so removing most of the flooring of limestone blocks within B:Building 2 (B[345, 356, 362, 401]). This must constitute internal alterations, though perhaps short of a demolition.

The post-Roman pottery (Table 126) amounts to 588 sherds (6.120kg). In terms of fabric types, London-type ware is by far the most common (408 sherds, 69%), followed by wheelthrown coarsewares, of which 64 sherds are of SSW (812g, presumed residual) and 46 are of SHER/SHER COAR (475g, presumed contemporary). Also present are part of a crucible (B[362], originally recorded as KING) and part of a louver. Although a few London-area cooking pots, pipkins and jars are present, jugs comprise some 69% of the whole assemblage (405 sherds). Most are LOND baluster jugs in the north French and Rouen styles (including B<P76>), but five are in LCOAR; one of the latter is an exceptionally crude base that could be a waster or second (B<P77>). In addition, there are two sherds from imported jugs from north France (NFM). The bulk of the pottery dates to the later 12th/early 13th century, and the Roman and early medieval sherds indicate some redeposition. A sherd from a north French-style jug from B[362] joins with another from B:Building 3, reported below in period B6.3 (B[374]). The latest finds, all from B[356], comprise a single sherd from a Kingston-type ware cooking pot and LOND jugs from B[356], up to 11 with white slip decoration and one highly decorated. The latter, represented by 32 sherds, is decorated with applied wavy ribs, prunts and

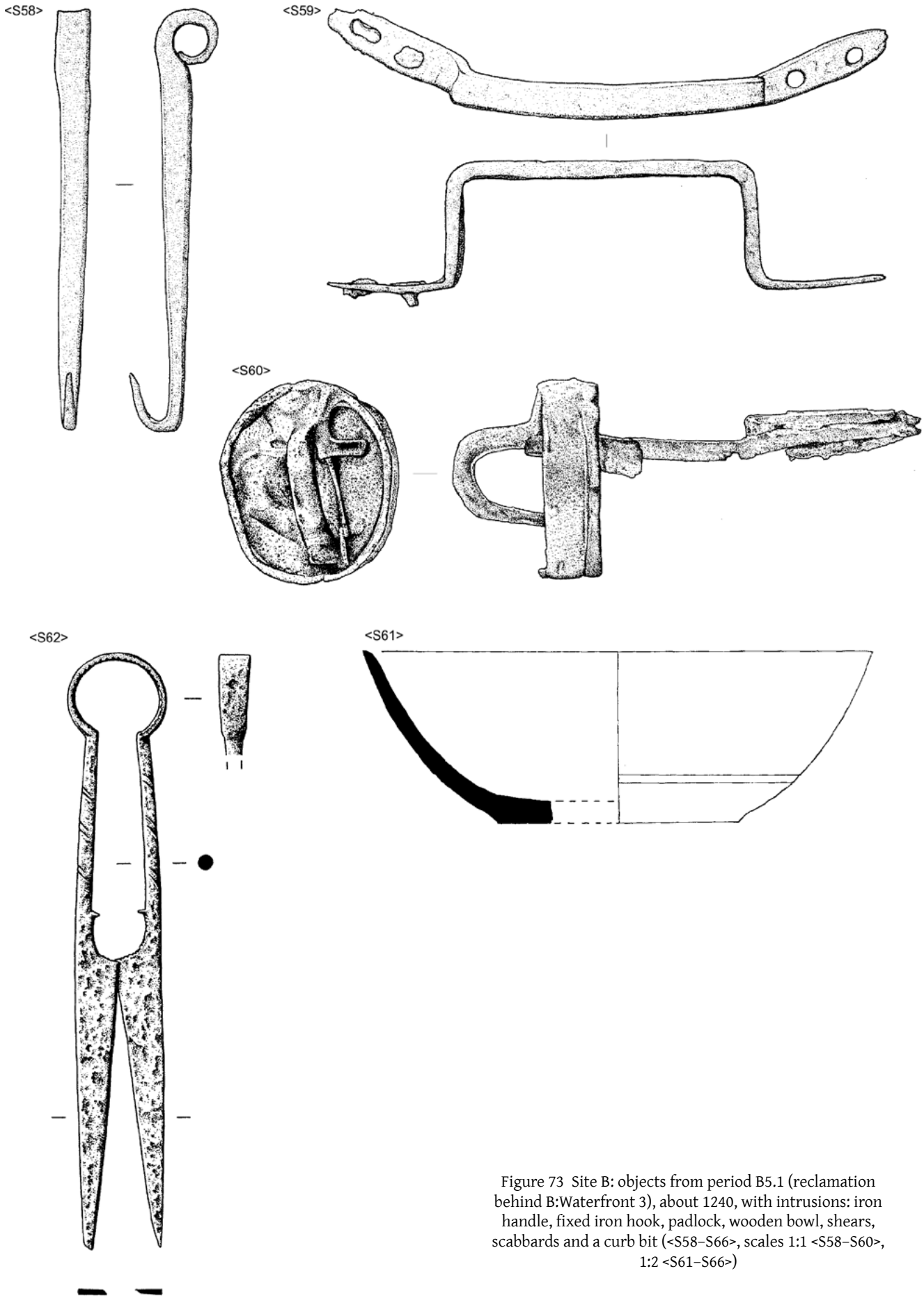
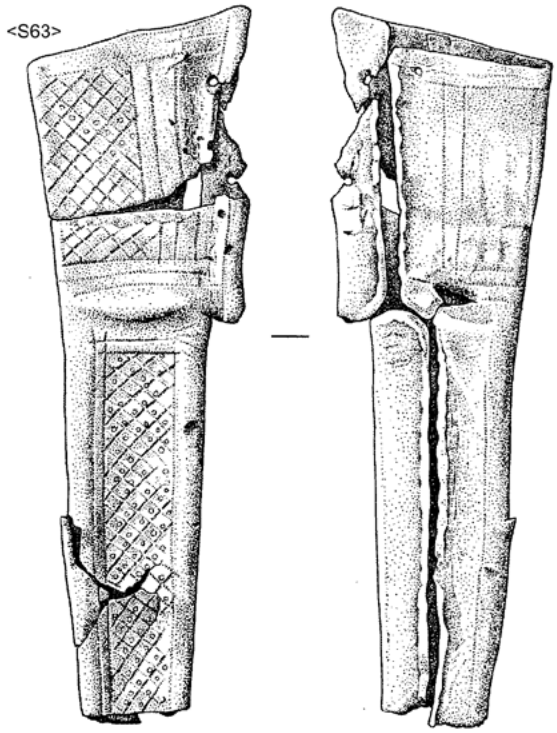
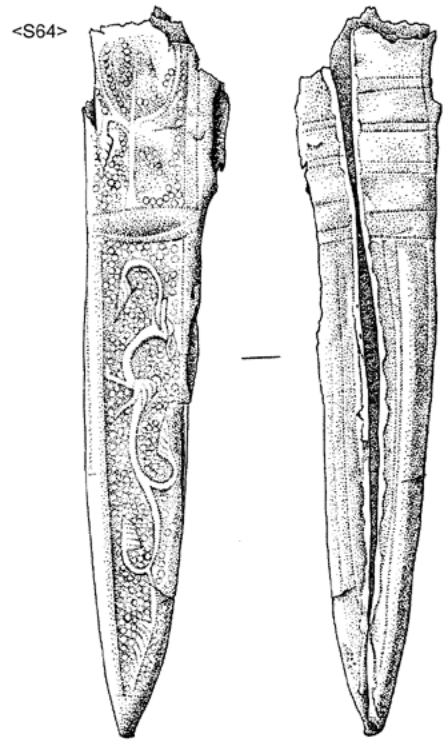


Figure 73 Site B: objects from period B5.1 (reclamation behind B:Waterfront 3), about 1240, with intrusions: iron handle, fixed iron hook, padlock, wooden bowl, shears, scabbards and a curb bit (<S58–S66>, scales 1:1 <S58–S60>, 1:2 <S61–S66>)


<S63>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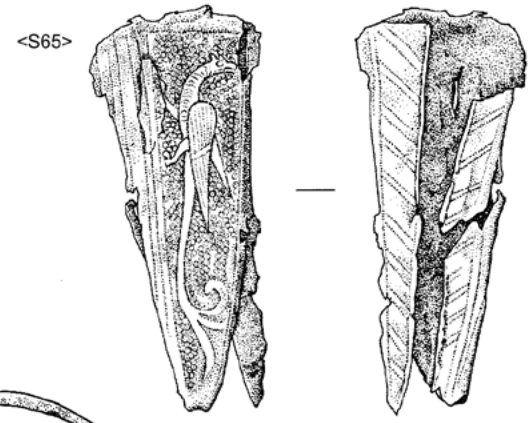
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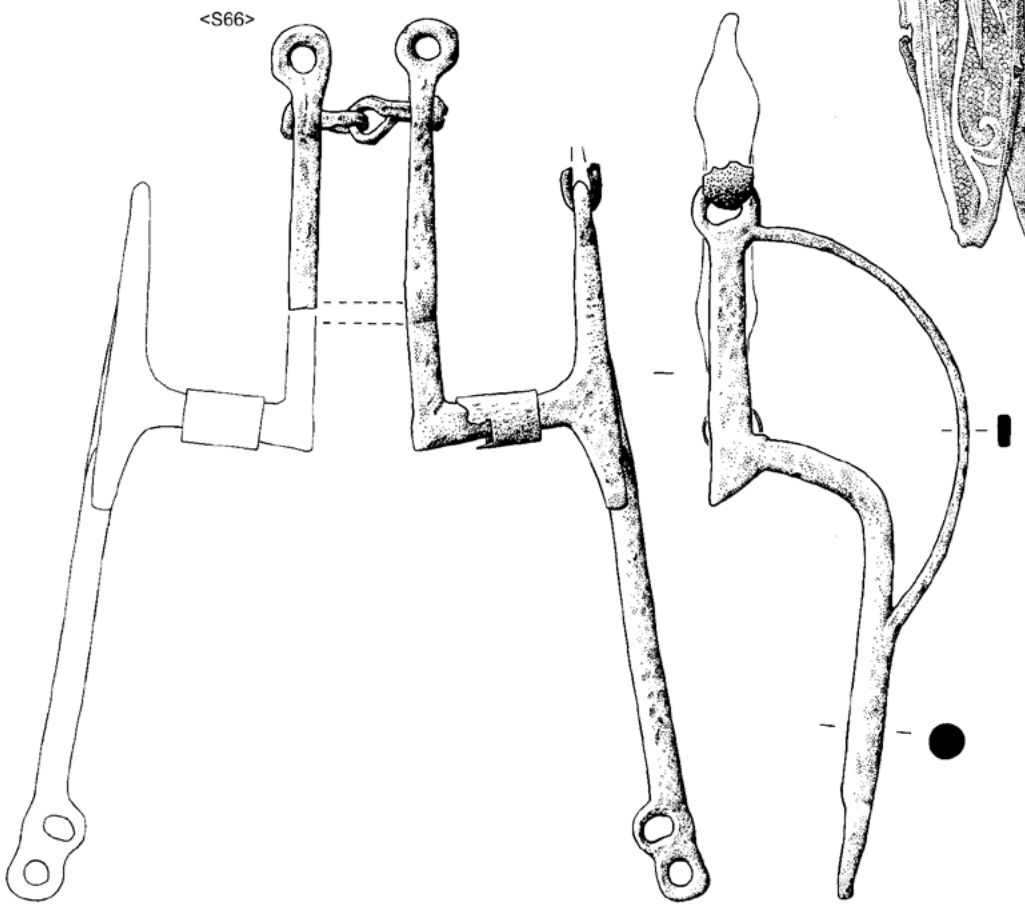

<S66>



Figure 74 Site B: adult's ankle shoe B[484] <246> from Gp 31b, dumping behind B:Waterfront 3 (© Museum of London) (length 230mm)



Figure 75 Site B:B:Building 3: hearth B[307] of limestone slabs set in clay, looking east (2m scale)

zones of scales; it is abraded and has thick soot deposits on the inner surface. The near absence of Kingston-type ware and lack of Saintonge ware or Mill Green ware suggest that period 6.1 dates to the period *c.* 1240–50. The previous period B5.2, however, was later than the well-dated period B5.1 of 1215–40, and it seems likely that the alterations to B:Building 2 were broadly contemporary with the events of periods B5.2 and B6.2 (ie *c.* 1240–70).

In period B6.2 (B43), smaller patches of oysters were laid as hard standing in B:Building 2, and a series of hearths constructed among these work-areas. Around the south wall of B:Building 2, and over the area south to the edge of the waterfront, another area of hard standing was built up with deposits of ragstone, hard mortar and chalk rubble, containing pieces of timber (B40). These deposits, which contained little pottery (six sherds), overlay the ?wattle partition which continued the line of the south wall of B:Building 2 to the east, indicating an alteration; the drain with which the partition probably connected had already silted up and may have disappeared from view. They formed deposits during the working lifetime of B:Waterfront 3, and are ceramically dated to the decades 1240–70 and possibly later (115 sherds, 1.41kg; Table 127). The decayed tops of several vertical posts of the waterfronts were recorded separately (B[331], B50) and this deposit contained pottery. The pottery from B40 and B50 amounts to 197 sherds (*c* 2.360kg), of which approximately half is from B[331] (from the early pottery records it would appear that several sherds of LOND and SHER from B[342], B[385], B[388], B[389] are missing). The assemblage differs from the previous groups in that early medieval pottery is limited to nine sherds, while Kingston wares are more numerous, with a total of 24 sherds (8 ENV, 276g) from B[325] and B[331]. As in previous groups, London wares are the most common, with 146 sherds. These include jugs with white slip decoration and in the highly decorated style (six and two examples respectively), all of which confirm a date of after 1240 for this group. Also present are LOND baluster jugs in the Rouen and North French styles (B<P78>) and part of a possible finial (B<P79>). Of the coarsewares, 11 sherds are of SHER, but only five are of SSW, including a flared dish (B<P80>). The assemblage differs from the previous groups in that early medieval pottery is limited to nine sherds, while Kingston wares are more numerous, with a total of 24 sherds (8 ENV, 276g) from B[325], and from B[331]. The latest finds are 17 sherds from a KING polychrome jug (B<P81>), and an unusual sherd of Mill Green ware with applied strip decoration (B[325] (B<P82>), the latter dating to after 1270.

B:Building 3

In period B6.3 (Gps B44, B45) another disturbed layer of sticky clay and charcoal accumulated over the hearths and over the attempts at reflooring inside B:Building 2. This new layer had traces of burning at its north end, indicating the area of hearths was still used for that purpose although the better-made hearths had been obscured. This overall dumping of clay was used as the base for a small structure (B:Building 3), after some firming of the top with patches of mortar and a rough spread of ragstone. B:Building 3 (not illustrated in plan)[42] consisted of two parallel clay walls each only 0.2m thick at most, an uneven interior floor with the traces of the tips of two pointed posts, and no indication of any roofing. To the north a fine hearth was constructed of well-laid large limestone slabs set in clay (Figure 75), and to the south a layer of organic soil suggested a conscious attempt to level up the ground as far as the old south wall of B:Building 2. This layer had been preceded by a shallow pit filled with green-stained loam and clay.

The dating evidence from these groups is given in Table 128. The pottery amounts to 481 sherds (218 ENV, 4.730kg); the largest amount is from B44, where B[319] contained 93 sherds (1.25kg). As usual London-area pottery is the most abundant (338 sherds, 136 ENV), but redeposited early medieval wares are slightly more common than in period 6.2 (*c* 17 sherds). Several contexts are dated to 1240–70 by the presence of KING (22 sherds) and lack of Mill Green ware. Arguably the latest deposits are B[293] and B[351], the former containing a sherd from the base of a Saintonge ware jug dating to after 1250, while the latter has part of a baluster-shaped drinking jug and a sherd of Mill Green ware, both of which

[42] Shown in section on the east side of the excavation, Figure 284, Building C.

should date to *c.* 1270 or later. LOND jugs are by far the most common form (*c* 340 sherds), and are mainly in the north French and Rouen styles. The latter include the most complete jug from period B6, represented by 95 sherds from B[310] (B<P83>). Other forms include cooking pots/jars, dripping dishes, a lid (B<P84>) and a pipkin.

It is possible that B:Building 3 is a local structure or new partitions within the larger B:Building 2, since the substantial south wall of the latter was destroyed later and we do not know how much of B:Building 2 was standing when B:Building 3 was erected, possibly within its footprint.

Further reclamation to the south and B:Waterfront 4

The waterfront was again extended and B:Waterfront 3 was buried in another phase of dumping; buildings with their fronts to Black Raven Alley to the west were erected on the top. During analysis immediately after the excavation, occupation in period B7 was divided into four phases. More recent pottery analysis shows that the first two belong in period M2 (up to 1350), while the third and fourth are later and are now reported in period M3 (1350–1500) below.

The allocation of stratigraphic groups to period B7 phases 1 and 2 is given in Table 23 above. This comprised first the construction of a new waterfront (B:Waterfront 4, of stone) and reclamation behind it, burying the previous waterfront, with some alteration to the buildings; then second, more buildings to the south, followed by a period of deposition of river silt against the south, outer side of the stone waterfront wall. The two phases may well have been part of a single project. A plan showing the stages in B7.1–2 and the subsequent phases B7.3–5 and B8.1 is given as Figure 76.

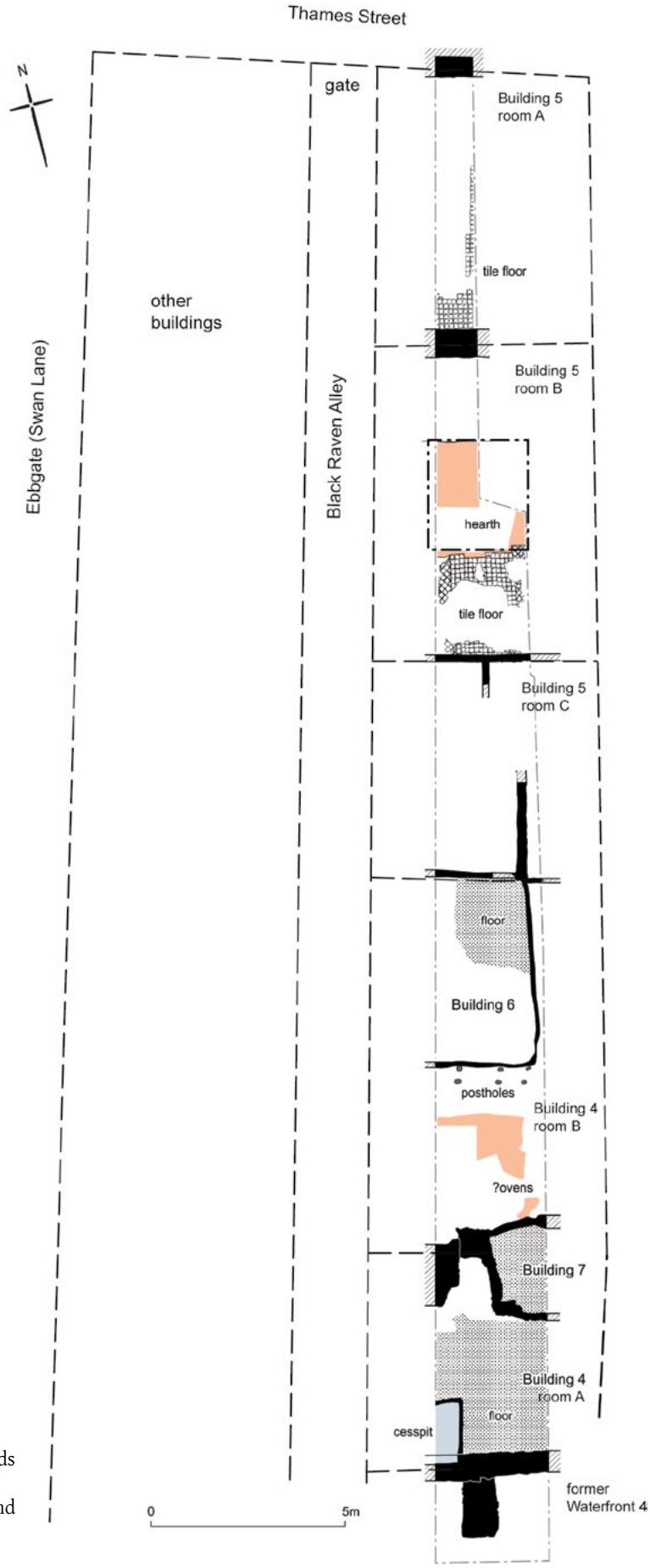


Figure 76 Site B: plan of B:Buildings 4 to 7 in periods B7.1 to B8.1, in context within Tenement 6 (the Black Raven) (1:150). Hypothetical property and building boundaries are shown in dashed lines

B:Building 3 demolished

Layers of charcoal, sand and mortar comprised the destruction of the thin clay walls of B:Building 3 (Gp B47). They contained 77 sherds of pottery (1.007kg). The London-type wares mainly comprise baluster jugs in the Rouen and North French styles, with no highly decorated sherds. Kingston-type wares amount to nine sherds, but although the group contains three sherds of Mill Green ware dating to after 1270 (B[283]), no definite coarse Surrey-Hampshire border ware was identified. Context B[196] contained a sherd of Tudor Green ware dating to after 1350, which is considered intrusive. Of note is a lid in Kingston-type ware (B<P85>). A widespread dump of clay B[253] (Gp B48) overlay the remains of the demolished B:Building 3.

B:Waterfront 4

To the south, another piece of land reclamation was made (Gps B49, B51, B67, B54, B81, B88, B48). A substantial wall of mortared ragstone was built east–west about 3.5m south of B:Waterfront 3, with foundations down on the river gravel (at the south end of the plan, Figure 76, which shows it in a later phase as the south wall of B:Building D).[43] B:Waterfront 4 B[124]; B51) had one batter (a sloping ledge) on the south side, and showed signs of slightly differing construction along the 3m exposed in the trench, but this may just be the joining of sections built at slightly different times. On its south side was a short buttress-like wall (B67) of similar construction which was also built on the contemporary foreshore. A waterfront wall with a buttress as here is not known from examples excavated on other sites; presumably the buttress was employed because the wall was to function also as the wall of a new building which came flush to the wharf, at least in this part excavated.

In the space between B:Waterfront 4 and B:Waterfront 3, a large amount of organic material with some blue-grey clay in the lower layers was dumped; the upper part having a heavy concentration of charcoal, wood scraps and twigs (shown in the section drawing, Figure 283). As for B:Waterfront 3 (see above, Gp B31b), the dump (Gp B54) was divided in excavation into arbitrary horizontal divisions or spits; from the lowest upwards, B[505], B[468] and B[385].

The reclamation unit Gp B54 contained the largest single group of medieval pottery from site B: 157 sherds from B[468] (3.633kg), 42 sherds from B[505] (861g), and a massive group of at least 1666 sherds from B[386] (*c* 21.396kg). This makes a minimum total of 1867 sherds (*c* 25.890kg; some sherds in the original records could not be matched with those in the boxes and may be missing). Taking the layers individually, B[505] dates to 1240–1300, B[468] to 1250–1300 and B[386] to 1270–1300/50. There is therefore a slight progression in dating, but the pottery is on the whole quite homogeneous, with few early medieval fabrics (total 63 sherds, mainly LOGR) and little material that definitely dates to the 12th century. SSW now amounts to only 13 sherds (187g). Much of the pottery is similar to that found in earlier deposits, but this group differs in that it contains significantly more SHER (419 sherds, 346 ENV, 6.316g). London-type wares dominate, with several forms dating to after 1240. Kingston-type ware, which amounts to 160 sherds (86 ENV, 2.191kg), remains at about 8% of the total. Finds dating to after *c.* 1250 comprise Earlswood ware, one sherd of proto-/near-stoneware (B[386]), the rim of a Saintonge ware jug from B[468] and a Spanish amphora (B[386]) represented by numerous large sherds, many joining to make *c.* 20% of the circumference. The latter, which has a rilled body *c.* 480mm in diameter, is almost certainly the same as that found in B[394] (period 5.1, A31b). As a whole imports amount to 112 sherds (37 ENV, 1.848kg); they mainly comprise Rouen ware and North French monochrome ware, and some from B[386] are from the same jug as a sherd from period B5.1 (B[394]; B<P75>). The latest finds are 39 sherds of coarse Surrey-Hampshire border ware (26 ENV, 527g) and one sherd of Mill Green ware (all from B[386]). The bulk of the material thus comprises wares in use after *c.* 1240/1250, while the overall ceramic date for the pottery is 1270–1300, although the dump could be later than this.

Most of the 1097 sherds of London-type ware (59%; 13.921kg, 51.4%) are from jugs, including two or three early baluster jugs, one with diamond rouletting (B<P86>; also found in period B7.2, Gp B52b (B[301]), another with complex rouletting (possibly an import from the Low Countries). There are numerous jugs of baluster and large rounded forms decorated in the Rouen (for the type, see Figure 77, from the Museum collection) and North French styles (B<P87>), and one of pear-shaped form that joins with sherds from B[382] (B<P88>). Some 26 jugs, some probably of large rounded form, have white slip decoration, while 18 jugs are in the highly decorated style (including B<P89–91>). Other finds include a possible small rounded jug, and the base of a possible miniature jug. Some of the later decorative styles have



Figure 77 LOND ROU baluster jug, MoL A27515

[43] Shown in section in Figure 283, Building D, context [124].

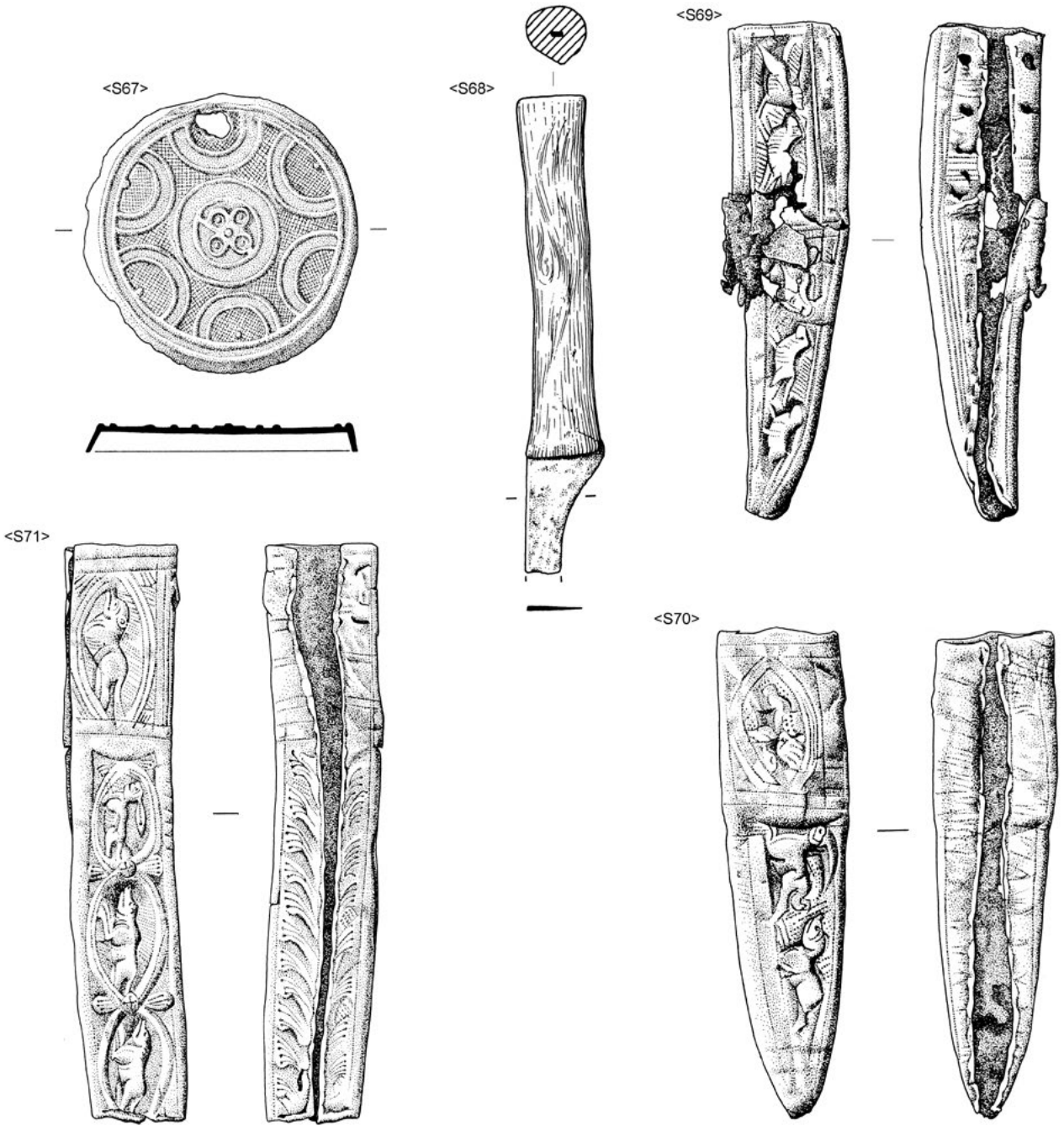


Figure 78 Site B: finds from period B7.1 (B54): a cased mirror, knife handle, and scabbards (<S67–S71>) (1:1 mirror, 1:2 handle and scabbards)

already been noted in earlier contexts. Most of the Kingston ware sherds are also from jugs in the north French and highly decorated styles (B<P94–5>). The 13 examples in SHER are rather plainer (B<P96–102>).

Vessels associated with food preparation and serving are also well represented, with sherds from 13 pipkins and over 400 cooking pots, all with evidence of use. The former are mostly in LOND, the latter in SHER (B<P103–9>), although examples in LOGR, LCOAR/LOND (total 34 examples), SSW and KING are also present. Related finds include a few jars in LOGR, LCOAR and SHER, and 17 driping dishes, 15 in LOND, one in KING and possibly the first example to be found in SSW; the latter has a very thin base with internal green glaze and only very sparse shell. Other forms include up to seven bowls in CBW and SHER (B<P110–11>), three dishes (LCOAR, SHER), and a louver and a finial in LOND (B<P92>). The most unusual find is an extremely crudely made pedestal, possibly for a lamp, incomplete but roughly 80mm square (B<P93>). The dumps behind B:Waterfront 4 also produced the earliest stratified medieval floor tiles from this site: of 'Westminster' type and plain (not decorated), from Gp 48 B[253] and Gp 54 B[386]. This

dumping (B54) contained several tooled scabbards and many shoe fragments, a wooden bowl and knife handles (<S67–S71>; Figure 78). They are listed in Artefact Table 17.

The organic dumping came level with the top of B:Waterfront 3, which was then covered with a thick and extensive layer of oysters, mixed very occasionally with lenses of clay and charcoal, spread thinly over the dump from the wall, and then in a gently sloping layer up to 0.6m thick over much of the excavation trench, up to and around the now disused and decaying wall of B:Building 2 (B[59], B49). Here it changed to a layer predominantly of brown clay, but with frequent dipping lenses of oysters, spreading north at the same gentle upward gradient to the hearths outside B:Building 1, 26.5m to the north of the new line of B:Waterfront 4. This considerable deposit B[59], rich in animal bones, acted as a foundation and draining layer for the buildings erected above. It contained 85 sherds (1.427kg), of which 54 are London-type wares. These include three bowls in LCOAR, a dripping dish in LOND and a range of jugs in the Rouen, north French and highly decorated styles (notably B<P112–13>). Coarsewares mainly comprise SHER, with only one sherd of SSW. Surrey whitewares total seven sherds (443g); most are in KING but a spouted dish in coarse Surrey-Hampshire border ware (B<P114>); there are also two sherds of Mill Green ware, which confirm a date of after 1270 for the group. Imports are limited to five sherds of NFM and a sherd of Winchester/north French ware.

Towards the north this general layer comprised clay, sand and gravel (B48, B[253=263]) containing 107 sherds sherds of pottery (36 ENV, 1.123kg). The one sherd from B[263] is residual (LCOAR, *c.* 1150–1200), but the finds from B[253] are similar in character to those from B49, comprising LOND (67 sherds, 15 ENV) and SHER, with nine sherds of KING (8 ENV), and a few sherds that are more diagnostic for dating. These comprise one sherd of proto-/near-stoneware (after 1250) and two sherds dating to after 1270, one from a Spanish amphora, the other a tiny fragment of Mill Green ware.

The dating evidence for period 7.1 is given in Table 129; the studied small finds from Gp B54 are listed in Artefact Table 17 and some illustrated in Figure 78. The small finds all came from the reclamation dump behind the stone wall (B[386], Gp B54), and so cannot be associated directly with the subsequent buildings on Tenement 6; but the finely-tooled scabbards and the decorated pewter hand mirror case are items of quality. A date between 1270 and 1300 for the construction of the stone B:Waterfront 4 and its reclamation unit is suggested by the pottery. The strata of period B7.1 therefore comprised a new waterfront and preparation of the property for buildings which followed immediately in period 7.2, possibly part of the same project; the new buildings were erected on the widespread layer of oysters and clay B[59], a sound foundation.

B:Building 1 continued

B:Building 1 was still standing, since the levelling came up to its south side and did not affect it; and a second series of hearths and layers of charcoal with pottery was deposited inside the north wall (Gp B82, not illustrated). Seven sherds (55g) of pottery were found on the surface of the rebuilt hearth (B[246]). Six of these date to the 12th century, but one base with wire marks on the underside is from a baluster jug that probably dates to the 13th century. Another hearth within the building, at its north end, is also associated with this phase of the building (Gp B81).

B:Building 4

South of the former south wall of B:Building 2, the distance to the newly-erected wall comprising B:Waterfront 4, some 12.5m, was neatly (and therefore perhaps intentionally) bisected with a new east–west wall laid on the new reclamation (B[271]). Several components are taken together as forming B:Building 4 (Figure 76).[44] To the south, the new south wall (B:Waterfront 4) and the middle wall (B[271]) formed room A; the area to the north up to the south wall of B:Building 2, which is assumed to have continued (this is suggested by the layers around its surviving top in the section, Figure 283), is called room B. It is however possible that the two 'halves' of B:Building 4, north and south of the foundation B[271], were two separate buildings, or even that the north half (room B) was an external space containing substantial hearths, or only partly roofed. In this room or space a series of large stacked-tile hearths were laid, signifying heating or roasting over a long period since the hearth was renewed at least twice. The deposits in these two rooms are described separarely.

Room A

On the north side of the wall forming B:Waterfront 4, the oyster levelling was added to with trodden surfaces of charcoal, clay and burnt clay in room A (B59, 77), up to the position of the wall B[271] which formed the boundary between rooms A and B (B65). For this wall two stages of construction are apparent, to which a third was added in the second phase of the building (phase 3 of this period, see below). First a hollow wall of ragstone, lightly mortared, seems to have been laid across two thirds of the excavation area prior to the actual deposition of the oyster layer B[59], which crossed its west end. A large amount of pottery was recovered, with at least 1091 sherds (653 ENV, 11.312kg) from group B59[45] and 93 sherds from group B77 (1.011kg). Taken together, London-type wares comprise *c.* 35% of the group by sherd count, and *c.* 68% by weight. These include jugs in the Rouen style and North French style (B<P115>), with a spouted jug in the highly decorated style from B[378], an anthropomorphic jug from B[355] (B<P116>) and the base of a possible pear-shaped jug in B[355]; the latter could date to after 1270. A few jars/cooking pots, dripping dishes and a pipkin are also present. South Herts-type greyware amounts 203 sherds (*c* 9%; 19% by weight), with a mix of jars, jugs, a bowl and a curfew. No Mill Green ware is present, but Kingston-type wares amount to about 116 sherds (5.3%; *c.* 8% by weight), while two of Saintonge ware and three of CBW found in B[332] and B[378] date to after 1250 and 1270 respectively. Also of significance are sherds of a Mediterranean costrel with internal lead-glaze and white slip externally found in B[352] and B[355] (and also in B76). Most other imports (total 54 sherds, 318g) are of NFM, including a sherd with combed wavy line decoration (B<P117>). Assuming the bulk of the pottery in the dump to comprise material that had been in use for a while, the

[44] On the section Figure 284, 'Building D.'
[45] Some sherds of KINGSL, LOND and NFM from B[355] and B[382] are missing.



Figure 79 A LOND TUL tulip-necked baluster jug, MoL 5579

latest finds, if stratified, point to a date of after 1270 for their deposition.

Over this the main wall B[271] dividing the two rooms or spaces was laid, surviving only as one course of pitched ragstone pieces; four sherds from within its fabric (81g) (Gp B65, B[271]) are all from LOND jugs that can only be broadly dated to 1180–1270. The floor of room A was levelled up finely with a layer of destruction debris, containing iron slag (B[354]; Gp B76). The associated pottery amounts to 95 sherds (63 ENV, 1.138kg). The group is similar to the above, and would appear to date to *c.* 1250–70; there is no Mill Green ware or coarse Surrey-Hampshire border ware, but there is one sherd of Mediterranean lead-glazed ware from the base of the same costrel found in B[352] and B[355] (Gp B59, see above). Most sherds are from jugs; those in London-type ware (LOND) include baluster jugs (for the type, Figure 79), some in the north French and Rouen styles, a squat jug and one with polychrome decoration. Those in Kingston ware (KING) include both highly decorated and polychrome types. Also present are a few dripping dishes in KING and LOND. On the east side of the building were traces of a rough stone culvert running northwest/southeast, later crossed and stopped by the line of pitched footings. A feature without explanation was a backfilled trench on the south side of the hollow wall (B[348]; Gp B63). The eight sherds of pottery found in this feature comprise London-type wares (LOND, LCOAR) and SHER, including a jug with double-thumbed handle (B<P118>).

Between the walls of room A were the first of many layers of flooring and gradual accumulation of debris that was to last until the 17th century, perhaps until 1666. A first layer of brown/black charcoal and loam, B[237] (Gp B89) contained a large amount of pottery (504 sherds, 36 ENV, 4.922kg). Some sherds are of early medieval date, but the bulk of the group would appear to date to the mid-13th century; the latest finds are eight sherds of Saintonge ware and one of Spanish amphora that date to after 1250 and possibly to *c.* 1270; the other imports are probably residual. London-type wares are the dominant group with 265 sherds, 92 of which are from jugs in the North French style and at least 46 of which are from later baluster jugs. South Herts greyware is the second most common type, with 49 sherds, all from jars. Kingston ware amounts to 36 sherds, including part of an anthropomorphic jug (B<P119>).

A floor of grey loam and mortar followed (B[236]; Gp B71). This produced a total of 140 sherds (73 ENV, 1.070kg). Some 50% of the group comprises typical 13th-century London-type ware jugs (79 sherds, 39 ENV, 519g), but there are also sherds from 14 Kingston ware and four Earlswood jugs. Mill Green ware (1270–1350) is well represented, with 16 sherds from nine jugs and one from a jar in the coarse variant of the fabric. Also present are three sherds of Siegburg stoneware (the only imports). One is a small sherd from a beaker, while two are joining base sherds from a drinking jug (possibly of *Jacobakanne* type). Both types became popular after 1380 and are typical of the 15th century;[46] presumably they are intrusive here, though the phase could have lasted until around 1350.

Room B

Taking up much of the excavated space in room B of the building were a series of large hearths, often partially repaired and replaced by another laid on top (Figure 129 below). They had roughly semi-circular forms (though damaged by later intrusions) with the chord of the semicircle (the flat side) probably based upon the line of Black Raven Alley immediately to the west of the excavation. It is not known whether there was a wall here or perhaps the space was open to the alley. The first hearth was of flat ragstones laid in burnt clay, slightly cut into the top of the oysters (B[304], Gp B57). This hearth linked with the pitched footings which formed the middle wall of B:Building 4 to the south. B[304] contained five sherds of pottery (60g), including part of a Mill Green ware conical jug dating to after 1270. The hearth was laid in a large layer of clay (B[260, 278]; Gp B62), containing seven sherds (137g). Most of these, including part of a LOND louver, are typical of the 13th century, but one sherd is from a Siegburg stoneware drinking bowl[47] that is typical of the 15th century and, as in Gp B71, should be intrusive.

Also perhaps of this phase were a small area of ragstone cobbles to the east of the hearth and a gully running south along the east baulk cut into the oysters (B58). This had a very smooth, probably water-worn, floor and was notable as occupying the same position as the previous timber B:Drain 1, 0.6m below and obscured. The gully filled up with loam and clay (also Gp B58). The pottery totals 90 sherds (57 ENV,

[46] Hurst *et al.* 1986, 177–8, pl 30, fig 88.263.
[47] cf. Hurst *et al.* 1986, 178, fig.88.257.

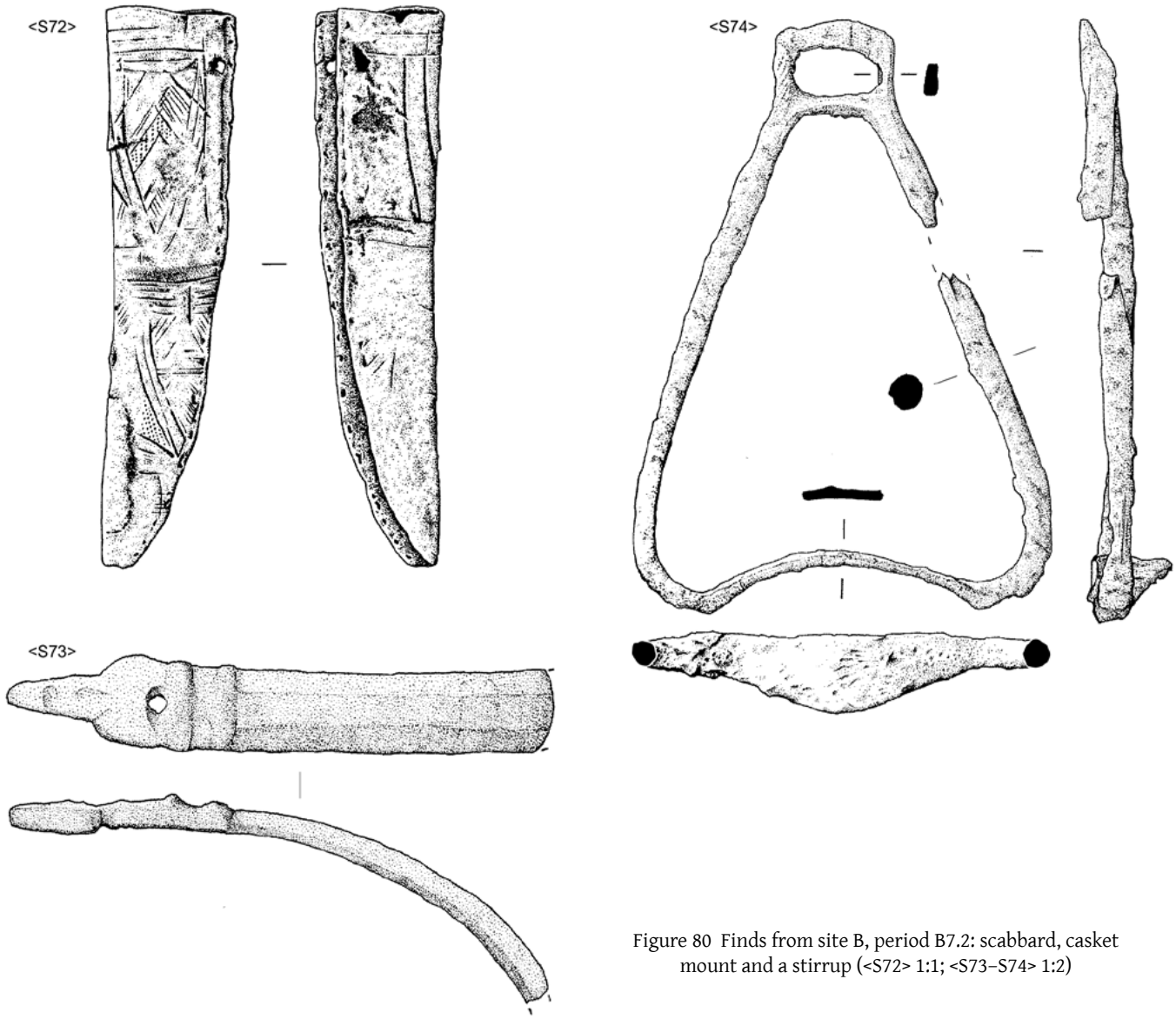


Figure 80 Finds from site B, period B7.2: scabbard, casket mount and a stirrup (<S72> 1:1; <S73–S74> 1:2)

1.063kg). The majority comprises London wares (including B<P120>) and south Herts-type greyware (B<P121–2>). Only four sherds are of Kingston-type ware, but three are of Mill Green coarse ware.

Destruction of B:Building 2 south wall and construction of B:Building 5

The south wall of B:Building 2 was rammed down on the north side to form a surface (B[221], B56). The substantial foundation of the wall remained in the reclaimed ground; it seems to have been left sticking up out of the surface by about 0.5m (shown on the section,Figure 283).

The most northerly trace of B:Building 5, first phase, was a row of small post-holes forming a partition about 8.5m to the north, running east–west across the trench (Gp B55). These posts were driven into a charcoal-and-loam floor which had been already laid against a parallel wall 4.5m to the south of a new type of construction: ragstone and mortar, only two courses high, flat topped to act as the base for timber-framed construction (also Gp B55; the wall shown in Figure 132 below, but the phase not otherwise illustrated). A post at its east end and traces of flagstones went with this wall. A connecting wall ran off to the southeast. The flooring of space south to the former south wall of B:Building 2, interpreted as a yard or external surface, consisted of the chalk blocks from the adjacent wall of B:Building 2, now rammed into a thin but very flat surface over most of its area. The pottery from B55 amounts to 44 sherds (21 ENV, 511g), one of which is from B[248], one is from B[273], the others from B[249]. Most of the group comprises sherds from baluster jugs in LOND, one with tulip-necked rim, but one sherd of KING and three of Mill Green ware are also present. The fabrics and forms present indicate a date after 1270 for this deposit. The surface gradually assembled patches of clay, yellow sand, mortar and charcoal; a large circular deposit of ash suggests a large fire in the yard (B[268, 221, 219, 233, 232, 58, 267, 250]; Gp B56).

Foreshore and further reclamation

South of B:Waterfront 4, dumps and foreshores were at first taken to be all reclamation deposits, but they are later divided into a lower foreshore accumulation (B[456, 435, 470, 312]; Gp B52a) and a subsequent period of reclamation dumping (B[301, 291, 288]; Gp B52b) which was against the stone wall of B:Waterfront 4, pushing further out into the contemporary

river. Both the foreshore group and the reclamation group went into the south end of the excavation trench and would have extended further south. Large amounts of pottery were present in both of these groups, and there is little difference between the two. The four lower layers, in the foreshore deposit, that contained pottery yielded 268 sherds (189 ENV, 3.220kg) dating to *c.* 1250–70. Two sherds of SSW[48] should therefore be residual. Over half the group comprises London wares (154 sherds, 1.785kg), mostly from jugs, including one in the highly decorated style (B<P123>). Other forms include part of an aquamanile, two cooking pots and two dripping dishes. Kingston wares are quite well represented with 49 sherds (425g) mainly from jugs, while SHER amounts to 52 sherds (864g), mainly from cooking pots (B<P124>) but including some from jugs (B<P125>). No Mill Green wares are present, but one small sherd of CBW was recorded in B[436]. Most of the imports (nine sherds) are NFM, but one sherd of Saintonge ware (SAIM) dating to after 1250 was, however, found in B[470] while the base of a LOND drinking jug dating to after *c.* 1270 was found in B[435].

Two of the three layers forming the reclamation deposit above the foreshore contained pottery (B[291], B[301]), amounting to 341+ sherds (208+ ENV, 5.885kg; some SHER missing from B[301]). Both contexts contain late 12th- and earlier 13th-century material, but also forms that are typical of the later 13th to 14th centuries. These include part of a LOND conical jug and a sherd of Mill Green coarse ware from B[291] and a single sherd of late Rouen ware. London-type wares are very much the dominant category, with 218 sherds (131 ENV, 2867g) including numerous baluster jugs, one with incised decoration (B<P125>) and several sherds from a battered squat jug.[49] One sherd from B[301] is from an early baluster jug noted in Gp B54 (B<P86>). Other forms comprise a cauldron, four cooking pots/jars, a drinking jug and part of a louver (LCOAR). Kingston wares amount to 42 sherds (27 ENV, 774g), while 37+ are of SHER (1444g; 781g missing, no sherd count). Imports (20 sherds) mainly comprise NFM (16 sherds); a sherd of Raeren stoneware from B[301] is assumed to be intrusive, as this ware first appears around 1480.

The dating evidence for period B7.2 is given in Table 130, the studied finds from Gp B52a and Gp B52b (foreshore and subsequent reclamation south of B:Waterfront 4) in Artefact Table 18. Though some intrusion of later pottery is likely, a date of between 1300 and 1350 is taken for this unit of reclamation and the associated buildings, B:Building 4 and B:Building 5. The phase produced three notable artefacts (Figure 80): a scabbard with an incised shield <S72> from Gp B52a, a casket mount <S73> and a stirrup <S74> from Gp B52b.

Tenement 7

In his will proved on 28 April 1298 William de Eure bequeathed to his wife Alice his capital dwelling house in the parish of St Martin Orgar, remaining after her death to his son John and his heirs (CLA/023/CP/01/027/34). In his will, written on 8 December 1340 and proved on 5 February 1341, Robert de Eure, ironmonger, willed his property between the tenement of Sir John de Pulteneye on the one side (Tenement 6) and the tenement of Geoffrey Horn in which a 'certain dyer' dwelt on the other (Tenement 8) to be sold by his executors (/068/9). The latter sold the tenement lately held by Robert to Agnes, once wife of Philip Lucas stock-fishmonger, on 16 February 1343 (/070/76). Agnes's daughter Cecilia, the widow of William de Wetheresfeld stockfishmonger, bequeathed her part of the tenement, which had come to her on her mother's death, to her son Walter and his heirs on 15 February 1349 (/076/74).

Tenement 8 (The Peacock)

Tenement 8 lay between Tenement 7 to the west and, on the east side, the westmost tenement in the parish of St Michael Crooked Lane. It was known as The Peacock in 1518 (*Cal Plea & Mem R 1458–82*, xv).

In his will enrolled on 15 March 1283, Herbert de Winton bequeathed to his daughter Alice 8d pa quitrent from a property in Thames Street in the parish of St Martin Orgar which he had previously sold to Nicholas Horn (CLA/023/CP/01/014/40). Horn, who in October 1284 also held the property to the east in the parish of St Michael (/014/208), sold Tenement 8 before July 1285 (/015/50) to William de Eure (/024/39; /043/90), who himself also held Tenement 7 to the west at his own death in about 1298. The tenement was in the possession of Richard Horn fishmonger by 21 April 1315, when an annual quitrent of 7s (sic) due from it, with all arrears since Nicholas's death, was bequeathed by his brother Edmund to William de Burgo clerk and his wife Margery, who were also to hold Edmund's own property to the east for the term of their lives in return for providing four chaplains in St Michael's church for a period of four years (/043/90). Thereafter the Horn property to the east virtually disappears from the record; in a deed of May 1388, concerning its own neighbour to the east, it was referred to as a possession of the parish church of St Michael and in the occupation of William Brynkele chandler (/116/116), who also appeared as the east neighbour of Tenement 8 in April 1380 (TNA: PRO, C148/58). Quite possibly it had come to St Michael's soon after the death of Margery de Burgo, who was still alive in July 1335. In her will proved on 21 November 1317 Margery de Thonderle bequeathed to her son John another quitrent, of 8d pa, from Richard Horn's tenement (/046/60). This was quitclaimed by John's widow, Joan, to John de Chigwell and his wife Margery on 4 October 1327 (/055/73).

Richard Horn's will, proved on 23 May 1334, bequeathed to his son Geoffrey and heirs his tenement in Thames Street in the parish of St Martin (/062/69); and on 24 July 1335 Margery, once wife of William de Burgh, quitclaimed to Geoffrey the 7s quitrent from the property which he now held in the parish (/063/74). In a deed of December 1340 relating to Tenement 7 to the west, Tenement 8 is described as belonging to Geoffrey Horn, and in the occupation of 'a certain dyer' (/068/9); and Horn was similarly referred to in 1343 (/70/46). Further deeds relating to Tenement 7 describe Tenement 8 as belonging to Richard de Croydone in April 1359 and as formerly belonging to him in January 1363 (/087/61; /091/87).

Summary of site B in period M2 (1200–1350)

Stages of reclamation on Tenement 6 were marked by B:Waterfronts 3 (*c* 1240) and 4 (in 1270–1300), and by reclamation south of B:Waterfront 4 which was recorded at the south end of the excavation trench (dated to 1300–

[48] Including one studied as Blackmore and Pearce 2010, no.67.
[49] Handle junction shown in Pearce and Vince 1985, fig 61, no. 274.

50). Of the extensions recorded on Tenement 6, that involving B:Waterfront 4 and its attendant buildings B:4 and B:5 was perhaps the most comprehensive. A dump of clay and oysters was so extensive that it covered most of the excavated trench, and therefore can be seen as a foundation layer for comprehensive building on at least the east side of Tenement 6, with the attendant building of B:Waterfront 4. The buildings then laid out in period B7.2 (B:Buildings 4 and 5) would therefore seem to be part of a single development, a rebuilding of the tenement behind B:Building 1 which presumably still formed the frontage to Thames Street. This strongly suggests that Tenement 6, or at least its east half, was in single ownership at this time. It seems likely that the description of the property in 1333 as 'a little street' indicates that the wide property was bisected by an alley (later Black Raven Alley) by that time. Thus the medieval buildings excavated in the trench would probably have had frontages and doors to the alley on their west in the 14th century (possibly even from the time of B:Building 2 and B:Waterfront 3 in the middle of the 13th century, Figure 66). From 1333, this property was part of the estate of Sir John Pulteney, described by Sylvia Thrupp as 'one of the largest citizen landlords of the century';[50] by his will of 1348 it passed to St Paul's Cathedral. The reclamation dumps on Tenement 6 also contained many artefacts, including scabbards, shoes and other leather items. The rebuilding of the property around or in the decades after 1300, with its new stone waterfront, could have been either by Pulteney or his predecessors, Nicholas or John de Wynton, or Stephen de Abyndone.

Tenement 7 is notable for its reference of 1298 to a testator, William de Eure, dwelling there. His profession is unknown, but Robert de Eure, a relative, was an ironmonger when he died in 1341. His executors sold the property in 1343, when it was occupied by a stock-fishmonger's widow. After she died, her daughter held on to part of the tenement, bequeathing it to her own son in 1349. William de Eure had also acquired Tenement 8 before July 1285. Occupants included a fishmonger in 1315 and a dyer in 1340.

3.4 New Fresh Wharf (site C) in period M2 (1200–1350)

New Fresh Wharf (site C) lay immediately east of the church of St Magnus the Martyr, first mentioned in 1067 and extended to the north, at the expense of Thames Street, with a north aisle in 1234. A sketch plan of the church around 1600 is given in Figure 81, based

[50] Thrupp 1948, 121.

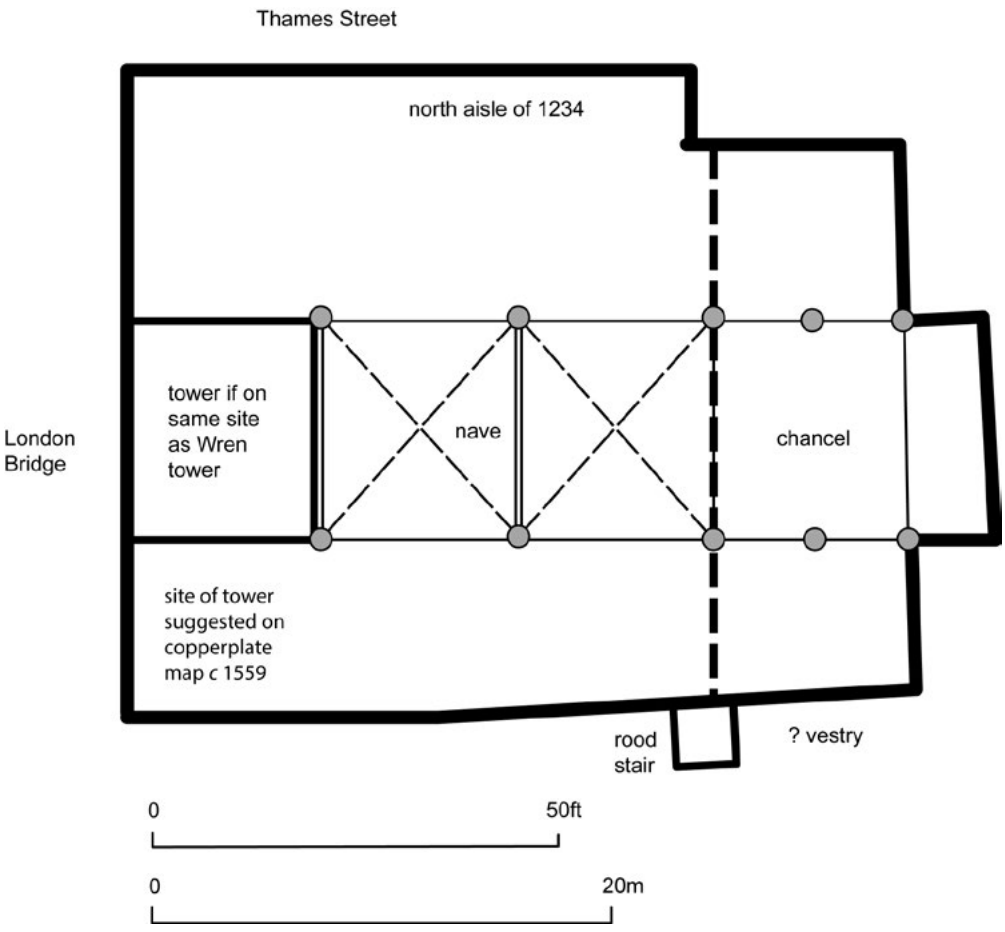


Figure 81 Sketch plan of St Magnus the Martyr church around 1600; there are two possible sites for the medieval tower, and the number of bays and their vaulting in the nave are conjectural

on available sources.[51] It is assumed that the half-bay formed by the arcades of the present church at the east end reflects a pre-Fire protruding chancel. There are two possible sites for its tower. The tower of the Wren church may be on the pre-Fire site, as in many other Wren-period City churches; but a site at the south-west corner is suggested by the representation of the church on the copperplate map of *c* 1559.

Before describing the archaeological results in detail, here is a brief summary of the period on site C. On the west side, Tenement 9 was adjacent to St Magnus' church. Somewhere in Tenement 9 was an alley which led from Thames Street to Fish Wharf, south of the church. Large foundations on its east side (C:Building 6) suggest that the alley was on that side, and that the boundary with Tenement 10 to the east and a parallel internal wall of the alley within Tenement 9 were built at the same time during the 14th century. Next to the east was Tenement 10, which was bordered by Rothersgate to the east. The latter, possibly based on a gate or hole knocked through the Roman riverside wall, had formed as a property division by the 11th century and was a public thoroughfare by 1300. Archaeologically, Tenement 10 contained C:Building 7 which had four rooms at ground-floor level; surfaces of Rothersgate are reported with it. Across the alley to the east was the double-width Tenement 11, which contained C:Building 8 of seven rooms, also placed in the 14th century. Tenement 12 was known as *le Brodegate* by 1349, and an alley down its west side is indicated by both documentary and archaeological evidence. The property contained C:Building 9, which had at least four rooms; again a construction date in the 14th century is suggested by the pottery. Next door to the east, Tenement 13 retained the 12th-century C:Building 4. On Tenement 14, the 12th-century C:Building 5 also seems to have been retained until it was replaced in the 16th century. A sketchplan of the properties around 1350 is given in Figure 82, and the excavated parts of the buildings in period M2 shown in more detail in Figure 83. Many of the strata of this period were excavated by machine clearance in the excavations of 1974 and 1975; the section drawing for the north side of the trench for all periods is Figure 292.

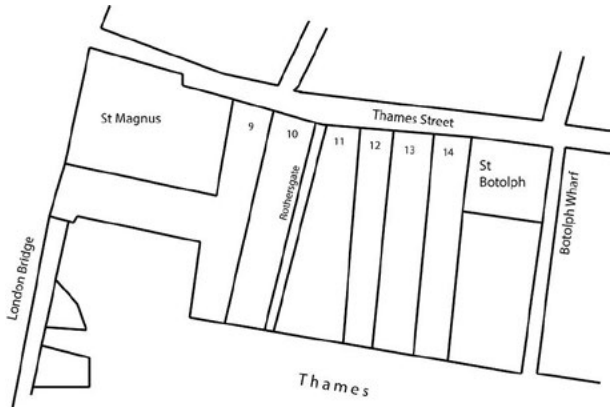


Figure 82 Site C: sketchplan of properties around 1350. The boundaries of each property are only approximate

Tenement 9 (Le Cok On The Hoop; Croskeys)

Tenement 9 was known as *le Cok on the Hoop* in 1405, and as *le Croskeys* in 1549. It extended from Thames Street to the river, adjoining Tenement 10 to the east and, at its north end, the church of St Magnus to the west. Until the early 14th century, its south part extended some short distance further west along the south side of the church, where it adjoined Fish Wharf. Leading from Thames Street to the Thames past the east wall of the church was a lane which in the medieval period was occasionally mentioned as one of the west abutments of the tenement, and which was described in 1663 as a 'large cloister' passing beneath (ie just outside) the east end of the chancel and chapels of St Magnus (St Magnus churchwardens' accounts, P69/MAG/B/018/1, p958). This 'extra' lane, which did not survive the Great Fire, is shown on Leake's manuscript map of the Fire-damaged area.[52] A short way beyond the southeast corner of the church (and not shown by Leake), the lane branched west, passing between some small properties to the north and larger riverside tenements (including Fishwharf) to the south; here it was to form a second cloister, referred to in the late 13th and early 14th centuries as a *camera forinseca* or 'external chamber'(eg. CLA/023/CP/01/025/40, /047/20). The exact meaning of the term 'external' is unclear. Possibly the passage was considered external in relation to the main body of the church, although most of the intervening property did not come into the possession of St Magnus until the early 15th century, when part of it became a cemetery: both this passage and its counterpart on the east side of the church were church property by the 17th century.

In his will proved on 19 February 1274 Walter de Chesewyk bequeathed to his sons Walter and John the shop nearest to the gate (*porta*) on the corner by which *Viswarf* was approached next to the east end (*caput*) of the church of St Magnus (/006/39). This was presumably the gate 'behind the church of St Magnus' which, it was ruled in 1246, should be left unimpaired (Chew and Weinbaum 1970, no. 465). Walter evidently held no more of the tenement than the shop, which was also mentioned in the will of Robert Lambin as the shop of Emma de Porta. Lambin was referred to as the occupant of Tenement 9 in a deed enrolled proved in November 1290 (/019/79 concerning Tenement 10); he had presumably held the rest of Tenement 9, and his will, proved on 22 February 1294, bequeathed to his wife Joan his newly built dwelling house from the 'entrance of the street' as far as the Thames, to be held for her life in lieu of dower of his bakehouse which was next to the east. The shop which Emma de Porta held was also to remain to Joan for life, along with the dwelling house. The bakehouse, with entrance and exit towards the Thames

[51] Plan of the Wren church in RCHME 1929, 28; Jeffrey 1996, 116–18; Hollar's 1647 view; Leake's 'Exact Surveigh' of the City, early 1667 (BL, Add. MS. 5415.1.E, reproduced in Barber 2012, 44–5); for the copperplate map, Schofield 1994a, fig 9, no 54.

[52] Barber 2012, 44–5.



Figure 83 Site C: plan of buildings in period M2, 1200–1350 (1:300)

as far as the second 'fence post' (*postem pallicum*) upon the Thames, was to remain to his eldest son Edmund, together with his houses at Yarmouth and Southwark. To his daughter Alice, Robert bequeathed two shops which he held next to the church of St Magnus on its south side, for her and heirs in perpetuity (/023/10).

The will made no provision, after Joan's death, for the dwelling house and shop held by Emma, but on 7 February 1296 Joan and Roger de Rokesle, whom she had since married, quitclaimed Edmund, a fishmonger, his heirs and assigns in Robert's former property between the tenement of Stephen Pikeman to the west and Tenement 10 to the east, extending from the street to the north to the Thames to the south; as well as in Robert's property in Yarmouth (/027/29). The London property apparently represented the whole of Robert's holding at his death; Stephen Pikeman held Fish Wharf, which occupied part of the area to the south of the church. In his will written on 19 May and proved on 27 May 1308 Adam le Blound called Fuleham bequeathed to his son Thomas 15s 6d pa quitrent from a certain shop between the tenement once of Robert Lambyn to the west and Tenement 10 to the east (/036/91).

Edmund Lambyn leased his property and wharf near the tenement of Walter le Marberer (Tenement 10), to John Lambyn fishmonger, lately his apprentice, for 8 years from Michaelmas 1327, at 7m pa (*Cal Lbk E*, 224). On 5 May 1333 Edmund's son, Edmund junior, quitclaimed John and his wife Alice in all that tenement with shops and solars built above and with adjacent quay, which they held by his grant and fee after the death of Edmund senior. Included with the quitclaim was the grant of the reversion of a third part of the tenement which Edmund's mother Agnes held in dower and which she had demised to John and Alice for the term of her life, reverting to Edmund on her death. The tenement was described as extending from Thames Street to the Thames between Tenement 10 to the east and, to the west, the tenement of Thomas Pykeman; the lane leading from the street as far as *la Fisshewharf*; and the tenements of Robert Swote and Gocelin Mite de Clive (/061/65). Identical quitclaims were made to John and Alice on 26 June 1335 and 2 November 1348 (/063/165; /075/157).

In his will written on 27 March and proved on 15 June 1349 John Lambyn fishmonger bequeathed to his sons Guy and Goscelinus heirs and assigns forever all his tenement purchased from Edmund Lambyn junior (077/17). In the event the whole tenement came to Guy, whose own will, written on 15 July and proved on 25 October 1361, and describing himself as a fishmonger, bequeathed to his wife Elizabeth for the term of her life all that tenement in Thames Street with the shop, cellar(s) and solar(s) in which he then dwelt; on her death and in the absence of any heir the property was to be sold by Guy's executors (/089/186).

Dumping to raise the levels of Tenements 9 and 10

Only a small part of the east side of Tenement 9 was recorded, at the west end of the Area III trench of New Fresh Wharf. In period 3 phase 5 water-deposited grey-black silt with oyster shells suggested that the inlet between Tenements 9 and 10 remained open until in period 3 phase 6 it was filled in with dumping (sm[102]). Dumps of soil containing random timbers continued, filling in the inlet (phases C3.6 and C4.1). There are 82 sherds from phase C4.1 only (60 ENV, 1702g, 0.5 EVE). All contexts are dated to *c.* 1270–1350 and comprise a range of fabrics and forms typical of this period, with a small number of residual sherds present (Table 131). The main fabric identified is London-type ware, with sherds from numerous baluster jugs of flared or tulip-necked form, as well as sherds from jugs with white slip decoration and in the Rouen style. A more unusual vessel is a small (miniature) rounded jug in LOND with grouped thumbing around the base (C<P68>). Mill Green ware is another key diagnostic fabric for this period and is present as sherds from several jugs, as well as cooking pots (in its coarse variant MG COAR). There are also sherds from highly decorated jugs in KING, introduced into London *c.* 1240, including 47 sherds from a metal copy baluster jug (C<P69>) and 265 sherds from a large baluster jug with shield-shaped stamped boss decoration (C<P70>). as well as from a small number of vessels in CBW, from the Surrey-Hampshire borders, first used in London at the end of the 13th century. Wheelthrown coarsewares are represented by SSW and SHER, mostly cooking pots, and there is one more exotic sherd, part of a knight jug in Scarborough ware (C<P71>). These elaborately decorated jugs were covered with modelled knights on horseback, and this sherd holds part of one such figure, with a tall kite-shaped shield. Scarborough ware is never common in excavated finds from London, and these highly decorative jugs are a particular rarity. The rim of a second jug in SCAR has the remains of anthropomorphic decoration in the form of arms with hands folded across the base of the spout (C<P72>). From period C3.5 one artefact is notable, a small length of copper chain.[53]

C:Buildings 6 and 7

There was further dumping and the construction of two large stone walls, one forming the boundary between Tenements 9 and 10, and the other about 2m to the west of it, within the east boundary of Tenement 9. This phase of dumping (sm[4], [62]; fre [583], [584], [589], [590], [608]) included posts and planks which may have been from revetments or fences in the material; it extended off the excavated site to the south,



Figure 84 Site C: the timber piling in the foundation of the east wall of C:Building 6, looking east. Beyond are the remains of the late Saxon embankment, being excavated at the same time (0.5m scale)

[53] sm[146] <20>; Egan and Pritchard 1991, 318–19, no. 1591.



Figure 85 Site C: foundations for the east wall of C:Building 7 (towards the top) and of the east wall of C:Building 6 (bottom), looking east. The foundation of the wall of C:Building 6 shows its blocks are arranged to form an arch to the left (0.5m scale)

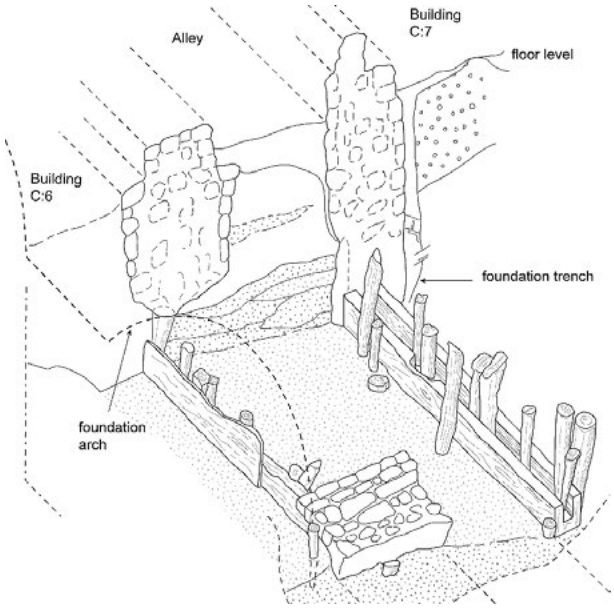


Figure 86 Site C: the foundations of C:Buildings 6 and 7, looking northeast; reconstruction

so reached about half the distance between medieval Thames Street and the present waterfront.

Two arched and piled foundations for parallel walls shared one foundation trench and cut through this dumping. They both incorporated timbers in the base of the trench to support the arched masonry; that below the eastern wall incorporated a large reused baseplate from either a waterfront or a building (Figure 84 to Figure 86). The eastern of the two walls sm[65] formed the boundary between Tenements 9 and 10; the western wall sm[3] formed the inside of the alley along and within the east side of Tenement 9. Together their bulk and width suggests a large building on Tenement 9, which is here called C:Building 6. This construction is placed in the period 1270–1350, and it was possibly part of the rebuilding of Tenement 9 mentioned as new in 1294.

Tenement 10 (later The King's Arms)

Tenement 10 lay between Tenement 9 to the west and *Rederesgate* to the east, extending from Thames Street to the Thames. It was known as The King's Arms in 1649, and was also referred to as a 'Back Quay' in the 1650s. The tenement may possibly have been included in the early 12th century leases of two wharves at *Rederesgate*, along with Tenement 11. The earliest certain reference to this property occurs in the will of Lawrence Payn, proved on 24 January 1278, bequeathing to his wife Dionisia his house, solar, kitchen (*coquina*) and cellar for life, reverting thereafter to his nearest heir; to his eldest son John his house lying between the house which Richer held of Lawrence and his own tenement on the other side; to his son Robert his cellar towards the quay (*versus kayum*); and the quay itself to his son Gilbert and daughter Egidia (CLA/023/CP/01/009/10). All this property, with exception of Dionisia's part, appears to have come to Gilbert, whose will, proved on 6 November 1290, bequeathed to his mother Dionisia all his tenements *apud Rederesgate* to be held by her and her heirs forever (/019/71). A week later John le Treyere, son and heir of James le Treyere and heir of Gilbert Pain deceased, quitclaimed to Walter le Marbler and Dionisia (now Walter's wife) all that tenement, once of Lawrence Pain, with houses built upon it and with quay and free entrance and exit between the gate (*porta*) called *Roderesgate* towards the east and the tenement of Robert Lambin (Tenement 9) towards the west and extending from Thames Street to the Thames; Gilbert having bequeathed to his mother Dionisia heirs and assigns all the tenements once of Lawrence (/019/79).

Walter was still in possession in 1308 (/036/91), but at some date before 8 June 1326 he granted to Adam Pykeman fishmonger and his wife Matilda a messuage with houses built upon it together with a quay adjacent to the messuage and with free entrance and exit at all times through a certain *porta* built in the lane of *Rethereslane*. Between that lane to the east and Tenement 9 to the west the width of the messuage was 18ft 2in (5.5m) on the quay next to the Thames, and 19ft 6in (5.9m) against Walter's tenement to the north. From Walter's tenement to the river the length of the messuage was 79ft 10in (24.4m). The entrance under the new solar (of the messuage granted - see below) from Walter's tenement to the north as far as the river was uniformly 12ft 3in (3.7m) wide, and the gate of the entrance (*porta introitus*) in *Rothereslane* beneath the solar of Walter's tenement towards the said messuage was 7ft 10in (2.4m) wide. The messuage was to be held by Adam and Matilda and the heirs and assigns of Matilda during Walter's life, saving to Roger de Rokesle and his wife Margery and the heirs and assigns of Margery free entrance and exit to the quay through the said gate. Roger and Margery (one of Dionisia's daughters, who had inherited the north part of the tenement) now quitclaimed to Adam and Matilda and to Adam's heirs all right and claim, saving to themselves and heirs access to and from the quay through the gate at all times, and also access through another gate which was in the entrance beneath the new solar of the said messuage, and was 7ft 10½in wide (/054/102). The uniform width of 12ft 3in (3.7m) for the internal access to the Thames must be mistaken since the overall width of the property was only between 18ft

2in (5.5m) and 19ft 6in (5.9m); Rederesgate itself was a mere 6ft 9in (2.1m) wide in 1402 and 1532 (see below). Perhaps the second gate of Roger and Margery's portion led to their part of the property and stood on the east side of Rothersgate some way down it. In 1332 the two parts were north and south.

By the will of Thomas de Foleham, dated 23 August and proved on 17 October 1328, an annual rent of 15s 6d payable from the tenement held by Walter le Marberer between the Thames and the street to the north was bequeathed to Joan la Forester (/056/119). On 27 August 1332 Edmund Broune ironmonger (*ferronus*) and his wife Agnes, daughter of Margery the widow of Roger de Rokesle, quitclaimed Adam and Matilda, heirs and assigns of Adam, in the tenement that was once of Walter le Marberer and his wife Dionisia, the parents of Agnes' mother Margery. The tenement came to Margery by inheritance on the death of Dionisia, and was situated between Tenement 9 to the west, the lane called *Rutheresgate* to the east, Thames Street to the north and the tenement of the said Adam to the south. Adam held the property by grant and fee of Margery mother of Agnes (/060/126). Adam Pykeman thus secured the north part of Tenement 10, having already secured the south part in 1326.

On 16 July 1348 Robert Toller of Waynflet *sherman* and his wife Roesia le Ropers, daughter and heir of Thomas le Ropers, quitclaimed to Adam Pykeman fishmonger heirs and assigns in the 6m pa rent which Thomas used to receive from the tenements which Adam now held by grant and fee of Walter le Marberer in the parish of St Magnus (/075/91). Adam's will drawn up on 20 May, and proved on 8 June, 1349 bequeathed all that tenement with adjacent quay, shops, solars which he inhabited, together with other property in the parish of St Botolph Billingsgate (including Tenement 12) and in London, to be sold to maintain five chaplains for the souls of his wives Constance and Matilda and of his parents Adam and Edith for as long as the proceeds allowed (/077/6).

The property passed to Henry de Boseworth, vintner. On 27 July 1349 Adam's son Adam quitclaimed de Boseworth, his heirs and assigns in all that tenement with adjacent quay and shops and solars and with other houses built upon it, which Henry acquired by grant and sale of the executors of Adam's father, and which was situated between Tenement 9 to the west and the lane called *Rytheresgate* to the east, and extended from Thames Street to the Thames (/078/152).

On Tenement 10, a range of four rooms on the west side of the alley of Rothersgate were observed (C:Building 7) (Figure 83). Against Thames Street at the north end was a small chamber, room A, about 4m (13ft) east–west by 2.5m (8ft) north–south. Behind it to the south were two large chambers (rooms B and C), and the beginning of a third (room D). Room B was 10.5m (34ft 6in) long and room C was 9m (29ft 6in) long; both were about 4.2m (14ft) wide internally. Internal floors of mortar and clay were recorded in several of the rooms, and pottery was recovered in two cases (fre[625] in room A, fre [591] in room C). Comparison of the levels of the internal and external layers here suggests that the rooms were ground-floor rooms at the level of the alley and therefore probably Thames Street, not sunken.

The dating evidence is provided by two groups of strata, the dumps which formed the base of the land reclamation, and layers which are probably from the period of occupation of the constructed building (Table 132). There are 255 sherds (168 ENV, 5414g, 2.94 EVE). A latest date of *c.* 1340–1400 is given to the initial dumping (group C3.6) by context sm[62], which is chronologically very mixed, almost to the extent of appearing to be two different contexts, dated to the 11th to early 12th century and the late 13th to 14th century. A large quantity of EMSS dates to *c.* 1000–1150, and consists mostly of cooking pots (e.g. C<P73>) found together with EMSH, ESUR, EMS, EMFL and other early medieval handmade wares. The context's late dating comes from part of a baluster jug in LMHG (C<P74>), from Hertfordshire, decorated with raspberry stamped bosses.[54] This jug is later than any other pottery in the context, and there is no CBW, which was very common by the mid 14th century. It may be intrusive, although the two joining sherds weigh 361g which makes this less likely. It is also possible that LMHG was introduced into London earlier than had previously been thought, although more examples from securely dated contexts would be needed to confirm this. Apart from the early medieval wares, the main fabrics recorded are LOND, KING, MG and SHER, all of which would have been in contemporary use *c.* 1270–1350. There is also part of a rounded jug in SAIM, imported from the Saintonge in southwest France from the end of the 13th century (C<P75>). Later dumping layers of the same period (group C4.1) provided pottery dated to *c.* 1340–1400 and is again very chronologically mixed (sm[4]). The mid 14th-century date is based on five sherds of LMHG, from two cooking pots and a baluster jug, but in the absence of CBW and any other wares typical of this period, the possibility of an earlier introduction remains open. Other contexts in period C4.1 are dated mostly to *c.* 1270–1350 by LOND, MG and SHER.

For the construction and use of C:Buildings 6 and 7, there are 29 sherds. The dates span the 11th to late 13th/14th centuries and all contexts are small so more difficult to date closely. The earliest material from context sm[100] dates to *c.* 1170–1240 and includes early medieval handmade wares as well as LOND, SHER and SSW. The latest pottery was recovered from contexts sm[65] and fre[591] and fre[625], and dates to *c.* 1270–1350, based on the presence of MG, LOND tulip-necked or flared baluster jugs, CBW and a KING metal copy baluster jug. A single sherd of STGW from sm[65] probably dates after *c.* 1480 so may be intrusive.

As far as the pottery is concerned, therefore, the layers forming floors within the rooms of C:Building 7 seem to date from at least 1340. Nearly all the pottery was taken from the side of the trench which had been excavated by machine, so its date is not completely reliable. In room A, pottery in a floor fre[625] may indicate occupation in the decades which followed.

Tenement 11 (Freshwharf)

Tenement 11 lay on the the east side of Rothersgate, also known as Retheresgate Lane. Its history from the opening decades of the 12th century is given above under period M1 (section 2.3). According to the records of Holy Trinity, subsequent tenants after Brunlocus in the middle of the 12th century included John Abraham, Gregory Abraham, Turold de Kyneli, William Frosh, Geoffrey Frosh (from whom the

[54] cf. Jenner and Vince 1983, figs 1–2.

property received its name of *Froysshwerf*, later Freshwharf, presumably in the mid or late 13th century), and, in 1311–12, John Bourne (Hodgett 1971, no. 258).

By a deed dated 17 August 1342 Sir Thomas de Bourne granted to his mother, Lady Margaret, and to William Knyth clerk and their respective heirs a tenement with adjacent quay *apud Frosshwharf* (TNA: PRO, E326/9438). The tenement extended from the street to the north as far as the Thames to the south, and adjoined the messuages of Adam Pykeman on either side: at this date Pykeman indeed held both Tenement 12 to the east and Tenement 10 to the west. Sir Thomas's father, Sir John de Bourne, who had paid a rent to Holy Trinity priory since 1311–12, had temporarily forfeited the property for holding Leeds castle (Kent) against Edward II, the king granting it to Peregrine de Controne on 17 June 1325 (*Cal Pat R 1324–7*, 132). It had however been restored to him by 1330 (CLA/023/CP/01/058/95), and on 5 November 1339 his widow, Lady Margaret, complained that she was prevented from building upon a plot of vacant land in *Retheresgatelane* because Adam Pykeman fishmonger had built opposite to her (on Tenement 10) a house 19ft 10½in (6m) long whose timbers extended 14in to 15in (0.36m to 0.38m) beyond the middle of the lane (Chew and Kellaway 1973, no. 352).

A timber revetment (C:Waterfront 4) (not illustrated) was recorded running east–west for at least 7.6m. The features of the recorded timbers (some excavated by contractor's machines) suggest it was constructed of vertical staves, with occasional posts and raking front braces; a height of at least 2.4m was inferred. Parts of these braces probably survive beneath the foundations of St Magnus House which was being built on the site in 1978. Dumps of gravel, sand, clay and timbers raised the ground surface within the tenement; they could be divided into layers north of the revetment (fre [544, 564]) and south of, that is subsequent to, the revetment (fre [580]). A total of 10 sherds (9 ENV, 285 g, 0.09 EVE) were recovered. Phase 3.6 is dated at the latest to *c.* 1180–1270 by sherds from jugs in LOND NFR and LOND ROU in fre[544], with a LOND PELL in fre[564], dating to the late 12th century (Table 133). In period C4.1 sherds from a tulip-necked baluster jug in LOND, as well as other LOND jugs date to *c.* 1270–1350. These layers are taken to comprise dumping and raising of the ground surface some time in the first half of the 14th century for the construction of new buildings.

C:Building 8 comprised a comprehensive rebuilding of Tenement 11 (Figure 83). This property was much larger than the others in this part of the street, both because it was based on the two wharves of the 12th century, but also because it fanned out in width to the south, so its form as excavated (the north half of the tenement) was trapezoidal. The complex had three construction stages; (a) ground levelled for building, (b) foundations and walls, (c) primary make-up and floor levels. The walls and internal floor levels were observed either after machine clearance or during the watching brief during construction, so they have all been grouped as one building, though the parts could have been built at different times. It is an assumption that the previous C:Buildings 1–2 were demolished; the recorded fragments of both levels of buildings did not touch each other. The ground was raised with layers of sand and widespread dumps of oyster shells, a technique also found at site B above the bridge at the same general period, the late 13th or early 14th century.

Seven rooms could be identified or suggested, but not much about their interrelation (Figure 83). The north part on the west side of the property, against Rothersgate, did not survive well (room A, inferred), but down the alley other rooms were indicated (rooms B and C). Along the east side was a small room at the streetside (room D) with a longer room behind (room E) then fragmentary remains of two further rooms (F and G). The walls were generally of rubble in brown mortar, up to 0.4m wide. Chalk was used for the body of walls, and in one observed case an exterior face (that of room 3 to Rothersgate) was of Reigate stone. Floors of silt, gravel and sand were recorded in several of the rooms. A small collection of sherds was recovered from a floor level in room 6 of the building (6 sherds, 3 ENV, 164g, 0.42 EVE). These are dated to *c.* 1340–1400 by part of a jug in KING with stamped boss decoration in the form of wheatears. Thus there is no clear evidence of the initial construction date of C:Building 8, which is placed here before 1350, but could equally be a construction of the period after 1350, i.e. in period M3. The dating evidence for C:Building 8 is given in Table 134.

By 1342 the property was known as *Froysshwharf,* later Fresh Wharf, after Geoffrey Frosh, who occupied it some time during the mid or late 13th century. From 1311 the de Bournes, who moved in royal circles, held the property. The vacant part of the plot which Lady Margaret de Bourne wished to build on in 1339 may have lain south of the excavated area; but equally, this may be a hint that she was engaged in substantial rebuilding, and that she was the builder of C:Building 8. It is notable that for all its size, Tenement 11 (Freshwharf) remained in single ownership without subdivision until and beyond 1350, the end of period M2.

Tenement 12 (le Brodegate)

Tenement 12 extended from Thames Street to the river. It was known as *le Brodegate* by 1349. Many of the later deeds concerning Tenement 12 clearly relate only to parts of the original plot, but in several other instances it is not immediately obvious whether a part or the whole of the tenement is at issue. In contrast with Tenements 5 and 6 where the alley ran down the east side of the property, the alley of Tenement 12 lay along its west boundary, all the buildings being positioned against the east side of the tenement. Solars situated above the alley in the 14th century were stated to be 14ft (4.3m) wide. An alley of that exceptional width could certainly account both for the remaining width of the tenement, and not least for the name *Brodegate* which was applied to Tenement 12 by the mid 14th century. Moreover two deeds of the 1620s refer, in specific connection with free passage along the alley, to the use of a parcel of ground lying before the west side of a messuage and extending to a channel which may itself have made up part of the width of the alley. On Ogilby and Morgan's map the tenement was shown as no more than 25ft (8.75m) wide in 1676, including the alley which is shown as being of only average width, on the west side of the property (Figure 16).

In his will proved in November 1275, Martin de Garschurche bequeathed to his son Robert 4m pa quitrent which Alan Hose used to pay from his tenement in the parish of St Botolph (CLA/023/CP/01/007/20). Robert quitclaimed 2m of this rent to Waltham Abbey in 1306, when Hose's former tenement, now described as including a quay (*cum kayo*), was held by

William Pykeman (34/28). In his will proved in November 1313 Pykeman claimed to hold the property by grant of his nephew John, son of Stephen Pikeman, and bequeathed it to his wife Cecily, remaining on her death to his son Richard and heirs (/042/44). On 14 October 1330 Cecily granted the tenement with quay, and with abutments specified, to Adam Pykeman fishmonger (/058/59). In his will dated 20 May 1349 Adam provided that this property, called *le Brodegate*, should be sold by his executors along with property in other parishes, the proceeds to support five chaplains for the souls of his wives and parents (/077/6). The executors duly sold *la Brodegate* with the houses built on it and with adjacent quay to John Wrothe fishmonger on 27 July 1350 (/079/94).

The strata of this period on the tenement were cleared by machine in the opening stages of the excavation in 1974, but some details survive from section drawings of the edges of the excavation and from recording in the watching brief. Rooms were tentatively identified. The previous C:Building 3 was demolished and levelled with layers of sands and oyster shells which covered the entire width of the property (nfw[131]). Walls of the new building, C:Building 9, were mainly of chalk rubble, sometimes reinforced with stakes; the west wall was shared with Tenement 13, and incorporated rough blocks of ragstone (Figure 83). Dumps of earth to the south indicate that the quayside was raised, probably for a new waterfront off the site to the south. The fragmentary remains of walls of up to four rooms or buildings forming this complex are described in the archive report (period 4.2, called Building L). A total of 13 sherds were found in contexts associated with C:Building 9 in period M2 (9 ENV, 139g, 0.15 EVE). Context nfw[131] the preparation levelling produced sherds of *c.* 1140–1220, jugs with pellet decoration and white slip decoration in LOND and part of a cooking pot in SSW. A floor of clay, silt and burnt daub next to a fragment of tile hearth in one of the rear rooms (fre[8]) produced sherds of *c.* 1240–1350, part of a flared baluster jug in LOND. A date in the 14th century is suggested (Table 135).

Tenement 13

Tenement 13 was situated between Tenement 12 to the west and Tenement 14 to the east, and extended from Thames Street to the river. The earliest deeds specifically concerning Tenement 13 date from 1283 when it had recently been in the possession of Eustace of Dartford, but from 1270 onward deeds relating to Tenement 14 commonly refer to Tenement 13 as the messuage once of Lawrence the clerk (*clericus*), of whom nothing further is known. In his two wills, proved in February and May 1283, Eustace bequeathed to his wife Eva his house for life; after her death it was to come to his grandson Geoffrey, the son of Geoffrey de Green, for life, excepting the solar next the Thames which was to come to Geoffrey's sister Claricia on Eva's death. On the deaths of both grandchildren the property was to remain to Eustace's nearest heirs (CLA/023/CP/01/014/62), and in 1292–3 his daughter Alice and her husband, John de Creye *correarius* ((? leather) curer), renounced all claim in the property in favour of Claricia and her husband, Robert de Stonham, who were in possession of the land with houses and quay (/022/10). In or by 1294–5 Robert and Claricia had granted the property, comprising quay, houses and shops, to Wymond Brother and his wife Isabel, rendering to the grantors and their heirs 1d. pa at Christmas (/025/19;/14;/17). In her will proved on 25 October 1316 Isabel Brother left her property, some of it at Kingston, to be sold by her executors, Wymond paying £20 less than anybody else, if he wished to purchase (/045/83). In his own will, proved on 3 March 1326, Wymond, described as woolman (*lanarius*), bequeathed the property to his son Henry junior and his daughter Matilda (/054/84).

A deed of 1330 concerning Tenement 12 shows that Tenement 13 was then in the possession of Henry Wymond, but on 26 July 1346 Henry and Henry Beauflour, acting as executors of Wymond Brother's will, sold it to Thomas Aleyn fishmonger and his wife Agnes (/073/96–7). Almost exactly three years later it was granted to Richard de Twychine fishmonger by Katharine, the daughter of Roger Aleyn (himself presumably the son or brother of Thomas), who had inherited it on the death of her brother John (/077/115). Richard de Twychine's will (/082/54), dated November 1349 and proved in July 1354, left his house to be sold after the death of his wife Katharine for the good of their souls and those of Thomas and Agnes (*sic*) Aleyn. On 29 May 1350 Katharine Aleyn, who was one of Richard's executors and may also have been his widow, was in a position to grant the property to Roger Monckoye, Katharine Monckoye, Arnald atte More rector of Wennington (Essex) and to John Kempe and William Colbayn of Finchingfield (/078/124). On 26 December 1353 they quitclaimed to Katharine, now surnamed Bernard, and to Joan, daughter of the late Margery Hortone, in the property with shops annexed and with adjacent quay which had come to Katharine on the death of her brother John, and to Joan after the death of her sister (*sic*) Margery Hortone (/082/81). On 21 July 1354 Katharine and her husband Roger Bernard granted the tenement to John Wrothe fishmonger (/082/56), who was shortly to acquire the adjoining tenement (12) to the west. Wrothe's 'tenement with two shops' is recorded in 1358 as owing 12d. pa to London Bridge (Bridge House, Small Register of Deeds: CLA/007/EM/04/003/A, fo. 73r).

Excavation recorded internal layers within the still-standing 12th-century C:Building 4 and two phases of reclamation dumping, the second of which extended the waterfront for this property off the excavated site to the south. Pottery was obtained from the internal layers (nfw [49], [53], [83], [86]) and the second phase of reclamation (fre [348]) (Table 136). A total of 48 sherds were recovered (37 ENV, 683g, 0.53 EVE). Most pottery comes from phase C3.6 dumping layers and dates mostly to *c.* 1140–1200/20, with nfw[72] slightly later on the basis of LOND, NFR and SSW; this includes part of a flared bowl with stabbed rim in SSW from nfw[49] (C<P76>), and nfw[83] the latest, dated to *c.* 1240–1300 by the presence of KING, alongside LOND, SHER and residual early medieval coarsewares. Later dumping assigned to phase C4.1 is dated by a small amount of pottery in context fre[348] to *c.* 1240–1350 by sherds of LOND, including part of a highly decorated jug. Thus in this period on Tenement 13, occupation around C:Building 4 continued, and the waterfront was probably extended to the south, with heightening of the quayside surfaces towards the end of the period, that is in the first half of the 14th century.

Tenement 14

Tenement 14 extended from Thames Street to the Thames between Tenement 13 to the west and Tenement 15 (Botolph's Wharf) to the east. No measurements are available in the

documentation, but Ogilby and Morgan's map shows that its width in 1676 was some 31ft (9.5m; Figure 16). It also shows an alley along the east side of the Tenement, which is not otherwise recorded until 1660–1.

In 1270 Tenement 14 was granted by Wybert de Arraz, nephew of Matilda de Arraz, and his wife Joan, daughter and heir of Richard Pycard, to Peter de Kyngeston, vintner: it was described as a messuage with quay, extending west from the church of St Botolph and the common quay of the City (CLA/023/CP/01/004/57). In 1282, Richard de Kingeston, whose relationship to Peter is uncertain (possibly they were half-brothers), was granted by the mayor and commonalty a 'place' of land on Botolph's Wharf extending from Richard's property in the west along the south side of St Botolph's church as far as its east end and the common way to the Thames there (VC Willbook, 7; cf. Tenement 15). The right of access was still reserved as late as the 18th century, and the company's accounts of the 16th and 17th centuries record the annual payment of 1d to the City Chamber for 'a way through a door from Botolph Wharf to our wharf' (CLC/L/VA/D/002/MS15333/002, p 7 (1584)), or for the 'door room at Botolph Wharf' (pp 165, 182 (1593 and 1594)). The actual purpose of this facility is not explained, but in the late 16th century the Company rented the tackle house at Botolph Wharf (e.g. pp 49, 129), presumably in the interests of lading and unlading cargoes such as corn in which they had acquired an interest.

In 1285–6 Henry de Borgh and his wife Joan, the daughter of Peter de Kyngestone granted the tenement to John de Bakewelle, his wife Cecilia and his heirs (CLA/023/CP/01/016/79). According to the abutments of Tenement 13, John was still in possession in 1296, and had formerly been so in 1311. In his will dated 18 September and proved 15 November 1333 John's son, Thomas de Banquelle, bequeathed 6m income from property including a tenement in the parish of St Botolph and another in the parish of St Dunstan in the East, for three chaplains in the church of St Michael Bassishaw for the souls of his father John and mother Cecilia. The tenement itself was left to his son Thomas, or to his daughters Dionisia and Elizabeth (/061/118). According to the abutments given for Tenement 13, Thomas junior was in possession in 1358 (Bridge House, Small Register, fo. 73r).

Archaeologically, C:Building 5 continued in use. Grey silt incorporating many blocks of rough ragstone was dumped against the inside of the east wall (nfw[75]), perhaps reinforcing the floor here as it led to the doorway in the wall to the south. From this layer came a simple bone whistle made from a goose ulna, with a blow hole but no finger holes (C<175>).[55] Brown loam and pebbles may have been surfaces south of the crosswall (nfw[81], [118]).

A total of 69 sherds (35 ENV, 1381g, 1.06 EVE) were recovered from dumping layers on Tenement 14 (Table 137). For the most part, pottery in period C3.6 dates to the 11th to 12th centuries, with the latest material (SHER, SSW) coming from context nfw[92], which is dated to c. 1170–1220. This includes part of a flared dish in EMS from nfw[88] (C<P77>) and a cooking pot in SSW from nfw[92] (C<P78>). Pottery from phase C4.1 is dated at the latest to c. 1270–1350 by sherds from tulip-necked baluster jugs in LOND.

Summary of site C in period M2 (1200–1350)

The development of Tenements 9 to 14 in period M2 at New Fresh Wharf (site C) is summarised in Table 24. On the frontage to Thames Street some of the properties contained shops from the 1270s, in one case separately let (Tenement 9). Perhaps they all were. Quays are mentioned as parts of the properties in 1278, 1294 and 1306, clearly as assets. Tenement 10 was divided into tenancies by 1278, and divided again, possibly in a different way, between 1308 and 1326. Tenements 9 to 12 were rebuilt after about 1290, probably at different times in the 14th century; whereas Tenements 13 and 14, at the east end of the group and next to Botolph Wharf, stayed in their 12th-century form at least at basement level, the only level remaining to be recorded. They could have changed in their upper floors.

The walls and foundations of the period (Figure 83) delineate buildings with stone walls, at least on their ground floors, and some of the rooms may have been somewhat sunk in the ground. All the new buildings of this period, as far as we can tell, occupied all the space in the part near the street which was excavated. There was no open space here except the alleys which gave access to buildings down the plots. Pressure on space must have been great.

Something is known about some of the owners, who may also have been occupiers. Robert Lambin, owner of Tenement 9 in 1290, had houses in Yarmouth and Southwark; he presumably rebuilt the property excavated as the twin walls of C:Buildings 6 and 7 shortly before 1294. John Lambyn, fishmonger, held the property in 1349, and his son Guy, also a fishmonger, in 1361. Walter le Marbler or Marberer, who first appears in the documentary record in 1290 as the husband of Dionisia the widow of Lawrence Payn (and the mother of four children), possessed Tenement 10. Walter was one of several marblers with connections to the Purbeck marble quarries at Corfe (Dorset), active in the capital between the 1280s and the 1320s.[56] In C:Building 7, he had a range of at least four rooms along Rothersgate. Walter granted a substantial south part of the tenement with the wharf to Adam Pikeman or Pykeman fishmonger in 1326, though the owners of the north part retained the right of access to the wharf also. A few years later in 1332 Pikeman acquired the north part. Pikeman may have lived here when he died in 1349. The large establishment on Tenement 11 belonged in the 14th century to the de Bourne family; but the house was on *Frosshwharf*, apparently after Geoffrey Frosh who occupied it in the mid or late 13th century. Presumably he was also a fishmonger.

[55] Egan 1998, cat no. 946, fig 219.

[56] Blair 1991, 45–6.

	Waterfronts and buildings (site periods)	Documentary references	Comment, dating
Tenement 9	Only E side excavated, Bdg 6 (period C3.5–6, 4.1–2)	1274 a shop here of Walter de Chesewyk; 1290 the property occupied by Robert Lambin, including a bakehouse; newly built by 1294; occupied by a fishmonger 1327 and owned by another in 1349	shop in 1274 a separate tenancy; dumps 1270–1350, but Bdg 6 possibly that rebuilt by 1294
Tenement 10	Bdg 7 (period C4.2)	1278 Lawrence Payn, when it included two cellars and a quay, and was then (if not before) divided; 1290 Walter le Marbler, property included a gate on the E side to Rothersgate; divided into two parts N and S between 1308 and 1326 (N part has new solar; S part to Adam Pykeman fishmonger); 1332 Pykeman obtained the N part; 1349 Henry de Boseworth, vintner	W side boundary with Bdg 6 perhaps around 1290
Tenement 11a and b	Wft 3; Bdg 8 (period C4.2)	1311–12 Sir John de Bourne; 1342 called *Frosshwharf*	reclamation dumps 1270–1350; Bdg 8 occupied 1340–1400; all Tenement 11 in one ownership to and beyond 1350
Tenement 12	Bdg 9 (period C4.2)	1275 Martin de Garschurche; 1306 included a quay; 1330 Adam Pykeman fishmonger; 1349 called *le Brodegate*; 1350 John Wrothe fishmonger	machine excavated but details of some rooms; 14th century
Tenement 13	Bdg 4 continues	1270 once of Laurence the clerk; 1283 Eustace of Dartford; 1294 comprised quay, houses and shops; 1358 included two shops;	reclamation 1240–1300
Tenement 14	Bdg 5 continues	1270 Wybert de Arraz grants property to Peter de Kyngeston vintner; 1282 Richard de Kyngeston is granted an access way to Botolph Wharf along the S side of St Botolph's church, E of the property	reclamation 1270–1350

Table 24 Summary of site C, period M2 (1200–1350)

In 1270, Tenement 14 was acquired by a vintner. Besides resembling neighbouring properties, the property had an access, presumably a door, to the public St Botolph Wharf on its east side by 1282, a right still allowed in leases of the late 18th century. This door was not evident in the boundary wall adjacent to the site C excavation, but that had been rebuilt since the 17th century. As will be seen in the reporting of the comparable periods from the adjacent site D, the access way can be suggested in 1282, but was later blocked by the expansion of St Botolph's church, so perhaps it was replaced by something to the south. There was little archaeological evidence of this period, and evidently C:Building 5 continued, at this ground-floor level, in its late 12th- or early 13th-century form.

3.5 Billingsgate (site D) in period M2 (1200–1350)

The Billingsgate Lorry Park excavation (site D) in 1982 was of the north part of Tenement 15, which is divided for description into two parts west and east, a and b. Both ran north–south; they were separated by the alley of Botolph Wharf which ran from Thames Street to the river, approximately in the middle of the Wharf. The wider watching brief on the remaining three quarters of the large site in 1983–4 covered both the south part of Tenement 15 and all of Tenement 16 to the east, though it was severely constrained to recovering finds and recording only a few major waterfront structures and no buildings. Period M2 (1200–1350) on site D comprises the site-specific period D8 (early 13th century), period D9 (second quarter to late 13th century), period D10 (mid to late 13th century), period D11 (late 13th to early 14th century) and period D12.1 to D12.7 (early to mid 14th century).

There is no documentary evidence for Botolph's Wharf, Tenement 15, for most of the 13th century; the first recorded construction event is a rebuilding or enlargement in 1274–85 when the two parts of Tenement 15, a and b, were unified by being in the ownership of the City. But since Botolph Wharf was known as a public landing place in 1201, the archaeological strata of the early 13th century will be evidence of its early history.

Period M2 (1200–1350) comprised many strata and activities, divided into site periods D8–D12. These are summarised in Table 25. More detailed dating evidence is given in further tables for each of the site-specific periods.

Period	Development	Proposed date and documentary evidence
8	D:Waterfronts 12, 13 and jetty (8.1–7)	early 13th c
9	D:Waterfronts 14 and 15 (9.1–3); structures and a fence on the reclaimed land (9.4–6); possible ?industrial activity (9.7–9)	early 13th c
10	repairs to D:Waterfronts 14 and 15 (now jutting out further into the river), D:Building 1 and a lane on the reclaimed land (10.1–4); D:Building 1 extended to north and modified several times, then reduced in area; the lane resurfaced (10.5–11); extended again to the north, then modified again (10.12–14)	D:Building 1 mid 13th c; dendro dates first half of 13th c; pottery generally later 13th c
11	Extension to D:Waterfront 16 and box drain along the lane (11.1–2, 8); repaired and D: Building 1 dismantled (11.3–7); the wharf resurfaced (11.9–10)	plank dated 1243–69 may be a later addition, but 1275+ for D:Waterfront 16 likely; City acquired Tenement 15b, its east half, in 1274–85; wharf and its buildings described as ruinous in 1297; in danger of falling down 1325; overall date of 1270s to 1320s
12: early to mid 14th c	contemporary waterfront now south of the excavated site, D:Waterfront 17 observed in the watching brief to the southeast; D:Building 2 and other structures on the wharf (12.1–5); D:Building 3 on the east side of the lane (12.6–7)	Botolph Wharf reconstructed and given a new gate by City 1325–32; a crane mentioned 1370; it is proposed that period D12 includes the reconstruction of 1325–32

Table 25 Summary of Site D (Billingsgate) in period M2 (1200–1350)

Tenement 15: Botolph Wharf and St Botolph Billingsgate 1200–1350

Botolph Wharf

As noted above, Botolph Wharf is mentioned in 1270 as the west neighbour of Tenement 16 and was described as a 'common quay of the City of London' (*kayum commune civitatis London*). The width of the entire plot of Tenement 15 along Thames Street, including the church site at the west end of the frontage, was of the order of 90ft to 93ft (27.5m to 29m), as compared with its width of 78ft (23.8m) along the Thames. The east part of this area incorporated what was originally an independent private tenement, acquired by the Mayor and Commonalty between 1274 and 1280 or, at the latest, 1284–5, in order to enlarge the existing Wharf. At some date before 1274 Martin de Grascherche willed to his son Alexander his tenement with houses and quay in the parish of St Botolph which he had acquired from William Egrich (CLA/023/CP/01/007/20); the executors subsequently granting it to Alexander's brother Thomas (/005/26). On 20 July 1305 Robert, another of Martin's sons, quitclaimed the Mayor and Commonalty in the tenement with houses and quay which Thomas had sold to them during the mayoralty of Gregory de Rokeslee (/033/74). Since Rokeslee was mayor in 1274–80 and in 1284–5, the transaction must have been made by the latter date, and a lease of the Wharf in November 1298 specified that it included both the part formerly of Martin de Garscherche and the part accustomed to be the common quay (*Cal Lbk B*, 218). Subsequent abutment clauses in deeds relating to Tenement 16 to the east refer to the adjoining land of the Commonalty of London, once of Martin de Garschurche (1317: /046/24), *kayum Sci Botulphi vocatum Bothulfeswharf* (1334: /062/52). There is no indication of the width of the tenement that was acquired in this way, but it is likely to account for some or perhaps all of that part of the Wharf to the east of the central passageway, occupied in 1680 by two tenements to the north and a line of warehouses and a further tenement to the south. The mean width of this strip, some 24ft (7.3m) and exceeded only at the north end near the church, is comparable with that of an average waterfront tenement.

The transaction of 1305 made way for a scheme for its future renovation and reconstitution. The wharf and its houses were first described as ruinous in 1297 (*Cal LBk B*, 243), though the whole premises were still leased out to Adam de Fulham in November 1298 (*Cal Lbk B*, *218*), and remained in use in 1305 (*Cal Early Mayor's Ct R*, 194–5). References to the proposed reconstruction do not occur until 1322–5, when they become frequent (*Cal Lbk E*, 148–9, 208); in July 1325 'the houses with the quay' were said to be in danger of falling down and being reduced to nought (*Cal Lbk E*,149). The renovation work was certainly finished by June 1333 when the Mayor and Commonalty were in a position to farm out the Wharf to Richard Godchep (*Cal Lbk E*, 282), although there is also evidence that they had already leased it out as early as June 1332 (*Cal Lbk E*, 292).

In so far as it was initially intended in 1322–5 that the Bridge House should subsidise the repairs and retain the Wharf long enough thereafter to recoup their expenditure from lease rents, it might be expected that some years would have elapsed between its renovation and its return to the Mayor and Commonalty. The Bridgehouse Accounts survive in substance only from 1382; but fragments of accounts for the years 1330–2 show that in those years the Chamberlain of the Guildhall had himself expended some £27 12s 8 1/2d on the purchase of timbers at Windsor for repairing the houses and quay and for making a new gate there, as well as on the wages of carpenters and other workmen (*Cal Lbk E*, 271). This strongly suggests that in the event the work was undertaken not by the Bridge House but by the City directly, and that it occurred, or at least was completed, in the years 1330–2.

Though owned by the Mayor and Commonalty, partly by devolution from the Crown which received customs there in 1201, and partly by acquisition from others, the Wharf appears not to have been administered directly by the City but was instead normally farmed out by the Chamber to a

series of tenants who presumably managed it in the City's interests and their own. These tenants, of whom there were occasionally two (as in 1343 and 1370), were referred to as *custodes* or keepers. The rents charged to the farmers rose from 10 marks yearly in 1292 and 1333 to £12 in 1340–46, £20 in 1370, £36 13s 4d in 1453 (a reduced rate in the face of evident reluctance to take on the lease), and £46 13s 4d in 1509. By the end of the 16th century it had become the practice to charge a substantial entry fine, amounting to £400 in 1581, and to £600 in 1615 when the annual rent was £50. Thereafter, until the Great Fire, the yearly rent remained stable at £50 while the entry fine rose to £1000 in 1645, falling to £900 in 1652. After 1666 the entry fine was discontinued, and the annual rent fell to £30.

The main tenants, length of leases and rents up to 1346 were as follows:

1297 Adam de Fulham (fishmonger) sublet the Wharf to Gilbert Cros (fishmonger) and Richard Wolmar. The lease included the (east) part formerly of Martin de Garschurch and the part accustomed to be the common quay. To be held for 7 years from 24 June 1292, for 10m pa (*Cal Lbk B*, 218).
1300 Thomas de Rederesgate *custos* (*Cal Early Mayor's Ct R*, 72).
1305 Robert de Mokking (*Cal Early Mayor's Ct R*, 194–5).
1333 Richard son of Hamo Godchep for 7 years from 24 June, at £12 pa (*Cal Lbk E*, 282).
1340 John Sperlyng and Richard Eure (ironmonger) for 1 year from 24 June for £12 (*Cal Lbk F*, 53).
1346 £96 received from Richard de Eure for 8 years next to come (ie. £12 pa.) (*Cal Lbk F*, 154).

The farmers were clearly able to sublet parts of the Wharf to others at will, though there is only occasional reference to this practice in the City's records, no doubt because it was regarded as the business and responsibility of the principal tenant. Indeed, leases apart, there is little sign of any particular or persistent concern on the part of the City with the use or running of the Wharf. In February 1343, it was noted with disapproval that John Sperling and Richard de Eure, apparently functioning as joint keepers, had blocked the Wharf and denied people access to the Thames without the payment of a large custom, closed it at night to the danger of the commonalty, and prevented the cleansing of the passages (*vicos*) and houses (Riley 1860, 444–53).

Uncivic as these practices might appear, there was no reference to the farmers being expelled or punished, and it is notable that the irregularities were brought to light only in the context of a general review of the precincts of the Thames at that date, and were not routinely reported as a matter of direct and immediate concern to the City and citizens. A similar attitude is apparent in the terms of a lease of the Wharf to Robert Pountfreyt and his sister Margery, Richard de Eure's widow, in February 1370 when it was stipulated that the wharf was not to be held in common to the use of others, or to be claimed by anyone else as common, save for seeking water to prepare victuals (*Cal Lbk G*, 260). Botolph Wharf would therefore seem to have been a public quay in a somewhat specialised sense, perhaps best illustrated by a set of ordinances which was issued in 1368–9 and marked one of the rare occasions when the City formally concerned itself with the regulation of the Wharf. These itemised a range of cargoes and goods (including corn in small sacks, lambs and small victuals from east parts) which were to be brought to and unloaded at the Wharf, and not elsewhere, for the sake of the profit to the City as a commonalty (*Cal Lbk G*, 225).

General references to houses or buildings on Botolph Wharf, and forming part of it, occur from 1297 (*Cal Lbk B*, 218) and are frequent from that date up to the 1340s. The sum of £96 had recently been spent on new houses on the Wharf in 1346 (*Cal Lbk F*, 154). A house with a jetty was to be rebuilt in 1370 to a plan 28ft (8.5m) long and 18ft (5.5m) wide (*Cal Lbk G*, 268). From the context of the deed it probably lay on the east side of the Wharf.

A new gate was provided for Botolph Wharf as part of the renovations of 1330–2 (*Cal Lbk E*, 271): this was almost certainly located on Thames Street at the entrance to the Wharf on the east side of the church, and was referred to as the 'great gate of the wharf' in 1409 and 1443 (St Botolph Cartulary, fos 11v–12; fos 14–15 and CLA/023/DW/01/172/1). It was to this main passageway that the occupant of Tenement 14 to the west was granted access along the south side of the church in 1282 (a facility still reserved in the 18th century), and there were possibly other minor ways and features on the Wharf: in 1343 there occurs a reference to the existence of streets (*vicos*) on it, and a bakery (Riley 1860 ii/ii, 444–5). A crane is mentioned in 1370 (see below). The history of St Botolph's church from the 12th century to the Reformation is given in section 4.5.

Five archaeological periods (periods D8 to D12) cover the 13th and early 14th century. It is suggested that period D12 represents the renovation of Botolph Wharf in 1325–32.

Period D8, early 13th century

The beginning of the 13th century saw a change from the use of stabilised embankments with pile and stave frontages, to front-braced post-and-plank revetments, associated with horizontal wharf surfaces and buildings. The new form of revetment was either based on posts driven into the earth, or more usually incorporated a base-plate. For ease of exposition, Tenement 15 is divided into two halves, west and east, that is Tenement 15a and Tenement 15b. The phases of period D8 and their dating evidence are summarised in Table 26.

The history of St Botolph Billingsgate church is given below in section 4.5. It was in existence in 1140; but the earliest recorded remains on the site, the south wall, may date from the later 14th century. It is assumed that a church stood on the same site from before 1140, and a shape is placed on the relevant period plans, from Figure 87 to Figure 142. This does not indicate the possible full footprint of the church in the 12th century, which may have been considerably wider north–south; the shape represents the approximate position of the southern part of the church, which may have changed in unknown ways between the 12th century and the 14th.

D:Waterfronts 12 and 13

The Tenement 15a stave frontage was replaced by an earthfast post-and-plank revetment (D:Waterfront 12, period D8.1), constructed 2–3.5m to the south (Figure 87).

The structure consisted of four posts set in large postpits cut through the foreshore to –1.2m OD at 2–2.5m intervals, with two shallow clay-filled depressions at the same spacing to

Phase	Construction	Dating evidence	Date
D8.1	new waterfront (D:Waterfronts 12 and 13) and dumps across the whole site; St Botolph's church assumed to be in place	DEND: a timber in D:Waterfront 12 D[4192]	*c* 1168–1205; considered date 1235+
		LOND: 3526, 3620, 4021, 4030, 4587 SSW: 3529, 3563, 3928, 4030, 4065, 4115, 4180, 4587, 5206, 5293, 5552, 5593, 5849, 5857, 5998, 6006, 6011, 6052, 6053, 6056, 6083, 6135, 6232, 6279 SHER: 3555, 3561, 6009, 6220	1170–1350
D8.3	waterfront extension in centre		
D8.4	surfaces in NE of site	LOND: 5703; SSW: 5329, 5373	1140–1220
D8.5	further surfaces in NE of site	LOND: 5365; SSW: 5219, 5365	1140–1220
D8.6	further surfaces in NE of site and implied division to W	SSW: 4827, 5035	1140–1220
D8.7	stakes, property divisions and occupation accumulations in NE	SSW: 4431, 4529	1140–1220
D8.8	stakes and accumulation in NE, D:Structure 2	LOND: 4593; SHER: 4593; SSW: 4593, 4713	1140–1220
D8.9	further structure on Tenement 15a: D:Structure 3	LOND: 4182, 4272; SHER: 4410, 4443; SSW: 4068	1170–1350
D8.10	final change to N–S revetment		
D8.11	drainage channel in N part of site and its fill	LOND: 4277; SSW: 4277, 4307	
D8.12	robbing of revetments and foreshores	SHER: 3299; SSW: 3299	1170–1350

Table 26 Site D: period D8 (1235+), stratigraphic phases and dating evidence. Period D8.2 is now placed after period D9.1, see Table 27

the east marking less well-defined post positions. These were probably deliberately infilled after their enclosure within a later platform or stair structure (D8.3). All of the posts had been robbed, but each would have been supported by a raked front brace, which were retained by a parallel timber rail laid 1–1.5m further south. The three beams forming the rail were held in position by five piles driven into the foreshore along their south edge. The posts had probably supported a cladding of planks laid horizontally on edge, although the superstructure of D:Waterfront 12 was completely robbed at the end of period D12. The revetment terminated at the tenement boundary, where it abutted the south end of D:Waterfront 11.

However, the line of the waterfront continued eastward from the junction as the contemporary, if structurally distinct D:Waterfront 13. This revetment was technically a direct replacement of the existing Tenement 15b frontage, which was removed and its dumps cut back to allow the insertion of the new structure. The revetment consisted of five tiers of reused pine planks set on edge and supported by shallowly-set and insubstantial posts; a single example was recovered from the base of later deposits to the south where it had collapsed. Unlike its front-braced neighbour, D:Waterfront 13 depended for support on a tieback set into dumps deposited to the rear to restore the wharf. A small group of timbers immediately to the west of the tieback was part of an unidentified structure.

The area behind D:Waterfront 12 was also backfilled, the new dumps continuing north to level the 11th-century inlet. A post-and-wattle boundary fence was constructed along the tenement boundary, which coincided with the period D6 inlet lining. Several further posts suggest that there may have been a second fence set slightly to the west, one possibly replacing the other. Across Tenement 15a, a number of stakes were driven into the dumps, including three in the central area which formed corners of a square, suggestive of a robbed structural feature such as a tieback brace. To the northwest, a gravel surface and a series of mixed occupation deposits formed a surfaced area which was cut by a 1.4m north–south slot containing a decayed timber. Just to the northeast, an east–west line of organic silt and decayed wood almost certainly marked the position of a second beam. These may be interpreted as part of a building, since they lay 4–6m behind the waterfront.

Dendrochronological analysis of one of the stakes on Tenement 15a gave a felling date-range of *c.* 1168–1205,[57] modified by D:Waterfront 11 (period D7), which was reconstructed in 1172–1216. Taking account of the pottery behind it (Table 26) a date of about 1235 for the construction of D:Waterfronts 12 and 13 is used. The studied artefacts from period D8.1 are listed in Artefact Table 19, and two are illustrated in Figure 89. Phase D8.2 is now placed after D9.1, below.

Waterfront modifications and a possible river stair or platform

To the west, a trench was excavated along the line of D:Waterfront 12 to allow further structural modifications (period D8.3, Figure 87). The east section of trench may have robbed the corresponding section of waterfront, with its two poorly-defined post positions, because it was divided into two at this point by a north–south intrusion. This second cut contained a reused timber base plate which extended south

[57] Hillam 1990; Milne 1992, 30–1.

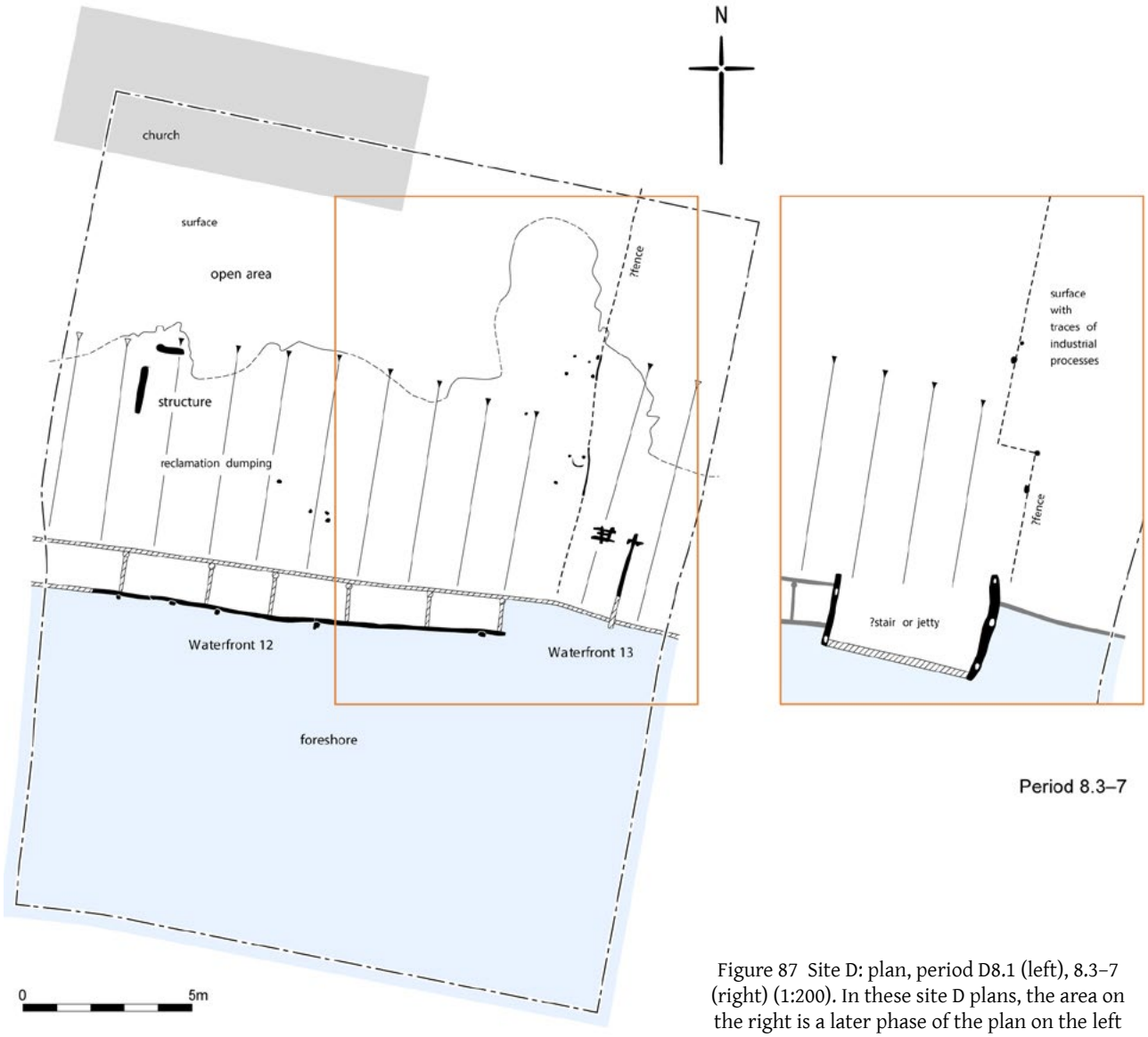


Figure 87 Site D: plan, period D8.1 (left), 8.3–7 (right) (1:200). In these site D plans, the area on the right is a later phase of the plan on the left

of the waterfront; the timber was scarfed and had a pegged mortise at either end. A second base plate was laid in a parallel trench cut 4.3m further east and extending either side of D:Waterfront 12. This timber had three mortises for tenoned posts, two of which lay opposite those in the east timber. The timber was retained by two posts and three shorter piles driven into the cut. It is probable that the base plates supported the sides of a river stair or jetty, reinstating the access lost when the inlet was blocked in period D7. Lap joints at the south end of the west base plate, and a corresponding rebate on the east timber may have been used to retain the missing south side. A second pair of joints further north would by analogy have held a second crosspiece directly above the robbed section of D:Waterfront 12, and presumably replacing that section of waterfront. The stair or jetty formed the riverwards end of the nascent lane which led past the church from Thames Street, thereafter dividing Botolph Wharf into west and east parts. There is at present no specific dating evidence for period D8.3, but the protruding jetty (which may have extended further into the river) probably formed a public landing place.

On Tenement 15b and in the area of the former inlet, a series of mainly gravel and sandy silt deposits (period D8.4: not illustrated) was laid to resurface the existing wharf behind D:Waterfront 13. The deposits in the inlet area included some of an industrial nature, mainly black silts containing frequent charcoal, layers of compact slag and cinder. These were probably swept from surfaces on Tenement 15b, which included a burnt clay floor. Two pits to the east may have had a related industrial function. The tenement boundary was marked by a stakehole and two postpits at the east side of the inlet. The low-lying wharf with D:Waterfront 13 was affected by the river at high tide, although repeated attempts were made to raise the surface using further industrial waste deposits (period D8.5: not illustrated). These were largely confined to Tenement 15b, and raised the local surface to 2.33m OD in the north, sloping down rapidly to 1.05m OD

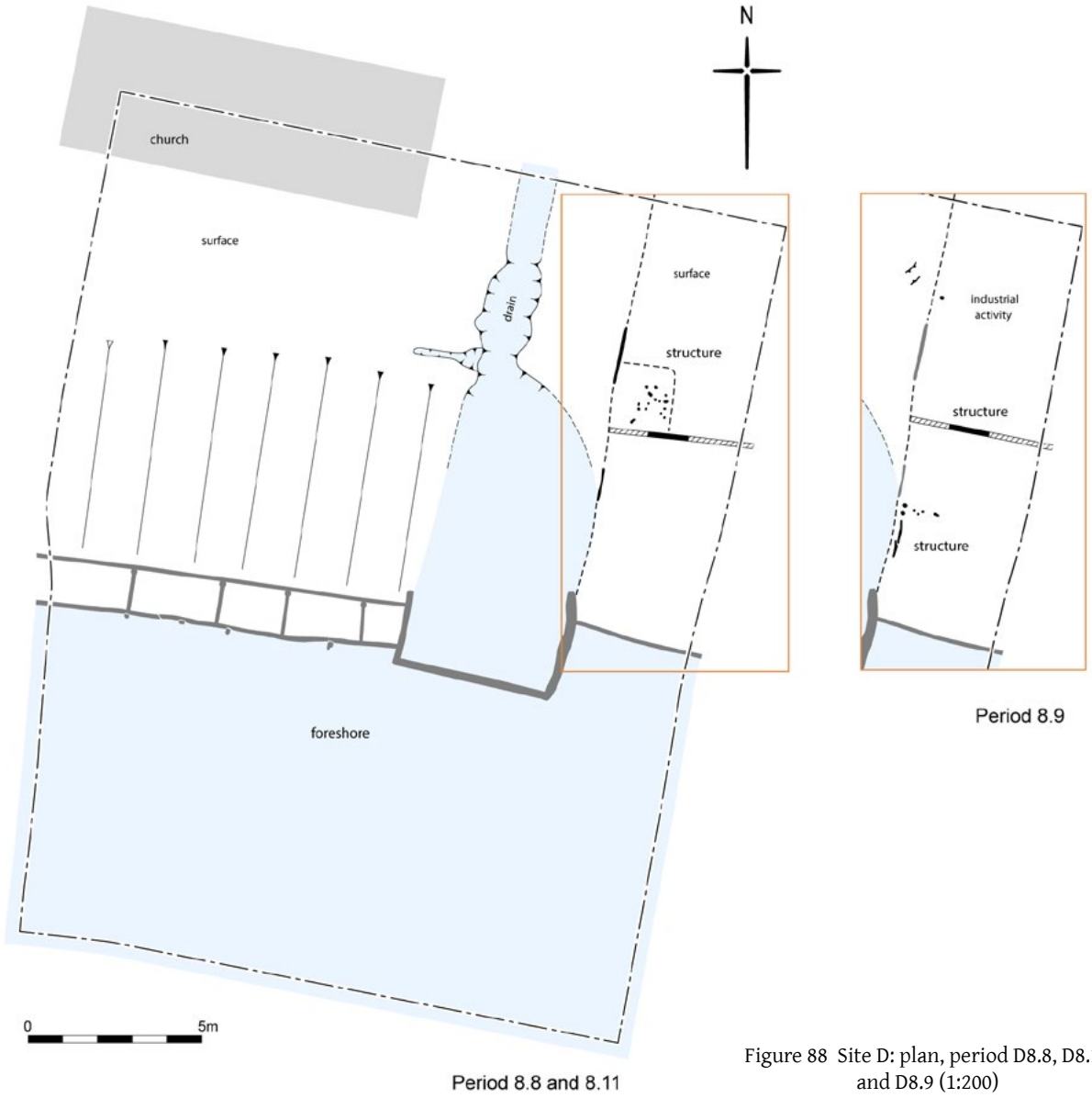


Figure 88 Site D: plan, period D8.8, D8.11 and D8.9 (1:200)

immediately behind D:Waterfront 13. A single industrial pit replaced those of the previous phase. Overall, this suggests that Tenement 15b, still then in private ownership, was used for light industrial purposes.

The deposits in the inlet area were sealed by a gravel spread deposited with its east edge coinciding with the boundary between Tenements 15a and 15b (from period D8.6), a line respected by subsequent organic occupation deposits. Similar surfaces were laid on the neighbouring Tenement 15b, disturbed by six randomly-placed stakes. Layers to the south nearer D:Waterfront 13 were more mixed, and were cut by a north–south trench and a square postpit. An irregular cut exposing the north end of the D:Waterfront 13 tieback in this area was probably caused by river action, and was backfilled with sticky, generally organic material washed down from the gravel surfaces to the north.

Subsequently, two fence posts were set in the silts along the tenement boundary, one subsequently being replaced (period D8.7). To the southeast, three plank fragments and two posts suggest a second fence, respected by organic deposits to the west; similar but less organic deposits further north signalled a continuation of the alignment. It is clear from the vertical edge of deposits to the west that both fences were contemporary, possibly separated by a pathway, with the organic deposits largely confined to the narrow strip. Activity to the east was patchy: sandy silts associated with the remains of a burnt surface may represent material cleared from an industrial area. To the west in the former inlet, charcoal-flecked silts and slag deposits gave clearer evidence of these processes, prior to its resurfacing with gravels in the south, and some possibly contemporary gravel patches on the main part of Tenement 15a to the west. A single stake on Tenement 15a coincided with the west side of the inlet.

D:Structure 2 on Tenement 15b

New brickearth and sandy silt surfaces were deposited on Tenement 15b, in an area *c*1.5m square, to form the floors of a small, insubstantial building (period D8.8), D:Structure 2 (Figure 88). The surfaces were cut by 15 closely-spaced

stakeholes, 11 of which occupied a roughly triangular area with straight east and north edges, but otherwise set in no clear pattern; they were apparently internal features within the larger, but still modest, structure. The stakes and the brickearth surface between were subsequently sealed with sand and silt deposits which still respected the boundaries of the structure. The floors were clearly laid before the walls were added; two planks set vertically along the east edge of the surfaces formed the east wall, while the floors were cut along the south edge by a slot which still contained the decayed remains of a base plate for the timber-framed south wall. A more substantial north–south slot on the property boundary formed the west wall, continuing northward beyond the brickearth surfaces, while to the south, the deposits which lay adjacent to the structure were characteristically external, and cut by a wattle fence which presumably ran north to join the structure, since it co-aligned with the west wall. Together, these features restated the property boundary. At this time, the early 13th century, it is assumed that Tenement 15b was still in private hands, so the structure had nothing to do with the adjacent path to the jetty of the Wharf.

Contemporary with the structure, an irregular north–south cut at least 5m long seems to have reinstated the period D7 drain in the adjoining inlet area (period D8.11, Figure 88). The feature broadened from 1.2m to 2.8m in the south, since while the west side continued south, the east side appears to have turned southeast to meet the tenement boundary, before continuing to meet the waterfront behind the suggested stair. Both sides respected the two D8.3 timbers which straddled the line of D:Waterfront 12, although a narrow east–west arm left the west side of the drain. The drain gradually filled with silt and to the south, more 'gravelly' deposits, until it finally became unusable, and at the end of the period, was deliberately levelled.

A further structure on Tenement 15b (D:Structure 3)

Immediately to the east of the wattle fence, and some time after its construction, a triangular cut terraced an area at least 1.5m by 1.1m to allow the insertion of a shallow slot along its west edge (period D8.9, Figure 88). This contained a wall of three horizontal planks set on edge, with two posts at their north end (D:Structure 3). A return wall ran east, consisting of three vertically-set planks and a stake near the corner. The construction cut was backfilled, and a series of surfaces laid in the enclosed area, marking a structure similar to that further north, to which it was presumably linked by the wattle fence. The intervening area was consolidated with building material and pebbles in loose mortar, while a gravel surface was laid immediately to the west.

The north structure (D:Structure 2) was altered around this time. A slot marked the replacement of the south wall's base plate, and a postpit immediately to the east suggests that the building was extended, since the original line of its east wall was not respected. The interior of the structure was then resurfaced; the surfaces respected the north edge of the period D8.8 floors, suggesting the position of the corresponding wall, with a threshold in the northwest corner where external deposits crossed its line. North of the structure, a second postpit was inserted along the projected line of the west wall. An irregular gully immediately to the west was of uncertain function. The area was subsequently resurfaced.

A north–south beam was set in a slot 0.6m west of the west wall (period D8.10, not illustrated), along the east side of the period D8.11 drain. It is not clear whether this was related to the waterfront, was a new outer wall to the Tenement 15b structures or a lean-to addition.

In the area of the north structure, a possible postpit was inserted along the extended east side. A similar feature intruded to the northwest, near the projected line of the west wall. Occupation deposits surrounded these posts, cut finally by a large shallow pit over the east wall, presumably after it had gone out of use. These were the final alterations in the area before the extension of the waterfront in period D9. There is at present no dating evidence for phase D8.10.

Final robbing of D:Waterfront 12

As the period D8.11 drain became unusable, it was deliberately infilled with mixed silt, sand and clay deposits. An irregular crescent-shaped trench was then cut to remove the superstructure of the suggested stair or jetty (period D8.12, not illustrated). To the west, a linear trench robbed the remainder of the waterfront. Sealing the mixed fills of these features, an extensive metalled surface was laid down over the area formerly occupied by the drain, and the bank to the west. These deposits sloped from *c.* 2.4m OD in the north to 0.0m OD in the south over the line of the waterfront, where they merged with similar foreshore deposits; it is not clear where the distinction between naturally and artificially-deposited strata lay, and it seems most likely that there was a significant degree of water-sorting in the south affecting backfill eroded after the revetment was robbed.

The period D8 activity appears to have taken place mainly between *c.* 1200–25, possibly extending slightly later: this is dependent on the dating of the construction of D:Waterfront 14 which followed.[58] Notable artefacts from period D8 include a copper alloy pin with a lead alloy head of Christ, a pilgrim souvenir of seeing the Holy Face or Veronica in St Peter's, Rome, and a leather strap with mounts (Figure 89); and a pilgrim souvenir, a tiny lead ampulla commemorating Becket's martyrdom, only a few decades after the event.[59] From the strata behind D:Waterfront 13 came a pewter vessel base (D<2872>, Figure 90). This was the foot of a cup which would have been made of a prized organic material, perhaps a decorative wood.[60]

Period D9: second quarter to late 13th century (to ?1274–85)

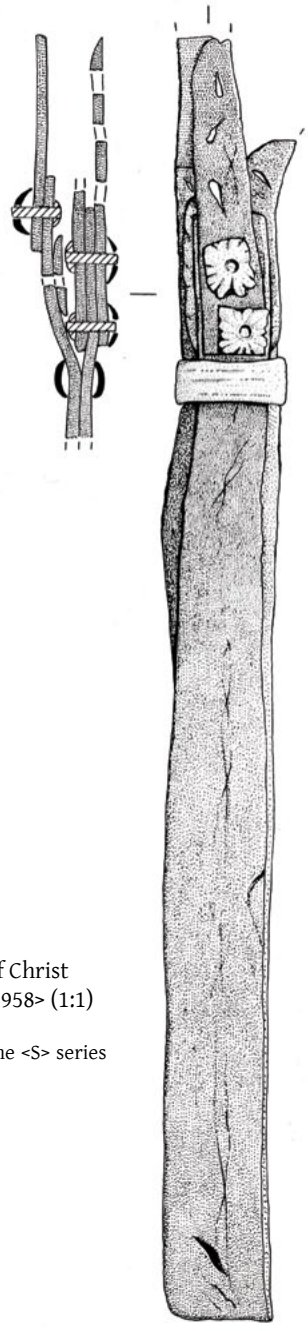
D:Waterfronts 14 and 15

As D:Waterfront 12 was dismantled, preparations began for the construction of a new revetment (D:Waterfront 14) 3.5m to the south (period D9.1, Figure 91; Figure 92). A 6.5m-long mortised base plate was laid on the foreshore parallel to the preceding waterfront at -0.24 to -0.4m OD. The west end was scarfed for the attachment of a further (robbed) section. The base plate was levelled up using a number of wedges and underpinning timbers, and was prevented from slipping by

[58] Blackmore and Pearce 2010, 70, studying the distribution of SSW on the site.
[59] D<3084>; Spencer 1998, 41.
[60] Egan 1998, 193–4, with a photograph of it from the side showing its form.



<S138>



<S139>

Figure 89 Site D: objects from period D8.1: pin with head of Christ D<3259> (diameter 12mm) and leather strap with mounts D<5958> (1:1) (<S138–S139>)*

* Objects <S138> to <S156> are shown out of numerical sequence in the <S> series due to the way the list was compiled.



Figure 90 Site D: pewter vessel base from period D8.8 D<2872> (<S140>) (diameter 55mm)

piles driven into the foreshore to the south. Ten tenoned posts were pegged into position at *c.* 0.7m intervals. These were up to 2.46m in height, and were all reused; a number had been obtained by splitting H-sectioned grooved timbers down the centre to form T-shaped rebated posts. The bracing structure showed considerable advances on D:Waterfront 12. Splayed chase mortises were cut in the south faces of the posts to retain the heads of raked roundwood front braces; the braces were then tenoned to small individual subsidiary base plates set on the foreshore, and secured by driving one or more wedges into the joint. The subsidiary base plates were themselves retained by piles driven into the foreshore to the south. Behind the posts, primary plank cladding was pegged to the posts horizontally on edge, in vertical sets (Figure 93).[61]

[61] Milne 1992, 32–5.

Phase	Construction	Dating evidence	Date
D9.1	D:Waterfront 14	DEND: [4571]	1169–1214
	foreshore	SHER:5822	1170–1350
D8.2	waterfront extension in SE, D:Waterfront 15	DEND: 31 samples taken, 10 dated ([5675], [6877], [5670], [5724], [5669], [5667], [5723], [5742], [5725], [5731])	1215/16 from sample with bark; considered date 1235+
		COIN: D <3073> Short Cross penny Class 1B North ?Henry II	? 1180–9
D9.2	initial dumping behind revetment	COIN [5222] <2808> silver Short Cross penny, ?Class 5, ?John	? 1205–18
		LOND: 3196, 5577; SHER: 3196, 3474, SSW: 5511	1170–1350
D9.3	surfaces and post holes in N of site	SHER: 3278, 3905, 3915, 3917	1170–1350
D9.4	further surfaces in N of site and D:Structure 3	SHER: 3747; SSW: 3811	1170–1350
D9.5	further surfaces in N of site	LOND: 2848; SHER: 3211	1170–1350
D9.6	surfaces and slots in E of site	LOND: 3540; SHER: 3603, 3751; SSW: 3751	1170–1350
D9.7	hearths and surface in NE of site		
D9.8	further hearths in NE of site		
D9.9	final hearths and pits in NE of site		

Table 27 Site D: period D9, stratigraphic phases and dating evidence

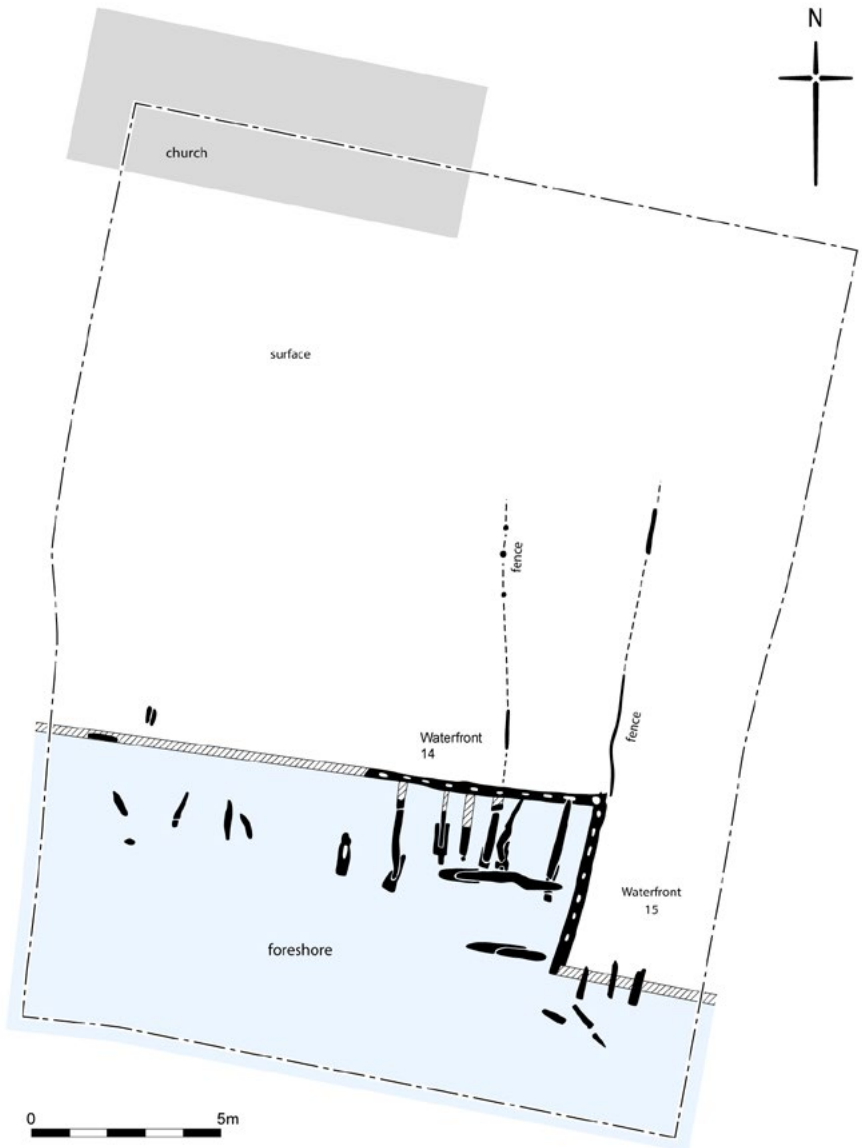


Figure 91 Site D: plan, period D9.1–D9.3 (1:200)



Figure 92 Site D: D:Waterfront 14 (left) and D:Waterfront 15 (right), looking northeast (1m scale)



Figure 93 Site D: the north (landward) side of D:Waterfront 14, with assembly marks on the planking enhanced in chalk by the excavators (0.5m scale). The marks differ in character between each bay of planking: in the east (left) they are cut diagonally, and in the west (right) cut vertically, whereas the middle bay has all its marks with an extra horizontal line

The structure had clearly been prefabricated, since the planks were cut in predefined lengths which stopped behind the posts and were identified by incised assembly marks denoting their vertical and horizontal position (Figure 93). Although the posts and base plate were marked using a similar system, this appears to have referred to a previous use, since the two did not coincide. Several numbers were missing from the series, although some reappeared on the posts of the later D:Waterfront 16, where they had been reused; the similarity of the posts and base plates of D:Waterfront 14 and the corresponding west section of D:Waterfront 16 demonstrate that a substantial proportion of D:Waterfront 16 was obtained by robbing its predecessor. The west section of D:Waterfront 14 was represented solely by four displaced piles on the foreshore, which may have retained subsidiary base plates. The excavated part of D:Waterfront 14 was conserved during and after the excavation, and from 2005 formed an exhibit in the new Medieval Gallery of the Museum of London (for its conservation, see 6.12 below).

Some initial sandy silt layers deposited behind the completed structure were possibly partly a natural accumulation dating from the time of construction, which continued northward to seal the robber cuts of D:Waterfront 12; complete infilling does not appear to have taken place immediately (see period D9.2 below). A wattle fence was constructed along the east side of these deposits on the tenement boundary, directly above the former east side of the river stair. The north section

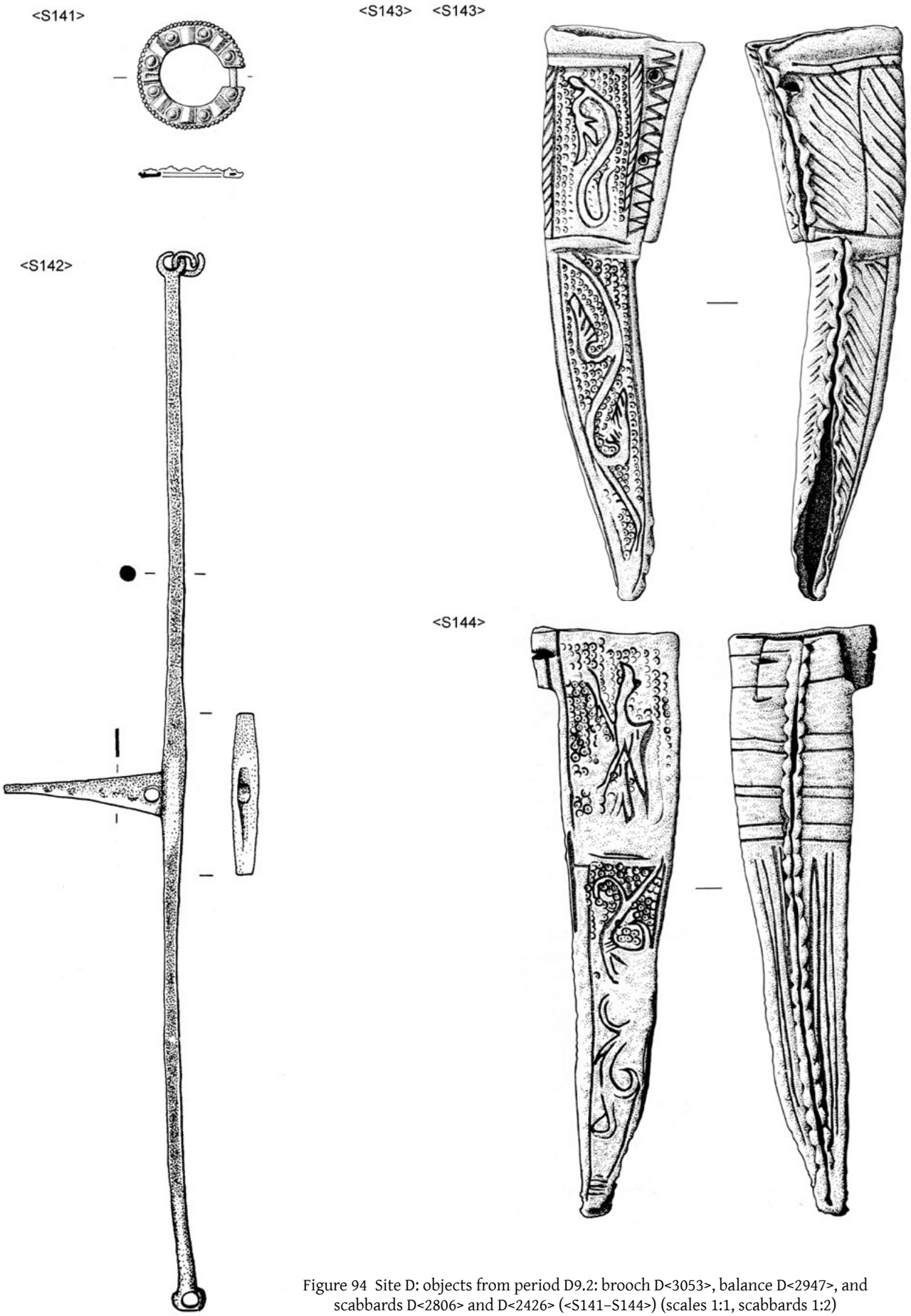


Figure 94 Site D: objects from period D9.2: brooch D<3053>, balance D<2947>, and scabbards D<2806> and D<2426> (<S141–S144>) (scales 1:1, scabbards 1:2)

the dendrochronological evidence suggests a comparable date to that of D:Waterfront 14.[62] Thus, in terms of the periods, period D8.2 is taken as contemporary with period D9.1, in the second quarter of the 13th century but later than period D8.1.

The sequence of construction for D:Waterfront 15 was the same as for D:Waterfront 14. Several reused timbers were laid on the period D7 foreshore to underpin a mortised base plate, which was reused, possibly from the period D8 jetty or stair. This was supported by extra wedges and retained by piles driven in to the west. Eight tenoned posts up to 2.03m long were pegged into position. The posts bore carpenters' assembly marks on their east faces, although these referred to a previous use. Roundwood raking braces, of which two survived, were tenoned to individual mortised subsidiary base plates set on the foreshore and retained by piles. Splayed chase mortises cut in the heads of the posts held the braces in place. Substantial, and apparently primary, horizontal planking was pegged along the east side of the structure, while three reused timbers were laid on the foreshore at the south end of D:Waterfront 15 to underpin the (robbed) base plate of an east–west return. Further timbers in the vicinity were probably related to this structure, and were sealed by primary deposition which extended northward to D:Waterfront 13. The new surface was at the same level as that on Tenement 15a, from which it was separated by the wattle fence.

One plank D[4571] from D:Waterfront 14 was successfully dated by dendrochronology with a felling date range of 1169–1214. A group of timbers from this waterfront were experimentally X-rayed at the Mount Vernon Hospital scanner centre in July 1985, and analysis of one timber suggested a heartwood/sapwood boundary of 1179, indicating an approximate felling date between 1190 and 1235.[63]

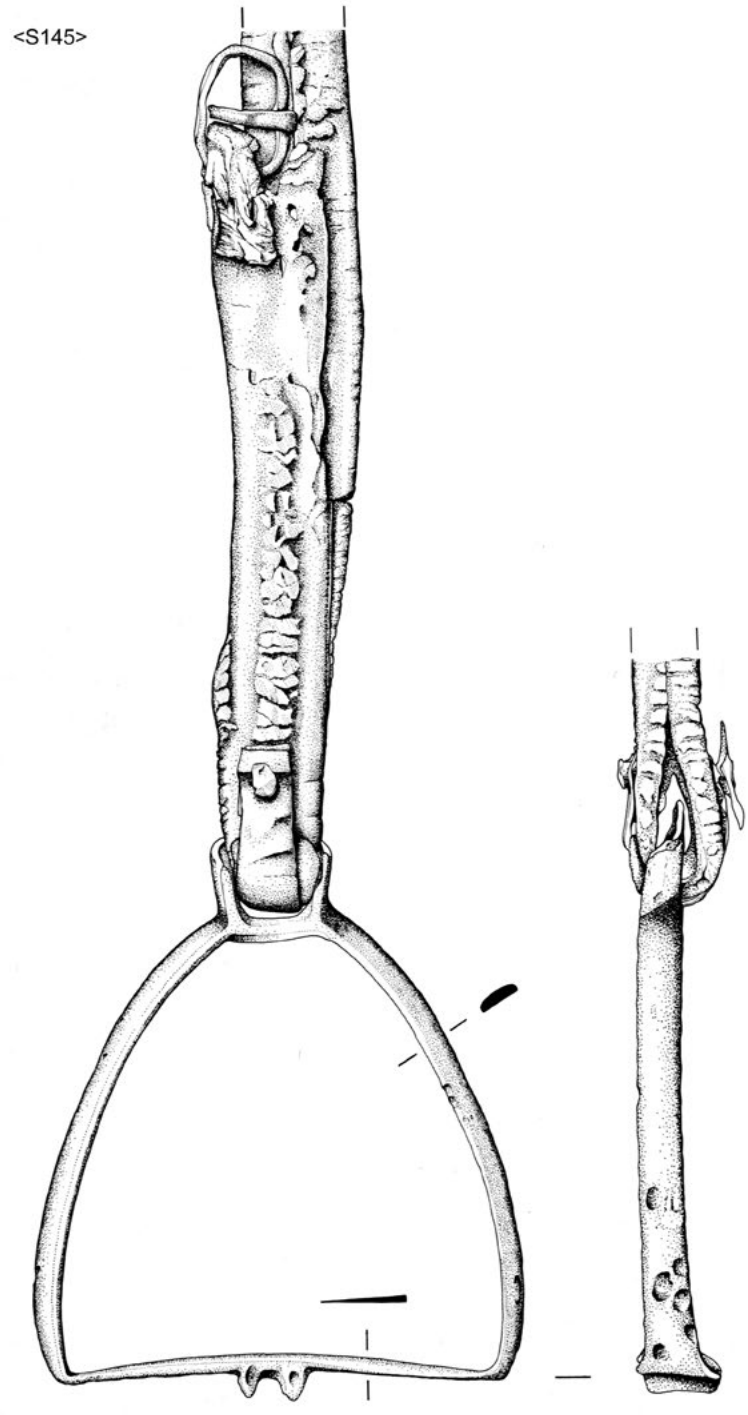


Figure 95 Site D: stirrup D<2800> from period D9.2 (<S145>) (1:2)

From D:Waterfront 15 several timbers were analysed. Three wedges from beneath the D:Waterfront 15 base plate, all apparently reused, demonstrate that it was laid after 1215/16.[64] Of the remaining D:Waterfront 15 structure, only the cladding and ground piles appear to be primary; four planks gave felling dates of 1192+ (two timbers), 1193+ and 1194–1249, which suggests that they were all purpose-cut from trees of the same age, probably at the same time (cf. the corresponding date of D:Waterfront 14). A pile from the west side of the base plate had a felling date range of 1204–35. Using all the available evidence, the suggested simultaneous construction date for both structures (D: Waterfronts 14 and 15) is the second quarter of the 13th century, probably *c.* 1235+. It is possible that D:Waterfront 15 to the east was added at a slightly later time, after 1249.

D9.2 comprised initial dumps behind the waterfront. One layer of dark orange silt with pebbles D[4425] contained two

[62] Milne 1992, 25, 35.
[63] Tyers 1985. Although this is accepted here, it should be noted that the accompanying photograph in that report of an X-ray of a timber with rings datable to up to 1177 says the timber is context D[3277], which cannot be correct as D[3277] is from period D7 (archive report period VII).
[64] Milne 1992, fig 11, 25, 35.

fragments of a wooden barrel <2730–1>. Other objects not yet studied included bone awls and stone hones. There then followed a phase of layers to the north of the revetment (D9.3).

Artefacts from periods D8.2, D9.2 and D9.3 are listed in Artefact Table 20. Objects from period D9.2 included a brooch, a balance, scabbards and a stirrup (Figure 94, Figure 95). A coin identified as possibly of the reign of John (1205–18) came from the period D9.1 dumps. From period D9.2 also came examples of two types of shouldered peg roof tile; one of the two-hole tiles was unusual in that it showed the impression of the tool head to which the hole punch was attached (Figure 249 below).

D:Structure 3 on Tenement 15a and hearths on 15b

In the north part of Tenement 15a, a series of makeups was deposited for new surfaces at *c.* 2.38m OD, sloping down to 2.0m OD in the south (period D9.4, Figure 96). The surfaces were a mixture of pebbly mortar, gravels and tile deposits. A 2.1m-long east–west slot along their north edge may have been the robber trench for the south wall of a building (D:Structure 3), which would account for a local accumulation of occupation debris against the slot. Further south, a large postpit cut the new surface, although there was no definite connection between this feature and the foundation-robbing trench.

Activity continued with the deposition of a series of largely gravel deposits (period D9.5), cut in the north part of the area by a single irregular postpit packed with ragstone cobbles. This was possibly part of a fence, since it divided zones of slightly different metalling to east and west, although similar isolated features occurred previously in the same general area. Further west, an insubstantial structure was apparently laid out, with a mixed layer of sandy silt, tile and mortar forming a strip with a distinct south and west edge separating it from the gravels, cut at the southwest corner by a large postpit. This layer must also have had a similarly distinct east edge, since it was not observed to continue in that direction, which implies that the structure was rectangular with surface-laid walls between corner posts. Significantly, this structure lay immediately south of the earliest recorded wall of the church, in the later period D13 (mid to late 14th century); since an early version of St Botolph's is known to have stood here at least as early as the 1140s the structure may have been related to the church.

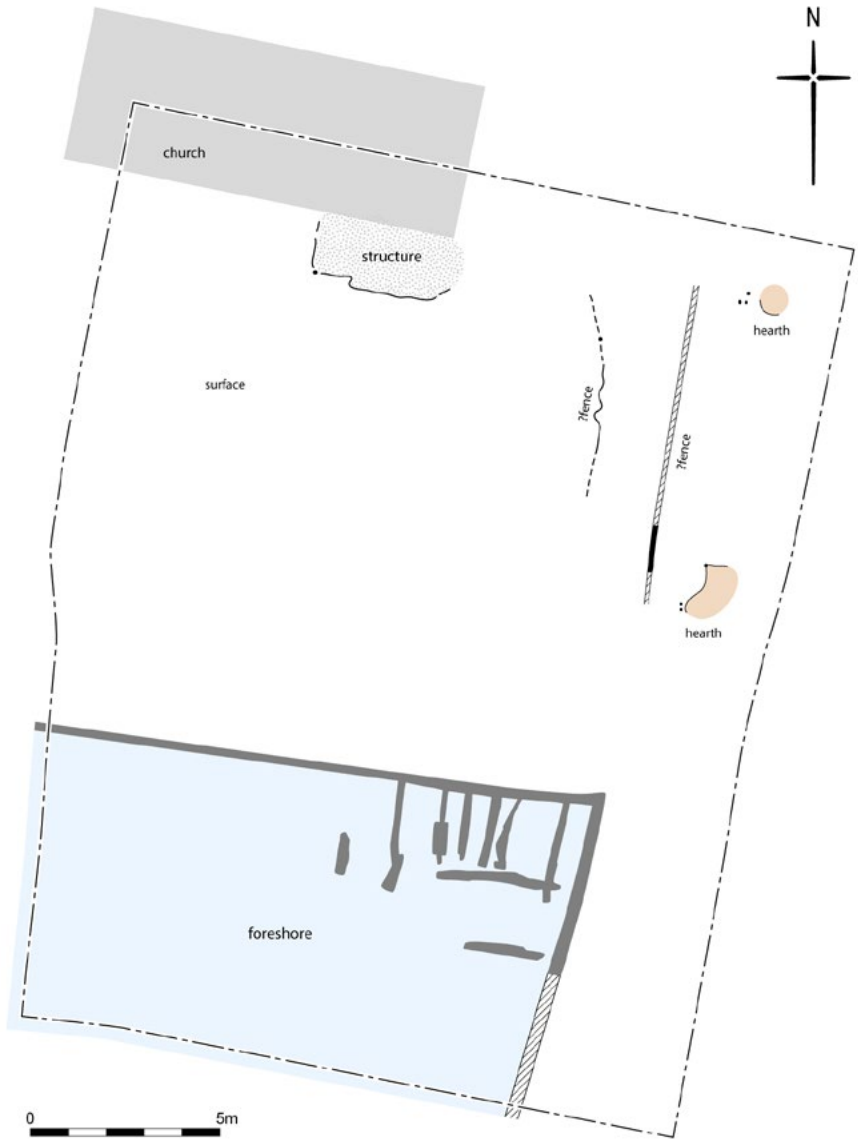


Figure 96 Site D: plan, period D9.4–6 (1:200)

The date of phases D9.4–5 is suggested to be *c.* 1250–70+, contemporary with the later use of D:Waterfront 14.

In the area between the tenements, the exposed period D9.3 deposits were sealed by new surfaces, which were cut by two parallel north–south intrusions (period D9.6). The eastmost of these formed a new tenement boundary wall. A gravel surface was laid between the slots, possibly as an access route to the waterfront. On Tenement 15b, a large hearth lay to the east of the access, with a division line in deposits suggesting the presence of an east–west partition along its north edge. The area was sealed by a series of silt deposits containing large fragments of tile, although the boundary wall was not robbed until possibly as late as *c.* 1300.

Contemporary with this activity, in the northeast corner of Tenement 15b, silt and brickearth deposits sealed the period D8 surfaces (period D9.7, not illustrated). These new layers were cut by a posthole and two stakeholes, closely grouped to the west of a scorched area, suggesting the presence of a second hearth and its superstructure. The area was cut to the east by the corner of a square pit. Charcoal-flecked silts sealed the cut, possibly derived from the use of the hearth, while brickearth deposits sealed the hearth itself and formed the base for its replacement. Mixed silt deposits containing large tile fragments, mortar and oyster shells spread to the south, avoiding the hearth (D9.8). A deposit of sand with horizontally-laid tiles concentrated at the surface formed the base of a new hearth to the south (period D9.9), contemporary with a rebuild of the period D9.8 hearth to the north. A series of deposits associated with their use spread across the area, and the north hearth was repaired at least once as a result of heavy use. A pit was cut to the east, between and presumably associated with, the two hearths. A possible postpad of ragstones in charcoal-flecked silt sealed the north edge of the north hearth. A small stakehole intruded to the south, and the area between was covered by a dump of horizontal tiles, suggesting that they were related structurally: the tiles may have been another hearth base. A square pit immediately to the northeast may also have been associated. To the southwest of the tiles, an irregular pit containing two much smaller post impressions was cut into the period D9.8 surface. The cut was filled with irregular ragstone blocks, forming a similar feature to the postpad further north. The ragstones were, however, sealed by silts containing oyster shell, which suggests that the pit was later used as a dump for kitchen waste. Slag was recovered from layers near the hearths, D[2797] and D[2924]. There is no present dating evidence for phases D9.7 to D9.9. In general, although the period D9 waterfronts were constructed probably shortly after 1235, the associated surfaces to the rear appear to have continued in use to the last quarter of the century, overlapping periods D10 and D11.

Period D10: mid to late 13th century

The phases of period D10 are summarised in Table 28.

Phase	Construction	Dating evidence	Date
D10.1	robbing of part of D:Waterfront 14 and repair of the retained element	DEND: [4856], [4729]	1185+, 1172+
		COIN [3512] <2664> Short cross penny Class 1C North Henry II	1180–9
		LOND: 3394, 4102, 4103, 4280, 4339, 4354, 4449; SHER: 3342, 3344, 3358, 3394, 3397, 4097, 4260, 4339, 4374, 4449, 4538; SSW: 3342, 4354	1170–1350
D10.2	D:Building 1 in centre of site	DEND: baseplate [5203]	1208–51
		SSW: 3248, 5473	1140–1220
D10.3	structural activity in NE	SHER: 3407	1170–1350
D10.4	extension or replacement of D:Waterfront 15 (D8.2). [D10.4 now thought to precede D10.1–3]	DEND: [2646] rings to 1197, [5631] rings to 1153, no sapwood in either case so felled after 1207 and 1163	1207+
		LOND: 4270, 4306; SHER: 4238; SSW: 4230	1170–1350
D10.5	modification of D:Building 1	SHER: 3203, 3260; SSW: 3455	1170–1350
D10.6	replacement of hearth in D:Building 1	SHER: 4465	1170–1350
D10.7	replacement hearth		
D10.8	modifications S of D:Building 1		
D10.9	reconstruction of D:Building 1	SHER: 5130	1170–1350
D10.10	collapse or demolition of D:Building 1	LOND: 4120	1080–1350
D10.11	new hearth and reconstruction of D:Building 1	LOND: 4047; SHER: 3967, 4811	1170–1350
D10.12	short wall and surfacing in N		
D10.13	surfaces N and W of D:Building 1	SHER: 4334	1170–1350
D10.14	changes to D:Building 1		
D10.15	accumulated or dumped deposits in front of D:Waterfront 14	LOND: 4003, 4094; SHER: 4010, 4045, 4085, 4087; SSW: 4010, 4045	1170–1350

Table 28 Site D: period D10 (13th century), stratigraphic phases and dating evidence

Repair of D:Waterfront 15

The south end of D:Waterfront 15 was replaced by a structure consisting mainly of reused timbers. A north–south mortised base plate was laid in a cut which intruded into the period D9 foreshore (period D10.4, Figure 97; period D10.4 is now thought to precede D10.1–3). A wedge was inserted beneath to stabilise the timber, and three tenoned posts pegged into position. Planking was then added to the rear. The timber continued southward beyond the boundary of the excavation trench, and would have held further posts. Two of the posts bore splayed chase mortises in their outer faces to retain front braces, but these had been removed, probably during the construction of the succeeding period D11 waterfront. It is possible that some or all of the materials employed in this structure were reused timbers obtained from the robbed section of D:Waterfront 15 itself, since a plank obtained from the structure was dated to 1207+. A series of organic dumps infilled the area behind and formed a new working surface.

Alterations to D:Waterfront 14 and the construction of D:Building 1

In direct contrast to the extension of D:Waterfront 15, a large, irregular cut was made behind the west section of D:Waterfront 14 to facilitate its removal (period D10.1, Figure 97). The robbed elements included the westmost timbers of the east base plate; some care was taken to avoid disturbing the remaining structure, which was buttressed by an additional post set on the foreshore against the face of one of the primary timbers. The associated front braced structure was then replaced, presumably using the original timbers, with large ragstone blocks packed between the brace and the revetment. Subsiding infill from the exposed

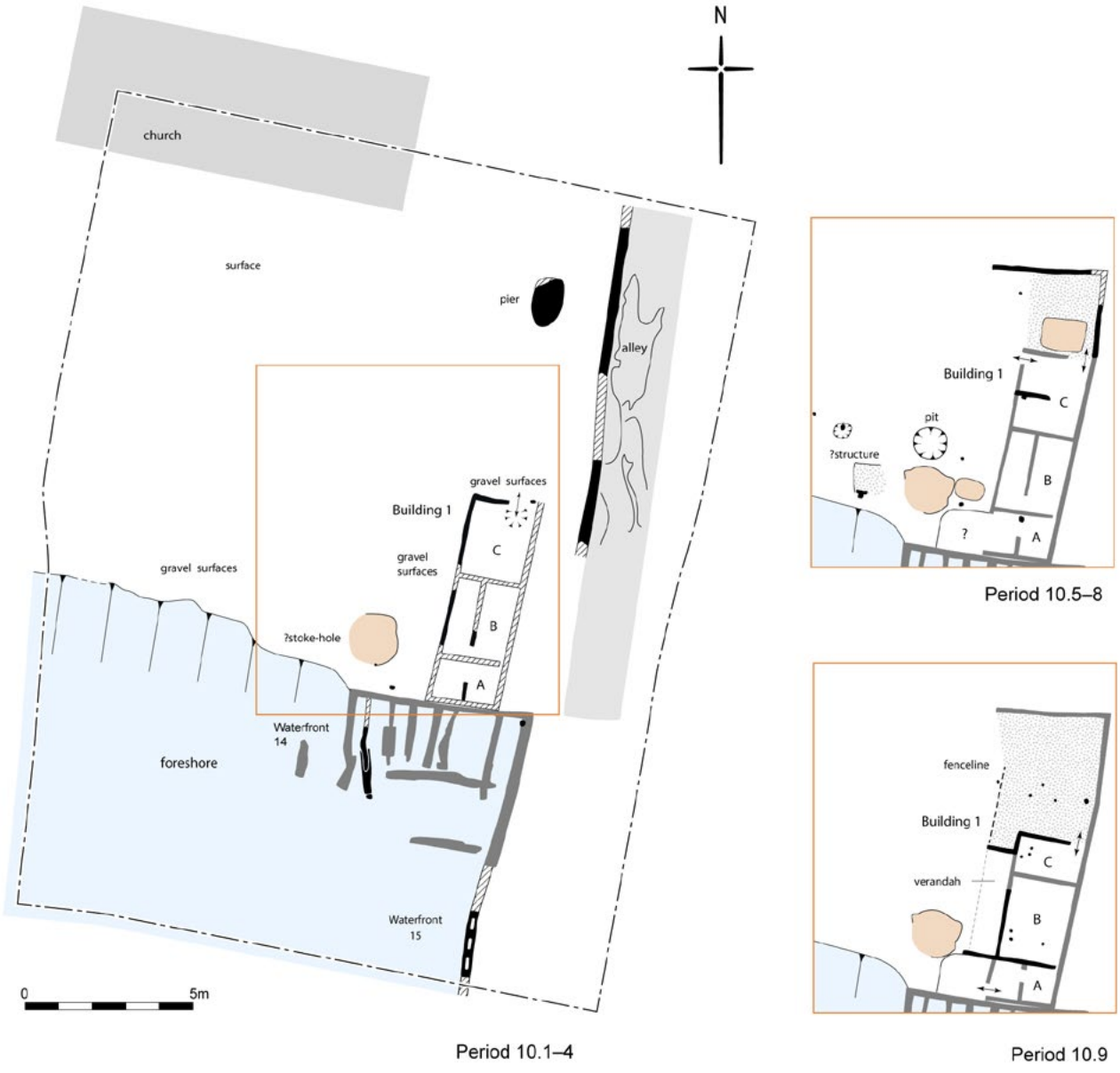


Figure 97 Site D: plan, period D10.1–4 (left), D10.5–8 (top right), D10.9 (bottom right) (1:200)



<S146>



<S147>

Figure 98 Site D: objects from period D10.1: strap-end buckle D<2431> (length 51mm); antler double-sided composite comb D<2729>(length 78mm) (<S146>, <S147>)

west wharf became mixed with riverine deposits of sandy gravels, forming a bank which sloped down to -0.6m OD in the south, where it sealed a number of timbers. These were almost certainly surviving elements of the robbed structure; the bulk of the remainder, with the exception of the cladding timbers, were salvaged and reused in the construction of the succeeding waterfront (see period D11), which suggests that little time elapsed between D10.1 and D11.1, since the timbers must have been stockpiled. Studied artefacts from period D10.1 are listed in Artefact Table 21; they include a strap-end buckle and an antler comb, both showing considerable artistry in their manufacture (Figure 98).

The open robber cut was subsequently filled by a series of water-sorted pebbly and sandy deposits (period D10.2), although these may indicate a deliberate attempt to consolidate the exposed edge of the wharf. Behind the retained section of D:Waterfront 14, a clay and timber building (D:Building 1, Figure 97) was constructed. Only the north and west external walls survived. D:Building 1 was roughly timber-framed, with base plates consisting of lengths of reused planks pegged together, rather than properly scarfed. Widely-spaced posts were tenoned to small square mortises cut into the base plates, with rendered wattle-and-daub walls attached to intermediate studs at *c.* 0.14m intervals. The building was rectangular, 6.0m by 2.0m, and consisted of a south room (room A) 1.3m by 2.0m, and a north and a central room (rooms B and C), each *c.* 2.3m by 2.0m. Rooms A and B were subdivided centrally by north–south partitions. An entrance in the north wall led out into a metalled yard, and was defined internally by a worn hollow which crossed the line of the sill. A possible hearth area within the building was probably associated with constructional activities, since it was overlain by the earliest occupation horizon, and all subsequent hearths were external. The building was too flimsy to have been more than one storey, and seems likely to have had an industrial or commercial function.

Dumps immediately to the west of the building created a metalled yard at 1.95m OD, and behind the retained section of D:Waterfront 14, a brickearth hearth was constructed on a timber foundation set in a 0.7m-deep cut. The stokehole was probably on the west side, defined by relaid gravel surfaces, which had a north edge corresponding with that of the hearth. This was the first evidence for what was to be a long sequence of similar external features associated with the building. It is not clear whether these hearths were domestic, commercial, or industrial. In one of the layers of the first phase of surfaces, D[3248] of period D10.1, were three articulated vertebrae from a killer whale (Figure 99).

Alan Pipe writes:

> Layer D[3248] produced three articulated lumbar/caudal (upper tail) vertebrae identified by the Natural History Museum London as killer whale *Orca orcinus;* to date, the only recovery of this species from a London archaeological site. The anterior (front) articulation (joint surface) of the largest, furthest anterior, vertebra showed a series of dorso-ventral chop marks suggesting at least one sub-division of the whale carcase between adjacent vertebrae (Figure 99B).
>
> These bones may represent a deliberate catch or import; salted whale called 'craspois' was imported from France, especially during Lent.[65] Alternatively, they may indicate use of an animal acquired as accidental 'by-catch'; recovered from a beached animal; or salvaged from a

[65] Hope 2005, 23.



Figure 99 Vertebrae of a killer whale, context D[3248]: A, as found (100mm scale); B, the end of the largest vertebra showing butchery marks (flattened areas of spongy bone) on left side of anterior articulation

washed-up carcase. In medieval English law, although whales coming aground were crown property, in practice they were usually granted to the tenant upon whose shore they were marooned.[66] Recovery of these three vertebrae in articulation suggests that a butchered section of the whale tail arrived at site as a 'unit'; the absence of other butchery marks on the bones perhaps suggests that there was no further sub-division or de-fleshing and the section may have remained intact and unused.

Despite its common name and striking and familiar appearance, the killer whale or orca is the largest of the dolphin species. It is a powerful and adaptable predator able to exploit a broad spectrum of prey, ranging from carrion,[67] fish; including salmon, herring, cod and mackerel, to seals, dolphins and even the very large baleen whales. Indeed, encounters with this species during the whaling industry in the southern oceans resulted in the name 'whale killers' which became corrupted into the common name used today. Sociable and inquisitive, orcas have a global distribution and exploit both shallow inshore and deeper offshore waters. There is considerable evidence for different populations which rarely interbreed and may indicate the existence of distinct species. In British waters they are rare and most often seen in Orkney and Shetland; less commonly in the English Channel, Irish Sea and around Cornwall.[68]

A *terminus post quem* for the building is suggested by tree-ring analysis of one of the reused base plates, which was dated to 1208–51. D:Building 1 was therefore constructed in the second half of the 13th century.

New tenement boundary wall and lane

Northeast of D:Building 1, a north–south wall foundation was set into the period D9 surfaces along the tenement boundary (period D10.3). The foundation was at least 4.3m long, and 0.23–0.43m wide. In the narrower north section, the materials used were ragstone, tile and flint, but as it broadened out in the south, a crushed oyster and silt bedding formed a base for large unmortared ragstone and sandstone blocks up to 0.4m square. The foundation continued to the south, where its line survived as a robber trench 2.6m long and 0.22–0.36m wide. There was no sign of any other structural evidence suggesting the presence of a building, and the wall therefore appears to have been a tenement boundary, since it was constructed above earlier structural divisions, which in turn overlay revetments lining the east side of the earlier inlet. A 1.2m-wide metalled lane ran along the east side of the wall, giving access to the extended wharf. Further east, mixed dumps containing oyster, tile and charcoal were deposited over the area of the period D9 hearths.

Not far to the west, similar mixed dumps were deposited to the north and east of D:Building 1, and a cut at least 1.4m long and 0.8m wide excavated for a masonry pier base. As there were no other structural remains in the vicinity, and in the absence of internal deposits, the purpose of the pier cannot

[66] Wilson 1973, 28.
[67] Corbet and Ovenden 1980, 214.
[68] Walker and Cresswell 2008, 44–5.

be determined: possibly it supported an arch or gateway connected to the boundary wall, defining an access point to D:Building 1 and the wharf. The building, boundary wall, lane, and pier were probably constructed contemporaneously in the mid 13th century, and remained in use into the 14th century (period D12).

Modifications to D:Building 1

A new brickearth floor was laid in room C of D:Building 1 (period D10.5, Figure 97); a raised east edge to the floor suggested the proximity of the east wall, which was destroyed by later intrusions. An east–west partition was constructed across the room, adjoining the west wall, but leaving a gap for access at the east end. The partition was of brickearth set on a mortised timber base plate, with studs at 0.22m intervals. A post supported the junction with the west wall.

The east wall of the building was extended northward, terminating in a 3.0m long east–west return. The latter was of rendered brickearth constructed on a base plate laid on the period D9 surfaces in the area, and projecting beyond the west side of the building. The new walls protected a yard, which enclosed a series of hearths or ovens constructed in this and later phases. The first hearth was a brickearth-lined cut situated outside the north wall of the building, and thereby restricting access through the original doorway in the northeast corner. Near the north wall of the yard, a single post with a metal ferrule was driven into the external surface. The purpose behind its insertion is unclear, although new gravels laid to the west respected its position, suggesting that it supported a gate or fence protecting the yard, as was the case in later phases.

To the southwest, a second brickearth hearth was constructed in a D-shaped cut between the period D10.1 hearth and the west wall of the building, possibly replacing the earlier feature. The hearth was repaired at least once. The surrounding area was metalled at the same time, and several posts intruded into the surfaces to the west. These followed no apparent pattern, although one lay within a structure at least 1m square, represented by a spread of brickearth with a marked northwest corner, sealed by a mortar layer with similar limits. It is possible that this represented an enclosure of the west hearth area, in much the same way as the yard to the north of the building. Alternatively, the structure may have been a separate building, such as a shed.

At the end of this phase, deposits of brickearth and mortar suggest that D:Building 1 was either partly demolished, or extensively altered. Trampled material in the yard to the north shows that activity continued prior to any reconstruction work.

Further modifications to D:Building 1

A new hearth was constructed (period D10.6) over the centre of its period D10.1 precursor. This consisted of a brickearth base with inset tiles and ragstones, and a brickearth superstructure reinforced with further ragstone. The gravel surface to the north was relaid. The hearth was repaired subsequently with a secondary makeup of brickearth and inset tiles. A post and possible brickearth postpad were set to the northeast and east of the hearth, possibly associated with the hearth, or more likely to the nearby building. To their west, a small pit cut the new surface; although the fills were undiagnostic, the pit may have been related to the hearth immediately to the south. A depression appeared to the south of the hearth, caused by subsidence of D:Waterfront 14, a problem which was to continue until the area was infilled in period D11.Trampled ashy material associated with the hearth crossed the line of the west wall of D:Building 1 into room A, suggesting an entrance similar to one inserted at the north end of the same wall in period D10.5.

The hearth was replaced by another in the same position (period D10.7). This consisted of ragstone and sandstone cobbles set in brickearth, capped by tiles set on edge in a brickearth base. An ashy deposit occupying a slight hollow to the west indicated the probable position of the stokehole. The superstructure collapsed.

In room A, a large post was set against the centre of the north wall (period D10.8). This may have marked the limit of a north–south partition, replacing a primary partition which lay immediately to the west, and was now covered. The north end of the wall was not, however, respected by local occupation deposits, which implies the presence of a doorway as was the case with the original feature. The post could therefore be interpreted as a doorjamb, as well as a buttress for the north wall of the room.

Occupation deposits and makeups occupied the area to the west, passing through the doorway in the west wall and into the area south of the period D10.7 hearth. Here, they appeared to have a definite west and north edge, the north limit coinciding with the north wall of room A. This suggests either a new room attached to the west wall of D:Building 1 or more likely, a lean-to structure such as a porch giving access to the hearth. Phases D10.7 and D10.8 did not produce any accurately datable material.

D:Building 1, having now reached its maximum extent, was reduced and rebuilt (period D10.9, Figure 97). Room C was demolished and a new north wall constructed further south, reducing the original area by half. A doorway in the north wall led into the resulting enlarged yard. The west and south walls of room B were also rebuilt; the west wall, at least, was rendered on the inner side. Both rooms were refloored; several stakes presumably marked the position of internal fittings. An external east–west mortared foundation was set against the west wall of room C, flanking an entrance, and matched by a second further south, bounding the suggested period D10.8 porch and 10.7 hearth. The new foundations may have supported the ends of a lean-to along the west side of the building. Here was a hearth. There was no evidence to suggest whether room A was also reconstructed at this time, but it seems likely.

In the yard, three apparent post positions on the line of the original north wall probably represent the position of robbed-out studs, although a stake immediately to the north and a second to the west were features associated with a series of deposits around the new northwest corner of the building. A north–south dividing line immediately to the east of the isolated stake may suggest the presence of a fence, a collinear north continuation of the lean-to. Some time after these substantial modifications, much of the reconstructed building collapsed or was demolished (period D10.10, not illustrated),

including the new north wall, the walls of the room A, and the south side of the lean-to addition. The period D10.7 hearth finally went out of use.

A new surface was laid in the yard, cut by the pit for a hearth (period D10.11, not illustrated) which consisted of a base of ragstone blocks packed with brickearth, and a brickearth superstructure. The stokehole was probably on the west side. At the west end of the yard's north wall, a group of five stakes intruded into the new deposits, bounded to the north by a shallow groove. These features may represent a structure associated with the wall, which was sealed by the north edge of subsequent occupation deposits; there was some variation between the deposits south of the structure and those north of a line running eastward from it, suggesting a different pattern of use in the strip next to the wall. Between the structure and the hearth was a solitary stake, sealed by the same deposits.

It seems likely that the north wall of D:Building 1 and south wall of room B were rebuilt at this time; although there is no direct evidence for this, walls are implied by the edges of later deposits. A new north–south partition was constructed on a masonry foundation in the centre of room A, slightly to the west of its predecessor, and possibly with a threshold at the north end. The west wall of the room may not have been replaced, but opened directly into a reconstructed porch running up to the former period D10.7 hearth, and surfaced initially with gravel.

In the north, a short wall projected from the north wall of the yard, a post supporting its south end (period D10.12, Figure 100). The wall may have formed the west side of a small shed *c.* 1.0m square, set into the northeast corner of the yard. Along its west side of the yard, an external surface was laid, the line of its east edge and two adjoining posts suggesting that the fenceline established in period D10.9 still functioned. This was succeeded by a series of deposits which together formed a metalled surface, respecting the new wall and the period D10.11 hearth. To the south of the hearth, and associated with it, was a working area characterised by burnt clay silt deposits and charcoal.

On the line of the west yard boundary, a wooden board laid on the yard surface may have supported a post, possibly part of a lean-to structure attached to D:Building 1. Dark organic silts



Figure 100 Site D: plan, period D10.12 (1:200)

which accumulated in the southwest corner of the yard were probably swept from the main metalled area to the north. In the building itself, new surfaces laid in room C crossed the threshold into the yard. A post cut the floor near the north wall.

Final modifications to D:Building 1

The floor of room C was reduced for the insertion of a new brickearth slab, and the west wall repaired internally with two stakes capped with brickearth (period D10.13, not illustrated). Immediately to the east, several stakes cut the northwest corner of the new floor; most of these were along the west and north walls, and were probably a reinforcement. The fact that they were all removed, and not allowed to decay *in situ*, implies that they were removed when the building was dismantled.

In the yard, a spread of brickearth over the period D10.11 hearth represented the collapse of its superstructure. Burnt debris spread across the collapsed hearth, working area, and the threshold immediately to the south, which suggests that the site had been disturbed. Several post and stakeholes were cut to the west; not all necessarily contemporary, some of these were repairs to the yard's north wall, while others formed the end of a fenceline running south from the yard wall to the northwest corner of D:Building 1. The fenceline included two postpads, the first of which consisted of a shallow cut packed with tile, the second a timber board set on a mortar base. Further stakeholes ran east from the north end of this main alignment, forming a second line 0.5m south of the yard wall. These may have defined the south side of a lean-to or shed bounded to the west by the stakes, and to the east by the remains of the period D10.12 'shed'; it is not clear whether the latter still existed or had been levelled and covered over during resurfacing. A strip of mortar and gravel formed the floor of the new structure.

A new hearth was constructed west of the fence to replace the period D10.11 feature. The hearth was subsequently repaired and given a new brickearth and tile lining. Two stakes inserted into the relining suggest the existence of a superstructure. Gravel surfaces were laid in the area, mixed with material derived from the hearth.

D:Waterfront 14 continued to subside, as it had throughout the period, necessitating the continual deposition of compensatory material in room A and adjoining porch. The subsidence may also have led to the rebuilding of the west wall of room B; the wall was rendered internally. In room B (period D10.14, not illustrated), fibrous material around the period D10.11 partition may have been the remains of a wooden floor or material collecting due to subsidence. It was soon sealed by further occupation deposits and floors. Two posts were set into the new surfaces along the former line of the west wall, to support the upper wall and allow continued access into the porch. To the west, a large postpit was cut near the northwest corner of the porch, probably to hold a post supporting its roof. The porch floor and the area immediately to the north were then resurfaced.

During the lifetime of D:Building 1, foreshore deposits of gravel and silty clay built up following the period D10.1 repairs, banking up into the junction between D:Waterfronts 14 and 15 (period D10.15, not illustrated). These deposits contained many organic and sand lenses, suggesting interference from the river, although some may have been deliberately dumped to create a bank. This may have been done in advance of the construction of the period D11 waterfront, some distance to the south.



Figure 101 Site D, object from period D10.15: a copper buckle decorated with a lion passant regardant D<2719> (<S148>) (length 24mm). There is a trace of gilding

From period D10.14 and D10.15 came several objects (Artefact Table 22). From D10.14 came two dress accessories, a lead-tin mount D[3919] <2753> and a gilded copper-alloy pendant in the form of a scallop D[3347] <3047> which originally contained a precious stone, and which may have been an ear-ring. From D10.15 came an originally gilded buckle die-stamped with a lion passant regardant (Figure 101). Finds of this type from round the country show that there was a widespread occurrence of such plates with lions in various heraldic stances.[69] Another find was a small piece of cloth woven often with errors in narrow alternating bands of red and orange-brown yarns (D[4080] <6008>).[70]

Generally, the period D10 activity appears to be confined to the later 13th century, which is supported by the tree-ring analysis of the D10.2 base plate (1208–51).

Period D11: late 13th to early 14th century

The dating evidence from period D11.1 is summarised in Table 138. The pottery from period D11 has not yet been studied, except for the three wares shown. It is now thought that period D11.2 probably preceded period D11.1.

Repair of D:Waterfront 15

Along the line of D:Waterfront 15, a length of broken base plate was laid on the period D10.15 foreshore, presumably replacing a dismantled section of the extended structure (period D11.2, Figure 102, shown south of the drain). A tenoned post was pegged in place, with two further posts driven into the foreshore to north and south to act as supports. Vertically set planks, including three articulated boat timbers (D<3059> [4923], D<3056> [4925], D<3055> [4926]), were set into the foreshore behind. Two of the boat timbers have been studied; they seem to be from vessels of the early 13th century:

[69] Egan and Pritchard 1991, 112.
[70] Crowfoot *et al.* 1992, 50–2, fig 39.

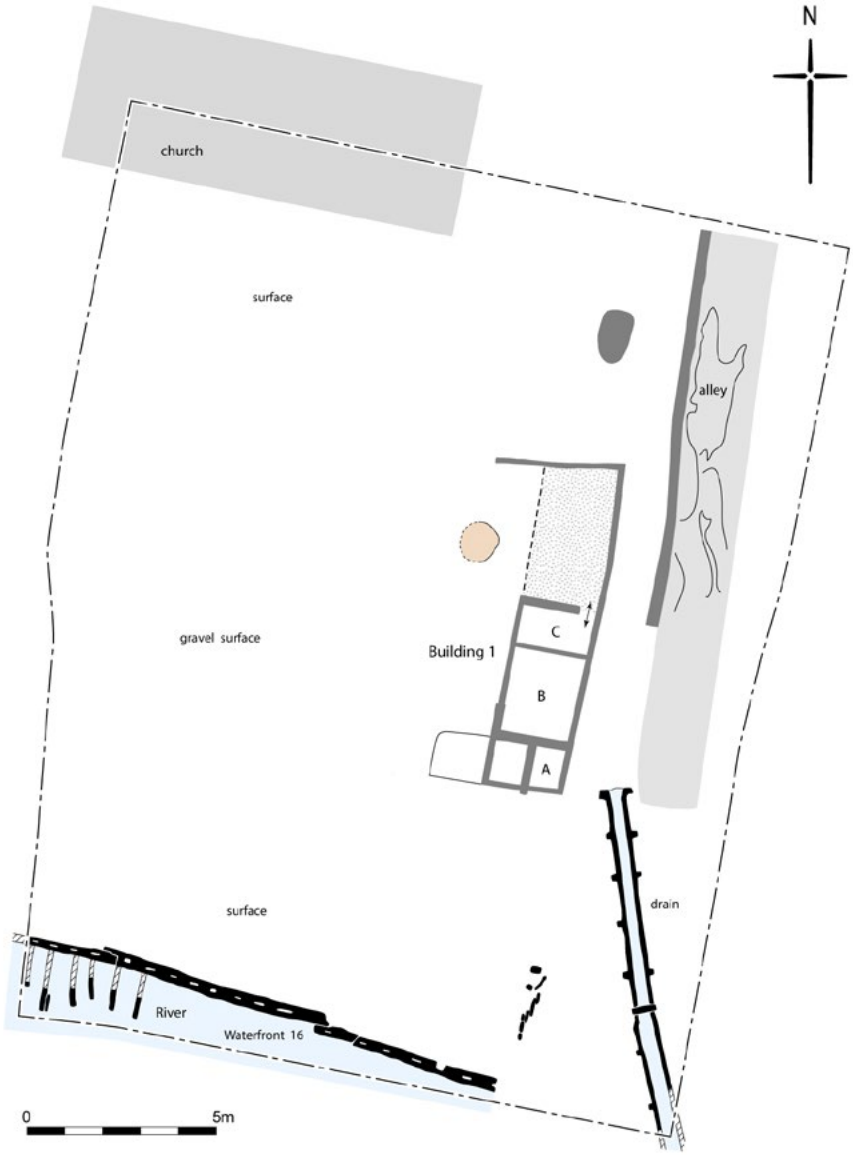


Figure 102 Site D: plan, period D11.1–2, 11.8 (1:200)

D<3058> [4924]) and D<3056> [4925]. Both were planks with traces of hair caulking. In the former, a trenail survived, of poplar or willow.[71] Clearly this was intended to repair the frontage of Tenement 15b before the area to the west was infilled, either immediately before or during the construction of D:Waterfront 16.

D:Waterfront 16

Between 6.0m and 7.0m south of D:Waterfront 14, work began on the construction of a new waterfront (D:Waterfront 16) for Tenement 15a (period D11.1, plan Figure 102). It is possible that a single common alignment was now created for the first time since period D8, although D:Waterfront 16 was built in two distinct sections, with a third short linking structure between. The corresponding frontage of Tenement 15b lay south of the excavation area and was not recorded. Documentary evidence suggests that the two tenements were amalgamated in the 1270s or 1280s, during period D11 but after the construction of D:Waterfront 16; but the boundary between Tenements 15a and 15b seems to have continued for a while (see period D12.12 below).

The new waterfront was similar in form to D:Waterfronts 14 and 15. Initially, reused timbers were laid as a foundation: several other loose timbers which lay in the vicinity, including a chopping block, may have been used during the construction process. All of these timbers were associated with and partly sealed by grey clay deposits, which were then cut for the insertion of four mortised base plates. Softwood piles were driven into the foreshore beneath the west section, their east counterpart being a series of secondary underpinning timbers and smaller wedges added after the base plates had been laid. Further piles were then added along the south sides of the base plates.

The two base plates of the west section were connected by a pegged through-splayed scarf, and between them held 13 uprights. All but one of these appeared to have been rebated, and were identical to some of the posts in the surviving section of D:Waterfront 14, even employing the same numbering system. The strong similarity of most of the timber elements strongly

[71] Marsden 1996, 116–17.



Figure 103 Site D: D:Waterfront 16, looking southeast (0.5m scale). This shows the posts and upper part of the inner cladding; lower left are the deposits infilling behind it, and upper right the reclamation deposits which later sealed it. Above, the steel framing of the inserted cofferdam wall forming the south side of the 1982 excavation

suggests that the posts, base plates and bracing elements were obtained from the earlier structure. The west structure was front-braced, the details being the same as described under D:Waterfronts 14 and 15. One difference was the presence of a displaced top plate found nearby in a later phase (see period D11.7), which is thought to have belonged to the west revetment on the basis of the size and spacing of its mortises.

The east section coincided in extent with the unrobbed frontage of D:Waterfront 14. Six 2m-long tenoned posts were pegged to the east base plate. All of these elements were different in character from those of the west section, being closer in style to D:Waterfront 15. The posts had carpenters' assembly marks which matched others cut alongside the mortises of the base plate. This was a clear indication of prefabrication, and recalls similar marks in D:Waterfronts 14, 15, and the west half of 16. The details of the construction were the same as for D:Waterfronts 14 and 15, although the front braces and their base plates lay beyond the limit of excavation. One post had a second chase-mortise inverted on the south face, which suggests that the whole of the main frame had been reused wholesale. The posts had pegged tenons at their heads for the attachment of a top plate, several sections of which survived. The date of the posts is given by tree-ring analysis of one example as 1221/22, which gives a *terminus ante quem* for the introduction of this structural innovation.

A gap between the two main sections was linked by a short fourth base plate, formed by a length of grooved stud from a timber-framed building dated to 1162–1207. The base plate was mortised to receive a post, which was a second section from the same timber, chase-mortised to accept a front brace.

Substantial planking was added to the north face of the revetments, retained by pegs (Figure 103). Some of the planks of the east section bore carpenters' marks of several different forms, indicating their disparate origins. The west structure, which may have been expected to reuse at least some of the numbered planks from the dismantled section of D:Waterfront 14, was given entirely new cladding, consisting of substantial long boards. The upper section of cladding was later replaced with poorer quality timbers from various sources; the fragmentary nature of some of these pieces suggests that they may well have been temporary repairs jammed into position from the front rather than being inserted from behind. The new wharf was subsequently infilled with mixed organic clay-silt deposits similar to those employed in previous waterfronts.

Dating of D:Waterfront 16 is unclear from dendrochronological study. In the west section, a plank D[3338] with a range of 1243–69 may have been a later addition, while others were probably reused, and none gave any date later than that of probably reused post D[3301] (the year 1211 on what may be the bark edge).[72] The east section was dated by a post of 1220/21 and plank of 1225. Unless D:Waterfront 15 was very shortlived, which is unlikely given the long period D9–10 sequence,

[72] See chart of dendrochronological samples in Milne 1992, 25, fig 11.



Figure 104 Site D: the drain in period D11.8: A, extent of the drain in the excavation, looking south (0.5m scale); B, detail of the drain from above, showing pegged half-dovetail joints. On the right is the silt which filled the drain (100mm scale)

the east and west sections must have been constructed by assembling reused timbers from a number of different sources, which is very probable, given the mixed nature of the various elements. The plank D[3338] with sapwood rings of 1243–69 may well give the *terminus post quem* for D:Waterfront 16; a date of *c* 1270 will be maintained here. So it is uncertain whether the construction of D:Waterfront 16 preceded or followed the acquisition of Tenement 15b by the City sometime between 1274 and 1285. There is no documentary record of rebuilding at the time of the amalgamation, though it is reasonable to expect some.

Four contexts of this phase produced objects which have been studied, including two lead styli and a pilgrim souvenir from the cult of St John the Baptist at Amiens (Artefact Table 23), but their places in the strata are not clear.[73]

A box drain in the southeast

In the southeast of Tenement 15, a drain was constructed in a linear cut at least 8.8m long, sloping down towards the southeast (period D11.8, plan, Figure 102; details, Figure 104). The base of the cut was packed with clay and occasional chalk blocks, on which were laid eight squared beams, at on average 1.0m intervals. The central section of their upper faces were removed by halving to form 0.55m-wide cradles, supporting the base of the drain. This consisted of three substantial horizontal planks closely-fitted together using through-splayed scarfs. Two similar scarfed planks were set on edge to form the sides, rebated along the lower inside edges to lap around the base, while seven crossmembers were attached by pegged half-dovetails to slots cut at 0.8–1.0m intervals along the upper edges. Wedges were driven between the sides and cradling timbers to hold the structure firmly together, and a lid was added, consisting of three scarfed planks, which were pegged to the sides. For additional stiffening, some timber packing pieces were wedged between the drain and the cut side, and long pegs were inserted at an angle through the sides into the ends of the cradling timbers before the trench was backfilled.

At the north end, the drain terminated in splayed scarfs, which would have allowed the addition of a further section; possibly there was originally a sump or entrance attached to the surviving end. A later cut inserted at the head of the drain may have removed part of the drain (see period D14.8). The timber used was of very high quality, but its ring sequence was undatable. A floating dendrochronology of 293 years was obtained for the drain, which has not yet been matched with any other. The drain was filled with fine clay particles, with metal residues on the surface suggesting an industrial use. Another possibility, given its fine construction, is that it was a public latrine on the wharf, from which the above-ground structure has been lost (a public privy on the wharf is mentioned in 1370, that is much later). It terminated near the southeast corner of D:Building 1, with its north end on

[73] The contexts are assigned to period D11.1 in the context matrix for the site, but they are not mentioned in the archive report.

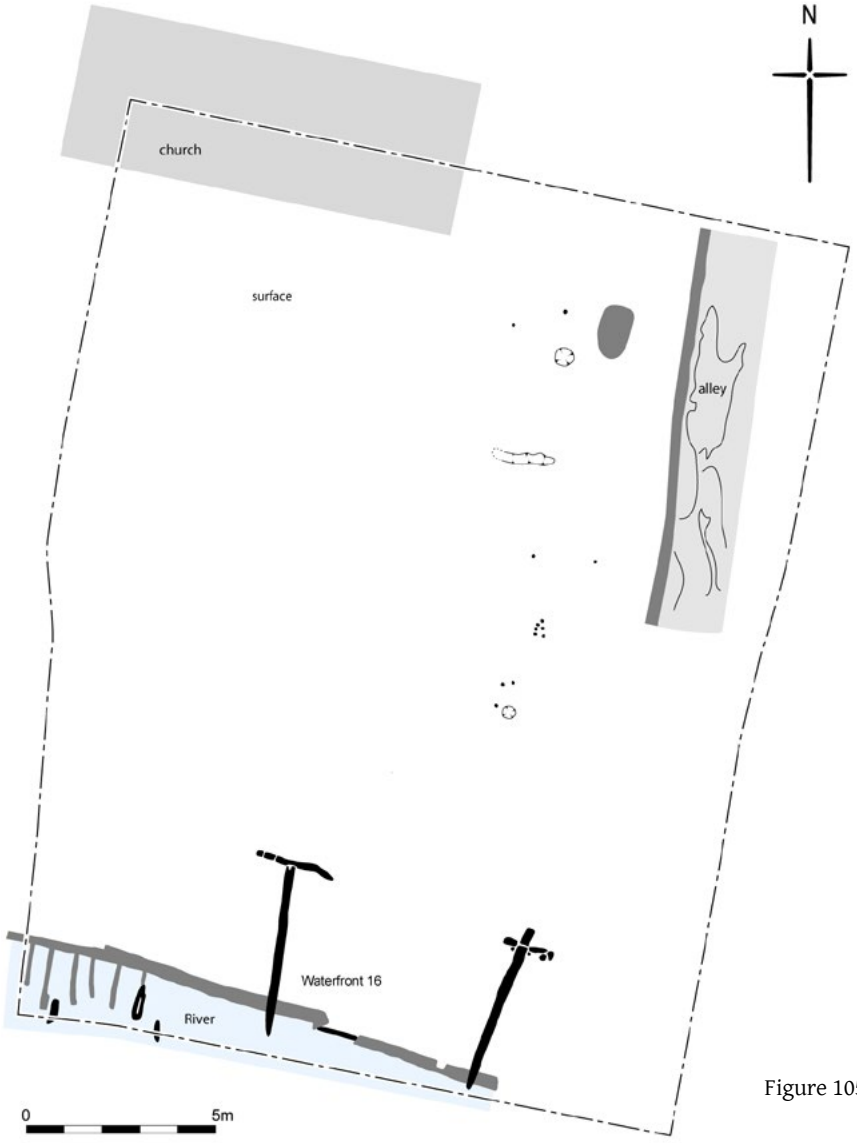


Figure 105 Site D, plan, period D11.3–11.7 (1:200)

the boundary between the two parts of Tenement 15. It seems on balance to have been an installation on the private east part, Tenement 15b, during the 13th century but before the property was acquired by the City to extend the Wharf. It is therefore suggested that D:Building 1 continued in use during this phase (see plan, Figure 102); it still marked the east side of Tenement 15a, the public wharf before about 1275. The wooden drain, if constructed around 1270, was an exceptionally fine survival in the ground.

Repairs to the waterfront, dismantling of D:Building 1, and activity to the north

A number of repairs were carried out to the revetment, including the replacement of the cladding in the central linking section, where five reused planks were inserted in a 2.8m long trench behind the original post (period D11.3, Figure 105).[74] The cut was then infilled, and extensive organic dumping laid over the fills, capped with an oyster shell work surface.

Near the junction with D:Waterfront 15, a north–south tieback was added to the waterfront (period D11.6). This consisted of a horizontal timber, held in place by a cross-piece which passed through a mortise in the north end, and in turn retained to the south by three piles. The tieback passed through the revetment, presumably having a second cross-piece at the south end, where a section of displaced top plate suggests that the tieback had passed immediately beneath.

Further west, behind the west section of revetment, a 5.4m-trench was cut into the wharf to enable the replacement of the upper cladding (period D11.7). It was backfilled with disturbed infill. An east–west timber crosspiece was laid on the period D11.3 dumps to the north, and a second tieback lapped over the first element and pegged in place. The crosspiece was retained by two piles. The south end of the tieback passed through the upper cladding and was mortised to accept a second crosspiece, which had not survived, although its horizontal mortise remained.

A north–south fragment of base plate was laid on the foreshore, with a second timber inserted into a mortise. This

[74] Four boat fragments are recorded from period D11.3: [4444] <3063>, [4445] <3065>, [4446] <3064> and [4677] <3061>.

was presumably a collapsed element associated with the revetment, possibly part of a stair or jetty. A rectangular block to the east may have had a similar function. A new subsidiary base plate directly replaced one of the original arrangements; two wedges remained where the foot of the associated front brace would have been tenoned into place, the brace itself having been removed. Five partly-worked branches were stacked in front of the revetment, within a secondary oreshore deposit. The function of the branches, like that of most of the other timbers, is unclear.

To the west, a pile was driven into the dumps, and a long mortised timber laid over it. Since this timber extended south of the frontage, it must have postdated the use of D:Waterfront 16, and the backfilling of the area to the south in period D12. However, the spacing and dimensions of the pegged mortises suggests that the timber was the displaced top plate for the west section of the waterfront. A half-dovetail housing on the original upper face suggests that a tieback had been attached, and it is significant that the period D11.7 tieback was attached to its crosspiece by just such a joint. A second pile intruded near the north end of the displaced beam, with a third to the east and five more to the west; some of these may have been associated with robbed tiebacks.

D:Building 1 continued to function after the construction of D:Waterfront 16, but was dismantled (period D11.4) following the initial repairs and their attendant dumping. The timber framework and any other material worth salvaging was removed, leaving the lowest courses of the levelled walls, and postholes where studs and other structural elements had been removed. There were extensive signs of burning in room B, consisting of alternate layers of charcoal and burnt clay, and it is probable that unreusable timbers or other organic materials such as wattlework from the walls and thatching were disposed of on site. Deposits of gravels, organic debris and mortar were imported piecemeal to level the area, although some of the organic material may have been the north edge of dumps relating to the period D11.3 repair. Immediately to the south, D:Waterfront 14 continued to subside, requiring further compensation along its former line; this may have influenced the demolition of the building, which had seen repeated repair in period D10.

The north wall of the yard was also demolished, and a narrow trench cut to remove its base plate (period D11.5). A postpit and three stakeholes to the north represent robbing of an unidentified structure in the vicinity. The robber trench and other intrusions all contained whole oyster shells in their backfill, suggesting that they were contemporary. The cuts were sealed by a deposit of oyster shells in a mixed sandy silt and clay matrix, almost certainly having a common origin with the fills. To the west, predominantly sandy gravels were deposited over the edge of the oyster layer, with which they formed a surface similar to that of the period D11.3 dumps to the south of D:Building 1. This suggests that the demolition of the building was part of a redevelopment from south to north, involving the repair of the waterfront, new dumps and surfaces, probably with little time elapsed from start to finish.

Published non-ceramic artefacts from period D11.3–7 are listed in Artefact Table 24: a horse pendant showing a knight on horseback (<S149>, not illustrated),[75] and one of three pilgrim souvenirs of the apostles SS Peter and Paul from St Peter's Rome (<S150>, Figure 106). The other two souvenirs were found in spoil from the site during construction. Unfortunately the design of the souvenir is no indicator of close dating, as the type is found on sites all over Europe throughout the 13th century.[76] But like the pin with a badge representing the face of Christ noted earlier, it was probably a souvenir of a pilgrim's journey to Rome.



Figure 106 Site D, object from period D11.3: pilgrim souvenir D <2700> of SS Peter and Paul, Rome (<S150>) (length 42mm)

Further extensive surfaces were laid to the north of the yard area (period D11.9, not illustrated), consisting mainly of sandy gravels, with an admixture of mortar, brown silty clay tramples and oyster shell patches. The deposits respected the line of the north boundary wall of the yard, which had already been levelled by this time: it is conceivable that some visible division remained, although there was no evidence for this. Several postholes and a stakehole indicate sporadic structural activity similar to that already seen in period D11.5, but nothing significant appears to be represented. The fills of the later intrusions were probably deposited with the next major horizon, which consisted mainly of oyster shell (period D11.10, not illustrated). These deposits were largely sealed by the restoration of gravel metalling. Once again, several small cuts intruded, including three stakeholes in the east and four postholes to the west; these again had no apparent structural significance. In the northwest, however, a short east–west slot with a postpit containing three stakeholes near its southwest corner may have formed part of a more substantial structure.

We pause here to summarise the development of Botolph Wharf, south of the church, during the 13th century. This is illustrated by the previous plans. There were new waterfronts and a jetty at the end of the lane in the decades after 1235 (Figure 87, period D8.1, D8.3). The eastern half, Tenement 15b, later extended further (Figure 91, period D9.1–3). A small D:Building 1 appeared in period D10.2, during the first half of the 13th century, and was modified several times, but survived the extension of the wharf to D:Waterfront 16 (Figure 102, period D11.1), until being dismantled in period D11.5. It clearly functioned, in its middle period, with D:Waterfronts 14–15,

[75] Illustrated in Clark 1995, figs 47–8.
[76] Discussed in detail in Spencer 1998, 248–51.

being on the edge of the former. Most of the rest of Tenement 15a at this time, south of the church, was lost because of later disturbance (later cellars), so D:Building 1 is the main feature representing the use of the reclaimed land here in the 13th century. It seems to have faced west, being placed at the south-east corner of the tenement. Until the unification of the two parts of Tenement 15 in 1274–85, whatever its function, it served Botolph Wharf south of the church.

Period D12: early to late 14th century

From the opening of period D12, the wares of the 12th century are completely residual, so they are not used for dating purposes. As broken sherds they would have been in the strata for some time.

D:Waterfront 17 and the construction of D:Building 2

The watching brief (BWB83) demonstrated that a new revetment (D:Waterfront 17, not illustrated) was constructed *c.* 6m–8m south of D:Waterfront 16, in a more directly east–west line than its predecessor; presumably as the first waterfront specifically for the enlarged tenement. This enlargement is identified with a major series of repairs known to have occurred in 1325–33.

In the south half of the excavated site, deposits of organic clay silts infilled the area in front of D:Waterfront 16, continuing beyond the south limit of excavation to the new revetment and northward over the south end of the dismantled D:Building 1 (period D12.1, Figure 107). A localised surface of oyster shell was laid in the south at *c.* 1.9m OD, possibly originally part of a more extensive deposit, while in the north, a pit intruded into the dumps immediately overlying D:Waterfront 14, cutting down to expose several of the earlier timbers. The pit was left open for some time, but was sealed by further organic dumps and patchy gravel surfaces, which reached 2.1m OD.

Pottery from period D12.1 has been scanned. Medieval pottery was found in six contexts; one is of medium size (D[1668], with between 30 and 100 sherds), and all the rest are small (with fewer than 30 sherds in each). Fabrics range in date from the mid 12th to the mid 14th century, with the earliest contexts

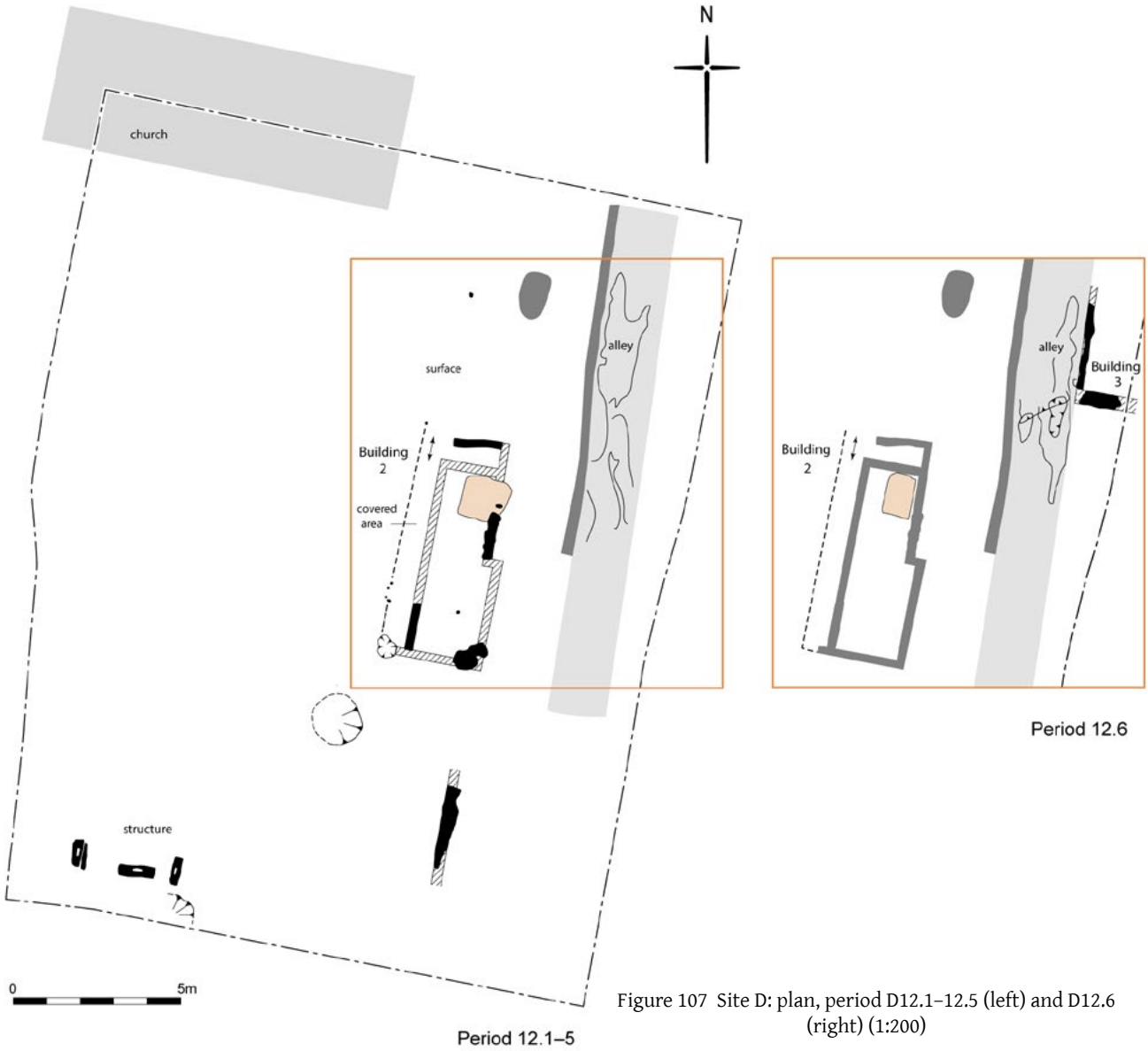


Figure 107 Site D: plan, period D12.1–12.5 (left) and D12.6 (right) (1:200)

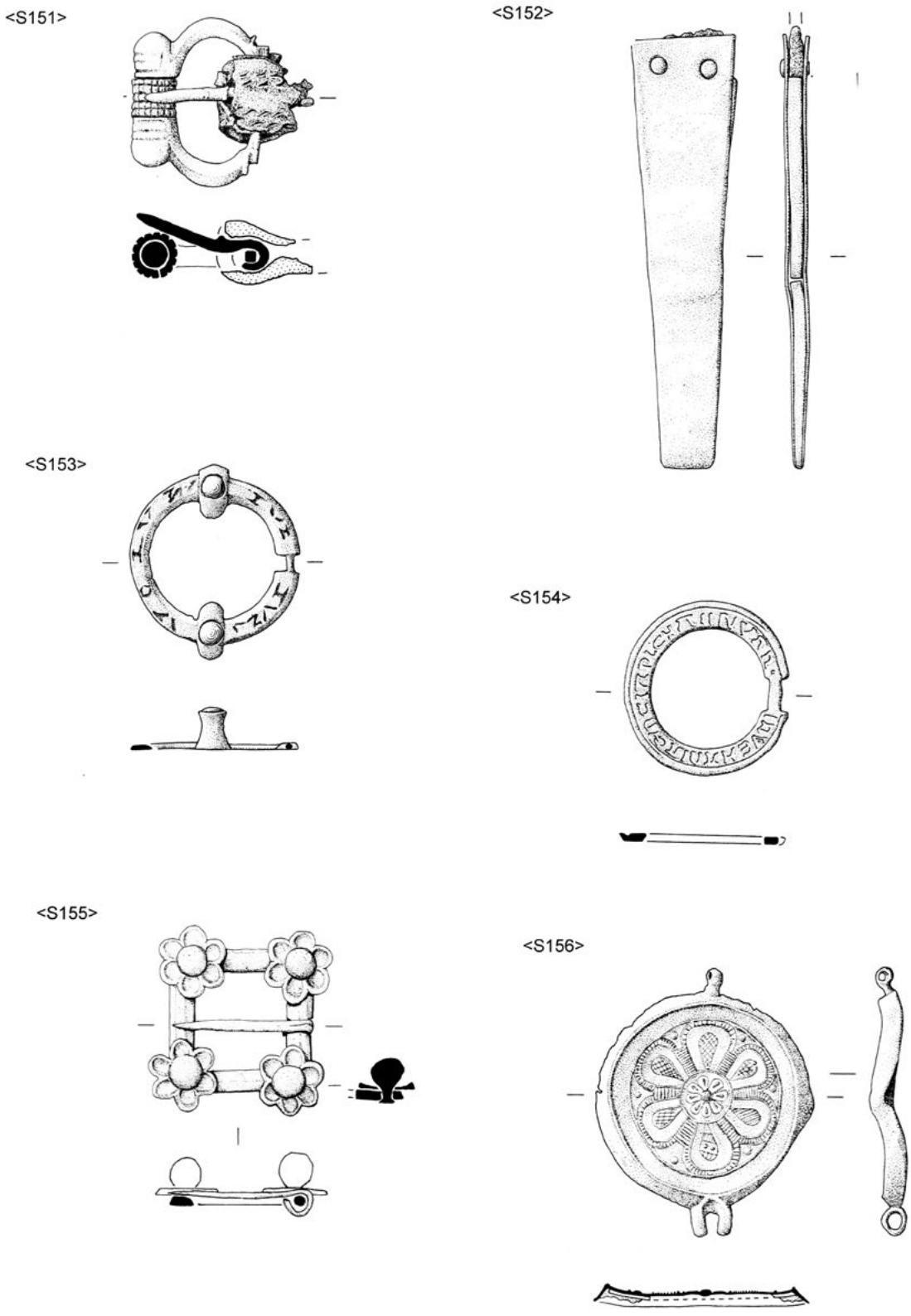


Figure 108 Objects from period D12.1: buckle D<2336>, strap-end D<2305>, brooch D<1309>, brooch D<1336>, brooch D<1343> and cased mirror D<1710> (<S151–S156>) (1:1)

in this phase dated to *c.* 1180–1270 (D[2925] and D[3273]) by south Herts-type greyware (SHER) and London-type ware in the north French and Rouen styles (LOND NFR, LOND ROU). The remaining contexts date between the mid 13th and mid 14th century, with the latest pottery coming from the medium-sized D[1668] and small D[2785], both of which are dated to *c.* 1270–1350. This is based on the presence of Mill Green ware (MG) and coarse Surrey-Hampshire border ware (CBW). The main fabrics recorded in this phase are London-type ware decorated in various styles, Kingston-type ware (KING) and SHER. Artefact Table 25 shows the varied group of 53 studied objects from layers assigned to period D12.1. They include items catalogued in all seven volumes of the *Medieval finds* series: 36 dress accessories, 11 items from the household inlcuding a chesspiece bishop of box wood, a knife and six scabbards, three items to do with horses, one pilgrim souvenir and two pieces of textile. The dress accessories comprise buckles, buttons, strap-ends, brooches, mounts, a finger-ring and a pewter cased mirror, with fragments of its glass still adhering (Figure 108). A further notable find was a copper-alloy padlock D<2472> [2277]. Its octagonal-section case was decorated on three faces with sinuous double lines of opposed, punched triangles.[77]

Possibly contemporary with D:Waterfront 17, a hearth of horizontal tile fragments embedded in sand was laid in the yard area of the former D:Building 1 (period D12.2). Surfaces were laid around the hearth, respecting its position. The hearth was subsequently replaced by a more sophisticated example of clay with embedded tiles, and possibly a clay superstructure. Sandy gravel surfaces were laid to the north and northwest, with occupation material to the south. Immediately to the west of the hearth, a large posthole packed with tiles may suggest that a building or protective structure had been constructed. No further such traces were found, because the area was now covered by a more substantial structure (D:Building 2), using the same west and north boundaries (period D12.3).

D:Building 2 was constructed in a similar position to D:Building 1 of period D10, so it may have been intended as a replacement. Its walls were largely defined by postpits and the edges of deposits rather than surviving remains, but parts of the west, north, and east walls were found. The southeast corner was marked by a large postpit, with a short north–south strip of brickearth sill forming part of the east wall adjoining. A similar strip marked the west wall, bounded by an external gravel surface. A single stake cut the floor in the south part of the building, and may mark an internal north–south fixture or partition. A postpit to the west of the building, opposite the southwest corner, and a line of four stakes to the north probably formed the south end of a lean-to structure which ran parallel to the west wall. A further stake 6.0m to the north marked the end of this structure. The north continuation of the west wall, and its east–west return were represented only by divisions in deposits along their line, suggesting that they were not as substantial as the walls to the south; 0.6m north of the return, a parallel east–west slot defined a more substantial north wall, forming a narrow annexe or corridor opposite the north end of the west lean-to, surfaced with exposed metalling from period D12.2, and with new metalling to the north. It is probable that the gap between the slot and the north end of the lean-to was an entrance from the external area to the north.

In the north part of the building, a hearth was constructed of clay with inset tiles laid on edge, replacing the later period D12.2 feature. A stakehole was cut into the east edge, associated with a brickearth sill which formed a continuation of the east wall of the building. This was, however, offset slightly from the south section of the wall, which implies that the north part of the building containing the hearth was narrower. The hearth itself may have been screened from the south section by a wall corresponding with the junction between the two parts of the building, in effect dividing it into two rooms; unfortunately, this area was destroyed by later intrusions. The hearth was surrounded by occupation deposits, representing its use. Extensive surfaces were laid to the north of the building, cut by a single post some distance away from the structure. A scorched area may represent a hearth or bonfire.

It is unclear when this building was finally demolished, and it is therefore shown on all the period D12 interpretative plans. It was, however, demolished at some time prior to the laying out of a new lane (Botolph Wharf) around 1350 (see D13.1), although elements of period D12 continued in the northeast (see the discussion of D:Building 3 below).

Due south of the east wall of D:Building 2, a mortared chalk wall was constructed just to the west of the line of D:Waterfront 15, and associated with a new work surface of oyster shell at 2.10m OD (period D12.4). This directly overlay the period D12.1 dumps, suggesting that little time elapsed between the construction of D:Waterfront 17 and the wall. The wall may have formed part of a second building, but it coincided with the line of much later structures (see period 15), and these destroyed any other determining elements. A circular area of clay capped with mortar lay between the wall and D:Building 2. This was sealed with an extensive organic layer running south to the wall, but the mortar was reinstated subsequently. Its interpretation is uncertain: it has been identified as a post position, but its extent (1.0m) suggests that it was too large. The feature may be localised patching, but does demonstrate that the wall was not continuous.

Four timbers were deposited on the new wharf at the southwest corner of the site (period D12.5). These included three short but substantial sections of mortised beam: a west timber laid north–south with a boat plank as base; an east timber laid parallel to the first; and a third beam set east–west between the others, opposite their south ends. These timbers were initially considered to be part of a series of backbrace structures related to D:Waterfront 17, but as the watching brief demonstrated, that structure lay some 8m to the south of this point. It seems more likely, therefore, that the three timbers formed the south, east and west sides of a structure, possibly underpinning a platform of some kind, utilising the mortises. A circular cut lay immediately to the south, sealed by a layer of silty clay which spread to the east timber. This layer, together with the timbers, was then covered by more extensive silts, which must represent activity following the demise of the structure and the robbing of its superstructure.

From period D12.3 came two coins D<2282> [3066] and D<2428> [3216], both undated. Other finds from D12.3 and D12.5 are listed in Artefact Table 28.

[77] Egan 1998, 93, with X-ray.

The construction and first repairs of D:Building 3 [in NE of site]

A new building (D:Building 3) was constructed to the east of the lane established in period D12.6 (Figure 107). A 0.35m-wide east–west foundation of chalk blocks and mortar was laid in a shallow trench to form the south wall of the structure. The west wall, of which the brickearth sill remained, was constructed on a sand base along the edge of the lane. The north wall and any internal divisions could not be determined, and the east wall lay beyond the limit of excavation. A 1.2m-wide trench which ran south from the southwest corner of the new building may have marked the side of a lean-to or extension, although it was soon sealed by a mixture of sandy silts, gravels and brickearth, which were used to patch the east edge of the lane; oyster shell was used locally further north. A shallow gully in the lane may have been formed by eavesdrip.

D:Building 3 was repaired subsequently (period D12.7), with the southwest corner reconstructed using brickearth containing a burnt mudbrick, probably obtained from a hearth. A patch of burnt flints in silt crossed the line of the west wall further north, but these are interpreted as a slumped occupation deposit rather than a further repair. The lane was extensively resurfaced with gravel prior to the reconstruction, with the largest area to the north laid on a bedding of burnt daub; this may have been obtained from the same source as the mudbrick and flints used elsewhere. The lane continued to respect the period D10.3 boundary wall, although some material overlapped in the south, suggesting that it was in a state of disrepair in that area. Occupation deposits collected along the east side of the lane against the repaired wall, with similar material internally. Further repairs followed (period D10.8) and the wall across the lane on its west side rebuilt (period D8.9).

The main excavated area was confined to the entrance to the Wharf, along the east side of St Botolph's church, and the buildings near Thames Street. Period D12.1 to D12.7, it is suggested, represent the rebuilding of Botolph Wharf in 1325–32 and a few years thereafter, up to about 1350. The main components of rebuilding the Wharf were probably on its riverwards aspect which lay off the excavated site, to the south, between the south limit of the excavation and the present (19th-century) edge of the riverfront. A timber wharf (D:Waterfront 17) seen in the earth-moving of the watching brief in 1983–4 may have been from the rebuilding.

Objects found during later earth-moving, 1983–4

The removal of Roman and later strata comprising the site south of the excavation and all the east half by earth-moving machines during 1983–4 was observed by Geoff Egan. This operation has the separate Museum of London site code BWB83. With the aid of members of the Society of Thames Mudlarks, often on the landfill sites to which the earth was trucked, Egan and his colleagues recovered over 1400 medieval non-ceramic items. For the later catalogues, each object was allocated to the Ceramic Phases then being used. This phasing was not done for the objects in *Knives and scabbards*, *Textiles and clothing*; but was for *Dress accessories*, *The medieval horse*, *Pilgrim souvenirs* and *Medieval household* (the site did not feature in *Shoes and pattens*). From this salvage work many notable medieval finds were retrieved, and there is no doubt a great capacity for future new research. One notable medieval artefact of the late 13th or early 14th century is noted here, and others are mentioned in the narrative at the end of the next overall period, that is 1350–1500.

What is described as the only surviving European medieval straight trumpet was found by a metal detector user working with Egan in the south part of the site in early 1984 (Figure 109). The trumpet was found disassembled into its component pieces and perhaps in



Figure 109 The Billingsgate trumpet, BWB83 [335] <225>. The mouthpiece section is 403mm long

a bag in the river silt. It probably fell from a boat or from a person either boarding or leaving a boat; the findspot was immediately south of the 1982 excavation, so near the landing place of Botolph Wharf. It would be used for signalling, not music, as it could generate only a few notes. This is the subject of a specialist report below by Sabine Klaus (section 6.5). She accepts, as a possibility, that the trumpet could have been lost in the decades suggested by accompanying pottery, that is 1260–1330.

3.6 Discussion: the waterfront of London 1200–1350

The site-specific periods which form the overall period M2, from about 1200 (or 1220 at site A) to about 1350 are summarised in Table 29.

Reclamation, waterfront structures and the level of Thames Street

By 1230, the wharf or quay (*kayum*) of a property was in some cases distinct enough to be named as a place in

	Waterfronts and buildings	**Documentary references**
Tenement 1	A:Wft 11; similar waterfront on Riverbank House dated to soon after 1203; also chalk foundations of buildings and later waterfront. A:Bdgs 18, 25	1328 Isabel de Leyre; 1367 complaints about overhanging buildings
Tenement 2	A:Wfts 11–12; A:Bdgs 14, 19, 20, 26,	1328 John Darmenters
Tenement 3	A:Wfts 12–13; A:Bdgs 15–17, 21–2, 27	1329 Nicholas de Farndon
Tenement 4	A:Wfts 11–13; A:Bdg 13 possibly continuing; A:Bdgs 23–4	1246 formerly of Walter Buckerel; divided into two parts before 1349
Tenement 5	Not excavated 1981–2 but R:Wft 7 (excavated 2006–9) probably formed the SE corner about 1240	1293 Nicholas de Wynton; contained shops 1296; 1331 John de Shrovesbury dyer; 1344 granted to St Paul's Cathedral
Ebbgate [Swan Lane]		
Tenement 6	B:Wfts 3–4; B:Bdg 1 continues, Bdgs 2–4	1314 John de Wynton; 1348 granted to college of Corpus Christi, St Laurence Pountney, by John de Pulteney, with some of income for his chantry in St Paul's Cathedral
Tenement 7	Not excavated	1298 William de Eure
Tenement 8	Not excavated	1283 Herbert de Winton; passed to St Michael Crooked Lane church by 1388
Fishmongers' Hall, London Bridge, St Magnus		
Tenement 9	E side excavated, C:Bdg 6	1274 a shop here of Walter de Chesewyk; 1290 the property occupied by Robert Lambin, including a bakehouse; 1405 called *le Cok on the Hoop*
Tenement 10	C:Bdg 7	1278 Lawrence Payn, when it included two cellars and a quay; 1290 Walter le Marbler, property included a gate on the E side to Rothersgate; divided into two parts N and S between 1308 and 1326 (N part has new solar; S part to Adam Pykeman fishmonger); 1332 Pykeman obtained the N part; 1349 Henry de Boseworth, vintner
Tenement 11a and b	C:Wft 3; C:Bdg 8	by 1342 called *Frosshwharf*; 1311–12 Sir John de Bourne
Tenement 12	C:Bdg 9	by 1349 called *le Brodegate*; 1275 Martin de Garschurche; 1306 included a quay; 1330 Adam Pykeman fishmonger
Tenement 13	C:Bdg 4 continues	1270 once of Laurence the clerk; 1283 Eustace of Dartford; 1294 comprised quay, houses and shops; 1358 included two shops;
Tenement 14	C:Bdg 5 continues	1270 Wybert de Arraz grants property to Peter de Kyngeston vintner; 1282 Richard de Kyngeston is granted an access way to Botolph Wharf along the S side of St Botolph's church, E of the property
Tenement 15 **Botolph Wharf**	D:Wfts 12–17 and jetties (period D8.3); D:Bdgs 1–3 and structures	1325–32 Botolph Wharf reconstructed
Tenement 16	Not excavated in 1982, some details in archive for BWB83	1334 contained three shops on Thames Street

Table 29 Summary of all tenements in period M2, 1200–1350

public records. In the *Eyre* of 1244, recording accidental deaths over recent years, the royal justices noted that deaths had taken place 'in front of the wharf of Henry Ruffy, tailor' and 'before the wharf of the Abbot of Waltham'. The mention of these places in the public record must indicate that they were generally known by those names, and this must have been because of traffic and business to do with them. In the late 13th century the right to load and unload goods on a quay of a private property was valuable and sometimes contested. It is clear however that Londoners were also accustomed to going down to the river for water, to dispose of rubbish, and to do laundry.[78] In 1324 a wharf in the parish of St Martin Vintry was called *La Launderebrigge*, and here a woman going to draw water fell in and was drowned.[79]

During the 13th century, the type of timber waterfront exemplified best by D:Waterfront 14, subsequently conserved and displayed in the Museum of London, became widespread along the waterfront. Many waterfront revetments for properties south of Thames Street were still being built in timber well into the 14th century, as illustrated by the survival of a contract between St Paul's Cathedral and a carpenter for the rebuilding of a wharf with oak timbers at Brokenwharf, immediately west of Queenhithe, in 1347.[80] But from about 1300 at other sites (such as Trig Lane only a few metres further west, by 1307), and as illustrated by Waterfront 4 at site B, stone walls began to be built on private properties as the boundaries of new units of reclamation into the river. A small portion of one was seen at Watermark Place, on the medieval property south of All Hallows the Great.[81] Stone river walls needed far less repair than their timber predecessors. By the end of the 13th century, the general rate of reclamation on both public and private sites was slowing down.

An important development of this period was the refurbishment of Botolph Wharf in 1325–33 (archaeological period D12). The excavated area at site D covered only about a quarter of the reclaimed land forming Botolph Wharf at this time, so salient features such as the probable new wharf and the gate to Thames Street were not recorded. But we can say that there was a new timber wharf, at least on properties to the east (D:Waterfront 17); the timber-framed D:Building 1 on Botolph Wharf was replaced and new surfaces laid. If the new wharf was not much distant from the south edge of the excavation, a fragmentary timber structure at the southwest corner (period D12.5) might be the base of a crane. The surfaces contained an array of artefacts (Figure 108).

As the foreshore was considered common soil, there were attempts throughout the period by royal and City justices to control encroachments into these public spaces. In 1246 the royal justices found that Ebbgate had been narrowed, and ordered that 'the wharf by which the gate [i.e. access point to the river] had been narrowed be amended so that passers-by can walk and ride there without detriment' [presumably access to boats is meant].[82] This enroaching wharf could have been on either side of Ebbgate, i.e. on Tenements 5 or 6; it would have probably been the corner of one of the excavated revetments of the second quarter of the century, perhaps B:Waterfront 3 if it extended as far as Ebbgate, the west boundary of Tenement 6, as seems likely. It is an attractive possibility, but no more, that if B:Waterfront 3 of this period was built as early as 1240, its building might have caused the complaint six years later. A survey of the waterfront in 1343 is provided by a complaint of that year 'by aldermen and the Commonalty' to the mayor and sheriffs. A large jury of prominent men of the waterfront wards reported. Besides the problems with Botolph's Wharf mentioned above, a number of alleys from Petit Wales in the east to St Paul's Wharf in the west were criticised for being obstructed by building, not being paved, being hazardous due to latrines emptying into them, or their public nature being restricted by private occupiers, sometimes by building walls onto the public property of the lane. One person had built a new kitchen in the place of a previous stair to the river. At Broken Wharf, two recent doors to the alley were thought to be a threat.[83]

By 1277–8, Thames Street was London's longest street, being referred to as 'the highway from Castle Baynard as far as the Tower'; but some of its parts also had separate names. The part by Billingsgate was called *vicus de Billingsgate* (street of Billingsgate) in 1229; the section immediately upstream of the bridge was called Stockfishmonger Row, but later, in 1373. From the 13th century to the 15th century Thames Street outside the Steelyard was called Roper Street, i.e ropemakers' street.[84] Slight changes in direction along its length may have marked the divisions between these localities. Where it passed the obstruction of stone churches, as at All Hallows the Great and St Magnus, Thames Street was restricted in width by the time of the maps in the 17th century (see Figure 16), and this must have been the case also throughout the medieval period. It is difficult to imagine this today, as Upper and Lower Thames Street are a thundering highway up to six lanes wide. But until the 19th century these restrictions were present, as shown vividly in 19th-century views of All Hallows (e.g. Figure 110). When it was built in 1234 the

[78] Chew and Weinbaum 1970, nos 67, 88; Chew and Kellaway 1973, nos 327, 459.
[79] *Coroners' Rolls*, 100.
[80] Salzman 1967, 434–5.
[81] Fowler and Mackinder 2014, 10–11.
[82] Chew and Weinbaum 1970, no. 473.
[83] Riley 1860, 444–53.
[84] Ekwall 1954, 77, 80, 160.



Figure 110 Upper Thames Street looking west, near the church of All Hallows the Great, by William Pearson about 1812 (© British Museum: BM, 1880,1113.3349)

north aisle of St Magnus added to the constriction of Thames Street as it met Fish Street Hill, the approach to London Bridge; it is shown on Leake's plan of the streets in the Fire-damaged area in 1666, and probably protruded from what is now the north side of the Wren church.[85] Lower Thames Street at this point remained narrow until the 20th century (Figure 111, A and B). Thus two parts of Thames Street, west and east of the bridge, would have seemed like different streets, alternative turnings left or right at the foot of Fish Street Hill.

Parallels are noted first along the north bank of the river, then the south bank. For the period 1200–1350, there have been several other excavations and historical studies on London waterfront sites upstream of London Bridge, as far as Blackfriars (for locations, Figure 48). The second house of the Blackfriars increased its large new site, having expanded the area enclosed by the city wall itself, by largescale reclamation into the river bordered with a stone wall, probably by 1306.[86] This was more than 50m out into the river, further than the adjacent secular properties to its east (which only caught up with it in the 16th century); it must have formed an impressive and emphatic stone intrusion into the river at the south-west corner of the city.

At Trig Lane, a short distance west of Queenhithe, the riverwards ends of five medieval properties were recorded in two excavations of 1974–6 and 1999 which were contiguous and slightly overlapped in area. Timber waterfronts from the early 13th century to 1380 and stone river walls of 1307 to 1480 demarcated various units of land reclamation; the excavated portions corresponded to about the south half of the properties which fronted on Thames Street to the north. The properties excavated, on documentary grounds, included a tiny portion of the hospice or town house of the abbot of Chertsey, which had a stone quay wall constructed in 1307; and west of it, a property occupied by a dyer from 1296 to 1316. On a property to the east, by the 'lane by which the Fishwharf is approached' in 1291,

[85] The date is known because as the aisle would take up part of the street which was a royal possession, royal assent was obtained: *Cal Pat R Henry III 1232–47*, 82.
[86] Holder 2017, 32–4.





Figure 111 Lower Thames Street looking east: A, in 1852 (© British Museum: BM, 1880,1113.3408); B, the same view in April 2016 (the west end of St Magnus can just be seen behind the tree on the right)

traces were found of two buildings on stone foundations on the edge of the contemporary quay, then in timber. Shortly after 1345, on dendrochronological grounds, the waterfront on this property was extended with a revetment of different and more substantial form (Trig Lane excavation, stratigraphic Group 10), and the property given a new building, a drain and evidence of a stair or landing stage for the property.[87]

By 1350 there were also several notable houses on the reclaimed land south of Thames Street. The town house of the Earls of Norfolk lay immediately east of Trig Lane from the second half of the 13th century, and its later waterfront was excavated on the Sunlight Wharf site in 1986.[88] Immediately west of the study area were two adjacent notable houses, both called Coldharbour. Possibly the name passed from the western of the two houses, which may have been prominent earlier, to the eastern. Coldharbour I was called a 'capital messuage' in 1297, with a gateway. Sir John Pulteney (d 1349), who had acquired Tenement 6 in 1333, obtained the Coldharbour property in 1334 (the name *le Coldherberghe* is mentioned in 1317).[89] Excavation here in 2005–7 found fragmentary remains of the stone and timber river walls on which this house was extended at about this time; it was in effect built on a protruding platform into the Thames, as wide as its property (17m or 48ft 6in) and protruding into the river for 13.5m (44ft).[90] Unfortunately there is no information on the internal configuration of walls within this palatial property, the remains of which would have been totally destroyed in 1969 if not before. The second Coldharbour (II) occupied a tenement immediately to the east, and its documentary history starts in 1343; it will be reported in the comparable section on developments of the next period.

Downstream and east of Billingsgate, development of the waterfront south of Thames Street seems to have been minimal before the middle of the 13th century, as attested on the site of the 14th-century Custom House.[91] At the southeast corner of the city, the Tower of London was expanded on behalf of Richard I by his chancellor, William Longchamp, Bishop of Ely, in 1190–3. This included the digging of a deep ditch around the Tower in 1190.[92] But this expansion of the castle does not seem to have stimulated the development of the nearby east end of Thames Street at the time. The main landward approach to the Tower was probably from Eastcheap.

Across the river, the south bank continued to be largely residential in tone, but with some small industrial features. Around the bridge foot, there is evidence of probably several incursions of floods and consequent erosion during the 13th century, possibly from its beginning.[93] The town house of the bishop of Winchester had a new timber waterfront shortly after 1209, which coincides in date with a documented flood event of 1208. By 1225 the main range of the palatial house had been rebuilt to be about 88m long, a large and very long stone building directly opposite sites A and B.[94] Significantly, it was higher; the previous smaller house had been flooded and damaged in 1208. Downstream of the bridge were several other large town houses of rural monasteries by 1200, though none were as immense as the bishop's with its extensive grounds.[95] In the early 14th century one secular residence on the south bank, of the Dunley family, was a complex with a stone-walled moat, fed by the river; adjacent to the east was the short-lived pleasaunce or garden of Edward II, the Rosary. Among these properties on the south bank were tidal mills, but no other indications of industry and no landing stages for general merchandise.[96]

The development of long-distance, seaborne trade has been regarded as 'one of the most demonstrable sources of British urban growth between 1050 and 1300'; and 'a number of places that had no urban character in 1086 – Newcastle upon Tyne, Boston, Hull, and King's Lynn – were amongst the wealthiest towns in Britain by 1300.'[97] The waterfront areas of several British towns in the 13th and early 14th century have been excavated, such as at Bristol, Hull, King's Lynn and Newcastle;[98] at others, such as Winchelsea, the area is identified but is open land, awaiting investigation.[99] At more successful ports, buildings have been recorded on the reclaimed land, for instance at King's Lynn. By the early 14th century, two larger houses are known: Hampton Court and Clifton House. The earliest remains are ranges along what would have been courtyards, and Clifton House still has a two-aisle undercroft at right-angles to the street, though entered from the side and back, and two rooms paved with 14th-century tiles.[100] The Lynn examples furnish the best parallels for the larger houses which appeared in the reclamation zone south of Thames Street, on documentary evidence, by 1300; and vividly in the archaeological record, at the first mansion called Coldharbour, by the 1330s.

[87] Milne and Milne 1982; Ayre and Wroe-Brown 2002.
[88] Text by R Bluer in Hunting 1988, 29–31.
[89] Harding 1980, 11–29; Schofield 2003, 216–17; C Phillpotts in Fowler and Mackinder 2014, 10.
[90] Fowler and Mackinder 2014, 18–23.
[91] Tatton-Brown 1975.
[92] Impey 2008, 5.
[93] Watson *et al.* 2001, 152–5, proposing a wider range of dates in the century than those in Sheldon 1974.
[94] Seeley *et al.* 2006, 36–52.
[95] Schofield 2003, 231–2.
[96] Blatherwick and Bluer 2009, 60–80.
[97] Britnell 2004, 118–19.
[98] Ponsford 1985; Evans 2004; Clarke and Carter 1977, 106–8; O'Brien *et al.* 1988.
[99] Martin and Martin 2004, 36–7.
[100] Parker 1971, plans in figs 30 and 42.

Waterfront areas of the period have been excavated elsewhere in Europe, for instance at Bordeaux, then supplying London with wine.[101] At some cities, large-scale reclamation into a river or a lake took place, for instance the 13th-century expansion of Constanz (Germany) into Lake Constance;[102] so the London experience was far from unique. Several towns in the Baltic had significant revisions to their street patterns, sometimes involving the wharf, as a result of being absorbed into the network of German expansion in the 13th century.[103]

Stone or timber structures forming waterfronts of the period 1200–1350 on rivers or coasts have been recorded at several British and Continental towns, including Bristol,[104] Hartlepool,[105] Hull,[106] King's Lynn,[107] Kingston-upon-Thames,[108] Newcastle upon Tyne,[109] Dublin,[110] Dordrecht (Holland),[111] Oslo[112] and Bergen (Norway).[113] General reclamation into rivers and large pools has also been studied in several British towns.[114] In several ports the timber walls with their bracing arrangements are strikingly similar to the London examples, though there are some local variations also. Stone quayside walls have been found in several places, even small ports. In Newcastle, stone walls may have been the general rule. Striking though these examples of reclamation in medieval British port towns including London may be, there is no evidence yet of a further stage of thinking about a city's waterfront which is exemplified by comprehensive harbour works begun in 1260 at Genoa. Here a new palazzo of the commune, today the Palazzo San Giorgio, was built on the waterfront, along with stone quay walls and a mole. Genoa's infrastructure was improved around what became its central piazza, the arcaded walks of the harbour.[115]

In London, the waterfront was not always the mercantile centre of town. From documentary evidence, it can be suggested that by the later 13th century much of the trading had moved away from the area south of Thames Street further into the city's hinterland.[116] Storage and exchange of goods shifted from the waterfront to more central landward sites such as around Cheapside, which from the 1270s received several royal and civic monuments and conduits to underline its status. This migration of trading functions may have had an effect on the character of buildings, particularly facilities for storage, in the zone south of Thames Street. Status for a street or locality when dignified by a water conduit would come back to Billingsgate in the 1420s, when the executors of Richard Whittington (d 1423) erected, according to his wishes, a fresh water fountain or boss there. This lay in the Romeland, the open space south of Thames Street bordering the dock.

Buildings and their functions on the study sites; pottery and artefacts

By the time documentary evidence becomes common, several of the tenements west and east of London Bridge were owned by or were the sources of quitrents from some notable people: sheriffs' widows on Tenement 1 in 1290 and 1340–1, alderman John de Armenters on Tenement 2 in 1328, alderman Stephen de Abyndon in 1314 and the rich draper John de Pulteney in 1333 on Tenement 6, mason (and perhaps King's Mason) Walter le Marberer on Tenement 10 in 1290 and Sir John de Bourne on Tenement 11 in 1311–12.[117] But there is no evidence that any of the owners lived on the tenements, and in most if not all cases the Thames Street properties would have been only part of urban estates scattered throughout the City. The period also sees bequests of properties to religious institutions, but only of tenements above the bridge: Tenement 5 to St Paul's Cathedral in 1344, Tenement 6 to the college of Corpus Christi attached to St Laurence Pountney in 1348, and Tenement 8 to St Michael Crooked Lane between 1315 and 1388. Below the bridge fishmongers were in much evidence, and Fish Wharf flourished at the southeast corner of St Magnus' church. But there is little else in the documentary or archaeological record for this period to illustrate the activities going on within the tenements, above or below the bridge.

The main groups of pottery and studied artefacts from this period are summarised in Table 30. They form a large corpus of well-dated material from the medieval city in the decades 1200–1350.

The pottery from sites A and B for this period was a considerable amount, with great variety of wares and forms. At site A in this period, 60% of the recorded sherds are from vessels in London-type wares (section 6.6); mostly from jugs in the early north French and Rouen styles. Other regional wares include Surrey whitewares, which become numerous in the later part of the period at site A. One sherd of Saintonge

[101] Lavaud 2009, II, 85–6.
[102] Flüeler and Flüeler 1992, 60–1.
[103] For summaries of many excavations see Fehring 1994; Bill and Clausen 1999; a recent survey is Ayers 2016, 152–69.
[104] Ponsford 1985, Jones 1991.
[105] Daniels 1991; 2010, 144–55
[106] Ayers 1979; 2016, 153.
[107] Clarke and Carter 1977, 35–43.
[108] Potter 1991.
[109] Graves and Heslop 2013, 171–7, 235.
[110] Wallace 1981.
[111] Sarfatij 1981.
[112] Molaug 1999.
[113] Herteig 1981, Myrvoll 1991.
[114] Reading: Hawkes and Fasham 1997; York: Hall and Hunter-Mann 2002.
[115] Epstein 1996, 148–9. What appears to be one of the stone jetties into the medieval harbour is preserved at the entrance to the Metro station at San Giorgio.
[116] Dyson 1985, 22.
[117] For Abyndon and Arment[i]ers, see Thrupp 1948, 321–2.

Group	Proposed date	Pottery, coins and dendro	Non-ceramic artefacts
A35	1180–1270	Table 111	
A49	1180–1270	Table 112	Artefact Table 8
A58	1180–1270	Table 112	
A70	1270–1300	Table 113	
A54	1270–1350	Table 113	
A38	1240–70 with intrusions	Table 114	Artefact Table 9
A52	1230–70	Table 114	Artefact Table 10
A61	early 14th c	Table 115	Artefact Table 11
A52 [Shepherd]	1170–1220	Table 116	
A74	1340–60	Table 117	Artefact Table 12
Period A3 on Tenement 3	1180–1270	Table 118	
Period A4 on Tenement 3	1270–1350	Table 119	
Period A5 on Tenement 4	1270–1350 with intrusions	Table 120	
A45 [Egan]	1170–1200	Table 121	Artefact Table 13
A55 [Egan]	1160–1240	Table 122	Artefact Table 14
A67	1270–1350	Table 123	Artefact Table 15
B period 5.1	1180–1240, with intrusions	Table 124	Artefact Table 16 (B31b)
B period 5.2	c 1240, with intrusions	Table 125	
B period 6.1, Gp 42	1180–1270	Table 126	
B period 6.2	1240–70	Table 127	
B period 6.3	1240–70	Table 128	
B period 7.1	1270–1300	Table 129	Artefact Table 17 (B54)
B period 7.2	1300–50, with intrusions	Table 130	Artefact Table 18 (B52a, 52b)
C Tenement 9 in period M2	1270–1350	Table 131	
C Tenements 10–11 and C:Buildings 6–7 in period M2	1270–1350	Table 132	
C Tenement 11 dumping	1270–1350	Table 133	
C Tenement 11, C:Building 8	1240–1350	Table 134	
C Tenement 12, C:Building 9	1240–1350	Table 135	
C Tenement 13 dumping Gps 3.6, 4.1	1240–1350	Table 136	
C Tenement 14 dumping Gp 4.1	1270–1350	Table 137	
D period 8.1	1235+	no dating tables for site D in period M2 have yet been constructed	Artefact Table 19
D period 8.2, 9.2 and 9.3	1235–1274 or 1285		Artefact Table 20
D period 10.1	mid to late 13th c		Artefact Table 21
D period 10.4 and 10.15	mid to late 13th c		Artefact Table 22
D period 11.1	late 13th – early 14th c, perhaps between 1274 and 1285		Artefact Table 23
D period 11.3–4 and 11.7	late 13th – early 14th c, perhaps between 1274 and 1285		Artefact Table 24
D period 12.1	rebuilding of Botolph Wharf, 1325–32		Artefact Table 25
D period 12.3 and 12.5	rebuilding of Botolph Wharf, 1325–32		Artefact Table 26

Table 30 Dating evidence and artefacts from period M2

polychrome ware was present, dating to after 1280. A large amount of pottery of this period was recovered at site B. Here the arrival of Kingston-type wares in the capital can be closely observed. Imports include jugs from North France, Rhenish wares, late Rouen ware, Saintonge ware, 11 sherds from a Spanish amphora, and sherds from a costrel and a jar in Mediterranean maiolica.

The great number of artefacts from period M2 is represented by the lists in Artefact Tables 8 to 28 and a number of figures from Figure 52 to Figure 108. They are drawn from all seven volumes of the *Medieval finds from excavations in London* catalogues (1987–98), dealing with knives and scabbards, shoes and pattens, dress accessories, textiles and clothing, horse equipment and furniture, household objects and pilgrim souvenirs and secular badges. Their significance, and possibilities for future study, are outlined in the essay below, section 6.4.

In sum, in the period 1200–1350 by comparison with other medieval ports around the North Sea and on its rivers the nature of reclamation and occupation of the reclaimed land in London was no longer remarkable,

except in its extent along the mile-long river bank, and many features of the secular properties forming the zone were shared with similar areas of reclamation in large and small ports around the North and Irish Seas. But perhaps some features of the London waterfront, such as Pulteney's house with its own wharf to one side, were striking. Identifiable and distinct stretches of the foreshore, such as at Vintry, were now less used for trading; cellars are mentioned, but are usually parts of private houses. The trends which can be observed at this time include increasing ownership of properties south of Thames Street by institutions, especially religious; and the building of some large houses, two of which were to become livery company halls, on the reclaimed land. The overall impression for the period 1200–1350 is that the waterfront area in London, the new land south of Thames Street, was constantly changing its shape, appearance and probably its character during a vibrant time for the lifestyle and material culture of the capital.

4. Period M3 1350–1500

4.1 The port of London 1350–1500

Like the rest of Europe, London was badly affected by the Black Death epidemic of 1348–9. What caused it is still debated.[1] A recent archaeological analysis of the Black Death in London has suggested that there was a mortality rate of 55 or even 60 per cent of the population.[2] More plagues followed in London in 1361, 1368–9 and 1375. Nationally, the cumulative effects of the plagues were such that during the 15th century, according to one estimate, 'England's population had been reduced to a level little, if at all, above what it had been when Domesday Book was compiled, and perhaps only a third of what it had been at its peak in *c.* 1300.'[3] It is also suggested that empty homes proved attractive targets to floods of immigrants in the following couple of years, so much so that public order broke down. There was rapid inflation (almost 100% in six years) and demands for higher wages from craftsmen, with a concomitant surge of expenditure on luxuries.[4] The crown removed commercial privileges from the City, opening its markets more to competition and outsiders; this was 'a calamity as great as the plague itself.'[5] Over Europe, the Black Death 'defines the beginning of the l;ate middle ages.'[6] One question for the present project is whether the sites reflected any of these changes after 1350 (discussed in section 6.2 below).

For London's international trade, and traces of the native merchants and foreigners who were concerned with it, the period 1350–1500 provides much richer documentary evidence than before. By, or possibly in, the middle of the 14th century, English trade increased with towns around the Baltic, particularly Gdańsk, where some English merchants settled.[7] During the later 14th and 15th centuries, perhaps from as early as the 1330s, England's and London's main trading routes however led to the cities of Flanders, especially Bruges, described by one historian as 'the leading port city of northern Europe in the fourteenth century'[8] and Ghent; the second half of the 14th century, it has been said, was a period of restructuring and redirection for English trade.[9] At the end of the 15th century, due in part to silting of its access waterways to the sea, Bruges declined and was eclipsed by Antwerp which dominated the English trade by 1500 and thereafter.[10]

In 1478–82, London's share of overseas trade both inward and outward, as measured by taxes and customs on both imports and exports, was 61% of the revenue generated by England's 15 largest ports; its nearest rival, Southampton, could only claim 7.7%.[11] Thus by the end of the 15th century, London's port was generating more customs income than the other 14 English ports combined. The main export was cloth, but also wool, tin and lead, agricultural products, skins and pewter vessels. Imports into London included many kinds of consumer items such as knives, books, hats, napkins and mirrors, along with raw materials such as iron, tar, resin, wax, and the madder and woad which dyers would need. Much of the international trade was in foreign hands, a feature also of the century at Sandwich, a smaller port on the east coast of Kent and near London. Many ships from the Low Countries and Italy arrived there, and there was a significant number of resident alien merchants in the town. For Sandwich, the 1440s was a highspot in international trade.[12]

According to surviving subsidy rolls (ie taxes on aliens), there was a small but significant number of foreigners living and working in the City of London. The numbers in the three riverside wards which figure in this study (from west to east, Dowgate, Bridge, and Billingsgate) for 1440 and 1483 can be compared. In 1440, 191 aliens were recorded in Dowgate, only seven in Bridge, and 66 in Billingsgate wards (total 264). The comparable numbers in 1483 were 84, 35 and 67 (total 186).[13] In both surveys the vast majority are called 'German', though that could mean anybody from the Low Countries and east to the Rhine; it even included one educated Italian. In the 1483 roll, many were servants to native Londoners. Although we cannot measure accurately what proportion of London's import and export trade was in the hands of the German merchants, it must have been significant. The Hanse league benefited from the restoration of their privileges by Edward IV, whom they had assisted, in 1471.[14] If the Hanse trade was handled directly from the Hanse Steelyard (probably rebuilt around 1475,[15] in the form it was to be seen in

[1] Sloane 2011.
[2] Grainger *et al.* 2008. The findings from excavations of London cemeteries in the 1970s–90s are discussed in a national survey of the Black Death and its consequences in Dyer 2002, 271–97. For London, this should now be read with Sloane 2011.
[3] Miller and Hatcher 1995, 429.
[4] In Florence, wages of unskilled labourers shot up and doubled within a few months of the end of the plague: Goldthwaite 2009, 363–4.
[5] Nightingale 1995, 200–1.
[6] Wickham 2016, 210–16.
[7] Zins 1972, 10–13; Davis 1973, 26–36; Nicholas 1992, 390–1; Barron and Saul 1995.
[8] Nicholas 1987, 182.
[9] Harding 1995, 154.
[10] Veeckman 1999.
[11] Kowaleski 2000, 477, table 19.1.
[12] Clarke *et al.* 2010, 123–5.
[13] Bolton 1998, 12.
[14] Scammell 1981, 59.
[15] Some acquisition of properties and building works are mentioned in 1475: Stow ii, 320 (Kingsford's notes).

later panoramas from the south), which had a crane visible in the Wyngaerde panorama of *c.* 1540 (this date is preferred to the traditional '*c.* 1544'),[16] then the wide variety of imported goods must have been transferred to smaller craft in the river below the bridge, since the drawbridge had ceased to function from shortly before in 1476, as described below.

The ships which came to London, many of them with cargoes from the Low Countries, were still small: ships recorded in 1346 were of only 10, 20 or 30 tons (tuns). These were hardly larger than river craft, and may have been equally at home in rivers. Several fragments of boats of the period have been recorded, from sites on both sides of the river. Most were reused as parts of wooden revetments, but they do include an almost complete river barge at Blackfriars; originally built around 1400, it sank between 1480 and 1500. Nearby was part of another vessel, probably of the 15th century, with a cargo of ragstone. It is possible that both sank together after a collision.[17] Ships even probing the ocean were commonly small: Portuguese explorers of the African coast after 1415 were usually in ships of 20 to 40 tons.[18] It used to be thought by historians that the development of ships in the 15th century was one of the prime factors in the exploration of the Atlantic, but this is now seen to be too simple an analysis: a wide variety of vessels were employed in these explorations.[19] By the end of this period, however, much larger ships were certainly to be seen. Lists of their taxable cargoes suggest that many were considerably larger than the small vessels of the 14th century. During the 15th century the Hanse developed the cog into a larger vessel, the hulk, a bulk carrier of 500 tons or more.[20] Another development, this time by the Genoese, was a bulk carrier called a carrack; these came to Southampton but were apparently too large to get up to London with its long and difficult approaches.[21] Finally, Venetian galleys came regularly to London from the 1390s. The cargo of one which arrived in October 1441 is known in detail: a prodigious array of spices, dried fruit, exotic woods and wine. The galley and its crew of 305 stayed six months.[22]

A new institutional feature on the London waterfront from near the beginning of this period was a Custom House, perhaps the first, built by John Churchman in the 1380s. This lay on the site of the present Custom House, immediately west of the approach to the Tower of London which itself had been rebuilt and extended in the 1270s, thus opening up and vitalising the east end of Thames Street. The site of the medieval Custom House and its wharves was excavated in 1973–4.[23] Thereafter, the Custom House would have been a focus for the business of international trade, and larger ships would have anchored in the river nearby.

Queenhithe and Billingsgate continued as centres of activity, though by 1368 regulations suggest that passing through the bridge with a cargo, for Queenhithe, was eccentric and unusual. In 1357 the City collected a special levy on merchants to rebuild Queenhithe and clean the entrance (dredge the foreshore). In 1419 the customs of Queenhithe and Billingsgate were recorded in *Liber Albus*, a compilation of City charters and customs. Both imports and exports are mentioned, and some materials, for instance iron, as both imports and exports. The commodities which were taxed when going through Billingsgate included corn, coal, woad, butter, tallow, lard, ale, leather, pitch, wax, fresh and salt fish, lead, iron, onions, garlic, boards, flax, feathers, and pottery, 'that is to say, tureens, pipkins, patens, earthen pots'. A smaller range of commodities is mentioned for Queenhithe, that is woad, fresh and salt fish, wine, wool and skins. These regulations also transfer the role of landing place for goods and people from Greenwich from Botolph Wharf to Billingsgate.[24] In 1463–4 there was a revision to regulations of landing cargoes which noted that Queenhithe was suffering from 'inconvenienticis that hath fallen by the Brigge';[25] perhaps large ships were already staying downstream of the bridge and favouring Billingsgate or just unloading in the river there.

Both Billingsgate and Queenhithe, by this time, were also local market places, and this required specialised facilities and buildings. At Billingsgate, the space at the north end of the dock was known as Romeland by 1421; here, shortly after, the executors of Richard Whittington (d 1423) set up a boss or fresh water fountain, which may be shown in sketch form in a drawing of Billingsgate of 1598.[26] In the absence of municipal water pipes, this must have been fed by a nearby spring, presumably in the slope on the north side of the street; a writer in 1921 asserted that the spring was found when the Billingsgate Roman bath-house was uncovered, a few metres to the northeast, in 1848.[27] In 1437 the mayor and aldermen ordered that foreign bakers bringing foreign bread for sale should stand at only five places in the City and not elsewhere: Billingsgate, Queenhithe, Fleet Bridge, Cheapside between the cross and the conduit,

[16] Colvin and Foister 1996; the 1540 date argued in Schofield and Lea 2005, 164–5.
[17] Harding 1995, 160–1; Marsden 1996, 55–106.
[18] Davis 1973, 2–3.
[19] Hocker 1999, 26.
[20] Scammell 1981, 80–1.
[21] Scammell 1981, 194–6. At Southampton in the 1440s, carracks moored at piles in Southampton Water: Bradley 2012, xl, note 151.
[22] Bradley 2012, no. 48.
[23] Tatton-Brown 1974; 1975; Barron 2004, 52–3.
[24] Dyson 1985, 20; *Cal LB G*, 97; Riley 1859, 237–8; Masters 1984, no. 6e.
[25] *Cal LB L*, 45.
[26] Archer *et al.* 1988, figure on p53.
[27] Rogers 1921, 14. The bath-house had a wooden drain on its west side in the Roman period (Merrifield 1965, 295, gazetteer 353).



Figure 112 Detail of a miniature from a manuscript of the poems of Charles, Duke of Orleans, early 1480s, showing London Bridge and what is suggested to be the arcaded building on the west side of Billingsgate (© *British Library, Royal MS, 16 F II folio 73r)*

and Cornhill between the conduit and Leadenhall.[28] In 1442, and no doubt before, foreign garlic and salt from the Bay of Biscay could be bought from alien merchants at Billingsgate.[29] The open spaces at Billingsgate and Queenhithe thus took on some characteristics of market squares. This influenced their architecture. An arcaded building was constructed along the upstream side of Billingsgate before the early 1480s, when it appears in an illustration in a manuscript of the poems of Charles, Duke of Orleans (1394–1465) (Figure 112). The manuscript may have originated in Bruges. The City of London is shown behind the Tower, and is represented by what were regarded presumably as its two most well-known or remarkable features: London Bridge and this arcaded building. The construction may have been shortly after 1449, when the City bought lands from the executors of Sir Thomas Haseley to extend Billingsgate.[30] It is shown by Wyngaerde around 1540 (Figure 169 below); it will be briefly described in the text for the next period. The east side of the dock was private property, Smart's Quay; so that is probably why the arcaded range was only along the opposite, west side. But it also faced ships coming up the Thames, and merchants walking under its arches could look down river.

A similar arcaded building can be seen on the upstream side of Queenhithe in 16th- and early 17th-century drawings and panoramas, though its history is unknown. Since the arcaded building at Billingsgate might be from the period of extension of the sides of the inlet, i.e. shortly after 1449, it may be that the similar Queenhithe arcaded building, also on the upstream side of the inlet, dates from the enlargement of Queenhithe by the Fishmongers' Company in 1471.[31]

The bridge was embellished with the chapel of St Thomas which is shown in later panoramas, built in 1384–96 possibly by Henry Yevele, the court architect who lived in Thames Street opposite St Magnus church, less than 500 yards away. The new chapel would have replaced an earlier chapel which probably dated from the original bridge of 1176–1209; the crypt of the later chapel was uncovered when the bridge was demolished in 1832 (Figure 113) and two wooden religious statues possibly from the chapel have been found in the river silts. They would have been gilded and painted, and are thought to be late 15th- or early 16th-century date and possibly Flemish in origin.[32] The north gateway which contained the mechanism for the drawbridge was repaired in 1426–7 under John Reynewell, mayor, whose other activities will figure in the account of site D in this period (the gate is shown by Wyngaerde in his view of about 1540).[33] The bridge generally was however criticised as being in a ruinous condition in

[28] Archer *et al.* 1988, 84; *Cal LB K*, 45.
[29] Bradley 2012, no. 3.
[30] Schofield 1981 drew attention to the arcaded buildings at Queenhithe, Billingsgate and Custom House as shown by Wyngaerde. The arcaded range is also shown in a drawing of 1598 (Archer *et al.* 1988, 53), also on the upstream side of Billingsgate dock. Here also is the reference to Haseley, from research by Caroline Barron (2004, 84). Haseley was a wealthy royal official with property in Billingsgate ward: biography in http://www.historyofparliamentonline.org/volume/1386–1421/member/haseley-thomas–1449 [accessed 29 November 2016].
[31] *Cal Plea & Mem R 1458–82*, 70–2.
[32] Cherry 2001.
[33] The Wyngaerde panorama has been published several times by the London Topographical Society, most recently by Colvin and Foister 1996 with commentary.



Figure 113 The crypt of the Chapel of St Thomas on London Bridge, exposed during demolition of the bridge in 1832 (E W Cooke) (© British Museum: BM, 1880,1113.5868). This view looks north, with site C (New Fresh Wharf) in the background. The road surfaces shown lie above the truncated vaulting of the medieval crypt, and go with the widened wall by Dance in 1759. The medieval bridge chapel would have extended to the east (right), but was sliced through by Dance's work. For the chapel, see also Figure 112

1435, and in January 1437 the Stonegate on the second pier from the south collapsed, taking two of the bridge arches with it; a corbel decorated with a carving of a human head found later in the river nearby has been attributed to the gate. In 1461–2 the bridge accounts contain payments for work on 'the foundation of the new stone work at the south end of the bridge' and in the same year the drawbridge in the north gateway was raised 112 times for ships to pass through. The drawbridge was raised against Cade's rebels in 1471, and tolls on ships passing through, requiring the raising of the drawbridge, are last recorded in 1475–6. It could not be raised in 1476–7, and the previous year was probably the date after which it never worked again.[34]

4.2 Swan Lane (site A) in period M3, 1350 to 1500

In period M3, 1350 to 1500, there were the following developments of the waterfront: in period A6 (1350–1400) A:Waterfront 14; in period A7 (1400–1500) A:Waterfronts 15 to 17. They are described in these groupings, with their dumps and foreshores.[35] A small number of fragments of buildings were observed.

[34] Harding and Wright 1995, xxi–xxii, nos 310, 330; Watson *et al.* 2001, 105–6.

[35] In the original archive report for Swan Lane, the land use diagram gives the date range of period A7 as 1400 to 1450 only; with period A8 starting at 1500, i.e. a gap of 50 years. Since the only recorded stratigraphy (apart from waterfronts) for period A7 was interpreted as Open Area 12, which continued into period A8, the adjustment is made here of extending period A7 to 1500.

Waterfronts and foreshores, period A6

A:Waterfront 14

A:Waterfront 14 was a substantial development, and dates to the mid to late 14th century (Figure 114). The only dendrochronological date for this structure came from a reused early 13th-century timber. As for previous waterfronts on Swan Lane, the name A:Waterfront 14 has been used for the revetment which formed the south boundary of all Tenements 1–4, though it may well have been built in stages at slightly different times. For this period, the dumps and foreshores are reported in a separate section after each section of waterfront; these deposits, particularly the later groups, were shared over several tenements.

(Tenement 1 advanced with a north–south revetment (A42.1 and 42.2) on the east side, of post and plank construction. The south end was defined by an east–west revetment (A42.3, 42.4 and 42.5), again of post and plank construction but with no recorded bracing. The planks of the north–south element were on the west side of the posts, suggesting that this property advanced before the central area.

Tenement 2 was defined by several timber elements (A42.11–17), forming an east–west revetment of post and plank construction, with a baseplate, raking braces at the front and a subsidiary baseplate with horizontal ties into the main baseplate. It was supported on the foreshore by softwood piles. No tie back braces or other details within the reclamation were recorded. The timbers were pegged and tenoned, and some were noted to retain their bark. These elements apparently formed a revetment observed over a distance of 17m east–west, and thus formed the boundary of Tenement 3 also. A small amount of pottery was recovered from A42.17 (A[1131], 54g); this is mixed in date, with two Roman sherds, one of Mill Green ware, and four of 16th- or 17th-century date that indicates some disturbance of this area.

At the southwest corner of the tenement, there was fragmentary evidence for a timber drain (A42.33; Drain 1). A better example (A42.32) drained the reclamation deposit on Tenement 3 (Drain 2). Both drains ran north–south and were apparently trench built, cut through reclamation dumps and had planking supported by vertical posts on the inside. Drain 2 had a planked base supported by piles. At the top of the drain was a planked roof, supported by east–west timbers. The drain was about a metre deep, and sloped gently down towards the river, which may have scoured it during rising and falling tides. It was filled with river sediments (A42.44). A feeder drain was later added which extended to the northeast from the large drain (A53.31) towards the foundations forming A:Building 23.

Tenement 4 was defined along its west edge by a north–south revetment (A42.25) and along its front by an east–west revetment (A46.26). The north–south element extended the earlier north south line (A42.13) and they may have been of the same construction. It was of post and plank construction above a baseplate, but no bracing was recorded. The posts were tenoned into the baseplate. Three stakes or piles at the junction with the east–west element indicate that the baseplate was supported on piles. The east–west revetment was of post and plank, with front raking braces. The join between the parts of revetment at the southwest corner

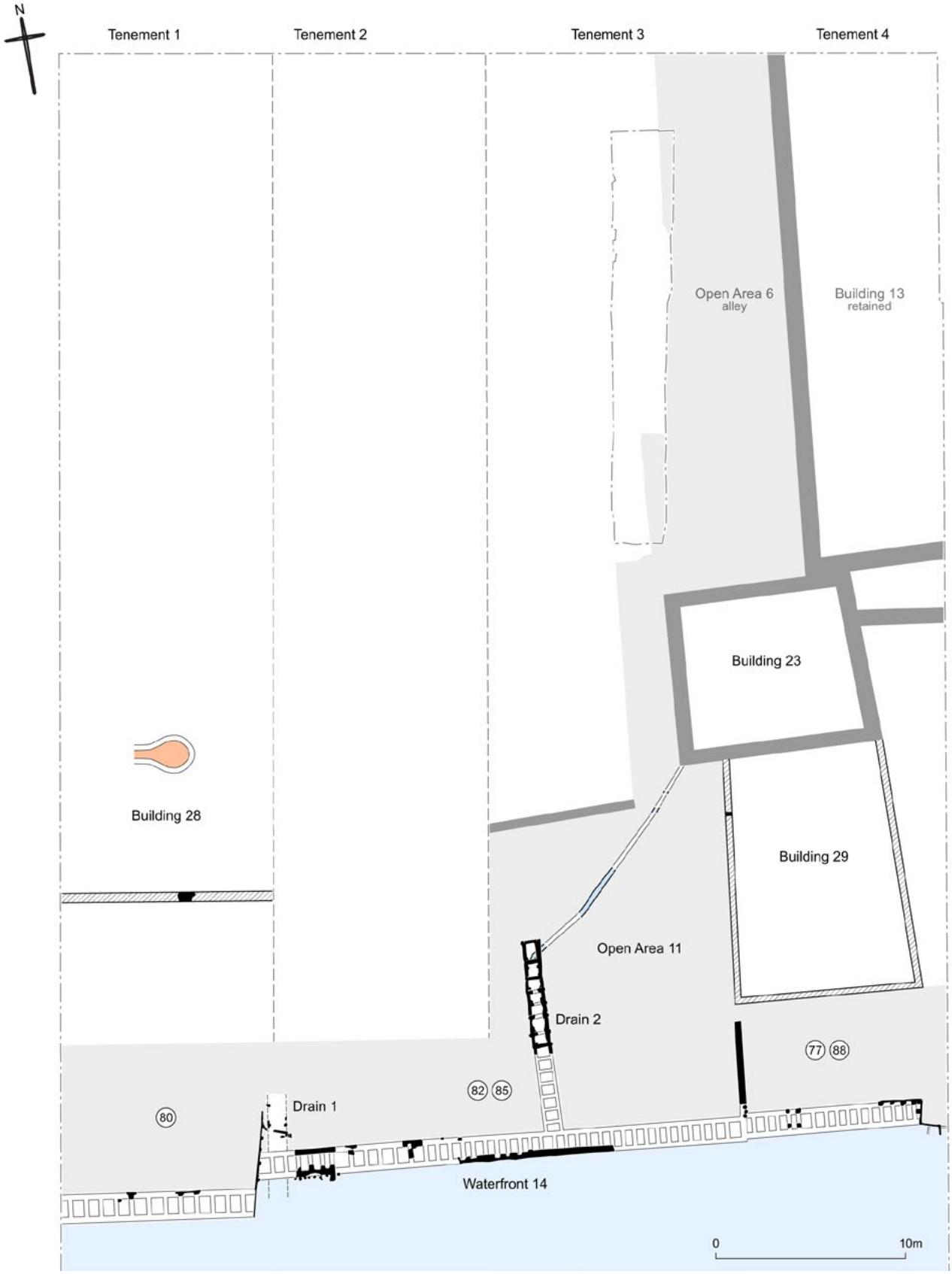


Figure 114 Site A: plan of site in period A6 (1350–1400)

Group	position	date
A77	reclamation dump in front of Tenement 4	1380–1400
A80	reclamation dump in front of Tenement 1	1370–1400
A82	foreshore in front of Tenements 2 and 3	no information
A85	reclamation dump in front of Tenements 2 and 3, over Group A82	after 1251 on coins; 1350–1400 on pottery
A88	reclamation dump in front of Tenement 4	1240–1400

Table 31 Site A: dumps and foreshores in period A6

of Tenement 4 implies that the revetment on Tenement 4, though included here in the designation A:Waterfront 14, was a different unit of construction. At its east end was another north–south element (A42.29), jutting out into the river. This was of post and plank construction, with no other details recorded. The south edge of this property was defined by an east–west revetment (A42.30) of post and plank, with front raking braces.

The meagre dating evidence for A:Waterfront 14 is given in Table 139. The dumps and foreshores attributed to period A6 are listed in Table 31.

Group A77 was a reclamation dump in front of Tenement 4 but later than Gp A67, possibly after an intervening (unrecorded) revetment; this group is not assigned a place with confidence (Table 140; its position shown on Egan's published plan of the groups redrawn here as Figure 117). The 18 sherds of pottery (473g) are rather different in character from those in the preceding groups, being dominated by CBW and also including Cheam ware. The presence of a bifid-rimmed CBW cooking pot dates the deposit to after 1380. Other finds of note include the base of a lobed cup and the base of a puzzle jug (A<P46>). Two artefacts from this group are listed in Artefact Table 27.

Group A80 was a reclamation dump in front of Tenement 1; it contained 16 sherds of pottery (681g; Table 141), including part of an Earlswood-type jug with sgraffito decoration (A<P47>). The latest finds are a late medieval Hertfordshire glazed ware bowl (1340+) and the base of a Siegburg stoneware drinking jug, probably of *Jacobakanne* form (A<P48>); the latter dates the group to after 1370 and possibly to the 15th century. Two objects from this group are listed in Artefact Table 28.

Group A82 was a foreshore in front of Tenements 2 and 3, but there is no further information about any finds from it. Group A85 was a reclamation dump in front of Tenements 2 and 3, over A82, dated to 1350–1400. The pottery amounts to 371 sherds (222 vessels, 7.062kg; a number of the imported sherds are missing). The composition of the group is mixed; it is likely that the latest sherds in the group were discarded between *c.* 1380–1400, but there are also fabrics and forms dating from the 12th to the late 14th centuries, with a number of interesting pieces. The most common type is London-type ware (154 sherds, 2.738kg), followed by Mill Green ware (86 sherds, 944g), which are almost equally represented in terms of vessel count (*c* 69 and 68 ENV respectively). The former mainly comprise baluster jugs, although including up to three dripping dishes (one with white slip under a green glaze). The latter (the Mill Green sherds) mainly derive from conical jugs. In third place, and second most common by weight, is Kingston-type ware (81 sherds, 53 ENV, 1.616kg). Again, most sherds derive from jugs, at least one of which has bossed decoration (three different stamps), and joins with sherds from A74 (A<P49>; A[2071]). Also present are sherds from cooking pots (A<P50>), a dripping dish (A<P51) and a frying pan (A<P52>). Coarse Surrey/Hampshire border ware and south Hertfordshire-type greyware are very much in the minority, with less than ten sherds each. Other regional wares comprise eight sherds of Earlswood-type ware, including part of a jug with incised decoration on the neck (A<P53>). A number of imports are also present (35+ sherds, 19 ENV, 1.240kg; see Table 142, some missing), but the only stoneware is EGS, with sherds from a jug and a beaker that must be residual (A<P54>, A<P55>). Wares from France and the Low Countries are more common, although most are probably residual. The former include the base of a jug with applied thumbed strips in a coarse north French whiteware (A<P56>) and the spout of a large pégau in an unusual oxidised variant of Saintonge ware (A<P57>). The Dutch wares, which amount to 13 sherds, include the most unusual finds: a possible lavabo and part of a large handled bowl with rectangular handle springing from the rim (A<P58>, A<P59>). Other forms comprise a lid-seated dish, possibly in Low Countries greyware (A<P60>), and a sherd with bossed decoration in the Low Countries highly decorated style (fabric LCHD). Imports from the Mediterranean area comprise Andalusian and Valencian lustreware (A<P61>; both missing) and part of a Magrebhi ware albarello (A<P62>).

Strata of Gp A85 included seven silver coins, nearly all of Henry III, with one 'Continental' coin of the second half of the 13th century. All the coins were however residual, since the pottery dates from the second half of the 14th century (Table 142). Apart from coins and tokens, 51 objects have been studied (Figure 115; Figure 116, <S75–S84>). They are a mixture of items from clothing, the home and the stable. Notable also are three pieces of dyed silk.[36] The objects from Gp A85, apart from coins and tokens, are listed in Artefact Table 29.

Group A88 was a reclamation dump in front of Tenement 4. Only one sherd, from a Kingston-type ware baluster jug (20g, dating to *c.* 1240–1400) was recovered from it, along with a single buckle.[37]

A:Waterfront 14, fragmentarily observed, comprised a front-braced revetment which crossed the site, though individual property boundaries resulted in minor kinks or adjustments. The reclamation dumps behind the new waterfront (Gps A80, A85 and A88) are dated to 1270–1350, 1350–1400 and 1240–1400 respectively; the overall date for the waterfront advancement in this period is the second half of the 14th century, perhaps as late as 1400.

[36] Crowfoot *et al.* 1992, nos 417–19, citing a stratigraphic date of the late 13th century, but here revised to 1350–1400.
[37] Acc no. <1259>, A[2128], Egan and Pritchard 1992, no. 570.

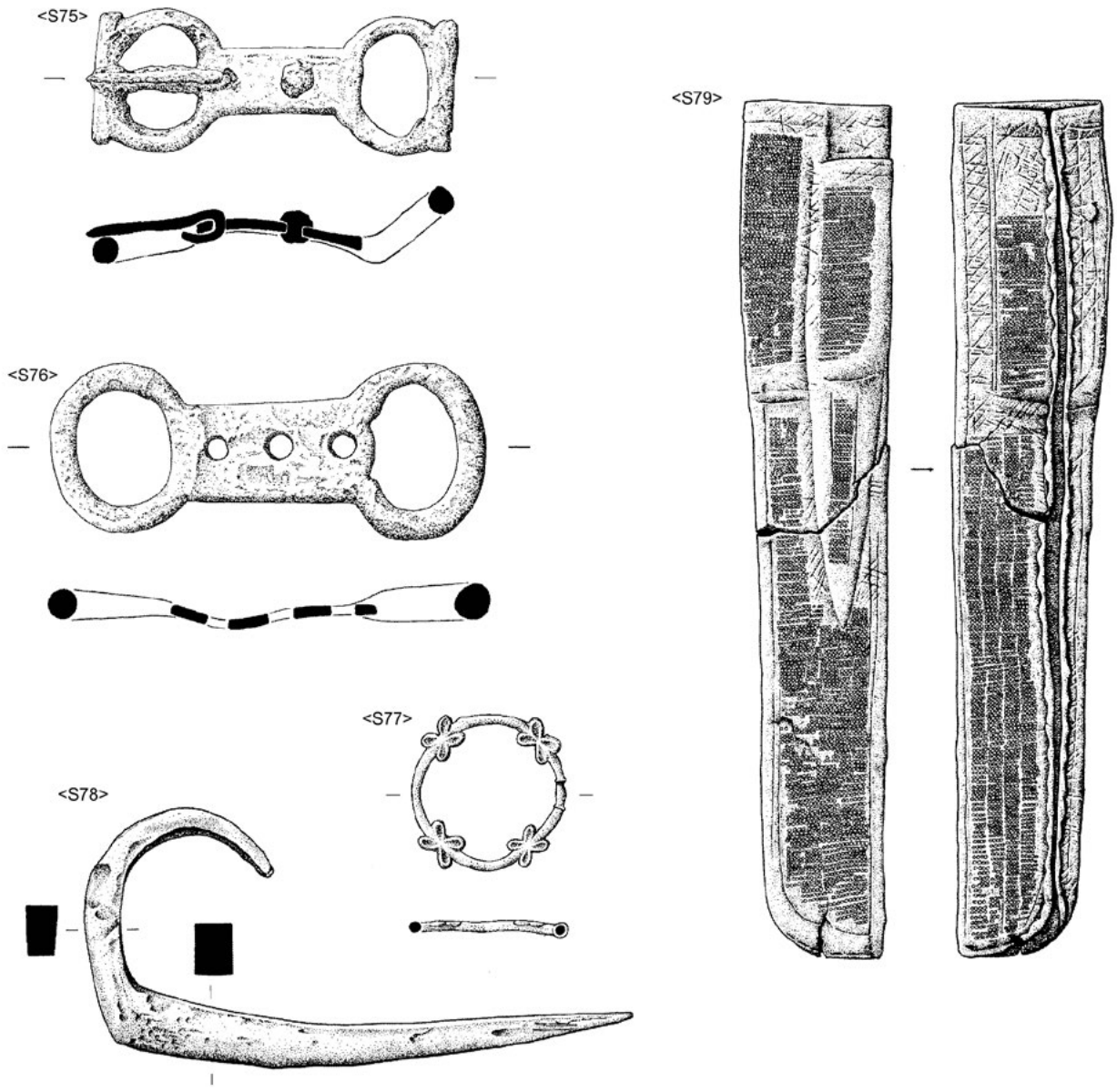


Figure 115 Site A: objects from Gp A85: buckles, brooch, iron hook (1:1); scabbard (1:2) (<S75–S79>)

A:Waterfronts 15 to 18, reclamation and foreshores of 1400–1500 (period A7)

At the south end of the site, fragments of probably four further waterfronts and a number of foreshore and reclamation deposits were observed, but in very difficult recording conditions. The dumps and their finds are however among the most important from the Swan Lane site. The waterfronts are not illustrated individually here, but a summary plan of the reclamation areas and the finds groups is given as Figure 117. This shows in outline the reclamation of the 15th century south of A:Waterfront 14 with tentative outlines of some of the reclamation units, and indicates the lines of Tenements 1 to 4.

The only surviving east–west element of A:Waterfront 15 lay on Tenement 4. The only dendrochronological date for this waterfront came from a later addition (see below). Virtually no reclamation dumps or foreshore material were recorded and it is practically impossible to date the waterfront. The lack of surviving elements is not surprising as most of the features had been truncated to baseplate level and the other east–west elements had been robbed or truncated.

Three elements comprised a development of Tenement 2, although the evidence is limited. A north–south structure (A43.8) consisted of a vertical post and plank. This is presumed to be revetting land to the west as the plank is on the west side of the post. Just to the east was what may have been a mooring post (A43.19). An isolated post to the south (A43.9) may be the only survivor of the associated east–west element. This would suggest that about 9m of land was reclaimed here in a single advance. The area behind the revetment was backfilled with redeposited foreshore material.

The earlier east limit of Tenement 3 was reflected in the line of a north–south revetment (A43.1 and 43.7). It was of

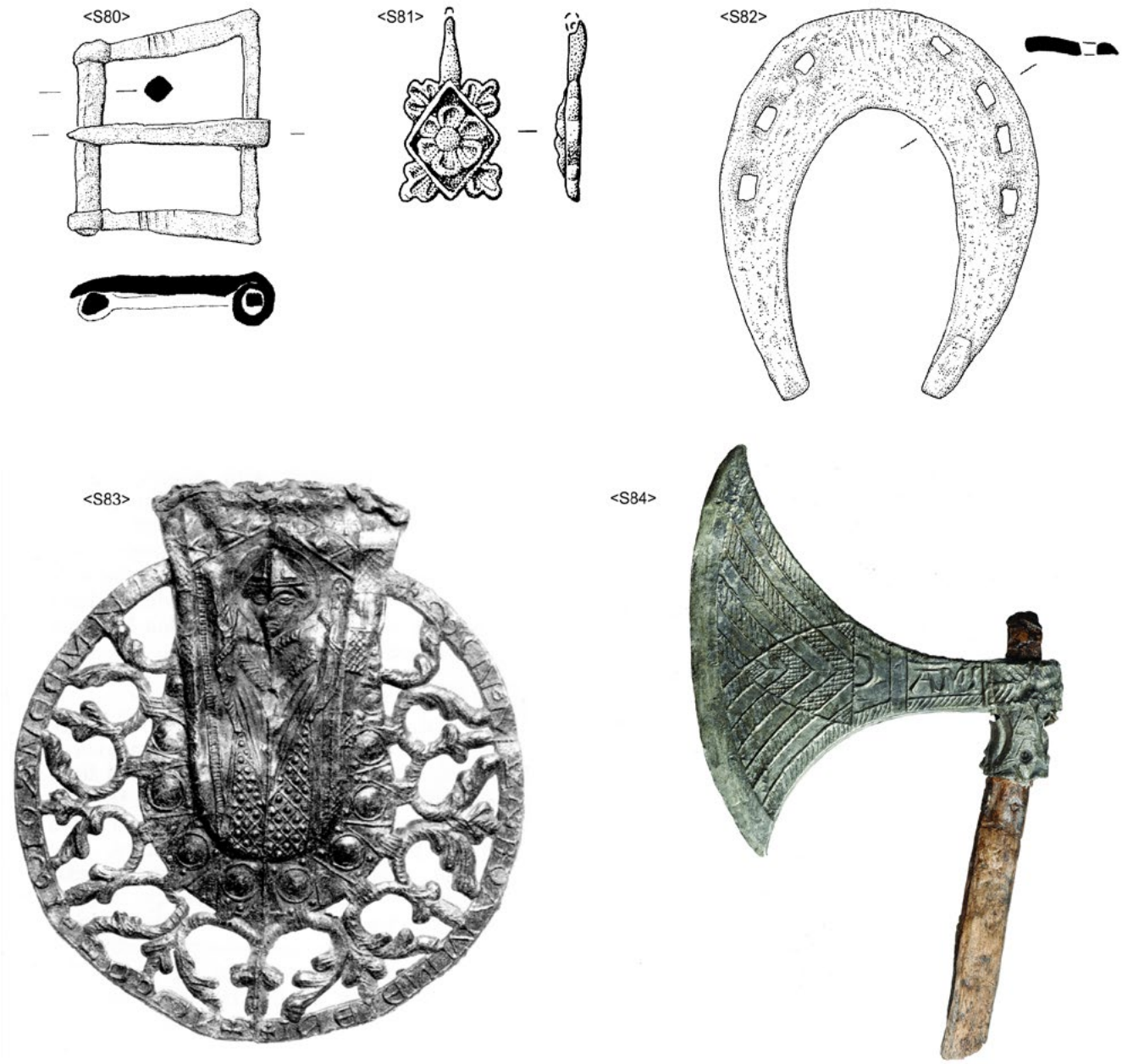


Figure 116 Site A: objects from Gp A85: horse buckle (1:2), horse pendant (1:1), horseshoe (1:2), pilgrim badge showing Archbishop Becket, and a secular badge of unknown affiliation; the inscription may read AMI[E] AVE[S], 'you have a friend' (1:1) (<S80–S84>)

stave construction. To the west, immediately to the south of A:Waterfront 14, were two lines of piles (A43.6 and 43.14), running north south and driven into the foreshore. The westmost line of piles supported two north south beams and all these elements may have formed a jetty, stair or landing stage. Two further piles, cut into the foreshore material accumulated around the stair (A43.13) may indicate a repair added later (the dendrochronological date is 1461+).

Tenement 4 had another revetment (A43.2 and 43.3). It was slightly different from the others and had a baseplate supported on piles with vertical staves and a top plate with planking above. Back braces were observed but not recorded. The accumulation of material against the face of this revetment was much deeper than elsewhere on the site, giving a steep foreshore slope of 1:3, and indicating rapid deposition. The apparent gap in development between the east and west suggests that part of A:Waterfront 14 may have remained in use, forming an access point onto the foreshore and perhaps related to the river stair already described.

One recorded element of A:Waterfront 16, which also dated to the 15th century and divided Tenements 1 and 2, was a north–south revetment baseplate (A43.24), supported and secured by piles. It apparently related to the base of another fragment in front of Tenement 4 which was a beam supported on piles driven into the foreshore with closely set mortises along its length. These suggest that it held staves rather than posts and

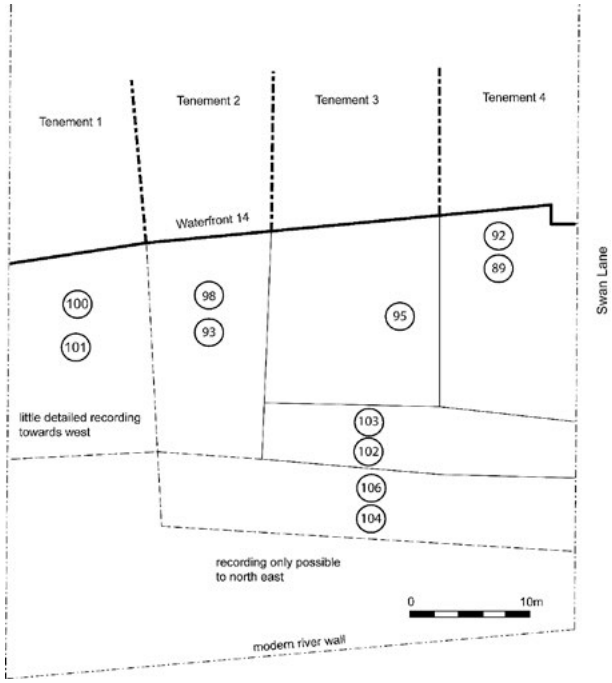


Figure 117 Site A: summary plan of waterfronts south of A:Waterfront 14, with foreshore and reclamation groups A89, A92–3, A95, A100–106 (from Egan and Pritchard 1991, fig 4). The lines below Waterfront 14 indicate recorded waterfront structures, the dashed lines approximate positions of structures

planks (and they were spaced about 200mm apart). A thick plank ran east–west along the upper face of the baseplate. A horizontal tie back brace was pegged into the baseplate. It is possible that the baseplate was reused from a stave-built revetment. Like A:Waterfront 15, this waterfront is open to many interpretations. About 3m to the south of the east–west element (A43.22) was a small baseplate (A47.27), lying on the foreshore and aligned east–west. It was supported on piles, but no superstructure survived. Its east end was interpreted as part of a jetty or river stair, at the end of Tenement 4. Another possible advance for Tenement 4 was recorded (A43.32) and has been termed A:Waterfront 17. It may date to the 15th century. An east–west beam may have been a baseplate above the foreshore but no other related features were found.

Dumps and foreshores

The dumps and foreshores attributed to period A7 are listed in Table 32.

Group A101 was a foreshore on the west of the site, in front of Tenement 1; no finds are recorded from it (the schematic plan of the whole site in the *Medieval finds* catalogues, e.g. Egan and Pritchard 1991, fig 4, explains 'little detailed recording on the west side').

Group A100 was a reclamation dump extending Tenement 1 (Table 143), and datable to the mid/later 15th century. The pottery assemblage is one of the larger medieval groups, amounting to 228 sherds (168 ENV, 4.785kg). Most of the five contexts contained a mix of earlier 14th- and later 14th-/15th-century material and it is likely that the bulk of the pottery was originally discarded between *c.* 1380 and 1450. Coarse Surrey-Hampshire border ware is the dominant fabric, comprising *c.* 40% of the total sherds (91 sherds, 2.038kg). These include up to 16 jugs/cisterns, ten jugs and four jars with bifid rims. The most unusual ceramic find is a small green-glazed whistle (<S86>/A<P63>; Figure 118), a form paralleled in CBW at Farnborough Hill.[38] Cheam wares comprise a further 10% (23 sherds/552g); these also include

[38] Pearce 2007, 63.

Group	position	date from pottery and coins
A101	foreshore in front of Tenement 1*	no evidence
A100	reclamation dump in front of Tenement 1, above Gp A101*	1450–1500
A93	foreshore in front of Tenement 2*	1380–1400 or later
A98	reclamation dump in front of Tenement 2, above Gp A93*	no evidence
A89	foreshore in front of Tenement 4, no ceramic evidence*	no evidence
A92	reclamation dump in front of Tenement 4*	no evidence
A95	reclamation dump in front of Tenements 3 and 4, in front of Gp A92 on Tenement 4*	1340–1500; coins 14th century, French jetton 1370–90; pottery 14th and 15th century
A102	foreshore in front of Tenements 3 and 4	pottery 1450–1500
A103	reclamation dumping in front of Tenements 3 and 4	pottery 1450–1500 with some later, to 1600
A104	foreshore in front of Tenements 2, 3 and 4**	pottery 1350–1450, but later than Gp 103
A106	reclamation dump in front of Tenements 2, 3 and 4, over Gp 104**	no evidence
*=little recording of these groups of strata was possible, 'except on the west side' [i.e. Gps A100 and A101]		
**recording of these groups 'only possible at northeast' [i.e. of these deposits, that is nearest the previous waterfront]		

Table 32 Site A: dumps and foreshores of the 15th century (period A7)

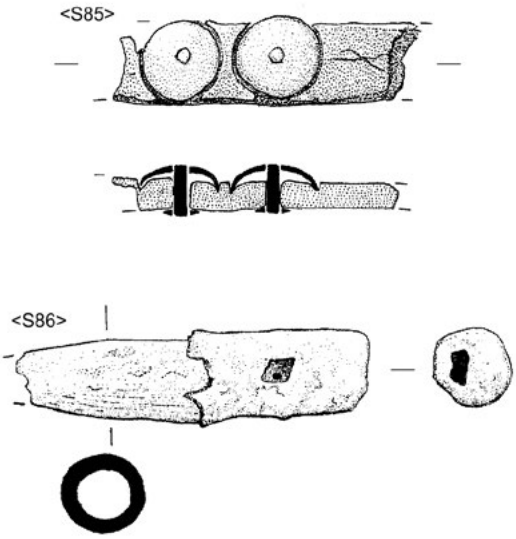


Figure 118 Site A: objects from Gp A100: two copper mounts on a piece of belt, and a ceramic whistle (1:1) (<S85–S86>)

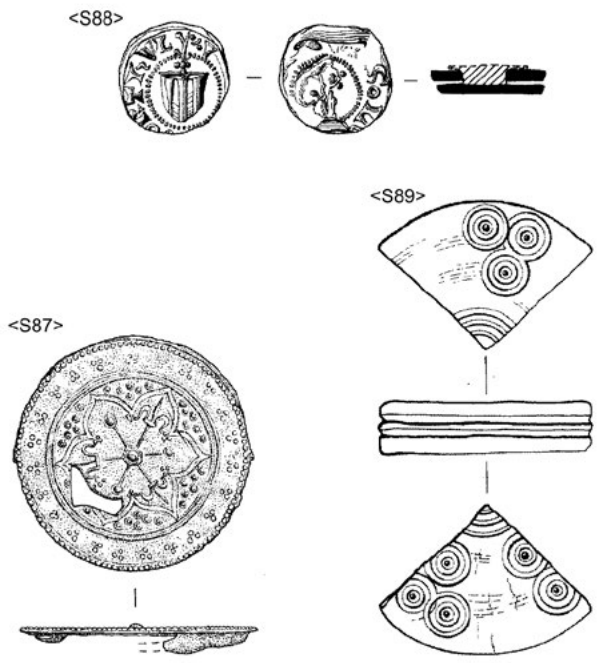


Figure 119 Site A: objects from Gp A93: brooch, cloth seal, gaming counter (1:1) (<S87–S89>)

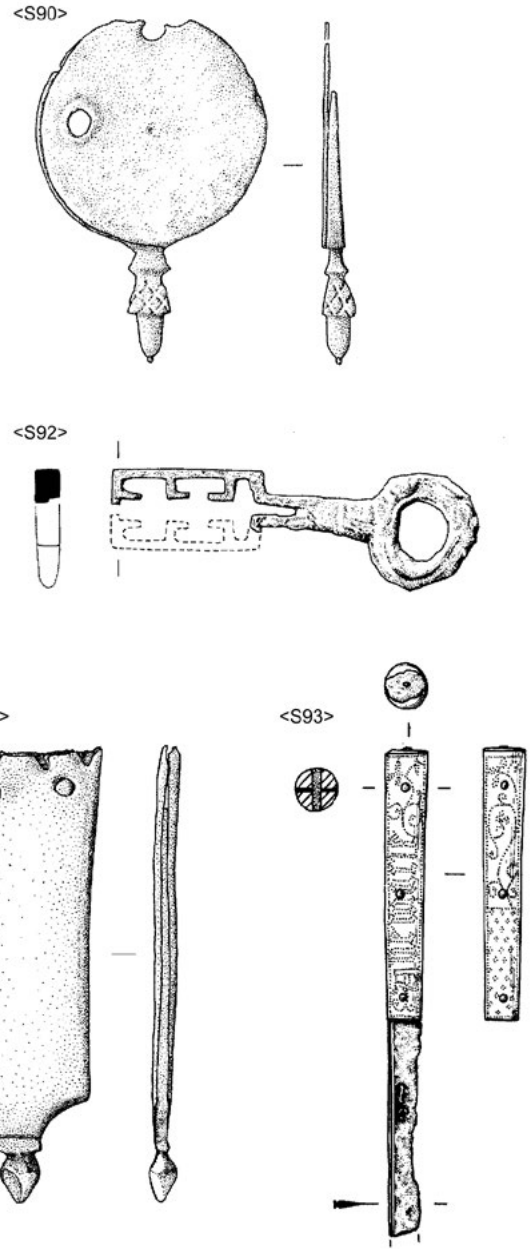


Figure 120 Site A: objects from Gp A95: a copper-alloy strap-end, a copper strap-end with a knop decoration, an iron key, and a knife (1:1 except knife, 1:2) (<S90–S93>)

a bifid-rimmed jar. Kingston-type ware, by contrast, amounts to only nine sherds, while London-type ware comprises only 17 sherds. Other regional fabrics typical of the 15th century comprise late London ware, late London slipped ware and late medieval Hertfordshire glazed ware, the latter including a jug with repoussé decoration (A<P64>) and pipkin with long ladle handle (A<P65>). The latest diagnostic finds are a Siegburg stoneware drinking bowl in A[2069] (A<P66>), which dates to after 1450, and a single small sherd of Raeren stoneware from A[994] that dates to after 1480. Other imports comprise two sherds of Dutch redware cooking pot, one sherd from a Low Countries jug in the highly decorated style, two sherds of Saintonge ware, three of Langerwehe stoneware and ten of Siegburg stoneware, including A<P66>). A small number of objects retrieved (Artefact Table 30) were of the same sorts as in previous reclamation dumps; notable were two copper mounts on a piece of belt and a ceramic whistle (<S85–S86>; Figure 118).

Group A93 was a foreshore in front of Tenement 2 (Table 144). There were no coins. The pottery assemblage amounts to 54 sherds (51 ENV, 1.341kg). Although some London ware and Mill Green ware are present, coarse Surrey/Hampshire border ware is the dominant type (18 sherds, 594g); these include a bifid-rimmed jar and up to five bunghole jugs/jars.

Together with two sherds of Cheam ware, four of Siegburg stoneware and two of Langerwehe stoneware, this indicates a date of after 1380–1400 for the group, and it could well have been deposited in the early 15th century. Objects from A93 included a brooch, a cloth seal and a gaming counter (<S87–S89>, Figure 119; Artefact Table 31). The early cloth seal, <S88> A<380>, of Florent Berthoult, a lord of Malines in Brabant (modern Belgium); though as the seal must date from before his death in 1331, it is residual in this 15th-century context.[39] It would have sealed a cloth from Malines.

Group A95 was a reclamation dump in front of Tenements 3 and 4, in front of Group A92 on Tenement 4 (Table 145). It contained three sherds of pottery (98g), including a coarse Surrey/Hampshire border ware jug or cistern dating to after 1340; and copper and iron objects (<S90–S93>, Figure 120; Artefact Table 32).

A further four stratigraphic groups, excavated at the south end of the site, are also placed in the 15th century and therefore in period A8 (Table 33). Of these, Gp A102 and Gp A103 are large artefactual assemblages.

Group	Position	date
A102	foreshore in front of Tenements 3 and 4	pottery 1450–1500
A103	reclamation dumping in front of Tenements 3 and 4	pottery 1450–1500 with some later, to 1600; possibly 1480–1500
A104	foreshore in front of Tenements 2, 3 and 4	pottery 1350–1450, but later than Gp 103
A106	reclamation dump in front of Tenements 2, 3 and 4, over Group 104	

Table 33 Site A: dumps and foreshores of Groups 102–106, 15th century

Group A102 was a foreshore in front of Tenements 3 and 4, datable broadly to the 15th century (Table 146; <S94–S102>, Figure 121; Figure 122). The pottery is of 15th-century date. One context (A[2102]) contains pottery dating to after 1450, while A[2085] contains a sherd of early Surrey/Hampshire border ware dating to after 1480, although this could be intrusive. In all, the pottery amounts to 292 sherds (135 ENV, 7.735kg), and the group differs from most others in that it contains little London-type ware or Mill Green ware. Coarse Surrey/Hampshire border ware is the dominant type, with 175 sherds (88 ENV, 4.621kg); most are from jugs (130 sherds, 60 ENV), including up to 24 jugs/cisterns, one with incised decoration on the rim (A<P67>). Other forms include seven bowls, a pipkin, a cauldron (A<P68>) and a number of cooking pots/jars. Cheam ware is the second most common type (55 sherds, 1.401kg). These derive from a range of kitchen, serving and table wares, including a barrel jug and a lid. Also present is a cucurbit (A<P69>), the first industrial vessel from Cheam to be identified. A problematic find is an oval trough (A<P70>), a form that is rarely found in whiteware fabrics but common in early post-medieval slipped redwares (imports and local copies). It is possible that this find is an import or a Surrey-Hampshire border ware, although the latter did not come into use until *c.* 1550, in which case it would be intrusive. An almost identical piece came from an unphased context A[2089]. All other English fabrics are represented by less than ten sherds and most date to after 1350. These comprise Kingston-type ware, late London wares (LLON, LLSL), cups in Tudor Green ware (TUDG) and possible early Surrey-Hampshire border ware (EBORD?, A<P71>), and possible Colchester-type redware (COLS, A<P72>). Imports are the third most common group, with 50 sherds (14 ENV, 1.065kg). Of these, 14 sherds from six vessels in Siegburg stoneware. Two are of *Trichterhalsbecher* type, four are drinking jugs, one with applied stamped decoration on the body (A<P73>), and one is a drinking bowl (A<P74>); the latter joins with a sherd from Gp A103 (A[2082]) (see below on Gp A103). The other imports comprise 33 sherds from four Dutch redware (DUTR) cauldrons, including A<P75>, and a few sherds of Andalusian and Valencian lustreware (ANDA, VALE) and Langerwehe stoneware (LANG). The coins and datable jettons included two early 15th-century coins from England, and one 15th-century coin from Portugal. Seventy-six other objects have been studied (Figure 121; Figure 122). Besides a wide range of pilgrim souvenir badges, the group includes 49 items classed as 'dress accessories', mostly buckles or mounts from girdles and leather clothing. This group of layers probably represents the silts of the foreshore at the south ends of Tenements 3 and 4 over a long period, perhaps most of the 15th century; the significance, if any, of the high proportion of dress accessories is not at present ascertainable (Artefact Table 33).

Group A103 was a reclamation dumping in front of Tenements 3 and 4. The pottery assemblage amounts to at least 661 sherds (381+ ENV, 22.936kg) from 13 different deposits (Table 147). The group differs from the others in that it is transitional in character, with a high proportion of mid to later 15th-century wares. No medieval London type wares were present and only one small dish/saucer is of Kingston-type ware (A<P76>) whereas *c.* 62% of the pottery comprises coarse Surrey/Hampshire border ware (420 sherds, 233 ENV, 13.803kg). These are dominated by jugs (313 sherds, 165 ENV), of which 226 sherds (96 ENV) are from the larger forms (bunghole jugs/cisterns), although only one actual bunghole was found. A number of these vessels have incised decoration on the handles and/or red slip decoration on the body; the most notable piece was repaired with a lead plug (A<P77>). Also present are a barrel jug and sherds from up to 49 rounded jugs. Sherds from two lobed cups were also found, one with bichrome decoration. Up to 11 bowls are represented, with both rounded (A<P78>) and flaring profiles (A<P79>), four of which are bifid-rimmed (A<P80>; A<P81>; A<P82>; A<P83>); these may have been industrial vessels, as A<P83> is externally sooted. Other forms include a range of jars and cauldrons. One of these has stripes of red slip while two, possibly cisterns, have strap handles with incised and stabbed decoration (A<P84>, A<P85>) The second most frequent fabric type is Cheam ware (76 sherds, 46 ENV, 2.613kg); over half of these sherds are from jugs, including up to nine of barrel form. Other forms include a bowl, three dishes, a lid, several cooking pots (A<P86>), two pipkins and a measure (A<P87>). In addition, there are sherds from four Tudor Green ware lobed cups (A<P88>, A<P89>, A<P90>; nos 594, 596). The third most common regional ware comprises late London-type wares (LLON; 45 sherds, 1.474kg>), and these are accompanied

[39] Egan 1998, 262–3.

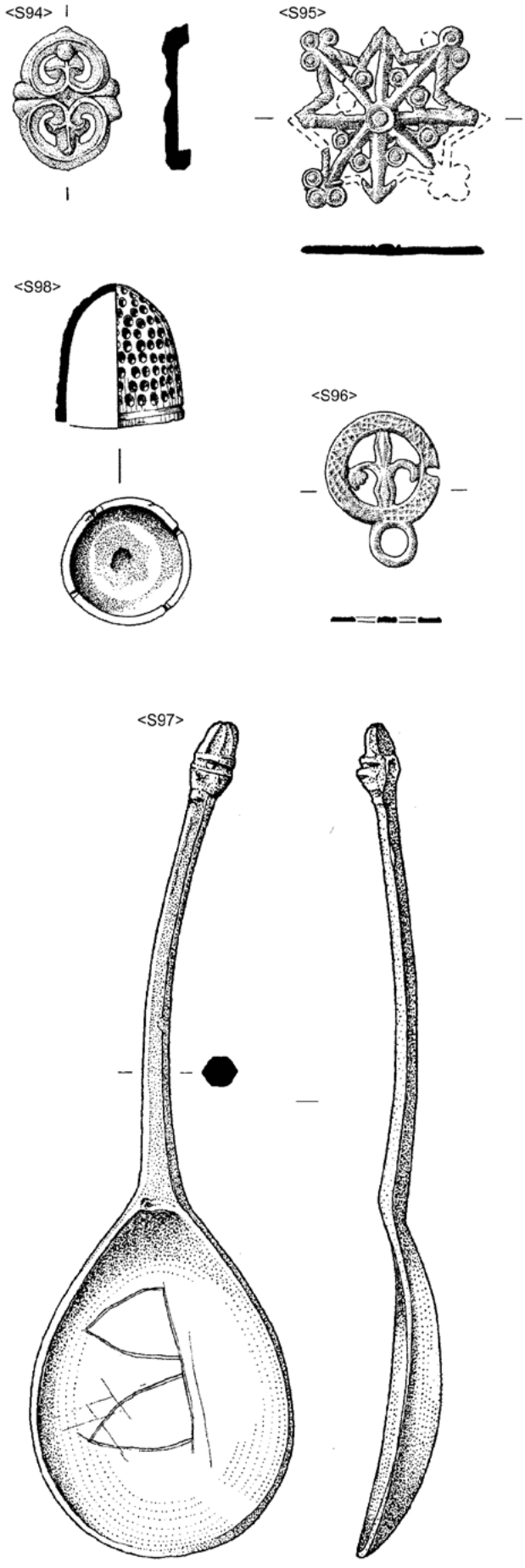


Figure 121 Site A: objects from Gp A102: a tin mount from a belt; a lead/tin alloy brooch in which the arrows may be an allusion to the Martyrdom of St Edmund; a lead/tin alloy brooch with a crude fleur-de-lis; a pewter spoon with an acorn knop, its bowl scratched possibly with a 'B'; a copper alloy thimble (1:1) (<S94–S98>)

by five sherds of possible 15th-century Colchester ware, seven sherds, some quite large, of early post-medieval redware (PMRE), and seven sherds of early Surrey-Hampshire border ware (EBORD). The latter two wares date to after 1480 and could equally date the deposits to *c.* 1480–1500, or indicate contamination by later activity (Table 147). Of note are the base of a cup in EBORD and a jug rim with incised decoration on the handle in PMRE (A<P91>). Only nine other English sherds are present, and eight of these are of LMHG.

Imports are well represented, with 69 sherds. Siegburg stoneware is the most common, with one sherd from drinking bowl A<P74> (already noted in Gp 102), and 45 from 24 drinking vessels; most are funnel-necked beakers, one with applied decoration (A<P92>, A<P93>, A<P94>, A<P95>), but two are of *Jacobakanne* form (A<P96>). Other imports include Langerwehe stoneware (A<P97>), sherds from up to eight Dutch redware cauldrons (A<P98>), frying pans (A<P99>, A<P100>) and a dripping dish, Andalusian lustreware and part of an olive jar.

Group A103 produced the largest group of non-ceramic artefacts from the sites in the present report. Published finds from the group are listed in Artefact Table 34 and a selection illustrated in Figure 123 to Figure 128. Coins and datable jettons from Gp A103 comprised eight silver coins of English monarchs from Edward III (1327–77) to Henry V (1413–22), one silver coin of Robert III of Scotland (1390–1406), and two copper coins of John I of Portugal (1383–1433), along with several French jettons, the latest datable to between 1440 and 1500.[40]

Apart from coins and pottery, 291 objects have been studied. There are 111 buckles; 12 strap-ends; 45 mounts; eight brooches; four finger rings; seven examples of 'possible drape rings' i.e. curtain rings; three fragments of glass drinking vessels; four spoons; five cloth seals; eight weights; 12 knives; and 28 pilgrim souvenir badges (Figure 123 to Figure 124; Figure 126 to Figure 128). The badges commemorated visits to the shrines of Becket at Canterbury (with six different styles of badge), Our Lady Undercroft also at Canterbury, possibly Walsingham, the Rood of Grace at Boxley Abbey (Kent), St Edward at Westminster, and several as yet unidentified places. There were nine secular badges with lively subjects, though none can be associated with any particular group or nobleman's livery. One illustrated here (Figure 128, <S136>) represents a dolphin, and in Brian Spencer's words, such badges 'seem more likely to relate to an English family or organisation (such as the Fishmongers' Company) than to

[40] Only two coins are listed in Table 147.



Figure 122 Site A: objects from Gp A102: two pilgrim souvenirs from Canterbury, representations of the sword which killed Becket and his reliquary bust, a pilgrim souvenir from the shrine at Walsingham (Norfolk) showing the Annunciation and a badge of an unidentified secular noble family, a dog called a talbot (1:1) (<S99–S102>)

be livery badges of the Dauphin.. a friend of mariners, the dolphin was widely respected as a symbol of love, diligence and speed.'[41] There are also two examples of book-clasps, and a stylus used for writing (Figure 127).

One hundred and eleven plain, standard buckles were recovered from Gp A103. Egan and Pritchard[42] suggest that this preponderance in one general deposit might represent a special category of waste: possibly the debris from cobblers who retrieved usable leather from old shoes to patch others, throwing away the buckles which were often damaged. Notable also were three similar circular mounts (A<893A-C>) with identical shields on them, and were found with a coarse cloth which may have surrounded them (Figure 125). Although the arms cannot be identified, parallels suggest a date in the middle of the 15th century for the mounts.[43]

Gp A104 was a foreshore in front of Tenements 2, 3 and 4, therefore later than reclamation dumps Gp A98 on Tenement 2 and Gp A103 on Tenements 3 and 4. At this point, near the south end of the watching brief site, recording was difficult and not accurate. The dating evidence and few finds are given in Table 148 and Artefact Table 35; the eight sherds of pottery (259g) include a Kingston ware cooking pot (A<P101>), Siegburg stoneware and Dutch redware, giving a date of *c.* 1350–1400/50 for the group. The diagram of major deposits at Swan Lane in the *Medieval finds* volumes[44] indicates that there was a further reclamation deposit, Gp A106, over A104, but no contexts or finds from it can be identified.

A certain perspective should be applied to this very rich array of finds from the reclamation dumps and foreshores of Tenements 1 to 4 in the period 1350 to 1500. Their recovery was due to the circumstance of a large area being dug out at once in 1982, and the methods employed by Geoff Egan and the Society of Thames Mudlarks. It is tempting to think that the exceptional number of metal objects had significance in their location (for instance, the deliberate and sustained dumping of particular trade waste), but this is not certain. Egan and his colleagues worked on the Billingsgate watching brief of 1983–4 with similar spectacular results in artefact recovery. So it seems that waterfront reclamation units and foreshores are normally full of finds along the whole medieval waterfront. Further discussion of these finds is below, section 6.4. A further 57 pottery profiles (A<P46> to A<P102>) were selected for future study; their individual occurrences have been noted in this section.

The buildings and other functional areas are now described for period M3, from Tenement 1 to Tenement 5 as in the previous period. This means that the reporting has to begin again around 1350. Where justified, links between individual tenements and reclamation or foreshore deposits, as in the previous period, are made.

Tenement 1 (the Three Stars) (period M3, 1350–1500)

As outlined in the documentary evidence for this property in period M2 (chapter 3.1), Tenement 1 was acquired from the executors of William de Leyre by John Osekyn and Adam

[41] Spencer 1998, 291.
[42] Egan and Pritchard 1991, 3, 64.
[43] Egan and Pritchard 1991, 181–4.
[44] As in Egan and Pritchard 1991, fig 4.

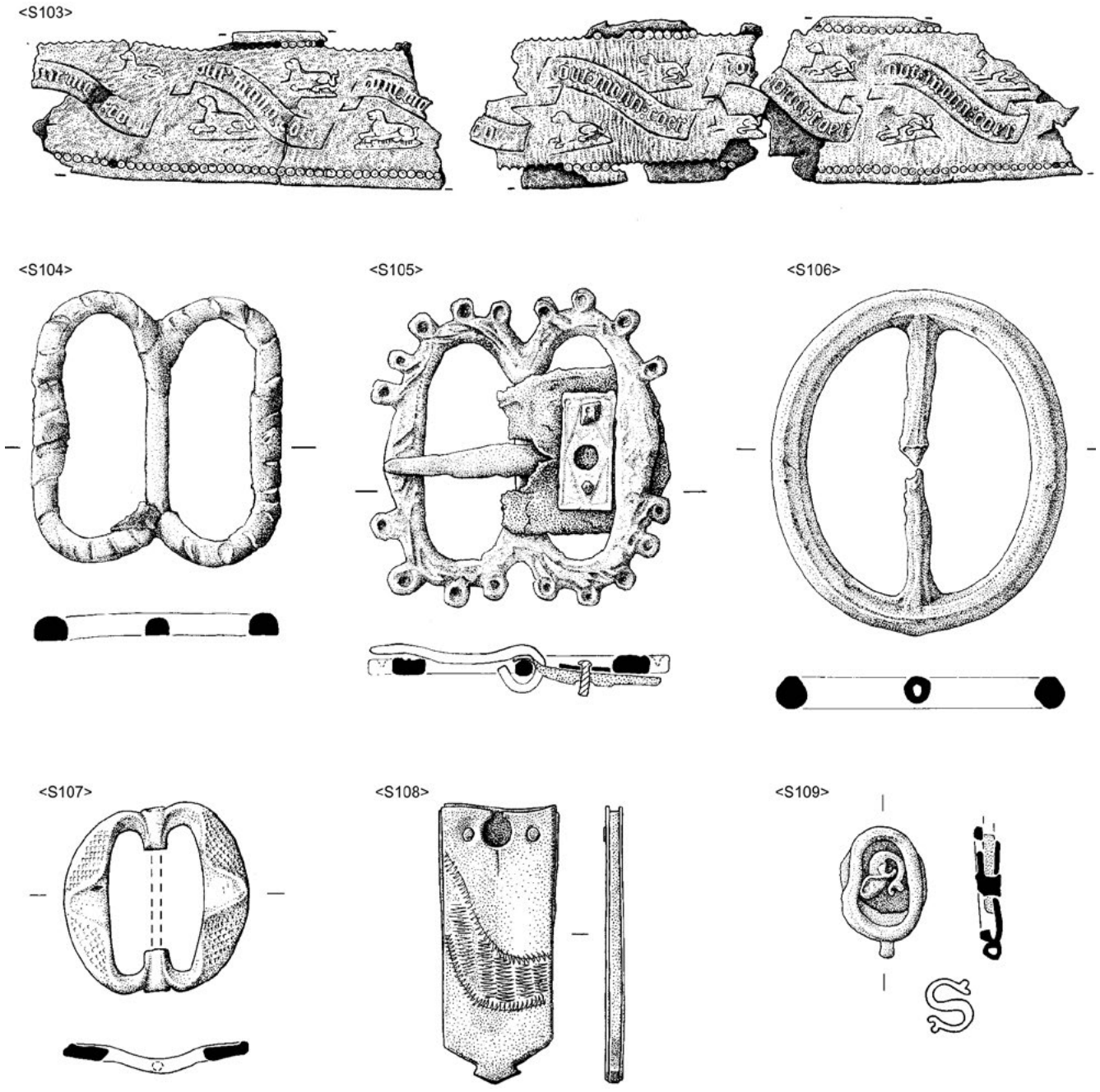


Figure 123 Site A: objects from Gp A103: girdle, buckles, strap-ends (1:1) (<S103–S109>)

Fraunceys, mercer, and by Fraunceys's will of 26 August 1374, proved on 14 May 1375, provided with other income for the maintenance of two chaplains serving the chantry of Peter Fanelour in Edmonton church (CLA/023/CP/01/103/79). On 11 September 1376 however Fraunceys's executors sold the 20s pa quitrent to his son Adam (/104/167).

Whether or not he was the purchaser of Tenement 1 after Gregory de Rokesle's death in 1356 (it was still occupied by Agnes de Leyre in 1367), Sir Thomas Cobham was in possession of it by March 1391, according to deeds relating to Tenement 2 (/119/104, /120/130), and remained so by March 1394 (/123/14). In July 1407, however, it was described as the tenement late of Sir Thomas Cobham in which Edmund Olyver formerly dwelt (/134/110). On 17 June 1398 Sir Arnold Savage and William Etchingham granted to Reginald Cobham and his wife Elizabeth the messuage with shops in front, cellars and solars, and extending from Thames Street to the Thames, which Reginald and Elizabeth had previously granted to them (/127/6). In June 1400 it was inhabited by Richard Wedon, fishmonger (/129/17). On 10 July 1428 Thomas Moresby of Kent and his wife Eleanor, daughter and heir of Sir Reginald de Cobham, granted to Thomas Pole, clerk, John Darell, Roger Heron, clerk, John Kelsham and Richard Moresby, clerk, the reversion of the same property, which would otherwise have come to Eleanor on Elizabeth's death (157/2). A deed

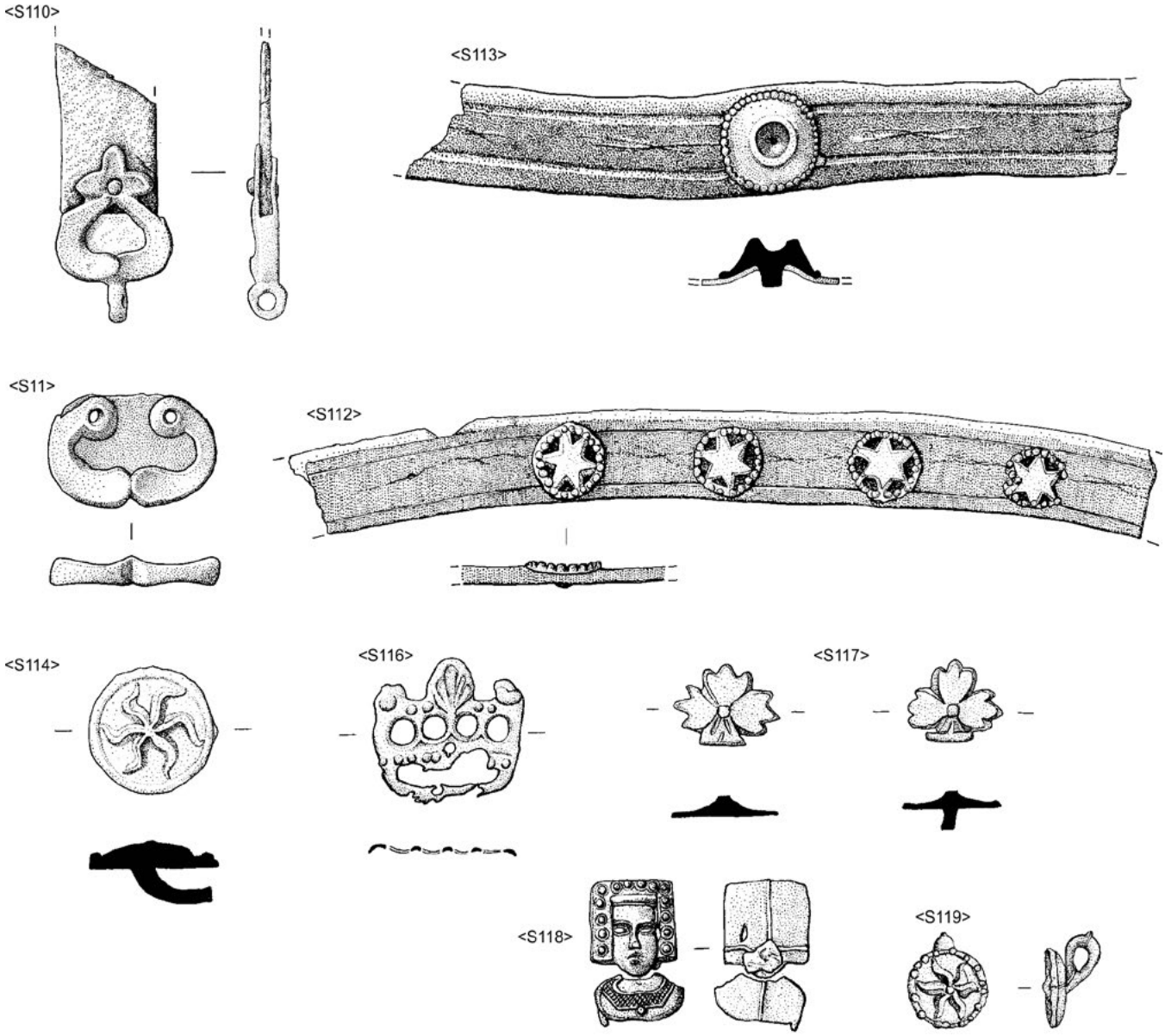


Figure 124 Site A: objects from Gp A103: strap-ends, mounts (1:1) (<S110–S114, S116–S119>)



Figure 125 Site A: objects from Gp A103: armorial mounts (<S115>)



Figure 126 Site A: objects from Gp A103: pendant, comb, vessel decoration, turned wood box, glass drinking vessel (1:1) (<S120–S124>). The boxwood comb has inscriptions carved in relief on both sides: here vous [...]

of July 1459 relating to Tenement 2 refers to Tenement 1 as belonging to Richard Moresby, gentleman, and lately of Thomas Moresby (/188/6).

On 30 January 1465 Richard Moresby, gentleman, along with Thomas Billyng, justice of King's Bench, Thomas Bryan, serjeant-at-law, and Thomas Urswyk and Roger Philpot, gentlemen, granted to Christina Underwode, Richard's intended wife, an annual quitrent of 5 marks to be received from their messuage called *le Thre Sterres* with shops in front, lately held conjointly with Sir Aubrey Vere, Henry Bourgcher, son of Henry earl Bourgcher and Walter Copynger, gentleman now deceased, by grant of Thomas Dymoke and Thomas Wymbyssh, to be held by her from the date of Richard's decease for the term of her life, should she survive him (/194/33). On 12 February 1474 Moresby granted to Robert Carteleage and John Hawe, gentlemen, the messuage called *le Three Sterres* with shops in front and abutting north on Thames Street and south on the bank of the water of Thames (*ripam aque Thamisie*) (/203/32). On 14 February 1475 Cartleage and Hawe granted the property, identically described, to Thomas Danyell, dyer; Humphrey Starkey, Recorder of London; William Dunthorne, Common Clerk of the City; Robert Vaus, gentleman; Thomas Roger, fishmonger, and Thomas Rede, dyer (/204/21–2). They granted it in turn to John Meryden senior alias John More senior of Wing (Bucks), yeoman, and William Blakenoll of Westminster at some date before 14 September 1484, when the latter granted *lez thre Sterris* to Henry Warfeld, William Body, dyers, William Dunthorn and John Hawghes, gentlemen, and Thomas Rede, John Lewes, William Michell, Robert Roseby, John Bernys, John Symson and Thomas Nicholson, dyers (/214/8).

It is probable that the beneficiaries of this last deed were the Dyers' Company, which had been incorporated in 1471, and had only recently acquired a hall of its own in Anchor Lane in the Vintry (Daynes 1965, 3–4, 8). According to Daynes, the Company's second hall in All Hallows the Less was given to it by Sir Robert Tyrewhitt, deputy chamberlain of Henry VIII, on 4 March 1545 described as 'all that great messuage called the Three Stars and all houses, buildings, wharves, stairs, draft and post galley to the same belonging, and also a little house and tenement belonging thereto;' seven almshouses were to be built on part of the site (8, 16). But this must have been a regrant or confirmation, for a viewers' certificate of the period 1509–13, concerning a variance in the parish of All Hallows the Less, refers to the 'common hall of the craft and fellowship of Dyers' in Thames Street (Loengard 1989, no. 4 and plxvi), and confirms that the Company had actually acquired the property considerably earlier, most probably in or soon after 1484.

A notable feature of this tenement is the absence as late as 1484 of any reference to a quay or wharf as part of the property, routinely made in the case of other waterfront properties (the reference to wharves in 1545 is also conventional, not specific).

A:Building 28

At the south end of Tenement 1 was a wall and floor sequence, assigned to A:Building 28 (Figure 114). Above earlier reclamation dumps was a possible unmortared chalk and ragstone ?surface (A54.8), dated to 1350–1500. This was

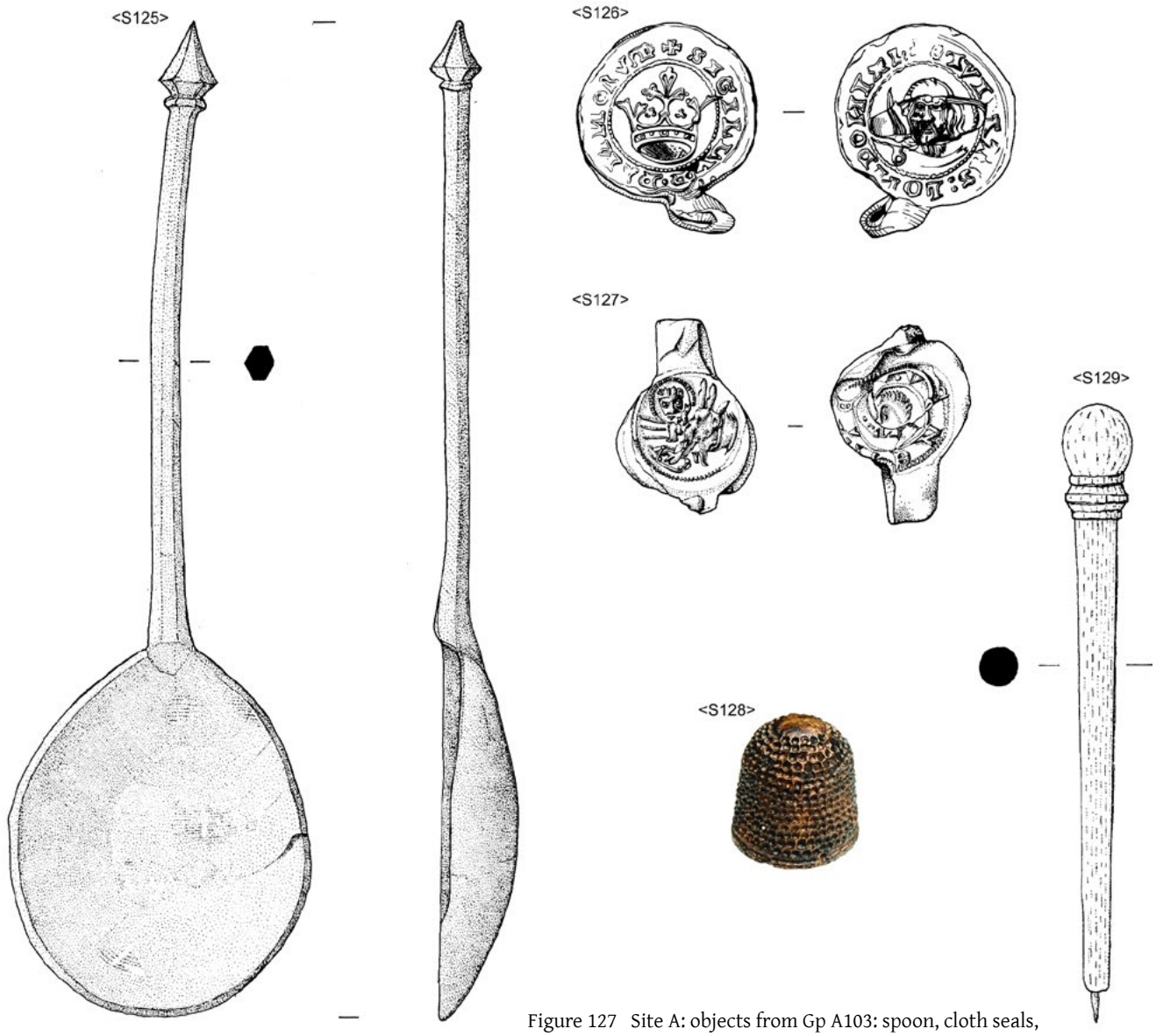


Figure 127 Site A: objects from Gp A103: spoon, cloth seals, thimble, stylus (1:1) (<S125–S129>)

sealed by clay then gravel, both make-up layers. Above was a thick, well compacted clay floor or make-up (A54.13) which could have related to a Reigate stone wall and floor (A54.14), recorded as one. The floor was of heavily worn Reigate stone blocks of various shapes and sizes. It was heavily discoloured and cracked and covered with ash and destruction debris (A54.15), indicating destruction of the building.

To the north, a group of hearths may have lain within the same building. A construction cut (A51.1) was made into underlying reclamation dumps, with no apparent attempt at ground consolidation. Within it was a base of brickearth and ragstone, together with mixed brickearth, perhaps all that remains of a truncated hearth (only one hearth is shown on the plan, Figure 114). Above it, possibly within its own cut, was a mixed burnt brickearth make-up with some ragstone at the base (B51.2). This may be another truncated hearth. At its south end was a small, dished cut of unknown function, filled with brickearth (A51.3) and overlain by powdered sandstone. Above was another hearth (A51.4) with a brickearth and gravel base overlain by more brickearth within which east–west aligned tiles were set vertically. No burning was observed. Above was a layer of silt, perhaps relating to disuse. A further patch of floor may relate to subsequent activity. Another hearth (A51.5) may pre- or postdate this one and had a gravel base supporting horizontal tiles set in brickearth, fire blackened to the west. It was oval in plan and is described as oven-like. Charcoal survived around the tiles (A51.8). On either side of this hearth and slightly overlapping it was a layer of gravel (A51.6), followed by brickearth which had been burnt to the north. These may have been surfaces but were too high to relate to the hearth. The final hearth in the sequence (A51.7) began with a silt deposit above earlier layers. Overlying it to the north was a brickearth floor with associated hearth debris, the another burnt floor and charcoal. The hearth itself consisted of a brickearth base with close-set east–west aligned rows of vertically set tiles, covered with what may have been burnt mortar, fire blackened.

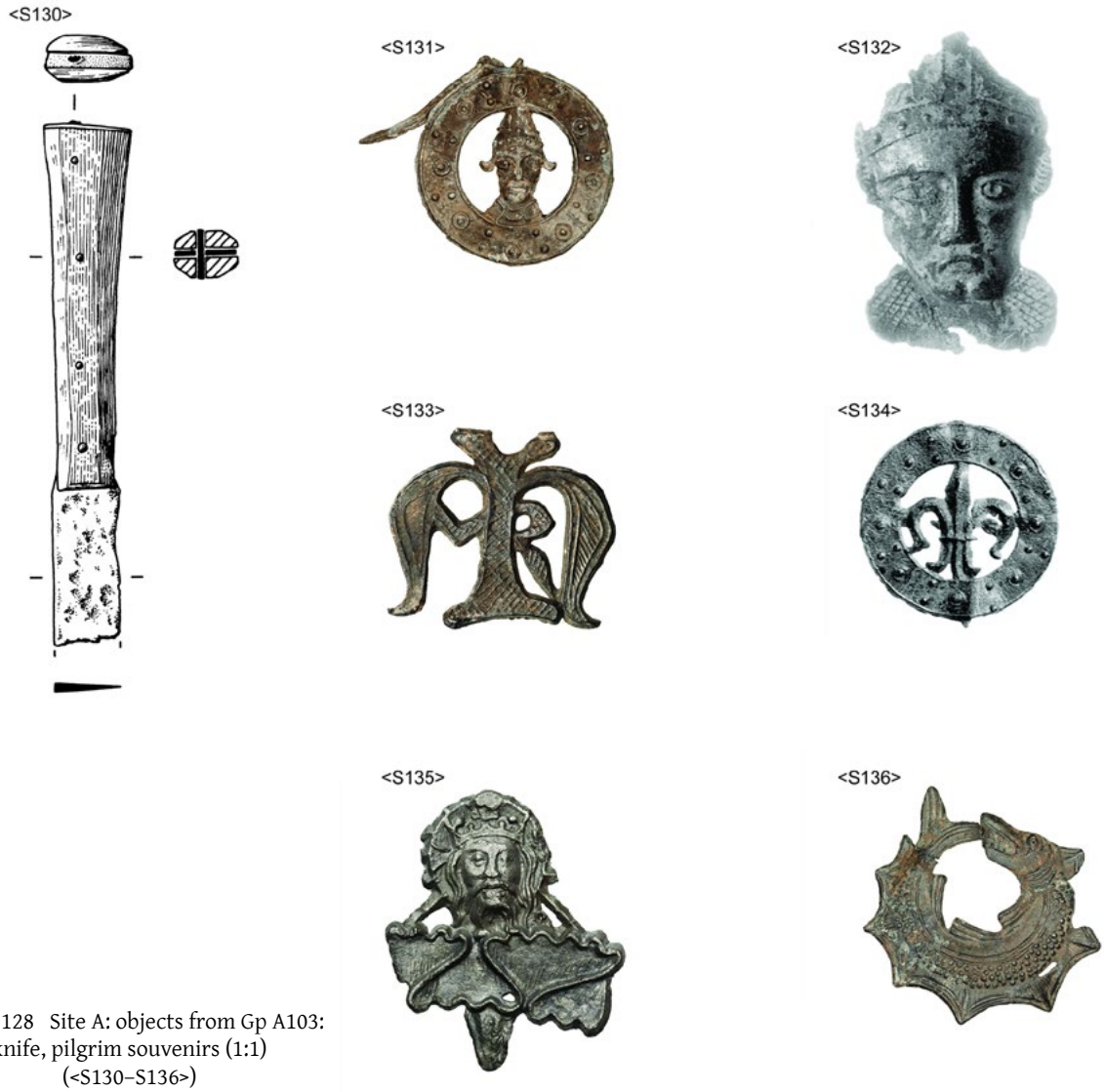


Figure 128 Site A: objects from Gp A103: knife, pilgrim souvenirs (1:1) (<S130–S136>)

Although the configuration of buildings on the Three Stars property before the Fire of 1666 is not known, Dyers' Hall does appear on this property on the immediately post-Fire map by Ogilby and Morgan (Figure 16). This gives no clue as to the pre-Fire arrangement except that presumably both pre- and post-Fire halls shared the same general area. This makes it possible that A:Building 28 was a fragment of the pre-Fire Dyers' Hall, perhaps in view of the several hearths in the kitchen; but this can be a suggestion only.

The evidence of foreshores and further reclamation has been given above; the dumps behind A:Waterfront 14 on Tenement 1 (above, Gp 80; Table 141) dated to 1350–1400.

Tenement 2 (Cok on the Hoop/ le Stewehous) (period M3, 1350–1500)

Following its reversion to the Gisors family on the death of Joan de Armenters before 1366, Tenement 2 was described as comprising two of the four tenements which Thomas Gisors junior granted to his mother Agnes, widow of Thomas Gysors, late vintner, for life on 1 March 1391 (CLA/023/CP/01/119/104). The two were a brewhouse called *le Cok on the Hoop* and a tenement called *le Stewehous* with adjacent wharf, and lay adjacent in Thames Street between the tenement of Sir Thomas Cobham to the west and the tenement belonging to St Peter of Cheap to the east, and extended from the street to the river. Ambiguous phraseology leaves it unclear whether the tenement was partitioned into two north and south or east and west portions. On 20 April 1392 Richard Odyham, grocer, and his wife Agnes, formerly Gisors, granted to John Gardener, parson of St Martin Outwich, and Robert Faun, skinner, all their interest in the two tenements, *Brewehous atte Cok on the Hoop* and *le Stuwehous* with cellars and solars and other houses built above and on the wharf (*wharva*), which Agnes held in dower from her former husband for life (/120/130). On 21 April her son Thomas granted the two tenements to Richard and Agnes and their heirs and assigns for ever (/121/188). During the first two weeks of May 1392 William Rouchestre, brewer, and his wife Cecily surrendered to Gardener and Faun all their interest in the two tenements arising from the lease made to them by Agnes Gisors of *le Cok on the Hoop* and in the reversion of *le Stewehous*, which were to be held by William and Cecily for a term of 30 years from Easter 1391 (/120/128). On 6 May Gardener, Faun and Gysors granted to Robert Forster, saddler, an annual rent of 40s from the two tenements (/120/132). A deed of October 1392 relating to Tenement 3 describes

Tenement 2 as belonging to Thomas Gysors (/121/19). In this case we propose that *Stewehous/Stuwehous* refers to a dyeing facility, and not to other meanings of the term, a bath-house or a brothel (though it could perhaps be the former).

On 1 May 1393 Gardyner surrendered all interest and claim in the properties to Faun and his heirs (/121/189), Thomas Gysors following suit on 17 May (/121/190). On 26 March 1394 Faun granted to Richard Odyham and William Newerk, chaplain, the two tenements which he and Gardener had acquired from Odyham and his wife Agnes (/123/14). On 6 April 1394 Robert Forster, saddler, quitclaimed Odyham and Newerk in the 40s pa rent granted by Gardener and Faun from the two tenements, of which Odyham and Newerk were now tenants (*sunt modo tenentes*) in full possession (/123/15). A deed of June 1398 relating to Tenement 1 specifies Richard Odyham as the owner of Tenement 2 (/127/6). On 2 July 1407 James, John and Edward, the sons and heirs of Thomas Gysors, quitclaimed Robert Odyham, John Oxneye and Robert fitzRobert, grocers, and William Taillour, clerk, in the two tenements, which the grantees had in full possession in consequence of purchase from Richard Odyham and William Newerk (/134/110). On 27 July they granted them to John and Margaret Tetford (/171/43). In his will made on 10 June 1421 and proved on 19 January 1433 John Tetford, brewer, bequeathed to his son John the reversion of his lands and tenements in Thames Street immediately following the death of the testator's wife Margaret, or, failing John, to his daughter Joan for life (161/26).

On 15 July 1443 Thomas Northwode, fishmonger, Margaret Tetford's son in law and executor, sold to Ralph Mark, William Shepton, Thomas Bury, gentlemen, and William Bonde and John Parker the reversion of Tetford's lands and tenements on his wife Joan's death (/171/50), and on 18 July 1443 Thomas and Joan surrendered all their interests in the same in the right of Joan (/01/171/43). In his will drawn up on 12 October 1450 and proved on 22 May 1452, Ralph Marke, brewer, bequeathed the two tenements to his wife Juliana for her life on condition she remain unmarried after his death (Shepton, Bury and Parker now being deceased) with all vats, utensils, vessels and necessaries for brewing, and on her death to Joan, the testator's daughter and wife of John Hill, tailor, for finding a chaplain at St Thomas's to celebrate for one year after she receives them and also for chaplains at All Hallows the Less and another church in the second and third years; Richard Howell, rector of St Thomas the Apostle, and Elias London and John Symond, churchwardens and their successors, were to receive an annual rent of 6s 8d from the two tenements for maintaining the testator's obit (/180/39). On 26 August 1452 John Hill, tailor, granted to Mr Michael Carvanell, clerk, Thomas Sage of Grandpont, and Edmund Blowefeld, Edward Hill and Thomas Wybbery, heirs and assigns, his reversion of the properties on the death of his wife (/181/5).

On 12 July 1459 William Bonde, Juliana, widow of Ralph Mark, Michael Carvanell, clerk, and Thomas Sage, John Hille, Thomas Wybbery and Edward Hille quitclaimed Thomas Danyell, dyer, in all interest and claim in the two tenements, measuring 305ft (93m) from Thames Street to the river and 40½ft (12.35m) from east to west along the street and 31ft (9.5m) along the river (/188/6). On 26 August 1459 Danyell granted to William Gardyner, fishmonger, and William Cauche, merchant, the two messuages and one wharf, providing the same measurements (188/34), and they granted them to Juliana Mark, widow, for her life, remaining on her death to Danyell and to Robert Vaus, gentleman and Thomas Gresham, hatter (/188/35). Deeds relating to Tenement 1 refer to its east neighbour as lately of Ralph Mark (February 1474: /203/32), lately of Ralph Mark now of Thomas Danyell (February 1475: /204/21), lately of Ralph Marke, afterwards of Thomas Danyell, dyer, and now of Thomas Rogers, vintner (September 1484: /204/221). In his will made on 25 February 1488 Rogers required all his lands and tenements in the parish of All Hallows the Less to be sold by his executors, the proceeds fulfilling his bequests and being put to charitable purposes (Vintners' Company Will Book, GL, MS 15364, pp 55–8). That his property in St Andrew Hubberd was to remain to the Master and Wardens of the Vintners' Company after the death of his wife Joan might suggest that the Vintners were the purchasers of Tenement 2.

Part of A:Waterfront 14 formed the riverward end of Tenement 2 at this time, but no buildings were recorded; perhaps some of those from the previous period carried on in use. The extension into the river for Waterfront 14 on Tenements 2 and 3 produced finds in Gp A85, reclamation, over Gp A82 (which produced no material). Group A85 was particularly rich with coins, fragments of silk, artefacts (Figure 115, Figure 116) and a number of sherds of imported pottery (Table 142). But as the reclamation dump, as recorded, corresponded to two tenements, it can only be attributed to both Tenements 2 and 3.

Tenement 3 (period M3, 1350–1500+)

In a deed of March 1391 relating to Tenement 2, Tenement 3 is described as belonging to the parish of St Peter de Chepe (Cheapside) (CLA/023/CP/01/119/104), evidently in fulfilment of Nicholas de Farendon's will of 1329. In fact St Peter's status in the property was still limited at this date, for it was not until 11 October 1392 that Richard Weston, goldsmith, and his wife Roesia, kinswoman and heir of Nicholas Farendon, granted to John Forster and Thomas Polle, goldsmiths, all their tenement with the adjacent quay and shops, cellars and solars which was formerly of Nicholas, Roesia's uncle, and which had come to her on Nicholas's death. The tenement was described as lying in Thames Street in the parish of St Laurence between the tenement of Alexander Goodyng to the east and the tenement of Thomas Gysors to the west, and extending from the street to the river (/121/19). A vernacular version of this grant appears in the first volume of the churchwardens' accounts for St Peter's (P69/PET4/B/006/MS 00645/1, fos 252v–253r), and it was this, rather than Nicholas's will, that seems to have been regarded by St Peter's as the basis of its title to the property. It would therefore seem that the messuage was not immediately or fully vested in the church on Nicholas's death, most likely in consequence of the challenge made to his will at the time of its enrolment in Husting by one Thomas de Farnedone, son and heir of Thomas de Farndone, goldsmith, to whom Roesia Weston was no doubt related.

Even so, there was a further ten-year delay before Forster and Polle received, on 22 April 1402, a royal licence to alienate in mortmain to the parson and churchwardens of St Peter's the messuage with cellars, two shops with two solars built above and with a void place of land containing 120ft (36.6m) in length and 52ft (15.9m) in width, for finding a chaplain for

the souls of themselves and Nicholas Farendon (fo 253). On 31 July 1402, Forster and Polle duly granted to John Honyngham, parson, and the churchwardens of St Peter's the messuage, similarly described (CLA/023/CP/01/131/37). A deed of July 1431 relating to Tenement 4 refers to the tenement called *le Swan* (the earliest record of the name) as belonging to the church of St Peter Westchepe (159/88). On 12 November 1429 William, prior of Christchurch Canterbury, complained that the rector and churchwardens of St Peter's had disseised him of 6s 8d rent in the parish of St Lawrence Pountney. They denied this, the rector Henry Hamond claiming that the rent was payable from a messuage of which he was indeed tenant but which was outside the plaintiff's fee (Chew 1965, no. 329).

Archaeologically, Buildings A:22 and 27 were retained into the late 14th century, and the activities described here may relate to Waterfronts A:13, 14 or 15. Documentary evidence asserts that the alley between Tenements 3 and 4, later Old Swan Alley, was normaly considered part of Tenement 3.

A:Building 22 continued; Open Areas 10 and 11

(not illustrated; for previous form of A:Building 22 see Figure 50 and Figure 51)

Cut into the latest surface of room A of A:Building 22 was a rectangular pit (A58.25, dated late 14th/15th century: Table 150). This slightly damaged the north wall, implying that it may no longer have been in use, or perhaps indicating a change in function for the room. It was filled with refuse including a large proportion of small animal or fish bones. Respecting the north edge of an earlier drain (A58.29) within room B was a make-up dump (A58.30). Cutting through these dumps was a miscellaneous cut (A58.31) which may have held an upright timber. It was packed with tile. Make-ups continued within room B (A58.34), including a possible clay floor. Above these to the north, a single row of ragstone (A58.35) ran east–west to abut the north wall of the room. They had 'tooled' faces to the north and were bonded with yellow sandy mortar, although their interpretation is uncertain. Why they were faced on the side that abutted a pre-existing wall is unclear.

Above an earlier pit in Open Area 10 were layers of clay (A58.10) with some building material, perhaps forming a surface. These gave a date of 1270–1350 (Table 150). Cut into the external gravel surface, at the east end of the drain, was a shallow circular cut (A58.32). Its primary fill (A[58]) was an equal mix of silt, chalk and mortar, with frequent large fragments of floor (roof ?) tiles. Above was a similar secondary fill (A[61]); the pottery from both fills is the same in character (total 16 sherds, 857g), including large fragments of a Hurst type I Langerwehe stoneware jug with rouletted decoration (A<P102>)[45]. It is possible that drains to the west emptied into this feature, acting as a sump, although the lack of any drainage facility southwards towards the river is surprising. To the south (A58.33) the pit fill was overlain by a patch of redeposited mortar and chalk.

To the south of A:Building 22 were external deposits relating both to A:Building 22 and to a building on Tenement 4 (see below). These lay in Open Area 11 and were of mixed material, the uppermost being a flat surface of ragstone (A54.30), which may have formed a path down towards the river. The feeder drain for A:Drain 2 (see plan on Figure 114) may also have lain within this open area.

A:Building 27 continued; Open Area 12

(not illustrated)

A:Building 27 continued in use throughout the 15th century (ie it was contemporary with A:Waterfronts 15, 16 and 17). Running north–south between the pre-existing walls in room A was another ragstone and chalk foundation (A58.15) forming the east wall of a cellar (room C). Within it was a sequence of deposits dating to the 15th century (Table 151). These included destruction debris and clay floors (A58.17), with a make-up of broken rooftiles and two worked Reigate stone blocks and some oak boards. Above was a possible clay floor and tread. Lying above the cellar was another north–south chalk foundation (A58.18) within a flat based construction cut, presumably a replacement or rebuild of the earlier cellar.

A:Building 22 and Open Area 10 were now out of use at least in this area, and external activity took over (Open Area 12). A linear cut (A58.36) ran east–west in the same position as the earlier drains. It was filled with clay, silt and some building material, some of which may have been waterlaid. Above the fill were lumps of mortar and ragstone (A58.37) which could have been structural. Just to the northeast and at about the same level was a dump of chalk (A58.38). Above the south end of the controlled trench was a clay make-up or surface (A58.39) which extended eastwards into the previously external area. Above it was a miscellaneous layer (A58.40), then ash, charcoal and redeposited mortar (A58.43). A posthole (A58.44) may relate. At the east edge of the trench was another cut (A58.42), filled with sandy mortar and other building material and of uncertain function. The pottery from this area amounts to 39 late 14th to 15th-century sherds and three of post-medieval date (A[42]) which are presumed to be intrusive (Table 151).

A summary of the developments on Tenement 3 in the period M3, 1350–1500, is given in Table 34.

Period A6: 1350–1400	
A82 foreshore	no information
A85 dump	after 1251 on coins; 1350–1400 on pottery
Building 22 continued	1350–1450
Open Area 10	1270–1350
Open Area 11	no information
Period A7: 1400–50+	
A95 dump	1400–1500
Building 27 continued	1400–1500+
Open Area 12	1350–1500

Table 34 Dating summary for Tenement 3, 1350–after 1500 (overall period M3)

[45] Hurst 1977.

Tenement 4 (le Katerine While) (period M3, 1350–1500)

On 4 June 1362 William atte Welle's daughter Joan granted to Walter Rede, chandler (*cancellario*), and his wife Gunnora half the tenement next (*iuxta*) Ebbgate in Thames Street in the parish of St Lawrence (CLA/023/CP/01/090/92). A week later, Joan, now described as the widow of Adam Reyner, former dyer, quitclaimed Walter and Gunnora in her father's former tenement at (*apud*) Ebbgate (90/93); a deed of July 1364 concerning Tenement 5 refers to the tenement of Walter le Rede, waxchandler, to the west (/092/132). On 24 June 1374 Walter and Gunnora leased to Ralph Lobenham, draper, and his wife Avice all their dyeing tenement with the quay (*kaye*) and houses which they held in Thames Street near Ebbgate for a term of 15 years for an annual rent of £10; Ralph and Avice being responsible for maintaining and repairing the quay and roofing the workhouse of the tenement (*la kaye et la covertur' del Werkhous del dit tenement*) during the term. Walter and Gunnora remained responsible for protecting the remainder against wind and rain, and Ralph and Avice were authorised to pull down the stone wall towards Thames Street on the north side of the tenement at their own expense, and to make shops houses or other easements, leaving the tenement in as good condition as before, and they were required to quit all the premises at the end of the term except for a shed (*une schedde*) on the south side of the kitchen of the tenement (/103/81).

On 22 July 1375 Gunnora Reade granted to John Koke and Geoffrey Walderne all her tenement with quay situated between the tenement of Roger Frowyk, goldsmith, to the east and the tenement formerly of Nicholas de Farndon on the west, and extending from Thames Street to the Thames (/103/164). On 30 July Alexander Godyng and his wife Joan quitclaimed Koke and Walderne in the same property (/103/165), and on the following day Walderne and Koc regranted it to Gunnora, widow of Walter Reade, for life, to remain on her death to Alexander and Joan, and her heirs and assigns (/103/166). The next day Gunnora leased to Ralph and Alice Lobenham the tenement for dyeing with the quay which she had in Thames Street near Ebbgate, to be held for a term of 14 years, as in June 1374, and this was confirmed by Alexander and Joan Godyng (/103/167–8).

On 22 August 1381 Alexander and Joan Godyng once more ratified Gunnora's lease to Ralph and Avice Lubenham, granting them the reversion of the property due to fall to Joan on Gunnora's death for a term of 60 years thereafter at an annual rent of £8 10s (/110/30). Documents of 1391–2 relating to the adjoining tenements refer to the tenement formerly of Walter le Rede, waxchandler, now of Alexander Goodyng which Richard [sic] Lubenham (/120/75), and the tenement of Alexander Goodyng (/121/19). On 20 August 1393 Ralph and Avice Lubenham surrendered their interest and term, and Alexander and Joan gave them access to the tenement to remove all their goods and vats (*plumba*) and other fixtures made in timber or stone without foundation (*maheremio vel facta lapide sine fundo*); Ralph and Avice were to pay for any damage and in return Alexander and Joan were to withdraw all manner of personal actions against them (/122/14).

On 5 April 1401 Alexander Godyng, tailor, granted to Thomas Moreton and Adam Pritewell, clerks, William Clay, currier, and Robert Chesterford, tawyer, for the term of his own life the tenement with adjacent quay near Ebbgate extending from Thames Street to the Thames between the brewhouse tenement called le Mone on the Hop belonging to the Dean and Chapter of St Paul's to the east and the tenement of St Peter Westchepe to the west, which he held by right of his late wife Joan, the daughter of William atte Welle chandler (/129/121). A week later Elias Reyner, tawyer, son and heir of Joan, quitclaimed Moreton and the others in the same property (129/122), Godyng following suit on 20 April (MC: Whittington's Estate Deeds Box Z.13 (E.8)). On 1 June 1419 Robert Chestreford granted to William Babyngton, Thomas Eyre, John Carpenter junior and John Chestreford all his lands, tenements and rents in the City and suburbs, with all goods and chattels 'both living and dead' (Deeds Box Z.15 (E.10)). In his will made on 19 December 1420 and proved on 3 March 1421 Chesterford bequeathed to his wife Joan all his lands, tenements and rents in the parish of St Lawrence for her life, keeping his anniversary in the parish church, and on her death to John Martyn, tawyer, Richard Hakedy, grocer, John Carpenter junior and John Chesterford, leatherseller, heirs and assigns (CLA/023/CP/01/148/58).

Before 25 July 1424 Geoffrey Dallyng, Richard Hakedey, clerk, William Lylie and Thomas Barwe quitclaimed John Sadeler, vintner, in all that tenement called *le Katerine While* (the earliest appearance of the name) in Bridge Ward, London, which they and Sadeler held by grant of Sir Thomas fitz Nicholl of Berkeley (Gloucs) (TNA: PRO, LR14/351). On 12 October 1430 John Carpenter and Richard Hakedy (John Martyn and John Chesterford being now deceased) sold to Hugh Dyke the reversion of the property immediately upon the death of Joan Chesterford, which under her husband's will was due to fall to themselves (CLA/023/CP/01/159/67). On 12 July 1431 Dyke granted back the reversion to John Carpenter junior, clerk of the Commonalty of the City (/159/84). On 30 July 1431 Carpenter granted to George Gerveys, grocer, an annual rent of £63 derived from numerous City properties including the lands and tenements which ought to fall in reversion to Carpenter on the death of Joan, widow of Robert Chesterford between the tenement called le Mone to the east belonging to the cathedral church of St Paul, the tenement called le Swan to the west belonging to the church of St Peter Westchepe and extending from Thames Street to the river (/159/88). In his will made on 7 May and proved on 12 May 1432 George Gerveys bequeathed the £63 rents acquired from John Carpenter to the master and chaplains of the college of St Michael *in Riola* (St Michael Paternoster Royal) (/160/45). These were contributions to an income for the College and Almshouse established on the north side of St Michael's by the Mercers' Company as executors of mayor Richard Whittington.[46] On 10 May 1432 John Carpenter junior granted to William Sevenoke, grocer, property including all those lands and tenements which ought to accrue to the grantor in reversion after the death of Joan who was the wife of Robert Chesterford in the parish of St Lawrence, and which the grantor held by grant of Hugh Dyke, mercer (/160/50). By some unrecorded transaction during the next 80 years Tenement 4 came into the possession of the Mercers' Company.

A:Building 29

Just to the south of A:Building 23, and perhaps part of an extension to it, was another building (Building 29). A dump of

[46] Imray 1968, 30–1.

crushed mortar and chalk (A54.27) lay above earlier dumps, presumably acting as a make-up for truncated surfaces. Cut through it to the east was a straight-sided robbing cut (A54.28), with building debris at the base and more mixed material above. Cut into it was another north–south ragstone foundation (A54.29).

Within the building was a series of floors and make-ups (A54.31) with residual pottery of 1240–1300. These were of gravel, fuller's earth, then brickearth and mortar, then silt and finally compacted brickearth, a beaten earth floor. Above and on both sides of the wall was dumped material (A54.32), with differences on either side suggesting that the wall was still in use. The archaeological dating for this period on Tenement 4 for this period is given in Table 35.

Period A6: 1350–1400	
A88 dump	1240–1400 (one sherd)
A89 foreshore	no ceramic evidence
Building 29	?A6 or A7
Period A7 and later: 1400–1500	
A92 dump	no evidence; A92 may go in A6 or A7
A95 dump	1370–1500
A102 foreshore	1422+ from coins; pot 1450/80–1500
A103 dump	coins 1413–22 and jetton 1440–1500; pot 1400–1500+
A104 foreshore	pot 1350–1450

Table 35 Dating summary for Tenement 4, 1350–after 1500 (overall period M3)

Tenement 5 (le Mone on the Hop) (period M3, 1350 to 1500)

On 20 July 1364 Thomas Whityng, purser, and his wife Valentina granted to Simon de Mordon, stockfishmonger, 13s 4d annual quitrent which Valentina lately held by bequest of Herman le Setter and issuing from Thomas atte Wych's former tenement in Thames Street next Ebbgate (CLA/023/CP/01/092/132). On 2 March 1391 the executors of Simon and Alice de Mordon sold to Robert Sprotburgh, rector of St Margaret Bridge Street, and to Richard Wermyngton and William Askham, properties and rents including the 13s 4d rent from the tenement formerly of Thomas atte Wych (/120/75), and on 2 May in the same year Askham quitclaimed to Sprotburgh and Warmyngton the same property and rents, including 13s 4d from the tenement called *le Mone* in Thames Street and annexed to the lane called Ebbgate to the east (/120/76). On 6 November 1391 Sprotburgh and Warmyngton obtained a royal licence to alienate to Roger parson of St Michael Crooked Lane and parishioners the same premises and rent, for finding a chaplain to celebrate daily the souls of Sir William Walworth and Simon and Alice de Mordon and to keep their anniversaries (/120/77; Fishmongers' Company Deeds, GL, MS 6707). A deed of April 1401 relating to Tenement 4 refers to Tenement 5 as the brewhouse tenement of the Dean and Chapter of St Paul's called *le Mone on the Hop* (/129/121).

On 20 November 1427 Richard Osbarn and John Carpenter quitclaimed John Briklesworth and his heirs in 13s 4d quitrent from the tenement once of John de Shrovesbury, dyer, in St Lawrence parish opposite Ebbgate, which all three lately held together by purchase from John Marshalle, son and heir of Thomas Marshalle and his wife Cecily, who was in turn the granddaughter of Simon de Mordon (CLC/313/L/H/001/MS25121/13, no. 1175). On 26 November 1427 Briklesworth granted the rent to William Bodvyle of Enfield, John Reyner, brewer, and John Kyng junior (no. 1173). A deed of July 1431 concerning Tenement 4 refers to the tenement to the east called *le Mone* as belonging to the cathedral church of St Paul (CLA/023/CP/01/159/88). On 21 August 1466 Alice Fulbourne, widow of John Fulbourne, haberdasher, and sister and heir of John Stokes, lately minor canon of St Paul's, granted to Mr William Say, clerk and professor of sacred theology, and to the Dean and Chapter of St Paul's a quitrent of 13s 4d from the tenement once of John Shrovesbury in St Lawrence parish opposite Ebbgate, to be held by the Dean and Chapter and their successors in perpetuity for the use of chaplains celebrating for the souls of Bishops Stephen and Richard Gravesende (no. 1177).

4.3 Seal House (site B) in period M3, 1350–1500

Tenement 6 (The Black Raven)

Documentary evidence

Geoffrey Dittone was in occupation in 1363 (CLA/023/CP/01/091/87). Geoffrey Puppe is first named in 1377 (/106/5) and remained there until at least 1385 (/113/72). Ekwall (1954, 175) suggests that the alley which bisected the tenement in 1447–8, *Puppesaley* (later Black Raven Alley), was named after Geoffrey Puppe, stockfishmonger. The alley is first recorded as *Puppisaley* in December 1422, when the wife of William Prest carpenter was presented to the Mayor's Court for selling ale in her house there (*Cal Plea & Mem R 1413–37*, 159). As noted, it was already 'a little street' in 1333. In 1368 Thomas Kynebell, rector of the parish of St Martin Pomeroy, successfully claimed that John Croys of Amiens was owed £40 by Geoffrey, who had died; he claimed against Geoffrey's widow Margery, and as part of this the contents of a London house belonging to Puppe were catalogued. This notable inventory of a prosperous London house, published in 1928, is discussed again in section 6.2 below; it is possible that this detailed room-by-room inventory refers to Tenement 6, but this is not certain. The fact that the alley through Tenement 6 was known as *Puppesaley* as much as 80 years after Geoffrey's death perhaps indicates that this was his principal residence, and therefore likely to be the house inventoried.

By 1391 Tenement 6 was held of the 'college of St Laurence' by Ralph Lubenham, who has already been mentioned in the contemporary history of Tenement 4 (/120/75). Subsequently Corpus Christi (the college) leased certain of its properties to the Dean and Chapter to facilitate the maintenance of Pulteney's chantry (GL, MS 25526), and on 31 January 1448 Thomas Lisieux, Dean of St Paul's, granted to Mr John Thurston, Master of the College, a rent of 20s pa from the tenements held

by the Chapter in the alley called *Puppesaley* (CLC/313/L/H/001/MS25121, no. 1176).

The surviving rentals of the Pulteney Chantry at St Paul's for the period between 1454 and 1478 list some 25 tenants, their quarterly rents ranging from 45s to 7½d; almost all were under 3s. In the earliest, reference is made to a fishhouse, two stables and two cellars (one of them next to the great gate). At the latest date trades include cappers, merchant, dyers, cobbler, tailor, brasier, baker, grocer, as well as fishmongers and stockfishmongers (GL, MS 25158/1–7). It seems most likely that the chapter's Pulteney chantry holdings comprised the whole of Tenement 6; a deed of November 1509 concerning Tenement 7 refers to its neighbour Tenement 6 as belonging to the Dean and Chapter of St Paul's (Fishmongers' Company Deeds, GL, MS 6703).

Archaeological evidence

The archaeological evidence for the period 1350–1500 at Seal House comprises several archive periods and phases, reflecting comparatively intense activity in the buildings now covering the site: period B7.3–5 and B8.1. They are summarised in Table 36.

Period and phase	Group	Interpretation
7.3	61	Building 5 phase 2
	72	second phase of hearths in Building 4 room B
	73	Building 4 wall altered to accept Group 72
7.4	64	3rd phase of hearth building in Building 4 room B (after Gp 72)
	68	Destruction of Building 5, 2nd phase
7.5	66	4th phase of hearth building in Building 4 room B (after Group 64)
8.1	88	199: wall of mortared chalk at street end (Building 5)
	106	Building 5, wall [172]
	116	tile floor [102] with wall [172]
	74	Building 5, 3rd phase - the medieval tile floor [177]
	79	Building 6
	83	Building 5, 3rd phase: central hearth [197]
	84	Building 5, 3rd phase, occupation and partition
	85	Building 5, 3rd phase, second partition which joins with Group 84
	78	Building 7 walls

Table 36 Site B: stratigraphic groups in period B7.3–5 and B8.1

B:Building 5 phase 2

Traces of a building, imperfectly understood, probably preceded 1350 (above). During period B7.3 (B61, 72–3) alterations were made. These are illustrated in plan in Figure 76. The gap at the east end of the old chalk wall of B:Building 2, between the yard to the north and the hearth area (B:Building 4 room B) to the south, was almost closed by constructing another wall, of which the ragstone base for timber framing survived (B[277]). This constituted the second phase of Building 5, since a beam at the same level running into the east baulk (Figure 284: B[281]) was laid on or in a considerable deposit of charcoal (Figure 284: B[264]; both these B61) which overlay the unaligned wall of the first phase (Figure 284: B[295]). This alteration is not understood clearly, as the observed remains in the east section were the edge of strata outside the trench. A flat deposit of clay to the south of B[277], into which an associated post was driven, levelled up an uneven deposit of destruction debris which had by now spread over the first hearths (Figure 284: B[270, 280, 265]; also B61). This contained 69 sherds of pottery (25 ENV, 740g), most of which are residual London-type wares, Kingston-type wares and Mill Green wares. No CBW was found, and the latest finds are a sherd of late medieval Hertfordshire glazed ware (LMHG, B[280]) and one of Siegburg stoneware (B[265]), which date to after 1340 and 1350 respectively. The debris also spread over the surviving top of the reduced south wall of B:Building 2, and into it new hearths were cut.

B:Building 4 continued

In B:Building 4 two phases of large hearths made of stacked roof-tiles were laid. The first

(B[258]) (Figure 129) survived as two fragments, separated by later intrusion. Its original shape was semi-circular, and it had a low wall of more rooftile fragments forming a kerb on the north side. For the new hearth, the wall dividing rooms A and B of B:Building 4 was narrowed, and the construction of the wall now took the form of larger limestone blocks (Figure 283: B[338], B73). These began to form a branching wall which bordered the hearth. Hearth B[258] contained 13 sherds of London-type and Kingston-type ware and SHER, with two sherds from north France and the Saintonge (total 12 ENV, 220g). These date from the mid 13th to mid 14th century and could be contemporary with the finds from B[259] (below). No pottery was associated with the wall B[338].

In room B of B:Building 4, the hearth was replaced with a new one, the third. Hearth B[258] was covered with clay and tile fragments (B[259]), then a new hearth of stacked rooftiles laid on top (B[206]); this had a rough corner of squared ragstone cobbles on it (B[257], B64). Layer B[259] contained 26 sherds (147g), of which 11 are of Mill Green ware (five vessels), two are of coarse Surrey-Hampshire border ware and one is from a Spanish micaceous ware costrel. There is also a high proportion of Kingston ware, including a sherd with fleur-de-lis boss, a type dated to after 1340. This hearth, therefore, would appear to date to the mid 14th or 15th century. The dating evidence for period B7.3 is given in Table 153, two artefacts from B[280] in Artefact Table 36; one, a knife from B61, is illustrated in Figure 130. The phase (B7.3) comprises internal alterations in the buildings in the middle of the site, down Black Raven Alley; chiefly the relaying of a large heating surface twice in room B of B:Building 4. The pottery from these layers mainly dates to the 13th and 14th centuries, but two sherds of late medieval Hertfordshire glazed ware (LMHG) and Siegburg stoneware are of later 14th-/ 15th-century date. The phase is also later than period B7.2, which has a date of 1300–50. It is placed in the century 1350–1450. During a phase designated

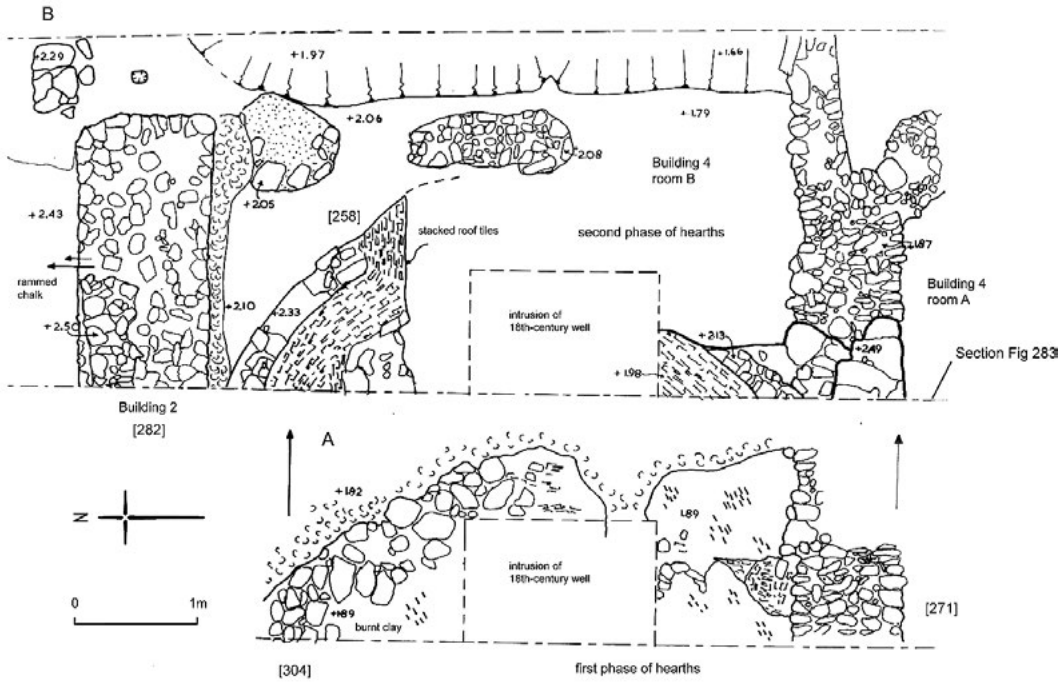


Figure 129 Site B: period B7, plan of hearths in the space called B:Building 4 room B (1:50). This is a plan produced shortly after the excavation. The numbers such as +1.97 and +2.10 are heights above Ordnance Datum. The first phase of hearths (A) was found beneath the second phase of hearths (B)

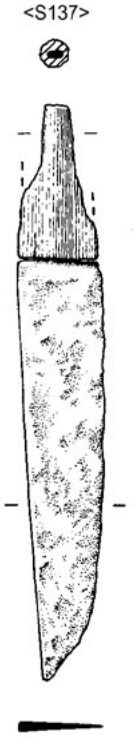


Figure 130 Site B period B7.3: knife B[280] <56> <S137> (1:2)

period B7.4, layers of charcoal, mortar and gravel built up around the walls in Building 5 (B68; Figure 284: B[264, 262, 275]); alternatively this may be destruction debris associated with the next period. There was no associated pottery.

Demolition of B:Building 1

In the north, by the street, the south wall of B:Building 1 was demolished, since the subsequent hearth of B:Building 5 B[197] lay on top of the destruction debris (B46; : B[412]). The destruction layers spread north and south from each wall, over the inner floors and over the hearths which had built up outside to the south. This is taken to indicate the demolition of the whole building, which is presumed to have fronted Thames Street since the 12th century. Pottery from a layer in this destruction B[283] (21 sherds, 14 ENV, 423g) dated to 1240–1350; of note is part of a lid in Kingston-type ware (B<P126>).

Construction of B:Building 5

A complex of rooms were now built over the site of the former B:Building 1, from the street backwards, and over B:Building 3, to join with a modified Building B:4 (plan above, Figure 76). They are described from north to south; the recorded deposits within each building and room yielded finds of slightly different dates within the period 1340–1500/50, and each is described individually before being discussed as a unity.

ROOM A

Running east–west across the north narrow part of the trench about 2.5m north of the demolished south wall of B:Building 1 and dug slightly into its demolition layer was a substantial wall of mortared ragstone and chalk (Figure 282: B[172]). This was fair faced (vertical) on its south side, but its stones interleaving with layers of clay, mortar, sand and charcoal on its north side (B116, shown in Figure 282: B[200], B[193], B[195]). These were the base of a tiled floor, which was observed only in the 1m-wide trench, of plain tiles (B[102], also B116). This stretched north for 1.5m before being interrupted by a later cellar (Figure 282, Building K).

Layer B[192], the base for the tiles contained no pottery, but 49 sherds (28 ENV, 427g) were recovered from three other layers associated with this activity. Those from B[102] comprise one sherd of CBW and two large sherds from a bunghole jar in early post-medieval redware that dates to after 1480 (probably to 1480–1550). The 46 sherds (298g) from B[193] and B[195] are mainly residual 12th- to 13th-century wares with a few sherds of Kingston ware that could date to the 14th century. One tile from the tile floor B[102] was retained: it has a plan dark green glaze and measures around 110mm square and 30mm thick. Its undiagnostic fairly sandy fabric could indicate either an English or a Low Countries origin.



Figure 131 Site B: plan of tiled floor B[177] in B:Building 5

Wall B[172] formed the back of the new street range. Room A formed the front room of the Black Raven; at least partly floored with plain tiles. It was probably at ground level.

ROOM B

In period B8.1 in B:Building 5, a dirt floor built up over the previous one, filling the withdrawn post-holes of the timber partition. Possibly this floor existed with the partition, and was stamped into the post-holes on their removal.

On top of this layer a large hearth of stacked roof tiles in clay (B83; B[197]) was laid. A new south partition was defined presumably with a wooden frame, of which only fragment of the underpinning survived, on almost the same alignment as the old one, and the space between hearth and partition filled with a fine decorated tile floor (B74, B[177], Figure 131), laid in mortar B[187] on a thin layer of clean brown clay.

A total of 200 tiles or triangular half-tiles were recorded; the floor went into the section on both sides of the trench and could not be further excavated. Of the 200, 105 were decorated and 95 were plain. The decorated part of the floor which lay in the trench was composed of 11 different designs, laid in a presumably central panel 1.54m wide and originally about 2.5m long, flanked on the east and west sides by panels of tiles arranged diagonally or diamond-wise (the start of these side panels was recorded just inside each edge of the excavation). The south edge of the stacked tile hearth which functioned with it lay on the north side. The surviving tiles were cracked and worn, and just over half the tiles of the central panel had been removed. On the north side next to the hearth, a patch about 1m by 0.6m of plain tiles in yellow and green glazes perhaps signifies a repair next to the hearth, though the patch could also have been laid at the same time as the panels of decorated tiles.

The decorated tiles are of 'Westminster' type, usually dated to the 1250s or 1260s.[47] The Seal House floor or pavement is the largest and most decorated so far recorded from a medieval secular building in the City, as opposed to loose tiles in dump layers on many secular and religious sites. The 11 designs are tabulated in Table 37.

[47] Betts 2002, 36–7, 64.

Design number (Betts 2002)	Quantity
W1	16
W5	7
W55	19
W61	5
W76	22
W99	6
W113	8
W130	1
W138	3
W140	12
Design ?	6
Total	105

Table 37 Site C: the different designs in the tile floor B[177]



Figure 132 B:Building 5, wall B[129] (above scale) crossing earlier wall B[214], looking east (2m scale)

Three of the layers immediately beneath the tile floor (Gp B74) contained medieval pottery, amounting to 40 sherds (31 ENV, 417g). Most, including a highly decorated jug in LOND (B<P127>), date to the mid-13th century, and the latest find is a small sherd of CBW dating to after 1270, found in the mortar layer B[187] on which the tiles were laid (B[187]). Groups B83–5 contained only a small amount of pottery (37 sherds, 28 ENV, 258g). Some of these date to the 12th century, but, as in B66, there are several fabrics and forms typical of the period 1350–1500. These comprise bunghole jugs in CBW, jugs/drinking jugs in Cheam whiteware and Rhenish stoneware from Siegburg and Langerwehe. The latter, a two-handled cup (B<P128>) joins with sherds from period P1 (B91, B[166]). A small sherd of Raeren stoneware could be intrusive or date the group to 1480–1500. Sherd links were noted between B[222] (B84) and layers in contexts assigned to period B7.2 (B[221], B56), B7.5 (B[220], B66) and B8.1 or B8.2 (B[223], B69).

ROOM C

To the south the first phase walls were later altered: the low underpinning walls was submerged under a layer of mortar and gravel, and the partition moved 1.8m to the south, where a skimpier underpinning wall had traces wood on its smooth upper surface, presumably from the timber frame erected on it (Figure 284: B[179]). The clay and charcoal floor with this partition rose over the small hump left by the former wall (Figure 283: B[216]; both B84). The new partition connected at right angles via a post with a new north–south wall, of slightly larger construction, which also crossed the wall of the building's first phase (Figure 132). It presumably ran as far as the new partition by the tiled floor, but was destroyed by later intrusions. There were traces of plaster on both sides of this wall, indicating that a larger room had been subdivided into two.

B:Building 6

On the south side of the new partition the yard was raised with a layer of demolition rubble, and on it erected B:Building 6: an adjunct of this phase of B:Building 5, and perhaps not a separate building at all. The major hearths south of the yard had by now fallen into disuse, and charcoal spread over most of the yard itself (B79). B:Building 6 comprised a curving wall of clean brown clay, later demolished but surviving to a height of 0.4m, built on a timber foundation of one sill-plank and one plank on the east and south outsides, nailed into the clay itself. The wall thus formed two arms of a right angle, running first south from the end of the new north–



Figure 133 B:Building 6, east wall [115], looking east; in the foreground, the floor (0.2m scale)

south partition, connecting with the post there, and turning west to enter the baulk after rounding the still visible stub of the old Building 2 south wall. On its south side a double series of shallow post-holes seem to be scaffolding traces associated with its construction; thus the wall may have risen to a reasonable height, but in its lowest surviving section was nowhere more than 0.1m thick. Inside it the previous demolition layer formed the base for a thick layer of fibrous charcoal interpreted as a plank floor, laid on a groundsill or joist at the east side and destroyed towards the west and south. Above this floor, the wall was plastered on the inner face, and vestigially (perhaps only whitewashed) on the outer east face (Figure 133).

Only a small amount of pottery was recovered from deposits associated with this building (40 sherds, 25 ENV, 337g), but the group is similar in character to the above, with approximately half the group comprising coarse Surrey-Hampshire border ware, and sherds of Tudor Green ware, Siegburg stoneware and Langerwehe stoneware, all dating to between 1350–1500. The latest diagnostic find is a sherd of late London slipware (B[218]), which is thought to have come into use *c.* 1400.

B:Building 4 continued

In this period (B66) a third tiled hearth was laid in the north room of B:Building 4, this time after a thick layer of charcoal had grown over the previous tiles, containing several whole fish skeletons (Figure 283: B[205=220, 204, 203]) which are the only clue as to the use of the hearths. The pottery amounts to 44 sherds (283g), again mostly dating to between *c.* 1350–1500, with sherds of late medieval Hertfordshire glazed ware and Dutch redware. As in B79 there is one sherd of late London ware, dating to after *c.* 1400, but also five sherds of Raeren stoneware dating from after 1480. There is no reason this should be residual in this context, and taking the different fabrics together a date of 1480–1500 is proposed for this group. The dating evidence for period B7.5 is given in Table 153.

B:Building 7

There were a series of developments (B69, 78, 93) over the south end of the hearths in B:Building 4, which constitute the erection of B:Building 7 (Figure 76). The hearths were finally destroyed and collapsed into a large pile of clay and tile rubble. Through this rubble, and through several of the hearths beneath, a ?circular structure of limestone about 2m across was sunk by a surviving depth of about 0.5m. Since it had been destroyed, only fragments of the walls, heavily burned, survived, and nothing of the floor or its contents (B78). It was attached to a small structure or building, of which two walls survived in the cutting, here called B:Building 7. The circular structure having been built against the wall B[271] of B:Building 4, the wall itself was removed and B:Building 7 took a sizable portion of the floor area of B:Building 4 in the northeast, cutting down through a number of floor levels giving a north–south width of 2.2m for B:Building 7 at the east baulk. A substantial wall of rag, with dressed ashlar blocks on the outside, was also built so as to protrude from the west baulk, some 0.8m from the west side of B:Building 7; the space in between became a hard mortar floor. If B:Building 4 was originally of two rooms, and incorporated the substantial hearths, then 'Building 7' would have been an internal alteration within the north of the two rooms. This would be appropriate if it was an oven, adding to or even replacing the large stacked-rooftile hearth. No pottery was associated with this construction.

Layers of clay and charcoal with some evidence of burning were recorded inside the structure or B:Building 7 (B87); these could be debris of destruction or, if the structure was an oven, they might have been layers of use. Only two sherds of pottery (2 ENV, 10g) were found in the floor levels inside the building; both date to 1350–1500.

Dating and discussion, period B8.1

The pottery dating evidence for period B8.1 is given in Table 154. At this period the wharf on the Thames lay an unknown distance to the south of the excavated parts. This period saw a wholesale rebuilding on the east side of Tenement 6, from the street to B:Building 4, which was altered but not demolished. The street range was rebuilt, its front room (A) had a plain tile floor. Behind this, with its floor about 0.3m (1ft) lower, was a large room with a central stacked tile hearth and a decorated tile floor on its south side (room B). It would be attractive to suppose that the decorated tiles formerly lay on the north side also, filling the room, but later disturbance and deposits had removed all traces of flooring between the hearth and the back wall of the street range.

The decorated Westminster tiles of the floor B[177] were badly cracked when found; but they must have been individually intact when laid down. Apart from being laid as was usual in panels (the central panel in line with the hearth, two side panels laid diamond-wise), there was virtually no attempt to make formal patterns, since there was a wide variety of styles in the tiles. They appear to have been a job lot acquired from a tiler's workshop rather than from a building in which they had been previously laid (there are too many styles for that). Though a date in the late 13th century is normally assigned to Westminster tiles, the stratigraphic evidence allows a date for their laying here in the 14th century. It is suggested here that the floor should be considered contemporary with the large hearth on its north side, which produced pottery of the period 1350–1500. The central hearth and the tiles together suggest that room B in B:Building 5 was a prestigious room, presumably a hall, and with no storeys over it because of the central hearth. South of this were further timber-framed spaces or rooms, one of unusual clay-walled construction (B:Building 6), and of unknown purpose.

The finding of fish skeletons in the ash on the hearths of this phase is one indication of the possible function of the large hearths, several times replaced, in the space north of B:Building 4, which might be called room B. It is possible that the hearths represent a substantial kitchen, which would have been required on the Black Raven Property and B:Building 4 is in the usual position for one, south of the room with the tiled floor which may have been the hall.

In the period 1454–78, 25 tenants are mentioned on the property in the Cathedral records. They would have been on both sides of the central alley and some would have been off the excavation site to the south, next to the river. So correlation between these particular documents and archaeology is only by chance. One of the small units on Tenement 6 in 1478, however, was to a 'fishhouse'. It seems

possible that B:Building 4 with its hearths was a fishhouse, perhaps even the one mentioned (there may have been others on the wider property, not mentioned in the documentary records). A parallel for the hearths of B:Building 4 is provided by a possible fish house excavated at Dragon Hall, Norwich, a 13th-century building which contained substantial hearths. This too is called by the excavator 'a kitchen or possible fishhouse.' It had walls of mortared flint and a gable of clay, and the hearths were surrounded by a 'smoke box' of timber. Medieval fishhouses were also common in Yarmouth (Norfolk), as would be expected, and have been suggested at Hartlepool.[48] A building used for the smoking of fish on Tenement 6 would be appropriate down a lane behind Stockfishmongers' Row.

Tenement 7 (Our Lady)

On 8 April 1359 Walter Wetheresfeld stockfishmonger leased the whole tenement with adjacent quay to John Welles stockfishmonger from the following Easter (21 April) for the term of John's life at a rent of 5m. The tenement was described as extending from Thames Street to the Thames between the tenement held of the Master of the church of St Laurence to the west and that of Richard de Croydon to the east (CLA/023/CP/01/087/61). Two years later, on 19 April 1361, Walter granted to Richard Treuet of Churchill and his heirs the reversion of the tenement which John de Welles held for life together with all the grantor's other property in the City and suburbs (/089/47). On 12 January 1363 Walter and his wife Alice granted the reversion of the tenement with adjacent quay, described as before, to John Arderne called Mordon stockfishmonger and his heirs on the death of John Welles (091/87), and on 20 July 1377 Arderne and his wife Margaret granted it to Simon de Mordon stockfishmonger and his wife Alice and their heirs (/106/5–6).

The executors of Simon and Alice de Mordon, in accordance with their wills, sold the tenement, along with rents from two tenements in the parishes of St Laurence and St Magnus, to Robert Sprotburgh rector of St Margaret Bridge Street, Sir Richard Warmyngton and William Askham and their heirs on 2 March 1391 (/120/75). On 2 May Askham quitclaimed Sprotburgh and Warmyngton (/120/76) who, having first received a licence in mortmain for the purpose, granted the tenement and the 40s pa rent from the other two tenements to the rector and parishioners of St Michael Crooked Lane and their successors on 6 November for finding a chaplain to celebrate daily for the souls of Sir William Walworth and Simon de Mordon and his wife Alice and for keeping the anniversary of Simon and Alice each year (GL, MS 6707).

Nothing is recorded of the subsequent occupants of Tenement 7 until 15 November 1509 when the rector and wardens of the collegiate church of St Michael leased it with wharf, shop, cellars and solars to Leonard Johnson stockfishmonger for a term of 31 years from St John's day following at an annual rent of £4 13s 4d; at this date it was described as adjoining the tenement of the Dean and Chapter of St Paul's to the west (Tenement 6) and the tenement belonging to the Chamber of London (Tenement 8) to the east (GL, MS 6703). A similar lease for a term of 40 years at a rent of 46s 8d during the first 34 years and £4 6s 8d during the remaining six years was granted to Johnson on 10 May 1531 (GL, MS 6689).

Tenement 8 (The Peacock)

On 8 April 1380 Ralph Double fishmonger and his wife Alice, the daughter of Geoffrey Horn fishmonger, granted to Sir Walter Broun rector of St Magnus, Sir Robert Sprotburgh rector of St Margaret Bridge Street, William Stachesden fishmonger and William Marescal of Sussex property which Alice had inherited from her father Geoffrey including a tenement with adjacent quay in the parish of St Martin, situated between the tenement formerly of John Mordon on the west (Tenement 7) and the tenement held by William Brynkele chandler on the east, and extending from Thames Street to the river (TNA: PRO, C148/58). On 20 September 1392, after the deaths of Broun and Stachesden, Sprotburgh and Marescal regranted the same property to Alice and her heirs (HR 121/88); Ralph having apparently died since the previous November (Fishmongers' Company Deeds, GL, MS 6707).

On 10 May 1394 Alice and her new husband John Walworth vintner granted the properties to Thomas Weston and Thomas Coupeland chaplains and to William Shirwode, their heirs and assigns, Tenement 8 now being described as bounded to the east by the tenement of William Northbury chandler (CLA/023/CP/01/123/104); the properties were regranted to John and Alice Walworth and their heirs on 3 June (/123/104). On 14 January 1399 Alice, now the wife of William Neel, granted them to William North and John Clynton chaplains and their heirs (/127/45). The property was restored to William and Alice on 7 February with the provision that if William died without an heir by Alice all of it should remain to her and her heirs (/127/50).

In the event Alice predeceased her husband. The will of William Neel, describing him as both citizen of Chichester and citizen and vintner of London, was written on 10 August 1418 and proved on 19 January 1422, and bequeathed to Thomas Pacchyng, also of Chichester, all the testator's tenement in Thames Street in the parish of St Martin for life. On Thomas's death the tenement was to be sold along with all William's other property in London, the proceeds being distributed for masses and for the poor, and also for the souls of William and Alice (/149/45). On 10 February 1419 Neel's executors sold to William Crowmer, Henry Barton, William Test clerk, John Marcham, Richard Osbarn and John Carpenter junior the reversion of the tenement in Thames Street between the tenements formerly of John Mordon and William Brynkele chandler and which Thomas Pacchyng held for life (146/47). On 4 May Pacchyng surrendered to Crowmer, Barton, Test and the others all his estate in the tenement under Neel's will (TNA: PRO, C146/1292).

On 20 November 1477 William Chedworth, clerk of the Chamber of London, granted to John Don senior, mercer, several properties including the tenement in the parish of St Martin now leased by John Crouche fishmonger and situated between the tenements of the church of St Michael Crooked Lane on the east and west; which properties Chedworth and Robert Langford deceased held to themselves and their heirs

[48] For Norwich, Shelley 2005, 54–6, figs 39–42 and another example in Kelly *et al.* 1983, 26; for Hartlepool, D Evans (pers comm) suggests that Buildings 18–19 on Southgate and Olive Street (as reported in Daniels 2010, 98–102) may have been fishhouses.

by grant of John Carpenter, lately Common Clerk of London (TNA: PRO, C146/1258; CLA/023/CP/01/207/22). In his will of 20 December of that year Don willed the property to the Mayor and Chamberlain (*Cal Plea & Mem R 1458–82*, ix, 128–31).

Waterfront structures recorded on the watching brief on Tenements 6 to 8

During development after the excavation, the 19th-century Seal House building which formed the east half of the development site was demolished, and holes were dug by machine on the sites of various intended pile holes, to remove obstructions. This resulted in the tracing of the Roman waterfront across the north end of the site (reported in Brigham 1990), and glimpses of several medieval and later waterfront structures of timber and stone south of the 1974 excavation trench of site B. These are not discussed here as the recording was inadequate. There were virtually no finds from this operation except unstratified groups from the pile holes dug by machine. The unstratified finds groups from the watching brief are 778–780, 782, 824 (which might =B[59]), 828 (=B[150]), 831–2, 846B, 865–7, 880–3.

Small amounts of medieval pottery were found in B[865], B[866], B[880], B[881] and B[882]. The ten sherds from B[865] and B[866], possibly associated with a further waterfront, are mainly of 12th century date, while those from B[880] and B[881] (piles 117 and 123, five sherds) are of 13th- to 14th- century date. One sherd of post-medieval pottery was recovered from pile B[122] (B[882]). The finds have been recorded but merit no further mention here. Although the 1976 building was built on a grid of piles, the strata between the piles still merit investigation in the future; at the time of completing this account (2018) the site was scheduled for redevelopment.

4.4 New Fresh Wharf (site C) in period M3, 1350–1500

The proposed outline of buildings on the properties at site C around 1350 has already been given above, Figure 82. The developments in period M3 (1350–1500) are shown in Figure 134. It is proposed, in summary, that the forms of the buildings on the western Tenements 9 to 12, C:Buildings 6 to 9, largely stayed in the form shown in the earlier plan. The certain new construction of period M3 was on Tenement 13: C:Building 10 sometime after 1350.

Tenement 9 (Le Cok On The Hoop; Croskeys)

In his will written on 15 July and proved on 25 October 1361, Guy Lambyn, fishmonger, bequeathed to his wife Elizabeth for the term of her life all that tenement in Thames Street with the shop, cellar(s) and solar(s) in which he then dwelt; on her death and in the absence of any heir the property was to be sold by Guy's executors (CLA/023/CP/01/089/186). On 10 March 1403, following Elizabeth's death, Thomas Overton, rector of the church of St Magnus Martyr, and two parishioners, acting in place of the predeceased executors, declared that they had granted to Nicholas Wotton woolman (*lanarius*), John Hawkyn and William Doune chaplains for a certain sum all Guy's former dwelling house in Thames Street with the shops, cellar(s), solar(s) and adjacent quay as presently situated between the tenement of Henry Boseworth (Tenement 10) to the east and the church of St Magnus and the tenement lately of Henry Yevele to the west, and extending from Thames Street towards the north to the Thames towards the south (/131/75). On 7 April 1403 Overton and the two parishioners quitclaimed the same three in the property (/131/77).

The mason Henry Yevele owned a group of properties to the south of the church of St Magnus in addition to the one referred to here, which adjoined Fish Wharf. In his will drawn up on 25 May and proved on 25 October 1400 he bequeathed all of them to his wife Katharine for her life, reverting on her death or remarriage to the rector and wardens of the church of St Magnus (/129/7). By 1440 these formed part of the new cemetery of St Magnus (/174/27), described in 1663 as the smaller of the two parish churchyards and lying between the cloister and the south side of the church (GL, MS 1179/1, p 958).

In her will written on 5 February and proved on 11 May 1405 Margaret, widow of William Wotton, bequeathed to the Master and wardens of the college and church of St Lawrence Pountney all her moiety of the tenement called *le Cok on the Hoop*' in Thames Street with the adjacent quay, cellar(s), solar(s) and with the shops situated in front, which Margaret and her son Nicholas lately held conjointly by the feoffment of Sir William Downe and Sir John Hawkyn chaplains; the college or church finding a chaplain to celebrate for the souls of herself, her husband William and her brother and sister, and receiving no more than £10 pa for the same, the rest being bequeathed to her son Nicholas and heirs forever (CLA/023/CP/01/133/64). On 4 May 1405, a week before the probate of Margaret's will, her son Nicholas, a merchant, complained to the Assize of Nuisance about the state of disrepair of Henry Boseworth's wharf to the east (Tenement 10), which was imperilling his own (Chew and Kellaway 1973, no. 645). The timing of this action is notable, in view of the fact that Margaret's will evidently did not take effect; there is no record of any subsequent connection between Tenement 9 and the church of St Lawrence Pountney. Presumably her moiety was acquired by Nicholas, who in the autunm or winter of 1430 granted to Thomas Knolles senior, John Fray, John Simond, Nicholas Conyngston, John Bamburgh, Thomas Knoville, William Creke and John Huchon' and their heirs all the lands, tenements and rents which he held in the parishes of St Magnus, St Lawrence Pountney and All Hallows the Great and Less (/160/13). On 28 June 1452 Thomas Withyall and his wife Margaret, lately wife of Nicholas Wotton alderman, released to John Fray and his heirs all Margaret's claim in the same properties in accordance with the instructions of Nicholas's last will, dated 25 February 1443 (/181/16).

On 30 August 1480 Robert, son of Nicholas Wotton of Boughton Malherbe in Kent, acknowledged before the mayor his consent to a recent sale by Sir John Guildford and others to John Austen, Henry Somer, Richard Knyght, Edmund Newman and others of a brewhouse tenement called the Cokk with wharf, shops, cellars and solars in Thames Street (*Cal Plea and Mem R 1457–82*, 140). At some date after this Tenement 9 appears to have been acquired by the fraternity of *Salve Regina* at St Magnus (founded 1343), which had already come into the possession of Tenement 10 in or soon after 1442. In these circumstances it would have been natural for the church to acquire the intervening property and thus whole of the area between itself and *Retheresgatelane*.

This property was not investigated on the ground apart from the small lengths of foundations along its east side reported above under period M2, so there are no archaeological results to report for this or subsequent periods.

Tenement 10 (including Rothersgate)

Henry de Boseworth's will, written on 2 September 1373 and proved on 4 June 1375, bequeathed to his wife Alice and son Henry all his dwelling house in the parish of St Magnus acquired from the executors of Adam Pykeman senior, together with property in the parishes of St Botolph and St Mary at Hill. On their deaths, the dwelling house was to come to the wardens of the testator's fraternity of *Salve Regina* in the church of St Magnus and their successors for the maintenance of chaplains. His other property was bequeathed to his children (CLA/023/CP/01/103/113). Henry Boseworth junior, a mercer, was still in possession of Tenement 10 on 4 May 1405, when Nicholas Wotton merchant (the owner of Tenement 9) complained to the Assize of Nuisance that Henry, a mercer and his neighbour to the east, had an old and ruinous wharf which for lack of repair was on the point of causing Nicholas's own wharf to collapse into the Thames. When the mayor, sheriff and six aldermen visited the wharf on 5 June, Henry defaulted, and four viewers were appointed to inspect and report as soon as possible. They certified that Henry's wharf measured 13ft 11in (4.3m) from east to west, and was very ruinous, and that he ought to repair and maintain it so that the wharves on either side did not suffer damage through his neglect. The viewers further certified that Nicholas' wharf was 12ft 1in (3.7m) high, and overhung Henry's by 7ft 6in (2.3m), through the latter's fault (Chew and Kellaway 1973, no. 645). The discrepancy between the width of 13ft 11in along the quay frontage at this date of 1405 and that of 18ft 2in in 1326 is notable and not readily explicable. The mentions of ruin and overhang for the wharf would perhaps indicate that they were of timber and not of stone.

The will of Andrew Hunte girdler, written on 28 September 1440 and proved on 28 May 1442, noted that Thomas Robelard armourer had lately confirmed to him on 10 September 1440 a tenement with adjacent quay, shops and solars in the parish of St Magnus which was formerly of John Rammesey alias Hadersham chaplain (the nephew of Henry Boseworth junior, as noted above in the first part of the history of this tenement) (St Botolph Cartulary, fos x–xi). This was situated between Tenement 9 to the west and the lane called *Retheresgate* to the east, extending from Thames Street to the Thames, and Robelard's grant had also included a rent from another property, also formerly of Henry Boseworth, on the west corner of Pudding Lane and Thames Street, opposite to Tenement 10. Hunte now bequeathed this and additional property to the rector of the church of St Magnus and his successors and to the wardens of the fraternity and their successors, with all rents and profits. Any residue was to be put to use of the fraternity in aid, increase and maintenance of the light, chaplains and ornaments and other needs, with the purpose of including the souls of the testator, Henry Boseworth and John Hadersham, their parents and Margery Welton in the prayers and divine services of the fraternity forever (CLA/023/CP/01/170/50). On 26 May 1448 Henry VI approved the constitution of the guild of St Mary the Virgin and St Thomas the Martyr known as *Salve Regina*, enabling it to acquire other possessions and confirming it in existing ones, including the tenement with adjacent quay, shops and solars formerly of Henry Boseworth in the parish of St Magnus, subsequently bequeathed to the fraternity by Andrew Hunte and lately of Margaret, wife of Robert Welton (*Cal Pat Rolls 1446–52*, 23–4). In 1402 Rothersgate was leased to a group of Eastcheap butchers to dispose offal in the river; they had licence to build a 'bridge' or jetty 'over the Thames with houses thereon' (*Cal Lbk I,* 15–30.).

No archaeological deposits on the property were certainly attributed to this period. Presumably C:Building 7 continued in use, along with surfaces forming the alley.

Tenement 11 (Freshwharf)

In 1355 William Knyth and Margaret, widow of Sir John de Bourne, leased to Simon Levelif and his wife Lucy tenements and wharf at *le Fresshewharf* for 20 years at an annual rent of £19. The indenture was confirmed by Bartholomew de Bourne (*Cal Lbk G*, 220–1). By July 1360 Tenement 11 had been acquired by John de Estdraytone chaplain and Thomas de Willeby of Leicestershire, who granted it to Margaret Bourne for the term of her life, remaining on her death to her son Bartholomew, clerk, after whose own death it was to remain to Adam Fraunceys (CLA/023/CP/01/099/87). On 6 December 1367 Simon Levelif came to the Chamber of the Guildhall and agreed that a clause of re-entry in case of arrears should be added to the indenture of lease made in 1355 to him and his wife, and the indenture was confirmed by Bartholomew de Bourne (*Cal Lbk G*, 220–1). On 25 November 1368 Bartholomew de Bourne, Sir Thomas's younger brother, confirmed to Simon Levelyf and his wife Lucy the lease of rents, tenements and adjacent quay at Freshwharf which they had been granted for a term of 20 years from Michaelmas 1355 by William Knight parson of the church of Upper Hardres (Kent) and by Margaret Bourne for £19 pa; Bartholomew stipulating that all vessels used for brewing were to be kept in as good condition as they were received (CLA/023/CP/01/096/207). It seems likely therefore that the tenement contained a brewhouse in 1368, and probably from before 1355.

On 23 June 1371, after Margaret's death, Adam Fraunceys assigned to Arnold de Pynkeny and Richard de Donemowe, clerks, their heirs and assigns, the reversion of the tenement which by the deed of July 1360 would otherwise have remained to himself on the death of Bartholomew; the tenement was now described as situated between the tenement of Henry Boseworth (Tenement 10) on the west and the tenement of John Wroth (Tenement 12) on the east (99/87; TNA: PRO, E315/47/13). Soon after, on 15 August, Arnold and Richard granted the reversion of the property on Bartholomew's death to the Lord Edward, the Black Prince, his heirs and assigns (E303/10/294; E326/8803).

By the autumn of 1372 Tenement 11 was in possession of St Mary Graces by the Tower, which on 12 June 1371 had been licensed to acquire lands and rents to the value of 100m pa (*Cal Pat R 1370–4*, 97). On 16 October St Mary's leased it to Gilbert Maughfeld (Maughfield), merchant, and his wife Margery for a term of 90 years at a rent of £20 pa. Named for the first time in the deeds as *le Frosshwarf*, the property was described as a messuage and tenement with adjacent quay; on 15 August 1391 the rent was reduced to 12d pa for the rest of the term provided that St Mary's did not lose possession of the Hospital

of St Giles Holborn, which it had been granted by the king (TNA: PRO, E303/10/294). On 28 October St Mary's confirmed these provisions, adding a further term of 100 years on the expiry of the existing 90-year term for the provisional rent of 12d; Gilbert and Margery agreeing that that the arrangement should be nullified in the event of the abbey's loss of the Hospital, and that if the issues of St Giles did not amount to a clear £20 the abbey should re-enter the property, saving the term of the original 90 years at the original £20 rent (E326/5712).

Gilbert Maughfield, who also held property at Billingsgate, Tower Hill and Mincing Lane, was a prominent ironmonger and merchant who served as alderman of Billingsgate ward in 1382 and as a sheriff of the City in 1392. He is sometimes thought to be the model for the merchant in Chaucer's *General Prologue*;[49] Chaucer worked down Thames Street at the Custom House. From 1383 Maughfeld was constantly in the king's service, first as guardian of the seas between Berwick and Winchelsea, and from 1385 until his death in 1397 successively royal customer at Southampton, Boston and finally at London. Maughfeld's surviving ledger book (TNA: PRO, E101 509/19; Anon 1926–7) shows his importance as a wholesale distributor, specialising in the iron in which his import trade was concentrated on the Bayonne - Bilbao area, in return for which he shipped out grain and cloth. His imports from other European markets included wax, linen, copper, millstones, woad and herring, and wine from Bayonne and La Rochelle. More than half his stocks of iron was sold to other London wholesalers, and a third to mechants from the home counties, Suffolk and Hampshire; very little was sold direct to manufacturing ironmongers. Thomas Blosse, a leading fishmonger who held the adjoining tenement to the east (Tenement 12) from 1401, was closely associated with Maughfield, combining with him to buy wheat 'on the water of the Thames' and sharing the profit and loss equally.

On 24 May 1398 the Crown released St Mary Graces, Maughfield's landlord, from the payment of 40m pa rent for a messuage and other tenements, shops, solars, cellars and adjacent wharf called *le Frosshewharf* which on Maughfield's death had come into the king's hands on account of his debts and were restored to the abbey for the payment of the rent (*Cal Pat R 1396–9*, 348). In his will of 26 December 1422 Robert fitz Robert grocer bequeathed to the rector and wardens of St Mary Aldermary an annual rent of £6 13s 4d which he had acquired from Ralph, lately abbot of St Mary Graces, in respect of property in the parish of St Botolph: lands, tenements, messuages, shops, solars and cellars, and from the wharf called *Fresshwharf*. The rent was intended for maintaining a perpetual chaplain in the church of St Mary for the souls of the testator, his deceased wife Joan and their parents; and should Robert's son, Robert junior, die without heirs the appointment of the chaplains was to be the responsibility of the abbot and convent of St Mary Graces (CLA/023/CP/01/153/74).

No archaeological features are assigned to this phase; presumably C:Building 8 continued in use, and some of the internal surfaces were probably in use in this later period. Thus we cannot bring any new insights to further the study of Gilbert Maughfeld and his many interests.

[49] Braswell 2001, 29.

Tenement 12 (Brodegate)

John Wrothe, who had also held the adjoining tenement to the east (Tenement 13) since 1354, retained *la Brodegate* for forty years before granting it and its quay, shops, cellar(s) and solars to John Sibille, citizen, and his wife Margaret on 6 December 1390 (CLA/023/CP/01/119/63). By an indenture of 15 January 1401 John and Margaret Sibille leased the tenement to Thomas Blosse stockfishmonger, his wife Matilda and son Thomas junior, to be held as fully as Robert Frankeleyn and Henry Kays dyers had jointly held it, for a term of 45 years from the following Easter and for a rent of £10 pa for each of the first five years, and £12 pa for each of the remaining forty. The grantees were to make no transposition of any house, wall, chimney or wharf of the tenement without the licence of the grantors, and were held responsible for any damage caused by them or their servants, and for repairs during their term. They were also prohibited from making any demise of their term, at the expiry of which they were required to surrender all locks, keys, and pavements within the gate of the tenement, together with the pavements in the hall, pantry (*dispensa*'), chambers, garrets, in the two kitchens and in the other houses of the same tenement, and all other utensils received by them at the beginning of the term, and in as good condition. In the event of the grantees' decease within the term, their executors were to enjoy the tenement, and pay the rent, for one year subsequently (/130/56).

At some subsequent date John Sibille enfeoffed the property to Robert Cawode clerk, Thomas Basset gentleman and to Robert Rose and William Childe fishmongers. In his will Childe bequeathed it to his wife Joan, and on 20 May 1443 Cawode, Basset and Rose duly demised the whole tenement with adjacent wharf, cellars and solars and two shops in front with solars built above to Joan, who had since married John Payn grocer, for her life (*Cal Close R 1441–7*, 141). By 1454 the property was in the possession of Thomas, son of William Childe fishmonger, even though his mother Joan was still living. He claimed to have inherited it from his father, and granted it on 2 July to Richard Lee alderman, John Whittokkesmede, Thomas Welle and John Parker scrivenor. It was now described as being anciently called *Burgateskey*, afterwards *Blasseskey* (presumably after Thomas Blosse, tenant from 1401) and lately *Childeskey*, and as including the adjacent wharf, cellar(s) and solar(s), together with the two shops situated in front and the solars built above them (/183/5). Two years later, on 2 November 1456, Childe quitclaimed all interest in the tenement to his mother and her husband John Payn (/187/48). John and Joan granted it on 31 August 1465 to Thomas Fermory scrivener and Thomas Page pewterer (*peautrer*) (/195/24).

On 3 September, Fermory and Page restored to Payn the messuage with the cellar below and with the solars and chambers both above that cellar and above parts of other cellars adjoining on either side as well as above the alley there, and other appertinances lately held by Thomas Clerk and his wife Agnes within the alley of Childeskey now called Payneskey, viz. in or about the middle of the alley on its east side. This property lay between the dwelling house which Henry Neville then held, and which was part of Payneskey, to the north, and Payn's own dwelling house, likewise part of the same, to the south; and was to be held with free entrance and exit to and from the wharf of the tenement, and with

all easements. At the same time Fermory and Page granted to Payn the whole residue of the tenement called Payneskey with adjacent wharf, cellar(s), solars and shops, and including the two messuages held respectively by Henry Neville and Payn himself but excluding the third messuage lately in the tenure of Thomas and Agnes Clerk (/195/25).

The effect of this arrangement was to divide Tenement 12 into two distinct freeholds, one central messuage being held separately from two other parts, one to the north and the other to the south, which were considered together. This division is apparent in Payn's two wills, the first of which, dated 12 April 1466, bequeathed to the fraternity of Our Lady in the parish church of St Botolph, for an obit for himself and his wife Joan, a rent of 40s pa from the cellar, solars and chambers lately held by Thomas and Agnes Clerk and comprising the middle tenure. The will defines the cellar as measuring 17ft 4in (5.3m) from north to south and 18ft (5.5m) from east to west; and the solar above as 49ft 6in (15.1m) from north to south. The annexed solars above the alley measured 26ft (7.9m) from north to south, and were 14ft 4in (4.4m) wide, which presumably indicates the width of the alley beneath. This property was bequeathed to the testator's wife for life, paying the 40s rent; on her death it was to remain to Elizabeth Hawys and Katharine, his daughters and their heirs for the payment of the rent to St Botolph. In the event of the tenement failing to raise the rent for want of repair, or of non-payment, it was to revert to the rector and wardens of the fraternity (St Bartholomew's Cartulary, fos 26v–28v).

Payn's second will, dated 16 April 1467 and proved early in November, refers additionally to his property in Salisbury and Southampton and also confirms the provision made in the earlier will in respect of the middle tenement, the fraternity at St Botolph's and his wife and daughters. It then provides separately for the 'remnant' of the testator's tenement called Payneskey and comprising the messuage with the wharf, cellars, and solars set at the south end of the said alley beside the water of Thames, which the testator now occupied, as well as the messuage with the cellars and solars set at the north end of the alley before Thames Street, which John Hawes (very probably the husband of the testator's daughter Elizabeth) held and occupied. These premises, in which the testator's wife stood enfeoffed with him for the term of her life, were to remain to Elizabeth Hawes and Katharine his daughters and their heirs (/197/18). There is no evidence that any of Tenement 12 did actually revert to the church of St Botolph, though subsequent allusions to the 'Lady House' or 'Our Lady House' evidently commemorate the premises from which rent was formerly payable to the church.

C:Building 9 continued

Only successive surfaces of the alley on the west side of the property were recorded in this period. They comprised sand, thick layers of oyster shells, and mortar with fragments of roof tiles. One sherd of medieval pottery was found in context nfw[138], part of a baluster jug in LOND NFR dating to *c.* 1180–1270. A single sherd from a flared baluster jug in LOND was found in nfw[25], dating to *c.* 1240–1350. Any changes to the property in this period 1350–1500 were not recorded. In particular it was not possible to discern the three-part division of the property which was in place by 1465.

Tenement 13

On 24 June 1394 John Wrothe granted to Robert Sprotburgh, rector of St Margaret Bridge Street, Henry Cookham, rector of St Mary at Hill, and to Henry Webbe and Thomas Hoo, chaplains, all the tenement with the shops and houses adjacent to and built upon it (CLA/023/CP/01/123/46; *Cal Close R 1392–6*, 384–6). On 10 June 1404 Hoo granted it to Sir John Philip, rector of St Katharine Colman, John Luton and William Hervy, chaplains, Thomas Exton, goldsmith, and Thomas Lyncolne, fishmonger (133/88). On 12 February 1405 Hervey quitclaimed the others (GL, MS 14001/2), who on 20 June granted it to John Beaumound, chandler, Richard Pountfreit, esquire, Henry Pountfreit saddler, John Oxneye, John Kenefleke and William Middelton, grocers (CLA/023/CP/01/133/90). On 12 July Richard Pountfreit and John Oxneye quitclaimed to John Beaumound (GL, MS 14002/1), as did Henry Pountfreyt on 15 October 1409 (/14,002/2). Beaumound's will, dated 2 April 1416 and proved on 3 November 1421, bequeathed Tenement 13 to his son Adam, the executors ensuring that until he reached the age of 24, 9m of the profits should be put to the provision of a chaplain in the church of St Benet Gracechurch (CLA/023/CP/01/149/36).

Presumably Adam and his sisters, and other Beaumound kin specified in the will, subsequently died without heirs and the property was accordingly sold by the executors, since by 24 May 1419, before Beaumound's will was proved, Tenement 13 was in the possession of Henry Pountfreit saddler and William Middelton grocer, who now leased the tenement lately held by themselves, John Beaumound deceased and others to John Aylesham grocer (the existing occupant) for a term of 16 years from St John's day for £17 pa.; the lessors making the wharf defensible against the course of the river Thames, and all the houses against wind and rain (*Cal Plea & Mem R 1413–37*, 70). The status of Pountfreit and Middelton in this transaction is unclear; most likely they were Beaumound's executors, as is also suggested by the terms of Middelton's own will which was drawn up on 20 November 1419 and was proved on 26 January 1422, two months after the probate of Beaumound's will (CLA/023/CP/01/149/53). Middelton's will bequeathed to Richard Beaumound, son of John Beaumound chandler lately deceased, the tenement which the testator, John Beaumound and others held by grant of John Philipp and others, and thereafter closely mirrored Beaumound's will by providing that if Richard died without heirs it should pass to his sisters or to other Beaumound kinsmen, failing which it should be sold for pious uses.

At this point the detailed record of the descent of the tenement is lost: the abutment details of deeds relating to Tenement 12 describe Tenement 13 in 1454–65 as the land and tenement of Philip Malpas (eg. /183/5; /195/25), alderman of ward, whose will (PCC 27 Godyn) was proved in 1469. On 25 June 1478 Elizabeth Cook, his daughter, granted to William, Lord Hastings, Richard Fenys, Lord Dacre, Thomas Bourgchier and Thomas Seyntleger knights, John Morton keeper of the chancery rolls, John Cook doctor of laws and numerous others all her lands, tenements, rents and reversions in the parish of St Botolph Billingsgate and elsewhere (*Cal Close R 1476–85*, no. 475).

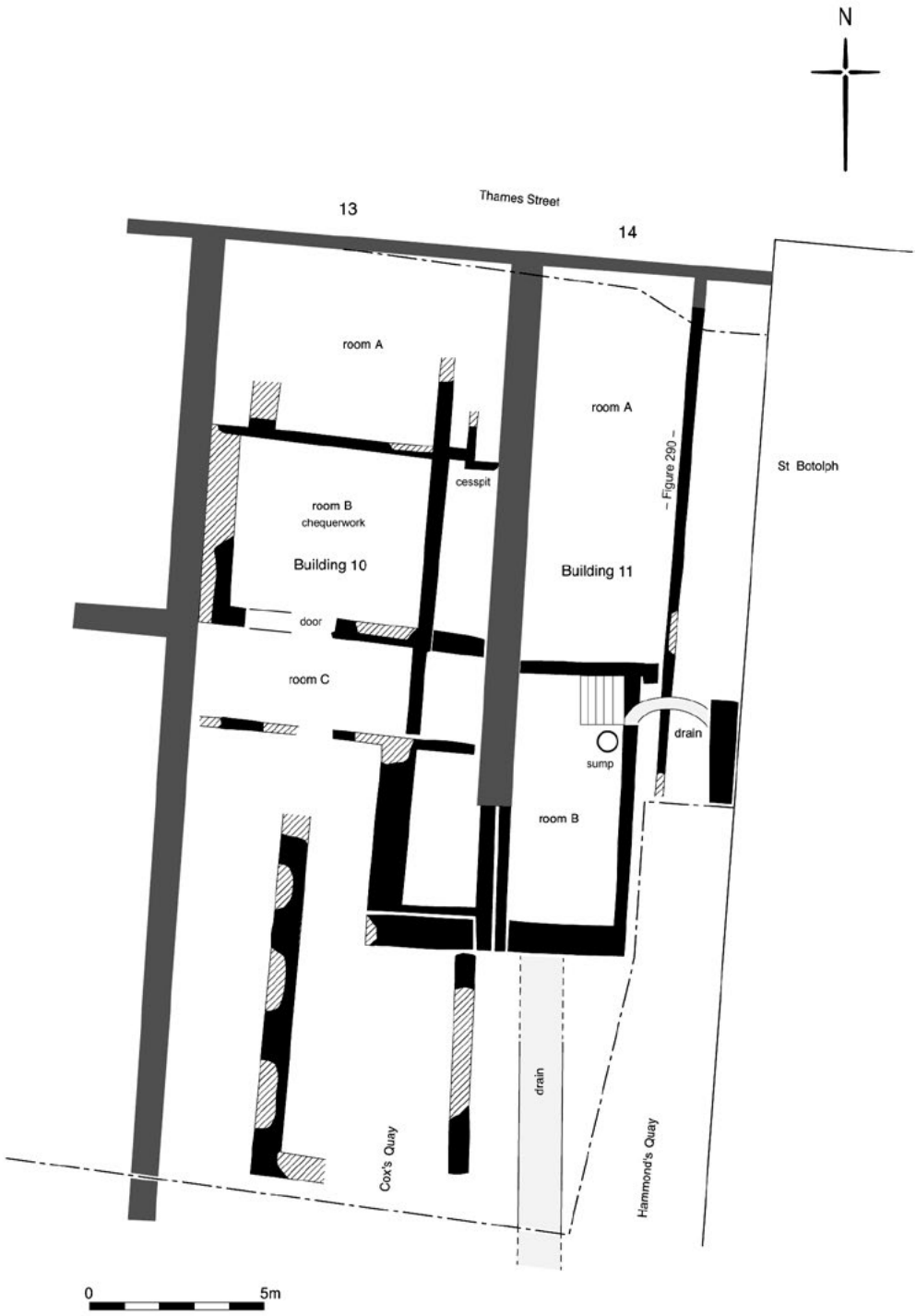


Figure 134 Site C: plan of later buildings on Tenements 13 and 14: C:Building 10 of period M3, 1350–1500, and C:Building 11 of period P1, 1500–1666

C:Building 10

The north, streetside end of the property was filled with a new building, C:Building 10, which replaced C:Building 4 (Figure 134). In 1974, three certain rooms were discerned in the excavation, all cellars. The main house, presumed to front onto medieval Thames Street, a short distance north of the excavation, probably had two equal-sized rooms, A and B (though very little can be said about the first). On their east side were two narrow spaces which must have been beneath an alley going down the east side of the property from Thames Street. They were probably not used as rooms and may have been backfilled after construction; but one contained a stone cesspit, which must have been accessible, perhaps from above. It is also possible that the cellar wall which lay beneath the internal side of the alley was somehow a later modification to the building. The main rear room B had a doorway to a further cellar, room C, which was the start of buildings down

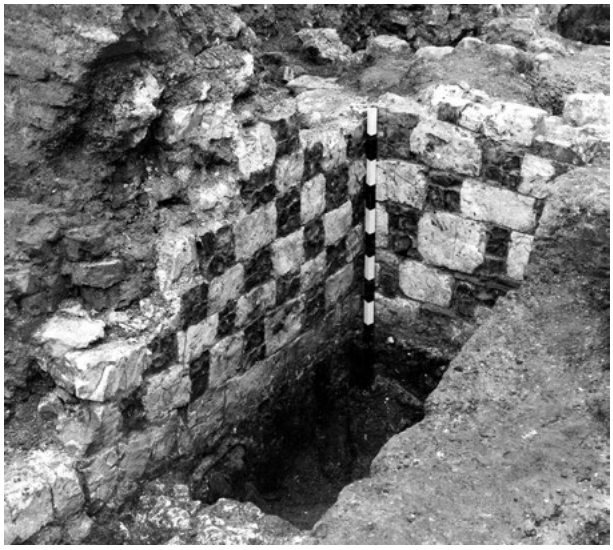


Figure 135 C:Building 10: northeast corner of room B looking northeast (1m scale). For details of the masons' marks, see the elevations Figure 139



Figure 136 C:Building 10: north wall of room B running over the reduced remains of the foundation of C:Building 4, looking north (2m scale)



Figure 137 C:Building 10: wall between room C (foreground) and room B (background), looking northwest, showing the jamb of the doorway between the rooms (1m scale). On either side are 19th-century brick foundations

the property behind the main house. The doorway opened northwards. Details of the building are given in Figure 135 to Figure 139, and the construction is further discussed in the specialist report on buildings below, section 6.2.

The construction of the part recorded in 1974 (rooms A–B and the thin spaces east of them) is divided into three archaeological phases, C4.1 to C4.3, and a fourth phase, C4.4, is interpreted as a period of use. A general layer of different textures in clayey loam and pebbles was laid down over much of the area for the new building (nfw [33]). On it was a thin layer of chalk, presumably from the construction process, and on it a wall for the east side of room B, which also functioned as the internal west side of the alley above (nfw[213]).

The four walls of room B, occasionally supported by piles, were faced with carefully made chequerwork of squared flint and chalk, as shown in the figures. Many masons' marks survived in the chalk courses, on all four walls. The east wall (nfw[213]) formed the west side of the alley. The north and south walls, still with chequerwork, continued east beyond this wall to butt against the boundary wall of Tenement 14 (Figure 138). According to the interpretation here, (nfw[213]) was part of the initial construction; although it was faced on its west side in chequerwork, forming the east wall of room B, its construction was slightly different. Unlike the north, west and south walls of the room which had evidently been constructed first, it did not have a base course of chalk only without flint, and occasionally the square knapped flint panels used more flints per panel than the four flints which usually comprised the panels on the other walls. It was also added after some deposition of material in the main room. The space east of this wall, with its north and south walls still decorated in chequerwork, seems to have been abandoned space; perhaps it was filled with soil. It evidently lay beneath the alley along the east side of the tenement (see the plan, Figure 134). The north wall of room B, as it crossed beneath the alley, was cut by a wall of roughly coursed rubble which was probably a cesspit. It was rendered smooth internally and survived to 0.6m high. An arched opening was seen in the adjacent boundary wall, which would have been from the cesspit chute above. This in turn implies that the cesspit served first-floor chambers of C:Building 10, since it lay beneath the surfaces of the alley; the chute went down the inside of the boundary wall.

Layers in the narrow space east of room B included dumps of mortar, charcoal and gravel (C4.3). A period of use is indicated by rough surfaces in the rooms (C4.4). In room C a floor of stone flags was laid, perhaps from the beginning; it was replaced by a neatly-laid floor of bricks. Walls seen on the watching brief in 1978 are shown on Figure 134. They were of chalk rubble, but indicate buildings of some size.

There are 427 sherds recorded from contexts associated with C:Building 10 (140 ENV, 9000g, 13.3 EVE) (Table 155). Period C4.1 has only seven sherds from the late 12th century, which



Figure 138 C:Building 10: butting of the south wall of room B against the tenement boundary on the east (left hand side), looking south (1m scale). Masons' marks can be seen on the chalk blocks of the first and third courses. The wall on the right formed the east side of room B (here its rear face); on the left (east) is the boundary wall with Tenement 14, with intact rendering of C:Building C perhaps of the 13th century

must be residual. In C4.2 there is a mix of 11th- to 12th-century and later pottery, with a latest date of c. 1200–1350 for context nfw[36], based on LOND and part of a cooking pot in SHER (C<P22>), as well as sherds from a jug in SCAR with applied vertical strips. C4.3 includes the large context nfw[32] and medium-sized nfw[47], and dates mostly to the late 13th to 15th century, with a latest date of c. 1350–1500. Large sherds from jugs in LOND were recorded in both, including 82 sherds from a tulip-necked baluster jug, with MG, KING, CBW and CHEA also present, the last of these as rounded jugs and a complete biconical drinking jug (25 sherds: C<P23>). Pottery from C4.4, interpreted as from the life of the building, dates to the same period for the most part, with the usual range of LOND and Surrey whitewares represented, including another near-complete CHEA drinking jug (C<P24>). There is also part of a large rounded or bunghole jug in CBW with the broad strap handle, stabbed and incised, that is characteristic of this form (C<P25>). Although there is another sherd from a jug in SCAR, there are no Continental imports present in this group; part of a rounded jug in SAIM from context nfw[52] (7 sherds), not assigned to any certain group, falls into the same date range (C<P26>).

C:Building 10, therefore, comprised a house of two rooms on Thames Street, almost certainly with an alley down the east side which led to further buildings. Its construction is dated to the period 1350–1450. The remarkable chequerwork walls in room B (a cellar under the rear of the street range) are considered further below in section 6.2.

Tenement 14

The history of this tenement during the second half of the 14th century is outlined in a deed of 8 February 1396 (CLA/023/CP/01/124/104). Thomas de Banquelle junior had three sons, John, William and Robert, and on John's death without an heir the property passed to William. He granted it by a charter allegedly enrolled in Husting on 2 April 1386 to Sir Richard Sturry, his uncle, Robert Bankwell', John Chaundos and John Paule. Sturry granted it by a charter enrolled on 22 October 1386 to Richard Dudley and James Vanel who by an indenture enrolled on 3 December 1386 granted it to the said Richard Sturry for the latter's life, reserving reversion to themselves and their heirs. On 25 December 1387 Sturry leased it to John Pountfreyt and his assigns for the term of John's life and an additional year for an annual rent of 12m. Thereafter Richard Dudlee and James by a charter enrolled on 12 June 1391 granted to John, son of William de Bankwell', the reversion of all the tenements which Sturry held for the term of his life by grant of Richard and James, and which ought to revert to Richard and James after Sturry's death, to remain to John son of William de Bankwell' and his heirs. If John died without heir the tenements were to remain after his death and Richard Sturry's to Robert de Bankwell', John's uncle, for his life, and on his death to Sir John Paule, or else to the heirs of William son of Thomas.

After the deaths of John son of William and of Sir John Paule and Richard Sturry, the property duly descended to Robert de Bankwell'. On 1 July 1395 he, as parson of All Hallows Bread Street, ratified Sir Richard Sturry's lease to John Pountfreit, saddler, of a tenement with shops, *cellar'*, *solar'* (ie one or more of each) and adjacent quay for the term of Pountfreit's life and one year thereafter for the annual rent of 12m (/124/2). Then on 21 September 1395 Robert granted the property to John Warewyk, Richard Dudlee, John Lovedale and Henry Parmystede, who on 6 October 1395 granted it to Stephen Speleman mercer, Walter Newenton grocer, Robert Sherewynd mercer, citizens, and to Robert Newenton clerk and Richard Osbarn. On 8 February 1396 they conceded to

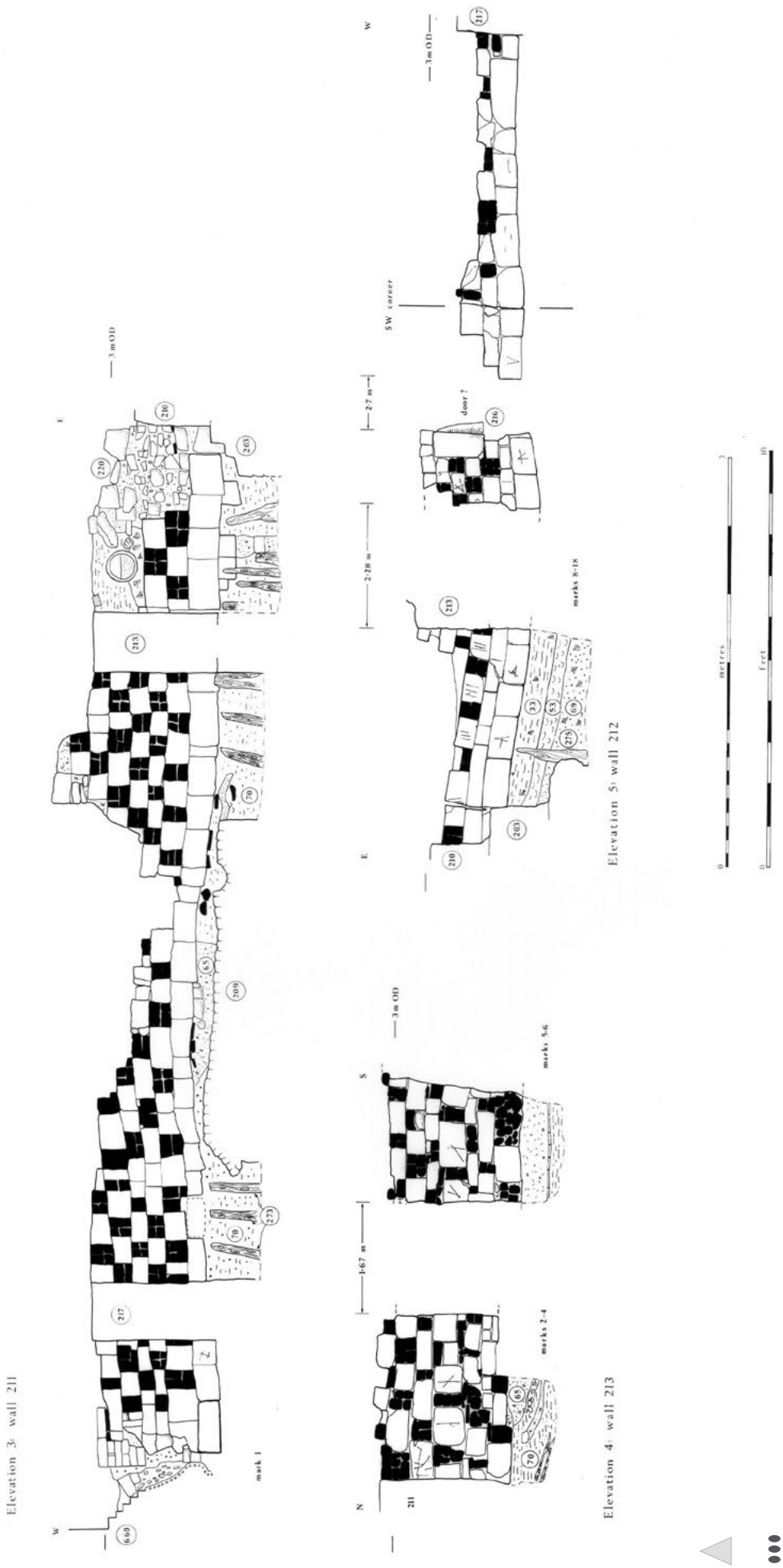


Figure 139 C:Building 10: internal elevations of the surviving walls, showing details of masons' marks

Gilbert Maughfeld (the occupant of Tenement 11), William Shirwod, John Askewyth, citizens, and to Thomas Weston and Thomas Coupland, chaplains the 12m pa rent to be received from John Pountfreit during his life and for one year thereafter, together with the reversion of the same, which ought to remain to the grantors after his decease (/124/104).

On 2 April 1397 the surviving grantees, noting that Maughfeld was now dead, granted to Sir William North and Sir John Clynton, clerks, the annual rent of 12m and the reversion of the tenement with quay after John Pountfreit's death (/126/30). On 12 April North and Clynton granted the rent and the reversion of the property to Sir Michael Shires, John Brecete, John Billyng, chaplains, John Wakele senior, Jn Wakele junior and Edmund Grymston (/126/33). In the abutments given in deeds relating to Tenement 13, John Wakele appears as occupant of Tenement 14 in 1405 (133/90); and in 1409 as a former occupant in the abutments of deeds relating to Tenement 15 (St Botolph Cartulary, fo. ix).

On 10 July 1422 Geoffrey Dallyng, vintner, granted to Simon Seman, Richard Meryvale, William Scarburgh, vintners, and to Sir Thomas Crofton, chaplain, the tenement with the wharf lately of late John Wakelee, vintner, and which Dallyng, John Bacoun, John Penne, vintners, John Bydeford, clerk, John Martryn had jointly acquired from the executors of Wakelee's will on 22 November, 1414, Bacoun, Penne and Bydeford having quitclaimed Dallyng in a deed dated 30 July 1416 (CLA/023/CP/01/150/31).

In his will dated 21 February 1439 Thomas Crofton, priest and vintner, bequeathed to the Vintners' Company the tenement with the wharf granted to him, Seman, Merevaile and Scarburgh by Geoffrey Dallinge and lately of John Wakelee; on condition that the company commemorate annually the souls of John Wakelee and his wife Matilda and their son John, and the soul of Geoffrey Dallinge, in the church of St Botolph for 20s pa., and maintain and repair the tenement with its wharf (VC Will Book, 32–4). Tenement 14 therefore became the property of the Vintners' Company in 1439.

C:Building 5 continued

There are no archaeological features which can be dated to period M3 on this property. C:Building 5 would have continued in use until it was replaced in the next period, P1, the 16th century (C:Building 10 on Tenement 13 is shown built against its west side in Figure 138). The property bequeathed to the Vintners' Company in 1439, presumably in accordance with the wishes of Geoffrey Dallinge and John Wakelee, included C:Building 5 at its head.

4.5 Billingsgate (site D) in period M3, 1350–1500

This period spans the site-specific periods D12.8 to D15.2, from the middle of the 14th century to the end of the 15th century. No detailed analysis has yet been undertaken of the medieval pottery from the strata of these periods at site D, except that the pottery from one important phase, period D12.8, has been briefly scanned. The important phases of activity and their correlation with the available documentary references are summarised in Table 38.

The many constructions of this period on the Wharf are divided into (i) repairs to buildings and the boundary wall between the two halves of the wharf (period D12.8–11); (ii) rebuilding of the south side of St Botolph's with activity south of it (period D12.12–13, period D13); (iii) construction of a substantial stone building away from the church, D:Building 5, and its modification by the insertion of a vault (period D14); (iv) enclosure of

Development and period	Archaeological date	Documentary references and inferences
repair of D:Building 3 and replacement of tenement boundary (D12.8–10); extension of D:Building 3 (D12.11); boundary wall between Tenement 15a and 15b rebuilt and D:Building 3 modified again (D12.12–13); rebuilding of S side of St Botolph's church and new lane surface (D13.1–2); structures and activity to the east and south of the church (D13.3–4); D:Building 4 constructed on the south side of the church (D13.5)	*c.* 1350–80, Westminster floor tiles 1250–1300; earliest occurrence of yellow brick	rebuilding of frontage to Thames Street of buildings of Botolph Wharf; rebuilding of south side of St Botolph's church
demolition of D:Building 4; a burial and other activity on its site (D13.6–7)	*c.*1380–1400 (floor tiles 1350+, much worn)	? short-lived cemetery space south of church
D:Building 5, a substantial stone building, constructed south of the church (D14.1–2)	first half of 15th century	acquired by John Reynewell and Thomas Craft 1409; passed to St Botolph's parish by deeds of 1443 to 1458
remodelling of D:Building 5, giving it a vault; resurfacing of lane (D14.3–4); D:Building 5 extended with a vestry at SE corner; D:Building 6 built to south (D14.5–11)	Penn floor tiles; construction middle of 15thc	it is possible that all phases D14.3 to D15.1 were a single building project of the 15th century as D:Building 5 passed into parish ownership and became incorporated into the church
enclosure of space between the church and D:Building 5 to form a chapel; brick burial vaults (D:15.1–2)	15th c	extension to St Botolph's; brick grave suggested to be that of John Reynewell (d 1445)

Table 38 Site D: developments in period M3, 1350–1500

the space between the church and the stone building, to form part of the extended church, and the placing of a double brick grave in its middle (period D15). The documentary history of St Botolph Billingsgate church up to 1500 is presented after the report on the strata of the period on Tenement 15.

One significant aspect of this period at site D is that strata of the period on the east half of Tenement 15, across the lane, were largely absent, due presumably to disturbance and excavation when subsequent buildings (D:Buildings 7 and 8) of period P1, and dated here to the 1640s, were erected there. Apart from scattered fragments of walling, the only remains were of the range along Thames Street to the north, D:Building 3.

Tenement 15 (Botolph Wharf)

In 1370 Robert son of John Pountfreyt cornmonger and his sister Margery, widow of Richard de Eure, became farmers of Botolph Wharf for 10 years from Easter at £20 pa (*Cal LBk G*, 260). The lease was however reissued later in the year to Robert and his wife Alice for the term of their lives and one year thereafter, at £20 pa (p268). By 1377 the lease was held by William Anecroft (mercer and alderman in 1383) and his wife Alice (probably Robert Pountfreyt's widow) for life.

In the same year of 1377 Anecroft was accused by the Common Serjeant before the Common Council of the City of storing putrid wine in his cellar on the wharf. The proceedings are reported in the City's Letter-Book H:

> Be it remembered, that on the 21st day of August, in the first year of the reign of King Richard etc., it was presented by Ralph Strode, Common Serjeant, before the Common Council of the City in the Chamber of the Guildhall ... [that] certain putrid wines, unsound and unfit for human use, were there housed in the cellar of William Anecroft, upon Botulveswharf; whereof he asked examination to be made by the Commonalty, through vintners, as to whether such wines were unsound or not.
>
> And hereupon, by assent of the Mayor, Aldermen, and Commonalty, there were assigned John Cloptone, Nicholas Rote, Geoffrey Grygge, vintners, William de Skames, John de Bome, and Peter de Cornelione, merchants of Bordeaux, to survey and examine whether the said wines were corrupt or not, and here to certify as to the truth thereon. Which vintners and merchants came here on the same day, and said upon their oath, that there were in the same cellar 8 vessels of one tun each, of which some were half full, and some less, but that no one of them was full of wine. All which wines were putrid, corrupt, and altogether unsound for human use. It was therefore adjudged by the Mayor, and by John Grantham and other Aldermen, and John Norhamptone and Robert Launde, the Sheriffs, that all the said wine should be poured out in the street and thrown away, and wholly made away with, according to the custom of the City. And they also said, that there were no more wines in the same cellar, but there were 10 empty tuns there, in which no wine was found; the whole of the wine that had been in them now lying on the floor of the said cellar, having escaped, etc. And hereupon, all the vessels aforesaid were adjudged unto John Watlyngtone, the Common Crier, as his fee. And precept was given to the same John Watlyngtone, to do execution of the judgment aforesaid (Letter-Book H MS, fo. 62; transcribed by Riley 1868, 408–9).

Three points can be noted from this account: first, that Anecroft as farmer of the Wharf held a cellar there; second, this cellar was large enough to hold 18 tuns for wine; and third, that three of the appointed assessors were merchants of Bordeaux. The cellar was somewhere on the Wharf, but not in the excavated northwest part. By his will of 1390, William Anecroft or Ancroft desired burial in St Botolph's church, under the same stone as Robert his father. He made bequests to the fraternities of St Mary and St Katherine, which suggests that these were in St Botolph's (*Cal Wills* ii, 285–6; see also section 6.10 below).

The main tenants of Botolph Wharf after 1400, length of leases and rents were as follows:

> 1403 Robert Sewale fishmonger and his wife Constance for 10 years from 24 June, 1403. No rent specified (St Botolph Cartulary, fo. 11v–12r). The Sewales subsequently sublet a house on the south side of the church, which the City later quit-claimed to John Reynewell (Reynewelle, Rainwell), the earliest mention here of an important person in the history of the site (CLA/023/CP/01/207/31).
>
> 1453 The widow of Thomas Bernewelle, alderman, for 1 year from midsummer for £40, if willing. In the event the lease was offered to whomever would take it, at the sum of £36 13s 4d (Journals of the Court of Common Council, COL/CC/01/01/005 (vol 5), fos 188, 111).

Other features (all recorded in 1370) include 'the stair of the quay' (presumably distinct from the jetty which was to be rebuilt in the same year), the rebuilding of a common privy for the use of the tenants of the Wharf (*Cal LBk G*, 260), and the renewal of a wall 57ft (17.4m) long and 2ft (0.6m) wide, to be constructed jointly by the tenants of the Wharf and the occupant of Tenement 16 to the east along their common boundary (*Cal LBk G*, 268). The first of these two deeds of 1370 also refers to a crane as an appurtenance of the Wharf; the earliest mention of such a feature on the London waterfront. It is alluded to again in 1409 and 1443 (St Botolph Cartulary, fos 11v–12, 14–15).

Documentary evidence for significant developments immediately south of the church in the first half and middle of the 15th century is laid out under period D14 below.

Period D12.8 to 12.10: second half of 14th century

Repair of D:Building 3, removal and replacement of the period D10 boundary

The southwest corner of D:Building 3 was repaired (period D12.8), this time employing a limestone postpad, with a short trench to the south for a new section of brickearth walling, and two stakeholes representing studs (Figure 140). A shallow cut intruded into the adjoining floor; its purpose is unknown, and the cut was quickly infilled using sandy deposits which may have been the makeup for a new surface. To the south,

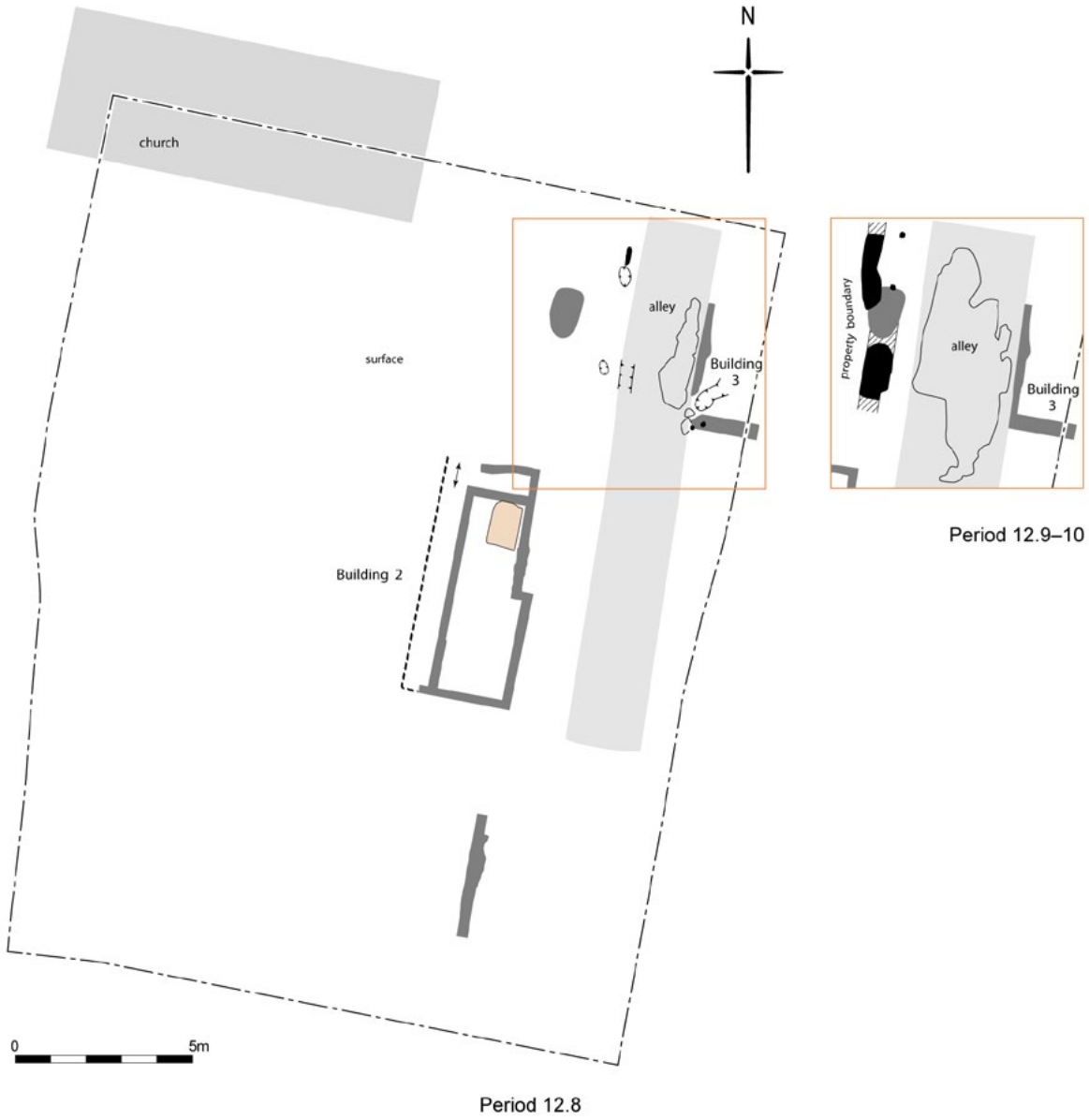


Figure 140 Site D: plan, period D12.8 (left) and D12.9–10 (right) (1:200)

a strip of brickearth against the modified wall was followed by further sandy silt deposits relating to its use, with some gravel patching. A small patch of silt also lapped the modified south wall.

The boundary wall along the west side of the lane was removed after apparently falling into disrepair in the preceding phase, and the robber trench was backfilled with organic material and oyster shells which continued patchily to the west. These deposits were cut by two large postpits set 2.6m apart, and sealed by a decayed timber base plate supporting a strip of brickearth superstructure, which ran north from the north post. It may have been the east wall of a structure; but no further elements survived, and the feature is therefore interpreted as a new boundary or fence parallel to the old wall.

The pottery has been scanned. Pottery found in 13 contexts, all of them small, ranges in date from the last quarter of the 12th century (the majority, recorded in eight contexts) to the mid 14th to 15th century. These earliest contexts are dated to *c.* 1180–1270+ by the presence of LOND NFR and LOND ROU, with SHER and shell-sandy ware (SSW). All but one of the remaining contexts have been given an earliest date of *c.* 1240 or 1270, based on London-type ware with white slip decoration (LOND WSD), KING and CBW (for the CBW type, see Figure 141). There is only one record of KING (which is first found in London *c.* 1240), and no MG (introduced *c.* 1270). The latest pottery is part of a jug in Low Countries greyware (LCGR) from D[2118], which is dated to *c.* 1350–1500.

Succeeding the above, a large but shallow, roughly rectangular cut intruded into the open area to the west (period D12.9, also Figure 140). This contained two postholes along its east edge, which may have supported a timber lining or shuttering. The slightly deeper west half of the trench contained the remains of a 0.5m-wide ragstone and Reigate stone foundation, which abutted the period D10.3 'pier' immediately to the south. Its line was continued to the south of the pier by a section of



Figure 141 A CBW bung-hole jug, MoL A15285

robber trench containing a ragstone block (period D12.10, not illustrated). A new boundary wall is therefore postulated, reusing the period D10.3 pier, and replacing the preceding feature. The lane was also repaired using gravels containing tile fragments, which in some areas formed a surface, lapping D:Building 3. Occupation material, including an extensive deposit of oyster shell, covered much of the lane and the interior of the building, and patches extended westward to cover the new boundary wall, which must have been short-lived, having being largely robbed by this time. The new boundary wall of D12.9 was between Tenements 15a and 15b, and was probably of the same general date as the new wall ordered in 1370 to be built between Tenement 15b and Tenement 16, the site of which lay in the unexcavated area east of the site D trench.

Extension of D:Building 3

The extensively-used lane was resurfaced (D12.11), in association with the replacement of the south wall of D:Building 3 (Figure 142). This had a new brickearth sill containing stakeholes representing the remains of the wattle wall panelling. Occupation continued in the room adjoining the wall, while outside, an irregular cut containing some burnt material may be an unsophisticated hearth, protected by a southward extension of the west wall of the building. Ragstone cobbles reinforced the new wall, followed by a series of posts positioned mainly against the outer face of the wall, several postpads and a strip of brickearth. These complex remains belong to a series of repairs rather than a single event. A deposit of brickearth within the building abutted the rebuilt wall, preserving a strip of plaster-facing.

Two ragstone postpads, one set in a shallow cut alongside the west wall, the second larger example to the northeast, reinforced the northwest corner of D:Building 3. A series of mortar and sandy silt occupation deposits lapped the inside of the west wall in this area. North of the building, a gravel surface sealed by occupation deposits and further gravel repairs represents an extension of the main lane, and may mark the presence of a lean-to set against the north wall. On the west side of the lane, a compact brickearth postpad with a postpit immediately to the north may have formed pairs with the ragstones to the east, possibly supporting a gateway controlling access to the wharf. The lane was also resurfaced and sealed subsequently by midden-type deposits which probably originated in D:Building 2. In the west, the surfaces terminated along a north–south line and rose slightly, as though they were laid against a structural division. This may suggest a replacement of the boundary wall.

New west boundary for former Tenement 15b and reconstruction of D:Building 3

Along the west edge of the lane, a north–south construction trench at least 4.5m long contained a mortared and roughly coursed foundation, largely of chalk, reinstating the boundary (D12.12, Figure 142). The chalk blocks were dressed in the south, but the north section changed alignment slightly, and was of undressed blocks: this variation implies a rebuild, although it is unclear which section was the original. The lane was resurfaced with pebbly silts containing whole oyster shells; one small patch of this material may have formed a postpad near the new wall, since it was replaced later by a more substantial feature. Sticky brickearth deposits along the east side of the area suggest the reconstruction of the west wall of D:Building 3. More positive evidence in the form of a foundation trench, reflected the rebuilding of the northwest corner, and the extension of the building northward into the area occupied by the suggested lean-to. The trench may have incorporated a central post, since it extended to the east at that point, and immediately adjoining this was a smaller east–west trench containing a vertical plank, which together with the post position, may have formed a return, replacing the original north wall.

The repaired west wall and the postpad in the lane were sealed by further oyster and silt deposits, with a distinct north edge suggesting a structural division across the lane. The postpad was replaced with a patch of tile, ragstone, chalk and sandstone fragments situated on the line of the division. It is possible that the line marked a gate or access point, replacing that suggested previously.

The south wall was demolished, the brickearth infill being left *in situ*. A tile postpad was laid on the line of the west wall, while the south wall was reconstructed, marked by a line of four square postholes. In the room to the north, four further post- or stakeholes may represent internal installations, although the south three may also have formed part of the new south wall. A larger postpit marked the southwest corner. Strips of brickearth and organic silt were probably the remains of the walls which met at this point; the south wall appears to have been burnt at some point. Just inside the west wall to the north, a single postpit represented an internal installation, possibly a partition. North of the building, an east–west cut with a square posthole at the east end may have

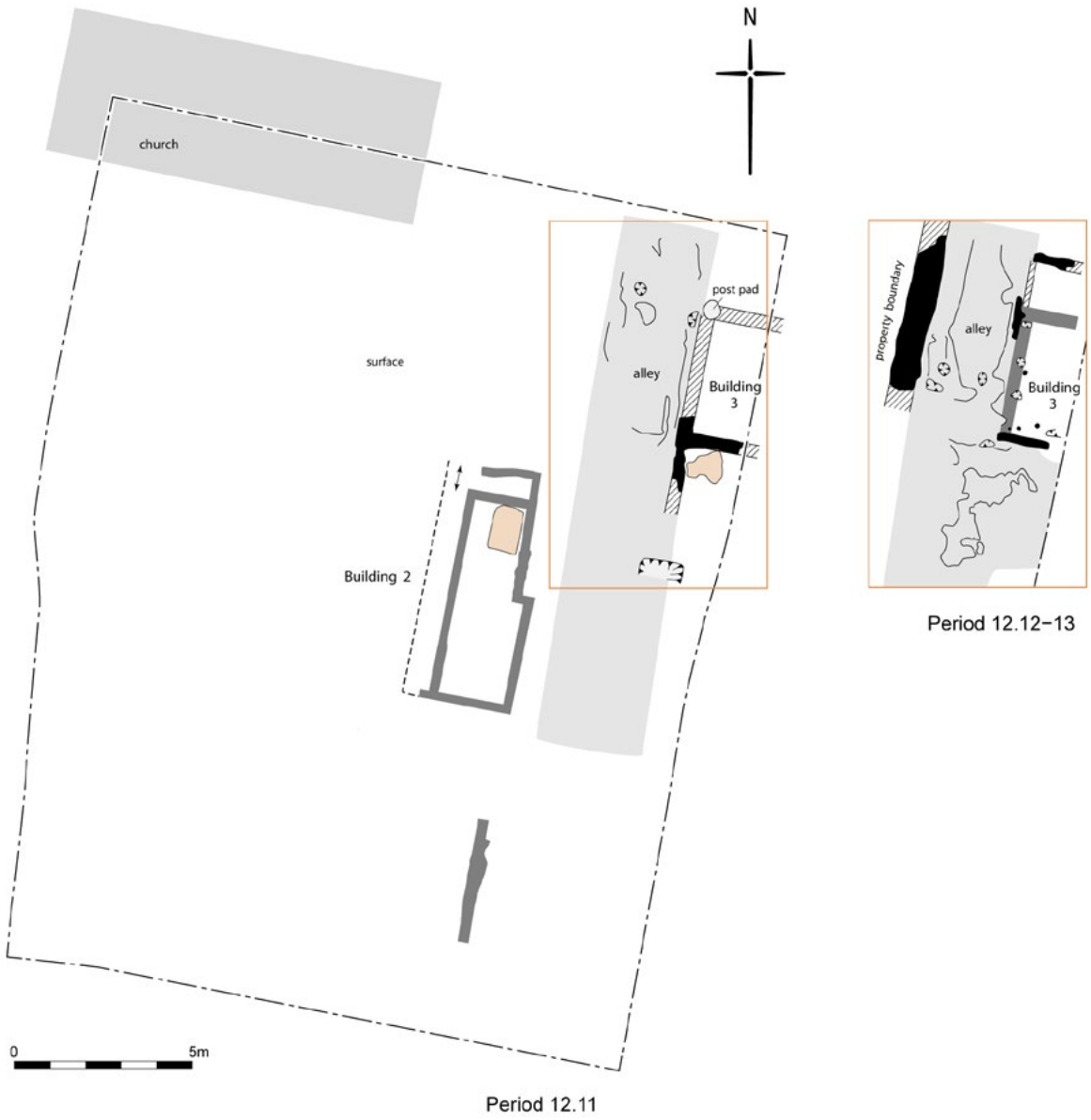


Figure 142 Site D: plan, period D12.11 (left) and D12.12–13 (right) (1:200)

been the new north wall, in which case D:Building 3 had been extended to enclose the earlier metalled yard or lean-to. This was resurfaced, to function as the north room.

D:Building 3 had almost certainly been demolished by the mid 14th century, allowing the start of period D13 activity in this central area. The apparent re-assertion of the boundary on the west side of the former Tenement 15b shows that though the two parts of Tenement 15 were brought together by the City after 1275, the buildings on the site reflected the former properties in their arrangement.

Period D12.12 is notable in containing the earliest stratified decorated floor tile (in D[1209]). It may be part of the Penn tile group named after the village of Penn in Buckinghamshire where tile production was located in the medieval period. However, the fabric (type 2317) is somewhat unusual for a Penn tile. The design is of little help in identification as it is of unpublished type (Figure 249, type <T5>) and the origin of the tile is uncertain.

Period D13: mid to late 14th century

The rebuilding of St Botolph's church and lane

A metalled lane (the entrance to Botolph's Wharf, called Road 1 in the excavation records) was constructed down the centre of the excavation area (D13.1), crossing the site of D:Building 2 and replacing the period D12 lane about 4m to the west of the latter (Figure 143). In the north, the lane makeup contained a mixture of building materials, mainly tile, but including chalk and mortar; in the south, silts with an organic content extended over the period D12 wharf. The lane surface became rutted by heavy use, and was repaired chiefly using crushed oyster shell, patches of which extended south beyond the end of the metalled area, possibly as a surface

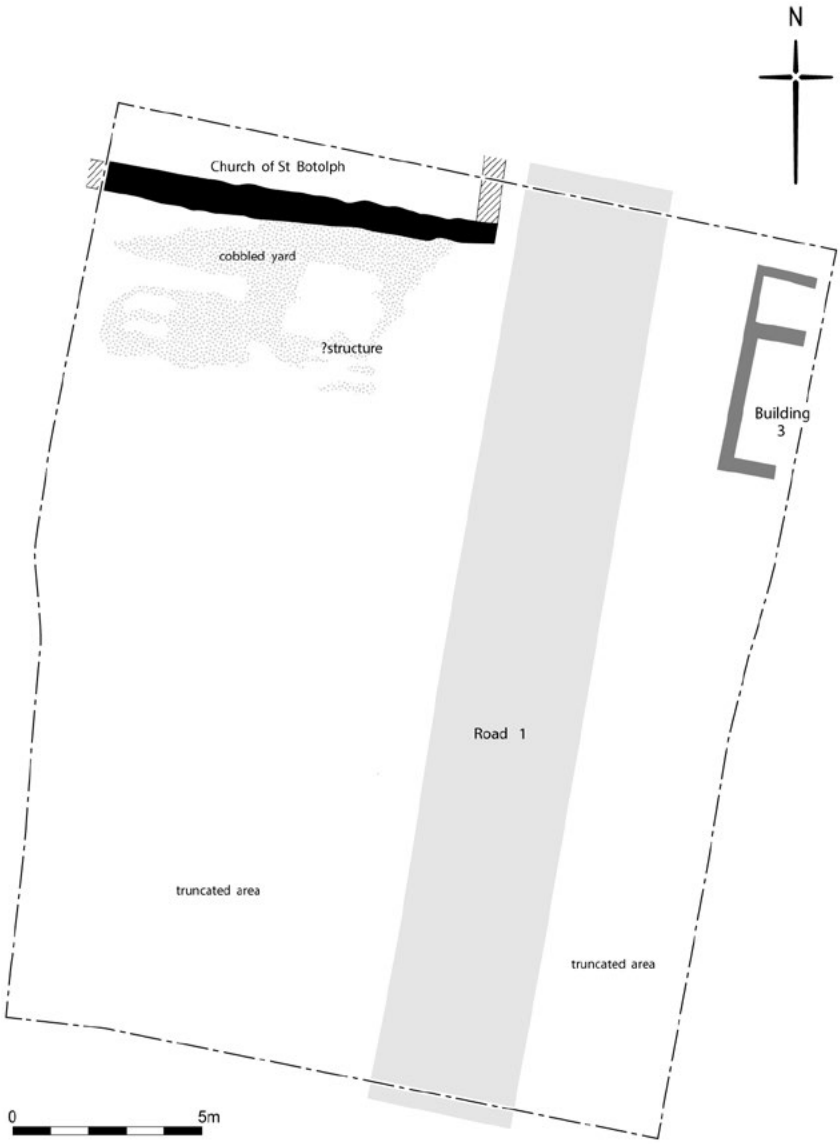


Figure 143 Site D, plan, D13.1–13.2 (1:200)

for the wharf. Pottery from the lane was mainly residual, but included contemporary sherds of *c.* 1350+, suggesting an overlap of up to 25 years with the final phases of period D12 in the northeast.

West of the new lane, walls identified as the south and east sides of St Botolph's church were constructed (period D13.2, also Figure 143); this is called the 'church' in this report, and not given a building number within the site D series (all the numbered buildings are therefore secular constructions). The walls, which survived to *c.* 5.0m OD, were built in four stages: (a) a lower foundation of Reigate stone and flint cobbles set in sand; (b) an upper foundation of flint rubble faced with small coursed ragstones, some Reigate stone and Roman brick, levelled with a string course of reused Roman brick or tile, and at the southeast corner, larger squared ragstone quoins; (c) a lower superstructure of alternating courses of large and small ragstones with sandstone quoins, possibly faced internally with flint and ragstone chequerwork; (d) an upper wall of random cobbles and smaller fragments of ragstone, which appear to represent a later rebuild, in one area cutting down to the brick string course of reused Roman brick (Figure 144). Both faces of the church wall had been covered with 15–20mm of cream-coloured render, though only fragments survived (Figure 145). The west end of the church had been recorded earlier at site C, on the border with Tenement 14.

Incorporated into the south wall D[176] were Roman brick and roofing tile (tegula), medieval flanged and curved roofing tile in fabric 2273 (mid 12th–late 12th/early 13th century), possibly peg tile in the same fabric, and two decorated floor tiles. The earlier of the floor tiles belongs to the 'Westminster' group, first recognised at Westminster Abbey (where they still lie, in the Muniment Room). Tiles of this type were made in London around 1250–1300. The tile (fabric 2199) which measures 114x112x27mm has a leaf petal design in a circular border.[50] The second decorated tile comes from the tilemaking centre of Penn in Buckinghamshire. Production of floor tiles there seems to have begun before 1332 and continued until at least the late 1380s.[51] The tile measures 115x114x20mm which is almost identical to the 'Westminster' tile (Penn tiles would have been used to repair floors of 'Westminster' tiles). From the same context (D[2575]) came a fragment of yellow brick (fabric 3031), probably an import from the Low Countries. This is the earliest brick found at site D, datable to the second half of the 14th century.

The walls were apparently associated with construction surfaces at *c.* 3.0m OD, which suggests that they were contemporary with the lane. However, since the west end of the church was recorded at New Fresh Wharf (site C) in a phase assigned to the 12th or possibly early 13th century (see C:Building 5), and there is documentary evidence for its foundation at least as early as the 1140s, the apparent discrepancy must be explained. The variations in construction within the wall as found suggest it had several phases over a period:

[50] Betts 2002, 60, design W130.
[51] The Penn tile (fabric 2894) is Eames (1980) design 2394 dating to around 1350–90. It is also in a catalogue of Penn tiles published by Hohler (1942) as his P62.



Figure 144 Site D: the exterior of the south wall of St Botolph's church placed by the excavators in period D13.2, looking north (1m scale). Behind is the boundary wall of the site along modern Lower Thames Street and the supports for the temporary viewing platform overlooking the archaeological excavation. The level of the medieval yard to the south shown in the foreground agrees with the positions of the square quoins at the southeast corner of the church on the right; the quoins would be used above ground level (though the wall was originally rendered)

stage (a): the use of layered foundations set in sand was technologically an early feature; a south wall on this alignment must have lined up with the southwest corner of the building, a large mortared foundation, seen on site C and dated there to the 12th or early 13th century

stage (b): the upper foundation of ragstone rubble and courses of Roman brick, as shown in Figure 144

stage (c) the superstructure above ground level, plastered on the outside (Figure 144 and Figure 145) was possibly faced with chequerwork within, a 14th- or 15th-century construction technique.

To summarise, stages (a) and (b) of the construction of the south wall of the church probably date from the 12th century; it seems to have been rebuilt with stage (c) in the second half of the 14th century.

This is the interpretation of the excavators, and an uncertainty about the date of the surviving fragment of south wall (as shown in Figure 144) is reflected in the period plans here, which show the church as an approximate outline only for periods D8.1 to D12.11 of the 12th and 13th centuries. If however it is accepted that the wall shown in Figure 144 is originally of 12th- or 13th-century date, then it should have appeared on the plans. A proposed plan of the development of the church building is given below in Figure 234.

The metalled lane incorporated a large amount of medieval roofing tile, in addition to a small quantity of Roman brick and roof tile. Context D[3089] contained a small fragment of slate roofing tile with a circular nail hole 11mm in diameter. This is almost certainly medieval in date. Fragments of slate roofing



Figure 145 Site D: rendering on the outside of the south wall of St Botolph's (100mm scale). The position of this fragment is shown at the top right-hand corner of the wall in Figure 144

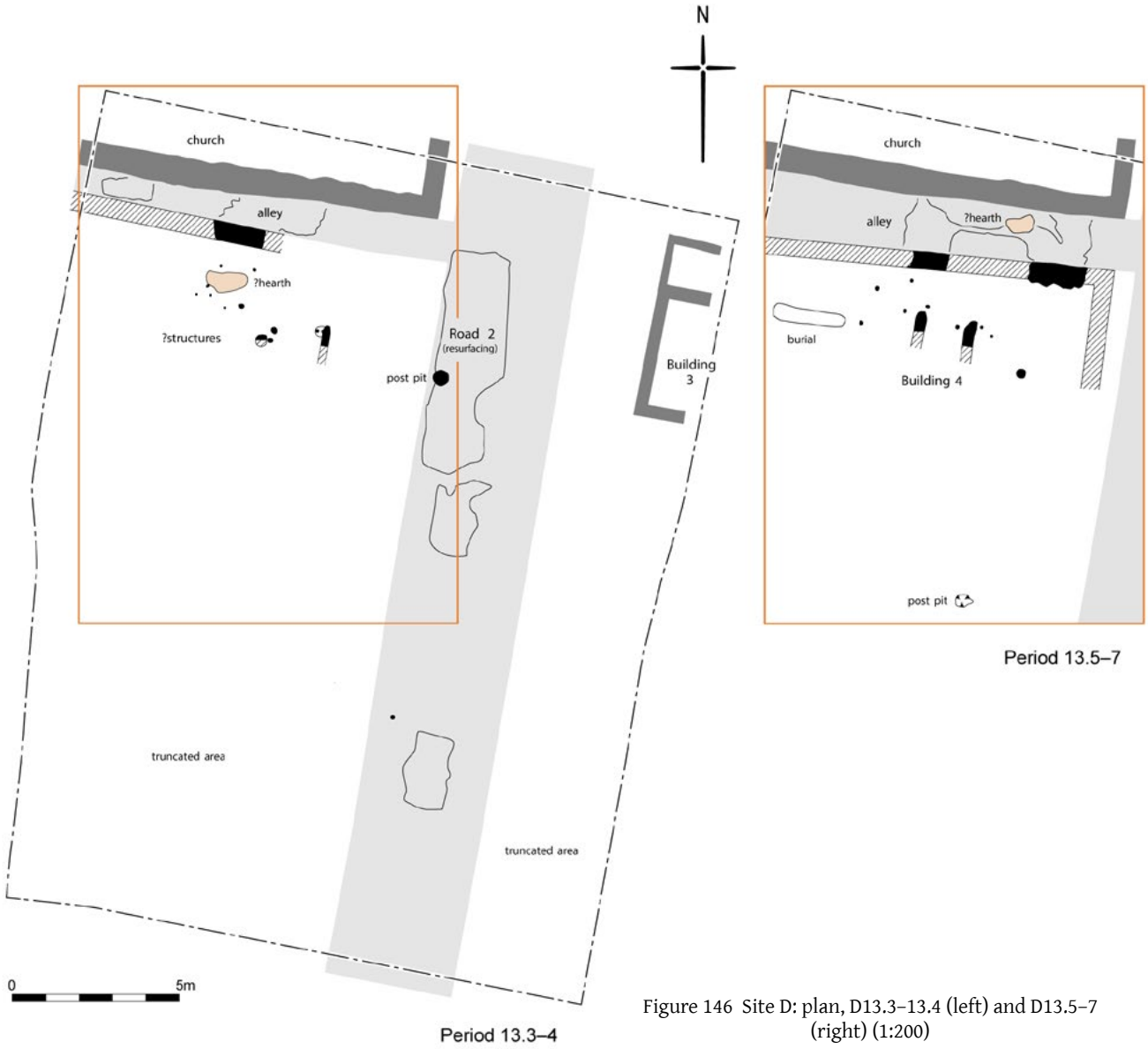


Figure 146 Site D: plan, D13.3–13.4 (left) and D13.5–7 (right) (1:200)

occur in later contexts in period D13, as well as in periods D15 and D16. The small amount present suggests that slate roofs were always rare in the City, in comparison to ceramic roofing tile. A further possibility, suggested by recording outside London, is that sometimes slate was used to roof small areas around a smoke-hole, as a fire-proofing measure, while the rest of the roof would be of tile.[52]

External makeups for a gravel and tile surface brought the area to the south of the church up to the same general level (also D13.2). Some evidence of industrial activity occurred in the form of copper slag, crucible and bell mould fragments, with charcoal, coal and burnt daub. Four small post and stakeholes in the same area may represent limited structural activity.

Structures and activity to the east and south of the church

The lane was remetalled to the southeast of the church (D13.3), although the new surface was poor, particularly further south, where mixed dumped deposits spread over and to the east of the lane (Figure 146). The patchy resurfacing included burnt material, mainly in the west, and including similar copper objects and bell mould fragments to those found in period D13.2. There was also a quantity of leather waste.

A surface of coarse sandy mortar, tile and chalk rubble was spread over the area to the south of the church (D13.4). This was cut by a series of intrusions, including a triangular arrangement of three closely-spaced posts with a clay postpad, and further east, a north–south slot, both probably marking wall-lines. Two stakes set in the base of a larger postpit reinforced the north end of the slot. Spreads of burnt material on the mortar surface around the cuts and to the northeast were similar to those which sealed the lane, suggesting that they were contemporary, and from the same source. The mortar had a common edge with a strip of slightly different material deposited alongside the church, and a postpit set along this edge may therefore mark the presence of a fence bounding an 0.8m-wide alley. The alley presumably

[52] D Evans, pers comm.

allowed access between Botolph Wharf and Tenement 14 to the west, along the south side of the church. The early fence was subsequently replaced by a 0.6m-wide east–west wall, which reduced the width of the alley, but did not apparently continue eastward as far as the lane. The wall may have been a boundary rather than part of a building, although the posts and slot to the southeast demonstrate the presence of structures in the area.

From deposits adjacent to the south wall (D[1801]) of the church came part of a plain yellow floor tile in a white speckled fabric (type 1678) characteristic of 'Flemish' (more accurately Low Countries) tiles imported into London and elsewhere in south and east England during the 14th to early 16th centuries. A second plain 'Westminster' floor tile (fabric 3081), with a dark green glaze, was found in a hearth or working area (D[2040]).

D:Building 4

Next to the church wall, extensive dark grey clay deposits were spread to create a wider alley (D13.5, Figure 146), which was rutted by heavy use, and repaired with chalk and sand patches. An open hearth or bonfire base scorched a small area of the new surfaces. South of the alley, the surface was terraced to create a level platform for the construction of a new structure, D:Building 4. The full extent of the building is unknown, but internal deposits suggest that it reached the lane, and extended south at least as far as a later undercroft (D:Building 5) which truncated deposits on the south side of the church. From the documentary evidence of the 15th century, it is likely that D:Building 4 was the predecessor of the stone D:Building 5 constructed by 1409, and may originally have included its area, i.e. been considerably larger.

The vertical north edge of the new terrace was retained by a mortared chalk and Reigate stone wall 0.5m wide; it is not clear whether the masonry continued above the surface, but at this date, such a relatively broad but shallow foundation probably supported a dwarf wall for a timber-framed superstructure. Sand and mortar makeups overlapped the south edge of the foundation, and there were traces of the scaffolding used in the construction of upper elements of the building, including several stakeholes, postpits and two sections of an east–west slot parallel to the wall. A small scorched area was probably a hearth used during the construction process. These constructional features were sealed by makeups for the first floor surface. To the south, the edge of the hearth was cut by a postpit, which contained a large sand postpad. Two stakes were driven into the centre of the postpad, respected by an overlying deposit of compact clay silt which may have been a makeup for the first floor. Three posts surrounded the pad, together with a north–south slot, which was almost certainly the base of a wall. Two further posts were set nearby.

A trampled layer accumulated in the building, sealing most of the features noted above (which are not illustrated), and marking the first definite occupation horizon. Into this were cut a north–south slot replacing the earlier example, an east–west slot, and a series of post and stakeholes. A further north–south slot to the east had a common north limit with its counterpart, and together, they may mark the sides of a passage, which possibly led north to an entrance in the terrace wall.

Two decorated floor tiles came from a pit fill (D[1641]). Both are of 'Westminster' type, one has design W53 (fabric 2199?), the other is too small for the design to be identified (fabric 2199).

Demolition of D:Building 4, a single burial, and activity further south

An extensive clay dump was spread over the area of D:Building 4, and a rough surface of broken roof and floor tiles laid (D13.6), respecting the terrace wall, but presumably marking the demise of the building. The floor tiles, of mid 14th-century type, may have come from the church (see section 6.7). This material contained a recent coin of Edward II, dated 1344–51. In the southwest corner of the new surface, a grave containing a single skeleton was cut, which implies that the area was already associated with the church. This skeleton D[2051] does not yet form part of the studied human remains; it may be stored separately from the others, and human bone was recorded in the layer which covered it, D[1999]. A consolidation layer of mortar and ragstone was laid over exposed period D11 waterfront deposits further south (D13.7), followed by accumulations of clay silt. A large postpit was the only structural feature in the area.

The external rough surface to the south comprised large quantities of roofing tile, all peg tile except for one small piece of plain ridge tile (fabrics 2271, 2273). Four fragments of medieval floor tile are present, as well as part of a Roman brick. All the floor tiles are badly worn, in some cases very badly worn, and are clearly reused. Significantly Eames design 2535 (Hohler P88) is still *in situ* at the Aerary, Windsor Castle, where the pavement dates to 1355.[53] It is possible that the floor tiles in period D13.6 are worn examples reused from earlier periods in the church. The presence of Penn design 2535 suggests that it came from a tile pavement dating to the 1350s. Further floor tiles came from D[1999], a burial infill cut into the rough tiled surface. One of the Penn designs from this burial infill (E2535) is the same as in the tiled surface, indicating that they probably originally formed part of the surface before being disturbed by the burial. An uncertain Penn design (type <T5>) is present in the same fabric type as the two Penn tiles. However, fabric type 2317 comprises a small amount of quartz with little else and is in no way distinctive, so the similarly in fabric may be coincidental. However, a Penn origin would seem probable. A small number of notable artefacts were found in the period D13 strata: a piece of goat hair cloth in period D13.1, two decayed rim fragments from a glass vessel in D13.2, a small cased hand mirror in D13.3, a corroded fragment of a plain copper alloy brooch in D13.4 and a stone spindle whorl in D13.7 (listed in Artefact Table 37).

This phase therefore comprised the removal of D:Building 4 and the short-lived use of the cleared space apparently as a cemetery, with a burial in it. This was soon overtaken by substantial building works which followed.

Period D14: early to mid 15th century

On 20 February 1409 the mayor and commonalty quitclaimed to John Reynewell and Thomas Craft, ironmongers, and their heirs forever a *domus* which had formed part of Botolph Wharf. The Latin word *domus* can mean house, but also room,

[53] Keen 2002, 220.

workshop or outhouse. This *domus* had been leased by the City Chamber to Robert Sewale fishmonger in June 1403 for a period of 10 years, and Sewale had subsequently sublet it to Reynewell and Craft for the remainder of the term, with free access at all times through the great gate of the Wharf. The house was situated between the church of St Botolph to the north, the land of the commonalty (ie the rest of the wharf) to the south and east, and the land once of John Wakelee (Tenement 14) to the west; it measured 17ft 2in (5.2m) in width on the east side and 17ft 8in (5.4m) on the west, and was 53ft 4in (16.3m) in length.[54]

On 20 July 1443, John Reynewell, merchant, granted the *domus*, described as in 1409, to William Abraham vintner, John Walden grocer, William Stafford vintner, Thomas Crofton chaplain and John Bydeford clerk and their heirs.[55] In his will dated 20 August 1456, William Stafford then bequeathed to the rector and wardens of St Botolph his land, now part of the church and on its south side, which had once included a *domus* and was part of Botolph Wharf and which he (and others who had since quitclaimed the property to him) had acquired from the late John Reynewell. The bequest was intended for the enlargement of the church and in memory of Reynewell, the testator and the co-feoffees.[56] The details of the will, in particular the measurements of the plot in question, make it clear that this was the same property as in 1403. In a second will, drawn up on 25 October 1458, Stafford noted his possession of a certain stone house (*domus petrina*) of an annual value of 20s on the south side of St Botolph's church which had been granted to him and his heirs by Geoffrey Boleyn, mayor 1457–8, and which was to serve the rector and wardens as a vestry (*tanquam vestibulum*), the mayor and commonalty receiving 20s yearly from the testator's estate in recompense.[57] In yet another will, written on 30 December 1458, Stafford bequeathed to the church of St Botolph for use as a vestry the stone house with stone vault and stone walls under the house, which he held by grant of Boleyn and the commonalty; the house, adjoining the church to the north and the City's land to the south and west, measured 16ft in length from east to west and 12ft in width from north to south.[58]

Stafford's wills of October and December 1458, specifying a vestry, had been anticipated by the appointment of five members of Common Council on 10 May 1455 to determine whether there would be any loss to the City in a grant to the church of St Botolph of a certain parcel of the common soil on the east side of the church for enlarging the vestry.[59] The findings of this enquiry are not recorded, but were presumably negative since the outcome was evidently the grant to Stafford by Mayor Boleyn and the commonalty in return for an annual payment of 20s, an arrangement to which reference was made in the two subsequent wills. Presumably the vestry was built between the date of the first will of August 1456 and the third one of December 1458.

Thus there was a *domus* built by 1403 south of the church, which was transferred by Reynewell through a group of trustees to St Botolph's, and by 1456 was 'part of the church.' An additional bequest by the sole surviving trustee, Stafford, in 1458 added a second stone building, with a vault, to be a vestry.

This narrative of the gradual growth of the church building fits the evidence of wills, our major source of information in the absence of any medieval churchwardens' accounts. John Reynewell (Raynewell) was sheriff in 1411–12 and mayor in 1426–7; also continuously an alderman from 1416 to 1445, in successively Aldersgate, Bread Street and Billingsgate wards.[60] During his mayoralty the north gateway of the drawbridge on London Bridge began to be rebuilt: according to John Stow, Reynewell laid one of the first corner stones, the other three being laid by the sheriffs and bridgemasters, and on each one the name *Ihesus* was engraved or written. The gate is shown by Wyngaerde around 1540. Stow saw these stones in the Bridge House store, to which they had been removed when the gatehouse was rebuilt in timber in 1579.

According to Stow, Reynewell, said by Stow to be a fishmonger, died in 1445 and was buried in St Botolph Billingsgate. Stow recorded nine lines of an epitaph to 'the famous John Rainwell, sometime your Maior, of the Staple of Callis'. Reynewell did not live at the Wharf; he owned other property including a large house in Windgoose Lane at the Steelyard; this mansion had once belonged to John Northampton, mayor in 1381–3, and included a dyehouse and a wine cellar. He did have an association with St Botolph's, however, in that his father William, also a fishmonger, was buried there.[61] He died intestate; on 9 November 1446 the two administrators of his estate, John Colston and John Newerk, were released from their office as administrators by the Archbishop of Canterbury, as noted in his register.[62] Details of Reynewell's transfer of the Botolph Wharf property are taken from the later wills of William Stafford. He left a substantial estate of properties in London and Calais to the City.[63]

Construction of D:Building 5

A new rectangular masonry structure (D:Building 5) was laid out immediately south of the burial recorded in period D13.6, the start of a new period of activity (Figure 147). The north wall consisted of a series of piers and foundations between the piers. Five and a half metres west of the lane, a 2.0m x 1.9m chalk pier base was constructed, the masonry supported on 110 piles driven into the base of the 1.43m deep foundation trench. Two 0.5–0.6m-wide roughly coursed ragstone and chalk foundations ran east and west from the pier, cutting the south edge of the earlier grave, and forming the north wall of the building. A second pier base, 1.8 x 1.6m, reinforced the east end of the wall next to the lane. The south wall was 0.75m wide and 0.3m deep, with a flat base, and an offset on the south face marking the change from chalk foundation to the

[54] St Botolph Cartulary, fo. ix verso–x/xi verso–xii.
[55] St Botolph Cartulary, fos xii–xiii. The relationship of this plot (i.e. Reynewell's grant) to the right of way granted in 1282 to Tenement 14 along the south side of the church is discussed in detail by Stephen Freeth in section 4.5.
[56] CLA/023/CP/01/211/1.
[57] CLA/023/CP/01/207/31.
[58] CLA/023/CP/01/210/15.
[59] Journal of the Court of Common Council: COL/CC/01/01/005, fo. 241v.
[60] Beaven 1908, ii, 5.
[61] Stow i, 25, 60, 207, 234, 240–1; ii, 171–2, 309–10, 320–1.
[62] Lambeth Palace Library, Stafford's Register, fo. 144r.
[63] *Cal Wills* ii, 576–7; Masters 1984, xxvi–xxvii.

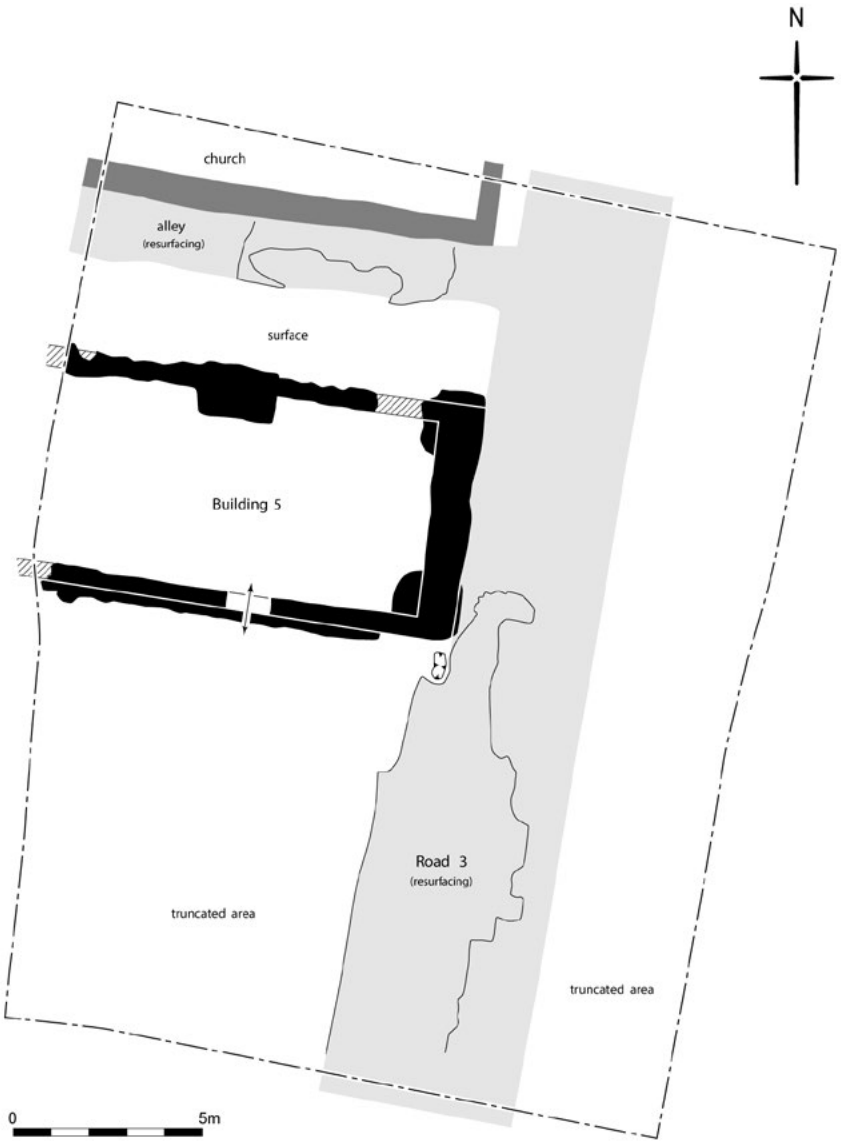


Figure 147 Site D: plan, period D14.1–14.2 (1:200)

superstructure, of large red bricks, at 2.5m OD. Halfway along the south wall was a Reigate stone doorway with a threshold at 2.71m OD, suggesting that the contemporary floor and external level was *c.* 2.6m OD. The door opened inward, and was hinged to the east. An iron fragment inset into the east jamb was interpreted as the remains of a boot-scraper. The east end of the wall was reinforced by a 1.7m-square pier, linked to its north counterpart by a ragstone and brick foundation on chalk arches bearing the 5.6m-long east wall. The superstructure was mainly ragstone with some chalk, and an increasing proportion of brick where it approached the south wall. This building would have extended west to the boundary of the excavation site, so would have had external dimensions of about 16.4m east–west by 6.5m north–south. The pierbase built into the north wall, supported by a large number of piles, was clearly of importance to the structure, and may have been the base of a fireplace and chimney in the storey above.

A small north–south slot was cut outside the southeast corner of the building, into the edge of the lane. Its purpose is unclear, but the fact that it was replaced several times in later phases suggests that it was part of an important structural feature, possibly the base of an external stair; there was no indication that access was provided internally. The lane surface was replaced in the south, possibly necessitated by traffic to the new door in the south wall. The surface was kept clean in this area, but was allowed to silt over nearer the river. The lane was repaired from time to time, although silts continued to accumulate, particularly in the southeast, where a localised concentration sloped up towards the east, indicating the possible presence of a building; any clearer evidence was destroyed by later (period D15) terracing and construction work.

Between D:Building 5 and the church, sandy deposits were dumped over the remains of the D13.5 structure (D14.2), suggesting that the former sunken area was levelled following the robbing of the revetting wall along its north edge. A chalk surface was then laid at up to 3.51m OD (Figure 148). The robbing of the terrace wall and the levelling of the sunken area may therefore have been contemporary with the building. Along the north edge of this area, the alley along the south side of the church (to Tenement 14) was resurfaced using ragstone, flint, Reigate stone and chalk cobbles, with broken tiles set on edge between.



Figure 148 Site D: period D14.2, looking east (1m scale). This shows the surviving south wall of the church (left), the north wall of the (later) vaulted undercroft of D:Building 5 (right), and the stone and chalk surfaces of the intervening space, punctuated by later burials when it was within the church

In the north wall (D[1686–7]) were fragments of Roman brick, medieval roofing tile, mainly peg tile (fabrics 2271, 2273, 2276?), with small amount of shouldered peg tile (fabric 2273), brick (fabrics 3031?, 3033) and floor tile. All the floor tiles are plain glazed and comprise a brown 'Westminster' tile (fabric 2199), a yellow Low Countries tile (fabric 2504) and two yellow tiles of uncertain source (fabric 2317). Further building material came from the east wall (D[1859, 1689]). This comprised further medieval roofing tile and large red bricks (fabric 3033), the latter measuring 252x121x58mm. The brick superstructure of the south wall comprised bricks, almost certainly from the same source, with an average size of 248x120x57mm, so a little smaller. Some of these bricks are quite soft and many are characterised by indented borders in their top surface. A small fragment of peg tile was also incorporated into the wall structure. The bricks used in the earliest phase of the undercroft are some of the earliest examples of what are almost certainly locally produced red bricks. These may have come from a brick and tile works at Deptford which was supplying bricks to the city by the first quarter of the 15th century;[64] though large-scale use of brick is very rare in London until the mid 15th century.

Three floor tiles were found in D14.2. From dump deposits (D[1551]) came a plain triangular dark green 'Westminster' tile (fabric 2199). A plain yellow glazed tile of uncertain origin (fabric 2317, size: ?x129x23mm) was incorporated into a chalk surface. The final floor tile was one of a series of broken tiles set on edge forming part of the alley next to the church wall. This tile, also of uncertain source (fabric 2324, size: 134x132x19mm) has a worn surface, but was probably originally plain glazed. Other tiles set on edge include peg roofing tile, with Roman brick and medieval brick. The latter is very similar in size to bricks used in the first phase of the undercroft and measures 242x113x53mm. Despite the similarities in size this brick has a much finer clay matrix (fabric 3093) than the bricks in D14.1 and may well originate from a different brickyard.

Reconstruction of D:Building 5

D:Building 5 was substantially altered by the insertion of an undercroft of three square bays with access from the east (D14.3) (Figure 149; Figure 151). The existing south doorway was blocked with reused masonry and red brick probably obtained from demolished parts of the original structure, and the floor level was then lowered to 2.0m OD in order to create a basement. The original east wall was rebuilt down to the new level, employing a mixture of ragstone, Reigate stone and two types of yellow brick, contrasting with the red brick employed earlier (reported in section 6.7). Elsewhere, the exposed foundations were simply rendered; in the west section of the south wall, deposits of gravel and oyster actually underlying the foundation were exposed in elevation, and

[64] Schofield 1984, 126.

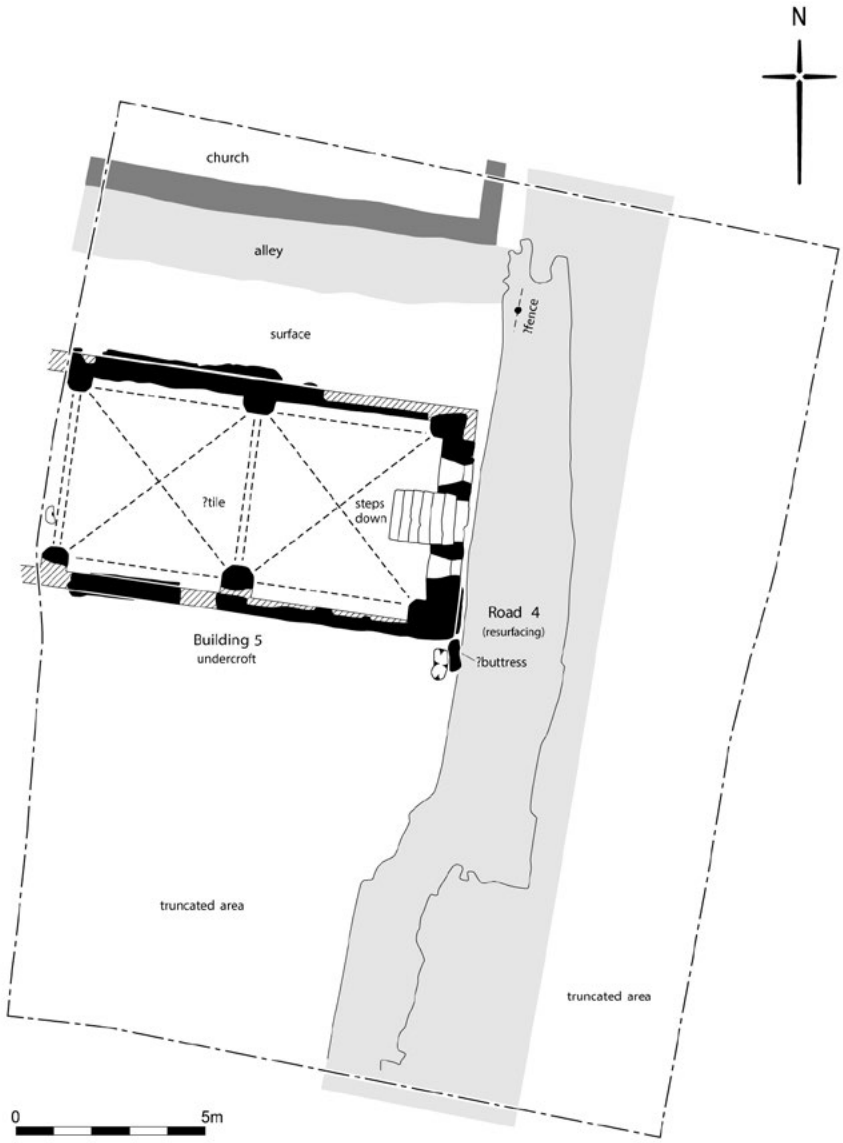


Figure 149 Site D: plan, D14.3–14.4 (1:200)

these were also simply rendered over. The central pier base in the north wall was reconstructed at the new floor level, and similar bases built at intervals along the north and south walls and in each corner. Four opposing pairs of chamfered Reigate stone responds were then constructed on the foundations, at an average 4.8m spacing (centre-to-centre). These supported arches along the side walls, and moulded Reigate stone corbels for the diagonal ribs of the vaulted ceiling. The intervening webs of the vault were of chalk blocks, which survived only where they entered the east wall. A new central entrance in the east wall contained seven ragstone steps leading down to the new level directly from the lane. A rectangular window barred by metal grilles or ferramenta and probably protected with an external wooden shutter was inserted to either side; the ferramenta survived in the southern window (Figure 151B, C). The door and windows had simple chamfered ragstone and Reigate stone surrounds, the only decoration being simple chamfer stops cut into the door jambs.

A slightly off-centre rectangular window, of similar but not identical dimensions and construction to those at the east end, was was recorded on the adjacent site C in 1974, in the wall forming the east boundary of the site (Figure 152). The surrounding wall, incorporating much stonework probably of medieval origin, is most likely to be a post-Fire rebuild, so perhaps the window was reused in the post-Fire building on the site.

The vault of the undercroft was constructed in such a way as to allow sufficient clearance for the east stairway and window heads, and providing *c.* 2.5m headroom in the centre of the undercroft. Stonework of the west wall, which survived to *c.* 5.5m OD, suggested that the level of the floor of the building above was *c.* 4.5m OD, around 1.0m higher than the ground level to the north.

The interior of the undercroft was rendered and limewashed. The new east wall of the undercroft included both yellow and red brick fragments, and several fragments of Penn floor tiles. A rough broken tiled floor in the undercroft comprised almost entirely peg and curved roofing tile (fabrics 2271, 2273, 2276?). A plain dark green glaze Low Countries floor tile (fabric 3083) measuring ?x113x24mm was recovered from occupation debris above the floor. Further floor tiles were recovered from gravel metalling (context D[1544]) and a pier base (context D[1684]). The former comprised a decorated Penn floor tile



Figure 150 Site D: D: Building 5 undercroft looking east (1m scale)

(fabric 2894) with Eames design 2231 (Hohler P54) and plain dark green and yellow Low Countries tiles (fabric 2504). The latter consists of a worn, plain?, yellow-glazed tile of uncertain origin (fabric 2320). Red bricks (fabric 3033) measuring an average of 247x119x54mm were used in the rebuilding of the south undercroft wall, along with a small quantity of peg tile. The bricks are the same size as those used in the 'first phase of the undercroft' and seem to have been reused from the earlier structure. This reuse is indicated by incomplete bricks with mortar on their broken surfaces. Similarly, the bricks used in the blocking of the doorway in the south wall are the same size as those used in period D14.1 (average size 250x121x57mm) and would appear to have been reused in the same manner.

To the east, makeups were laid for a major new lane resurfacing (D14.4). A cut which intruded into the new surface near the southeast corner of D:Building 5 suggests that the postulated external stair was replaced. At the east edge of the cut, a linear mortar and ragstone strip marked the probable remains of a buttress supporting the corner, although it may have been a reinforcing strip at the foot of the stair. Later period D14 lane surfaces respected its position, which implies that it survived for some time. Near the junction of the lane and the alley next to the church, a single stakehole may have marked the end of a fence, running south to D:Building 5.

The lane was heavily used and frequently repaired, eventually requiring extensive resurfacing (D14.5, not illustrated). Silts on the new surface stopped opposite the south wall of D:Building 5, and must have been deposited by traffic using the new building. Three post and stakeholes at the west side of the lane represent the replacement of the suggested fence line. Again, local repairs were carried out, including several patches immediately outside the undercroft entrance. A large number of glass vessel and window fragments associated with one of the repairs (context D[2089]) suggests a glassmaker's abandoned stock of cullet, since it included probable Roman material among more contemporary fragments. The lane was subsequently resurfaced once again (D14.6, not illustrated).

In this phase therefore (period D14.1–6), a stone building (D:Building 5) was built south of the church, a few metres away from it. At first this had a door in its longer south wall (D14.1). But soon after it was rebuilt in the basement storey, as a vault was inserted and a doorway to the lane on the east inserted; the south doorway was blocked (D14.3).

At present there is no fine archaeological dating for this building except that its walls included fragments of Penn floor tiles of 1330–80. The initial construction, without the vaulting, is placed in the first half of the 15th century. From the documentary evidence, D:Building 5 is the stone house or building which passed from John Reynewell to the parish by 1456. What is unknown is whether the rebuilding with vaulting, in period D14.3, should be attributed to Reynewell or his associates in the first half of the 15th century, or might postdate the acquisition by the parish. The former seems more likely, and will be assumed hereafter.

Possible buildings either side of the lane

Structural traces in this phase have not been given individual building numbers, though they probably represented



Figure 151 Site D: period D14.3, details of undercroft of D:Building 5, all looking east. A, the inside of the east end, showing the entrance stair and two windows to the lane (supported with temporary props) (1m scale); B, the northern of the two windows (0.2m scale); C, the southern of the two windows, with original ferramenta surviving (0.5m scale)

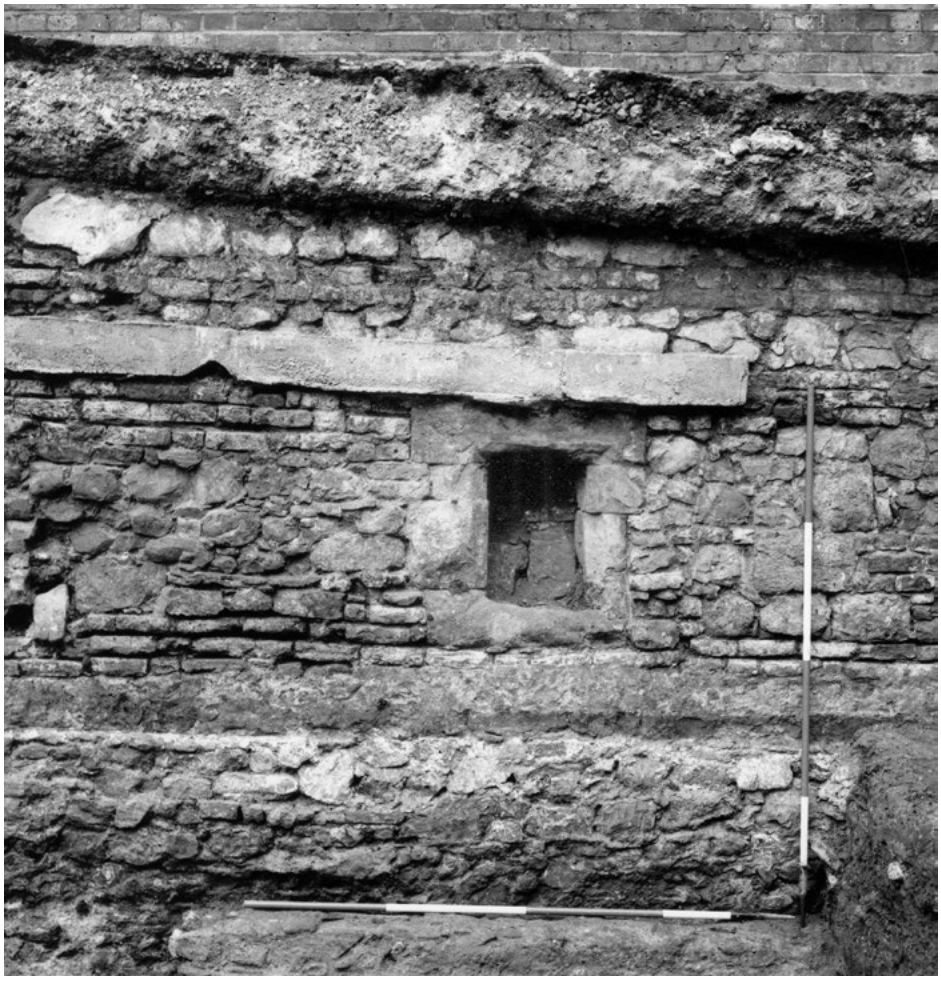


Figure 152 The east side of site C (New Fresh Wharf) in 1974, showing the window in the boundary wall which seems to be from D:Building 5 on the other side of the wall; looking east (2m scales)

buildings. South of D:Building 5, a 1m-wide north–south uncoursed chalk wall was constructed alongside the lane (D14.7) (Figure 153). The wall terminated in a butt end to the south, but continued northward for at least 1.7m, although any further extension was removed by later terracing, and it is unclear whether it reached as far as D:Building 5. There was no indication of a return to the west, and the wall may therefore have been a boundary.

East of the lane, a narrow east–west ragstone and Reigate stone wall was laid on a chalk foundation in a cut 2.2m wide. Bricks laid north–south along the north side may have formed a refacing, but could equally have been part of the original foundation. Clay was packed against the south face. This wall was directly overlain by a period D15 wall, suggesting that it formed part of a predecessor of the later building. To the north, a 0.9m-wide cut containing a ragstone and several chalk blocks may have been a disturbed pier foundation, although its phasing is unclear. It lay at the head of the period D11.8 drain, and may explain its abrupt termination at this point. After the wall to the east had been constructed, the south part of the lane was resurfaced; burnt material employed in the makeup may have been of local origin.

D:Building 6 and modifications to D:Building 5

West of the lane, a north–south uncoursed ragstone and chalk wall was built (D14.8) to the south of the previous D14.7 section of wall, and continued its line (Figure 153). This can be more certainly identified as a building (D:Building 6), since a doorway was added subsequently (see D14.10); the rear extension may have been timber-framed. The chalk foundation was constructed as a shallow arch at least 5.6m long, and presumably formed a south extension of the existing wall, although the junction was not observed due to later rebuilding work. Two stone blocks, of Reigate stone and ragstone, were set against the west face of the wall, with a pebbly sand surface laid between over clay silt makeups at *c.* 2.35m OD. A threshold may have existed between the blocks, which may also have functioned as buttresses, as was the case when the structure was rebuilt in period D15. Mixed deposits were laid to the west, forming a continuation of the surface, and probably running northward to D:Building 5. These contained a small assemblage of bell mould fragments and copper waste (context D[1130]).

The lane was again resurfaced, with later extensive patching opposite the period D14.7–8 walls. A trench was excavated along the west side, extending from the southeast corner of D:Building 5 northward to the alley (D14.9). The fill of the trench was mortar, ragstone and brick, suggesting that it was a construction cut both for the repair of D:Building 5's facade, and for the addition of a wall to its north side. This was probably a boundary wall, although it may have enclosed a lean-to. Any structural remains were destroyed by a period D15 feature constructed in the same place. The repairs to D:Building 5 were only apparent in the contemporary

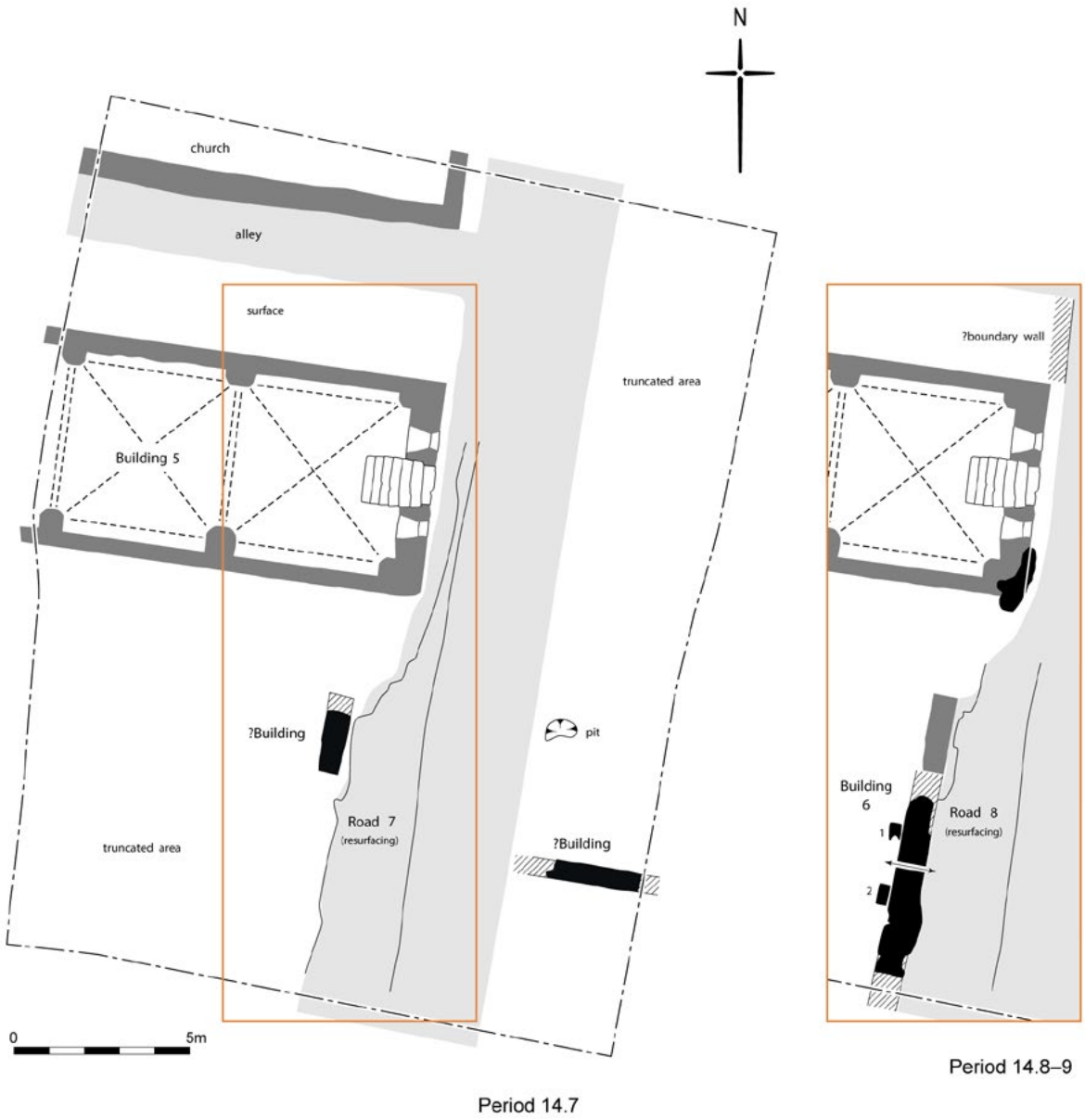


Figure 153 Site D: plan, period D14.7 (left) and D14.8–9 (right) (1:200)

reconstruction of the southeast corner and its attached buttress. A posthole cut into the edge of the lane nearby probably supported scaffolding for the rebuilding work. The backfilled construction trench was sealed by localised lane metalling.

A number of bricks were recovered from the fill of a construction cut (D[1512]). These may have been discarded after repair of the east end of the undercroft or the addition of a wall to its north side. The bricks (fabric 3040) are characterised by their varied colour which may be light grey, red, brown or streaked red and yellow, straw marks in base and indented borders on their upper surface. There average size is around 248x111x43mm. These bricks occur in Essex where they are known as 'Flemish Type-grass marked bricks' because of their assumed Flemish (Low Countries) origin.[65] They are dated to the early 14th century in Essex, but the evidence from London suggests a broader and slightly later mid 14th to mid 15th century date span for their use in the capital.

In the south, a new entrance was constructed, leading into D:Building 6 across the period D14.8 wall (D14.10, not illustrated), and replacing the suggested original doorway further north. The entrance was lined with red brick, and had a yellow and red brick threshold. The lane was resurfaced locally; silts above the new surface lapped the entrance, and were subsequently cut opposite its centre by a large posthole, which may have been connected with rebuilding work at a higher level.

Thus, as might be expected, there was a building (probably a range of buildings) along the lane south of the new D:Building 5, and the lane widened.

[65] Ryan 1996, 32.

Period D15.1 to 15.2 (second half of 15th century, possibly c 1455)

Extension of St Botolph's church to the south (a new aisle) and the first burials in the aisle

The space between the south wall of the church and D:Building 5 was walled off on the east and became internal space (D15.1, Figure 154). This is called here the new aisle of the church or the church extension, to be distinguished from whatever use the parish placed on D:Building 5. The east end of the aisle consisted of a 1.3–1.4m-wide chalk foundation constructed in the 5.2m gap between the existing buildings. The lane frontage was supported on an arched east foundation additionally supported in the north where it abutted the church by 32 piles. The northeast corner of D:Building 5 was replaced by a 3.0m-long east–west return wall, which was constructed on a deep footing of timber piles and limestone blocks; its masonry actually cut down into the undercroft.

The east wall was internally faced with flint and chalk chequerwork above a brick string course (Figure 155); below limestone, which must originally have been hidden by some kind of dado, unless the original floor level was higher than the surviving deposits. The outside of the wall was of ragstone ashlar, with a single course of knapped flint, and some brick levelling. Above this, there had probably been a window, a contention supported by the presence of broken window glass nearby, deposited after the church was destroyed by fire in 1666 (D16.8 below). A 1m-wide doorway was constructed just north of the south end. The superstructure of the new east–west section of wall was also faced with chequerwork; it seems possible that the north wall of D:Building 5 was substantially rebuilt above the level of the undercroft to accommodate the increased load from the new building.

Remains of a possible tile floor on a mixed bedding of clay, crushed chalk, Reigate stone and mortar, were found alongside the east wall of the new aisle. Some of the bedding deposits reached 3.59m OD where they approached the north wall of D:Building 5, which suggests that the floor was at least 1.5m higher than that of the basement of the neighbouring building. A series of cuts and burials then intruded into the

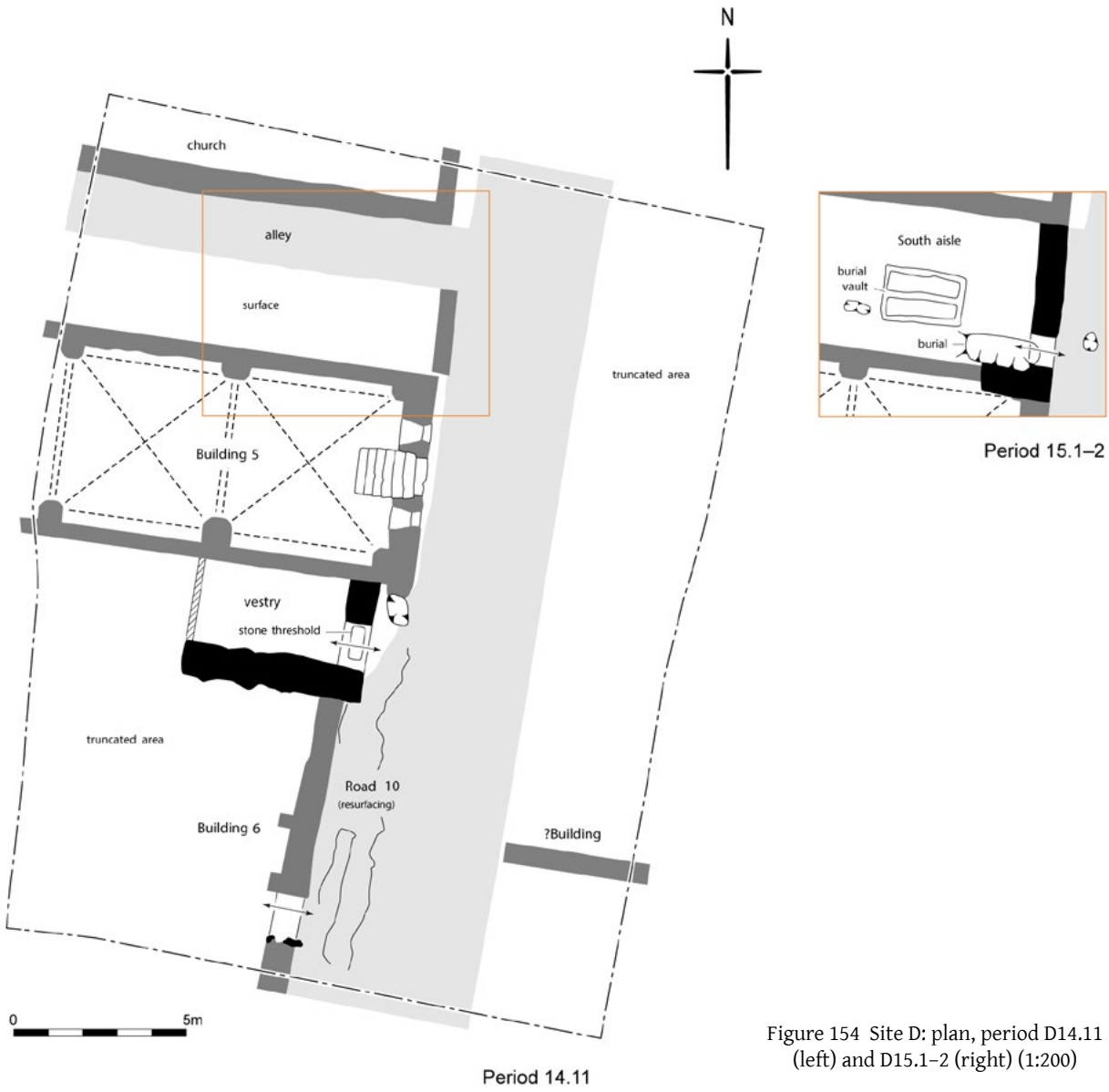


Figure 154 Site D: plan, period D14.11 (left) and D15.1–2 (right) (1:200)



Figure 155 Site D, period D15.1, south extension of church: east wall looking east (1m scale). The north jamb of the doorway to the lane is on the right

floor of the new extension (D15.2). These included the end of a possible grave 2m west of the entrance, truncated by two successive burials immediately inside the doorway. To the southwest and west were two child burials, one of them disturbed (listed in Table 39).

Between the two groups of burials, a rectangular 2.5m by 1.5m yellow brick double grave was constructed in a 0.78m deep cut, positioned along the central axis of the new aisle (Figure 154; Figure 157). The bricks employed were virtually identical to other examples from the new east wall, and were probably broadly contemporary. The north grave was empty, although nails and coffin fittings including a handle show that a body had been removed after its coffin had decayed.[66] The south held two adult skeletons D[937], a woman of 36–45 years, and D[783], a man aged over 46 (Figure 156, Figure 157). In silty clay and pebbles over the second skeleton D[783] was a fragment of a lead seal from a papal document of Urban VI (1378–89) D<983> [676] (Figure 158), though it is debatable whether this was originally in the grave.

The osteological characteristics of the skeletons in D15.2 are noted in Table 39 and they are discussed in the specialist report in section 6.8.

Context	Period	Sex	Age category	Pathology
783	15.2	male	>46	Dental pathology (caries)
937	15.2	female	36–45	Dental pathology (caries)
1118	15.2	male	36–45	Dental pathology (calculus)
1230	15.2	subadult	1–5	Dental pathology in deciduous dentition (caries and calculus)
1258	15.2	subadult	1–6 months	No visible pathology
1569	15.2	male	>46	Vertebral pathology with osteoarthritis of the vertebrae

Table 39 Site D: details of human skeletons in burials in period D15.2

Skeleton D[783] had several osteological conditions: a possible healed fracture in a fibula, extensive evidence of the condition DISH in his vertebra (evidence of a rich calorific diet), and the condition *Cribra orbitalia* in his eye-sockets, indicating

[66] Iron coffin fittings are D<1201>, but their context number the same as the surviving skeleton D[937].



Figure 156 Site D: skeleton D[937], the lower skeleton in the southern of the two brick-lined graves (0.5m scale; south to top)



Figure 157 Site D: the two brick-lined graves of period D15.2, looking east (0.5m scale). The north grave was empty, but the south held two skeletons. Shown here is the upper skeleton D[783]



Figure 158 Site D: fragment of papal lead seal of Urban VI, D<983> [676] (diameter 38mm)

iron deficiency anaemia. He lay above skeleton D[937], a woman in remarkably good physical health, in one of the two side-by-side brick graves, or possibly a small vault with two rectangular spaces for coffins, in the middle of the south extension. We suggest that the man is John Reynewell (d 1445) himself, in the lower brick part of a grave or a monument. The brick part would have been below floor level. The substantial substructure implies a stone tomb above, with either a brass or an effigy on it, but no evidence survived (a brass is probably more likely). The monument would have faced an altar in the east wall and a window above, but no evidence of either remained. John Reynewell is further discussed in the next part of the text, and in section 6.3.

Brick and roofing tile were used in the foundations of the east wall of the aisle. This comprised peg tile and ridge tile (fabrics 2271, 2273), a possible fragment of louver (fabric 2274) and yellow brick (fabric 3031) measuring 207x98x49mm. One of these bricks has had one edge deliberately cut away. A peg tile (fabric 2276) was retained from the possible tile floor alongside the east wall. The brick grave was constructed of similar sized yellow bricks (fabric 3031) measuring on average 200x98x46mm. A fragment of slate roofing was found in deposits overlaying the base of the north grave, whilst a louver (fabric 2274) was recovered from grave infill (D[958]), along with peg tile roofing. A number of both plain and decorated floor tiles were also recovered from the infill of the north grave (D[676]). The floor tiles are of 'Westminster' type (design W34), probable Penn type (<T5>) and of Low Countries origin. The latter are in distinctive silty fabrics (2850, 3063) which first arrived in London around *c.* 1480. Many of these silty fabric Tudor tiles are larger than their medieval counterparts. One of the tiles has a surviving breadth measurement of 155mm with a thickness of 28mm. This has a green glaze over a while slip, a fairly common feature of Low Countries tiles used in London, but rare on tiles of English origin although a few 'Westminster' tiles use this method to produce a plain light green colour.[67] The other Low Countries tile has a yellow and green mottled glaze. Another small fragment of decorated Penn tile came from a grave infill (D[1239]). This is Hohler design type P66 (Eames E2409?).

An extension to the church (a vestry)

An L-shaped wall (D14.11) was constructed against the southeast corner of D:Building 5 to form an extension facing onto the lane and abutting the D14.7 wall to the south (Figure 154. The extension consisted of a 3.6m north–south ragstone arched foundation which was bonded onto D:Building 5, and a 5.2m chalk east–west return which terminated abruptly to the west opposite one of the undercroft piers. The west end of this foundation was 4.0m deeper than its central section, which suggests that it carried a much heavier load; it is suggested that a non-loadbearing timber-framed wall completed the fourth side, replaced in period D15.9 by a brick wall. The massive construction of the walls implies a vaulted superstructure similar to that of the undercroft (though no evidence for vaulting this second building was found), and this seems to be implied by a documentary reference to a building with vault and stone walls constructed in 1456–8. The superstructure was of ragstone, and a ragstone threshold crossed the lane frontage at 3.17m OD, which suggests that the level of the floor within the structure was at least 1.0m above that of the undercroft. The lane was remetalled in the area of the extension and D:Building 6. An irregular cut which intruded into the new surfaces at the southeast corner of D:Building 5 was the final replacement of the suggested stair noted on two earlier occasions.

Initial survey of the pottery indicates that most of period D14 was in the 15th century. A specific documentary reference, the will of William Stafford dated 30 December 1458, refers to the stone house 16ft (4.9m) long and 12ft (3.7m) wide which was to be part of the vestry of the church. This seems to be an additional specification to the previous wills (which are described in section 6.10), to ensure that the small chamber on the southeast corner of D:Building 5 was included in the transfer to the church. Thus the small building of period D14.11 was this extra vestry, and its construction dates to shortly before 1458.

A number of bricks were retained from the brick facing marking the south side of the entrance across the period D14.8 wall (D[1424]) and what has been interpreted as a possible threshold (D[1427]). The facing bricks were all red (fabric 3033) and measure ?x109x60mm. Forming a possible threshold was a yellow brick (fabric 3031) measuring 212x100x55mm and a red brick (fabric 3033) measuring 222x115x50mm. The red bricks in this latter size are the products of various brickyards operating in London area from the mid 15th century down to *c.* 1700.[68]

Reconstruction of St Botolph's church and the frontage to the lane

It therefore seems likely that periods D14.3–D15.2, within the church, cover the establishment and first use of the former space between the old church and D:Building 5 to the south. Several burials and one double brick tomb, suggested here to be of Reynewell himself, were made in the new part of the church. A partial reconstruction of the interior of the east wall of the church and the buildings to the south is given in Figure 159. A view of the excavation in progress in Figure 160 may help to show the context of this drawing.

[67] Betts 2002, 7.

[68] Crowley 1997, 200; Pringle and Smith 2004, 327.

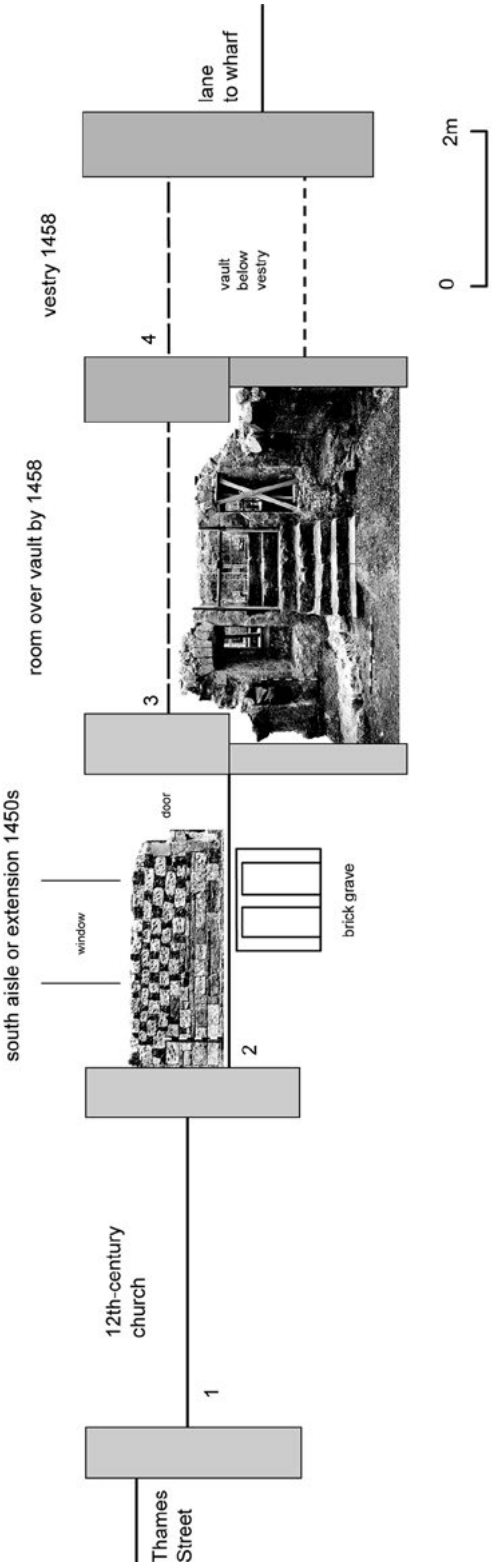


Figure 159 Site D: reconstructed section along the interior of the east wall of St Botolph's church and the buildings to the south around 1500, looking east. Key: 1, approximate floor level inside the first, 12th-century church; 2, inferred floor level in the south aisle or extension, 1450–1500; 3, proposed upper floor level in D:Building 5; 4, proposed floor level in vestry



Figure 160 Site D: excavation in progress, 1982, looking east. Left, the south extension of St Botolph's, its east wall with chequerwork facing half removed by the excavators; middle, the undercroft of D:Building 5, at this stage in its 17th-century form (the medieval windows will be revealed beneath the ashlar walling); right, part of D:Building 6. Beyond these buildings the 17th-century level of the lane leading to the wharf is seen. This shows how the general street level in 1666 was over 3m below the present Thames Street, which is level with the floor of the public gallery being constructed on the left

The church of St Botolph Billingsgate from the 12th to the early 16th century

Stephen Freeth

Introduction: outline history and the evidence of wills[69]

St Botolph's, dedicated to the patron saint of travellers, stood on the south side of Thames Street, at the top of the alley leading to Botolph Wharf, in Billingsgate Ward. We know from the St Paul's archives that the church was in existence in 1140.[70] St Paul's held the advowson of St Botolph's until 1666, when the church was burnt down and not rebuilt. The parish was united with St George Botolph Lane, the next parish to the north. Part of the church site was used to widen Thames Street, or acquired by adjacent occupiers.

The earliest St Botolph's was probably built on the Roman 3rd-century riverside wall in Saxon times. This was outside the excavated area, to the north. Archaeology has established that in the early 12th century, the waterfront to the south of the church was merely a reinforced embankment, only a few metres wide, dated by dendrochronology to 'after 1071' and 'after 1108'. By 1200, four successive waterfront revetments had taken the foreshore far to the south of the church building, even in its most extended form. So after 1200, the church was not constrained by the foreshore.

St Botolph's gradually expanded southwards. Thames Street prevented expansion to the north, and private property extending up to the west wall of the church prevented expansion to the west. There was no room for a churchyard. In consequence, at the end of the 14th century, the parish acquired a small detached churchyard on the north side of Thames Street, east of Botolph Lane. This was consecrated in 1393. It still survives as an open space called One Tree Park in the forecourt of an office block.[71]

St Botolph Billingsgate was always a small church. In the various pre-Fire views, even its tower is always dwarfed by the larger towers of other churches such as St Magnus. Leake's outline of the church (drawn below in Figure 235) as burnt in the Great Fire[72], shows it as roughly a square, on the south side of Thames Street, with a small projection (the vestry) in the southeast corner.[73] We have the dimensions of the outside walls. On 17 March 1672/3 Robert Hooke staked out the ground for the widening of Thames Street after the Fire, and measured the length of the 'stone wall' (the north wall) of St Botolph's, already 'buried under the street', as 55ft (16.8m) from east to west.[74] Nine feet (2.7m) of ground south of the wall at the west end, and nine feet three inches at the east end, had been taken for Thames Street. The east wall of the former church is shown on the plan attached to the City's lease to Josiah Child in 1680.[75] We now know from the pleadings in the various post-Fire Chancery suits between Child and the City that this plan was copied unchanged from a pre-Fire plan of 1653.[76] It therefore shows the pre-Fire layout, not the changes after the Fire. This gives us the length of the east wall of St Botolph's: 51ft (15.6m) excluding the vestry (which was 11ft (3.4m) wide, north to south), or 62ft (18.9m) with it. The west wall was measured in June/July 1667 by a Committee of the Court of Aldermen, which reported to the Court on 16 July. The wall was 53ft (16.2m) long. This was its full length; the staking-out for widening Thames Street was still five years away.

Most of this west wall was purchased from the City Corporation under the Rebuilding Acts soon before 1675 by William Laight or Layght, clothworker, and demolished. He was tenant of the property immediately to the west (Tenement 14), and anxious to rebuild as easily as possible. His house had joined to the church's west wall, in so doing overflying a passage to the riverbank about five feet wide. He feared that he would no longer be able to build up to this west wall unless he acquired the wall itself. The City agreed, and sold it to him. The precise dimensions of what Laight bought are cited in a Fire Judges' Decree of 6 July 1675 as 2ft 6in (0.76m) wide and 36ft (11m) long. The precise date of his purchase is not known, but it seems to have postdated Hooke's staking out on 17 March 1672/3 of a strip 9ft wide from the northern edge of the church at the west end for widening Thames Street. Either way, some of the wall at the south end seems to have been left in the hands of the City.[77] So St Botolph's church at the time of the fire measured 55ft (16.8m) along Thames Street; 51ft (15.6m) down the east side, plus 11ft (3.4m) for the vestry; 50ft 6in (15.4m) along the south side; and 53ft (16.2m) along the west side.

The earliest church is likely to have comprised a nave and chancel without aisles, and perhaps with a tower at the west end. There are no written records at all, other than an inventory of the possessions of St Botolph's compiled by St Paul's Cathedral in 1140. This mentions an altar of St Mary, which suggests a subsidiary altar against the buttress of the chancel arch.[78] The church expanded to the south in the mid 15th century, probably in stages. An aisle was added on the south side, bridging the gap between the south wall of the

[69] This report owes a great deal to preliminary work by Tony Dyson, which is gratefully acknowledged; in particular, his work on the adjacent landholdings has been crucial to understanding the gradual development and enlargement of St Botolph's church building during the Middle Ages. For the Tony Dyson Waterfront Project, carried on from the late 1970s until 1998, see Holder *et al.* 2006. The project covered the whole of the London waterfront south of Thames Street from east to west across the entire length of the City. Thanks are also due to the Grocers' Company, for a grant which facilitated much new research.

[70] Newcourt 1708–10, I, 209; St Paul's cartulary, statute and evidence book, 1100–1335?, or 'Liber L', now CLC/313/B/001/MS25504, fo. 84v (ancient foliation), 87v (modern foliation). This was published in 1897 by W Sparrow Simpson.

[71] The licence in mortmain dated 7 August 1392 is copied into the parish cartulary, fo. 3v–5v. So is the record of consecration on 13 March 1393, at fo. 4v–6v. The Inquisition *ad quod damnum* is TNA, C 143/418/3. See also Colson 2011, 205–6.

[72] BL, Add. MS 5415.1.E, reproduced in Barber 2012, p45.

[73] This projection is misinterpreted as an open yard in Lobel 1989.

[74] Comptroller's Deeds Box K, no.B75.

[75] Comptroller's Deeds Box 36, no.27; Gerhold 2016, 142, fig 158.

[76] TNA, PRO C 7/73/60.

[77] For the Fire Judges' Decree see the Decree book, CLA/039/01/009, fo. 135, William Layght, clothworker v the Vintners' Company. Layght seems to have purchased the wall between 25 March 1673 and 25 March 1674. See CA, fo. 236v.

[78] The church at Middleton (Essex) survives as a substantially Romanesque building of roughly the same size as the early St Botolph's seems to have been. In particular, the nave at Middleton is approximately 22ft 6in (6.9m) wide externally, and 18ft 6in (5.6m) wide internally. It demonstrates clearly that there was space for side altars, despite the narrowness of the building.

early church building and the *domus* of John Reynewell. The top side of the stone vault of this building, presumably flat, would have been about a metre (3ft 3in) above the floor of the adjacent new aisle of the church, which filled the space. The room above the vault would therefore have been impractical as a liturgical aisle, within the space for worship. It is much more likely to have been a meeting room or fraternity hall, similar to that of the Fraternity of the Holy Trinity in Aldersgate Street, of a few decades later.

The details are as follows. At Easter 1282 the Mayor and Commonalty granted to Richard de Kingeston, the occupant of Tenement 14, a plot of land on the common quay in the parish of St Botolph (ie Botolph Wharf), extending from his own property for a distance of 54ft 9in (16.7m) alongside the church to its far end, and giving him free access to the common way which led to the Thames against the east side of the church (ie the alley to the wharf). On each side the plot was 18ft (5.5m) wide between the wall of the church to the north and the common quay to the south; no buildings on the plot were mentioned. [79] There is no further reference to the right of access between Botolph Wharf and Tenement 14 before 1439 when the latter was acquired by the Vintners' Company, but in the 16th and 17th centuries the Company's accounts regularly record an annual payment of 1d to the Chamber of London for the use of a way or door to Botolph Wharf. However it is clear that the Vintners only acquired right of access to Botolph Wharf; they never had the freehold of the ground granted to de Kingeston.

The Vintners' right of passage continued to be reserved in City leases of Botolph Wharf into the late 18th century. Access in 1282 will have been along the south side of the early church building. However by the end of the 15th century it will have been blocked (at least in the form in which it was originally granted) by the enlargement of the church to the south. The Vintners' rights are therefore likely to have been exercised after this much further south, at the riverbank, in the form of access to Botolph Wharf from the wharf immediately to the west. This seems clear from the plans which accompany the 18th-century leases, which show no gap in the warehouses between the former church site and the wharf itself.[80]

On 20 February 1409 the mayor and commonalty quitclaimed to John Reynewell and Thomas Craft, ironmongers, and their heirs forever a *domus* which had formed part of Botolph Wharf. This *domus* had been leased by the City Chamber to Robert Sewale fishmonger in June 1403 for a period of 10 years, and Sewale had subsequently sublet it to Reynewell and Craft for the remainder of the term, with free access at all times through the great gate of the Wharf. The *domus* was situated between the church of St Botolph to the north, the land of the commonalty (ie the rest of the wharf) to the south and east, and the land once of John Wakelee (Tenement 14) to the west; it measured 17ft 2 in in width on the east side and 17ft 8 in on the west, and was 53ft 4 in in length.[81]

The position of this *domus* sounds very similar to that of the plot of land of 1282, and the measurements are closely, though not exactly, comparable. However the two deeds are unlikely to relate to the same site. For this to be so, the City would have had to re-acquire the site granted to de Kingeston in order to lease it to Sewale. It would also mean that the ground on the north side of the *domus* had been open ground belonging to the parish since before 1282, and we would need to explain the almost complete absence of burials in this space. (There is only one.) Much more likely, an unknown later owner of de Kingeston's plot had already granted it to St Botolph's for the enlargement of the church, perhaps not long before, and the grant of 1409 was therefore referring to the new, more southerly boundary of the church site. The single burial may be the unknown donor.

A second, much smaller *domus petrina* ('stone house') was also added to the south, and became the vestry. This is the projection in the southeast corner shown on Leake's post-Fire plan of the destroyed City. It too was raised on a basement. It is difficult from the excavated remains to align the floor levels of the *domus* and *domus petrina*. However there will have been an obvious need for the two to be adjusted to match. The vestry was tiny. The possessions of the Fraternity of St Mary and St John the Baptist, alone, in the parish's original chantry return of 1546, were equivalent to those of many other City parishes.[82] The vestry alone will have been insufficient. The vestry in turn will have needed access from within the church.

So the major elements of the church's liturgical space at this date were a nave and chancel with south aisle and south chapel. South of these were some sort of meeting room, above a vaulted cellar, with a small vestry beyond. The new extensions will have increased the area of the original church considerably, more than doubling its size (Figure 154). This is remarkable for a London parish church in the 15th century, though several churches expanded their footprint.

Wills of parishioners of St Botolph's start to survive from the early 14th century. Over 100 of them dating between 1313 and 1558 contain useful physical references to the interior of the church; for a full listing, see section 6.10 below. Study of them reveals certain patterns. First, there were initially two altars, of St Mary and St Katherine. Some wills (Thomas Snowdylonde, 1361; Roger Cogger, 1377; Andrew Pykeman, 1391) refer not to 'St Mary's altar' but to 'St Mary's chapel', but this need not indicate a distinct physical space as opposed to a simple altar. Both altars were probably against the buttresses either side of the chancel arch. At this date there were two parish fraternities, of St Mary and of St Katherine (Richard Elme, 1382; William Stachesden 1383; Christine Cogger, 1384; Thomas Mordon, 1385; William Ancroft, 1390; Richard Tykenore, 1397). The first half of the century seems the likeliest time for the expansion of the parish church; and at this time it produced its fine cartulary which began in Christmas 1418, rehearsing wills of 1323 and 1350 (Figure 161).

[79] This deed of 1282 was clearly important to the Vintners. It is copied into both the Company's Will book, 1437?–1800, formerly GL MS 15364, now CLC/L/VA/G/001A/MS15364, p 7, and into the earliest surviving Company account book, for the years 1507–22, now BL, Egerton MS 1143. Both these volumes were compiled many years after 1282. The original grant has not yet been located in the City records, though there are later copies.

[80] See Comptroller's Deeds as follows: Box 36, no.27 (1680, but reciting earlier leases of 1645, 1653 and 1672); Box 52, no.5 (1719/20); Box 28, no.22 (1732); Box 153, no.9 (1793).

[81] St Botolph's parish cartulary, fo. ix verso-x /11v –12.

[82] TNA, E 301/132; Colson 2011, 243.

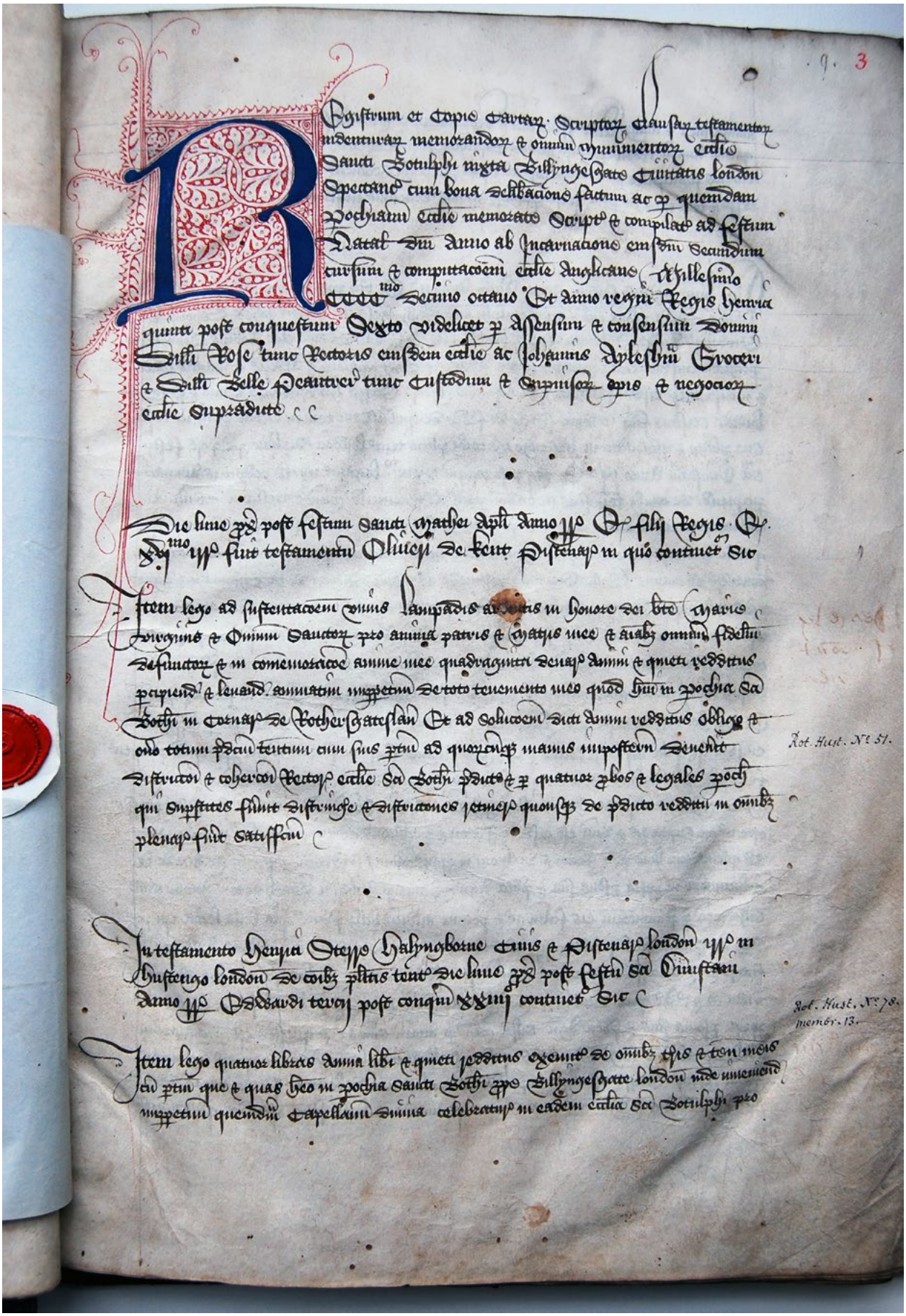


Figure 161 The opening page of the parish cartulary of St Botolph Billingsgate, commenced at Christmas 1418 (LMA, P69/BOT3/D/001/MS00059). The first two entries are extracts from Hustings wills enrolled in 1323 and 1350

References to St Mary's altar continue to at least 1420 (Robert Muston, 1420), but in 1413 comes the first reference to what was apparently a new altar, of St John the Baptist (John Park, 1413). In 1439 there is the first mention of a new Fraternity, of the Virgin/St Mary and St John the Baptist (William Symmes, 1439). This is accompanied by the permanent disappearance of any further reference to the altar of St Katherine. These changes may be linked to the enlargement of the church to the south in the 15th century. A tantalizing bequest in 1410 (Juliana Wyntryngham) of 20s to the fabric of the 'new work' (*novi operis*) of the church may refer to the infilling of the open space between the south wall of the early church and Reynewell's house (or perhaps warehouse).

On 23 January 1542/3, on the eve of the Reformation, William Lucar, priest, was appointed to the perpetual chantry of Thomas Snowdylonde who had died in 1361, almost two hundred years earlier. Snowdylonde had left various ornaments to St Mary's chapel, as well as establishing the perpetual chantry for his own soul, and for the welfare of the brethren of St Mary's Fraternity. Lucar was appointed, not by the parish priest or the churchwardens alone, but jointly by the churchwardens and the wardens of the Fraternity of the Virgin Mary and St John the Baptist, who together were stated to be the true patrons (*veri patroni*) of the chantry. This shows that the new altar and new Fraternity were the reincarnation of the former altar, chapel and Fraternity of St Mary.[83]

In 1443 John Reynewell granted his *domus* to trustees, including William Stafford. Such grants were a common tactic by donors wishing to grant land to a corporate owner without the expense of a licence in mortmain. In 1456 Stafford as the surviving trustee conveyed it to the parish. At first sight Reynewell's grant in 1443 looks far too late for a new fraternity or altar mentioned in wills proved in 1439 or 1413, let alone 1410. However the discrepancy is more apparent than real. We know of other conveyances to institutions where complex legal provisions designed to avoid a licence in mortmain lagged behind the new use of the site by a number of years. The new south aisle, built between Reynewell's building and the church, could therefore be earlier than 1443, and have contained the new altar of St Mary and St John the Baptist. This altar, and its fraternity, are now mentioned continuously from 1439 until the Reformation. In 1471 there is the first mention of a Trinity altar (Richard Phippes, 1471; see also Richard Johnson, 1487). Thereafter the enthusiasm of the Bodley family and their associates for burial within the Trinity chapel provides many references, all described by Anne Sutton in her essay on Lady Joan Bradbury, who married into the Bodleys.[84] Here is the important phrase, 'the Trinity chapel on the north side of the church' (William Stoderd, 1537).

So at the Reformation the church comprised nave and chancel, with high altar dedicated to St Botolph; a Trinity chapel on its north side, perhaps against the buttress of the chancel arch, or against a later screen; a south aisle with an altar of St Mary and St John the Baptist; and on a raised level, some sort of fraternity hall with vestry beyond.

[83] Bishop of London's register 1539–50, DL/A/A/006/MS09531/012/001, part 1, fo. 142v.
[84] Sutton 1994, 209–38.

Features of the new south aisle

Although only the east end of the south aisle was within the excavation, it contained fragments of a tiled floor. Two areas of tiling survived, one in the northeast corner of the aisle, north of the altar, and the other on the south side of a side door leading outside to the alley to the wharf. This tiled floor seems to have been associated with an expensively-finished double brick grave of the mid 15th century, located centrally before the altar. We need to be careful here, because the tiles had been reused; they were not in a brand-new artistic arrangement. However the grave, if not the tiles as found, suggests a permanent chantry chapel, with a raised tomb facing an east window with (perhaps) commemorative stained glass. One further decorative element was discovered soon after, when the plaster on the east wall was stripped away. This was a wall of flint and chalk chequerwork. The plaster might be pre-Reformation, since it was scored to show the position of an architectural feature of some sort against the east wall.

The new south aisle can be attributed to John Reynewell, the parish's great benefactor, whose tomb bore an inscription in English verses quoted by Stow. Reynewell is likely to have paid for the whole thing. The east part of this, containing the double brick grave, may have been a chapel. There is no question that Reynewell was buried in St Botolph's, for Stafford himself asked in yet another will, of 1467, to be buried to the west of Reynewell's grave. So far as we know, Reynewell had no permanent chantry in St Botolph's, just a permanent obit (anniversary) in Pentecost week, funded by an annual payment of 13s 4d from the City Corporation. However Reynewell's chapel, if such it can be called, will have been a compelling encouragement to pray for his soul; an asset to the parish; and a suitable high-quality space for the Mayor and Corporation's annual attendance at his obit.[85]

We can deduce nothing about the presumed tomb from its brick substructure. Not enough is known about these. But Nigel Saul has found that London merchants at this date generally preferred brasses, so if it was for Reynewell, it is likely to have borne brasses. The doorway to the lane will have been for the clergy; it was the conventional priest's door on the south side of the chancel, here relocated to the east wall by the confines of the site. The altar against the east wall probably served the whole south aisle. Thomas Bodley (1493) left two torches to 'the high altar of Our Lady', but this may have been in the old choir still to the north.

The various pieces of window tracery and other carved stone discovered during the excavation in 1982 are unfortunately inaccessible at present and excluded from this report (they are listed in section 6.11 of the online supplement). However one decorative element of the enlarged church can be mentioned. At the end of the excavation, the surrounding area was cleared by machine, and used as landfill. A search of this landfill in 1983–4 revealed a stone corbel in the form of an angel bearing a shield, almost certainly from St Botolph's (Figure 162). This

[85] Clive Burgess has raised the intriguing possibility that Reynewell might indeed have had a permanent chantry in St Botolph's, of which all record has since been lost. It may have been administered by the Fishmongers' Company, whose medieval records do not survive. The chantry may also have been 'concealed' from the parish returns of chantries in the 1540s.

is now in Lincolnshire. The carving is of exceptional quality. The angel is dressed in an alb, and the shield appears to show a merchant's mark, denoting the donor. The corbel dates from the 15th century, perhaps *c* 1450–75 from the treatment of the angel's hair. The merchant's mark is so far unidentified, though it is unlikely to belong to William Stafford. His seal on a will dated 1463 shows that he was armigerous. He will surely have wanted his coat of arms to be displayed in the church, and not his merchant's mark. Similarly John Reynewell, mayor of both London and Calais, would have had a coat of arms as his memorial.



Figure 162 Site D, watching brief: angel corbel, recovered from a landfill site where the spoil from Billingsgate was taken during construction during 1983–4; A, side and B, front views (G de la Bedoyère) (side length 425mm)

Pre-Reformation St Botolph's, internal details

According to John Strype in his *Annals of the Reformation* (1709),

> 'The *25th* day [of August 1559], at St. *Botolph's Billingsgate*, the Rood, and the Images of *Mary* and *John*, and of the Patron of that Church, were burnt with Books of Superstition: Where at the same time a Preacher standing within the Church Wall, made a Sermon; and while he was preaching, the Books were thrown into the Fire. They then also took away a Cross of Wood that stood in the Church-yard.'[86]

The tombs mentioned by Stow include two former mayors (John Rainwell/Reynewell, mayor 1426, d 1445, and Stephen Forster, mayor 1454, d 1458), and two sheriffs. Some individuals in the late 14th century seem to have been buried with papal bulls; one, of Urban VI (1378–89) may have been associated with a burial, but two others (both of Gregory XI (1370–8) were found in among the 17th-century burial layers. As already noted, the income, plate and vestments of the Fraternity of St Mary and St John the Baptist, as listed in the parish's original chantry return of 1546, were equal to those of many other City churches.[87]

Large quantities of vestments, hangings and ornaments are listed as having been sold in the Inventory of Church Goods, 1552.[88] These include at least ten copes, 21 banners and three streamers; 3.5 cwt of latten 'taken out of the gravestones'; 'a tabernacle that did hang over the altar'; 'a large painted cloth that was wont to hang before the Rood'; 'a valance of buckram about the Sepulchre'; 'the table [retable] over the high altar'; 'a hanging of cloth of gold for the Trinity altar'; and a total of 508 sq ft of 'old glass'. The church still possessed much else, including more copes, three hearse cloths (one for servants), a 'pair of organs', two Bibles, a *Paraphrases*, four 'great bells' and a sanctus bell.

[86] Strype 1709, I, 169. I am grateful to Phil Butterworth for this reference.
[87] TNA, E 301/132; Colson 2011, 243.
[88] TNA, E 117/4/57.

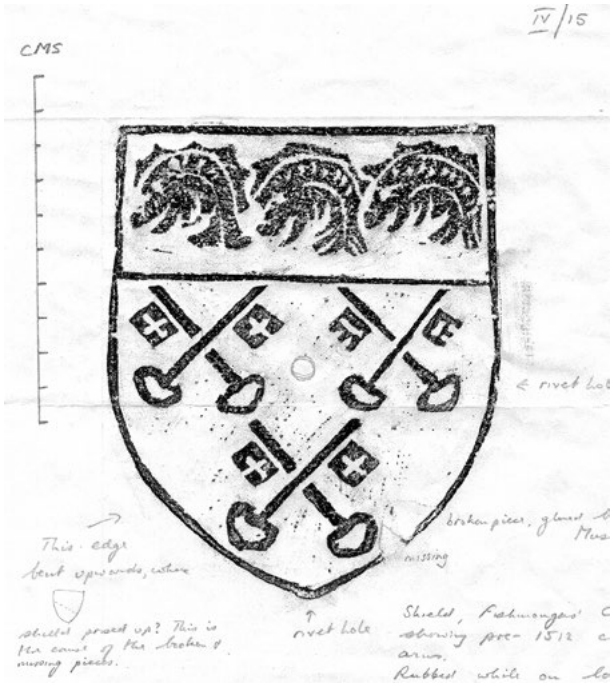


Figure 163 Rubbing of a shield from a monumental brass of c 1500 (S Freeth). The shield was found loose on the Thames foreshore at Billingsgate in 1982 by a mudlark, Stephen Wheeler. It bears the pre-1512 coat of arms of the Fishmongers' Company, Azure three pairs of keys in saltire or, on a chief gules three dolphins naiant embowed argent. It is very likely that the shield is from a grave in St Botolph Billingsgate, but it has not yet been possible to link the shield with any particular burial there. The shield remains in private hands

There were many priests in the church, even allowing for some doubling-up (ie one priest serving several chantries). This is clear from wills, and from the Chantry Certificate. There were already seven chaplains as well as the rector by 1379.[89] These will have been chantry priests, some temporary, some permanent, and chaplains performing obits or assisting at funerals and commemorations. Many wills leave money to every chaplain attending the funeral of the deceased. This raises the question of who was in charge. It certainly was not always the rector. According to Hennessy, the rector for three years in the 1440s was Laurence Booth, later Lord Chancellor and Archbishop of York. He however was appointed to St Botolph's when he was only 14 years old, and still a deacon.[90]

A brass shield from a gravestone of *c* 1500, bearing the pre-1512 arms of the Fishmongers' Company, was discovered on the Billingsgate foreshore in 1982. This may have come from one of the gravestones (Figure 163).[91]

Unusually, the parish cartulary mentions two elaborate late 15th-century ornaments in the church: a canopy, and an automaton of St George and the Dragon.[92] These must have been expensive, and a source of pride. The entries in the cartulary comprise the maintenance instructions for both items, not full descriptions. They were:

- a canopy: given by William Lawrence ('lawrauns'), apparently in 1472. It was for the Blessed Sacrament to hang in above the high altar. The canopy was suspended on a chain, and was wound up and down by a rope. Wires bore 'imagery', and 'threads' spread out the cloth.[93]

- a statue of St George: this showed him in armour, on horseback, on a beam. It had been set up on St Botolph's day in 1474. It included a dragon, a castle, a maiden and a king and queen. It was an automaton, containing machinery. The maiden and king and queen were 'turned' by a line which was steered through two spindles in the castle towers. St George and the horse were turned by a crank in the castle floor.

Both had been made by William Parnell of Ipswich, Suffolk, his apprentice William Baker, and his son John Parnell. William Parnell was an expert in statues and engines for pageants, responsible for this aspect of the annual celebrations in Ipswich of the Guild of Corpus Christi. He was also called upon in July 1467 to provide decorations, heraldry, statues etc. for the visit of Queen Elizabeth Woodville to Norwich. He and his son were almost certainly responsible for some of the medieval carving that survives in the churches of East Anglia, for which no written records survive.[94]

The chancel

There was an image of St Botolph on the north side of the high altar (Thomas de Snowdylonde, 1361; Richard Segrym, 1495), and an image of Our Lady on the south side (John Park, 1413).[95] William Symmes, 1439, left 10 marks 'to paint the Sepulchre ordained by him'. Such Sepulchres, for the Host and Crucifix between Good Friday and Easter morning, were normally made of wood. There was a canopy, already mentioned, over the high altar. The maintenance instructions for the canopy are written into the parish cartulary, where it is stated to have been given by William Laurence in 1472. Richard Rawlyn had left 40s for a canopy for the high altar in 1471. Perhaps this was merely a

[89] McHardy 1977, 6, no. 31.
[90] Hennessy 1898, Notes, xiv.
[91] I am most grateful to the late Brian Spencer of the Museum of London for help with this shield at the time of its discovery.

[92] P69/BOT3/D/001/MS00059, fos 46v–47. This automaton was not unique in the City. We know from Walters (1939) that St Mary Woolnoth also had a George.
[93] A rare surviving example of a canopy, or rather its wooden core, of the late 15th or early 16th century survives at Dennington, Suffolk, and in recent years has been brought back into use.
[94] I am grateful to the late Dr John Blatchly FSA of Ipswich for information about William Parnell's other work; and to Dr Phil Butterworth for early access to his detailed discussion of the George, Butterworth 2017. This includes transcripts of the texts in the cartulary about both the George and the canopy. A transcript of the text about the George, with a brief commentary, is in Erler 2008, 292–3.
[95] The chancel appears to have been generally reserved for clergy burials, as was normal. Snowdylonde was the rector; Segrym was a chaplain or curate. The only lay burial I have found in the chancel was Thomas Marmeon esquire 'of Thurlbe' (Thirlby, Lincs) (1517). One of the witnesses to his will was Sir Edward Marmyon, a chaplain or curate of St Botolph's, whose own will (leaving no instructions about his burial) was proved in the PCC in 1541.

contribution. John Witteneye, chaplain, 1406, bequeathed his best vestment of (?) red embroidered silk, his best silver chalice, a missal and portable breviary, and a book of Divinity. Richard Awbrey, 1474, left £10 for a suit of vestments. Joan Chicheley, 1521, left a diaper tablecloth to be divided between the high altar and Our Lady's altar. Richard Johnson, priest, 1487, left a 'Processionary' (ie a processional, a book containing litanies, hymns etc. to be used in religious processions).

The nave

William Rainwell [Reynewell], 1404, left 6s 8d to the light of the Holy Cross on the High Beam. John Colyn, 1405, left 3s 4d 'to maintain the light on the beam'. Geoffrey Maughfeld, 1407 (presumably a relation of Gilbert Maughfeld, tenant of Tenement 11 three doors along the street until his death in 1397) left a candle weighing 20lb 'for the light on the high beam' (*lumini super altam trabem*). Roger Wade, 1408, left 4 candles 'to maintain the light on the beam before the Cross'. Nicholas James, 1434, asked to be buried where his children lie, before the *pulpitum* [chancel step]. Richard Rawlyn, 1471, asked to be buried in the body [ie nave] of the church, before the Crucifix. William Bullee, 1518, asked to be buried 'afore the Rood in the body of the church'. Henry Rigby, 1521, asked to be buried 'within the midst of the church', i.e. in the nave aisle.

The tower

John Knotte, 1448, asked to be buried *infra porticum*, where his wife lay. I interpret this to mean within the entrance lobby of the church, probably under the tower. There was no projecting porch. He also left 20s to paint and make a new door for the church, 'in the best manner possible'. Thomas Crofton, 1439, requested ringing of bells at his funeral; the same John Knotte, 1448, as above, asked that bells *not* be rung. Both imply that the '4 great bells' listed in the inventory of church goods of 1552 were already installed in the tower. Thomas Langeforde, 1517, asked to be buried at the church door, 'under the holy water stock'. Again, this was probably under the tower.

St Mary's chapel on the north side of the nave, later rededicated to the Trinity

Oliver de Kent, 1323, left an annual quitrent of 40d for a perpetual light in honour of Our Lady and all saints. Thomas de Snowdylonde, the rector, 1361, left 60s to the fabric of St Mary's chapel, together with a missal, a consecrated chalice, a white vestment, a *Legenda Sanctorum* and a cup neither gilt nor consecrated. He also established a perpetual chantry there. However he asked to be buried on the north side of the high altar. Chantries were generally considered more effective the closer they were to the grave of the deceased. This may suggest that St Mary's chapel was on the north side of the church. Andrew Pykeman, 1391, also set up a perpetual chantry in St Mary's chapel. His will mentions a *candelabrum* for feast days.

Geoffrey Maughfeld, 1407, left a candle weighing 20lb 'to the light of the Fraternity of the Blessed Virgin Mary (*lumini fraternitatis beate marie*). Robert Muston, 1420, left 4 marks for ornaments for St Mary's altar. Robert Atkinson, 1531, asked to be buried 'by the Trinity altar, under Our Lady of Pity'; William Stoderd, 1537, likewise asked for burial 'before the picture [ie statue] of Our Lady of Pity in the Trinity chapel on the north side of the church'. These are the only references to this statue, which was probably relatively new. William Bodley, 1540, asked for burial 'under the door as they [sic] go into the Trinity chapel where my father and my mother and Elizabeth my wife lie on the left hand of my father's tomb'. This suggests some sort of partition or screen.

The south aisle and south chapel

Documentary references attributable to the south aisle are taken to refer to the excavated south aisle extension of the middle of the 15th century. This contained the altar of Our Lady and St John the Baptist. Agnes Clerke, 1466, left a vestment and altar cloth to the Fraternity of the Blessed Virgin Mary and St John the Baptist, worth £3 each. John Payn, 1466, refers to a roll of benefactors of the fraternity. William Laurence, 1477, left £13 6s 8d for two vestments with apparels, to be used for his 5-year chantry at the altar of Our Lady and St John, and then to pass to the fraternity at the end of the 5 years, for the fraternity's priest at the altar of Our Lady and St John. Sir John Yong, 1482, left to the chapel of Our Lady his best mass book, his best chasuble with the alb belonging to it, two silver-gilt cruets and his best paxbread [ie osculatory], garnished with stones. John Paris, 1485, refers to the Bede Roll of the fraternity. Nicholas Alday, 1518, left two copes of red damask, 'with Tonnes and Burres [flowers? seed heads?] ...like the suit of copes at St Clement's Sandwich'. Joan Chicheley, 1521, left a diaper tablecloth to be divided between the high altar and Our Lady's altar.

Business and social networks, pre-Reformation

St Botolph's was a wealthy parish, with wealthy parishioners. In 1428 its yearly value was one of the highest in the City.[96] In the late 15th century John Benyngton, being sued in Chancery by John Mottram, clerk, about the non-return of an Antiphoner, claimed in reply that St Botolph's parish had bought it for £14 10s.[97] This was a substantial sum, which we know from wills was enough to pay a chantry priest for around 18 months.

Wills of parishioners are numerous. Nicholas James, ironmonger, 1434, left money for a 'Majesty' (a representation probably of Mary or Jesus, enthroned in Glory) for Cromer, Norfolk, for new pews at Croydon, and for a new east window in St Olave Southwark; Stephen Forster, 1458, already mentioned, the former Mayor, left 1000 marks to each of his two sons, and 500 marks to his daughter; Richard Rawlyn, grocer, 1471, left £300 to his son, and £200 to each of his two daughters; William Laurence, grocer, 1477, left to a kinswoman his one-third share of the crayer (coasting vessel), the *Martin of London*, and asked that his household (his servants and dependents) be kept together for one year, to make it easier for them all to find new jobs. These are just a few examples.[98]

Parishioners' wills also mention a multitude of chantries and obits, some permanent, most temporary, and some even

[96] *Cal Lbk K*, 71.

[97] TNA, C 1/51/253–5, of either 1475–80, or 1483–5. The antiphoner appears eventually to have been bequeathed to St Mary at Hill in 1491–2, in return for an obit. See the churchwardens' accounts of St Mary at Hill, P69/MRY4/B/005/MS01239/001/001, fo. 93v; Colson 2011, 197.

[98] All at TNA. Nicholas James: PROB 11/3/348; Stephen Forster: PROB 11/4/294; Richard Rawlyn: PROB 11/6/61; William Laurence: PROB 11/6/390.

established in the testator's lifetime; and many references to plate, some of it donated to livery companies. The parish was very close to Billingsgate, and the wills also hint at trade links to other towns. Ralph Double, fishmonger, 1392, who died at New Shoreham, left money to the parish church and priory there; Thomas Bronyng, fishmonger, 1418, forgave debts in [New] Romney in Kent; Peter Welles, pewterer, 1450, left £20 for a chalice for St Mary's, Faversham; William Canynges, son of the great William Canynges of Bristol, died at the house of Stephen Forster, fishmonger and former Mayor, in 1458; Forster himself came originally from Somerset,[99] and dying in the same year, appointed William Canynges senior as an overseer of his own will; Thomas Yogge, vintner, 1509, left 300 quarters of salt for a new Rood Loft in St Andrew's, Plymouth; and Nicholas Alday, grocer, 1518, left to St Botolph's 'two copes of red damask...like the suit of copes at St Clement's Sandwich', and forgave Mr Wingfield of Sandwich the 11 yards of chamlet that he owed. The Aldays were a wealthy Sandwich family.[100] Again, these are a few examples.[101]

John Witteneye, chaplain, 1406, bequeathed to St Botolph's his best vestment of (?) red embroidered silk, his best silver chalice, a missal and portable breviary, and a book of divinity, to remain there for ever in the service of God. He also left a book called *Esse* to the master of the school at St Dunstan in the East.[102] Other bequests of books include Richard Bodley, grocer, 1491, who left all his English books (*omnes libros meos anglicos*), frustratingly unnamed, to his son; his beautiful (finest?) psalter (*meum pulchrum psalterum*) to his daughter Isabella; and his primer to his daughter Emma. He was from the same family as the founder of the Bodleian Library in Oxford, and was Warden of the Grocers' Company in 1488–9. From their inscriptions, two or possibly three of his books appear to survive as Cambridge, Corpus Christi MS 142 (Nicholas Love's *Life of Christ*, and a Life of St Katherine), and Edinburgh University Library MS 39 (a very fine London-made Book of Hours).[103] The *Life of Christ* was a 'canonical' text of the 15th century, of which more than 20 copies survive in libraries.[104] The Book of Hours, according to a catalogue of the Edinburgh University Library manuscripts, 'is an English book showing English ilumination of the early part of the 15th century at its best'. It contains 11 historiated initials; that for the Office of the Dead shows mourners and two priests around a coffin draped with a hearse-cloth and surrounded by candles, with other clergy in the background (Figure 164).[105]

Edward Marmyon, 'clerk and parson' of St Botolph's, 1541, left to the parish priest of St Botolph's, Sir William Ruffurth, his



Figure 164 Edinburgh University Library MS 39, a Book of Hours which once probably belonged to Richard Bodley: miniature on fo. 70r, from the Office of the Dead (courtesy of Edinburgh University Library)

'great book called *Distructionum Viciorum*', perhaps a garbled rendering of Alexander Carpenter's *Destructorium Vitiorum.*[106]

Tenement 16 (le Lyon on the Hope) in period M3 (1350–1500)

On 20 May 1369 Goscelin Osbarn de Clyve, fishmonger, leased Tenement 16 to Thomas de Mordone chandler and his wife Christine for a term of 50 years from the following Michaelmas, at an annual rent of £10 (CLA/023/CP/01/097/139), as noted above. Goscelin's son, Thomas Clyve, leased it to Adam Cole, brewer, and his wife Idonea for a term of 32 years from Michaelmas, 1387 at the same rent as before and with the same liability for repair and maintenance against wind and rain (/153). On 20 October 1397 Thomas Stout and his wife Agnes, formerly the wife of Thomas Osberne alias Clyve, quitclaimed Henry Ireton and his wife Joan and Thomas Tomkyn of London in all rights or title in the property, now referred to for the first time as *le Lyon' on the Hope*, as well as in two other former Clyve properties in the parish of St Dunstan in the East (/126/62), which had been granted to Ireton in 1385 and included the later Dyce Quay (/114/42).

By March 1413 the tenement was in the possession of Henry Trewyn and his wife Emma, together with the properties in St Dunstan (/141/5), and in the following year Henry granted it and a moiety of *Dyskaye* in St Dunstan to William Baron dyer and to Philip Dene and Robert Bussebrugge junior with all rents and reversions, all of which were conveyed back to Henry and Joan on 30 November 1414 (/141/5, 21; /142/57, 64). By 1424 Tenement 14 was in the possession of John Erethe of Kent and his wife Joan, who then leased it to John Canoun and his wife Emma for both their lives and one year afterwards, with effect from the previous Michaelmas. In April 1431, after John Canoun's death, John and Joan Erethe granted to William Parys brewer that the lease should remain

[99] The biography of his widow Agnes: C M Barron, 'Forster, Agnes (*d.* 1484)', *Oxford Dictionary of National Biography*, Oxford University Press, 2004; online edn, Jan 2008. [http://www.oxforddnb.com/view/article/54439, accessed 30 Aug 2016].

[100] Clarke *et al.* 2010, 139.

[101] All at TNA. Ralph Double: PROB 11/1/47; Thomas Bronyng: PROB 11/2B/206; Peter Welles: PROB 11/1/192; William Canynges: PROB 11/4/286; Thomas Yogge: PROB 11/16/484; Nicholas Alday: PROB 11/19/146.

[102] DL/AL/C/002/MS09051/001, formerly GL MS 9051/1, fo. 159v. The bequest to St Botolph's reads: *vestimentum suum optimum de serico blodio & brouderizato et suam optimam calicem argenti unum missale & unum portiphorium ac unum librum divinitatis ibidem in dei servicio imperpetuum permansur'.*

[103] TNA, PROB 11/9/28; Sutton 1994, 212.

[104] Sargent 2008.

[105] Borland 1916, 63–4.

[106] TNA, PROB 11/28/534.

to him one year after Emma's death for a term of 30 years. Emma died in July 1435, and in 1436 William leased two shops on the east side of the gate or entrance of the tenement and two solars above the gate to John Folbery haberdasher for a term of 29 years from midsummer at an annual rent of 40s. This last transaction was approved and ratified on 29 January 1437 by John and Joan Erethe and by William Northampton and his wife Joan and by Edith Trewyn, the last two being the daughters of Henry Trewyn (/165/25).

On 9 March 1457 John Bamme Esquire and his wife Elizabeth granted to Walter Moyle, a justice of the Common Pleas, William Normanton, John Derby and William Abde clerks and to Thomas Plummer their purparty of the tenement for the term of the life of Arthur Ormesby and his wife Idonea. In April 1483 Richard Martyn of Dartford and William Wybarn gentlemen, having recovered by writ of right against John and Elizabeth Bamme a moiety of *le Lyon' Key* and a quarter of *le Dyce Key* in St Dunstan, granted them to Sir John Catesby, a justice of the Common Bench, Sir William Stokker, alderman of London, Thomas Wyndesor and John Northwode Esquires, William Philipp, goldsmith, and John Berell, grocer, to the use of John Bamme, heirs and assigns (TNA: PRO, E40/1841). On 30 June that year Sir William Heryot, alderman, William Calowe, serjeant at law, John Browne, Robert Percy gentlemen, William Heryot, citizen and elder son of Sir William, and John Clerk gentlemen, to whom Catesby, Stokker and the others had granted divers properties lately of Richard Bamme esquire, including a moiety of *Lyon Kay* and a quarter of *Dycekay*, granted the same with the assent of John Bamme to Holy Trinity Priory for the term of 60 years without any rent except to the chief lords and 4s pa to the Hospital of St Thomas the Martyr Southwark (E40/9806). Holy Trinity subsequently leased its term to John Bamme, who sublet it to Ralph Astry for 20 years. Astry then sold the lease back to Bamme for £15 before 22 October (*Cal Close Rolls 1476–85*, no. 1144). On 27 November 1492 John, son of John Austin, fishmonger, granted to Ralph Astry alderman, heirs and assigns all that tenement in Thames Street in the parish of St Botolph which the grantor's father, Henry Neville ironmonger, Thomas Rigby and John Wyrall gentlemen held by the enfeoffment of John King and his wife Margery (*Cal Close Rolls 1485–1500*, no. 638).

Objects found during later earth-moving, 1983–4

During construction which followed the main excavation, the strata of the rest of site D were removed by machine. This area comprised both all of Tenement 16 and the part of Tenement 15 south of the excavation. Several individual artefacts from a large number are notable. The trumpet has already been described (Figure 109 and section 6.5 below). Among the 119 pilgrim souvenir badges recovered one stands out: from Our Lady Undercroft Canterbury (Figure 165). It may have been made as part of the extraordinary national grief at the death of the Black Prince in 1376.[107]

Among many other dress accessories recovered,[108] a silver brooch is noteworthy (Figure 166). It bears a legend in Lombardic letter JESUS NAZARENUS. Its weight is slightly more than two silver pennies of the period; it is only one inch



Figure 165 Site D watching brief, 1983–4: a pilgrim souvenir badge from Our Lady Undercroft Canterbury, stylistically of the 1360–70s (height 121mm). This main part of the badge is BWB83 [308] <201>; a separate lower part found on a landfill site to which spoil from the site had been trucked is very probably from the same mould



Figure 166 Site D watching brief 1983–3: silver brooch BWB83 [306] <714> (diameter 25.5mm)

[107] Spencer 1998, 129–32.
[108] For the contexts and an attempt at phasing the strata on BWB83, see Egan and Pritchard 1991, 6–8.

(25.5mm) in diameter. Such brooches were made for religious or magical purposes (the inscription being apotropaic) in the 14th and 15th centuries, perhaps by melting down coins.[109]

The medieval floor tiles from the watching brief have also been studied, and form a section of the report on tiles here (section 6.7 below). They include a small fragment of a late 14th-century tile made at Bawsey near King's Lynn in Norfolk (Figure 255, <T38>). This is the only tile from Bawsey to have been found in London. Whether it originally lay in a religious or secular building is unknown; either is possible.

4.6 Discussion: the waterfront of London 1350–1500

A summary of the documentary and archaeological evidence for the tenements in this period is given in Table 40. The waterfront sites mentioned in discussion of period M3 (1350–1500) are located on Figure 48 above.

	Waterfronts and buildings	**Documentary references**
Tenement 1	Reclamation Gp 80; A:Building 28	1391–4 owned by Sir Thomas Cobham; 1400 inhabited by Richard Wedon, fishmonger. Called *le Three Sterres* 1465; passed to Dyers' Company by 1484
Tenement 2	Reclamation Gp A85; foreshore Gp A82	1391 in two parts, *le Cok on the Hoop* and *le Stewehous*; wharf mentioned 1392. 1407 owned by John Tetford, brewer; still had a brewhouse in 1452. Both parts owned by Thomas Danyell, dyer, in 1459. Possibly purchased by the Vintners' Company in 1488.
Tenement 3	Reclamation Gp A85; foreshore Gp A82; reclamation Gp A95; A:Buildings 22 and 27 retained	continued to be owned by St Peter West Cheap; 1431 called *le Swan*
Tenement 4	Seven major groups: A88 dump, A89 foreshore, A92 and A95 dumps, A102 foreshore, A103 dump, A104 foreshore A:Building 29	1362 in two parts; 1374 dyeing equipment, workhouse (*Werkhous*) and quay leased, shops to be inserted at Thames Street end; 1424 called *le Katerine While*
Tenement 5	Not excavated at site A; R:Waterfronts 22 and 23 are of this period	1401 called *le Mone on the Hop*; by 1431 granted to St Paul's Cathedral
Ebbgate [Swan Lane]		
Tenement 6	B:Building 5 phase 2; alterations to B:Building 4; B:Building 5 phase 3 with tile floor; B:Building 6 and hearths	1363 occupied by Geoffrey Dittone; by 1391 held of Corpus Christi College of St Laurence Pountney; by 1448 leased to St Paul's to support the Pulteney chantry. In 1454–78 there were several tenancies; references to a fishhouse, two stables and two cellars, one next to the great gate.
Tenement 7	Not excavated	1359 John Welles, stockfishmonger; other stockfishmongers until 1391 when granted to parish of St Michael Crooked Lane for a chantry
Tenement 8	Not excavated	1380 Ralph Double fishmonger; 1477 willed to City of London
Fishmongers' Hall, London Bridge, St Magnus		
Tenement 9	Not excavated	1361 Guy Lambyn fishmonger; by 1403 possessed by parish of St Magnus; called *le Cok on the Hoop'* 1405; some date after 1480 acquired by the fraternity of *Salve Regina* at St Magnus
Tenement 10	No relevant deposits recorded; presumably C:Building 7 continued in use	1373 Henry de Boseworth wills property, after deaths of his wife and son, to the fraternity of *Salve Regina* at St Magnus; the fraternity given royal approval in 1448
Tenement 11a and b	No relevant deposits recorded; presumably C:Building 8 continued in use	1355 leased to Simon Levelif and his wife Lucy, when called *le Fresshewharf*; contained a brewhouse 1368; by 1372 in possession of St Mary Graces abbey, when leased to Gilbert Maughfeld (d 1397)
Tenement 12	C:Building 9 continued	1354 John Wrothe held *la Brodegate*; dyers before 1401, then a stockfishmonger Thomas Blosse (so also *Blasseskey*); had two shops in front 1443; by 1465 in three parts N-S (first and third held together)
Tenement 13	C:Building 10	1394 John Wrothe granted it to a group of churchmen
Tenement 14	No relevant deposits recorded; presumably C:Building 5 continued in use	1422 Geoffrey Dallyng, vintner, granted it to a group of vintners and a chaplain, via which it passed to the Vintners' Company in 1439
Tenement 15 Botolph Wharf	S side of St Botolph's church repaired; D:Building 4; D:Building 5 to south, then incorporated into the church, new aisle formed in space between; double brick tomb, suggested to be Reynewell's	house (D:Building 5) granted to parish by John Reynewell or his trustees by 1456
Tenement 16	Not excavated 1982; some details in archive from the watching brief 1983–4	1369 Goscelin Osbarn de Clyve, fishmonger, leased it to Thames de Mordone, chandler; 1436 had a gate with two solars over and two shops east of the gate; 1483 called *le Lyon' Key*

Table 40 Summary of all the tenements in period M3, 1350–1500. Some of the tenements have known names, but not all

[109] Egan and Pritchard 1991, 255.

Reclamation, waterfront structures and Thames Street

From about 1400 to the Great Fire in 1666, properties both west and east of the bridge hardly increased their area into the river. By 1459, for instance, Tenement 2 measured 305ft (93m) long from Thames Street to the river; its post-Fire length as shown on Ogilby and Morgan's map, and including the new quay, would be about 325ft (107.4m). This is quite close to the north–south length of the site excavated or observed in 1981–2. A conclusion from the waterfront excavations on the north bank generally is that reclamation stopped around 1450, probably in part because stone walls had been built in place of timber predecessors, so there were few opportunities for dumping. Where rubbish was dumped after 1450 is not clear. A prime site would be the damp ground immediately north of the City wall which became Moorfields; this was landscaped with dykes in about 1511, and excavation beneath what became the New Churchyard at Bethlem has found much evidence of dumping during the 16th century.[110] Before this, however, much brickearth had been dug up here to make the bricks which embellished the northern part of the wall in 1477.[111] Perhaps the large space of Moorfields (*la More*) was partly used for dumping, or at certain times.

In the period 1350–1500 there are some hints about how activity in the waterfront area was policed. Londoners were banned from emptying rubbish and filth directly into the Thames, as shown in a case of 1364 when a servant was stopped in the act of dumping at the West Watergate of Baynard's Castle.[112] Some owners of waterfront properties, those adjacent to public ways of access down to the water, took advantage of their position and tried to charge people fees of a half penny or a penny for access, for taking up water or washing clothes. This was seen to be a particular hardship for poor people, and was banned by the mayor and aldermen in 1417.[113]

The brewing and dyeing industries continued upstream of the Bridge. The tenement immediately west of the earlier Coldharbour mansion, excavated on the Watermark Place site, revealed the bases of several hearths for large vats, probably for brewing.[114] Study of the locations of homes of prominent dyers who made wills in the Commissary Court of London in 1374–1488, presented below (section 6.2), shows that in this period 33 can be traced in waterfront parishes upstream of the bridge, but only two in the waterfront parishes downstream of it.

Larger, courtyard houses are now more evident in the reclamation zone. West of Queenhithe, a quarter of a mile upstream, lay at least two further prominent residences on the waterfront: Brokenwharf, a substantial property of the earls of Norfolk, parts of which were recorded in 1986, and the house of the abbots of Chertsey, the early 14th-century stone river wall of which was excavated on the joint Trig Lane and Millennium Bridge sites in 1974 and 1999.[115] Here was perhaps the quieter stretch of Thames Street, which did not lead anywhere in particular, ending at Puddle Dock (now at the foot of St Andrew's Hill). Near the bridge, the name Coldharbour was transferred from Pulteney's house to the next tenement to the east, which was even broader; this became a large house with noble and royal owners during the late 14th century. The house was bought by Alice Perrers, mistress of Edward III, and rebuilt between 1370 and 1377. Now in the royal class of building, it was further refurbished by the Countess of Richmond, mother of Henry VII, in 1485; at this time it had at least 56 chambers (22 with glazed windows), several stairs and yards.[116] The site of this mansion was on the east side of the Watermark Place development investigated in 2005–7, but that part had been destroyed and there was no new information to be had.

Two larger private houses were bequeathed to livery companies by the opening of the 15th century: Vintners' Hall in the Vintry section of Thames Street, and Fishmongers' Hall by London Bridge.[117] They are both today on their medieval sites, rebuilt several times. By 1500 the Dyers also established their hall on the west side of site A, among the properties which contained several dyehouses. These three halls lay above the bridge. In Thames Street downstream of the bridge, there were no livery company halls (Bakers' Hall in Harp Lane lay to the north of the street) and perhaps fewer large houses in the reclamation zone, but one is known in the parish of St Dunstan in the East, from a building lease of 1384. This tenement had a crane by 1463, and this and a neighbour's crane may be those shown by Wyngaerde in this part of his panorama.[118] So clearly there were some larger houses here, and the reasons for livery companies only founding halls in the section upstream of the bridge must be sought. But it can be concluded that in the decades after 1350, several large houses and livery company halls occupied riverside sites and must have been visible from the river.

The reclamation on the north bank properties in this period is matched to a small extent by a new timber waterfront at the bishop of Winchester's palace on the south bank, 4m in advance of the previous one,

[110] Hartle 2017, 13–16.
[111] Stow i, 10, 32.
[112] *Cal Plea & Mem R 1364–81*, 2.
[113] Riley 1868, 648–9.
[114] Fowler and Mackinder 2014, 37–9.
[115] Schofield 2003, 215; Ayre and Wroe-Brown 2002, 34–40.
[116] Harding 1980; Schofield 2003, 106–7, 216–17.
[117] Schofield 2003, 215, 219–21.
[118] Schofield 2003, 221–3.

dated to shortly after 1354.[119] To the west, excavations ahead of the construction of the south abutment of the Millennium Bridge found fragmentary remains of wooden revetments and a drain dating roughly to the century after 1350. Here reclamation dumps included sherds of whiteware pottery wasters, which might indicate a short-lived pottery kiln on the south bank, but equally likely were discarded from boats as ballast; the pottery is like that made at Kingston-upon-Thames at this period, indicating where the boats came from.[120] If so, those boats were coming empty to the nearby Queenhithe for metropolitan goods.

Downstream of the bridge on the south bank, there were some changes. Here were tidal watermills, where two belonging to Henry Yevele were to be rebuilt according to a contract of 1387–8, being modelled on neighbouring mills of Battle Abbey (presumably part of the abbey's large house there).[121] In the 1440s Sir John Fastolf bought the moated Dunley property, and the Rosary to its east, to form a large urban residence. This included mills on the waterfront side. After Fastolf died in 1459, there was more development: a brewhouse with its own small dock, and later a new tidal mill next to it. At this time the immigrant Dutch (Flemish) population was becoming numerous in Southwark, concentrating in the waterfront parish of St Olave Tooley Street.[122] They were also numerous in Rotherhithe, though in general aliens (people from other countries, including Scotland) lived in all parts of the City and Southwark.[123]

Late 14th and 15th-century waterfronts in other towns were similarly sometimes of timber, and occasionally of stone, as at King's Lynn or Bristol. In 1432 a mason contracted with the city surveyor of Norwich to rebuild a length of the city quay in Conesford, Norwich, with a stone wall where its predecessor had apparently been of timber.[124] Houses with attached wharves have been studied in King's Lynn and one near the river, probably with access to it, at Norwich.[125] Waterfront development of this period has been studied in a number of European towns, for instance the small Baltic port of Køge in eastern Denmark, where the familiar waterfront structures included resued ships' timbers.[126] No doubt the methodology was widespread.

There are no clearly visible effects of the Black Death in the archaeology or the surviving related documentation of the studied sites for this period. The lanes south of Thames Street above the bridge, already known for dyeing and brewing in the early 14th century, continued much as before 1348. The evolution of London's secular buildings continued. This is suggested by the patterns of subdivision and increased building, especially upwards, which are summarised in the next section. The effects of the severe reduction in population of London caused by the plague on the topography of the City and on its citizens' lives are not yet studied to a great extent, by archaeologists or documentary historians, though it does feature in study of food supply and diet.[127]

Buildings and their functions on the study sites; pottery and artefacts

The reconstructed form of the buildings on the Thames Street properties, with a streetrange at the head of the tenement at right-angles to the street, an alley down one side (occasionally in the middle on wider properties such as Tenement 6) with smaller buildings along the alley (as at C:Building 10), finds parallels in many other medieval British towns. In contrast, in a smaller town such as Coggeshall (Essex), about 70km northeast of London, there is no evidence among the many surviving medieval buildings of any property with its main house at right-angles to the street; here the main range lay parallel to the street, while also allowing access to the other buildings behind.[128] This points to a distinction which might be sought in the City and the medieval conurbation generally, between pressurised streets with usually high front houses at right angles to the street and other less pressurised streets, probably in backwaters or at the extremes of the suburbs, which would normally have buildings at the heads of properties aligned with the street.

Two features of the management of the properties now become more apparent: the subdivision of properties and the granting of some of them to institutions or groups for religious or pious purposes. Tenement 4 was in two parts by 1362, Tenement 2 in two parts by 1391, and Tenement 12 in three parts by 1465. For these tenements, the granting of property for pious purposes was marked: Tenement 6 was the property of Corpus Christi College of St Laurence Pountney by 1391, Tenement 7 belonged to St Michael Crooked Lane by 1391, Tenement 10 passed to a group of churchmen in 1394, Tenement 14 to the Vintners' Company in 1439, Tenement 5 to St Paul's Cathedral by 1401, Tenements 9 and 10 to the fraternity of *Salve Regina* in St Magnus during the 15th century and Tenement 1 passed to the Dyers, to be the site of their hall, by 1484. How either of these two processes may have affected the forms and development of buildings on the properties is briefly discussed in chapter 6.2 below. The construction of D:Building 5 south of St Botolph's church on the wharf

[119] Seeley *et al.* 2006, 67.
[120] Ayre and Wroe-Brown 2002, 53–7.
[121] Salzman 1967, 467–9.
[122] Blatherwick and Bluer 2009, 82–112; Schofield 2009, 157–8.
[123] Bolton 1998.
[124] Salzman 1967, 501–3.
[125] Shelley 2005.
[126] Fraes Rasmussen 1999.
[127] Connell *et al.* 2012, 164–5.
[128] Stenning with Shackle 2013; Andrews 2013.



Figure 167 CHEA rounded jug, MoL 5725

is another case of development down a lane. It is so far the only recorded undercroft with clear evidence for vaulting to be found on a waterfront site south of Thames Street. During this period, also, there are clear developments in the character of building materials for these houses, that is the appearance of bricks in various fabrics and ceramic floor tiles; these developments are discussed in detail in 6.2 below.

There is a major shift in the supply of pottery to London after 1350. Coarse Border ware from Surrey/Hampshire becomes common. Whiteware from Cheam (an example, Figure 167) comes on stream, with glazed wares from Hertfordshire. Continental imports become far more common, mainly from the Rhineland and Low Countries; Siegburg stoneware appears. French imports are found in quantity. Sherds of Andalusian lustreware have been recorded, including what may be a Valencian lustreware vessel from the Billingsgate watching brief.[129]

The finds from this period so far studied are almost all from reclamation and foreshore groups of the 15th century on site A. There are a lot of them, in two general groups. The first much smaller group is from units of reclamation probably in the second half of the 14th century (Gps A77, A80, A85 and A88). The second larger group is of finds recovered at the south end of the site, almost certainly also from reclamation dumps or foreshores, this time probably dating to the 15th century, some of them probably to the second half (see Table 32). The two largest sub-groups here were a foreshore, Gp A102 (76 items, Artefact Table 33) and a reclamation dump behind an unseen riverwall or revetment, Gp A103 (295 items, Artefact Table 34). The objects are as random as in the other groups, just more numerous, and they lack any cohesion. The reason(s) for their high number cannot be suggested, apart from the method of excavation with expert use of metal-detectors.

In sum, the period 1350 to 1500 on the London waterfront is one of contrasts. On the one hand, a distinctive theme is that from the 1380s public buildings along the waterfront grew more grand. Churchman established his Custom House at the east end of the waterfront in the 1380s. Reynewell rebuilt the drawbridge gate on the bridge in 1426–7. The extension of Billingsgate dock and the construction of its arcaded building probably followed in the 1450s, perhaps to be followed by a similar building at Queenhithe in 1471. These market arcades on the edge of the public dock were similar to the arcaded ranges in Leadenhall, a large market in the middle of the City rebuilt in the 1440s. Thus the middle decades of the 15th century in particular can be seen as a period of considerable input of energy and funds to rebuild and thereby enlarge London's national and international market institutions both inland and on the waterfront. In the manuscript illumination of the poems of Charles of Orleans (Figure 112) the combination of the bridge and what is proposed here to be the building at Billingsgate is meant to represent the City of London, as seen in Bruges. London could be and perhaps was proud of its waterfront as its front door, in the way that the much more architectural waterfront of Genoa obtained the admiration of 15th-century visitors.[130]

At the same time, and at the domestic scale, many features of waterfront life which had been established in the previous period continued. The donation by Reynewell of the stone D:Building 5 to St Botolph Billingsgate and its absorption into the body of the church in some way is remarkable, but not unique in a London context.

The waterfront was however about to undergo great change. An important date is 1475–6, after which the drawbridge on the bridge, despite Reynewell's works half a century before, ceased to function because it could not be raised. This stopped large ships going through, and created the Pool of London which thereafter had its inner, west end traditionally at London Bridge.[131] The effects of this failure of the bridge were to be felt in the subsequent period.

[129] Vince 1985, 58–9.

[130] Poleggi and Croce 2008, 74–6.

[131] One 18th-century guide to the Thames held that the Pool of London began at the Tower, which may be an alternative tradition: Binnell 1758, 8.

5. Period P1 (1500 to 1666)

5.1 The port of London 1500 to 1666

By 1500, the waterfront of the City of London had a different character above and below London Bridge. The previous four hundred years of development had contributed to this and moulded it. Above the bridge the reclaimed land south of Thames Street contained three livery company halls and several large houses. The complex of the Steelyard still dominated the area near Dowgate, physically if not commercially. Below the bridge and south of Thames Street were very few large houses (none for instance with courtyards); here the properties were nearly all narrow. In this downstream part were two institutions already intended for national and international trade, Billingsgate and Custom House. When reform of the quays came, it must have seemed obvious what to do: move the landing of cargoes, increasingly an international matter, to the area downstream of the bridge.

The Legal Quays, trade and the new trading companies

In the 1550s there was a reorganisation and raising of customs duties on many imported commodities, and an associated reorganisation of the London quayside. This reform, by the lord treasurer the Marquis of Winchester, followed a report of a commission on royal revenues in 1552. A revised Book of Rates (customs charges on imports) was issued in 1558; an Act of 1559 established general regulations for the loading and unloading of cargoes and set up a commission to survey the quays. This survey, which reported in the same year, established what became known as the Legal Quays, that is nominated quays on the north bank of the Thames for the permitted loading and unloading of goods.[1] Twenty-four quays are named, with twenty in the crowded space between Custom House and the bridge, and a further four spread out at locations between the bridge and Three Cranes Wharf (approximately the present Southwark Bridge). Within the study area around the north end of London Bridge the Quays included, from east to west, Smarts Quay (on the east side of Billingsgate dock), Billingsgate (dock), Sommers Quay (west of the dock, now covered by the 1875 Fishmarket building), Botolph Wharf, Cocks Quay, Gaunts Quay and Fresh Wharf downstream of the bridge, and Busshers Wharf (on the east side of Fishmongers' Hall) upstream.

As surveyed in 1559, a 'quay' meant an open area at the south end of a riverside property, usually between 30ft (9.2m) and 38ft (11.6m) in depth from the riverside northwards. Although small and medium-sized ships probably docked alongside some of them, it is likely that most sea-going ships stayed in the middle of the river and were unloaded, once customs duty had been paid, by lighter or other small boats. The copperplate map of about 1558 and its derivatives, such as the map by Braun and Hogenberg in 1572, correctly show larger ships only downstream of the bridge. Traffic to the four accredited quays above the bridge would have been by lighter or other small boats, since the drawbridge in the bridge had ceased to function after 1475–6. At some point in the century after 1559, these four upstream quays ceased to have any importance, and the Legal Quays of the post-Fire centuries were those downstream of the bridge only. This is certainly how the Quays were listed after 1666 and discussed in the 18th century.

The establishment of the Legal Quays emphasised the change in character of the waterfront below the bridge, to form the nucleus of the Tudor port and the future international entrepôt (a place where a portion of imported goods were re-exported on a large scale, and thus warehouses were required in quantity in the port area itself). By 1617, for instance, there were regulations for the movement of carts servicing the quays which stipulated streets in which the carts could stand while waiting; these streets were all east of the bridge line, and south of Fenchurch Street.[2] Winchester's legislation was an attempt to concentrate the port in the City, and all use of waterside quays, wharfs and stairs as far downstream as Gravesend, Deptford and Woolwich was forbidden;[3] though this cannot have been effective for long. The coasting trade supplied London with fuel, chiefly coal, food and metals. Outwards, London shipped beer, wine and manufactured goods of all sorts to other British ports.[4]

Trade along the English coast was significant, but not as important as London's foreign trade. For 1567/8, details of most of the ships bringing goods into the port and their cargoes have been published. Ships came from Amsterdam, Antwerp (source of the widest range of items by far, with a population in 1560 about twice that of London), Arnemuiden, 'Barbary' (the Atlantic and Mediterranean coasts of Morocco, Algeria and Tunisia), Bilbao, Bordeaux, Bruges, Cadiz, Danzig, Dieppe, Dordrecht, Flushing, Hamburg, Haarlem, La Rochelle, Nantes, Ostend, Rouen, Russia, St Malo, Spain and Venice. The range of imported goods was

[1] Dietz 1972, with map of the quays; Ramsay 1976, 146–53.

[2] Spence 2000, 32, fig 2.4.

[3] Ramsay 1976, 153.

[4] Willan 1976, 26–34.

correspondingly wide (Table 41). In the decades which followed, there was also a great increase in the import of two staples of consumption by London's rocketing increase in population: fish and coal.[5]

Port of origin	Main commodities imported
Amsterdam	fish; glass; hemp; oats; wool; wainscots
Antwerp	household furnishings; cutlery, tools and implements; spices and drugs; canvas; silk; cloth; paper; madder; glass; rice; saltpetre; rape oil; steel; pewter; soap; woad; hops; pots; molasses; skins; clothing
Bergen-op-Zoom	hops; rape oil; flax; pots
Bilbao	iron
Bordeaux	wine; vinegar
Bruges	apples; cloth; madder; seeds; skins
Danzig	flax; pitch; cables and ropes; iron; fish; ashes; wainscots
Dordrecht	wine; hemp
Flushing	salt; paper
Hamburg	wool; stockfish; wainscots; flax; copperas [iron sulphate, used in dyeing]; hops; madder; feathers
La Rochelle	salt; wine
Malaga	raisins; almonds
Nantes	prunes
Rouen	thread; prunes; paper; canvas; combs
St Omer	apples; hemp
San Sebastian	iron; wool
Venice	wine; spices

Table 41 Some of the imports to London in 1567/8, and their port of origin (Dietz 1972)

A second important development of the period was the establishment of several trading companies in London which sought to expand London's international trade. They fall into two groups. The first, 'regulated' companies did not themselves engage in trade, but regulated their members. The Company of Merchant Adventurers claimed to have medieval origins and had received its royal charter from Henry IV in 1407; now two further companies were founded, the Eastland Company (1579) and the Africa Company (1585 and 1588). The second kind were 'joint-stock' companies which carried on trade directly through their agents in a prescribed area, and had shareholders: they included the Muscovy or Russia Company (1555) and the East India Company (1601); the Levant Company (1581) was in the beginning a joint-stock company.[6] The establishment of the Levant Company followed English expansion into the Mediterranean during the 16th century, which (with reversals) opened up the route to Constantinople; its purpose was to trade with Turkey, Syria and Egypt. All the joint-stock companies 'involved trading beyond Europe, at the end of long voyages, and in countries where the limited diplomatic courtesies of Europe were unknown.'[7] This increase in corporate endeavour must have had an effect on the London waterfront and its installations, but this is so far unresearched.

Third, from about 1600, merchants and their captains began to look to the Americas and the Caribbean for trade; the Atlantic ocean was explored and crossed. A scene in the play *Eastward Ho* of 1605 by George Chapman, Ben Jonson and John Marston, in which there is talk about the attraction of Virginia, is set in the Blue Anchor Tavern at Billingsgate.[8] Jamestown, the first permanent English settlement in North America, was founded in 1607. From the 1630s, people emigrated to America from London.[9] During the civil wars of the 1640s, London was never besieged and its port remained open to trade. The Navigation Acts of 1650 and 1651 confined English trade with English colonies to English ships or those built in the plantations, and thus fostered a protected trading system.[10]

A fourth factor which becomes relevant after the Restoration is that London grew significantly as a re-exporter of some of the imports.[11] This would require specially large and secure warehouses on the waterfront. Such buildings, a new form, might have appeared shortly before the Great Fire.

Developments in the number and size of ships

From the 1560s, when the English merchant fleet was insignificant by European standards, the number of ships grew.[12] The size of ships generally increased from 1500 to 1666, though there was a great range and small ships were still viable and useful, to spread the risk of failure in a venture. Small ships were the majority in the Atlantic. Ships which took cloth to Poland and Russia in 1565 were between 60 and 160 tons.[13] The ships listed in the Port Book for 1567/8, the source of Table 41, were mostly small, of between 30 and 70 tons; these plied the short route to the Low Countries ports. Larger ships of 90, 120 and 130 tons came from Bordeaux, Spain or Morocco; three of 200 tons came from Danzig (Gdańsk) on the Baltic. In 1567/8 two ships from Venice, with wine, must have dwarfed the local shipping, as one was of 350 tons and the other, the Ronaldo, of 500 tons. The Venetian carrack Madre de Dios, seized and taken to Dartmouth in 1592, was too deep in her draught to be

[5] Davis 1972, 3–7.
[6] Lipson 1943, ii, 196–360; Zins 1972, 37–40, 113–14.
[7] Davis 1973, 43.
[8] Neil 1869, vi.
[9] Horn 1994, 35–8.
[10] For overseas expansion and trade in the 17th century, Zahedieh 1998; for the Mediterranean, Braudel 1972, i, 612–15. A more pessimistic view of the first half of the 17th century is by Wilson 1965 (e.g. p xi).
[11] Davies 1972, 23.
[12] Davis 1972, 1–2.
[13] Braudel 1972, 296; Zins 1972, 173.

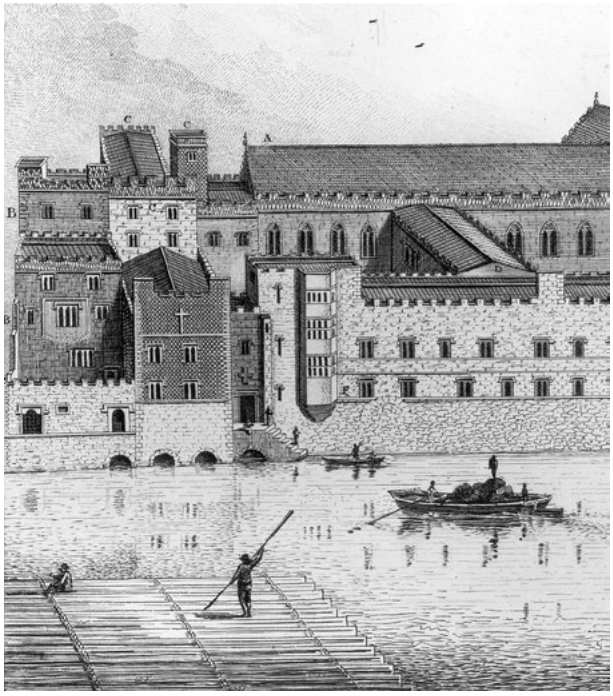


Figure 168 Extract from a view reconstructing the Savoy Palace, south of the Strand, from a drawing by George Vertue, engraved by Richard Sawyer and published by J T Smith in 1808 (LMA). The Palace is shown in its 16th-century form as the hospital founded there by Henry VII, including the riverside tower faced with chequerwork which is probably of 1512–20. The waterfront wall probably dates from the 14th century, if not before. Two of the smaller kinds of river craft are shown, and a raft of logs (in the 18th century timberyards were concentrated on the bank of the Thames opposite)

taken to London; she was over 1800 tons. A ship of over 1000 tons was a giant and a rarity.[14]

By the early 17th century, native ships were in general larger than previously. A survey of ships 'now in the Thames which could be made fit for the king's service' (merchantmen with cannon on board), drawn up by Trinity House in 1628, lists five ships of the East India Company which were each of 600 or more tons, including the 900-ton *Greate James*, then in Blackwall Dock; and a large group of ordinary merchant ships with tonnages between 200 and 500 tons. Three ships of between 240 and 300 tons were launched in 1629, probably being built at Rotherhithe. London owned about 30 ships of 350 tons or more in 1640; by 1689 this would almost double to 70, nearly half of them in the East India trade.[15] Since passage through the bridge for large ships was now impossible, they could only ride at anchor downstream of the bridge. After a fire on London Bridge in February 1633, Trinity House objected to the proposal to rebuild the burnt houses, saying that their occupants had contributed, by throwing much rubbish into the river, to a general raising of the river bed at many places from the bridge downstream; which had not been noticed formerly because boats had then drawn less water than now.[16] At times, also, the sheer numbers of ships must have caused congestion: just one imported commodity, Canary wine, came once a year in a fleet of 20 or more ships, all at once.[17] The practice known in the 18th century of several ships being tied up in rows at right-angles to the bank, with consequent problems for loading and unloading, must have been common also in the 17th century.

Fragments of 16th- and 17th-century boats and ships have been recorded on several sites, for instance at the Southwark end of the Millennium Bridge,[18] and especially to the east of the City as the waterfront areas developed downstream and fragments of broken-up ships were reused for their timber. Many are from smaller vessels, but there have been occasional finds of pieces from large ocean-going ships.[19] From the time of Hollar in the 1640s, engravers also provide views of a range of river craft and other methods of transporting bulkier goods, such as timber (Figure 168).

Queenhithe and Billingsgate; the Steelyard and Custom House; London Bridge; livery company halls south of Thames Street

The forms of Queenhithe and Billingsgate are shown by Wyngaerde around 1540 (Figure 169); both had an arcaded building on the upstream side of the inlet (the one at Queenhithe is not shown clearly by Wyngaerde, but is on other panoramas). The arcaded building at Billingsgate was particularly fine; four aisles are suggested by the four parallel roofs shown by Wyngaerde. The manuscript illustration presented earlier (Figure 112) shows that the ground floor was vaulted. If the building extended so that its north end was in line with the north side of the dock, a configuration suggested by the post-Fire buildings here, then it might have been four bays wide and six bays long, measuring 64ft (19.5m) by 96ft (29.3m) in area. It was certainly one of the largest public commercial buildings in medieval London, wider than Guildhall.

The landing of lead at Billingsgate is mentioned in the regulations there of 1419, and there are references to it in accounts for the building of the Savoy Hospital upstream. Large quantities of lead from the Peak District of Derbyshire were bought at Billingsgate in 1515–20. They would have come by sea, and must have

[14] Braudel 1972, 297, 302.
[15] Davis 1972, 79.
[16] Harris 1983, nos 314, 414; Brett-James 1935, 203.
[17] Steckley 1984, xiii.
[18] Goodburn 2002, 88–9.
[19] Marsden 1996, 160–98; Goodburn 1991; 1999, fig 19.2; 2002; Goodburn in Francis 2017, 171–3, 233–7.

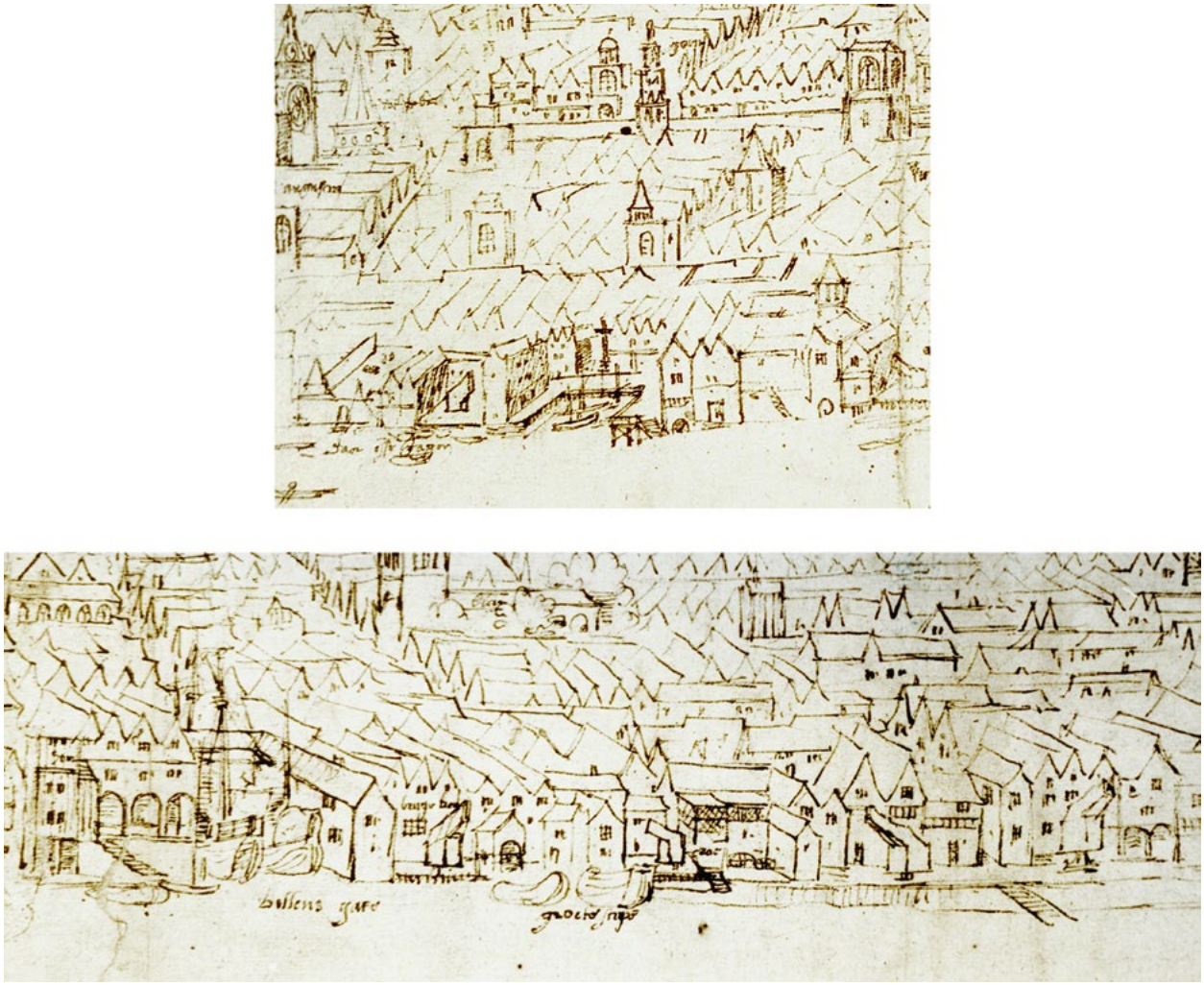


Figure 169 Queenhithe (above) and Billingsgate (below) on the Wyngaerde panorama of about 1540 (Ashmolean Museum). The lower view extends from Billingsgate (with its arcaded building of about 1450) to the Custom House on the right; also shown are three cranes on domestic sites

been transferred into smaller craft for the short journey through the bridge to the Savoy. Similarly plaster (by the ton) and Caen stone were bought at Billingsgate for the hospital; the Caen was first landed at St Katherine's Pool, east of the Tower, so it is not clear if the quantities of stone actually lay at Billingsgate.[20] Perhaps only samples were brought there.

In 1564 the grocer Sir John Lyon left a bequest towards the building of a market house at Queenhithe, which was completed by the City in 1566; this may be the building shown in a manuscript review of the markets in 1598 written by Hugh Alley. He also shows a gate to the open space with chambers over, and this is also shown on the Thames Street side on the Danckerts map of the City in 1633. Queenhithe had a crane by 1584–5, when ropes were bought for it, but its precise location is uncertain.[21] Both Queenhithe and Billingsgate were 'enlarged' in 1590, but it is not known what this means; perhaps it included further expansion of the sides of each inlet into the river.[22] At this period there was still traffic with upstream places; an Act of Parliament of 1624, attempting to clear the river of obstructions to Oxford, noted that it would be convenient for the conveyance of Headington stone to London and necessary for conveyance of coal to Oxford. Improvements were made by 1635. [23] In his *Carriers Cosmographie* of 1647, John Taylor lists the arrangements for boats carrying goods and people from Queenhithe and the adjacent Bull Wharf: from the former, to Maidenhead, Windsor, Staines, Chertsey and Reading; from the latter, to Kingston and occasionally Colnbrook (Berks; just upstream of Egham).[24]

[20] Stanford 2015, 303, 334, 383.

[21] Masters 1984, nos 45, 298; Archer *et al.* 1998, 96.
[22] Archer *et al.* 1988, 11.
[23] Hatcher 1968 [1914], i, 65–6, 72–3.
[24] Hatcher 1968 [1914], i, 99–100. These and other routes upstream are

In 1598 Elizabeth I expelled the merchants of the Steelyard from London. The Steelyard was granted to the navy for safe custody of provisions; but James I gave it back to the merchants, who held on to it until 1852 (a commemorative plaque was placed on a wall at the present Cannon Street railway station in 2005). A view of the Steelyard from the southeast is in Hollar's panorama, originally drawn in the 1630s;[25] all of the buildings shown seem to date from before 1500.

London Bridge is shown in detail on several panoramas of the city from the south: principally that of Wyngaerde, about 1540, and by Hollar, a century later in 1647 (Figure 172; Figure 174), which are studied in detail below. There is a striking difference between the two in the character of the buildings on the bridge. In the Wyngaerde view, many of the buildings, which comprised shops and houses, must have been of 15th-century or even earlier date in origin. By the time of Hollar's view in the 17th century, many had been rebuilt or replaced by higher and larger structures. The second half of the 16th and early 17th centuries must therefore have been a period of rebuilding and expansion for the structures on London Bridge. A fire of 1633 removed a length of the houses on both sides of the bridge at the north end.[26] A plan of the destroyed section of the bridge by Joseph Darvoll and Thomas Sterne survives, showing how the bridge then met the north bank.[27] The space was half filled with a square block of buildings at the north end in 1645, but the space to the south of this fortuitously ensured that the Great Fire of 1666 did not spread to Southwark.[28]

In general, in 1500 London was peripheral to Europe; but by 1700, it was one of the main centres of European trade. The expansions which began in the middle of the 16th century accelerated the fortunes of London during the 17th. Winchester's reforms may have brought about or prompted the replacement of the medieval Custom House with a new building, shortly after 1559. An Elizabethan building with octagonal towers appears in the post-Fire drawing by Hollar (ie in its ruined state), and in one 18th-century engraving; a brick structure may have been reused by Wren in his rebuilding of the Custom House after the Fire, though this cannot be certain.[29]

Throughout this period (1500–1666) the two main company halls south of Thames Street, of the Vintners and the Fishmongers, continued their functions. Other companies established their halls here, on the reclaimed land. As will be reported under site A, the Dyers were established on Tenement 1 by 1600. By this date also, as mentioned by Stow, the Joiners had a large house down an alley half way between Vintners' Hall and the Steelyard, on the upstream side of Dowgate.[30] They were incorporated in 1571, and this might have been the general date of their establishment here.

5.2 Swan Lane (site A) in period P1, 1500–1666

The survival of archaeological evidence of period P1 (1500 to the Great Fire of 1666) on site A is much less than for the previous periods. In contrast the documentary evidence is very full for Tenements 3, 4 and 5, providing a detailed picture of the much increased density of occupation of these properties after 1500, and some significant information about dyeing on the site which can be related to panoramas of the riverfront which survive from the 1540s. Some dimensions of individual rooms are available in descriptions of the buildings in the 17th century decades before the Great Fire. An inventory of one complex, the Three Starres on Tenement 1, survives from 1602; it describes a building behind the contemporary Dyers' Hall, of two storeys and garrets, with work buildings for dyers.

The periphery of the 1981–2 site was explored in several trenches on the west, north and east sides by MOLA archaeologists during the subsequent Riverbank House development of 2006–9 which replaced the building of 1982. They revealed brick buildings and cesspits with material dating to the first half of the 17th century and points of correspondence to the documentary evidence.[31] These more recent discoveries are noted under the relevant tenement.

Tenement 1

The earliest surviving Dyers' Company document relating to the hall, and preserved among the records of the Vintners' Company, is dated 27 April 1579. In this Lionel Cooper, dyer, executor of his father, Richard Cooper, dyer, transferred to William Glover, dyer, for the sum of £220 the lease which the Company wardens had made on 26 July 1571 to his father Richard of all the lower part of their great messuage ('mese') or tenement called the Three Starres, then also commonly called the Dyers' Hall and already in Cooper's occupation, with all houses, buildings, wharves, stairs, draughts and putgallye (? a device for rinsing cloths in the river) pertaining, and with free access by the great gate of the said messuage. This lower part began at Cooper's gate and abutted on the kitchens and yards pertaining to Dyers' Hall to the north, the Thames to the south, the dyehouse tenement in the tenure and occupation of Richard Perte, dyer, to the west and the tenement then in the tenure of Robert Rose, merchant

listed more fully in 1746: p113.

[25] Brett-James 1935, 48. The Steelyard detail is shown in Schofield 2003, fig 97.

[26] Home 1931, 210–16, with a list of the tenants of the burnt buildings.

[27] Gerhold 2016, 135–7.

[28] The block of 1645 is shown in Hollar's view of the City before the Great Fire (his 'before' and 'after' Fire view), for example in Nurse 2017, fig 15. It is not shown in his Long View, which was based on drawings of before 1645.

[29] Milne 2014.

[30] Stow i, 232.

[31] Mackinder 2015, 66–72.

taylor and assigns, to the east. Also leased to Cooper was a small piece of land between part of the premises to the east and Blewcocke Lane to the west, and beneath the Company almshouse in the tenure of Alice Larraunce, excepting a vault or privy which 'had a tunnel coming into it from the chamber above one of the kitchens'. The property was to be held by Cooper from the previous Lady Day for a term of 99 years, for an annual rent of £10. In the transfer to William Glover there were also references to leads and cisterns (CLC/L/VA/G/057/MS100072/11).

An inventory of the Three Starres on Tenement 1 in March 1602 survives in the Vintners' records;[32] this was drawn up when William Glover, alderman and dyer, sold the lease to Cuthbert Joyner, citizen and dyer. The 'schedule or inventorye indented made of all such goodes [etc] as are bargayned and sold' reads as follows (spelling retained, but most numbers converted to arabic numerals):

In the Garrettes

Imprimis one waynescott bedsteade with a testor over hedd & one greate cheste of spruce deale
Item 3 glasse windowes

In the greate chamber over the Hall

Item one large waynescott bedsteade & the painted cloth rownde aboute the chamber
Item a compting howse shelved rownde aboute

In the chamber over the kitchin

Item the painted clothes rounde abowte the chamber
Item the waynescott aboute the chymney with a foote pace of wrought stone.
Item two little chambers, with a bedsteade in one of them & a particion of waynescott

In the Parlor over the yarde

Item the same roome setled & waynescotted rownde aboute with a cupboord in it with lock & key
Item a foote pace aboute the chymney; & lock & key for a settle

In the Hall

Item hanged rownde aboute with painted clothes, & waynescotted aboute the chymney
Item 2 tables, one a longe waynescotte table, to drawe oute with 2 leaves, & the other a longe table of deale boordes, with a frame

In the Kitchin

Item 3 dressers, a longe shelfe, an ironn barr in the chymney & 3 woodden rackes for spittes

In the Compting howse

Item waynescotted rownde aboute, & a settle with lock & key

Item a cupboord with lock & keys

In the Buttrey

Item 6 shelves & 2 shorte bordes

In the Gallory at the waterside

Item waynescotted over the chymney up to the seeling, with a waynescot cupboord at the end of it, with 2 roomes in it, & a drawer under neath

In the chamber goeing up into the gallery

Item waynescotted aboute the chimney, with a waynescott doore

In the ffolks chamber

Item one waynescotted bedsteade with a testar overhed, & nyne olde bedsteades

In the chamber over the staires hedd

Item one oulde waynescott bedsteade with a testar

In the kitchin at the waterside

Item a jack of ironn

In the upper workehowse

Item one greate leade of copper & brasse esteemed to weighe 8 hundred waight & a halfe
And 3 greate licker cesternes, & 2 smale cesternes
Item the tabett abowte the leade downe to the grownde

In the neather workhowse

Item one leade of copper & brasse, esteemed to weighe vii C. [hundred-] waight, with the tabett of leade rownde aboute to the grownd
Item one water cesterne of leade, & also one greate tarras cesterne [ie a cistern lined with tarras, water-proof mortar]

In the Woadhowse

Item 6 woade ffattes [vats]
Item the gutter of leade with the pipes goeing alonge from the waterside to the upper workhowse
Item the buckett to drawe water, & the drawing rope
Item more in the yarde, one greate Brassell cesterne of leade [ie for dyeing with Brazil wood]
Item 3 greate longe pewes in the yarde
Item the foote paces aboute boeth the leades

For the upper work howse

Item one longe gutter, one greate scoope, & one newe greate scoope steile [handle, upright]
Item fyve scrayes [troughs on wheels] for both the leades, 2 handling trees with leade staves, pushinge staves & beating staves

[32] CLC/L/VA/G/066/MS15463; transcribed by Ian Mackintosh and Stephen Freeth. The same MS contains a second, more detailed inventory of the same property, made in May 1604.

> Item for the blackehowse, a greate weede [woad, also known as dyer's weed] crosse with a standard [measuring rod]
> Item 4 tynes, one greate scoope, 3 hand scoopes, 3 gutters, 3 stooles, one coale tubb, 2 turninge wynches for both the leades
>
> Item for the fyer howse, standardes, bearers, & all the irons under both the leades, 2 fyer rackes, one slice, the caulk cheste, 6 woade crosses, 4 scrayes, 4 winches, 6 stirringe rackes for the fattes, 2 washinge scrayes, 3 payre of hawkes [large pliers?] & 2 jack pewes
>
> Item one paire of greate scayles in the ould warehowse with theire waightes, one paire of brasen scayles, one greate morter with 2 pesselles belonging thereto.

From this we deduce that the Three Starres was a building, or part of a building, probably of two storeys with garrets, with workrooms for dyeing, and parts which bordered the riverside (the kitchen and gallery). The upper workhouse was served by a drain or conduit for water from the river; just as at Tenement 4 in 1522, when the lead drain 'laid aloft', 110ft (36.6m) or perhaps even 130ft (39.7m) long, served the dyehouse and brewhouse there.

The loss of many of the Dyers' records of this period obscures the early history of the Company and its halls. However later Dyers' deeds confirm that 'Blewcocke Lane,' noted as the west abutment of the tenement in the lease of 1571, was later known as 'White Cock Alley', shown west of Dyers' Hall on both Leake's map of 1666 and Ogilby and Morgan's map of 1676 (e.g. 15 Dec 1676, CLC/L/DC/G/031/MS32858/005). The property also contained the almshouses of the Dyers' Company, established in 1545 by Sir Robert Tyrwhitt. The Dyers purchased the White Cock, then a dyehouse, in 1586 for use as accommodation for almspeople in extension of the Tyrwhitt almshouses.[33] Post-Fire plans may well make it possible to pinpoint the exact site of these almshouses (deeds of 15 Dec 1676 (one); 9 April 1684 (two, each with a plan)). At least some of the almshouses had warehouses beneath (deeds of 26 Nov 1633; 2 Feb 1654/5).

A:Building 28, recorded under the previous period, may have preceded the acquisition of the property by the Dyers, but it may have also been part of the property after 1484, as noted above. The seven almshouses established by Sir Robert Tyrwhitt could not be identified.

One notable object from the history of the Dyers' Company survives, preserved at the present company hall in Dowgate Hill: a late 16th-century iron strongbox, with an ornate lid incorporating a lock of 16 bolts (Figure 170). When described in a paper of 1881, the strongbox was thought to be of French or German manufacture.[34] Its history at the company is obscure. Although it would be attractive to think it was in the Hall before the Fire, a minute of 1671 in company records



Figure 170 The iron strongbox of the Dyers' Company (Robins 1881)

notes that a chest was provided by Alderman Cliffe, who was instrumental in rebuilding the Hall.[35]

A:Waterfront 18

(not illustrated)

The latest recorded waterfront on the site, A:Waterfront A18, was a masonry wall (A43.36). It ran north–south on the property division between Tenements 1 and 2 and was constructed on piles driven into the foreshore, with north–south beams above, supporting squared and dressed ragstone blocks. Three courses of the latter survived, one with a mason's mark. The wall was 1.6m wide and its orientation would suggest that it formed the east side of an inlet (or that Tenement 1's waterfront now projected slightly in front of that of Tenement 2).

An isolated post (A43.39) to the north may be another supporting pile beneath the wall. At the foot of the wall were two north–south beams, apparently reused revetment timbers, supporting the wall. Presumably the wall joined a similar east–west element, not far to the south of its recorded position. The south side of the development site, formed by the south side of the 1961 building, is thought to have ultimately derived from the line of a masonry river wall which could have been an east–west component of A:Waterfront 18, meeting the north–south fragment. As shown in Table 156, most of the associated pottery (total 16 ENV, 611g) is residual, with 20 medieval sherds but only three that are of post-medieval date. A:Waterfront 18 is the only waterfront in the project to be recorded in period P1, 1500–1666; riverside structures of this date were inaccessible on the other sites. Perhaps its construction is associated with the acquisition of

[33] Daynes 1965, 22; Harben 1918, 624.
[34] Robins 1881, 464–5.
[35] From an anonymous and undated leaflet on the Company's artistic assets, available from the Hall in the present century.

the property by the Dyers' Company in or soon after 1484, to form the site of their hall.

Tenement 2

A deed of April 1579 relating to Tenement 1 refers to Robert Rose, merchant tailor, as the occupant of Tenement 2 (VC Deeds GL, MS 10072 [11]). No further mention of the property has been found in the records of the Vintners' Company.

No archaeological evidence for this period was recorded on Tenement 2 in 1981–2, but a trench dug in the present pavement outside to the north as part of the Riverbank House development of 2006–9 revealed walls of a brick cellar of the first half of the 17th century which would have been beneath the building fronting Thames Street. It was backfilled with burnt material from the Great Fire, including pottery.[36]

Tenement 3, The Old Swan

A detailed documentary history of this tenement in the period 1500–1666 is given in the online supplement to this text, chapter 6.9.

The riverward end of Tenement 3 is shown in the panoramas from about 1530 (discussed below). The churchwardens' accounts of St Peter's for 1514–35 (P69/PET4/B/006/MS 00645/1) contain a series of entries relating to the church's 'Thames Street' or 'Old Swan' property (Tenement 3), which appears to have been ranked first before their other, Cheapside property. The Thames Street property comprised five distinct holdings:

1. (*The*) *Old Swan*: occupied by James Wilkinson, brewer, in 1514 and 1535, paying £6 16s 4d pa from 1514, and £10 for two tenements from 1528.

2. *The Hothouse* or *Hoothouse*: occupied by Robert Depham from 1514 to 1532 (and by his wife in 1531) for £5 6s 8d from 1514 to 1530, and for £5 from 1531; succeeded by Thomas Baylle from 1532.

3. *The Great dyehouse*: occupied by John Kytchin in 1514, paying £5, and by Thomas Geffreys from 1517 to 1520; Thomas Howk dyer held it from 1520. The great dyehouse was mentioned only in 1514, and from 1524–5 was described as void ground.

4. *Little dyehouse*: occupied by Richard Rose from 1514 to 1520, paying £5. Described as 'a tenement' by 1517–8 and until early 1530s. From 1517 to 1524 the rent was 53s 4d. Occupied by Thomas Spenser in 1520–21, and by Robert Wandsworth from 1525 to 1530. He and his successor from 1533, William Knyghton dyer, paid £3. Under Knyghton it was once more referred to as the little dyehouse tenement. Thomas Spenser, dyer, was recorded in April 1522 as tenant of the Mercers' Company tenement to the east (Tenement 4).

5. 'New rent' in 1514–5: occupied by John Rankyn who paid £4 up to 1528; succeeded by Roger Grene in 1529–30 (when it was described as 'a tenement'); and by John Lane from 1531.

Among the 'reparations' noted by the accounts were payments for a bricklayer in 1526–7 to make a new chimney for Wandsworthe's house (fo. 188v), mending the 'great lead' of Wilkinson's house and paving the entrance to Robert Depham's house in 1528–9 (fo. 151r); supplying planks and board for a large penthouse at the south end of the dyehouse, and repairing the gutter over the west side of the hoot house in 1529–30 (fo. 154v). The accounts for 1532–3 detail reparations at the Olde Swanne totalling £4 4s (fo. 135), including references to the little dye house and the brewhouse, to the purchases of a 'great key' to the street gate of the old Swanne for Wykinson's use, and of a lock and keys for the little dye house (fo. 133). Also mentioned is a brewhouse, the purchase of hinges and board for the hall windows, a kitchen, the dyehouse stair, the mending of stairs at the waterside, and the shed of the 'hoothouse' (fo. 139v). Reparations in 1533–4 included work on the Old Swan and the provision of timber for amending the puttyke and a sill (groundsell) for a door of the dyehouse (fo. 143v). Perhaps most notable of all was the lengthy reparations entry for 1522–3 which comprised 'the making of the wharf'and detailed the wages of bricklayers, carpenters, labourers (fo. 198v); perhaps these renovations coincided with demolition of the Great Dyehouse.

At the dissolution of the chantries under Edward VI, the property was partly sold off, and parts retained for leasing; the detailed account is in section 6.9 of the online text for this project. One part was acquired by the Dean and Chapter of St Paul's between 1549 and 1569 and buildings on it can be reconstructed in outline in 1637 and 1649 (see section 6.2).

Another of the trenches north of and outside the 1981 building, dug for the Riverbank House development in 2006–9, lay on the site of the pre-Fire buildings against Thames Street, that is in portion (1) of the property as described above. This found a cellar with walls of brick and some reused, probably medieval, Reigate stone and a brick floor; it seems to have extended under the alley to the west. The cellar was backfilled with debris of the Great Fire, including two small fragments of Dutch tin-glazed walltiles, presumably from the building above.[37]

Tenement 4 (le Kateryn Whele)

Fuller details of the documentary history of this tenement, which belonged to the Mercers' Company, are given in the online supplement to this text, chapter 6.9. In 1514 it was the Katryn Whele, a great tenement with two others outside its gate; it contained a horsemill, leads, mashing vats and a gutter of lead conveying Thames water to its brewhouse. Further details of this are given in 1522. A schedule of implements and necessaries included a draught of lead 'laid aloft' on timber and board and running from the drawing place at the side of the Thames to the dyehouse and brewhouse. This was 110ft (36.6m) in length (the text was later amended to 130ft (39.7m)), weighed at least 12½ hundredweight and was valued at 4s per hundredweight (50s). Belonging to it was a bucket with a chain hanging on a long pole fastened to a *sweype* (sweep) made new to draw water and priced at 13s 4d. In the dyehouse were leads and a cistern set in stone and kerbed with timber, with an estimated weight of at least 70 hundredweight and value of 5s per hundredweight (£17 10s). In the

[36] Mackinder 2015, 69–70.

[37] Mackinder 2015, 70–1, 106–8.

brewhouse was a great new lead set in stone, kerbed with timber and also closely cornered with board, a mashing vat priced at 26s 8d, and a horsemill with two stones and all the other apparel belonging to it, priced at 30s (MC: First register of leases, fos 37–40). The sweep serving the raised drain or water channel of lead and timber to both the dyehouse and the brewhouse is probably shown on the earliest panorama of this part of the waterfront, of about 1540 or shortly before (Figure 172). Detailed dimensions of the tenement's buildings, probably of two and a half storeys, are given in a lease of 1597, and the two houses of two storeys, garrets and cellars which together formed the Thames Street frontage are described in leases of 1618 and 1619. Richard Tredwell, a shoemaker, occupied a house of two storeys with a garret and a cellar. Since the boundary with Tenement 3 to the west would be fixed, the dimensions of the rooms on the first and second floors suggest they jettied into the alley and overhung it.

Further details of 1638 are of importance because of a link proposed here with Hollar's panorama of the waterfront in 1647. On 10 December 1638, the Mercers' Company leased to Giles Yates, merchant tailor, a property which it had previously leased to John Bennett, dyer, on 14 December 1606, for 50 years from the following Christmas at an annual rent of £20, in consideration of 500 marks (£333) to be spent by him (Yates) during the next 10 years in new building a convenient dwelling house, warehouses and other rooms necessary for dyers to use in and upon that part of the ground and alley called *Katheren Wheele Alley* (fo. 118). Hollar shows that on what may be Tenements 4 and 5, immediately to the left of the landing-place of Ebbgate (by 1647 called the Old Swan), the buildings shown in previous panoramas have been replaced by high buildings on stone walls (Figure 174 below). Long cloths dangle from a horizontal pole between two storeys of windows. Beneath the cloths is the entry to an alley, and it would seem reasonable that this is the riverwards end of Old Swan Lane. If so, then the cloths may be hanging from buildings perhaps part of Yates's construction after 1638. This is only a possibility; Hollar could have been drawing preliminary sketches (some of which survive) from 1633 (the temporary works at the north end of London Bridge after the fire of that year) until his departure for Antwerp in 1642,[38] and the cloths could be hanging from a building there prior to Yates's works (which could have been elsewhere in the alley in any case).

No archaeological remains were recorded on this tenement for this period.

Tenement 5

Details of the documentary history of this tenement, which belonged to the Dean and Chapter of St Paul's, are given in the online supplement to this text, chapter 6.9. It continued to contain a brewhouse, probably the major building. The lands of the Dean and Chapter were confiscated in 1649 and a detailed survey was made. Now known as the Half Moon, the property contained 30 tenements. The actual Half Moon brewhouse occupied the corner of Thames Street and Ebbgate Lane to the east. Along the Lane were 25 small tenements.

[38] Hind 1922, 4.

There is no archaeological plan for this period for site A as excavated in 1981–2. During the redevelopment of the site in 2006–9 several trenches were dug on the site of Tenement 5, now largely beneath the present pavement on the west side of Swan Lane. Recorded features included a brick cellar, the lowest courses of a brick cesspit, a length of four bored elm pipes forming a drain beneath the building going to the river, and a storage cask possibly inside another masonry structure; as a group dating from the late 16th century to the Great Fire.[39]

Cloth seals of late 16th- to early 18th-century date have been found in the present foreshore south of the site by users of metal detectors, and heraldic devices on 17th-century examples included an angel (perhaps for Angel Passage, immediately west of the Swan Lane site) and a swan (for Swan Lane or the Old Swan).[40] This piece of recording may suggest that foreshores are probably more illustrative of their immediate locality than the reclamation dumps behind timber or stone river walls. But we would have to explain why cloth seals, which were attached to cloths when they were completely finished, had been ripped off cloths here.

5.3 Seal House (site B) in period P1, 1500–1666

Tenement 6

A detailed documentary history of this tenement in the period 1500–1666 is given in the online supplement to this text, chapter 6.9. Like Tenement 5 across Ebbgate, Tenement 6 was owned by the Dean and Chapter of St Paul's, and like the others along Thames Street it was appropriated by the Crown in 1549 and much of it was sold off in portions. It was already in at least 13 parts. Some of these can be followed in the documents: notably the main house the Black Raven at the street end on the east side; six small tenements south of the Black Raven, on the east side of the alley; and to a lesser extent, the other areas. By the early 17th century the six small tenements were in the possession of the Fishmongers' Company. But as will be seen, there is scant archaeological evidence for any building on the excavated part for this period.

This period of 1500–1666 at Seal House is represented by several fragmentary pieces of building (Table 42).

B:Building 5

The hearth in B:Building 5 was robbed out in its central portion. A small pit was dug in the north west corner of the hearth and backfilled with mortar and debris; then a layer of trodden clay and charcoal spreads south over hearth and tiles to the partition (B[176]). A second layer (B[167, 166]) crossed the partition wall, which must have by now been removed. These layers contained roof tile fragments as well as discarded tiles from the floor below. Finally, a temporary wall and floor levels seem to have been laid in relation to the existing partitions (B75, B91). Thirteen sherds of pottery (10 ENV, 47g)

[39] Mackinder 2015, 68–71.
[40] Egan 1991, 16.

Archive period	Groups	Main building works	Dating evidence	Documentary evidence and suggested correspondences
B8.2	B75, 91	destruction of B:Building 5, portion with hearth [and tiles]	1480–1550, mainly residual	
	B69	B:Building 4, rubble over hearths		? Great Fire
	B52c, 60, 96–7	surfaces inside B:Building 4 and to south	1480–1600 [from B60], mainly residual	
	B93	brick cesspit attached to wall of B:Building 4	1630–80	
	B95	charcoal inside B:Building 6	15th century	
8.3	B70, 86, 98, 101, 103	destruction of B:Bdgs 6 and 7, strata over site of B:Bdg 4	1550–1700 from B103, mainly residual	? Great Fire
8.4	B102	further debris over B:Bdg 4	residual only, but some pipes	? Great Fire

Table 42 Site B: correspondence between periods, excavated buildings and documentary references for period P1 (site periods B8.2 to 8.4), 1500 to 1666

were incorporated in the destruction of the tile floor (B75). One of these is a tiny fragment of early Surrey-Hampshire border ware (1480–1550), but the rest are medieval, mainly dating to between 1350 and 1500; they include one sherd of Siegburg stoneware. A further 38 sherds (17 ENV, 178g) were found in the destruction debris of B:Building 5 (B91); all are medieval and could date to between 1350–1400. Of note are a small sherd of green alkaline-glazed ware (possibly Magrebhi type) and the rim of a Langerwehe stoneware cup with iron wash from B[166] (B<P128>). The latter is presumably derived from the use of the building in period M3 as it joins with a sherd from B[166] (period B8.1, B84).

B:Building 4

Group 69 comprised clay and tile rubble above the hearths in B:Building 4, B[151] and B[223]. This lay against the wall B[338] which is a rebuild of B:Building 4 (Gp 73). Two layers in this deposit together contained 18 sherds of medieval pottery (11 ENV, 160g), the later pieces from B[223] dating to *c.* 1340–1400/1500. These layers might be the destruction of the Great Fire.

B:Building 6

Within B:Building 6 was a circular patch of charcoal and a post-hole (B95), which may have been the trace of a structure destroyed by fire. The only pottery is a single sherd of coarse Surrey-Hampshire border ware, probably of 15th-century date (5g). Other internal layers [B92] contained four sherds of pottery (60g), one residual, two of CBW and one of Siegburg stoneware with a brown wash (SIEB), the latter dating to between 1450–1550; and several plain Flemish floor tiles, but these could be in demolition rubble used to raise the floor.

B:Building 4 (and to the S)

Mortar and charcoal floors built up inside B:Building 4 room A (the main south room), including ten residual sherds of 12th-/13th-century pottery (5 ENV, 48g) and some fragments of iron slag (B97). The final packed floor (B[138], B96) immediately preceded the destruction of Buildings B:6 and B:7. It contained 32 sherds of pottery (23 ENV, 761g), several of which date to the late 14th- or 15th-century (fabrics CBW, CHEA, CHEA BIF, LLSL, LANG and SIEG), notably a cauldron leg and the rim and handle of a drinking jug in LLSL (B<P129>). Also of interest is a handle fragment from a Saintonge ware pégau with nicked incisions along the edge. Outside B:Building 4 to the south were dumps of clay and mixed silts (B[291], B[289], B[288], B[254–6], B[225], B52c), followed by layers of charcoal, gravel, and sandy loam (B[208–10], B60). The pottery from these layers comprises four medieval sherds (62g), at least two of which date to the late 14th- or 15th-century (CHEA BIF, SIEG JAKO) and eight sherds from four different jars in early post-medieval redware (PMRE), which was in use between 1480 and 1600; the latter are either intrusive or date this activity to after 1480.

A brick cesspit with sides one brick thick, a brick floor, later renewed with a new layer of bricks, was linked into a chute cut in the south wall of B:Building 4 room A. The cesspit intruded half into the excavation, the rest being in and behind the west baulk or section (B[235, 125], B93; Figure 283). Contexts B[207], B[227], B[228], B[235] together contained at least 135 sherds of medieval pottery, mainly dating to 1270–1350 (49 ENV, 1.733kg; SHER from B[227] currently missing). Context B[234], however, between the two floors contained two sherds (12g) of Surrey-Hampshire border ware and type 3 Martincamp ware, dating to the first half of the 17th century, while B[125] contained the rim of a tin-glazed dish (TGW D, 9g). The former date to between 1600 and 1650, while the latter dates to 1630–80. This gives a probable date of 1630–50 for these two layers (if they were contemporary and if the sherds, which are very small, are not intrusive). From one of the floor levels inside B:Building 4 came part of a bronze animal-form candleholder in the form of a stag, which could be of either English or Continental manufacture (B[207] <18>) (Figure 171). A tubular candleholder would have protruded from its back.[41] It may have been a century old when lost or discarded.

The dating evidence for period B8.2 is given in Table 157 (total 266 sherds, 132 ENV, 3.358kg). Only small amounts of pottery

[41] Egan 1998, 147–9 with reconstruction.



Figure 171 Site B: bronze animal-form candleholder base B[207] <18> (length approximately 125mm)

were found in contexts assigned to B52c, 60, 92 and 97, but a larger amount was present in B96. Most of the pottery is residual (LOND, KING, SHER), but B60 contains sherds dating to after 1380. B96 includes several that date, or probably date, to after 1400, while one sherd from B92 dates to after 1450.

Destruction in period B8.3 and B8.4

In the original post-excavation analysis, two phases of destruction, period B8.3 and 8.4, were identified, but they have now been placed together as a single phase of destruction.

In period B8.3 (B86, 98, 100, 103, 101, 70) Building 6 was demolished (shown on Figure 20), by caving the clay walls inwards (B[115]), over destruction debris (B[130; 117; 118]); traces of the walls nevertheless survived (B[18, 144]). B:Building 7 was also destroyed by this time, but possibly some time before B:Building 6, since its destruction debris was covered by a long layer of soil stretching north from the south wall of B:Building 4 almost to B:Building 6, as though B:Building 4 were demolished. The south wall (the original substantial B:Waterfront 4), however, was left standing as a boundary wall, and an open space made between it and the clay outhouse (B:Building 6). Into this soil a small number of pits with 16th-century pottery in their fill were cut.

The pottery from contexts assigned to this period (B70, 86, 98, 101, 103) mainly comprises medieval wares (209 sherds, 77 ENV, 1.875kg); the largest group is from B103 (165 sherds, 47 ENV, 1.437kg). Some of these date to the 12th-, 13th- and earlier 14th centuries, but there are several late 14th- to 15th-century wares (CBW BIF, CHEA BAR, LLON), including sherds from an Italian white-slipped albarello (B[137]), but perhaps surprisingly, no Siegburg stoneware. Of note among the earlier finds is part of what appears to be a brazier in LOND. In addition there are 20 post-medieval sherds: 16 from six vessels in PMRE from B70, and four sherds from two vessels dated to 1550–1700 from B103 (BORDG, PMRE); there are also a few fragments of clay pipe dating to after 1580. Of note is the rim of a Spanish or Italian green-glazed jar (B<P130>).

The strata of period B8.4 (B102) comprised destruction debris. A large layer of burnt and granular mortar was found on

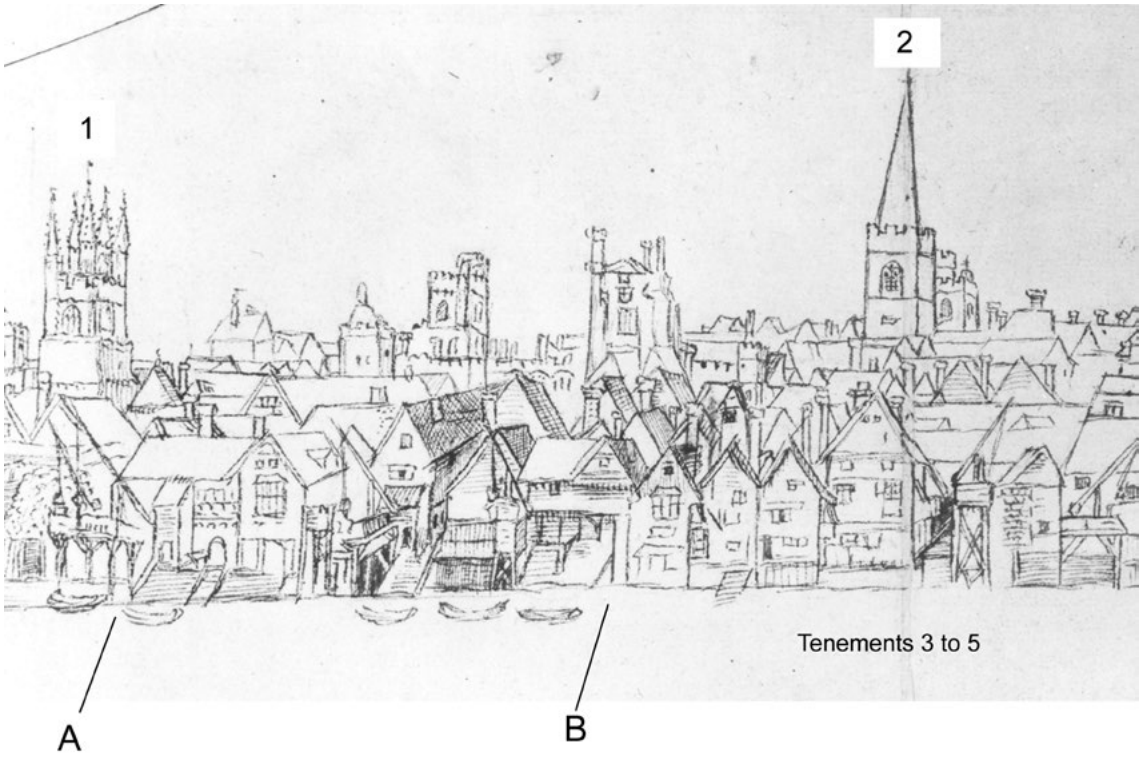


Figure 172 The riverwards ends of sites A, B and a view of Fishmongers' Hall in the low-level panorama, shortly before c. 1540 (Ashmolean Museum). Key: A, the second Coldharbour; B, Angel Alley;

both sides of the south wall of B:Building 4. This debris filled in the cesspit B[125] to the brim, spread north over all the 'garden soil' and slightly beyond (B[62]; B[140, 65=70]). The pottery assemblage is smaller but similar in character, with 17 medieval sherds (17 ENV, 200g), including some late 14th-/15th-century types (CBW BIF, SIEG, TUDG), and three post-medieval sherds dating to 1480–1550 (PMRE, RAER; 175g). The dating evidence for period B8.3 and B8.4 is given in Table 158.

Discussion: period P1 on site B

The documentary evidence for Tenement 6 is fuller than before, but the archaeological remains are fragmentary, partly due to later intrusion of cellars. By the 1540s Tenement 6 contained the Black Raven by the street, and the alley which would have run beneath the street range, bisecting the property. On its east side, behind the Black Raven, were at first six small dwellings, and then properties between these and the river about which less is known. The Black Raven and the six tenements behind it were in the possession of St Paul's Cathedral before the Reformation (having passed from the college of St Laurence Poutney to the cathedral for the upkeep of the Pulteney chantry there), but passed in stages to the Fishmongers' Company by 1590. In the two decades after 1600, the small houses were occupied by widows, presumably of Company members. There is no trace of the small houses behind the Black Raven in the archaeology except for a brick cesspit B[125] in B:Building 4 which was fed by a chute in the wall of the building, originally the stone B:Waterfront 4 and now well behind the line of the waterfront. It seems likely, however, that six houses built here after the Fire in 1671, and surveyed by William Leybourn in 1686, were on the site of these pre-Fire houses. This will be explored in a subsequent volume which deals with the post-Fire remains on these sites.[42]

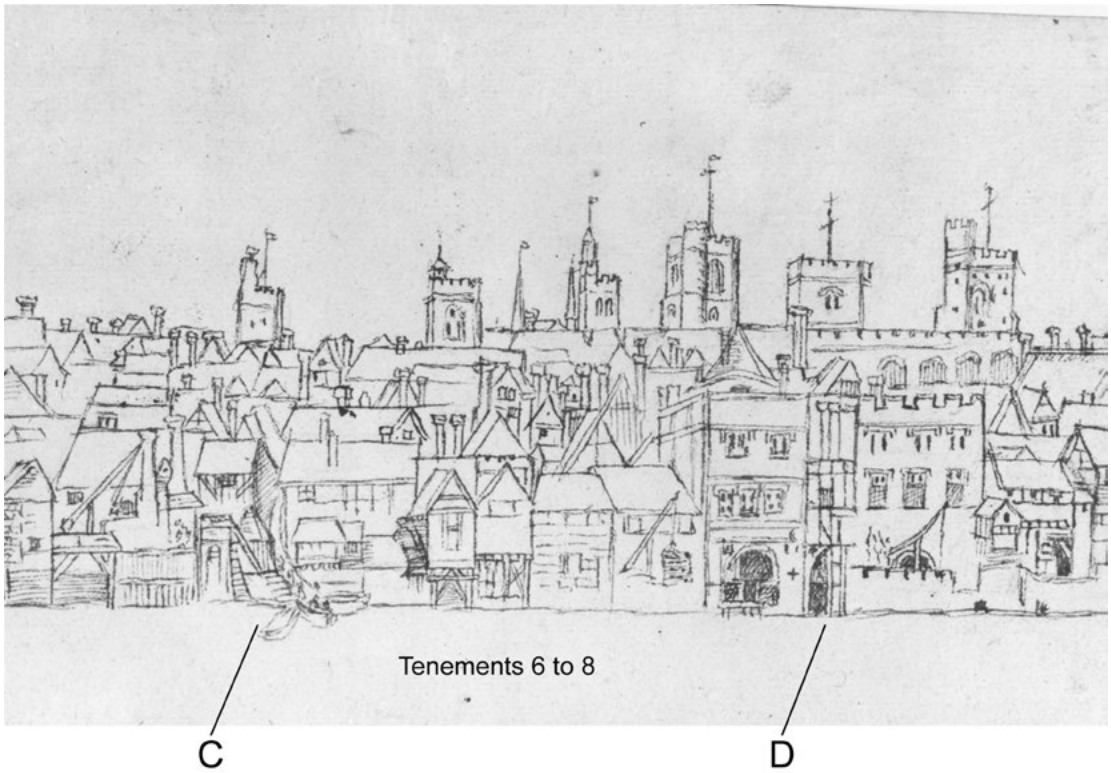
Tenement 7 (Our Lady) and Tenement 8 (The Peacock)

The documentary history of these two tenements in 1500 to 1666 is given in the online supplement to this text, chapter 6.9. Tenement 7 (Our Lady), former chantry property, was in the possession of Reginald Roberts, fishmonger, in 1550, and sold by him to the Fishmongers' Company in 1590. The company leased part of it back to Roberts, and there were at that time four other tenants on the property. Roberts' house was evidently the forepart or streetside section, and it probably maintained its integrity until the Fire. Tenement 8 continued being part of the City estate.

5.4 The riverside ends of sites A and B in pre-Fire panoramas

The riverwards ends of the Swan Lane (site A) and of the adjacent Seal House (site B) to its east are shown in three pre-Fire panoramas of the City (Figure 172 to Figure 174). The buildings shown on these panoramas formed the limit of pre-Fire reclamation, and probably coincided with the south side of the Swan Lane excavation site, which is today a few metres behind the present riverfront.

[42] Gerhold 2016, 102–3, fig 106 for the plan of 1686; Schofield in prep.



C, Ebbgate and Swan Stairs; D, Fishmongers' Hall. Two churches are marked: 1, All Hallows the Great; 2, St Laurence Pountney

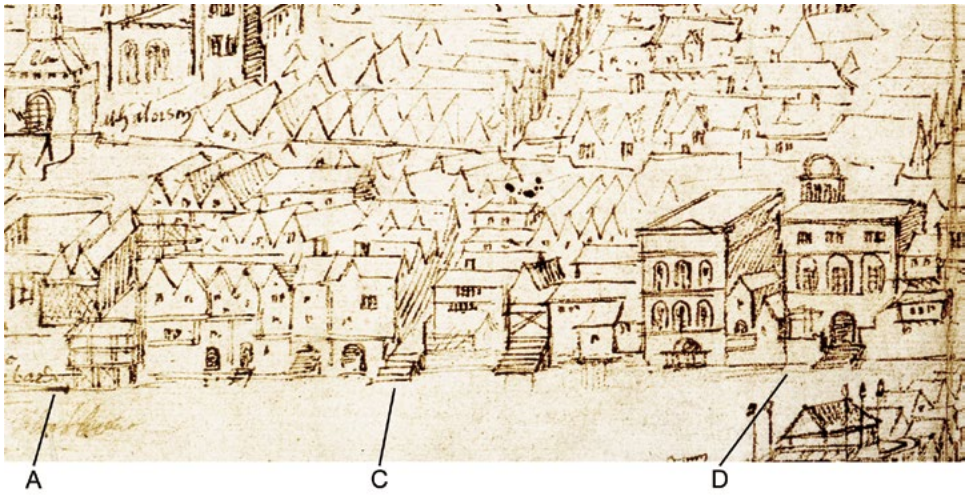


Figure 173 The riverwards ends of sites A, B and a view of Fishmongers' Hall in Wyngaerde's panorama of the early 1540s (Ashmolean Museum). Key: A, the second Coldharbour; C, Ebbgate and Swan Stairs; D, Fishmongers' Hall

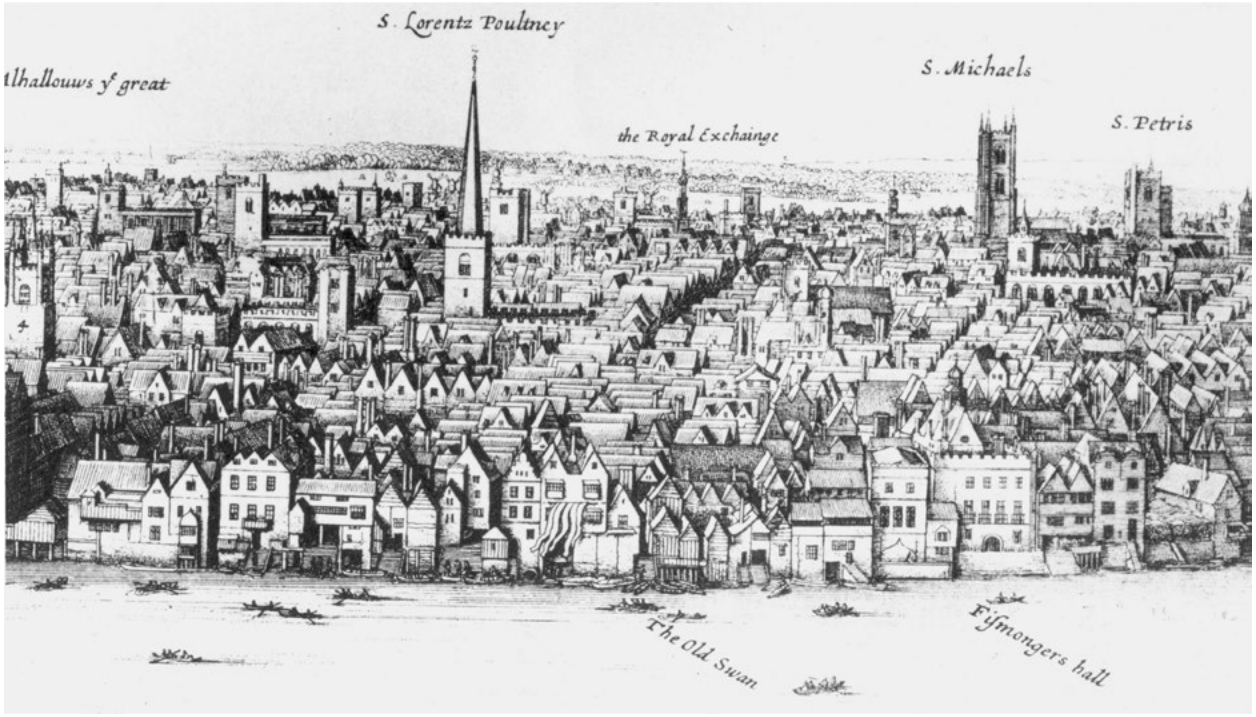


Figure 174 The riverwards ends of sites A, B and a view of Fishmongers' Hall in the Hollar panorama of 1647 (from earlier drawings) (© British Museum). The church of All Hallows the Great appears on the left (marked '4'). Cloths dangle from poles across a building probably on Tenement 4, suggested to be that built in 1638. On the right is Fishmongers' Hall, showing the company hall and its louvre

The panoramas, dating from shortly before 1540 to 1647, show the extreme density of the tenements and their buildings. Detailed deduction about individual properties from these drawings, which are demonstrably selective in many details, may be hazardous, but the following is proposed. On the anonymous 'low-level' panorama (Figure 172), which is intrinsically undated but which seems to precede that of Wyngaerde, the riverside mansion of the second Coldharbour is shown, before its rebuilding in the second half of the 16th century, on the left hand side.[43] By comparing the waterfront with the system of alleys on Ogilby and Morgan's map of 1676, it can be suggested that Ebbgate (the present Swan Lane) is the stair marked C. This allows us to suggest that Angel Alley is marked as B, and Tenements 3 to 5 lay between the two alleys. On the river's edge here are two cranes or sweeps for lifting water, shown back to back, of similar character to seven others shown from Coldharbour on the left to Fishmongers' Hall on the right. This means that one of the two crane-like structures directly below the church of St Laurence Pountney may may be the sweep mentioned in the inventory of Tenement 4 in 1522; and the horizontal lines on the foreshore below the crane

[43] Schofield 2003, 217–18.

may indicate the 'two stairs going down to the river' mentioned in 1548. The riverside ends of Tenements 6 to 8 are also shown as small buildings, some on posts in the foreshore.

The view by Wyngaerde of about 1540 (Figure 173) shows the Steelyard and the waterfront aspect of the [second] Coldharbour mansion on the left, before its rebuilding in the second half of the 16th century. Also shown is Fishmongers' Hall, drawn slightly differently from the previous view. The stairs down to the river west of it (left) should be Ebbgate or Swan stairs. The next stairs to the west are therefore the end of the lane on the west side of Tenement 4. Of interest in this drawing is the building which by this calculation formed the riverward end of Tenement 3. This has an arched opening in its south side, presumably its own watergate. This is also shown on the third panorama, that of Hollar. Presumably this wall is the wharf built in 1522. Hollar's view (Figure 174) was published in 1647 but derives from drawings of 1637–44.[44] It seems that he engraved the view (the Long View as it is known, and showing London from Westminster to the Tower) in Antwerp, so details may not have been exact. His showing of buildings on Tenement 4, which may be a part of a rebuilding of the property in 1638, has been noted above.

Wyngaerde shows small weatherboarded buildings approximating to Tenement 6. A substantial building in two parts, and apparently of stone or brick, forms the south end of the next property. Though drawn differently, this can be identified in both the low-level panorama (Figure 172) and on the panorama by Hollar (Figure 174). Since the prominent north–south building next to the east is known to be on the property between Tenement 8 and Fishmongers' Hall, then the two-part building in question is perhaps at the south end of Tenement 8, the Peacock.

All three panoramas show the parlour range of Fishmongers' Hall at the water's edge, with an indication of the hall, including its prominent lantern, running north–south behind it (clearest on Hollar). Building dates for both these ranges are lacking. The crenellated waterside range, perhaps of the 15th century, comprised three storeys: a large cellar on the lowest floor, then the parlour, and above that the great chamber.[45]

Immediately east of the parlour, comparison between the two earlier panoramas and Hollar shows that between about 1550 and the 1630s a new building was erected at the riverside. This was a rebuilding in 1616–18 of the former Stockfishmongers' Hall; the stockfishmongers had been united with the Fishmongers in 1536. Hollar shows that the south end of this building had scrolled gables, and was apparently of brick, though the new building had been constructed by Robert Ross, a carpenter.[46] Though small, this new construction demonstrates that the river frontage immediately above the bridge was still thought worthy of some embellishment and show in its buildings in 1618. Nearby on Tenement 7, fishmonger Thomas Fuller had just demonstrated that he had rebuilt his tenement as much as the foundations would bear (above).

5.5 New Fresh Wharf (site C) in period P1, 1500–1666

A sketch plan of Tenements 9 to 14 at this period from their documentary histories and inferences from later maps and plans is given in Figure 175. Archaeology traced the rebuilding of one tenement, Tenement 14, with a new phase of building (C:Building 11) which can be placed in the first quarter of the 16th century. The plan of this building is given above in Figure 134. For this period at site C, the documentary histories of Tenements 9 and 10 are given in their fullest form, as examples; those of Tenements 11 to 14 are summarised, with the detailed documentary study in the online supplement to this text.

Tenement 9 (le Crosskeys)

On 5 May 1549 the Crown granted to William Breton gentleman and Humphrey Luce leatherseller for £1744 19s various former chantry and fraternity properties in London and elsewhere, and, in the parish of St Magnus, the messuage called *le Croskeys*, then in the tenure of Robert Lyvers and formerly belonging to the fraternity of *Salve Regina* in that church (TNA: PRO, LR15/8/186; *Cal Pat R Edward VI*, ii, 305–6). The Crosskeys certainly comprised Tenement 9, whose neighbour to the west in the mid 17th century (Robert Collett) was a tenant of St Magnus in the narrow property above the cloister at the east end of the church, and it presumably also included Tenement 10 as well, at the later date known as the King's Arms. If so, the name 'Crosskeys' was probably given to Tenements 9 and 10 together after both were acquired by *Salve Regina*, and replaced Tenement 9's earlier name of 'The Cock on the Hoop'. Other possible candidates for Tenement 10 in the same source are:

1) Two messuages in the several tenures of Edmund Andrews and William Hillar' belonging to late fraternity or guild in the church are included in grant to Thomas Hayberne of London cooper and Stephen Andrews draper for £890 5s, on 17 October 1548 (ii.130).

2) The tenement called 'the Horsse Showe' with shops etc. in Thames Street lately in the tenure of ( ) Doughtie widow, and lately belonging to the fraternity in the church; granted to Henry Tanner and Thomas Bocher for £2881 7s 5d in May to July 1549 (ii, 421).

[44] Hind 1922, 44–7.
[45] Metcalf 1977, 26–7.
[46] Metcalf 1977, 50.

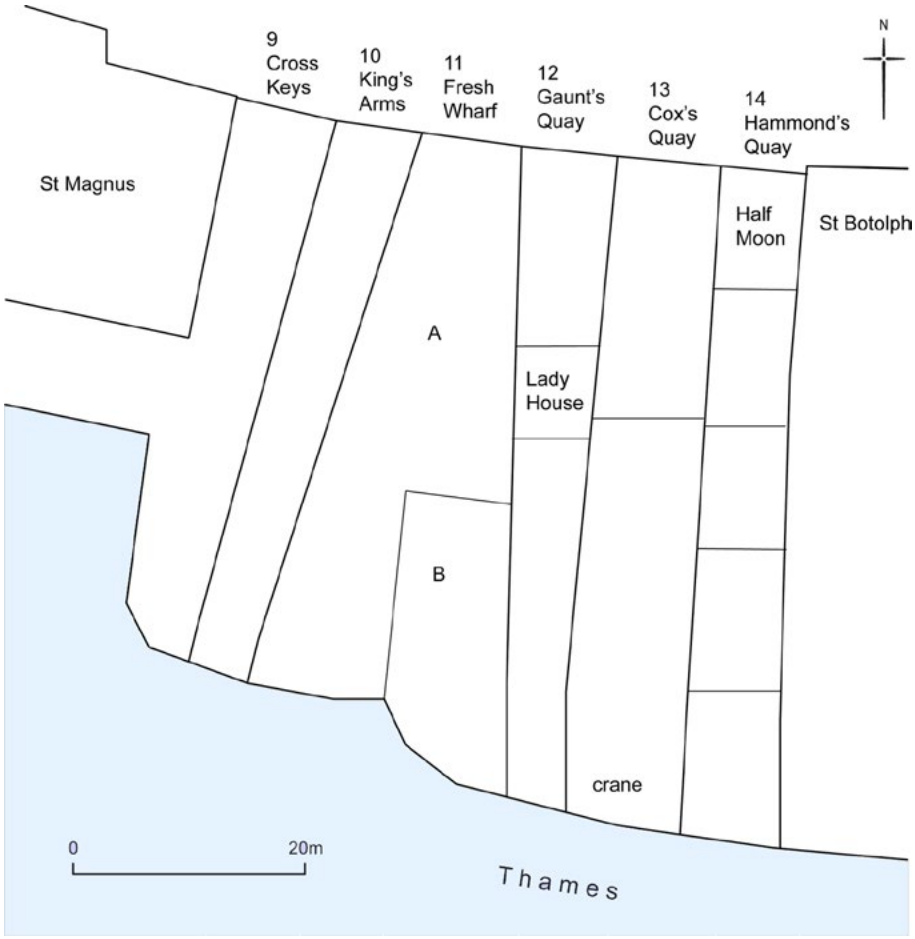


Figure 175 Site C: sketchplan of Tenements 9 to 14 in period P1 from documentary evidence. This is only approximately to scale and the internal divisions conjectural

3) A messuage in the tenure of Cuthbert Prat in St Magnus Martyr parish, lately of *Salve Regina* in the church; granted to Thomas Reve of London gent, John Johnson fishmonger and Henry Herdson skinner for £1572 17s ½d on 15 May 1550 (iii, 373).

By the 1640s William Humble owned both Tenements 9 and 10. In his lease of Tenement 10 to Thomas Deacon on 17 April 1649, Humble specified that its wharf and buildings extended on the west side to the south door of the Crosse Keyes (GL, Add MS 1028; now held by LMA) although we cannot be certain, it is tempting to suggest that this door is shown in roughly the correct position by Wyngaerde (see section 5.7). Tenement 9 itself was leased by Humble to William Carpenter on 15 July 1652 for a term of 22 years at £27 pa (Jones 1966, i, 226–7). In the lease of Tenement 10 in 1649 and in the renewal of Carpenter's lease of Tenement 9 in 1669 allusion is made to an annual rent charge of £24 payable to the Merchant Taylors' Company in respect of both tenements (under the will of John Wooler in 1617: Jones 1966, i, 226 n2), confirming the impression that the two properties had for some time been held together and had come to be regarded as a single unit. Both tenements were burnt down in the Great Fire of 1666. In a petition brought to the Fire Court on 29 January 1668, Humble claimed that the tenants of each had refused terms for rebuilding or to contribute to its cost. The Court finally decreed that Humble should rebuild Carpenter's house by the following Michaelmas, allowing him to enjoy it for the residue of his term at the old rent (Jones 1966, i, 227).

Robert Collett, mentioned as holding a tenement on the west side of Tenement 9, first appears in the churchwardens' accounts in 1644 as the tenant of the cloister property belonging to the church of St Magnus and immediately adjoining its east end (St Magnus Churchwardens' Accounts, P69/MAG/B/018/MS01179/001, 48). Subsequent references to him and to Thomas Collett occur in the accounts down to 1677 and beyond (p198, 220, 271). A description of the church of St Magnus in *c.* 1663, also included in the churchwardens' accounts, noted that 'under' the east end of the chancel and chapels (that is, next to them) there was a cloister or passage leading from Thames Street into another cloister on the south side of the church; over both the cloisters fair houses and tenements were erected (p958). Wyngaerde's representation of the church about 1540 (Figure 220) is probably schematic, and does not agree with that by Hollar a century later (Figure 221), but it does show the arches of a cloister-like structure on the south side of the south aisle. No archaeological recording of this period took place on Tenement 9, and no recording of any kind on the land south of St Magnus, so the form and accurate placement of the 'cloister' against the east end of the pre-Fire church remain unknown. It was clearly of some local significance, and a part of the church and its ceremonies. In 1558 Thomas Salter, once a Carthusian monk, gave elaborate instructions about his funeral at St Magnus in his will. Once his body had been received into the church, all the accompanying people and anybody else in the vicinity were to be called into the 'Cloyster' and bread would be distributed among the poor ones. They could then leave out of the cloister 'at the wicket

that openeth into temes streate.'[47] One wonders why this act of charity had to take place in the external cloister, not in the church or at the church door.

Tenement 10 (The King's Arms)

On 27 May 1532, following a complaint by the parson and churchwardens of St Magnus against the Butchers of Eastcheap concerning a certain wall of stone and brick on the west side of a lane called *Bercherestane* in the parishes of St Magnus and St Botolph, the viewers reported that from the king's highway of Thames Street stretching southwards 36 yds 2ft (33.6m), the lane ought of right to be 2¼ yards (2.1m) in width between the plates and principal posts of the housing belonging to the abbot of the New Abbey at Tower Hill (St Mary Graces) on the east (Tenement 11) and the plaintiffs' stone and brick wall on the west (Tenement 10). From there to the water of the Thames, the lane ought to be the same width between the stated limits, and the plaintiffs' encroaching wall ought to be withdrawn accordingly (Loengard 1989, no. 96). *Bercherestane* was evidently the name of Rothersgate from Thames Street to the river at this period.

On 5 May 1549 William Breton gentleman and Humphrey Luce leatherseller were granted for the sum of £1744 19s various properties in London and elsewhere including parts of Tenement 6 in the parish of St Martin Orgar and the messuage called *le Croskeys* in the parish of St Magnus, then in the tenure of Robert Lyvers, which had formerly belonged to the late fraternity of *Salve Regina* in that church (*Cal Pat R Edward VI*, ii, 305–6). The Crosskeys very probably comprised both Tenement 9 as well as Tenement 10, but by the mid 17th century, when the evidence is next available, Tenement 10 was known as the King's Arms, and the name Cross Keys was confined to Tenement 9. This is apparent from an indenture of 17 April 1649 in which William Humble leatherseller leased to Thomas Deacon clothworker (who also had an interest in Tenement 13) all that great messuage or tenement in Thames Street in the parish of St Magnus called the *Kinges Armes*, late in the tenure of William Parker tallowchandler and adjoining on the east side a way or passage leading down to the Pudding House (the former *Retheresgatelane*), and on the west side a messuage or tenement called the *Crosse Keyes* (Tenement 9).

The lease described the messuage as containing (1) a shop towards the street and a large warehouse behind the same shop; a little cellar lying under part of the warehouse; (2) a dark chamber lying next over the shop, and a little gallery or room leading out of the dark chamber; a kitchen lying immediately beyond and to the south of the dark chamber, and a room lying next on the south side of the kitchen and now divided into two rooms (one used to lay coals in and the other as a buttery); a fair chamber lying next beyond the divided room and (3) a fair chamber lying next over the dark chamber; a room lying in part over the said dark chamber and two little chambers adjoining the same room; and (4) a garret lying next over the last-mentioned room and chambers, and all ways, lights, easements etc. belonging to the said premises. So it was of 3½ storeys in 1649.

The lease also included all the wharf adjoining the common shore, offal yard or pudding house aforesaid towards the east and extending to the further end of the brick warehouses and buildings lately erected there; all the same warehouses and other buildings and rooms erected on the wharf and extending from it to the south door of the messuage or tenement in Thames Street called the *Crosse Keyes* aforesaid, together with all other rooms and warehouses now or yet to be built by Deacon over the common shore or offal yard.

The term of the lease was to extend from the following midsummer for 51 years at an annual rent of £66 10s, payable at Humble's dwelling house in Lombard Street. For the sum of £56 12s 6d paid to him by Humble, Deacon was to expend at least £290 by 29 September next upon the building, repairing and bettering of the wharf with planks, piles of wood and other strong and substantial materials, in conformity with and extension of the wharf adjoining on the east side. Deacon, his executors, administrators and assigns were to repair and maintain the messuage or tenement etc. and also the said wharf and all planks, timber, piles of wood, stonework and other structures; Humble saving Deacon etc. from all actions and costs that he or they may undergo by reason of a rentcharge of £24 pa payable from the premises and the other tenement called the *Crosse Keyes* to the Company of Merchant Taylors and to which Deacon etc. would be liable by reason of the present lease (GL, Add MS 1028).

Shortly afterwards Humble assigned the term of the lease to Thomas Hopkins (Jones 1966, i. 226) a cutler who owned much of Tenement 11 (and, after the Fire, Tenement 13), and who on 19 January 1657 was granted by the City the planks and space of ground partly over Rothwell Lane (ie Rothersgate) commonly called the Gully Hole and that part of the warehouse at its north end which stood directly over the Gully Hole near Fresh Wharf in the parish of St Botolph, and a foot gallery made of planks, posts, and other timber, with the starlings beneath it. This extended southward from the stone wharf called Fresh Wharf belonging to Thomas Hopkins (Tenement 11) and the adjoining wharf called the Back Key belonging to William Humble (Tenement 10) into the Thames, and eastward to the tenement and foot gallery in the tenure of Henry Green lying between the said wharf and Gants Key, and abutting westward on the void ground between the starlings of London Bridge and the said Mr Humble's Back Key (Grant recited in a Butchers' Company petition to the Chancellor on 7 May 1719: CLC/L/BI/G/047/MS10560, item 383). On 5 March 1657, the City granted to Hopkins a lease of the ground planked over the Gully hole at Freshwharf and of a part of a warehouse there, and of a certain ground along the Thames side before the said wharf (and apparently distinct from the foot gallery leased to him in January) extending to Gants Key (Tenement 12) and of the buildings upon the same, for 61 years from Lady Day next, and likewise of certain other ground before the Back Key of Freshwharf along the Thames side, and of the building standing upon any of that ground, for the remainder of the term of Mr Humbles lease (being about 46 years) of the said Back Key. Paying for all the premises £200 fine in hand and the yearly rent of 20s (LMA, City Lands Grant Book 3, fo. 71v). In this latter lease Tenement 10 appears to have been regarded as an extension of Fresh Wharf, an impression confirmed by testimony before the Fire Court on 8 May 1668 (see below).

[47] Barron 2009; as reprinted 2017, 244.

During this period C:Building 7 must have continued largely in the form already described in period M2, at least at the ground level excavated (see Figure 82). The rooms of the tenement are described in 1649; room A must have been the shop, and room B the 'large warehouse behind the same shop.' It is however quite possible that these old buildings could have been rebuilt in their upper parts, which did not survive to be recorded in the ground. No pottery was recovered from Tenement 10 in this phase; the strata were excavated by machine.

Tenement 11 (Freshwharf)

The documentary evidence for Tenement 11 in 1500–1666 is given in detail in the online supplement to this text, chapter 6.9. From the early 16th century only two parts of the large tenement can be followed: A, the main tenement and B, the southeast corner. At the Dissolution the whole tenement passed into secular ownership. In 1545 part A comprised seven holdings occupied by six tenants: a wharf called *le Fresshe Wharf*, other messuages and a cellar on the wharf. The main part lay by Thames Street. Part B in 1544 was 42ft (12.8m) from north to south on the east side, only 24ft 4in (7.4m) north to south on the west side, 15ft (4.6m) east to west at its north end but 21ft 9in (6.6m) in width along the Thames. By 1580 part of it was in turn separate, and called the *Holy water sprinckell*. The excavation at site C must have been in part A.

Archaeologically, C:Building 8 continued through the period to the Great Fire in 1666. Parts of brick floors were recorded. Evidence of the Fire included tips of burnt daub, charred wood, broken rooftile, glass and melted lead in the large room 5 on the east side behind the shop. These tips were up to 1m deep. The south wall of room 4 (fre[648]) defined the north limit of a deposit of soft brown peaty silt mixed with cess (fre[599]). The cess was traced over c. 3 x 3m and was up to 0.7m deep, apparently in an unlined pit and probably truncated by later floor levels (fre[629], [630]). The cess contained straw, twigs, rootlets, moss, sedge, grape and apple pips, egg shell and nut shells as well as 16th-century glass, pottery and a wooden bowl. As to dating, one sherd of pottery was found in context fre[628], part of a lobed dish in London tin-glazed ware with blue-painted decoration typical of the mid 17th century (TGW D). Part of a Raeren stoneware (RAER) drinking jug in [599] dates to c. 1480–1610 (Table 159).

Thus the period 1500–1666 on this tenement is characterised by the continued use of C:Building 8. As observation of the strata here were limited, it is not possible to say how the recorded walls may have reflected the tenancies into which the larger property was divided before the Dissolution, when it belonged to St Mary Graces. In 1545, and probably before, there were seven tenants in the main part called A here, and an eighth at the southeast corner (part B).

Tenement 12 (Gaunt's Quay)

The considerable documentary evidence for Tenement 12 in 1500–1666 is given in detail in the online supplement to this text. chapter 6.9. A grant of 1514 shows that the division of the tenement into three parts, two of them held by one tenant, seen before in 1465 was still in place. The three were arranged north–south, and the middle house was called the Lady House, evidently the property from which the fraternity of Our Lady at St Botolph's had received a quitrent since 1466. The three tenements were sold as a unit in 1561, and here called Gaunt's Quay for the first time. In 1612 the tenant of the southernmost portion was presented to the Court of Sewers for an encroachment into the Thames of about 8ft (2.4m) wide and about 26ft (7.9m) along the quay. This was probably equivalent to the width of the property, and included a crane. He was told to remove this encroachment. In 1622 the middle portion measured 21ft 3in (6.5m) east to west and 14ft 2½in (4.3m) north to south.

Archaeologically, C:Building 9 continued throughout period P1 up to the Great Fire.The second room from the street had a brick floor and was perhaps also vaulted in brick. The division of the tenement into three parts since 1465 was not evident, unless the widening of the alley behind the front building marked the north end of the Lady House.

Tenement 13 (Cox's Quay)

The documentary evidence for Tenement 13 in 1500–1666 is given in detail in the online supplement to this text, chapter 6.9. Deeds from 1573 to 1599 show the tenement was in two parts, north and south, though both were owned by the Cooke family of Gidea Hall (Essex) (hence presumably the name Cox's or Cock's Quay, first mentioned in 1573). There was a gate at the street end. In 1582 the north part included a shop and two adjoining cellars, their south bondary marked by a well. In 1598 the tenement also included a counting house and a warehouse. The south part extended from the well to the wharf. A crane house is mentioned here in 1598. In 1599 the whole property passed from the Cookes to Robert and Edward Thurston, though the property continued to have two parts. Robert held the north part, Edward the south part. There is no further information on the configuration of buildings.

C:Building 10 continued

Deposits were excavated in room C (period C4.6, C4.7). Over the flagstone floor (nfw[215]) a layer of brown silt and charcoal was deposited (nfw[55]); then black silt and charcoal (nfw[103], white chalky hardcore rubble and mortar (nfw[54]) and then a brick floor (nfw[218]) (Figure 176).

A brick cesspit (nfw[217]) was inserted into the cellar room B at its northwest corner (C4.8) (see section, Figure 291). Its west side had been removed by a large 19th-century foundation alongside; its chute from the upper chambers was no doubt in the removed west wall of the tenement. Two fills were excavated within it: the lower, fine brown 'humus' and organic silt (perhaps human waste) (nfw[2]), and above grey brick rubble (nfw[1]) which filled the surviving structure. This second layer was no doubt the destruction of the Great Fire.

There is a small amount of residual medieval pottery present in C4.6 (nfw [55]), but the latest date of c. 1580–1600 is based on fabrics and forms that are typical of late 16th-century use in London (Table 160). These consist mostly of Surrey-Hampshire border wares and London area redwares (PMRE) as well as their slipped variant, PMSR, with ten sherds from a chamber pot in PMSRG recorded in context nfw[55] (C<P84>). Phase C4.7 consists mostly of residual medieval pottery dated to 1050–1150. The latest date comes from part of a cylindrical jar in TGW D (c 1630–80) from nfw[54]. Phase 4.8



Figure 176 C:Building 10, room C, looking northeast, showing the flagstone floor overlain by the later brick floor (1m scale)

is broadly dated to c. 1580–1700 and yielded mostly border wares, including part of a caudle cup in BORDB (C<P85>) and London-area redwares, as well as a sherd from a dish in NISG, imported from north Italy.

Tenement 14 (Hammond's Quay or the Half Moon)

The documentary evidence for Tenement 14 in 1500–1666 is given in detail in the online supplement to this text, chapter 6.9. The property had been bequeathed to the Vintners' Company in 1439 by Thomas Crofton, and its history can be followed in Company accounts. The name Hammond's Quay first appears in the list of Legal Quays in 1559. Five parts can be discerned from north to south: (i) to (iii) were smaller houses, (i) by the street called The Half Moon. House (iii) was rebuilt in 1621 after a fire. Part (iv) was the 'great house' or 'great messuage' tenanted by Sir Richard Potman in 1608–10. Beneath the house were large 'warehouses', either cellars or possibly on the ground floor, which were being sublet when they are mentioned between 1609 and 1612. Robert Rawdon, tenant from 1611 to 1646, seems to have rebuilt the house into three tenements by 1637. Part (v) of Hammond's Quay was the part containing the wharf. This was tenanted by Thomas Soane by 1641 and his widow Elizabeth on his death in 1649; they will appear more prominently in the history of Botolph Wharf, below.

C:Building 11

Overlying C:Building 5 was C:Building 11. Two certain rooms were recorded, from north to south along the west side of the property; the plan is given in Figure 134 above. The first room A, by the street, was long and equivalent to two rooms in C:Building 10 on the adjacent property to the west. It probably supported two rooms in the floors above, and was the street range, though built at right angles because of the narrowness of the property. An alley ran down its east side (shown in Figure 44 above), no doubt within the range, and behind the street range the alley broadened. Here a subsidiary row of buildings began on the west side, room B; only the north half was seen in 1974, but its south wall was recorded during the later watching brief. Posts in the alley may have been for a timber stair which led from the alley down to a lower doorway into the subsidiary range; here brick steps led down to the floor of the range. This had a brick floor in which was a sump formed by a barrel let into the floor (Figure 177). A drain formed of bricks (nfw[76]) had been laid from the adjacent building on Botolph's Wharf to the east, to feed into this sump (this arrangement is documented in 1629: see documentary section on St Botolph's church and its vaults, Tenement 15 below). Further details of the walls are given in the elevations, Figure 286 and Figure 290.



Figure 177 C:Building 11: the sump in the cellar (room B), part of the pumping arrangements for the buildings on the adjacent Tenement 15 in the 17th century (2m scales)



Figure 178 Pottery from fre[511], the fill of the drain leading from C:Building 11 to the river, dating to 1612–30. Back row (from left to right): Surrey-Hampshire border whiteware bowl, Frechen stoneware Bartmann jug, Surrey-Hampshire border ware mug. Middle row: Surrey-Hampshire border whiteware skillet and dish, tin-glazed ware dish. Front row: Werra slipware dish and two mature Valencian lustreware porringers

The pottery from the strata of C:Building 11 and a drain which led from one of its houses towards the river, but was found with much pottery in it, is recorded in Table 161. Pottery from period C4.5 includes residual medieval sherds in contexts nfw[63], [76] and [73], although the latest date comes from context nfw[121], which is dated to c 1580–1630 by the presence of PMFR, found together with Surrey-Hampshire border wares and London-area redwares. Amongst these are sherds from a flanged dish in BORDG with combed wavy decoration (C<P86>) and a tripod pipkin in RBOR (C<P87>). The date of initial construction of the building is placed in the first quarter of the 17th century. A latest date of c. 1630–80 is given to period C4.8 on the basis of TGW C in context nfw[40]. There are also 46 sherds from a large shouldered jar with thumbed neck in PMR from nfw[39] and [41] (C<P88>), and one sherd from a dish in north Italian sgraffito ware (NISG) in [41].

Running south from room B was a barrel-vaulted brick lined drain 0.47m wide internally and 0.84m high. Its junction with the walls of room B was disturbed by a modern brick pier, so its direct connection with any building could not be established. In it was reddish grey sandy silt (fre[511]) containing a large group of pottery of 1612–30, glass and clay pipes. The pottery consisting of 92 sherds from a minimum of 63 vessels (a selection shown in Figure 178). Many of the sherds are large and many join to form complete vessel profiles. There is a high proportion of Surrey-Hampshire border wares in a wide range of forms, made chiefly in the whiteware fabric with green or clear (yellow) glaze. There is also a smaller quantity of red border ware, which remained of secondary importance to whitewares throughout the 17th century. A very wide range of forms was recorded; this variety is a marked characteristic of the border industry, which was one of the most diverse in southeast England in its output. Kitchen and serving wares include carinated bowls (C<P89> C<P90>), flared bowls (C<P91> C<P92>), a colander (C<P93>) and flanged dishes (C<P94> C<P95> C<P96>). There are also sherds from porringers (C<P97>), a pedestal salt (C<P98>) and a skillet (C<P99>; all the sherds C<P89> to C<P99> have been published, see Table 81). A similar range of functions was served by the fine redware industry centred on Harlow in Essex, which supplied London c. 1580–1700. There are sherds from jugs, a flanged dish (C<P100>) and tripod pipkin, glazed inside and out (C<P101>), in PMFR, and, from the same source, in black-glazed redware (PMBL), including a near-complete barrel-shaped mug (C<P102>). Heavy duty earthenwares for kitchen and storage use were largely supplied by the London-area redware industry, with kilns known at Woolwich and other centres. There are sherds from several tripod pipkins and cauldrons in PMR (C<P103>), and from cauldrons and a chamber pot in PMSRG.

More decorative wares were also recovered. There are sherds from five dishes in delftware (TGW A), decorated in styles typical of the early 17th century. One has polychrome painting and the others are blue and white, including three dishes decorated with a chequerboard design that was derived from Low Countries sources (C<P104>). All delftware recovered is typical of the output of the Pickleherring pothouse in Southwark, made during the second two decades of the

century. Part of a dish in Portuguese faience (POTG) has blue-painted armorial decoration (C<P105>). There are also sherds from two small handled bowls in late Valencian lustreware (VALL: C<P106> C<P107>). At a more mundane level, there are sherds from Dutch red earthenware vessels for kitchen use, amongst them part of a cauldron or pipkin (C<P108>) and a chafing dish (C<P109>), which is a much less common find in this fabric in London. Other imports come mainly from the Rhineland, with sherds from six Bartmann jugs in Frechen stoneware (FREC), including the complete upper body of one with facemask (C<P110>); and part of a rounded bowl in Werra slipware (C<P111>).

Some evidence of the internal use of the building was forthcoming. Surfaces and brick floors were recorded within room A (nfw [74, 58, 68]), with 17th-century pottery. In nfw[74], dated to 1600–50, were 39 sherds from five flasks in Martincamp-type ware (MART1, MART 2 and MART 3), imported from Normandy and perhaps (from their small size) used to contain spirits. There are also 222 sherds from MART flasks in the same three fabric variants in context nfw[68], as well as sherds from jugs in FREC and KOLS from the Rhineland (21 sherds), making these two groups heavily weighted towards Continental imports.

In room B, pine floorboards, mostly laid north–south, were laid over the brick floor. On this new surface along the east wall a structure of oak survived in part, badly charred; probably the remnants of shelving or storage bins (Figure 222 below, partly restored). A span of life may be attributed to the wooden floor, since above it was found a layer of mortar and clayey grey-white slime up to 300mm thick, spreading over almost the entire area of the boards. This probably included trampled flakes of rendering from the walls.

Great Fire destruction was evident in both rooms. In room A black charcoal spread over the brick floor from east to west. In room B grey-blue wall plaster had fallen over the floor from the north wall and over this grey ash and charcoal filled the room (nfw[40]). Over this lay demolition rubble: bricks, tiles clay, rag pieces, loam, including a large dump of charcoal and gravel (nfw[39]). A latest date of c. 1630–80 is given to period C4.8 on the basis of TGW C in context nfw[40]. There are also 37 sherds from a large shouldered jar with thumbed neck in PMR from nfw[39] (C<P88>).

The excavated C:Building 11 at the head of the property was The Half Moon in 1603 (detailed information in section 6.9 below). The drain so productive of finds led south and was beneath either the second or the third house on the property (see proposed arrangement in Figure 175). The original division into rooms 'A and B' made by the excavators has been followed here, as they were probably erected at the same time, but it is probably the case that 'room B' was a separate tenancy, the second house of the quay.

From 1607 to 1641 the occupant of the third house was William Widmore, and from 1641 to 1656 his widow Joan. Research by Claire Gapper on the 16th- and 17th-century plaisterers of London informs us that William Widmore rose through the ranks of the Plaisterers' company to be the Master in 1631–2, three years before his death. No surviving plasterwork in the London area can be attributed to him. Indeed, he was fined several times during his career for faulty work, on churches (such as at St Magnus in 1629) and houses or secular buildings such as some at Botolph Wharf, next to his house, in 1615. He was however appointed Bridgehouse Plasterer for a period up to his death. It is possible, but incapable of proof, that the varied range of pottery and glass in the drain came from the house of the Widmores. If the drain served the second house instead, then it might reflect the rebuilding of that house by Lawrence Walker after a fire mentioned in 1621. In 1643 John Grant, pewterer, held the lease.

One final note is placed here because it refers to all the properties on site C. On Lady Day (25 March) 1666, an attempt was made to survey all houses in the City for the Hearth Tax; this has recently been published by the British Academy Hearth Tax Project. Unfortunately, the survey records for all the waterfront parishes from St Anne Blackfriars in the east to St Martin Orgar by the bridge are missing, with the sole exception of those for the parish of St Michael Crooked Lane.[48] But fortunately, the properties and their occupiers on the south side of Thames Street east of St Magnus are recorded. First, in the parish of St Magnus, the assessors found four properties on the south side of the street 'turning from St Magnus corner.' Since the north aisle of the church protruded into the street, it seems unlikely that there were booths against it. The four properties therefore probably approximate to our Tenements 9 and 10, which were in the parish of St Magnus. Thomas Collett, salter, had eight hearths (so a large house); William Carpenter, salter, had four; John Lloyd, fishmonger, had five; and James Provin had two.[49] The properties further east in the parish of St Botolph Billingsgate are recorded in another part of the survey. Properties along the south side of Thames Street are given in three groups, making them hard to pin down, but the property of Thomas Rodbard (Ratburd) can be identified as D:Building 8 (see next section). The lanes leading off the street are listed. On Fresh Wharf 17 houses are mentioned, though nine of them had only one hearth, and two had five hearths; then 11 properties on Cox's Quay and seven on Hammond's Quay.[50] Gaunt's Quay (Tenement 12) is not named here; perhaps it was subsumed under Fresh Wharf (Tenement 11), which would explain the high number of houses in the account. All these houses were destroyed by the Great Fire of London five months later.

5.6 Billingsgate (site D) in period P1, 1500–1666

Tenement 15: Botolph Wharf and St Botolph's church

The wealth of archaeological and documentary material for site D at this period is such that two tables are required to provide an explanatory framework of how the two sorts of evidence tie together. Lessees of the Wharf after 1500 are listed in Table 43. Here we find three of the main persons concerned with development of the Wharf, whose actions can be traced in the archaeological record: Thomas Soane, Elizabeth Soane, and (after the Great Fire of 1666, but mentioned here) Josiah Child. They were related, as Elizabeth was the wife of Thomas, and the mother-in-law of Josiah Child.

[48] Davies *et al.* (eds) 2014, Map19b.
[49] Davies *et al.* (eds) 2014, 703.
[50] Davies *et al.* (eds) 2014, 899.

The second table (Table 44) outlines the component archaeological periods and phases. The chronology of phases is not completely certain, but the excavation supervisor Steve Roskams and his team proposed the following order: D15.3 (16th century, in the church only), D15.4–15.10 (first half of 17th century) and D16.1 to 16.8 (early to mid 17th century), ending with the Great Fire of 1666. These have been regrouped here for clarity in presentation, in a slightly different order so that the two parts of the site, St Botolph's church on the one hand and the other buildings to east and south of it on the other, can be reported as separate parts for the entire period 1500 to 1666. The phase plans of the site are copies of those produced by Roskams and colleagues in the archive report on the excavation, but there should be a proviso that the sequence of buildings may have been slightly different, so the plans may not be accurate as snapshots in time.

The description which follows is divided into three sub-sections as summarised in Table 44: St Botolph's church and the vault below D:Building 5, 1500–1666, modifications and two periods of burials (periods D15.3, D16.1–2, D16.3–6); the construction of D:Buildings 7 and 8 across the lane to the east, 1645–66, with a drain rich in artefacts (D15.4–5); resurfacing of the lane and modifications to D:Buildings 6, 7 and 8, 1645–66 (D15.6–10); and final modifications to D:Building 7 along with a water pipe laid down the lane, before a general destruction of the whole site in the Great Fire of 1666 (D16.7–8).

One publication has already presented the buildings, pottery and non-ceramic artefacts of periods D15.4–10, 16.1 and 16.7–8.[51] This study was of the secular buildings east and south of the church associated with the grocer Thomas Soane and his wife, Elizabeth (the drain and D:Building 7 just mentioned). The phases of building attributed to the Soanes are listed in Table 47.

[51] Schofield and Pearce 2009.

Date	Details	References
1509	Richard Odyham, draper; remitted the payment of a quarter's rent of £11 13s 4d (ie £46 13s 4d pa) by the mayor and aldermen	Corporation of London, Repertories, 2, fo. 77v (COL/CA/01/01/002)
1555	Robert Maddye gentleman granted the lease of the City's house and quay called Botolph Wharf, to be held for 30 years from Michaelmas, surrendering his old lease; the rent was not specified	13, fo.277v
1571	Decision by Court of Aldermen not to lease or grant Botolph Wharf, after the expiry of the current lease, to any stranger, or to any Englishman that shall let it to any stranger	19, fo. 90v (COL/CA/01/01/019)
1577	Renewal of lease to the merchants of the Russia House (also known as the Company of the merchants of Muscovia for the discovery of new trades, or as the Muscovy or Russia Company) after the expiry of their old lease; the Wharf to be surveyed	21, fo. 232v (COL/CA/01/01/021)
1581	Lease to the same company for a term of 31 years on expiry of existing term, for the old rent and an entry fine of £400 and paying for all repairs; no stranger or alien was to live on any part of the Wharf during the term	22, fo. 269 (COL/CA/01/01/022)
1588	Extension of same lease for a further 7 years in respect of great costs and charges borne by the Company as a result of the ruins and great decay of the premises	23, fo. 597 (COL/CA/01/01/023)
1615	Further renewal of lease to same for 31 years from midsummer for surrender of their old lease, fine of £600 and the accustomed annual rent of £50. Amended in 1616 to begin from Michaelmas	City Lands Grant Book 1, fo. 137; fo. 142 (CLA/008/EM/02/01/001)
1622	Thomas Soane grocer granted the residue of term of existing lease (holders not specified) on similar conditions	2, fo. 27v (/01/002)
1645	The same to have a new lease, on surrender of the old one, for 31 years from midsummer for fine of £2,000 and annual rent of £50. He was to rebuild the tenement on the east side of the Wharf within the next 5 years	2, fo. 99
1653	New lease for Elizabeth Soane, widow of Thomas, for 61 years from 25 March for the old rent and an entry fine of £900	3, fo. 16v (/01/003)
1680	1 July. Lease by the Mayor and Commonalty to Sir Josiah Child of Botolph's Wharf for 60 years from midsummer 1672 at £30 pa	Comptroller's Deeds Box 36, no. 27 (LMA)

Table 43 Lessees of Botolph Wharf from 1509 to 1680

Period and phase	Constructions	Main documentary references and considered date	Figure
St Botolph's church and vault to south (D:Building 5)			
15.3	alterations by the door of the church to Botolph Wharf, perhaps for a porch; plastering over of chequerwork of E wall; erection of something against the new decorated wall; raising of floor level; reflooring with old tiles	? 16th century, no clear evidence	Figure 179
16.2 (before 16.1)	alterations at E end of the church including massive dumping to raise internal floor level; new arcade of piers on N side; new steps to lane	? documented rebuilding works of 1607–9	Figure 185
16.1	rebuilding of the vault beneath the S aisle of St Botolph's (D:Building 5), blocking of E windows, brick drain which communicates with Tenement 14 to W	Soane leased the vault also from the late 1620s; phase must be later than 1625–6 when one window's iron repaired	Figure 185
16.3–4	burials in the church	1550–1600	Figure 185
16.5	burials in the church, second group	1600–66; studs on coffin lid 1665 or 1666	Figure 189
16.6	modifications to floor and church doorway	17th century, presumably before 1666	Figure 213
D:Buildings 7 and 8 to east of lane and resurfacings			
15.4–5	D:Building 7, E of the lane, includes brick drain and its fill D[1389]; D:Building 8, N of D:Building 7	Thomas Soane, leaseholder from 1622, agrees to rebuild houses somewhere on the E side of the Wharf within five years of 1645; considered date 1630s or 1645–50	Figure 179
15.6	resurfacing the lane	1630s – 1636–7?	
15.7	another surfacing of the lane	1630s–1666	Figure 202
15.8	frontage of D:Building 7 altered	1630s–1666	Figure 202
15.9	D:Building 6, cellar floor lowered and drain inserted	cellar rebuilt 1630+ by Soane or his widow	Figure 202
15.10	lane resurfaced; entrances of D:Buildings 7 and 8 remodelled to take account	? 1650s	Figure 208
Modifications to D:Building 7 and water pipe			
16.7–8	modifications to D:Building 7; wooden water pipe inserted down the lane	Pickleherring wall tiles 1618–*c* 1650, heat damaged; pottery 1660–80	Figure 213

Table 44 Site D: periods and phases of period P1 (1500–1666) in order of presentation

St Botolph Billingsgate, 1500–1666: documentary evidence

Stephen Freeth

A = Accounts of the churchwardens
VM = Vestry Minutes

From the Reformation to the 17th century

The Reformation brought not only the stripping away of Roman Catholic symbolism and imagery, as might have been expected; it also brought the reinvention of the church interior in a completely different form. A crucial reference at the end of the Inventory of Church Goods of 1552, unfortunately omitted by Walters in his 1939 study of London churches and their contents at the Reformation, reads as follows:

> [in 1549–51 just over £107 was] 'laid out about the necessary reparations of the said church as new pews in the choir and chapels and a new gallery with raising the floor of the whole church and about the trimming and painting of our said church with Scriptures, buying of books, tables and forms, setting up of a pulpit and glazing of the windows and other necessary charges extraordinary, chiefly arising by alteration of the laws of the Church by the King's Majesty.'[52]

How these changes are reflected in the archaeological strata is discussed below, after they have been reported.

Vestry minutes survive from 1592, and churchwardens' accounts from 1603. The first churchwardens' account book reflects the continuing wealth of the parish in the early 17th century. It is extremely unusual in containing highly decorated title pages each year, displaying the heraldry of the livery companies to which the two churchwardens belonged. This reflects considerable local pride, and spare cash to pay the artists.

There was clearly some kind of levelling up of the floor of the 15th-century extension. It explains how the vestry minutes of July 1595 could refer to the great cellar as being 'under one of the aisles of the church' (VM fo. 5v). The former room above the vault was now part of the worship space. There is also a reference to the 'middle isle' in 1625–6 (accounts, fo.

[52] TNA, E 117/4/57, membrane 9; Walters 1939, 212–19.

104), which implies the existence of two others; and Strype mentions a 'very fair monument in the wall of the south aisle' for Anna Saris, died 1622 (discussed briefly in section 6.2 below). The vestry minutes also refer more than once to two chapels, apparently at the east end and reserved for senior members of the parish. On 25 September 1597 the Vestry is said to consist of various named individuals, together with 'sundry others of both chapels' (VM fo. 9). On 17 December 1609, it is stated explicitly that 'there shall not at any time be any more of the Vestry of the said parish than such as do sit in the two upper chapels' (VM fo. 24).[53] These would be chapels at the east end of the church.

There are quite a few references in the accounts to burials within the church, or to burials whose high fees make it almost certain that they were within the church. The exact place of burial is rarely specified. In 1620–1, three individuals (Anne Budge, Mrs Slaughter and Mr Garret) were buried 'in the chancel' (A fo. 82). In 1626–7 a joiner was paid for 'altering the two foremost pews under the Pulpit to enlarge the Burying room' (A fo. 107).

Details of the structure and fittings of St Botolph's are spasmodic despite the fact that major repairs were carried out in 1607–9 at a cost of some £110 (churchwardens' accounts, fos 21v–25, 32v–33v), to cover which the vestry had determined in July 1607 to collect from each parishioner the equivalent of an annual contribution to the poor rate (VM fo. 21v). Although the costs are itemised only against materials and labour, it is clear that an important part of the renovations was the rebuilding of the steeple; in this connection there are references in the accounts to the sale of timber left over (A fo. 30) and to 56ft of weather boards, and lead to go over them (A fo. 33v). A key was provided for the steeple door in 1609–10 (A fo. 39), and holes in the steeple were mended in 1618–19 (A fo. 76v). Surmounting the steeple were both a copper weathervane, replaced in August 1608 (A fo. 32v) and again in 1631–2 (A fo. 125v), and a cross which was taken down in 1643–4 (A fo. 165v). A tower clock was added in 1615–16, in a wooden housing (A fo. 65). It presumably adorned the bell tower beneath the steeple. This clock seems to have incorporated an earlier bell, referred to variously as the 'Saunce Bell' (A 1609–10, fo. 39), 'Saints' bell (A 1624–5, fo. 99v) or 'S'ctes Bell' (A 1634–5, fo. 136v), i.e. the sanctus bell. In 1634–5 this bell was turned round, because the clock hammer was causing excessive wear (A fo. 136v).

The tower had a ring of bells. There are many references to ringers, bell ropes, bell wheels, individual bells and 'the great bell frame' (renewed in 1623–4) (eg. A fos 20, 52, 54v, 55v, 95v–96). The Inventory of Church Goods states that the number of bells in 1552 was four, plus the sanctus bell. The accounts refer to the Great bell, fourth bell, second bell and little bell, as well as to the Tenor rope (A fo. 143). The 'Treble' bell had been taken down and recast in 1623–4 (A fo. 95v). A 'new bell' in 1615–16 had a clapper weighing 18 lbs (A fo. 65). The belfry door needed a new key in 1621–2 (A fo. 87v). The belfry was floored with 16 'new deals' in 1623–4 (A fo. 96). This cannot have been sufficient, since four more were needed later in the same account, when the belfry is referred to as the 'ringing loft'.

The church roof, or at least part of it, was of lead, with gutters. Repairs in 1606–7 required 4,000 Flanders bricks (A fo. 16). In 1635–6 a blocked lead pipe (ie gutter or downpipe) necessitated extensive repairs to the fabric above the windows on the south, west and north sides, including the leading of 85ft of glass (A fos 139–141). On 17 December 1620 the vestry minutes record that mending 'the chancel window' was referred to legal counsel, to establish whether the parson ought to mend it, or the parish (VM fo. 36). We do not know what advice was given, but the accounts for 1621–2 refer to repairing 'the seven church windows' (A fo. 88). This may simply mean seven windows that needed repair.

In 1630–1 three casements were installed, the adjacent masonry being cut to accommodate them (A fo. 122). The sums involved seem small, and the casements were probably achieved by adapting existing windows. The services of a glazier were frequently needed for repairing two external lanterns, one at the corner of Thames Street and Pudding Lane and the other 'at the church corner' (for example A fos 83, 83v), presumably at the northeast angle of the church at the entrance to the alley to Botolph Wharf. This is confirmed by the vestry minutes, which on 1 October 1616 refer to this lantern as being on a 'branch' on the corner of the church over against (ie on the opposite side of the street from) Botolph Lane (which is on the other side of Thames Street), and as being the gift of Thomas Barkham (VM fo. 31). The paving of the street in front of the church was an occasional obligation: two loads of stone and three loads of sand were purchased in 1631–2 for paving 38.5 yards 'before the church' (presumably along Thames Street) (A fo. 125), and 76 yards were paved on the 'church side' (presumably the alley to Botolph Wharf) in 1636–7 (A fo. 142). The accounts for 1621–2 include mending the 'back church door' (A fo. 87v). This may have been the recorded door through the east wall into the lane.

There was a gallery, presumably the one mentioned in the Inventory of Church Goods as built in Edward VI's reign. In 1608 the lock on one of its doors was mended and a new key supplied (A fo. 30v). In 1625–6 it was shortened and two bannisters supplied for it (A fo. 104). In 1628–9 seats were made for it (A fo. 115). The 'desk in the gallery' was primed and repainted in 1636–7 (A fo. 143v), and in 1639–40 a carpenter was paid to set a board before the gallery's window (A fo. 151). Another gallery seems to have been built in 1623–4: there are references to installing some sort of wooden column (*cullam*), presumably to support the new gallery, and paying a carpenter for both column and gallery (A fo. 96). Subsequently there is at least one reference to galleries in the plural (1626–7), when kneelers and nails to hang hats on were provided (A fo. 106v), and a reference to the 'little gallery' in 1639–40 (A fo. 151v).

There were pews, replaced shortly before 1552, though perhaps initially relatively few. Six pews are mentioned in 1605–6 (A fo. 11). There are references to new pews being added from time to time, for example ten new pews in 1615–16 (A fo. 65), and four more in 1632–3 (A fo. 130). In 1628–9 we hear of the 'fourth pew with the carved screen above' (A fo. 115). A vestry minute of 12 April 1642 states that 'since which time [December 1623] the number of pews have been

[53] Vestry minutes, volume 1 (1592–1673): P69/BOT3/B/001/MS00943/001, churchwardens' accounts, volume 1 (1603–74): P69/BOT3/B/007/MS00942/001. See also Strype 1720, I.ii.167.

increased by making of the four chief pews in the body of the church and one in the Parson's chancel.' The Vestry therefore agreed that the number of vestrymen should not exceed 31, to be drawn from those placed in the 13 highest pews in the church (VM fo. 59v).

There were separate pews for men (two new ones, and a total of 28 marked [numbered?], in A 1633–4, fo. 133) and women (24 'marked' in A 1633–4, fo. 133), as well as for 'maids' (A 1617–18, fo. 73v), and young men (A 1638–9, fo. 148). There are also references to a 'font pew' (A 1623–4, fo. 96), a churching pew (A 1621–2 and 1623–4, fos 87v and 96), the Clerk's pew (A 1619–20, fo. 79v; removed 1629–30, fo. 119), a long pew (which needed a lock and six keys in A 1635–6) and several high pews (e.g. A 1625–6, fo. 104), together with the Minister's reading desk (A 1630–1, fo. 122). There were several private pews, or at least pews customarily used by particular people; for example Mr Deacroes pew (A 1621–2, fo. 87v), Mr Gifford's pew (A 1627–8, fo. 110v), and Mrs Hawes' pew (A 1630–1, fo. 122). In 1626–7 a joiner was paid for 'altering the two foremost pews under the Pulpit to enlarge the Burying room' (A fo. 107). This may explain the pattern of burials discovered within the church during the excavation.

There was some sort of wainscoted lobby inside the entrance. The accounts for 1622–3 include payment for two keys and mending the lock of the inner church door, and wainscot at the church door (A fo. 91). We assume from plans such as Leake's immeditely after the Fire (below, Figure 235) that there was no porch projecting into Thames Street. Keys for the outer door were supplied the following year (A fo. 96).

In 1637–8 Mr Mason the bricklayer and his men were paid £2 12s for tiles, bricks, lime and sand for 'laying the chancel', and Goodman Gunstone 2s 6d for 'bringing in of earth for the chancel' (A fo. 145v). The following year, Thomas Wiseman received the considerable sum of £12 10s for the communion table and railing in of the same, perhaps a reference to Laudian improvements (A fo. 148). However on 18 Dec 1640 the Vestry ordered the communion R rails to be unscrewed and taken down (VM fo. 57).

The vestry was wainscoted by 1623–4 (A fo. 96; for mending three panes of wainscot in the vestry, 1626–7, A fo. 107). The lock of the vestry door was mended in 1619–20 (A fo. 79v). A new lock for the chest in the vestry was provided in 1620–1 (A fo. 83). In 1623–4 money was paid for removing the stone in the Vestry (A fo. 96). The meaning is unclear. A pewter chamber pot for the vestry, bought for 1s 10d in 1634–5 (A fo. 137), is easier to understand. In 1642 the number of vestrymen was limited to 31, as stated above.

There were a communion table, pulpit, chest, and royal arms. A 'Hoode for our Minister' in 1632–3 may indicate a sounding board for the pulpit (A fo. 130). There were six chained books, given by Mrs Gastrell in 1622–3 (A fos 90, 91). Their titles are listed in the annual parish inventories. The 'tables' (Kindred and Affinity? Ten Commandments?) were reframed and repainted in 1624–5 (A fo. 100).

The vaults under the church[54]

The 'little' vault or cellar beneath the vestry, and the 'great' vault or cellar beneath the

church, feature prominently in the St Botolph vestry minutes surviving from 1592 and the churchwardens' accounts surviving from 1603. This was largely because they represented the only source of rent income available to the Vestry, apart from the parsonage house in Botolph Lane next to the churchyard. The archaeological evidence is that they were both self-contained, accessed only from the street, and not from within the church. On 6 July 1595 the Vestry agreed that the two cellars upon 'Buttole warfe' should be let, apparently for the first time; the little cellar at 33s 4d pa., or at 30s at the discretion of the churchwardens, and the great cellar under one of the aisles of the church at £4 pa (VM fo. 5v).

In the churchwardens' accounts from 1603 the little cellar or vault is consistently described as lying under the vestry, and was leased from that date until the Great Fire for an annual rent of £1, rather than the figure recommended in 1595. The vault beneath the church was leased for £4 pa until 1608–9 when the rent was increased to £6 13s 4d (VM fo. 22; A fo. 37), a rate which was still charged in 1666 (A fo. 229). The recorded occupants of the little vault beneath the vestry were Thomas Marten, 1599–1600 (VM fo. 12r), Benjamin Decroe or Decrow from 1603–4 to 1621–2 (A fos 4, 86v); Andrew Walker in 1622–3 (A fo. 90v); Thomas Soane (a grocer and also the leaseholder of Botolph Wharf from 1622 and of the southern part of Tenement 14 from at least 1641) from 1623–4 to 1646–7 (A fos 95v, 174); his widow Elizabeth from 1647–8 to 1657–8 (A fos 177, 211); a Mr Peacock from 1659–60 to 1661–2 (A fos 219, 224); and, for five months in 1666, a Mr Child, i.e. Josiah Child (A fo. 229). He was tenant of Botolph Wharf and of the south part of Hammonds Quay (Tenement 14) after the Fire, and on this evidence may already have been so shortly before it.

The vault under the church was tenanted by Mr John Archer from 1595 (VM fo. 5v), by Mr Christopher Nicholls between 1604 and 1608 (A fos 4, 18), by John Amherst (as agreed by the Vestry on 21 July 1608 (VM fo. 22)) until 1611–12 (A fos 29, 47) and by Nicholls again until 1617 when his place was taken by Benjamin Decrow (A fo. 73), the tenant also of the vault beneath the vestry. From that date onwards both vaults were almost invariably in the occupancy of the same tenant, and a single payment of £7 13s 4d for the two vaults or cellars was entered in successive accounts from 1621–2.

From the late 1620s the Vestry and the tenants of the larger vault were confronted by a problem. On 5 April 1629 the Vestry decided that 'whereas the great vault or cellar under the church being lately rented of the parish by Mr Sone' [ie Soane] had lately been 'troubled with water whereby [was] hindered the laying in of goods or merchandise', a Mr William Wigmore should be paid 40s and 13s 4d pa for freeing and keeping the vault free from water (VM fo. 45v). In that year Wigmore, the tenant of one of the Vintners' Company houses on Tenement 14 to the west of the church, was duly paid £2 for contracting to keep the cellar dry for a period of 21

[54] The discussion of the vaults under the church is almost entirely the work of Tony Dyson.

years at the rate of 13s 4d pa (A fo. 115). In most subsequent years until 1662–3 Wigmore and his successors are noted as receiving payment 'for keeping the cellars dry' or 'without water', or 'for drawing water out of the church vault.' In December 1635 Mrs Wigmore refused to take over the job at the same rate, saying that her husband 'had given no bond to tie her to it'. After a futile and unsuccessful search for such a bond, the Vestry agreed to raise her fee to £1 (VM fo. 52). The term 'pumping' is now used regularly; in 1648–9 Mrs Wigmore is described as using the pump (A fo. 180v). Mrs Hoddy, the wife of one of Wigmore's successors as tenant of a house on Tenement 14, did the job in 1656–7 and 1658–9, and George Porter in 1659–62 (at 22s). In 1660–1 a Mr Meard was paid £1 17s for 'fixing on a pump in the cellar: at Hammonds key lane' (A fo. 222), evidently at the west end of the church. The drains for this adhoc pumping arrangement were found in the excavatkon of Tenement 14 on site C, as reported below.

It is notable that the flooding and pumping is only mentioned in connection with the vault under the church; never specifically with the one under the vestry. The constant inconvenience caused by what was presumably a seepage of ground water had no effect on the continued occupation of the church vault by successive tenants. There was not even a reduction of the rent, except in the sense that it was to remain fixed at the rate of £6 13s 4d pa that had last been set in 1609–10, some twenty years before the problem first came to the attention of the Vestry. The decreased value of the vault is apparent when its rent is compared with that for the parish (parsonage) house in Botolph Lane, where the sum was increased at each new tenancy: in 1609–10 the annual rent for the parish house was a mere £4, considerably less than the charge for the vault, but it then rose to £8 in 1617–8, to £10 in 1657–8 and to £14 in 1661–2 (A fos 37, 126v, 211, 224) while the rent for the vault remained constant.

The only other references to the vaults concern the provision in 1617–8 of a door with a lock giving access to the great vault (A fo. 73v), and the purchase of iron to make bars for the cellar window in 1625–6 (A fo. 104v). This alteration to both windows was found in the excavation (see Figure 211). In February and March 1660 the parish was actively considering partitioning off part of either or both vaults to provide extra burying space (VM fo. 88).

The Great Fire destroyed the church building, which was never rebuilt. As explained in section 4.5, St Botolph's church at the time of the fire measured 55ft (16.8m) along Thames Street; 51ft (15.6m) down the east side, plus 11ft (3.4m) for the vestry; 50ft 6in (15.4m) along the south side; and 53ft (16.2m) along the west side. After the Fire, 9ft (2.7m) along the north side were staked out by Robert Hooke on 17 March 1672/3 to widen Thames Street.[55] The west wall was also sold soon before 1675 to William Layght, the Vintners' tenant of the property immediately to the west.[56] Two further parts of the church site were acquired by Josiah Child, a forceful naval contractor with an interest in Botolph Wharf. These were the site of the vestry, which was incorporated into Child's warehouses south of the church; and a strip of land along the whole width of the east end of the church. This strip allowed Child both to widen the alley to the wharf, and also to line up this same access with Botolph Lane on the north side of Thames Street. Previously Botolph Lane had been slightly to the west of the alley, and thereby presented an awkward approach for carts. It is ironic that this last appropriation, made without permission from either the City or the parish, and Child's combative character, led to various disputes whose records provide useful evidence about the pre-Fire building.

The City's lease to Child of Botolph Wharf in 1680 recycled the unchanged plan of the site from before the Fire. The lease itself and its attached plan suggest nothing unusual, but later Chancery pleadings explain the true situation, that the plan used in 1680 had been copied exactly from the earlier lease of 1653. This was much to Child's irritation, who claimed that he was having both to lease ground he did not occupy, because it had been taken to widen Thames Street, and to ignore ground he had built upon (the former vestry), shown on the plan as part of the church site, thus putting his investment at risk.[57]

Child persuaded the City Surveyors soon after the Fire to stake out part of the east end of the church ruins to widen his access way to the wharf. We do not know exactly when, but it was before January 1668 when Child received Royal licence to pull down and rebuild the east wall of the church further to the west, according to the ground already staked out by the Surveyors.[58] The staking-out appears to have predated July 1667, when a committee reported to the Court of Aldermen that the dimensions of the church ruins 'within the ground staked out for the street' were 53ft on the west side, 51ft on the east side (excluding the vestry), and 46ft along the north and south sides. The dimensions on the east and west sides were unchanged from those that we know from other sources, but those on the north and south had been reduced from 55ft to 46ft, and from 50ft 6in to 46ft, respectively. This will have reflected the strip of ground taken from the east end of the church site by Child. This was quantified by John Oliver in a deposition of 19 October 1688 as 10ft wide at the north end and 5ft wide at the south end.[59]

This length of 46ft then corresponds exactly with the length of 'that room or place where lately stood one large cellar or vault which did and doth contain in length from east to west 46 feet, and in breadth from north to south 20 feet, lying on the south part of the said late parish church of St Botolph Billingsgate' which was leased by the parish on 30 January 1670/1.[60] The lease was clearly of the vault beneath what had been the Reynewell building.

[55] Comptroller's Deeds, Box K, B75

[56] See the Fire Judges' Decree book, CLA/039/01/009, fo. 135ff, William Layght, clothworker v the Vintners' Company.

[57] The lease of 1680 is Comptroller's Deeds Box 36, no.27. The Chancery pleadings are TNA, C 7/73/60, by Child (Jan 1687/8), with the City's Answer (May 1688). Dyson had been puzzled by the discrepancy in the length of the vestry. It is described as 16ft long in 1458 (HR 210 (15)), and as 15ft 6in long in July 1667 (Repertory of the Court of Aldermen), i.e. broadly the same; but as 21ft long in the lease of 1680, and in its recital of the pre-Fire lease of 1653. The truth is that the vestry was 21ft long in 1653 and at the time of the Fire, having presumably been enlarged slightly since 1458. The measurement of 15ft 6in in July 1667 excluded the east end of the vestry, which had already been staked out by Child for widening the lane to Botolph Wharf.

[58] TNA, SP 44/25, fo. 49: licence [from the King and Privy Council] to Josiah Child to pull down the east wall of St Botolph Billingsgate, to enlarge the lane to the wharf (23 Jan 1667/8). This is calendared in *Cal State Pap Dom 1667–8*, 182.

[59] TNA, C 24/1121/54.

[60] Parish lease by St Botolph Billingsgate, 19 May 1704, CLC/119/

Clearly Botolph Wharf was a public place, full of activity. This was probably the reason behind the action noted in the churchwardens' accounts of St Botolph's in May 1609, when they laid out £1 17s 9d 'for the charges of a Yonge Childe that was laide upon Buttolphe Wharf the second daie of Marche last.'[61]

External burials; the churchyards

St Botolph's church was on a very confined site, and the church building was too small to accommodate many internal burials. In 1392 therefore the parish, led apparently by two parishioners, Gilbert Maughfeld and John Claveryng, acquired a small piece of ground for a burial ground on the other side of Thames Street, on the east side of Botolph Lane. This was consecrated by John, Bishop of Derry, in 1393. We know from references in wills that it contained a cross. Strype says that this cross was of wood, and was burnt along with other offensive material in 1559.[62]

Two 'alleys' (footpaths) in the churchyard were paved in 1608–9, one leading from 'Mr Lucker's tomb' to the parish house (A fo. 31v). A sundial on a post was added in 1616–17 (A fo. 70v). In 1624–5 Mr Lucar was buried 'in the Vault' (A fo. 99v), probably in Mr Lucker's tomb. The 'parish house' (parsonage) was next to this churchyard. This is clear from the Chancery pleadings in a dispute in 1678–9 between Crane, a parishioner, and Sherlock, the incumbent, about the parsonage house, destroyed in the Great Fire.[63]

In the 17th century there is a distinction in the parish records between the 'churchyard' and the 'new churchyard'. For example, on 9 April 1640 the Vestry resolved that 'by reason of the great want of ground in the churchyard for burials', no-one (or their children) was to be buried there unless they paid towards the poor, and they would normally be buried in the 'new churchyard' instead (VM fo. 56). This is presumably a reference to the New Churchyard established outside Bishopsgate in 1569, excavated in 1985 and 2015.[64]

Physical remains of the pre-Fire church fabric below ground level may have been disturbed by the subsequent use after the Great Fire of part of the church site for burials. This involved digging at least two new vaults on the site of the former church. This burial space was still in active use in 1778. These vaults and the rest of the church site were then built over with houses and shops. This burial ground was additional to the burial ground in Botolph Lane, on the north side of Thames Street.[65]

John Wardall's Charity

In 1656, John Wardall, grocer, left property to the Grocers' Company, from which £4 pa was to be paid to the parish of St Botolph Billingsgate for a lantern to hang at night on the northeast corner of the church, at the entrance to the alley down to the wharf. This was not the first such lantern, for the churchwardens' accounts contain various entries for mending an earlier lantern in the same place, which the vestry minutes for 1 October 1616 (VM fo. 31) explain was the gift of Thomas Barkham. The funding for Barkham's gift had presumably run out.

An annual payment of £4 pa for Wardall's charity was still being made at the time of the Grocers' return to the Livery Companies Commission of 1880–4, and was included in the Commission's published *Report*. A tiny sketch of 'the Parish Lamp' also appears in the plan of St Botolph's parish of 1778. A note adds, '4£ per annum from the Grocers' Company for it'. It was still fixed in exactly the same place as Wardall had directed, allowing for the changes made to the alignment of the alley by Josiah Child, but of course no longer on the church building.

St Botolph Billingsgate and Botolph Wharf, 1500–1666: archaeological evidence

John Schofield

Changes to the interior of St Botolph's church (period D15.3) date to either the 16th century or to a documented refurbishment of the church in 1607–9. Works in the church comprised (i) altering the doorway to Botolph Wharf, possibly by making an internal porch or vestibule; (ii) plastering over of the chequerwork of the east wall and placing a fitting or feature of some kind against the new surface; (iii) laying old tiles in this part of the church floor, which respected a kerbed space for the feature (Figure 179). These may have comprised a single project of rebuilding and adaptation.

The southeast corner of the church, and possibly the entire party wall with D:Building 5, was reconstructed (Figure 180 to Figure 182). In the south wall near the east entrance, a Reigate stone pier in the form of two adjoining engaged columns was added to a recess cut into the earlier fabric. This apparently marked the end of the first bay of an arcade, which presumably matched the bays of D:Building 5. The masonry to the east of the moulding was cut and refaced to conceal a lead water pipe (Figure 183). The wall was then plastered. Mixed makeups were laid on the floor; an area of chalk and ash confined to the centre of the east wall suggests the presence of a feature set against it, which was to be replaced subsequently. At the south end of this, a triple posthole was cut, possibly for temporary scaffolding for the modifications to the south wall. The posts, however, may have supported an internal feature such as a screen inside the entrance; the posthole was overlain by a narrow chalk footing which carried a spur wall, thereby creating a small vestibule. Marks in the east wall next to the doorway seem to indicate a wall or partition against it (shown in Figure 231 below). The whole piece of work seems to have been the creation of a porch or vestibule inside the eastern door. The double brick grave in the floor may have been obscured at this time, its slab or monument above removed.

The chalk blocks of the chequerwork of the east wall were pecked to key a coat of plaster after the floor had been laid. Two vertical lines were scored in the plasterwork, 2.11m (just

MS23737/022 (part). This recites the earlier lease.

[61] LMA, P69/BOT/3/B/001/MS00943/001, fo. 32r.

[62] Strype 1709, i, 169.

[63] TNA, C 5/467/21.

[64] Harding 2002; Hartle 2017.

[65] Sketch plan of St Botolph's parish by 'J Baron', 1778, at the start of the third Vestry minute book, P69/BOT3/B/001/MS00943/003, opposite p 1; Newcourt 1708–10; returns to articles of enquiry sent to parishes in the City of London 1693, DL/B/C/001/MS09538; episcopal visitation book containing copies of churchwardens' presentments for parishes in the City of London 1711, DL/AL/B/002/MS09248, and parish leases, CLC/119/MS23737/022.

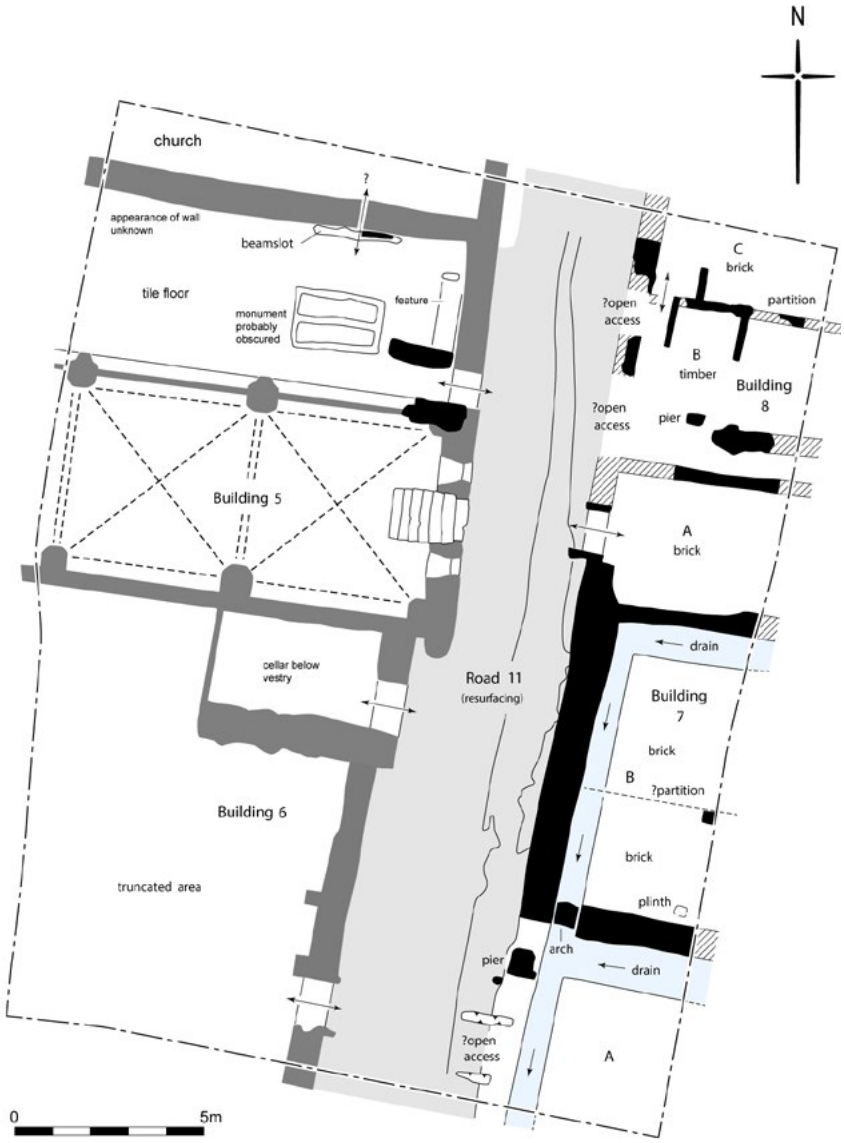


Figure 179 Site D: plan, period D15.3–6 (1:200)

under 7ft) apart, to coincide with the kerbs; the area between is interpreted as the space for whatever the feature was against the wall (Figure 180).

A universal mortar makeup was laid for a floor of reused mainly decorated tiles at *c.* 4.0m OD, of which two badly-worn areas survived; to aid explanation, this is called tile floor 1, in its two contemporary parts. The first occupied the new vestibule, and consisted of both *c.* 0.14m and 0.12m square tiles (Figure 182). These were cut to fit around the Reigate stone pier, and had a definite south edge in the adjoining recess where they abutted the party wall with D:Building 5. The second area in the northeast corner of the chapel consisted of 0.14m square tiles, which originally abutted a brick and chalk kerb laid perpendicular to the east wall (Figure 180; for the plan showing the kerb, Figure 179). The south three rows of tiles had been replaced by four of 0.11–0.12m tiles, the final row broken to fit against the kerb. A parallel kerb to the south near the spur wall was abutted by a single surviving decorated tile. The tiles were from several sources, with date ranges broadly in the mid 13th, early 14th and mid 14th centuries (for examples, Figure 184). Although tiles of the later date ranges were found in both surviving tiled areas, the earlier group (mid 13th century) were almost all found in the north part (shown in Figure 180). These tiles, being up to 300 years old when used in tile floor 1, probably come from elsewhere in the church. They are reported in detail in section 6.7.

Against the north wall, a 2.3m long east–west slot intruded into the floor makeup. The cut contained a 0.2m-square wooden beam, which may have supported a flight of wooden steps leading down from an entrance cut through the wall which had formed the original south wall of the church in the 13th century. There was no further evidence for such an entrance, but the stretch of wall in question was one of several demolished subsequently and replaced by piers (see period D16.2). The assumption is that this wall was punctuated in some way to form an arcade and give access to



Figure 180 Site D: the east end of St Botolph's in period D15.3, looking east. This shows the main developments: the two surviving areas of tile floor 1 (in the corners) and the plastering of the wall, with vertical lines marking the place of an architectural fitting or feature (1m scale)



Figure 181 Site D: period D15.3, tile floor 1 at the east end of St Botolph's; the portion in the northeast corner D[603], with tiles of 'Westminster', Penn, Eltham Palace/Lesnes Abbey and Low Countries types (0.2m scale)

the south extension, the aisle containing what is proposed to be Reynewell's chapel.

Period D15.3 is placed sometime in the 16th or early 17th centuries. The plastering of the east wall of the church could be a product of the Reformation decades after 1530. The whitening of the church was an example of widespread parish practice. The new arcade between what we propose to be Reynewell's chapel and D:Building 5 on the south side is placed in this phase, but makes equal if not more sense when combined with period D16.2 which followed (see discussion there).

As there were several parish churches in the vicinity, the St Botolph experience was far from unusual. At nearby St Mary-at-Hill in 1559, the churchwardens paid for a whole programme of changes: removal of the Easter Sepulchre, the rood with its statues of SS Mary and John, the 'great auterston' and other altars, 'whiting where the awlters wer' and for bringing the images and other things down to the Romeland, the space at the north end of Billingsgate dock, to be burned there.[66] At

[66] Littlehales 1904 [1972], 411–12.



Figure 182 Site D: period D15.3, pier inserted in the south wall of the church extension, looking southeast; around it, tiles of 'Westminster', Penn, Eltham Palace/Lesnes Abbey and Low Countries types in tile floor 1 (0.2m scale)



Figure 183 Site D: period D15.3, lead water pipe inserted into the modified south wall of the extension, looking south (100mm scale). According to the reconstructed plan of the church at this time (Figure 234 below) this was at the south-east corner of the late medieval or post-Reformation chancel, so might have been the drain for a piscina

present, the identity of the feature placed against the newly plastered wall is not guessed at. It is unlikely to have been a new altar against the rendered wall, unless the rendering is from before 1530. This is possible: a study of London friaries suggests that whitewashed interiors in churches 'set in well before the Reformation'.[67] Abolition of altars in all parish churches in the London diocese was ordered by Bishop Ridley in May 1550; this ban was extended to the whole country by order of the Privy Council five months later.[68]

Alterations to the church, burials in the chapel and nave

In period D16.2 there were further alterations at the east end of the church (Figure 185). The outer face of the northeast corner of the extension was cut back and rebuilt. The core and inner face of the east wall of the church were also replaced locally, and a pier base constructed against the wall, to the north of the corner. The pier itself was faced with chamfered blocks on its west side (Figure 186). Two further equidistant piers were built to the west, just to the north of the former original south wall of the church. The central of the three piers had a surviving L-shaped pier base with chamfered arms pointing east and south. Just east of this pier, an insubstantial north–south foundation was constructed, seen only in section. This is reconstructed as the choir screen of the church in Figure 234 below. East of this feature was the makeup layer for a tiled floor (tile floor 2); the tiles had been robbed, but the floor level would have been at *c.* 4.45m OD, broadly the same as that of the conjectured upper floor of D:Building 5. Westward, a different set of dumps was deposited, and clearly the foundation marked out two separate areas. Tiles were found in the makeups, but these appear to have been disturbed elements of the period 15 tile floor 1 below. Perhaps the tiles which were removed from the floor east of the choir screen, that is in the chancel, were finer examples, and therefore reserved for reuse.

At the west end of the entrance vestibule, a small cut disturbed the decorated tiles of the period D15 floor. The fixed feature and vestibule wall were then removed and thick dumps laid down to raise the internal floor level to at least 5.1m OD. The level in the middle of the 15th century (period D15.1 above) had been at about 3.6m OD, fully 1.5m below. To redress

[67] Samuel 2017, 214.
[68] Duffy 2005, 472.



A



B



C

Figure 184 Site D: three medieval decorated floor tiles from the northeast part of tile floor 1 in period D15.3, context D[603]: from top, A, Penn tile D<657> showing more of the Eames design 1399/Hohler P121;B, unstratified Penn tile D<481> showing more of Eames design 2343; C, 'Westminster' tile D<646> with Betts 2002 design W31

the change in level, three ragstone steps were inserted into the doorway within the width of the wall (Figure 187), the uppermost at 4.82m OD, which would have required one or two further risers to reach the presumed floor level. There was now a 0.6m drop to the lane.

A long trench was cut along the west side of the lane, extending the full width of the new aisle, and containing a rough mortary silt and sand packing alongside the east wall. A shallow and irregular 1.2m cut containing a large postpit intruded into both the north end of the packing and the refacing of the northeast corner of the aisle. The lane was then repaired, and sweepings from its use built up against the church facade and the undercroft entrance. A post was set in the lane just outside the north side of the undercroft steps, while immediately to the north against the undercroft wall was a short linear cut containing two smaller postholes flanking the base of an iron stand, presumably attached to the wall at a higher level.

Medieval and early post-medieval floor tiles were recovered from phase D16.2; they are called the first group of loose tiles. Many are small, fragmentary and badly worn, and would appear to have originally floored areas of the church. At least three groups of tiles are present: 'Westminster' (Betts designs W31, W55, plain yellow and light green), Penn (Eames/Hohler designs 1399/P121, 2037, 2074/P92, 2343, 2551, P48) and plain Low Countries tiles. The latter comprise plain green tiles in calcium carbonate fabric types (2497, 2504) of medieval–early post-medieval date and yellowish-brown tile in a silty fabric (3063) of the late 15th–16th century. There is also a plain brown and a plain yellow tile from an uncertain sources (fabrics 1813, 2324).

To summarise, period D16.2 saw the raising of the floor level in the church and the insertion of a row of piers along or just to the north of the original south wall of the church. This was a significant piece of rebuilding. It took place after the modifications of period D15.3, but perhaps immediately. The floor levels in the whole church were now roughly at the same level, which they had never been before (this assumes that the lost 17th-century floor level above the vault of D:Building 5 was not much higher than the surviving walling of the vault). Pertiod 16.2 is also suggested to be the documented rebuilding works of 1607–9. There is also a possibility that this phase of alteration of the church was undertaken at the same time as more radical changes to the undercroft of D:Building 5 next door to the south (D16.1, see next); Roskams in the archive report thought so.

In the aisle, graves were cut through the raised floor, tile floor 2 (D16.3) (plan, Figure 185; excavation in progress, Figure 188). The burials included one inserted over the former position of the fixed feature, and three intercutting graves further west against the south wall. In addition, two graves were cut along the former line of the nave wall (D16.4) (Table 45).

Three of these skeletons are shown individually in the report on human remains below, section 6.8: D[565] (Figure 259), D[1091] (Figure 268) and D[1159] (Figure 275).

The graves and their associated layers contained tiles from two distinct sources, both probably disturbed from the period D15 into which the graves were cut floor (tile floor 1). This

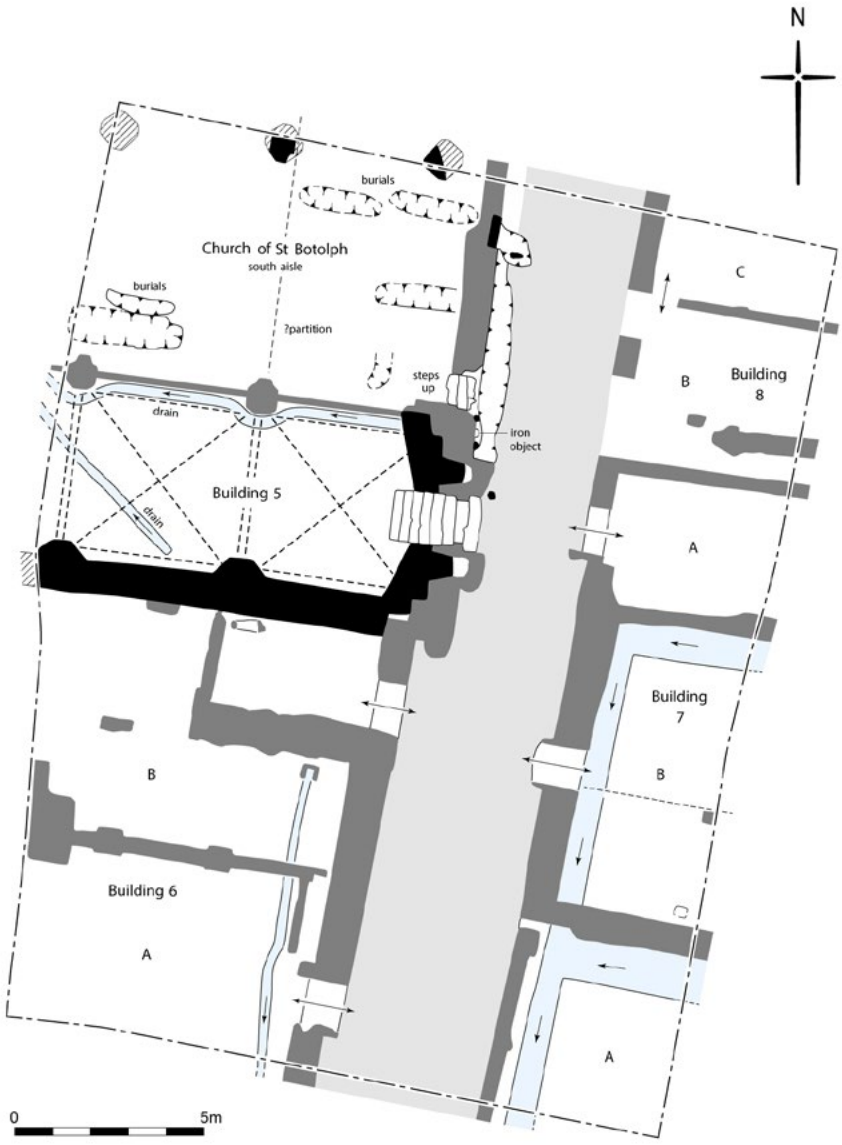


Figure 185 Site D: plan, period D16.1–4 (1:200)

Context	Period	Sex	Age category	Pathology
565	16.3	female	26 - 35	Vertebral pathology
1091	16.3	male	36 - 45	Dental pathology (calculus and linear hypoplasia)
1112	16.3	male	adult	Dental pathology (caries)
1146	16.3	female	26 - 35	Dental pathology (calculus)
1159	16.3	subadult	12 - 17	Dental pathology (calculus)
1202	16.3	unsexed	Adult	Non metric trait right femur hypotrochanteric fossa
2247	16.4	male	36 - 45	Dental pathology (caries)
2283	16.4	probable female	Adult	Dental pathology (caries & calculus)

Table 45 Site D: human skeletons in period D16.3 and D16.4



Figure 186 Site D: chamfered pier of period D16.2, looking north-east (0.2m scale)



Figure 187 Site D: period D16.2, the new steps in the door of St Botolph's to the lane, looking southwest (0.2m scale)



Figure 188 Excavation of the burials of period D16.3 or period D16.5 in progress, observed by the makers of the BBC Chronicle programme about the excavation, broadcast early 1984

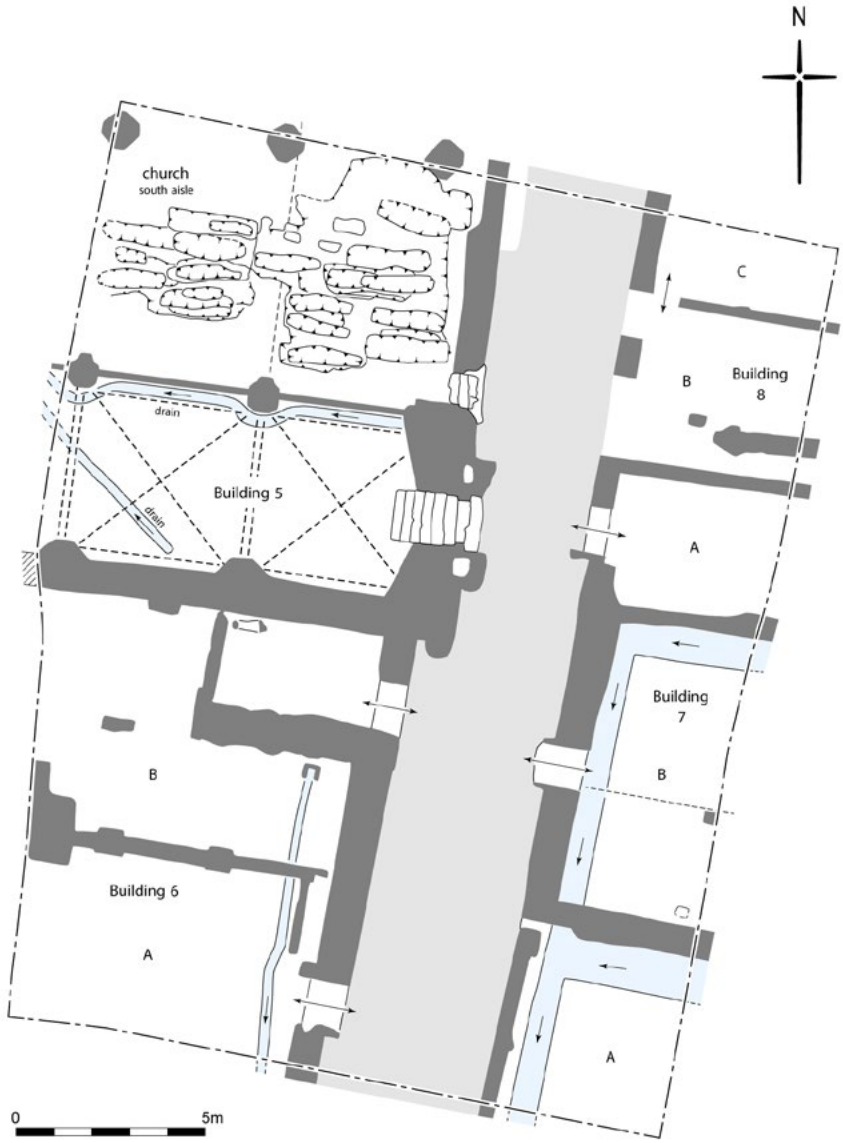


Figure 189 Site D: plan, period D16.5 (1:200)

group is called the second group of loose tiles. Four decorated Penn (Eames/Hohler designs 2535/P88, P81) and one probable decorated Penn tile (type <T5>) are present. Probably also from Penn is a plain brown rectangular shaped quarter tile which were often used along the edge of tile pavements. The remaining plain tiles comprise five Low Countries tile with a green glaze over a white slip (fabric 2318) and a plain yellow tile (fabric 2320) measuring ?x127x21mm from an unknown source. Many of the floor tiles from D16.4 are plain and decorated 13th-century tiles of 'Westminster' type. Most of the plain tiles, which are yellow and various shades of green in colour, have been cut prior to firing and later broken into triangular half-tiles. Two sizes of plain tile are present, the larger measuring ?x134x27mm, the smaller averaging 111x111x28mm, which corresponds with the two size groups used in the period D15.3 floor. The decorated 'Westminster' have Betts design types W25 and W97. Two 14th-century Penn floor tiles (fabric 2894) are also present (Eames/Hohler design 2027, 2535/P88), together with another tile in a Penn fabric which is so badly worn that there is no indication whether it was decorated or plain. Other floor tiles in D16.4 are two Low Countries tiles (fabric 2320), one yellow, the other a dark green triangular tile measuring ?x125x20mm, and two plain tiles from an unknown source (fabrics 2320, 2324). One has a dark green glaze and measures 129mm square by 22mm in thickness.

An intrusion around the east nave pier suggests that it was rebuilt, although it may simply have been modified and faced with plaster (D16.5, Figure 189). Extensive mixed makeups sealed the insubstantial north–south foundation west of the pier and its associated floors, which had slumped, also lapping the pier offset at 4.85m OD, which suggests that the floor level was restored to its previous level. A vertical edge to the uppermost deposit marked the possible line of a shallow north–south foundation replacing its predecessor, which lay to the east. The floor was probably retiled, but disturbed by burials, and therefore only represented by fragments (small

areas of tiles) surviving beneath a more extensive later floor (see period D16.6).

Subsequently, the east end of the aisle between the first two piers was truncated across its full width to a depth of *c.* 0.8 m, as the result of the insertion of at least 44 burials, many of them intercutting; the 'cut' was not a single deliberate feature, but rather an aggregation of a large number of separate events. The graves were filled with silts containing disarticulated and fragmentary bones from disturbed graves, and in the upper fills, a further burial.

The osteological characteristics of the skeletons in period D16.5 are listed in Table 46 and discussed in detail in section 6.8.

Context	Period	Sex	Age category	Pathology
75	16.5	male	36 - 45	Dental pathology
125	16.5	female	18 - 25	Pronounced 'S 'shape curvature to two rib shafts
126	16.5	subadult	1 - 5	Mixed dentition - Dental pathology - (caries
127	16.5	male	26 - 35	Osteoarthritis of the right hand
128	16.5	probable male	36 - 45	Dental pathology (caries and calculus)
129	16.5	male	26 - 35	Vertebral pathology
130	16.5	female	26 - 35	Residual rickets in leg bones and marked muscle attachments
131	16.5	subadult	1 - 5	Active rickets (leg bones)
162	16.5	male	26 - 35	Dental pathology (caries)
186	16.5	male	18 - 25	
301	16.5	subadult	6 - 11	Mixed dentition - Dental pathology - (calculus deciduous & permanent teeth
302	16.5	subadult	12 –17	No visible pathology. Non metric trait post-cranial
303	16.5	probable female	adult	Ante-mortem tooth loss
342	16.5	male	26 - 35	No visible pathology
343	16.5	probable male	adult	No visible pathology
471	16.5	probable male	adult	Dental pathology (caries)
511	16.5	probable female	18 - 25	Dental pathology (caries)
558	16.5	unsexed	adult	Marked muscle attachments
573	16.5	female	>46	Dental pathology (calculus)
580	16.5	male	36 - 45	Dental pathology (calculus)
597	16.5	unsexed	adult	Possible soft tissue injury to the left calcaneus and talus - differential diagnosis tarsal coalition
622	16.5	subadult	1 - 5	Mixed dentition
623	16.5	female	36 –45	Dental pathology (caries)
629	16.5	male	>46	Dental pathology (calculus and linear hypoplasia)
655	16.5	unsexed	adult	Non specific infection
656	16.5	unsexed	adult	Marked ligament attachment distal end left fibula
662	16.5	female	>46	Dental pathology (caries)
673	16.5	unsexed	adult	Marked muscle attachments
675	16.5	male	>46	Marked muscle attachments
759	16.5	male	>46	Ante-mortem tooth loss
876	16.5	unsexed	adult	Degenerative joint disease
886	16.5	male	>46	Degenerative joint disease
905	16.5	female	26 - 35	Dental pathology (caries)
935	16.5	male	26 - 35	Vertebral pathology
938	16.5	male	>46	Ante-mortem tooth loss
967	16.5	subadult	1 - 5	Deciduous dentition with developing permanent dentition
974	16.5	male	>46	Dental pathology (caries)
1001	16.5	male	>46	Ante-mortem tooth loss
1020	16.5	male	36 - 45	Vertebral pathology
1043	16.5	male	36 - 45	Dental pathology (calculus)
1086	16.5	probable female	36 - 45	Dental pathology (calculus)
1092	16.5	male	36 - 45	Dental pathology (calculus)
1328	16.5	subadult	1 - 5	No visible pathology

Table 46 Site D: details of human skeletons in burials in period D16.5



Figure 190 Site D: period D16.5, skeleton [342], with stone in mouth (100mm scale)

Two burials displayed unusual features. Skeleton D[342] of a man aged 26–35, had a large stone in his mouth (Figure 190); and over his middle section, presumably from the lid of the coffin, dome-headed nails appeared to be arranged to form the date '1665' or '1666'. The coffin of skeleton D[125], a woman of 18 to 25, included a layer of chalk. These practices, perhaps both during the Great Plague of 1665, are considered in section 6.3.

In both areas, the time lapse between the various phases of burial is uncertain. There was some evidence that coffins had been stacked before those beneath had collapsed through decay, which suggests a relatively short timescale, and the gravediggers may have been able to recall the position of the previous interments, which may have been marked in some way. The date of the burials can be assigned to the mid 17th century, both by finds evidence and by the date interpreted as '1665' or '1666' marked in nails on the coffin lid of skeleton D[342]. Mixed in with the burials were two seals from documents of Pope Gregory XI (1370–8). As they are 14th-century in date, they were presumably disturbed from earlier burials in the church. They are D[1086] <1038> (documented as context D[1086], which is a skeleton) and D[675] <796> (in the fill on top of skeleton D[759]) (Figure 191).

Between the second and third piers to the west, a second 'cut' 2.8m north–south, 3.9m east–west and up to 0.96m deep contained 21 more burials. A wood stain marked the possible presence of a further coffin, although no body was present. The cut was filled with similar material to its east counterpart.

The two 'cuts' did not meet, which may suggest the presence of a partition running between the second pier and the south



Figure 191 Site D: papal seals D[1086] <1038> (top) (diameter 37mm) and D[675] <796> (bottom) (diameter 38mm)



Figure 192 Site D: period D16.6, the blocking of the church door in the lane, looking northwest (0.5m scale). On the right, the surfaces of the lane which led to the wharf

wall of the aisle, although it is also possible that the floors directly between the piers was not disturbed due to fears about causing instability. The relatively safe ground in the centre of the bays may therefore have been preferred, in which case a similar concentration of burials probably existed in the centre of the final bay to the west.

A large quantity of floor tiles are associated with the burial deposits of this phase; they are called the third group of loose tiles. As with tiles in periods D16.3–4, they probably originally paved parts of the church. Many designs are the same as those found *in situ* in D15.3. Present are plain and decorated 'Westminster' floor tiles, the latter comprising Betts design types: W34, W104 and W130. The plain tiles include examples with yellow, green and dark green glaze some of which are triangular in shape. From context D[75] (<486>) is what at first sight would appear to be a typical 'Westminster' tile (type <T1> in the specialist report below, section 6.7). It has the same slightly blurred pattern seen on 'Westminster' tiles and at 24–25mm thick is of similar thickness. However, the clay source use is very similar to that exploited for the manufacture of tiles made at Penn in Buckinghamshire rather than those belonging to the 'Westminster' group. Furthermore, the interlocking diamond and fleur-de-lis is not a 'Westminster' design. It therefore seems to be a Penn tile. There is also a single triangular shaped more certainly Penn tile with a yellow glaze. The remaining Penn tiles are decorated with Eames/Hohler design types: 1399/P121, 2027, 2074/P92, 2343, 2394, 2409?/P66?, 2535/P88, P81, P135 a previously unpublished design type (Figure 249, type <T2>). Ten probable Penn tiles are also present, nine of with have the same mid to late 13th century design (type <T5>). The remaining tile, which is probably somewhat earlier, has a different design. This was probably brought into London prior to the Black Death in the 1330s or 1340s.

Also brought into London in phase D16.5 were plain glazed Low Countries floor tiles. These are glazed yellow and green, the green glaze resting on a white slip on certain tiles. Only one tile is substantially complete, this has a yellow glaze and measures ?x119x22mm. This is almost certainly medieval in date as are other Low Countries tiles of similar thickness in strata from D16.5. There are also a small number of slightly thicker (33–34mm) Low Countries tiles probably dating to the period 1480–1600. A number of plain floor tiles are in fabrics of uncertain source (fabrics 1813, 2318, 2324, 3080, 3082). The most interesting (fabric 3080?) has plain brown glaze covering only part of the top surface. Other glaze colours present are mottled yellow-green, yellow and green-dark green mottle. The introduction of these Low Countries floor tiles here is placed in the first half of the 17th century, in phase D16.5.

A number of partly complete peg tiles (fabric 2276) were recovered, all of which are similar in size (average ?x147x14mm). From D[187] is a small piece of a louver (fabric 2274), whilst slate roofing occurs in a couple of other contexts (D[146], D[1305]), one fragment of which has a circular nail hole 8mm in diameter.

Raising of threshold of church door and modifications to the floor

At the east end of the aisle, the steps in the main entrance were encased using ashlar blocks (D16.6) (placed on the plan below, Figure 213; detail, Figure 192) and the threshold replaced at a higher level (just below 5.0m OD); presumably new steps were inserted, since the threshold was now *c.* 1.6m higher than the lane. The doorway must have continued in use.

The area of the graves was levelled up to compensate for subsidence, and a floor of large, mainly glazed tiles laid at 5.05m OD (tile floor 3). Little remained of this surface, which was largely stripped out and replaced by a second tiled floor (tile floor 4) at 5.1m OD, both floors respecting the post. In the later tile floor 4 (D[49]; (Figure 193), the five east rows of tiles were fairly regularly laid, less so immediately to the west where the mortar bedding was slightly different, and the tiles used



Figure 193 Site D, period D16.6: St Botolph's church, east wall looking north, showing tile floor 4 (D[49]) against the east wall (1m scale)

Period and phase, main activities	Dating, character of finds, relations with other phases	Attributable documentary evidence	Suggested date
Construction of D:Buildings 7 and 8 east of the lane, probably together			
15.4 D:Building 7, E of the lane, includes brick drain and its fill D[1389]	pottery 1630–80, domestic	Thomas Soane, leaseholder from 1622, agrees to rebuild houses somewhere on the E side of the Wharf within five years of 1645	1630s or 1645–66
15.5 D:Building 8, N of D:Building 7 and probably constructed at the same time	pottery 1480–1700	as above	1630s or 1645–66
15.6 resurfacing of lane	seals 15.4 construction; pottery 1350–1500 (residual)		1630s, perhaps 1636–7

Period and phase, main activities	Dating, character of finds, relations with other phases	Attributable documentary evidence	Suggested date
Alteration to D:Building 7, probably construction of a stair			
15.7 another surfacing of the lane	pottery *c.* 1480–1600		1630s–1666
15.8 frontage of D:Building 7 altered	no pottery		1630s–1666
Rebuilding of D:Building 6, west of the lane			
15.9 in D:Building 6, cellar floor lowered and drain inserted	pottery 1630–80; not domestic	cellar leased by Thomas Soane from 1641	rebuilt 1630+ by Soane or his widow
Resurfacing of lane and amendment of entrances of D:Buildings 7 and 8			
15.10 lane resurfaced; entrances of D:Buildings 7 and 8 remodelled to take account	pottery 1600–1700		? 1650s
Rebuilding of the vault below D:Building 5			
16.1 rebuilding of the vault beneath the S aisle of St Botolph's (D:Building 5), blocking of E windows, brick drain which communicates with Tenement 14 to W	pottery 1580–1630, phase is later than 15.10	Soane leased the vault also from the late 1620s; phase may include years 1625–6 when one window's iron repaired	1625–66
Infilling of drain in D:Building 8, further works in D:Building 7			
16.7 further works in D:Building 7; rebuilding of part of W side on the lane	pottery 1550–1700; wall tiles in drain		1660–6, probably including Great Fire debris
Resurfacing of the lane and insertion of water pipe			
16.8 resurfacing of lane and insertion of water pipe	pottery 1660–80		1660–6

Table 47 Site D: the archaeological phases in periods D15.4 to D16.8 which relate to the activities of Thomas Soane and his wife and widow Elizabeth, 1625–1666

period D16. After tile floor 4 was laid, the north end of the east wall was rendered, although this stopped 1.4m south of the northeast corner, suggesting a feature placed against the face, such as a screen. A strip of wood to the south formed a skirting over the tiled floor. The tiles in both floors 3 and 4 are described in detail in section 6.7.

This phase (D16.6) is not accurately datable in itself, except to the 17th century by some of the tiles. It must date from before the Great Fire, which followed.

Construction of D:Buildings 7 and 8 east of the lane

East of the lane, and in the area south of the church, new buildings and modifications to existing buildings can be associated with the grocer Thomas Soane and his wife, later widow, Elizabeth from the 1620s to 1666.[69] Since it is very likely that the Soanes lived elsewhere, in Eastcheap, the material evidence on site D is from buildings inhabitated and used by their tenants, but for simplicity these constructions will be attributed to the Soanes. The archaeological phases concerning them are listed in Table 47. Their involvement in the site is listed above in Table 43. This account now has to go back to the early 17th century to describe developments on the east part of the site.

To the east of the lane, a range of buildings consisting of several rooms was constructed, which varied sufficiently from north to south to suggest that they could be divided into two separate structures, D:Building 7 (on the south) and D:Building 8 (abutting it on the north) (plan, Figure 179).

D:Building 7

In the south, a 1.1m-wide north–south chalk wall was constructed along the west side of a wider trench cut along the laneside to form the outer wall of D:Building 7 (D15.4). The upper parts of the east face were mainly faced with red brick, which may well suggest some later rebuilding work. Two rooms were found in the excavation, A and B (from south to north). Inside the west side of both rooms was a drain, the base of which sloped southward from 1.33m OD to 0.76m OD. This had two connecting east–west arms, at the north ends of both rooms and beneath their floors (Figure 194, Figure 195; see plan, Figure 179). The presence of timber fragments in the drain and decayed beams in the brick facing of the west wall suggests that the drains had been provided with wooden covers. The north parts of the system were filled with dark organic silts, some of which presumably accumulated during the lifetime of the drains, although they contained a wide range of discarded household items, metalwork, glass and pottery. As some material was burnt, the deposits probably include debris from the Great Fire, presumably from the building above or buildings close by.

[69] This account is based on the fuller study in Schofield and Pearce 2009. This is available online, at www.colat.org.uk/bookshelf.



Figure 194 Site D: the drain below D:Building 7 room A, looking west. This shows the east–west arm of the drain which then turned to the south (left) (0.5m scale)



Figure 195 Site D: D:Building 7, room B, looking east. This shows the north–south drain in room B in the foreground, and the east–west arm along the north side of the room on the left (1m scale)

A carefully-constructed Reigate stone and chalk wall, with a flint string course on the north side, was constructed next to the east–west drain to divide the area into rooms A and B (shown on the left-hand side of Figure 195). The wall appears to have stopped at the main drain initially, but a brick arch subsequently carried it across the drain, where it was bonded to the outer wall. Two short parallel brick walls were built on the arch, with an intervening fill of silt, mortar and brick. These seem to have formed the sides of a downpipe or chute with no apparent connection to the drain beneath; possibly it emptied into the street.

Mixed deposits including building materials were used to level the floors of both rooms. The top of the west wall of room A was sealed by similar deposits, which continued into the lane, demonstrating that the room was probably open-fronted, with a large arched entrance protected by shutters. A series of cuts intruded into the dumps where they crossed the wall, one of which contained a square pier of mortared rag, flint and chalk cobbles. Since this was presumably a secondary feature, it may well have been added to help support the north end of the entrance arch. A circular postpit to the south and an east–west slot which partly overlapped the main wall may have been related to the construction of the superstructure, supporting, for example, scaffolding for centring the arch. It is more likely, however, that they were the remains of installations connected with the use of the arcaded space after construction was completed, since a second slot was cut to the south in a subsequent surface. Sandy layers formed the floor of room A itself.

The makeups in room B were cut by the irregular trench for a 0.6m-square brick pier base. A sand makeup similar to that in the neighbouring room was then laid to support a brick floor. The bricks were laid in north–south lines, with a single string course of east–west bricks dividing the floor into two panels opposite the north side of the pier base, and possibly marking the position of an internal division (Figure 195). The south end of the floor was bounded by three similar rows. A small plinth, two bricks deep, was laid on the floor against the face of the south wall; presumably this was a base for a timber post, supporting the floor above.

The pottery associated with the construction of D:Building 7 was of 1630–80 and that for D:Building 8 was of a wider period with much residuality, 1480–1700. Most of the bricks used in the construction of D:Building 7 are very similar in size suggesting they are contemporary in date. All are red



Figure 196 Mid 17th-century TGW plate, MoL 24368 (diameter 176mm)

in colour (fabric 3033) and the majority measure on average 221x106x55mm. The bricks used as the east revetting wall of the north–south drain and the drain base (D[1793]), in the south room, are slightly larger. These are also red (fabric 3033) and average 234x112x54mm. It is possible that these are earlier bricks which have been reused. Both sizes of brick were used to form the plinth marking the south edge of the brick floor in the second room. Complete peg roofing tile (fabric 2276) was used along with the smaller red bricks in the drain wall. The peg tiles have two round nail holes, 13–15mm diameter, and measure around 267x154x16mm. Further peg tile in the same fabric was incorporated into the brick walling of the culvert arch. The only other roof tile of note is a pantile (from D[1961]), which is unlikely to date any earlier than 1630.

The most notable features of D:Building 7 were the drain which ran through both rooms and its content of artefacts. Context D[1389] (D15.4) is described as 'a loose pebbly spread of coarse sand, some darkish brown black silt and various inclusions of bone, pottery and wood' which accumulated on the brick base of the culvert or drain which was part of the initial structure of D:Building 7. This silty character indicates that the layer accumulated over a period of use, and was not all backfill which was deposited in an instant, though it



Figure 197 Site D: period D15.4, Metropolitan slipware dish from drain fill D[1389] (diameter 122mm)



Figure 199 Site D: period D15.4, tin-glazed ware mug with the arms of the Cordwainers' Company from drain fill D[1389] (diameter 90mm)



Figure 198 Site D: period D15.4, Metropolitan slipware rounded jug from drain fill D[1389] (height 190mm)



Figure 200 Site D: period D15.4, Frechen stoneware Bartmann jug from drain fill D[1389] (height 150mm)



Figure 201 Site D: period D15.4, pewter lid from a Westerwald stoneware mug from drain fill D[1389] (length 114mm)

could have been filled in with Great Fire debris.[70] The fill can be dated on the pottery alone to 1630–80 by the presence of sherds from several vessels in Metropolitan slipware (METS) and tin-glazed ware (TGW) decorated in styles typical of the mid 17th century (for one type from the Museum collection, Figure 196). The presence of sherd-links with period D16.7 shows that rebuilding within D:Building 7 disturbed material deposited in the drains. Much of the coarseware recovered represents fabrics and forms made and used with little discernible change from the mid 16th until the end of the 17th century (notably London-area redwares and Surrey-Hampshire border wares). There are, however, very few sherds from common 16th-century pottery types, such as early post-medieval London-area redware (PMRE), and it is most likely that the material in the culvert accumulated over the first half of the 17th century, with final deposition occurring in the 1660s. The latest sherd found is in Chinese Batavian porcelain, probably dating to the last quarter of the 17th century. This may be intrusive, but does not alter the overall impression that the bulk of the deposit was laid down during the middle decades of the 17th century. The range of pottery is briefly illustrated here: it includes Surrey-Hampshire border whiteware and redware, Post-medieval fine redware, Metropolitan slipware, London tin-glazed earthenwares, Portuguese tin-glazed ware, a small sherd of early 17th-century Ligurian maiolica, part of a costrel made in Seville, Iberian fine whiteware, Dutch earthenware, Martincamp-type ware from Normandy, Chinese export porcelain and Frechen, Raeren and Westerwald stonewares (Figure 197 to Figure 200). A small quantity of roofing slate was found in D[1389], together with a ridge tile partly covered with white slip decoration. The use of white slip on roofing tile is extremely rare in London although fragments have been found on the site of the Rosary, a royal residence constructed by Edward II in 1324–5, and just north of the city walls in the Finsbury Pavement area.[71]

Two coins and a jetton were recovered. One of the coins, measuring 15mm in diameter, is in poor condition, but is a copper farthing, probably 1648–72 issue.[72] The other is a Charles I rose farthing, dated to 1635–44. The jetton or trade token was minted by Hans Krauwinckel II of Nuremburg, who became a master in 1586 and died in 1635, and is one of three found in 17th-century contexts on the site. It is in a fragile condition, but part of the legend '..GOTES REICH' in clearly formed letters can be read on the face, surrounding the 'Reichsapfel' or imperial orb within a border.

The main emphasis of the 153 non-ceramic artefacts is on household utensils and personal items. Eating implements or cutlery are represented by five handles, two in wood, one in bone and two in ivory, parts of three wooden spoons, and a stopper from a spice grinder or pepper mill. The large quantity of glass included case bottles, pharmaceutical vessels and stem goblets; drinking was also represented by the petwer lid of a Westerwald stoneware jug (Figure 201). Personal effects, needlework and grooming are represented by an ivory needle case, ten samples of cloth, part of a leather shoe, copper alloy lace-tags, glass and bone beads, a fragment of a mirror, a spectacle lens, a pipeclay wig curler and two ivory combs.

Clay tobacco pipe forms span a more or less equal range for all periods between *c.* 1610 and 1680, although the end date for the group is probably in the 1660s. The material appears somewhat disturbed, and includes a high proportion of residual fragments. One of three pipes with a stamped maker's mark was found in this context, a type 5 in Atkinson and Oswald's 1969 London typology, dated to *c.* 1610–40. The mark is in the form of a six-spoked wheel, stamped in relief underneath the heel. This is one of the more common 17th-century makers' marks, appearing in several different forms throughout the century, although it is usually impossible to identify pipemakers from symbols alone.

In summary, the rich artefactual evidence and the silty conditions in the drain suggest that it was gradually filled with occasional losses or throwaway of artefacts in the three decades up to the 1660s. While we can never be certain, it is suggested here that the drain's contents were partly a result of either the direct destruction of the building above and dispersal of its mobile contents by the Great Fire of 1666, or of the moving of rubble about thereafter during the post-Fire clearings. Such clearings would have thrown rubbish into

[70] The full details of the pottery and other artefacts from this drain are in Schofield and Pearce 2009.
[71] Site FIP92.
[72] D<1487>,<1366>; the jetton is <1486> (identified by Geoff Egan).

available cavities such as drains and cesspits, to provide level surfaces and solid foundations for new buildings.

D:Building 8

D:Building 8 (D15.5), north of and in the same range as D:Building 7, comprised three rooms in the excavation, and it would have fronted onto Thames Street to the north. These rooms are labelled A to C from south to north (Figure 179).

Room A had an entrance from the lane, opposite the undercroft of D:Building 5. The north side of the room was formed by a 0.35m-deep east–west foundation which carried a shallow roughly-coursed brick and chalk terrace wall, supporting the higher deposits further north; the earlier surfaces beneath the room were truncated by terracing. Sandy makeups were deposited for a floor of bricks laid in north–south lines, with a single east–west row against the north wall.

Further north, a rectangular brick pier, possibly refacing an older wall (see period D12.12), formed the frontage to the lane of room B, the central room of the building. The pier aligned with the west wall of rooms A and C, although less substantial. A gravelly deposit crossed into the building immediately to the south, and it is therefore clear that the new room resembled the southmost room of D:Building 7 in its lack of a continuous facade. Within room B, deposits with scorched surfaces and charcoal inclusions suggest initial occupation and hearths, prior to the construction of the wooden floor described below. An east–west brick-faced wall was constructed parallel to the south side of the room to form a narrow corridor or stair passage to the first floor. The passage stopped well short of the front wall, and a brick pier was built in the intervening space.

The north room of D:Building 8, room C, was fronted by a wall of chalk on a Reigate stone and ragstone foundation, faced on the east side with brick. A brick pier was constructed opposite the south end of the wall, which marked the south side of the room. A series of brick, mortar and scorched silt and sand deposits formed primary surfaces, and the base for a brick floor at just above 3.0m OD. As was the case with the floors in rooms to the south, the bricks were laid in north–south lines.

The south edge of the new floor was bounded by a line of wooden sills set in cuts to either side of the brick pier, but stopping short of the west wall. The timbers presumably supported a partition, with a doorway linking rooms B and C. Two subsidiary slots ran south from either end of the west section, with a third slot running north, disturbing the brick floor. The cuts contained beams set on chalk and mortar packing, and in room B had east–west planks above, representing the remains of joists and floorboards for a timber floor, covering at least the north half of the room.

Red bricks (probably all fabric 3033) of different sizes were used in the brick floor of the north room. Based on length measurements three size groups seem to be present: the first 220mm long, the second 233–239mm long and the third (a single brick) 255mm long. All are fairly similar in breadth (98–115mm) and thickness (52–57mm). The first two groups seem to represent the same brick sizes used in period D15.4. The large brick is clearly reused as it matches the medieval bricks used in the first phase of the D:Building 5 undercroft (period D14.1). All the other bricks in period D15.5 used for flooring and in wall construction are very similar in size. They have an average size of 228x108x59mm.

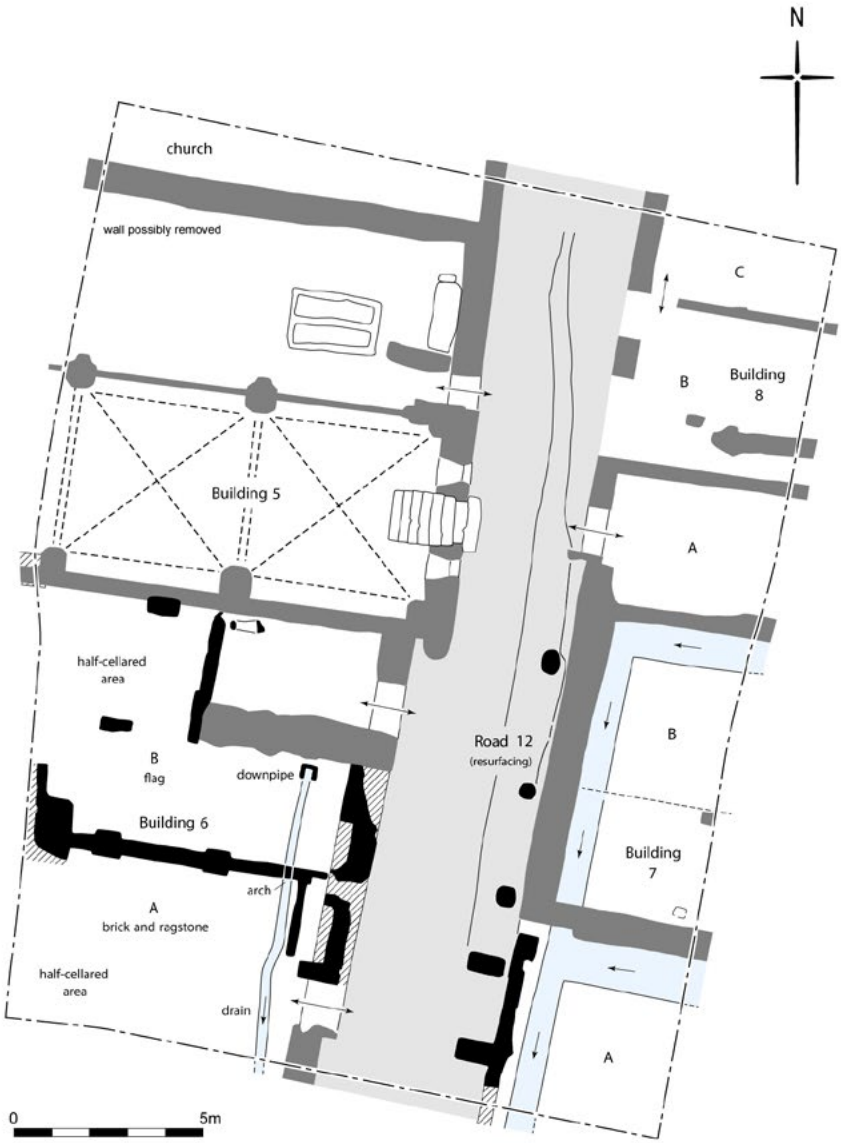


Figure 202 Site D: plan, period D15.7–9 (1:200)

Four floor tiles were found in period D15.5, although they are clearly residual as there is no evidence of tiled flooring in any building east of the lane. Two are plain; one has a yellow glaze and is in Low Countries fabric (2504). Its size, ?x114x24mm, would suggest a medieval date. The other is dark green and is from an unknown source (fabric 1813). The other two tiles are decorated; one is of Penn type with Eames design 2343 and the other is of 'Westminster' type with Betts (2002) design W109.

The new range formed by D:Buildings 7 and 8 therefore consisted of at least five rooms: three floored with brick, with continuous deeply-founded walls and a central brick-lined entrance; and two open-fronted, with sand and timber floors. The rather insubstantial nature of some of the internal walls in D:Building 8 and the use of brick piers suggests that the upper storeys were either brick or timber-framed (probably infilled with brick). D:Building 8 continued beyond the south side of the excavation and so was longer. Both buildings had wide doorways to the lane of the wharf. One further documentary reference can be added here. After the Fire, in July 1667, the Fire Court adjudicated a case brought by Josiah Child, Soane's son-in-law, concerning a messuage on the Wharf fronting Thames Street which is probably D:Building 8. The Court heard that Soane had sublet this to Thomas Rodbard in 1645; Thomas Rodbard, perhaps his son, was the tenant in 1666.[73] He is named as Thomas Ratburd in the Hearth Tax of March 1666, and his house rated as having five hearths.[74]

[73] Jones 1966, i, 97.
[74] Davies *et al.* 2014, 899.

The makeups for a new lane surface (D15.6) sealed the initial occupation layers of D:Building 7. Outside the entrances into the buildings, brickearth spreads were deposited, rather than metalling. Cut into this material was an east–west beam-slot, which represents a feature protruding from and slightly overlapping the sleeper wall of the arcaded room A. This slot lay to the north of a similar example noted in period D15.4; perhaps both had a similar function, associated with the arched opening. It is quite possible that this resurfacing of the lane is that mentioned in the churchwardens' accounts for 1636–7; though equally it could be the resurfacing of the next phase, D15.7.

Resurfacing of the lane and modifications to D:Building 7

The lane was again resurfaced (D15.7). It was cut immediately outside the north room of D:Building 7 by a line of three large postpits packed with ragstone blocks (Figure 202). Although the first of these features was recorded as being cut earlier than the others, they were almost certainly contemporary in use, and may have supported a jettied upper storey or external stair.

A north–south chalk and ragstone foundation was constructed along the open frontage of the south room (D15.8), supporting a brick wall on the line of the earlier sleeper wall. It seems likely that this restricted access by blocking the suggested arcade. Two rectangular buttresses may have been attached to the west face of the wall, or were built integrally with it, since in a subsequent phase (see period D15.10), robber trenches cut into the edge of the lane marked the removal of two earlier features. These may have had a similar function to the postpits fronting the adjoining room.



Figure 203 Site D: D:Building 6 looking northeast. The L-shaped room A of the building wraps round the vestry of the church. Left of the paving in it, the undercroft below D:Building 5 (1m scale)



Figure 204 Site D: north part of drain in D:Building 6, looking south, with timber cover in place. Room A is in the foreground, room B in the background (0.5m scale)



Figure 205 Site D: D:Building 6 drain in room A, looking north (0.5m scale)

Though the actions of this phase are poorly dated, they must be in the years 1630–66 by relation to the other phases. Three small contexts yielded seven sherds from a minimum of six vessels weighing 46g. Two sherds come from a pipkin in PMRE, dating to *c.* 1480–1600. All remaining pottery is medieval, dating between *c.* 1270 and 1500, and including LOND, CBW and MG. There were no recorded artefacts for this phase. Common red bricks (fabric 3033) were used in the rebuilding of the outer wall. They average 221x111x54mm in size, which is very similar to the smaller bricks in periods D15.4–D15.5.

Reconstruction of D:Building 6 and modifications to existing facades

On the west side of the lane, D:Building 6 was completely reconstructed (D15.9) (Figure 202 to Figure 205). The original frontage was rebuilt in the same position, and consisted in the south of a ragstone and Reigate stone foundation supporting a north–south brick wall. Two buttresses 0.5m square directly superseded the ragstone and Reigate stone blocks backing the existing wall: a reused Reigate stone block formed the base of the north buttress, the south was of integral brickwork. A ragstone, Reigate stone and brick wall to the north completed the frontage; a narrow gap between the two sections was infilled with further brickwork. The north wall butted against the period D14.11 addition to D:Building 5.

With the frontage in place, the whole area of D:Building 6 was truncated to *c.* 2.0m OD in order to create a half-cellar, *c.* 1.0m below that of the vestry of the church, where a narrow brick wall revetted the existing higher floor level, presumably replacing an earlier timber-framed structure. Further west, an irregular north–south masonry wall was constructed, possibly in this phase, although it seems more likely to have been an earlier feature associated with the previous structure, since it was refaced in brick as part of the general scheme of reconstruction.

Near the east frontage, a 0.3m-deep trench was cut for the insertion of a brick drain leading south from the the vestry. The drain base was of unmortared brick, with an occasional flagstone slab in the extreme south, where the level of the base was at 1.5m OD. The sides were formed by brick walls four courses deep. The remains of a mortared brick seating for a downpipe survived at the north end, which implies that the drain was connected with activities on the first floor, although it may also have helped to drain off flood water, which was likely to have been an occasional problem at this level. There was no primary fill, which suggests that the drain was cleared regularly, an activity facilitated by a wooden lid, which survived in the north room (Figure 204).

After the drain had been constructed, the building was subdivided by a wall constructed westward from the junction of the two sections of the east frontage. First, the junction



Figure 206 Site D: D15.9, Staffordshire embossed slipware plate (diameter 55mm)

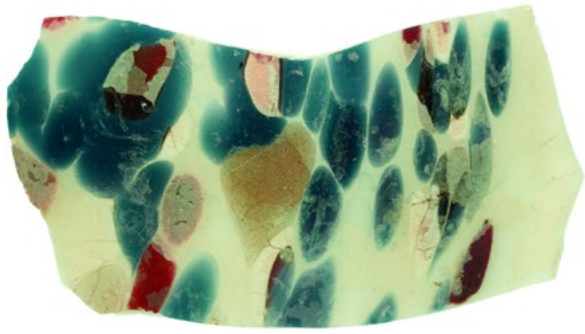


Figure 207 Site D: D15.9, White vessel glass (diameter 72mm)

was reinforced internally by a brick pillar, while further west, the irregular north–south wall was refaced, also in brick. An east–west brick wall was then built in the 6.0m gap between the two, crossing the drain by means of a flat ragstone lintel. The surviving top of the wall was level, which may suggest a timber-framed superstructure, supported by two large integral buttresses; this interpretation also extends to the main frontage. A 2m-long brick wall was also constructed in the south room A, running south from the east end of the dividing wall alongside the drain, and defining a narrow strip behind the east frontage. This area was not infilled or floored, and it is probable that the wall supported a wooden-floored landing for a stair leading down into the cellar from an entrance or upper storey.

In the new north room (B), a brick- and tile-edged floor of rectangular flagstones up to 0.85m across, was laid on a mortar makeup at 2.1–2.4m OD. Two brick pillars were constructed, in the centre of the floor and at its north edge against the undercroft wall, both broadly opposite the west end of the new dividing wall. These may have supported joists for the first floor, although their slightly different construction and mortar suggests that they were not primary features.

In room A, the exposed waterfront dumps were consolidated, and a brick and flagstone floor laid at just under 2.0m OD; the few remains of this floor suggest that it was not of very good quality. In the D:Building 5 extension, a brick and timber plinth was placed against the undercroft wall. A number of random bricks in this area were possibly disturbed sections of floor.

All the bricks used in structural contexts in period D15.9 are very similar in size. They have the usual red fabric (3033) and an average size 227x106x60mm. Sixty-five sherds from a minimum of 47 vessels (0.6 EVEs, 1015g) were found in seven contexts. One of these (D[1085]) is of medium size, with 36 sherds, mostly dating to *c.* 1270–1350, but also including four sherds of mid 17th-century date.

The post-medieval pottery from D15.9 dates broadly to *c.* 1550–1700, although most was made after about 1630. Long-lived everyday ceramics include Surrey-Hampshire border whiteware and redware, post-medieval fine redware (PMFR), from Harlow in Essex and London-area post-medieval redware (PMR). A small number of sherds from more distinctive vessels provide useful dating evidence. These include part of a bowl or dish in Metropolitan slipware (METS) from D[1011], dated in London to 1630–1700, and part of a dish from D[1085] in tin-glazed ware (TGW D), with polychrome decoration typical of the period 1630–80. A near-complete, small cylindrical jar in biscuit tin-glazed ware (TGW BISC) is a waster, left unglazed probably because of an S-shaped crack running through the base. Biscuit tin-glazed ware is found on sites on both sides of the Thames, sometimes far away from the pothouses in which they were made. Often sherds were used as hardcore, although no other biscuit ware is recorded at Billingsgate in 17th-century contexts, which makes this an unlikely explanation for the pot's presence on the site. It is possible that it was sold as a 'second' and used for dry substances in the absence of a protective glaze. Much more unusual is part of a plate in Staffordshire embossed or relief-decorated slipware (STEM; Figure 206). Probably dating to the third quarter of the 17th century, when decorative slipwares began to reach London from the Midlands, the press-moulded plate is decorated with elaborate moulded patterns, highlighted with red and dark brown slip in a manner similar to cloisonné metalwork. Further refinement of the pottery dating is given by clay tobacco pipes. Four pipe bowls dating to *c.* 1660–80 (Atkinson and Oswald 1969, types 13 and 15) were found in context D[1011] and two type 15 pipes in D[1085].

A diverse collection of registered finds includes structural remains, such as mortar samples and a stone moulding, coal, a wooden barrel stave and several other unidentified fragments of wood. A lead repair patch from a clinker-built boat has remains of waterproofing with tarred woollen yarn.[75] Part of a bottle of dark green glass was also found, although the most unusual and noteworthy find is a fragment from a vessel in opaque white *lattimo* glass, with splashed decoration in red, blue and 'aventurine', copper-alloy filing gold spots (Figure 207). Made in France, this high quality and expensive item is decidedly more exotic than the many drinking vessels and flasks made in colourless glass found on the site.[76] The post-medieval pottery from period D15.9 dates broadly to *c.* 1550–1700, although most was made after *c.* 1630. The phase comprised the rebuilding of D:Building 6. The artefacts are a disparate or varied group, but perhaps indicatory of

[75] Accession D<1924>.

[76] Geoff Egan noted that a similar fragment was found at Cromwell Green Westminster: site CGW05, accession <20>.

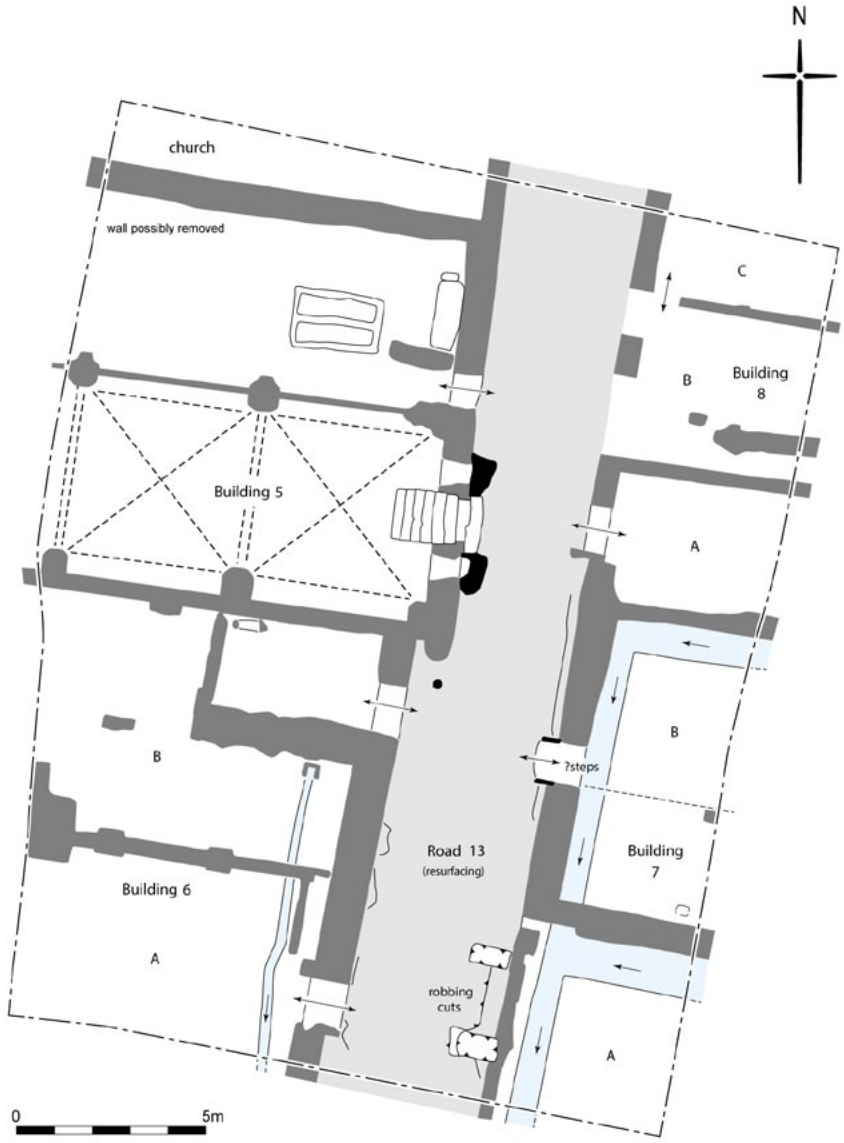


Figure 208 Site D: plan, period D15.10 (1:200)

commercial or warehouse premises than domestic occupation. It is likely that this phase lasted until the Great Fire of 1666.

After the alterations to D:Building 6, a new lane surface was laid at *c.* 3.0m OD (D15.10, Figure 208). The lane was extensively used and repaired several times. Opposite the north side of the entrance to the D:Building 5 extension, a posthole was cut into the edge of the metalling. It was replaced by a larger postpit after the original post had decayed, suggesting a semi-permanent feature associated with the building. A chalk foundation was constructed in a trench cut at the top of the steps leading into the undercroft, to provide the base for a new limestone threshold at *c.* 4.0m OD. Similar bases were laid in front of the window splays to either side for raised sills, protecting the undercroft from runoff, and reflecting the recent rise in the level of the lane (Figure 209).

Yellow bricks (fabric 3031) measuring 224x107x58mm were used in one of the rebuildings of the window splays (D[1013]) along with fragments of decorated floor tile. The latter comprised three Penn tiles of two distinct sizes: a smaller tile (108x105x21mm) with Eames design 2535 (Hohler P88) and two other measuring 122–128mm square by 22–23mm thick with Eames design 2343.

To the east of the lane, two cuts, each *c.* 1.0m by 0.6m and 0.7m deep, removed the buttresses added to D:Building 8 during the period D15.8 refacing of the west wall of the building. Both were backfilled with silts which became more clayey towards the base, suggesting that the trenches had remained open for a time. An irregular cut between the two may be related to the robbing of an intermediate element, or to increased wear in the area. A brick-lined entrance was constructed in the outer wall of the building opposite the centre of room B. There may have been a flight of steps leading down into the room.

Five sherds of pottery from five vessels weighing 8g were recovered from a single context (D[1373]). Three are medieval, dating to *c.* 1350–1500, and two small sherds date to *c.* 1612–1700. Both come from unidentified forms, one in Surrey-Hampshire border ware and one in tin-glazed ware. A few items related to dress were also found. These include three small glass beads, copper pins and wire. There was also part of a pharmaceutical phial in pale green glass, and fragments of colourless vessel glass.

Rebuilding of the vault beneath D:Building 5

In D:Building 5, the lack of surfaces or features assignable to the later 15th or 16th centuries suggests that period D16 began with some truncation; intrusive 17th-century artefacts in the period D14.3 surfaces make it clear that there was considerable disturbance at this time. At the beginning of the 17th century, an oval cut was inserted into the centre of the undercroft floor (D16.1), possibly to hold a container of some sort, although given the later insertion of a brick drain, this and similar subsequent features may have been sumps. The cut was backfilled and sealed by a gravel floor at 2.2m OD. A circular cut intruded into this material, replacing the oval feature.

Along the south wall, a series of cuts allowed the insertion of ragstone-faced mixed rubble footings to support a yellow brick thickening of the wall and its responds. At the east end of the refacing, coursed ragstone and brick walls were constructed across the southeast and northeast corners of the

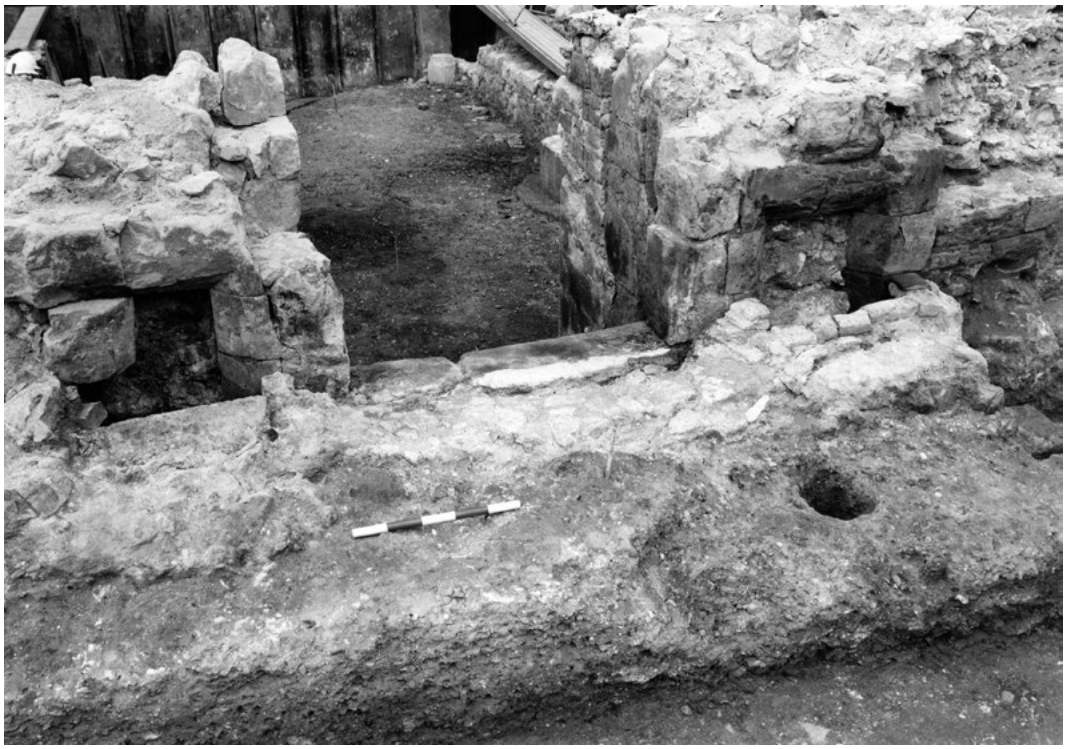


Figure 209 Site D: D:Building 5, the new threshold and protection for the windows, looking west (0.5m scale)



Figure 210 Site D: D:Building 5 in period D16.1, looking east (1m scale); compare the view of the building at an earlier time, Figure 150

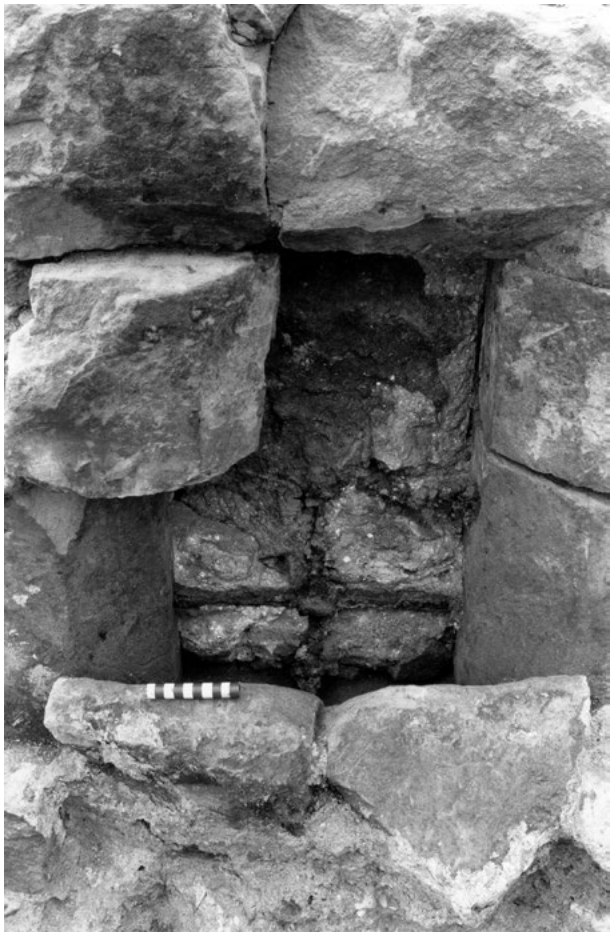


Figure 211 Site D: D:Building 5, blocked window in period D16.1, looking west; presumably the barring with iron of the windows of 1625–6 (10 x 10mm scale)

building, blocking the windows internally, and encasing the lower ribs of the vaulting (plan, Figure 185; Figure 210, Figure 211). Metal cramps helped to attach the new masonry to the old. The bricks used were much smaller than normal, although some had been employed in the period D14.3 conversion. This is probably the barring of the cellar window(s) in 1625–6 noted in the parish accounts. Lane silts accumulated in the outer reveals of the windows, which were subsequently blocked with mortared ragstone rubble. Recording during the watching brief found that the west end of the undercroft was similarly strengthened.

The floor level of the modified undercroft was raised using mixed makeups which sealed the lower three steps in the entrance. Two successive pits cut into the makeups indicated the presence of a shortlived asymmetrically-placed feature of uncertain function; once again, these may have been sumps. This activity can be dated by ceramic evidence to *c.* 1600+.

Slightly later, a brick drain 0.6m wide and up to 0.24m deep was inserted into the new surfaces along the north wall. The drain was not recorded in detail, but is thought to have consisted of a shallow trench filled with two lines of bricks laid end to end, either flat or at an angle to form a gutter, and covered with a single row of brick and tile. Evidence from New Fresh Wharf shows that the drain was cut through the foundations of the west wall, then continued westward beneath the adjacent alley (Hammond's Quay), before finally passing through the cellar wall of the adjoining C:Building 11, to empty into a sump in the cellar's brick floor (Figure 177).

Clays and sand deposits within the drain suggested that the velocity of water varied. The need for the drain and the suggested sumps noted earlier may have been created by the excavation of the cellars to the south, which could have exposed the undercroft to flooding for the first time, exacerbated perhaps by a rise in river levels. The cellar of C:Building 11 at New Fresh Wharf was lower still at *c.* 1.3m OD, forming a suitable collection point.

A new surface was laid on the earlier makeup, sealing the fill of the pit or sump and the construction trench for the drain. The surface was cut diagonally northwest-southeast by a second brick drain, which may have emptied directly into the first example, since it did not pass through the wall. The internal section was only 80mm square, formed by a roof tile base, sides consisting of parallel rows of brick, and a tile lid. Although the second drain was constructed slightly later than the first, the two were broadly contemporary, and contained the same type of fill. The bricks employed were of the larger red variety, used in the original undercroft, which may suggest that they were reused from elsewhere.

A mixture of silt and decayed wood which sealed part of the area after the insertion of the drain may have been the remains of a timber floor or trodden debris. These later deposits were often described in the site record as organic, with bituminous traces, and contained a large number of wooden stoppers from coopered containers and other wood fragments which may relate to the use of the structure. They also contained pottery of 1650+, and therefore appear to have been laid down immediately before the Great Fire of 1666, which scorched the final gravel surface.

Distinctive small, hard, yellow bricks were used for the refacing of the south wall, and the northeast corner of the undercroft. Some are slightly tapered in breadth and others have sunken margins on their upper surface. These bricks, which were more frequently used as paving, were first imported into London in considerable numbers from the Netherlands during the 17th century.[77] At least two sizes seem to be present; bricks with a length of 149–165mm, and a smaller number measuring 175–187mm. This must be the result of using moulds of different lengths as the 38mm difference between the longest and shortest brick is too large to be accounted for by variations in shrinkage during firing. The average brick size of each group is: 157x74x35mm and 181x83x44mm. One large hard yellow brick (size: 237x117x62mm) in the same fabric as the smaller yellow bricks was incorporated in the reconstruction of the undercroft (D[1381]).

A small quantity of London-made red brick (fabric 3033) was also used in the reconstruction. Two sizes were employed with an average size of: 217x107x55mm and 229x105x59mm. The larger size of red brick was used to form the drains in the undercroft floor (average size 231x100x62mm). Peg tiles, almost all in fabric 2276, were used in the construction of the drains, along with a part of a plain green glazed floor tile of Low Countries origin (fabric 1813), the green glaze resting

[77] Smith 2001, 36.

over a white slip. A number of complete and partly complete peg tiles used in the drain were retained as samples (fabric 2276).

Twenty plain and decorated floor tiles were recovered from period D16.1. All the decorated tiles are of Penn type (ie medieval). The following Eames/Hohler design types are present: 2027, 2231/P54, 2353?/P58?, 2551, P108 and P155. Most of the plain tiles are plain glazed examples from the Low Countries made from clays with frequent white and cream calcium carbonate inclusions in their clay matrix (fabrics 1678, 2191, 2497, 2504, 3083). Two groups are present. The first, with a size of between 115–123mm square with a thickness of 23–33mm, are almost certainly medieval in date. None are complete but surviving fragments indicate that they originally had five circular nail holes 1.5–2.5mm in diameter in their top surface. These tiles have dark green, black or yellow glaze. The second group, which probably dates to the late 15th–16th centuries, comprises tiles with a thickness of between 35–49mm. None are complete but one has an incomplete length of 167mm. This tile has a 4mm square nail hole near the surviving corner. The tiles in this group are dark green, yellow or brown. Of similar date, but made with a silty fabric type (2322), is another Low Countries import with a green glaze above a white slip. The other floor tiles from period D16.1, which are in a variety of fabric types, are from unknown production sources. These are plain yellow (a complete tile measuring 113x110x21mm), plain? mottled yellow and green and possibly unglazed.

A large assemblage of pottery was recovered from this phase, consisting of 296 sherds from a minimum of 134 vessels (5.22 EVEs, 6085g). The pottery was found in 28 contexts, 19 of which include medieval sherds (four of these are chronologically mixed with later material). Two medium-sized (between 30 and 100 sherds) and one large context (more than 100 sherds) were recorded, all post-medieval in date; the remaining contexts are all small (fewer than 30 sherds). Overall, the proportion of residual medieval pottery is relatively high, indicating a degree of disturbance, which is supported by a number of sherd-links between contexts (notably D[1103] with D[1096], and D[1153] with D[1456]). The medieval pottery ranges widely in date from *c.* 1050 to 1500, although most dates after *c.* 1270.

The three larger groups offer more scope for chronological refinement than the smaller contexts, and two of them have been dated to *c.* 1580–1630, while the third probably falls within this range as well. Surrey-Hampshire border wares are by far the most common type of pottery amongst the late 16th- to early 17th-century material, accounting for almost 50% of all pottery by sherd count. Everyday household forms predominate in the whiteware fabric, including sherds from several flanged dishes or platters and various forms of bowl. There are sherds from at least 14 tripod pipkins in both white- and redware, one of which is especially large. Other forms include chamber pots and a porringer.

London-area redwares are the second most common source of pottery, although they are only half as frequent as border wares. Unusually, these are dominated by flared bowls in PMR, with sherds from seven closely similar vessels, all glazed internally, with minor variations in the rim form only. Essex redwares are far less common, represented by sherds from



Figure 212 Site D: D16.1, Raeren stoneware statuette of woman with elaborate head dress (height 55mm)

three cylindrical mugs and part of a porringer in PMFR, clear-glazed inside and out and lightly sooted under the base. There is also a near-complete tyg in post-medieval black-glazed ware, with two handles and one sherd from a dish in METS.

Continental imports are relatively numerous. Although the range of sources is not especially wide, they do include some unusual pieces. There are sherds from a ring-handled vase in south Netherlands maiolica (SNTG), the most common form exported in this fabric to Britain during the 16th century. Rather more unusual is the waisted base probably from a wet drug jar in north Netherlands maiolica (NNTG), which can be dated broadly to the second half of the 16th century.[78] The base is decorated in blue over a pale blue with horizontal lines and a band of debased *guilloche*. German stonewares include part of a Langerwehe (LANG) storage jar and sherds from seven drinking jugs in Raeren stoneware (RAER), a common find in 16th-century contexts across London. The head and bodice of a female figurine in RAER (Figure 212) is again uncommon, although a number of examples are known from London.[79] Dating to the early 16th century, these stoneware figurines may have been made as cheap modelled versions of Cologne moulded pipeclay figurines.[80] The headdress and bodice with applied, stabbed collar closely parallel German whiteware figurines from the Cologne and Aachen area.[81] This

[78] Hurst *et al.* 1986, 119, figs 55–6, and especially pl 20.
[79] Gaimster 1997, cat 78, col pl 15.
[80] David Gaimster pers comm.
[81] Hurst *et al.* 1986, 237, fig 112, no 356. Geoff Egan commented that in view of the prominent, fashionable headdress, the figurine is most

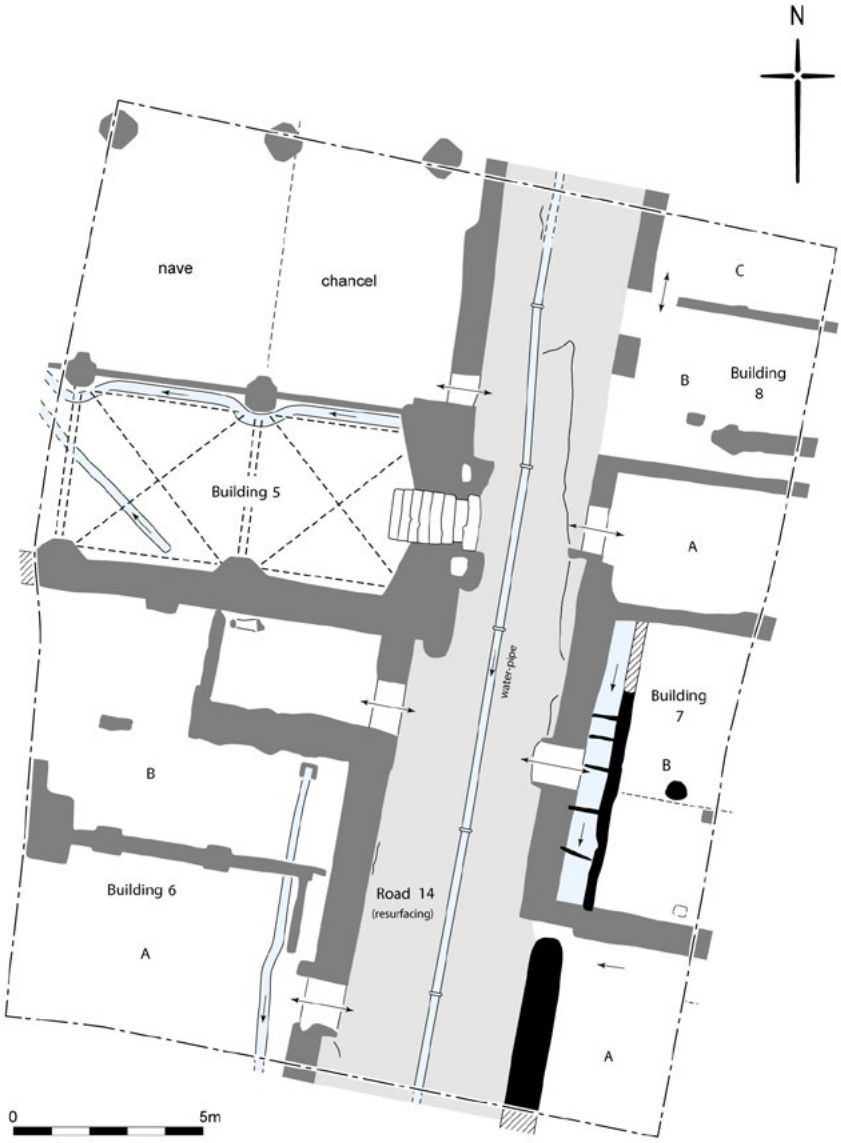


Figure 213 Site D: plan, period D16.6–8 (1:200)

example would have been old by the 1640s, and was possibly handed down as an heirloom.

One hundred and eighty registered finds were recorded in layers in the cellar. One jetton was made by Hans Krauwinckel of Nuremburg, and is datable to 1586–1635; another jetton issued in the early 16th century shows a 'French galley' with illegible lettering. The other finds present a very different picture from the large finds assemblage found in period D15.4, with its strong emphasis on utensils, vessels, dress and other personal items. There are 29 registered objects directly related to the structure of the building, including floor tiles, mortar samples, stone mouldings, roof stone and a brick. Only one piece of cutlery was identified: the bone handle of a knife with part of the iron tang remaining. The turned handle is made in one piece and is badly split, measuring 51mm in length, with faceted surfaces. The finial has multiple grooves. It dates to the 16th century, so was old if discarded at the same time as the other finds. No other handles of bone, ivory or wood were recognised, and no blades. Glass vessels for use at the table or for storage are far less numerous than in period D15.4, accounting for only 5% of the finds assemblage. These include the base of a bottle in dark green glass, two pale green cylindrical phials and the base of a goblet stem, also in pale green glass. There are also relatively few items of dress and other personal possessions, represented by three glass beads, two leather shoes and a number of cloth samples. There are no dress accessories or items used for personal grooming. There are, however, two possible toys. One of these is the Raeren stoneware figurine described above. The other is a damaged wooden spinning top, probably also of 16th-century date. It has a flat, cut upper surface measuring 30mm in diameter and a bulbous, rounded profile, with an iron point (incomplete) at its base. The most prolific class of finds consists of 39 wooden stoppers of various shapes and sizes (22% of all registered items by straight count). Seventeen of these are in cork (*Quercus suber*), 13 of them of similar shape and dimensions (taking in to account the effects of burial and drying out). Some were probably used to seal ceramic pharmaceutical jars, others functioned to seal barrels or casks.[82] The large number of stoppers collected does seem consistent with use of the vault for storage. Clay tobacco pipes found in two contexts date to *c.* 1660–80, with one slightly earlier bowl made *c* 1640–60 and stamped with the maker's initials in relief underneath the heel.[83] The first initial is illegible, although the second one is a T.

Period D16.1 therefore comprised a rebuilding of the south side and east end of the great vault on the south side of St Botolph's church. During this rebuilding the two windows to the lane were blocked with rubble. Probably at the same time, efforts at controlling water culminated in two arms of a shallow drain being laid in the vault floor; this went into the next property westwards, where the separate excavation of 1974 at site C found it emptied into a well or hole in the cellar floor there. This appears to be the result of the agreement

likely to have been a secular plaything.

[82] Further discussion of them is in Schofield and Pearce 2009.
[83] Higgins 1989, 1.

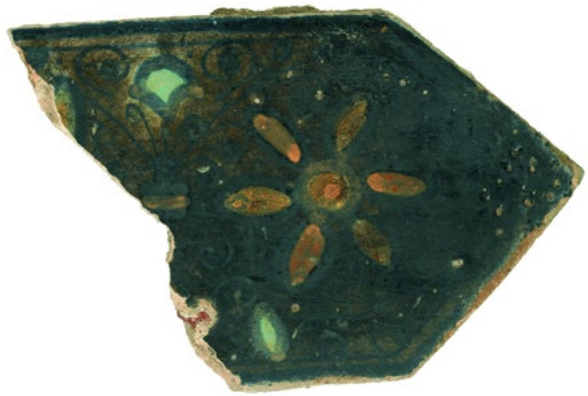


Figure 214 Site D: period D16.7, part of a tin-glazed hexagonal floor tile D[1627] <5041> (<T7>) (length 140mm)

between the parish and their neighbour to the west, Mr Wigmore, in 1629; in which the parish noted their tenant Mr Soane had been troubled by water which hindered his storage of goods and merchandise there. It therefore seems likely that this phase represents Soane's tenancy and use of the vault, as well as his problems there. The large amount of pottery dates to the decades 1580–1630, which fits. The period of deposition of objects within the cellar, on its floors, goes up to the Great Fire of 1666.

Final modifications to D:Building 7 (D16.7)

In room A of D:Building 7, a 1.1m-long wooden beam was laid east–west across the primary fill of the main drain, and silts and building materials were then deposited to block off the north section (D16.7, Figure 213). The east–west feeder and south section of the main drain were initially left unblocked, until the construction of a brick and rag mortared platform at the junction heralded the deposition of further dumps, including building rubble. Both drains were completely infilled, and the floor area to the southeast raised to *c.* 2.7m OD using 0.4m of mixed deposits. A wide foundation trench was cut along the west side of the room for a brick foundation, which occupied the west side of the cut. A brick wall was constructed on the foundation, with some levelling planks used at plinth level. The east side of the trench was backfilled with rubble.

In room B, masonry blocking was also inserted into the north east–west drain, which was infilled with successive dumps of a more organic nature. The north section of the main drain was then infilled to above 1.8m OD, the deposits continuing to seal the brick floor to the east. Subsequently, a north–south cut was inserted into the rubble backfill along the east side of the main drain, for a new raised drain with an east brick wall (D16.8). Five wooden beams were set in holes left in the wall, suggesting that the base of the cut was at least 1.0m above the previous base, at 2.14m OD. It is unclear how the new drain emptied itself, since there was no south continuation apparent. Occupation deposits accumulated to the east, antedating a chalk cobble post base which was constructed centrally to the room. A brick and ragstone floor was laid around the base at 2.1m OD, consisting of north–south brick rows, with an edging of three lines of ragstone blocks against the drain wall to the west. Chalk was similarly used along the north edge.



Figure 215 Site D: period D16.7, tin-glazed 'medallion' type floor tile D[1409] <5061> (<T12>) (height 136mm)

The phase produced 18 tin-glazed floor tiles in four main design types. Nail holes are visible on the upper surface of certain tiles and some show clear evidence of wear confirming their use as flooring. The earliest tile present is a half complete hexagonal shaped tile with a blackened top surface, possibly heat damage (Figure 214). It would have been used with square tiles in a decorative tin-glaze mosaic floor.[84] Tiles of this type (<T7> in the report below, section 6.7) were made in Antwerp in 1520–40. They would normally have floored a prestigious 16th-century building, such as a royal palace or a house of the aristocracy. Tiled floors of similar type are known to have been installed in Richmond Palace and Whitehall Palace.

The majority of the other tin-glazed tiles present are of 'medallion' type and feature various birds and animals set in a multi-circular blue and yellow border (Figure 215; type <T12>). Medallion tiles with yellow and blue circular borders were made at the tin-glaze pottery and tile factory at Pickleherring in Southwark between 1618 and *c.* 1650. The medallion tiles in this phase were probably made at Pickleherring.

Two tiles with part of a complex quarter star, grape and fruit design were also probably made in London, although there are Dutch tiles of the same design dated 1570–1600.[85] If the excavated tiles are London products of similar date then they would have been made at the tin-glaze pottery and tile factory at Aldgate between 1571 and *c.* 1615. Alternatively, both could have been made at a slightly later date at Pickleherring. A near-complete tile with the same design is illustrated by Britton.[86] A further tile has part of an interlocking strapwork pattern in blue and orange. Green or yellow would also have been present in two corners. This is a known Pickleherring design already published by Noël Hume[87] although his tile has pale blue and yellowish green corner decoration.

[84] Dumortier 1999, pl 1.
[85] Pluis 1997, 216, A.01.05.07.
[86] Schofield and Lea 2005, 246–7; Britton 1987, 175, no.197.
[87] Noël Hume 1977, 55, fig II, no. 6

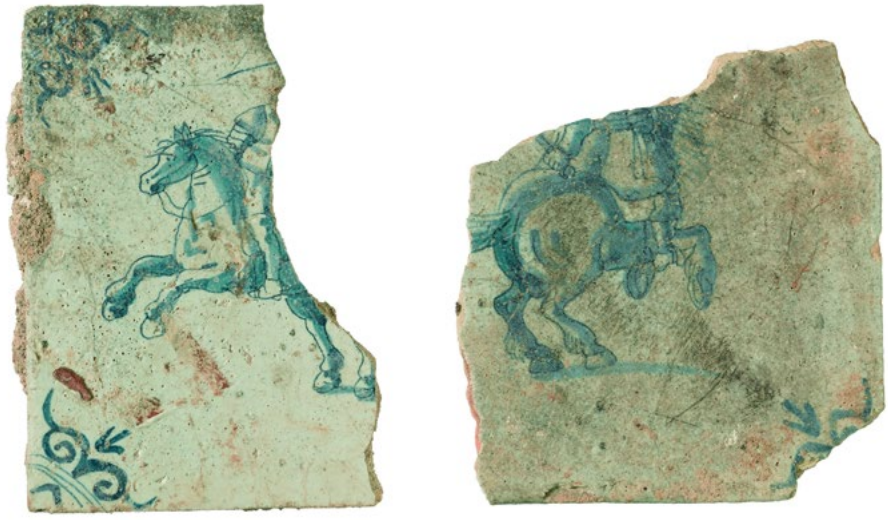


Figure 216 Site D: period D16.7, tin-glazed wall tiles from D[1389]: left, <1808> (<T17>), right, <1856> (<T18>) (height of <1808> 140mm)



Figure 217 Site D: A complete wall tile from a site in Botolph Lane, north of the Billingsgate site, excavated in 1995 (BPL95 [105] <85>) (<T19>) (height 128mm)



Figure 218 Site D: Dutch wall tile D[575] <1000> (<T16>) (length 80mm)

Associated with some of the floor tiles are a number of thinner (10–12mm thick) tin-glazed wall tiles (fabrics 3064, 3067, 3078 when further examples from the Great Fire debris are included). These are decorated with mounted soldiers and barred ox-head corners in blue on a white background (Figure 216; types <T17> and <T18>). Such tiles are often referred to as 'delftware', despite being manufactured at a number of centres in both Britain and the Netherlands.

Only one tile survives substantially intact. This measures 140mm in height with thickness of 11mm. Many wall tiles are partly blackened or have a pitted glaze surface indicating that they have been subjected to intense heat. The tin-glazed floor tiles seem to have been less affected, although two tiles show blackening of their upper surface.

The heat damage present on the wall tiles may be the result of the effects of the Great Fire of 1666. It is possible that the upper infilling of the drain was part of the destruction caused by the Fire (the building collapsing) or by moving fire dumps around in its aftermath. Whether the date of deposition is the 1650s or 1666, it is of significance as it means that the tiles must be of Dutch manufacture as the first British wall tiles were not made until 1676 when a Dutch potter from Delft obtained a patent 'to exercise his Art of Makeing Tiles and Porcelane.... after the way practised in Holland'.[88] They are among the very few wall tiles which can be stated with any certainty to have been brought into London before 1666. A further 42 pre-Fire wall tiles have been found at a nearby site in Botolph Lane.[89] One of them furnishes a complete example of the rider on horseback design (type <T19>) (Figure 217).[90]

The earliest documentary reference to the import of Dutch tiles is the account of Sir William Brereton who in 1634/5 brought matching pairs of soldiers and horsemen (perhaps similar to those associated with D:Building 10) and other tiles from a pottery dealer in Amsterdam to decorate his house

[88] Horne 1989, 17.
[89] Betts 2007c, 38–9.
[90] This was not published in Blair and Sankey 2007, but was in Schofield and Pearce 2009, 318, fig 24.

in England.[91] The Billingsgate tiles were probably brought to London sometime in the mid-17th century. The designs and corner motif on the tiles is similar to a tile dated 1635–60 illustrated by Pluis.[92] The Pluis tile shows a mounted soldier in a very similar position to that found on one of the Billingsgate wall tiles (Figure 218, type <T16>).

The wall tiles are strongly suggestive of a domestic building: in Dutch paintings of the 1650s and 1660s, for instance those of Pieter de Hooch (1629–84), tiles like these are shown around fireplaces or forming a skirting round a room.[93] In London, the tiles could be employed in fireplaces in upper storeys. In 1739 a house in Leadenhall Street which had escaped the Great Fire had chimneys 'set with Blew Landskip Galley tiles' in its bedroom chambers, which must have been on the second or higher floors.[94]

Two hundred and forty seven sherds from a minimum of 132 vessels (3.66 EVEs, 2622g) were recovered from 21 contexts, five of which yielded medieval pottery only. One of these (D[1298]) is a medium-sized group with 96 sherds (14 ENV, 0.7 EVEs, 1092g), dated to *c.* 1450–1550. An overall date range of *c.* 1350–1550 can be given, although most of the pottery is of 15th-century date. There is a surprisingly large amount of imported pottery with two cauldrons and three frying pans or skillets in Dutch red earthenware, one of which is represented by 50 sherds. Shallow skillets of this form were used in London from the late medieval period and into the 17th century, with little obvious typological development. None of the three skillets is sooted underneath, suggesting that they were not used (at least not for cooking). It is possible that they date to the 16th or even early 17th century, although the rest of the pottery in the context is of 15th-century date. Other imports include part of a jug and storage jar in Langerwehe stoneware, Siegburg stoneware beakers and a drinking bowl, and sherds from two *pégaux* in Saintonge ware from southwest France.

The post-medieval pottery can be dated broadly to *c.* 1550–1700, although this is largely derived from long-lived types such as Frechen stoneware and Surrey-Hampshire border ware. The latest pottery found dates to *c.* 1630–80, and this can be further refined to *c.* 1660–80 by the evidence of the clay tobacco pipes, which include Atkinson and Oswald (1969) types 13 and 15 from four contexts. One medium-sized context D[1627], which yielded 36 sherds from a minimum of 26 vessels, has several sherd-links with context D[1389], the large group recovered from the drain in D15.4. It appears that subsequent work within this building disturbed earlier deposits, although both groups have a coherence in their makeup consistent with deposition in the mid 17th century. This pattern is further borne out by analysis of the registered finds assemblage, which includes a similar range of artefacts to that found in D15.4.

Surrey-Hampshire border wares are the most common source of pottery (35.4% by sherd count, 32.6% ENV). As in the drain fill D[1389], serving vessels predominate, including flanged dishes or platters, porringers and bowls, as well as tripod pipkins for cooking. Part of a small cylindrical jar in red border ware is a relatively unusual form in this fabric. It has a slight constriction below the rim to allow a cover of paper or muslin to be secured and closely resembles pharmaceutical jars made in tin-glazed ware. London-area redwares are the second most common source of pottery in period D16.7, consisting mostly of cauldrons, pipkins, and including a few sherds of 16th-century PMRE. Fine redwares, including those made in Essex, are represented by chamber pots and a pipkin in PMFR, sherds from six mugs in post-medieval black-glazed ware and one sherd from a jug in Metropolitan slipware, dating after *c.* 1630.

Tin-glazed wares occur mostly as small sherds, from which it is not always easy to identify styles of decoration and thereby date. The latest identifiable types are decorated in styles common during the middle of the 17th century, between *c.* 1630 and 1680. Part of a dish decorated in blue and white in the Wanli style dates to the 1620s or 1630s, while other dishes also decorated in blue and white are probably slightly later. Sherds from two small cylindrical jars have plain white glaze, which was again common after *c.* 1630. One of these is particularly small, with a rim diameter of 35mm, and appears to have been overfired, although it is not burnt.

Imports from the Continent include a vessel with a deep blue, cobalt-stained, overall glaze outside and a plain white glaze inside. Vases of this form with polychrome decoration are well known, if relatively rare in London, and date to *c.* 1500–75, while blue or manganese-mottled Malling jugs, also from the Netherlands, are dated to the late 16th century.[95] Other decorative pottery includes a sherd from a bowl in Ligurian maiolica, from north Italy and part of a bowl in Werra slipware from the Rhineland, which was imported into Britain mainly between *c.* 1580 and 1650. German stonewares are represented by ten sherds from jugs and Bartmänner in Frechen stoneware, and three small sherds from Westerwald jugs, as well as part of a cylindrical mug or *Humpen* with applied rosettes. Two jettons, both from D[1621], are of identical orb and rose type and in good condition. They have a central rose on the obverse, surrounded by alternating crowns and *fleurs-de-lis*, with the imperial orb or *Reichsapfel* surmounted by a cross pattée on the reverse. The two jettons probably date to the first half of the 16th century.[96]

No utensils or cutlery were identified, in the form of knife blades, although a large, hollow, one-piece wooden handle(?) is incomplete and its original use uncertain. There is, however, a large quantity of fine glassware, constituting 30% of the registered objects, and much of it comparing closely with the table glass from D15.4. Most of the identifiable glass fragments come from drinking vessels, including at least nine stem goblets in colourless glass. Surviving bases are folded back on themselves underneath and two rims measuring 90mm in diameter were recorded. One example <1896> comes from an elongated inverted baluster stem goblet, probably dating to the first half of the 17th century and 'a cliché of the Mansell era,' found in waste from Mansell's glasshouse in Broad Street and in the Gracechurch Street hoard. Part of the foot of a pedestal beaker (probably used as an ale glass) in colourless glass dates to the late 16th to mid 17th century, and

[91] Ray 1973, 59.
[92] Pluis 1997, 356, A.02.07.03.
[93] For example those shown in Sutton 1998, 48, 79, 119, 121.
[94] Metcalf 1984, 99.
[95] Hurst *et al.* 1986, 126; fig 54, no.168.
[96] Schofield and Pearce 2009, fig 26.

there are two small fragments of decorative trails or ribs in dark blue glass which may also come from beakers. The bases of two pedestal goblets in colourless glass had optic-blown vertical ribs. These were blown into a ribbed mould before the final forming and came into Britain from Venice in the late 16th century in soda glass, and in the 17th century from the Netherlands, in green potash glass.[97] One fragment of opaque, white glass with splashed decoration in red and dark blue compares closely with part of a vessel of unidentified form from period D15.9. Fragments of two possible phials in pale green glass, and from two flasks, as well as the base of a possible case bottle are the only other forms identified.

Dress and personal possessions include numerous small, fine, copper alloy drawn-wire pins, of the kind used with items of clothing and for sewing. One larger pin, measuring 55mm in length, has a spherical wound wire head and probably dates to the first half of the 17th century. Other items include a single small glass bead, a twisted wire fastening, one leather shoe and three leather straps, and four cloth samples. An undecorated, double-looped copper alloy buckle was also found, measuring 20x20mm, and probably dating to the early to mid 17th century.[98] An almost-complete spectacle lens, 35mm in diameter, is comparable to the lens found in D15.4, and of the same size, although it is stronger. No identifiable fragments of frames to match the lenses were found in either period. The only other personal item identified in D16.7 is part of a tortoiseshell comb, of the usual double-sided form, with fine teeth (all now missing) on one side and widely spaced, square-ended coarse teeth on the other.

Part of a circular wooden seal finial with screw-thread measures 27mm in diameter across the top and 21mm at the bottom, with a depth of 17mm. It probably comes from a composite rod-form seal for stamping wax seals on documents. The top has shallow carved decoration depicting a bird and foliage. A comparable complete example in boxwood, with stamps at each end, was found on the 1545 wreck of the *Mary Rose*.[99] Clay pipes were found in seven contexts, mostly dating to *c.* 1660–80, but with two earlier examples. One of these is dated to *c.* 1640–70 and the other, from D[1622], to *c.* 1620–60.[100] This pipe has a maker's mark in the form of a 'star' pattern with dots stamped in relief underneath the heel, another common symbol used by London pipemakers in the 17th century. It may relate to a tavern of the same name ('The Star', 'The Sun' or similar), although the maker remains unidentified.

To summarise, in period D16.7, D:Building 7 was altered, perhaps rebuilt internally. The drain which had run in its basement rooms was at least partly filled in (though perhaps Great Fire debris also got into it) and a new doorway made to the lane. The infilling of the drain included tin-glazed floor and wall-tiles of several designs which seem to be Continental in origin: the floor tiles from Antwerp and the wall tiles being Dutch. There were several joins between sherds from this phase and others in the layers in what was interpreted as silting in the drain in the phase beneath, so clearly there was some mixing of deposits. The pottery and datable artefacts,

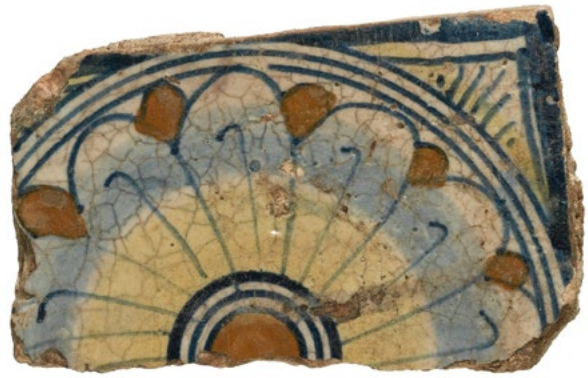


Figure 219 Site D: D16.8, tin-glazed floor tile from repairs to the lane D[424] <772> (length 92mm)

where not residual, are of the broad period 1630–1700; but the phase is assigned to the decades before 1666, since demonstrably post-Fire buildings (not reported here) overlay it. The cumulative dating of successive stratigraphic phases would suggest that the alteration and deposits of this phase date from the 1650s or 1660s, before 1666.

Resurfacing of lane and insertion of a water pipe

To the west of the building, makeups for a new lane surface were laid, lapping the new outer wall (D16.8, Figure 213). The lane was now virtually level from north to south at 3.22m OD, where previously there had been a relatively large slope: this must have been influenced by the advance of the waterfront well to the south over the preceding three centuries. Down the centre of the lane, a wooden water pipe was laid in a cut 0.7m wide and 0.65m deep. The pipe consisted of four 4.3–5.3m bored sections, connected by iron rings (two of which survived in decayed form) and supported at intervals by nine large rag blocks. The rings were 0.32m in diameter, 35mm wide and 5mm thick. This water pipe in the ground is mysterious. Presumably it came from some kind of water system in Thames Street, and it was serving a building or structure to the south of the excavated area. One might wonder why a piped water supply was necessary so near the edge of the river; but the river would have been polluted to a large degree.

Red bricks (fabric 3033) of similar size, measuring on average 228x106x57mm, were used in the foundations and new west wall of the south room. Red bricks were also used in the new drain but here at least two sizes of brick were used: 249x119x58mm (fabric 3033) and 219x100x55mm (fabrics 3033, 3039). The brick floor comprised reused medieval yellow brick (fabric 3031) measuring 201x98x48mm, and later red brick (fabric 3033) averaging ?x107x55mm. A small fragment of peg roofing tile was also incorporated into the floor.

Two medieval floor tiles were found in the metalling. One is a decorated Penn tile in an unusual silty fabric type (fabric 3076). The pattern is uncertain but may be Eames/Hohler design 2819/P139? or 2820/P140. The second tile has a plain yellow and green mottled glaze and is in a more common Penn fabric type (1811). From repairs on the west side of the lane came a single tin-glazed decorated floor tile (Figure 219; type

[97] Wilmott 2002, 60, fig 58; 69, fig 77.
[98] Margeson 1993, fig 5, no 35; fig 12, nos 117–19; fig 16, nos 163–5.
[99] Richards and Gardiner 2005, 133–4, fig 3.25.
[100] Higgins 1989, 1.

<T6>). This would have been used in a mosaic floor with tiles of hexagonal shape. It is similar to a number of tile designs in a pavement found at Herkenrode Abbey, Belgium, which also combine a circular pattern with lines radiating from a central point.[101] The design on the tile cannot be matched exactly but the close similarity, including the style of the corner decoration, indicates that the tile was made in Antwerp in 1520–40. The only other tin-glaze tile is a small part of a blue on white wall tile (from D[1044]) probably showing a mounted military figure.

Twenty-nine sherds from a minimum of 23 vessels (0.49 EVEs, 341g) were recovered, all from small contexts, none of which included more than 12 sherds. Three contexts yielded a single medieval sherd each, ranging in date between *c.* 1170 and 1500. Five contexts are dated between *c.* 1580 and 1700, which can be narrowed down to *c.* 1630–80 by the presence of tin-glazed ware decorated in styles typical of the mid 17th century. Further refinement is offered by a clay pipe dated to *c.* 1660–80 found in D[997].

The main fabrics found are Surrey-Hampshire border wares, both redware and whiteware, in the form of bowls, a flanged dish, porringer and tripod pipkins; and London-area post-medieval redware, although the only identifiable form is part of a jar. There are also sherds from two rounded mugs in post-medieval black-glazed ware, as well as part of a porringer with polychrome decoration and a blue and white jar in tin-glazed ware. Imports consist of sherds from jugs and *Bartmänner* in Frechen stoneware and from a bowl in north Italian bichrome marbled slipware. All sherds are relatively small, in many cases too small to identify form, and very few are joining. The assemblage is consistent with what comes from construction levels rather than everyday rubbish disposal.

Tenement 16 (Lyon Quay) in period P1 (1500–1666)

In March 1666 the Hearth Tax survey found eight houses here, the largest of Peter Richards having ten hearths.[102] The site of Tenement 16 was within the area of the watching brief during construction on the Billingsgate site, and no remains of the period could be recorded.

5.7 The riverside ends of sites C and D in pre-Fire panoramas

The two sites downstream of the bridge are shown in two of the panoramas, those of Wyngaerde (Figure 220) and Hollar (Figure 221), which are drawn from different points on the south bank. Wyngaerde, around 1540, shows an arcaded cloister south of St Magnus which is otherwise imperfectly known. The wharf next to it would be Fishwharf. The crane on Botolph Wharf is also visible. Hollar's view shows the riverside in the 1630s and 1640s. Several buildings, presumably warehouses, have walls of horizontal boards, the utilitarian style which was widespread on secular buildings including

[101] Betts and Weinstein 2010, no.6; see also Rackham 1926, 36, pl 16; Schaap *et al.* 1984, 42, fig 13.

[102] Davies *et al.* 2014, 899.



Figure 220 The waterfront immediately downstream of London Bridge around 1540, by Antonis van Wyngaerde (Ashmolean Museum). Site C lies immediately to the right of St Magnus church, and further right the church of St Botolph is named and given prominence. Also shown is the crane on Botolph Wharf

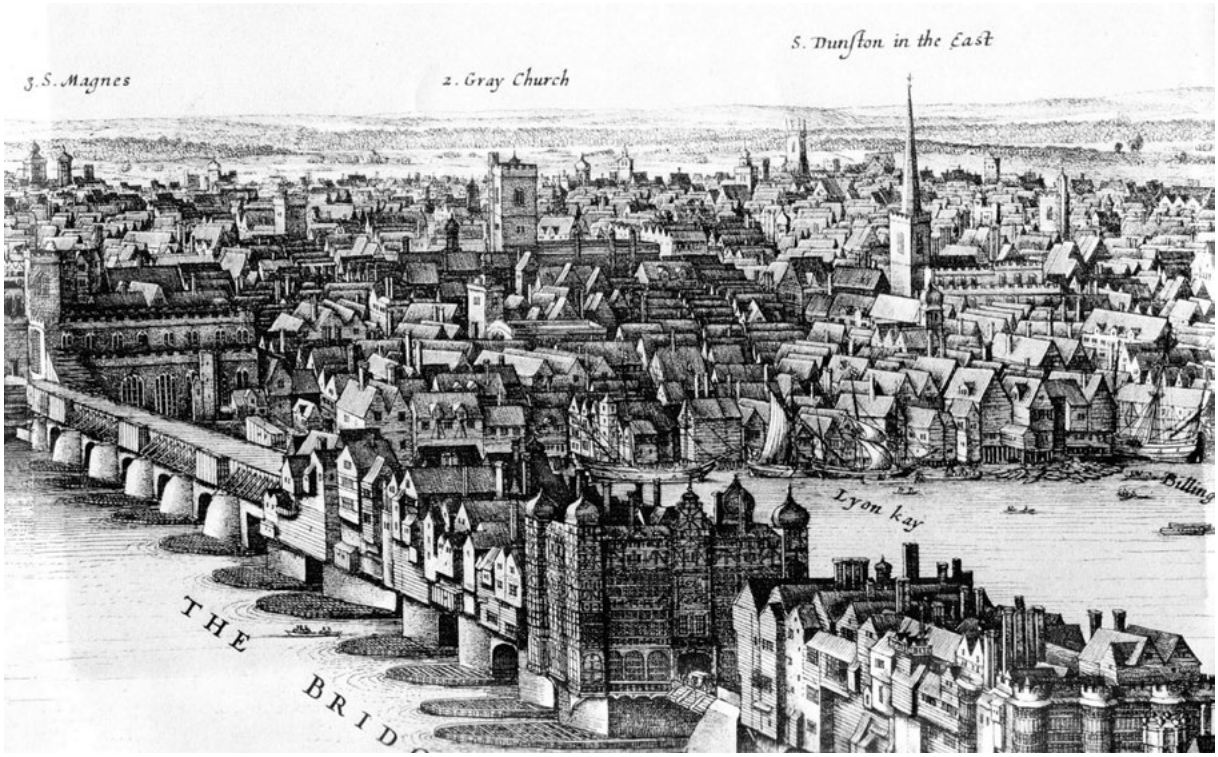


Figure 221 The waterfront downstream of London Bridge, from Hollar's Long View of 1647 (© British Museum). Three churches are numbered and named by Hollar: 1, St Magnus; 2, 'Gray Church' (St Katherine Cree in Leadenhall Street), well back from the waterfront; 3, St Dunstan in the East. What may be St Botolph Billingsgate is also shown but not named, immediately below St Katherine Cree

	Waterfronts and buildings	**Documentary references**
Tenement 1	A:Waterfront 18; A:Building 28 may have continued	1545 seven almshouses of the Dyers' Company established here by Sir Robert Tyrwhitt; Dyers' Hall documented from 1571; part called Three Starres, separate by 1602 when described in an inventory
Tenement 2	No evidence 1981–2; fragments of building at N end on Riverbank House site 2006–9	1579 occupied by a merchant tailor
Tenement 3	fragments of building at N end 2006–9 wharf rebuilt 1522 probably shown on panoramas	The Old Swan: comprised several dyehouses 1514–35, probably in five parts; the part next to Thames Street acquired by St Paul's Cathedral 1569, described in detail 1649, 3½ storeys over cellars
Tenement 4	No evidence	The Kateryn Whele: continued in Mercers' Company ownership to at least 1644. Gutter conveying water from the Thames mentioned 1514 and 1522, when the property contained a brewhouse and a dyehouse. Portions let out from 1597. The house on Thames Street had 3½ storeys on cellars in 1618–19. In 1638 Giles Yates agreed to spend 500 marks in building a dwelling house, warehouses and rooms for dyers, possibly shown in Hollar's panorama (drawn 1630s).
Tenement 5	No evidence in 1981–2; fragments of buildings and structures recorded at south end 2006–9	The Half Moone: continued in St Paul's ownership until 1649, when surveyed: then in 30 parts, 25 of which bordered Ebbgate Lane. House on Thames Street was of 3½ storeys, other buildings 2½ storeys.
Ebbgate [Swan Lane]		
Tenement 6	B:Building 7; some evidence of Great Fire [? Bdg 5 destroyed in GF]	Appropriated as chantry property by the Crown 1547, when it had 13 parts, probably seven on the W and six on the E of Black Raven Alley. Much sold off by the Crown. House on Thames Street continued to be called the Black Raven. Behind it were six small tenements. These were given to the Fishmongers' Company in stages in 1577–1622. Further buildings to the S.

	Waterfronts and buildings	Documentary references
Tenement 7	Not excavated	Our Lady: appropriated as chantry property by the Crown 1547; sold to the Fishmongers' Company 1590.
Tenement 8	Not excavated	The Peacock: owned by City 1509. In at least four parts in 1590.
Fishmongers' Hall, London Bridge, St Magnus		
Tenement 9	Not excavated	*Le Croskeys*: 1549 may have been held with Tenement 10 until mid 17th century
Tenement 10	C:Building 7 continues in use	King's Arms: 1649 separate from Tenement 9; 2½ storeys on street side.
Tenement 11a and b	C:Building 8 continues in use	Freshwharf: 1523 two parts perceptible. A, the main tenement, 1538 still a double wharf with a great gate; in 1545 in seven parts held by six tenants, one only a cellar. B, the southeast quarter, 'late being built' in 1523 with one side on the river. This itself subdivided by 1594.
Tenement 12	C:Building 9 continues	Gaunt's Quay 1561: the division into three parts of 1465 continued. A crane on the riverside judged an encroachment 1612.
Tenement 13	C:Building 10 continues; modifications to cellars including a new cesspit	Cocks Key 1582: by 1573 in two parts north and south, though freehold of both held by Robert and Edward Thurston in 1599. The north part comprised eight messuages in 1623.
Tenement 14	C:Building 11 built in 1580–1630 = The Half Moon and the building to the south. Evidence of Great Fire.	Hammonds Quay 1559: Vintners' property, in five parts by 1608. The Half Moon was the house at Thames Street from 1603. The building behind it to the south seems to have been a small house held by William Widmore, plaisterer, in 1609–41 and his widow Joan in 1641–56. A 'great house' was one of the other parts further down the alley.
St Botolph's church	Internal rendering of E wall; burials; major rebuilding; burials; Great Fire debris	1595 parish first leases out the great and the small cellar (ie D:Building 5 and the vault below the vestry). Major repairs to the church 1607–9.
Tenement 15	D:Buildings 7–8; D:Buildings 5, 6 rebuilt, modified several times; Great Fire debris	1577 lease of Wharf renewed to Russia Company; 1588 lease extended noting their expenditure on repairs. Lease renewed for 31 years in 1615, but lease granted to Thomas Soane grocer in 1622. Renewed to Soane in 1645 on condition he rebuild the tenement on the east side within five years. Lease to his widow Elizabeth in 1653. D:Building 8 probably held by Thomas Rodbard in 1666, when it had eight hearths.
Tenement 16	Strata removed during redevelopment	

Table 48 Summary of all the tenements in period P1, 1500–1666

houses in all London's suburbs from 1600 (and possibly before) until the middle of the 19th century. One warehouse with its long side to the river seems to have two hoists on its façade.

5.8 Discussion: the waterfront of London 1500–1666

A summary of the documentary and archaeological evidence for the tenements in this period is given in Table 48.

Reclamation and waterfront structures

The most striking topographical effects of the establishment of the Legal Quays in 1559 were felt downstream of the bridge, where the international port began to concentrate, first on the north bank and later on the south bank in Southwark (the Sufferance Wharves). Above the bridge the waterfront was less hectic, less under pressure, and this may have influenced the topographical and social development of the properties which were above the bridge and south of Thames Street. Overall, land reclamation was piecemeal in this period, by comparison to the enormous gains of the previous periods. The widespread occurrence of stone river walls no doubt contributed to this, as they formed water-tight barriers erected at great expense.

Within the study area upstream of London Bridge, that is roughly from Coldharbour (on the east side of the present Cannon Street railway station viaduct) to the bridge, there was one Legal Quay, at 'Busshers Wharf.' This lay on the west side of Stockfishmongers' Hall, in the parish of St Magnus, and stretched from there 72ft (22m) eastwards up to Churchyard Alley; it was 48ft

(14.6m) north–south. Like the other wharves upstream of the bridge, it was meant to be only for the landing of 'pytche tarre flaze iron waynescotts clapbordes deles ores rasters [*?] ashes to make sope osmonds [iron] eles cabells halsers hemp stones chests playeinge tables and all manner of fyshe and hoppes and to be open places for the shippinge and ladinge of any wollen clothes of the price of sixe poundes or under the cloth and conyskynnes and no other merchaundizes'.[103] There seem to be no further references to this wharf under its name, and perhaps it was not successful. Since the drawbridge on London Bridge did not work, it must have been severely impeded. An open quay space packed with what may be timbers is shown at the extreme east end of the Hollar view of the waterfront, just by the bridge, in 1647 (Figure 174). Perhaps these timbers had come downstream, by rafting (as in Figure 168). If they or other timbers were still stacked there in 1666, they would have assisted the Great Fire. After the Fire, the Legal Quays were considered to begin on the other, downstream side of the Bridge.

Although in general the pace of reclamation was greatly slackened, this period has produced references in the City records which illustrate aspects of City involvement which were no doubt by then common practice. First, there were attempts to control expansion into the river, since the foreshore was seen to be common ground or public property. In 1502 Ralph Dodmer, brewer, was found to have built a wharf at Baynard Castle further into the Thames than other adjoining wharves, to the damage of the common ground, and he was instructed by the City to pull down this wharf and make it meet with the next wharf. But after a view he was allowed the ground for a rent. Four years later Dodmer was accused of another encroachment at Dowgate, but this does not appear to have been assessed by a view until 1517. Second, in 1573 we obtain a glimpse of the process which must have been going on for perhaps centuries: the City tried to control expansion by designating which new parts of the waterfront could accept the general rubbish. In that year all dung boats carrying dung and *seylage* of the streets to the west [of the bridge] 'shall carry them to the east and shoot the bridge and go to the wharf newly built of Typkyn to fill it up.'[104] This would underline the suggestion that the finds in waterfront dumps (as opposed to foreshores) were from all over the city, and not from the specifically adjacent properties.

A question which might be addressed by future research is whether there was any reclamation into the river as a result of the Great Fire, or the scheme to make a uniform quay along the City's waterfront. The present view is demonstrated by a fold-out map of the City in a pocket in Harben's *Dictionary of London* of 1918. Waterfront lines of pre-1666, Ogilby and Morgan (1676) and Horwood in 1794–9 are overlaid. For the bridgehead sites, there is no difference between the first two and very little reclamation by the time of the third, Horwood.

Research on the sites all along the north bank of the Thames in 1500–1666 shows the same intensity of subdivision, crowding and mixture of domestic and industrial premises which are noted on the study sites. At the Blackfriars end of the waterfront, beneath the north part of the present Blackfriars station, investigation in 2016 found traces of a riverside masonry wall on piles and a probably associated extension of land fronted with a timber revetment up to 3m high, both of the first half of the 17th century. The timbers of the wall foundation included parts of a large timber-framed building.[105] Nearby to the east at the north end of the present Millennium Bridge, 17th-century buildings including one with timber vats, from the archaeological evidence, functioned before and after the Fire of 1666; perhaps this is the dyehouse 90ft (27.45m) long in Bosse Alley which was relocated and staked out in September 1667. Cloth seals of the period 1590–1610 were found in some numbers.[106] A little further east, the townhouse of the earls and in the 16th century the dukes of Norfolk was sold to the City in 1540 and became a large brewery.[107]

A detailed picture of the nature of buildings on two smaller tenements is provided by surveys in 1612 by Ralph Treswell (not to be confused with Richard Tredwell, tenant of Tenement 4) of Clothworkers' Company property at All Hallows Lane (now marked by the east side of the Cannon Street railway station viaduct) and close by to the east at Haywharf (plans, Figure 232). The latter lay within the recently-excavated Watermark Place site, and the lower parts of buildings and internal structures of the period were recorded.[108] At All Hallows Lane, the south part of the tenement was occupied by small buildings on the west side of the lane. These were mostly of two storeys with garrets over. William Browne had assembled a larger house by combining units leased from two other tenants: on the first floor he had a hall 30ft by 26ft 6in (9.2m by 8.1m) and three other chambers on the same floor, with several garrets above and a further small garret above them. At Haywharf, William Campion's brewhouse occupied much of the south part. This was a major building of 3½ storeys, with a parlour on the first floor, along with

[103] Dietz 1972, 158.
[104] LMA, Card Catalogue of Property References (compiled by A Sutton when in the Corporation of London Record Office) Castle Baynard 1502; Dowgate 1506, 1517; Typkyn's Wharf 1573.
[105] Stafford and Teague 2016.
[106] Ayre and Wroe-Brown 2002, 60–3; *Mills and Oliver Survey*, ii, 36.
[107] Hunting 1988, 43–6.
[108] Fowler and Mackinder 2014, 31–41.

other major rooms. The house may have straddled the lane; the large kitchen was on the west side, with an imposing hall on the floor above. Campion also leased a dyehouse on an adjacent property in 1597.[109] Nearby to the east, the tenements on site A still contained several dyehouses throughout the period; and the trade was practised at this time to the east of site B, immediately east of Fishmongers' Hall, roughly where the boundary between the present Hall and London Bridge is today. Here part of the property contained Stockfishmongers' Hall and this was turned into a dyehouse by a tenant in 1605.[110]

Custom-built warehouses of any size were still largely mixed in with houses, shops and taverns. From 1559 to 1666, there were no great efforts along the City waterfront to build efficient facilities for landing or exporting goods: there were no large brick warehouses of several storeys as in contemporary Amsterdam. Warehouses were built where space was taken over: in the late 16th century at All Hallows Barking, a few yards from the Custom House, the site of a suppressed college of priests attached to the church, after a few years as a garden, was rebuilt as a storehouse for imported merchandise; it was a strong frame of timber and brick.[111]

In terms of the built environment, this period was when the Southwark bank began to catch up with and resemble the north, City bank. At the bishop of Winchester's palace on the south bank, a gallery range was added sometime in the first half of the century, and a long new waterfront of stone was built during the later 16th century. The bishops lost their palace during the Civil War, and although it was restored to the see at the Restoration, it had by then been broken up into many profitable tenancies by its owner from 1647 (Hollar's panorama published that year shows its intact state in the 1630s, before these disturbances).[112] To the west, at the site of the south abutment for the Millennium Bridge, more substantial timber waterfront structures than in previous centuries were recorded.[113] Downstream of the bridge on the south bank, excavation and documentary study has revealed how some of the large houses there, notably Fastolf Place, were taken over and absorbed into lanes of small housing, their moats and ditches backfilled with a rich array of rubbish in the first half of the 16th century. The small dock serving a brewery was backfilled, and nearby a new tidal mill erected, though it only functioned for a few decades. The riverfront was now occupied by dyehouses and wharves, like the north bank.[114]

[109] Schofield 1987, 118*-21.
[110] Herbert 1836, ii, 66.
[111] Stow i, 131.
[112] Seeley *et al.* 2006, 87, 98, 101–2.
[113] Ayre and Wroe-Brown 2002, 63–6.
[114] Blatherwick and Bluer 2009, 113–40.

This period sees the start of concerted development of both banks of the Thames east of the City for maritime purposes. Wharfside building development from the 16th century onwards has been recorded at Dunbar Wharf, Narrow Street, Limehouse;[115] and nearby at another site in Narrow Street, the rich contents of 17th-century pits including 'an astonishing collection' of pottery from several European countries, Turkey, Iran and China has been proposed to be pirate plunder or loot.[116] By about 1670 small private wharves occupied the south bank at Rotherhithe a mile east of London Bridge, probably taking advantage of the wide foreshore at low tide.[117] Excavations over a 12-year period from 2000 have elucidated the history of the royal dockyard at Deptford and several timber waterfront structures of the 16th and 17th centuries, which show that the building of riverside revetments in timber continued, and largely in the same manner as in the medieval period.[118] The spread of London to the east was only part of London's spectacular increase in area after 1550 as its population quadrupled by 1600 then at least doubled again by 1650.[119]

Sixteenth- and 17th-century waterfront sites have been investigated at British ports such as Exeter, Newcastle upon Tyne and Perth; at Bristol remains of several late 16th- and 17th-century docks have been recorded.[120] By the end of the period studied here, the rebuilding of a small port could be a serious business: in 1651 Great Yarmouth (Suffolk) applied to buy Norwich Cathedral to use it as a quarry to build a new harbour.[121] But generally there are fewer British or Continental parallels for investigations of waterfront properties and facilities in the 16th and 17th centuries than for the previous centuries.

Buildings and their functions on the study sites; pottery and artefacts

On the Thames Street frontage, both above and below the bridge, it seems logical to assume that buildings grew higher in 1500–1666, but there is no clear evidence about the frontages from the present study. Ralph Treswell's surveys of 1607–12 of properties in Thames Street are mainly of buildings down alleys, which could reach three or three and a half storeys; only two adjacent houses on Thames Street were surveyed by him, and they were of two and a half storeys.[122] Richard Tredwell's tenancy on Tenement 4 in 1619 was also of this height. The hearth

[115] Divers 2000.
[116] Killock and Meddens 2005; the comment by Jacqui Pearce in Francis 2017, 204.
[117] Gerhold 2016, 151–2, plan 75.
[118] Francis 2017.
[119] Harding 2001; 2002, 14–15. Harding 2014 is a survey of London and Middlesex in the 1660s, with many references to recent historical work.
[120] Henderson 1991; Graves and Heslop 2013, 235; Bowler 1991, Bowler and Cathcart 1994; Ponsford 1985, 113.
[121] Collinson 1995, 201.
[122] Schofield 1987b, 122.

tax returns of 1666 quoted above do not give indications of how many floors each building had.

There was more intensive use and subdivision of the rear parts of properties and the waterside. At Botolph Wharf, merchandise was stored and space was crucial, so that the church of St Botolph let out the great vault below its south side. Problems with ground water, no doubt exacerbated by the tide, were tackled, though perhaps not successfully, by getting the neighbour to the west to install a pump in his cellar and take water from the vault. The rebuilding of the east side of Tenement 15, attributed to Thomas Soane in 1645–66, produced D:Buildings 7 and 8 which at least in their excavated ground floors were warehouses, with ample doorways to the lane. The wide range of pottery types and artefacts in the drain below D:Building 8 suggests that domestic accommodation was above in the same range.

The pottery and non-ceramic artefacts of this period have only been partly studied, but there has been progress on one research question, the extent to which artefacts can be tied to known people and to their use of the buildings on the sites. This has been investigated for the Widmores (if it is them) on Tenement 14 on site C in the 1630s, and the Soanes on several buildings around St Botolph's church on site D in the 1620s up to the Great Fire. This important kind of micro-archaeology has not yet been attempted for the earlier medieval levels, and may be less possible because of the smaller amount of documentary evidence in the centuries before the 16th. In the first half of the 17th century, clearly, the buildings on site D, but evidently not the others, contained walls decorated with Dutch tiles or their imitations from the Pickleherring pottery across the river (Figure 216 to Figure 218; more, Figure 252–Figure 253 below). This suggests that some houses in London, at least, had a Dutch tinge to their interiors.

A feature of this period was the development of the south two-thirds of St Botolph's church, from 1500 up to the Great Fire in which it was consumed (one of the parish fire buckets ended up in the debris of the adjacent Tenement 14). The Reformation at St Botolph Billingsgate could be studied in some detail, from the many interlocking archaeological features and the detailed documentary evidence of the 16th and 17th centuries. This topic is also discussed in section 6.2 below, as part of a summary of the whole history of the church.

The Great Fire and after

In September 1666 the Great Fire, which started in a yard off Pudding Lane nearby, swept over all four sites, probably from east to west (ie from site D to site A). It forms the graphic conclusion to this report. The fire started on the east side of Pudding Lane, about 70m north of the adjacent sites C and D, at the house of Thomas Farriner, baker. The location of Farriner's house has recently been specified; the rebuilt property became by 1800 no. 23, Pudding Lane, and the site is now covered by the late 19th-century Monument Street.[123] The rapid initial spread of the Fire was attributed to the combustible stores in cellars in Pudding Lane and Thames Street. Buildings on London Bridge were not damaged, as there had been the local fire of 1633 at the north end which fortuitously created a fire break. The Fire-devastated area is shown by Wenceslaus Hollar in his *Exact Surveigh of the Streets Lanes and Churches Contained within the Ruines of the City of London* of 1667.[124] The halls of the Dyers and of the Fishmongers are marked by their coats of arms. The churches of St Magnus and St Botolph are both shown accurately; even the vestry of St Botolph's can be seen.

Deposits left by the Great Fire were recorded in small measure at site B, but more graphically at sites C and especially D. At site C, the excavated cellar behind the main house on Tenement 14 (C:Building 11, room B, Figure 134), from documentary evidence a separate house in the 17th century, was full of Fire debris which was not removed after the Fire. This included burnt traces of staging or shelving along the east wall, and its floor of pine boards was intact presumably due to the house above having collapsed inwards (Figure 222). The debris (nfw[41]) included a leather bucket with a painted decoration forming the intials S B B, that is St Botolph Billingsgate and a date of either 1665 or 1666 (the last digit is faded); it was probably one of the buckets kept by the parish church, which are mentioned in the parish records (Figure 223).[125]

At site D, the period D16 (and the project-wide period P1) came to an end with the Great Fire of 1666. Clear traces of the Fire were visible. The final surfaces within the undercroft, along the east side of the lane, and the entrance to D:Building 7 were scorched and sealed by burnt debris from the Fire. The lane was also severely scorched, in some cases to a depth of 0.1m. The church was badly damaged, with deposits of ash, burned debris, timbers and roof tiles and a small amount of melted lead and window glass sealing the final tiled floor.

Debris attributable to the Great Fire has been found on many sites in the fire-damaged area of the City.[126] Two published sites were near to the study area, and may be cited as examples. On the east side of Pudding Lane itself, a few metres south of the property at which the Fire began, excavation found the brick floors of cellars

[123] Gerhold 2015; 2016, 243–4.
[124] Barber 2012, 46–7.
[125] C[41] <2>; museumoflondon.org.uk/online/object/146692.html.
[126] For a recent example with references to other sites, Jeffries 2015.



Figure 222 Site C: C:Building 11, the cellar behind the streetside house (room B), looking southeast, with its final plank floor almost intact and traces of wooden installations; the strata on the south (right) are debris of the Great Fire (see the section drawing, Figure 291) (1m scale)



Figure 223 Site C: painted inscription on a leather fire bucket C[41] <2> (length (with last digit restored) 266mm) (© Museum of London). The initials SBB stand for St Botolph Billingsgate

with smashed barrels and fire debris. As noted in the description of strata from this period from site D which included tiles, a short distance to the northeast another excavation, of a property on the east side of Botolph Lane, found cellars which contained debris from the buildings above, either a result of collapse in the Fire or of filling in the cellars afterwards. The debris included a large group of ironwork pieces, an ornate but smashed stone fire mantelpiece, and both floor and wall tiles, some from abroad.[127]

The Great Fire has always been seen as a turning point in the history of the City of London, especially in books about it.[128] This might now be questioned when archaeologists have produced more evidence of what the City was like before and after the Fire. Though it destroyed only a fifth of the conurbation of London at the time (that is the City, Southwark and Westminster), the Fire did enable significant changes to be made to the character of the Port of London on the north bank of the Thames after 1666. The archaeology of the study sites after 1666 is however not dealt with here, except to include a view of the former east end of St Botolph's church on site D, sacrificed to widening of the lane to Botolph Wharf after the Fire (Figure 224; the development placed shortly after 1668 by Stephen Freeth's researches, section 5.6). Walls in the post-Fire warehouse on the site reused many pieces of carved stonework from the former church.[129] The church is the only site of complete change after the Fire, since its site was dismembered and some given to street widening. Otherwise, all the tenements in this project were rebuilt on their medieval foundations, and the alleys along them only slightly widened. The post-Fire periods on these waterfront sites will be the subject of a future study. But we prepare for it by stating some of the conclusions of this study: that the failure of the drawbridge on London Bridge after 1475–6 contributed to an existing, slow-moving change in the London waterfront. By 1500 the waterfronts above and below

[127] Milne and Milne 1985; Blair and Sankey 2007.

[128] Bell 1923; Reddaway 1951; Porter 1996.

[129] These are at present in the Museum of London rotunda at London Wall, and are inaccessible. They are listed in section 6.11 of the online text.



Figure 224 Site D: the east end of St Botolph's after the Fire, looking north (1m scale). On the right is the base of the east wall of the pre-Fire church, with its last tile floor; on the left is a post-Fire wall, which includes many pieces of carved stonework from the church, showing how the alley was widened by encroaching into the body of the former church. This must have been in 1668 or shortly after

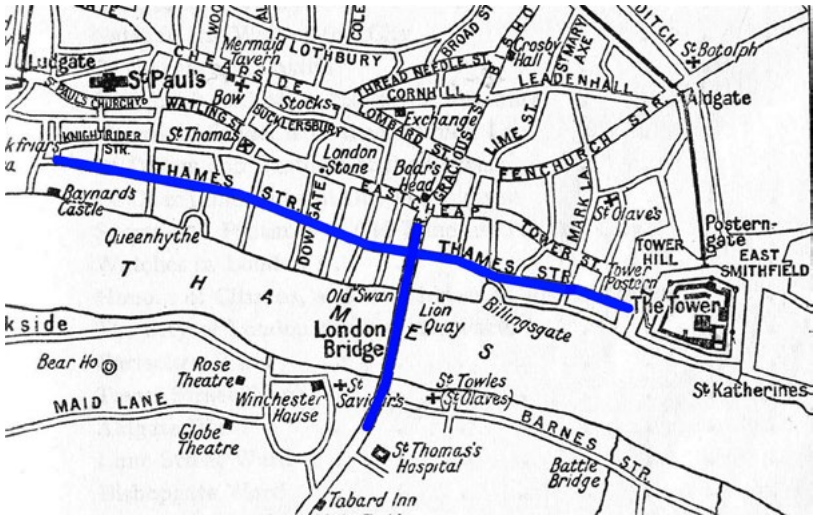


Figure 225 Sketchmap of the waterfront area of the City of London, with Thames Street and the bridge highlighted

the Bridge were different in character and function. This was further intensified by the establishment of the Legal Quays in 1559; and henceforward, the Pool of London, the epicentre of London's trade with the world, began at London Bridge.

Thames Street as an historic and archaeological asset

Here is also the place to outline an argument that will be made in detail in the second report deriving from these excavations, now in preparation.[130] In 1708, Edward Hatton declared Thames Street to be 'a most extraordinary, spacious street in London.'[131] The wording may be slightly tortuous, but the feeling is clear. Raised, levelled and partly widened (though still with bottlenecks, for instance at All Hallows the Great), Thames Street was in 1700 an enhanced recreation of its former self before the Fire.

Thames Street was an important and distinctive part of the post-Fire City. Further, it was an idea which could be exported, and possibly before 1666. When the English settlement of Port Royal, Jamaica, was established from 1658, several streets had names in imitation of those in London. There was a Queen Street, a Lime Street, and a Tower Street (without a tower); but the longest street, along the considerable waterfront of Port Royal, was called Thames Street (though the name is not mentioned until the 1680s), and it was 30ft (9.1m) wide.[132] We still

[130] Schofield in prep.
[131] Hatton 1708, i, 81.
[132] Pawson and Buisseret 1975, 81–5.

have some way to go before fully understanding what this meant.

The post-War four-lane highway changes direction slightly as it goes to the west, from half way between St James Garlickhithe and St Mary Somerset churches (the latter now represented only by its tower). The new carriageway points more to the south, through the tunnel on which the City of London School is placed, emerging at Blackfriars. This altered alignment goes diagonally across the heads of a score of medieval properties and through the Tudor Baynard's Castle, so that the church of St Benet Paul's Wharf, originally also on the north side of Thames Street, is now completely outside the post-War tunnel, alongside a fragment of the old Thames Street. In this western half, historic Thames Street has been sacrificed to the needs of modern traffic, a product of the planning immediately after World War II. As both Upper and Lower Thames Street have been consistently widened to the north in the planners' scheme, and hardly at all to the south, then the north frontage of both Upper and Lower Thames Street, from west of St James Garlickhithe to opposite the Custom House, is preserved beneath the north carriageway of the road; in the central area of this study, the historic north side of the street may even be jutting into the southern carriageway at points, underground. This is an archaeological site only a few metres wide, but 875m (over half a mile) long, composed of strata up to 9m deep. Thus Thames Street is an archaeological asset, despite generations of destruction since the 18th century, and it was probably as important in the medieval period as in the post-Fire decades. It functioned with the north end of London Bridge (Figure 225). Many parts of the frontages forming the late Saxon, medieval and post-medieval street which connected Queenhithe, the Steelyard, the Bridge and Billingsgate survive beneath the ground. This matter is explored further in the section presenting the major section drawings from sites B and C below, 8.1 and Figure 281. This was and is the longest street in the City of London, and after its 60 years of radical post-War change, perhaps thought could be given to the restoration or recalling of some of its historic character; a character which has been brought out in several of the illustrations used here (Figure 14, Figure 110, Figure 111A).

5.9 Conclusions

This concludes the narrative of the excavations, the details of their archaeology and documentary history.

This volume has brought to light many aspects of the people on the waterfront sites near London Bridge. We now know something about what they looked like, and some of their ailments; the nature of the buildings in which they lived, worked and worshipped; their clothes, jewellery, and household implements; some of their religious faiths and the lengths they went to in order to express those faiths; and their cultural contacts with many other places in Britain and Continental Europe. Most of all, this has been a study of how they reacted to the river.

The next chapter presents essays which place the material in a wider context; specialist reports on individual finds such as the Billingsgate trumpet or classes of material, that is pottery, ceramic building material (floor tiles, wall tiles, roofing tiles and brick) and human remains; wills which refer to the fabric or fittings of St Botolph's church; and the story of the conservation of D:Waterfront 14 from the Billingsgate site.

6. Essays and specialist reports: the development and character of the waterfront of the City of London, 1100–1666, and suggestions for future research

John Schofield

An attempt is made in this final section to look at the overall development of the studied waterfront properties and their surroundings over the five and a half centuries from about 1100 to 1666, and to draw some wider conclusions from it; in particular about the significance of the pottery and artefacts which were excavated in such quantity, as a contribution to study of standards of living over this long period. A simple table of the history of the 16 tenements on the four sites and the intervening bridge during the whole period may be proposed, summarising the previous chapters (Table 49).

This study has been of the properties south of Thames Street for about 150m each side of the north end of medieval London Bridge, west and east, placed in context among all the major excavations of medieval and post-medieval waterfront sites since 1960 on both sides of the Thames for about 700m out to west and east, which have been shown on a map at the beginning of this study (Figure 14). Other sites particularly to the west, such as excavations at both ends of the Millennium Bridge are included in the discussions. Some repetition of the findings is necessary in this overview.

The major archaeological questions considered by these excavations and the research for this publication were stated at the beginning of this work (section 1.6). The authors attempt to address them in this chapter from several points of view: from the history of the waterfronts and buildings, from pottery and from non-ceramic artefacts. Here also are the specialist reports on the Billingsgate trumpet (section 6.5), the ceramic building material (floor tiles, rooftiles and bricks) from site D (section 6.7) and the human skeletal remains (section 6.8). One question to explore in this final section is to what extent the excavations of the medieval and post-medieval London waterfront find parallels in towns and cities both in Britain and Europe, and to what extent the waterfront development of London may have been exceptional in European terms. The term 'waterfront archaeology' was launched at a conference in London in 1979, but in full acknowledgement that large-scale excavations of waterfront sites began earlier elsewhere, for instance in Bergen (Norway).[1] The investigations of ports and their waterfronts are still going strong all over Europe, 40 years later.[2] A summary response to the initial research questions is given in Table 50.

[1] Milne and Hobley 1981.
[2] Ayers 2016, 152–67. For a French view of waterfront archaeology which includes a picture of D:Waterfront 14, Rieth and Serna 2010.

Date	Sites A and B, Tenements 1 to 8	London Bridge	Sites C and D, Tenements 9 to 16
1100 to 1200 (probably 1220 on site A)	Ebbgate a landing-place by 1147, probably much earlier. From 1140s, extensions, stone buildings, dyehouses; A:Waterfronts 8–10, B:Waterfronts 1–2; A:Buildings 1–13, B:Building 1	Fully functional in 1100; at south end, repairs in 2nd half of 12th century; whole bridge rebuilt in stone 1176–1209	Embankments in the early 12th century; St Botolph's church (by 1140, probably earlier); from about 1150, C:Waterfront 1, D:Waterfronts 8–11; stone C:Buildings 1–5, D:Structure 1. Royal customs imposed at Botolph Wharf 1201
1200 or 1220 to 1350	A:Waterfronts 11–13, B:Waterfronts 3–4; A:Buildings 14–27, B:Buildings 2–4	No major alterations known (major fire 1212)	D:Waterfronts 12–17; C:Buildings 6–9, D:Buildings 1–3. Rebuilding of Botolph Wharf 1325–32
1350 to 1500	A:Buildings 28–9; B:Buildings 5–6	Chapel of St Thomas rebuilt 1384–96; north gateway (of drawbridge) rebuilt in mayoralty of John Reynewell 1426–7; Stonegate collapsed 1437; drawbridge could not be raised in 1476, and not thereafter	C:Building 10; S side of St Botolph's church repaired; D:Building 4; D:Building 5 to south, then incorporated into the church, new aisle formed in space, as result of arrangements by John Reynewell, 1443; burial in the new aisle may be that of Reynewell (d 1455)
1500 to 1666	A:Waterfront 18; Dyers' Hall inventory 1602; Great Fire of 1666 debris on site B	many buildings on the bridge rebuilt; Nonsuch House 1577 replaces north drawbridge gate; local fire at north end 1633	C:Building 11; repairs to St Botolph 1607–9; burials in it to 1666; D:Buildings 10–11 probably by Thomas Soane 1620s–50s; Great Fire of 1666 debris on sites C and D

Table 49 Model of main developments on the study sites

Question	Results from the present sites, with some other London waterfront or artefact studies
1 What are the main characteristics of this waterfront area in the medieval and Tudor periods, and what do they say about the port of London within its European trading network?	Reclamation from the Thames continuously from 1100 to 1450 (chapters 2 to 5); development after 1476 reflects the failure of the drawbridge on London Bridge (4.6, 5.1)
2 Where did the pottery and artefacts incorporated into reclamation units come from?	Large amounts of pottery and numbers of artefacts came from rubbish tips all over the city, but the reclamation units can sometimes be dated to a few decades (6.4, 6.6); foreshore deposits might be different, but were not sufficiently available in this study to allow confident suggestions.
3 What do the hundreds of medieval and post-medieval artefacts, at least those now studied, tell us about specific aspects of culture, fashion and religious beliefs? What is the potential for further research into the pottery and non-ceramic artefacts?	For the period 1100–1450, 2600 artefacts from the bridgehead sites so far studied, though more is possible and a few artefact-types not yet addressed (6.4); individual artefacts can be of international importance, for instance the Billingsgate trumpet (6.5). A consumer culture can be identified, in outline, from the late 14th century: influences on artefacts of fashion and mass production, including probably mass importing from abroad (6.4). Religious beliefs are demonstrated by the many pilgrim souvenirs from shrines all over Britain and Continental Europe.
4 What were the functions of the buildings and open areas? How did they change over time? To what extent is this illustrated by the pottery and artefacts? To what extent can each property and new development be linked to specific owners or occupiers, as specified in the documentary record?	Some progress can be made in the study of rooms and open spaces; the overall picture is of dense use of properties with much subdivision and overcrowding, especially after 1350. The riverside ends of the properties are visible and partly identifiable in panoramas from 1540 to 1647 (5.4, 5.7). The archaeological evidence is often damaged by later adaptation and change, but resembles the plan evidence which is available from about 1600 (Treswell and reconstruction from inventories) (6.2). At this period (1600–66), detailed archaeological and documentary study illuminates buildings used by named people or their tenants (5.8).
5 What material evidence is there for trade? Can this be related to documentary sources? Can the pottery demonstrate trade connections with specific countries? Does the pottery testify to changes in products/ sources of supply over a long period of time?	Many types of pottery from other places in Britain and Europe, starting in the 12th century, demonstrate links with these places. The changes in supply of pottery to the capital are now charted for the period 1200 to 1666 by recent decades of study of the pottery dated on these and other waterfront sites by stratigraphy, dendrochronology and occasional coins (see dating tables; 6.6).
6 What is the history of the industrial aspects of this area from the 12th century to 1666?	Dyeing and other waterfront industries excavated at sites A and B (6.2); the area south of Thames Street would have seemed industrial throughout the period, though the individual industries came and went.
7 What is the history of the parish church of St Botolph Billingsgate, and how did it function in this special waterfront location?	The development in plan of the church from about 1140 until 1666, and much of its internal appearance after about 1450, can be reconstructed, though many pieces of decorated stonework remain to be studied (6.2, 6.3).
8 What are the biological characteristics of the group of human skeletons buried in St Botolph Billingsgate?	A range of conditions which contribute to the understanding of people's health in the period 1450–1666. One skeleton may be that of John Reynewell, mayor of London in 1426–7 (6.3, 6.8)
9 How do the general nature and development of the study sites compare to those of other contemporary domestic sites in London or elsewhere?	These four sites taken together can be compared with other large City excavations, e.g. at Guildhall (Bowsher *et al.* 2007) and Poultry (Burch *et al.* 2011). Within Britain, comparable domestic sites on the waterfront have been published for Norwich and King's Lynn. There have been numerous excavations of waterfront sites elsewhere in northern Europe, but few on this scale.

Table 50 Summary answers to the research questions of the study

6.1 The nature and purpose of reclamation, including the design of waterfront structures, 1100–1666

Reclamation, river levels and the levels of Thames Street

The underlying process at work on these sites was that of land reclamation into the river, in many stages and at differing paces. From the 12th century to the end of the 15th century, the properties studied here expanded into the Thames, part of the physical growth of the medieval City of London which is one of the most remarkable features of its history in the Middle Ages. Expansion did not stop until stone walls, known on a few properties and at public landing places by 1300, became common along the riverfront in the 15th century. By 1500 the properties were up to 80m (262ft) longer than they had been in the 10th century. During the 15th century, when the provision of stone river walls meant there would have been less demand for rubbish to make the reclamation units, there must have been a consequent change in official policy about where to take household and trade waste. This topic is at present unresearched. It seems likely that the infilling of the marsh of Moorfields north of the city dates from the 15th century, and 16th-century artefacts of all kinds have been found there in quantity. From 1500, including after the Great Fire, reclamation into the river was minimal on the north bank of the Thames, though there was infilling of moats and ditches on the south bank east of the bridge, as that part of the waterfront changed its character in a big way. The 40m-long excavation trench at site B, dug in 1974, remains the best north–south section through the length and depth of this post-Roman reclamation on the north bank of the river.

Overall, the excavated sites show that the largest gains in reclamation, the longest distances reclaimed, were in the 12th century. This must reflect a prosperous time for the city, when extra space along the waterfront was required and created. There may have been other contributory reasons. One was probably the general change from berthing boats by dragging them up onto a shore to a method where boats came alongside a quay, even though the ends of these riverside properties could only have accommodated the smaller boats and not sea-going ships of any size. From about 1160, as shown by B:Waterfront 1 and A:Waterfront 9, a new form of revetment is found, of vertical stout planks or staves slotted into a substantial base plate, forming a timber wall between 2m and 3m high; one revetment post at site C, dated by dendrochronology to 1161–1211, was 3.66m long, but would have been driven into the foreshore a short distance. Even so the wooden wall of which it formed part must have been about 3m tall. No doubt the revetment heights varied along the waterfront. This new form of riverfront wall marked the end of the period when boats were pulled up on the foreshore and beached. It seems likely that beaching of boats, and the associated tax of 'strandage', were obsolete by the time of a last appearance of the tax in the eyre (royal enquiry) of 1244.[3]

The level of the top surface of the reclaimed land in relation to the river over the centuries is of interest because we wish to know if there was a perception that the water level was rising, and if any effort was made to combat this by building higher each new time. The levels of the sea and the River Thames since Roman times have been ascertained through many excavations in London and its environs. The evidence suggests that in the 1st century mean high water spring (MHWS) and mean low water spring (MLWS) tidal levels lay between about –1.5m OD and -0.5m OD respectively. These fell during the 3rd century, but then mean high water rose and continues to rise today. MHWS at London Bridge is currently 3.9m OD.[4] A medieval tidal range of a minimum of 5m is indicated by levels at east Greenwich.[5] There were also exceptional floods, which probably had archaeological consequences in destroying riverbank properties and facilities. The chronicler Matthew Paris recorded that in 1236 the Thames broke its banks and flooded the palace of Westminster, so that people could sail in small vessels in the royal hall.[6] Clearly the sheer amount of embanking and waterfront construction along the river from Westminster eastwards was a factor which affected the position of the tidal head in the medieval and Tudor periods. A study published in 1914 of the locks and weirs on the upper Thames chose to stop at Kew, because 'those parts of the River subject to the invasions of the sea are a different country, speaking a different language, from the inland, ordered waters above the locks.'[7]

The reconstruction of post-Roman river levels along the City part of the Thames can be attempted by listing the levels above Ordnance Datum (present sea-level, or OD) of excavated surfaces near the edge of the waterfront structures, that is working quaysides or walls and related levels inside or outside quayside buildings (Table 51). Some of these levels give only general guidance about contemporary river levels, since many properties sloped up from the wharf edge, and riverside walls would have had parapets or in other ways stood above the level of the river.

At site B, the 12th-century level of the reclaimed land with B:Waterfront 1 was about 2m OD. Surfaces which are suggested to be Thames Street in the 12th century, at the north end of Tenement 11 on site C lay at 3.54m OD, giving a general level for the medieval street. But

[3] Chew and Weinbaum 1970, no. 251; Dyson 1985, 21.
[4] Watson *et al.* 2001, 25–7.
[5] Work by Damian Goodburn, noted in Fowler and Mackinder 2014, 24.
[6] Luard 1880, 3, 339.
[7] Thacker 1914 [1968], ii, 11.

Medieval Thames Street: 2.4m–3.5m OD			
1100–1200	N side of site A, 2006–9: surfaces in buildings next to Thames Street	2.3m–2.9m OD	Mackinder 2015, 19
	site B: reclamation with B:Waterfront 1	2m OD	
	site C: top of 12thc embankments	2m OD	
	site C: base of quoins forming SW corner of St Botolph's church on site D	2.3m OD	
	Winchester Palace on S bank, internal floor level of Building 17, 12thc	2.85m OD	Seeley *et al.* 2006, 27
1200–1350	Watermark Place, Waterfront 2	2.3m OD	Fowler and Mackinder 2014, 12–15
1350–1500	Trig Lane, Gp 11 revetment about 1380	2.1m OD	Milne and Milne 1982, fig 27
	Trig Lane, truncated top of Gp 15 river wall about 1440	2.8m OD	Milne and Milne 1982, fig 31
	site B: tile floors, in use 15th–16th c	3m OD	
	Dunley Place, E of London Bridge, truncated 14th *c.* river wall	3.8m OD	
1500–1666	Watermark Place construction layer for building	2.5m OD	Fowler and Mackinder 2014, 36–8
	site A, 2006–9: floor of cellar in first half of 17thc on Thames Street frontage	2.5m OD	Mackinder 2015, 70

Table 51 Heights above modern sea level (Ordnance Datum) of features of excavated sites on both sides of the Thames, 1100–1666

there was evidently some variety; at site D at the end of period D8, perhaps about 1230, the surfaces at the north end of the excavated portion (a few metres south of the medieval street) lay a metre lower, at 2.4m OD. At the excavation at Trig Lane, yard surfaces associated with the Group 11 timber revetment of about 1380 were at 2.1m OD; the recorded (and reduced) top of the later river wall of about 1440 was at about 2.8m OD, but this could have been well above the water line.[8] Similarly a 14th-century wall retaining a moated platform formed out of the south bank of the river, east of London Bridge, survived to 3.8m OD, but this would have stood out of the water even at high tide.[9]

Table 51 shows that there was a modest rise in the level of the ground surfaces in and around the buildings on the study sites, as would be expected given the continual build-up of strata, slightly offset by lowering through compaction and use. But it does not show any great concern with raising the level of the new land in relation to the river. Undoubtedly the Thames was getting higher, and this would be later addressed by largescale raising of Thames Street and the lanes to north and south of it after the Great Fire, by using fire rubble.

There may have been a move sometimes in ports to improve access to deeper water; at Norwich, for instance, the 12th-century port area was a new development where the river was deeper, some distance downstream from its predecessor.[10] At Bergen in Norway, a concerted effort to push the waterfront out into deeper water, with concomitant change in the design of waterfront structures, occurred after a fire of 1198.[11] While this may have been a contributory factor in the design of waterfront extension in London, there is as yet not much relevant evidence. Documentary study of the whole waterfront suggests that 'what docking [of ships] there was at these tenements was small-scale, casual and internal business between fellow citizens in which the question of customs did not arise'.[12] There must have been other reasons for the reclamation units, and perhaps the addition of space to private property may have been important. The comprehensive development of Tenement 6 in the first half of the 14th century, with a foundation layer of oysters and clay spread over a large part of the property, shows that some owners thought in terms of unified and enlarged complexes of buildings, tied into a small unit of reclamation, but one which changed its riverward boundary from a timber revetment (B:Waterfront 3) to one of stone (B:Waterfront 4). Stone waterfront walls had occasionally been built since the 12th century, as shown on Tenement 14 next to Botolph Wharf (and at that time, apparently, when the public wharf itself was not in stone). The most elaborate waterfront aspect for a secular building before 1500 as revealed by excavation is the earlier Coldharbour, immediately west of the study sites. In the second half of the 14th century the house projected into the Thames, with broad quays of timber and stone on its south and east sides respectively. The mansion may

[8] Milne and Milne 1981, 59 and fig 16.
[9] Blatherwick and Bluer 2009, 63.
[10] Ayers 1999, 27; Shelley 2005, 182–3.
[11] Herteig 1981, 82–5.
[12] Dyson 1985, 23.



Figure 226 Recording excavated timbers on site D, 1982 (Sharon Pallent). This view looks west; in the left background is the present London Bridge

have been leased to the Black Prince from 1371.[13] Here the private wharf could take boats of moderate size, and probably smaller ships with provisions or visitors if they had got through London Bridge. Land reclamation south of Thames Street allowed properties to be better organised and to expand; a process seen also in Hull, where reclamation on the east side of the High Street was linked to the ownership of smaller, congested properties on the original west side. So no doubt the reasons for land reclamation in London, as elsewhere, were varied and sometimes mixed.

Surfaces attributable to Thames Street itself were only momentarily observed on the edge of site C. But we can make general statements about the street in the immediately pre-Fire years, since legislation after the Fire detailed how the many lanes which fed Thames Street from the north were to have their steep slopes lessened, by taking away the ground at the south end and removing it at the north end. Each lane had a different treatment. From this it can be suggested that pre-Fire Thames Street, by 1666, was not flat throughout its length, and probably never was; it undulated from lane to lane.[14]

The design of the riverside walls: wood and stone

Although the stages of reclamation on these properties were usually a matter for each property, so they progressed in rough but unpredictable concert, the case of A:Waterfront 12 in the period 1250–1330 (Figure 50) shows that occasionally a block of tenements, in this case five, could have a common waterfront of a unified structure. In this case the timber revetment was at least 48m long.

The contribution of the London medieval waterfront excavations to the history of carpentry and wooden building construction was reviewed in detail by Gustav Milne in 1992. His survey of structures recorded in the period 1974–88 included the better-surviving examples of 12th- and 13th-century timber revetments in the present work: B:Waterfronts 1 to 3 and D:Waterfronts 10 to 14 and 16.15 On sites B, C and D these were carefully recorded as they were removed and examined for suitability for dendrochronological analysis (Figure 226); it is a source of regret that less was done on site A. Many further examples of buried timbers have been excavated on other sites, for instance a range of late

[13] Fowler and Mackinder 2014, 18–25.
[14] The detailed figures for each lane are given in Strype 1720, I.i.242; and listed in Schofield in prep.
[15] Milne 1992, 24–36 (site D), 37–41 (site B).



Figure 227 Toolmarks on waterfront timbers from site D: D[6944] showing blind augered holes (scale 100mm)

13th-century and 14th-century joints in Waterfronts 2 and 4 at Watermark Place, immediately west of the study sites.16 Saw marks could be discerned on planks from D:Waterfront 14 of the early 13th century.17 Timbers from revetments D:Waterfronts 14 to 16 had their posts and planks given rudimentary carpenters' assembly marks, a notable feature because these structures are decades earlier than the majority of standing buildings on land where such marks may be found. Tool marks were evident on other waterfront timbers from the site, from saws, chisels and augers (Figure 227).

A variety of construction techniques including large sill-beams, staves, front and back braces, and earth-fast posts (ie driven into the foreshore) is found in 12th-century waterfronts. This was largely replaced during the 13th century by framed structures which were a technology shared with timber buildings on land. This type of construction 'was typified by substantial squared timbers [...] and pegged, closely-fitting mortise and tenon joints'.[18] The wooden revetments were now very similar to each other: the clearest case is the pair B:Waterfront 3 and D:Waterfront 14, both erected within the period 1220–40, but on sites many metres apart.

[16] Fowler and Mackinder 2014, 55, fig 42.
[17] D Goodburn in Milne 1992, 114, fig 101.
[18] Milne 1992, 99.

But this style of construction was not always the rule; revetments of vertical staves continued to be found, as in A:Waterfront 15 of the 15th century, and at Trig Lane, west of Queenhithe, in several well-built waterfront structures of the 14th century.[19] The relevance of the carpentry of waterfront structures to the construction of medieval buildings in London is considered in the next section on buildings.

Stone river walls were to be found on some properties, and at the public landing places, during the 12th century, but they were rare until the 14th century. One of about 1440 has been recorded on the Trig Lane site, west of Queenhithe, and in its construction of a front of hard (probably Kentish) ragstone with chalk behind, on piles, it resembled the much larger but similarly-constructed river wall at the Tower of London built partly under the supervision of Henry Yevele in 1389.[20] By 1450, the widespread use of timber for riverside revetments was largely over on the north bank of the river, though it continued sporadically and when funds did not permit rebuilding in stone. Brick does not seem to have been much used in waterfront walls before the Fire, though there is one documented case in this study, the repairs at Tenement 3 in 1522–3.

6.2 Properties and buildings on the waterfront, 1100–1666

Since the excavations described in this monograph were first undertaken in the 1970s and 1980s, research has used their material to study what the structures on these sites tell us about the general development of building technology in timber and stone. Many studies from this research are mentioned in this section. The purpose here is to draw together some of the less published aspects of medieval London building history for the 12th to 17th centuries, as demonstrated by these excavations; to compare London buildings with those now studied in other medieval towns, both in Britain and abroad; and to explore what their careful excavation is beginning to tell us about the functions of buildings and their parts.[21] The waterfront sites contribute evidence about early buildings, in timber and stone, of the 9th to the 12th centuries; details of 13th-century carpentry and piled foundations; the layout of properties in the 14th century, to compare with standing buildings in other medieval towns, both in Britain and abroad; and in the 17th centuries, the buildings are illustrated in great detail by documentary evidence which can occasionally be linked to the patterns of artefacts left in and around the buildings (for these sites, the study of buildings of the first half of the 17th century at site

[19] Milne and Milne 1982, 34–6 (Groups 10–11).
[20] Milne and Milne 1982, 38–42 (Group 15); Salzman 1967, 469–70.
[21] Some of this section appears with further elaboration in a chapter on the archaeology of medieval urban housing in Britain, Schofield 2018.

D, published in 2009).[22] The buildings and structures on these waterfront sites, apart from the timber walls at the riverwards ends of the properties, are not exceptional as medieval buildings. But the level of survival of all kinds of structures and strata is exceptional in the waterfront zone, that is south of Upper and Lower Thames Street, and thus there is a range of evidence which is lacking from almost all the rest of the City of London and its environs. Thus, for buildings, including sometimes their interiors, the waterfront buildings are an index of what was being constructed all over the City.

From 1100 to 1350

Buildings and property divisions in the 12th century

The range of buildings seen in 12th-century London was a product of gradual development over the previous two hundred years, since the repopulation of the City in the late 9th century. Pieces of timber buildings, some of spectacular size and comprising notable vernacular architecture, have been found in waterlogged contexts.[23] The majority of timber buildings were single-storeyed, but some had timber-lined cellars which could be of some size; most often dated to the 11th century, these usually lay at right-angles to the known streets, or parallel to the streets but set back. Initially large enclosures in towns were gradually subdivided into the narrow properties which largely stay fixed from the 12th century. Private alleys through a property developed to give access to buildings, sometimes separately let, towards the rear. Thus one theme of the period is the gradual development of buildings on the plot, from the front to the back, where space allowed. The larger of these access ways would later be claimed as public through communal use over long periods of time. These patterns, seen vividly in the history of the waterfront tenements, are general to other parts of the City and to medieval towns throughout Continental Europe, including towns in Islamic Spain.[24]

In the 12th century walls of houses, and waterfront revetments, were built in the same range of constructional styles in timber: earthfast posts, staves, wattles, panels of jointed timbers (base plates and wall plates), and weatherboarding either fixed with wooden pegs or fitting into slots in vertical beams. Several examples of timbers presumably from 11th- and 12th-century London buildings on land have been found reused in waterfront contexts. A large group of 11th- and 12th-century timbers from site D was studied by Trevor Brigham in 1992.[25] From these Brigham suggested that elements of timber-framing were present in London buildings before the Norman Conquest, though this kind of framing took a further century to develop. A second group came from Riverbank House, the 2006–9 development of site A; they included posts, what was probably one side of a doorway, and a braced wall post or possibly a slender aisle post. Here also was the corner of a mid 12th-century timber cellar erected on the reclamation deposit, of unknown extent but with stave walls, presumably at the back of a house on Thames Street.[26]

Many smaller dwellings were just houses, but others were distinctively urban: the domestic accommodation was attached to a commercial front.[27] Along streets given to retail trading or manufacturing, the structure of the building would be governed by the need to use the ground floor for trading purposes, and domestic accommodation would be fitted around and above that overarching and essential requirement. On a wide property, a small row of shops of timber or of stone and with cellars would form a frontage on the street and have a large stone building, probably a related hall, behind; as excavated at Poultry, dating from around 1220.[28] This form has not yet been found in a waterfront context, that is south of Thames Street.

Although buildings of timber were always the majority, they were interspersed with both religious and secular residential buildings of stone, which generally shared an architecture of features such as doors, windows and decoration. Several 12th-century buildings with outer walls of stone were found in the current excavations: B:Building 1, C:Buildings 1–5. The foundations, of chalk and gravel, were deep (up to 1.7m in the case of C:Building 4, see Figure 285) and sometimes based on short horizontal timbers laid across the foundation trench. C:Building 2, a long building of two rooms on Tenement 11, had its south wall externally rendered, the rendering browned with age. Stone buildings could generally (ie in London and other towns) lie on the street (as at Chester, Lincoln and Southampton) or back from the street, either in alignment with it or at right angles, the latter configuration from the 12th century in Winchester and at Bristol.[29] There were probably fewer stone houses of note in England than on the Continent. Twelfth- and early 13th-century stone buildings have survived in quantity in some towns, for instance Cluny, Ghent, and Regensburg; and within later post-medieval buildings at Prague.[30] Over a hundred 13th-century

[22] Schofield and Pearce 2009.
[23] Horsman *et al.* 1988; Milne 1992; Goodburn 1997; Ayre and Wroe-Brown 2015a, 2015b.
[24] Towns in the Hanse trading area of the Baltic and Germany: Fehring 1994; Islamic Spain: Palazón and Jiménez Castillo 2011.
[25] In Milne 1992, 86–105.
[26] Goodburn 2015, 80–1; Mackinder 2015, 20.
[27] Clark 2000.
[28] Burch and Treveil 2011, 118–21.
[29] Ford and Teague 2011; Leech 2014, 81–2.
[30] For Cluny and other French towns, Garrigou-Grandchamp *et al.* 1997; Garrigou-Grandchamp 1999; 2006; Esquieu and Pesez 1998. For Ghent, Laleman 1993; Regensburg, Strobel 1976; and for Prague, Dragoun *et al.* 2003, Klápště 2016, 104–12.

stone buildings are recorded in Zurich,[31] and smaller numbers are known from many towns all over Europe, from Toledo to Riga. Although the basement storey is usually the only one left from the period, occasionally more is revealed: a 12th-century stone house at Rouen had several storeys and walls 9m high, and there are many contemporary houses even higher still standing and occupied in Regensburg.[32] In general, however, the dozen or so London examples are not as forthcoming in their details.

Besides buildings predominantly constructed of either wood or stone, there were no doubt buildings with parts of both materials in equal measure. The fire-break stone walls required by 1200 along property boundaries were widespread and their foundations have been excavated on many sites. But they probably held timber-framed storeys between them. A timber-framed building could have a stone cellar. Here stone would be used for a valuable part of the building, that containing goods or stores. Such mixtures of stone and timber in secular construction is also recorded on many medieval Continental urban sites.

Another development in building construction which has been elucidated by the waterfront excavations is the adoption of clay tiles for roofs. This was insisted on by Fitzailwyn's legislation in 1212. The earliest occurrence of distinctively unRoman clay roofing tiles is however of the first half of the 12th century.[33] In the London case, we can suggest that urban regulation, covering roofs, walls along property boundaries (but not within properties) and latrines, was a powerful influence or direction on the forms of houses for many decades after 1212.[34] Where towns elsewhere in medieval Europe had similar building regulations, this has also been seen to be the case.

Developments from 1180 to 1350: framing and carpentry, arched and piled foundations, undercrofts

Excavations have shown that true timber framing (also called box framing) with pegged, tightly cut mortise and tenon joints emerged around 1180 in the London area, which is corroborated by work on late 12th-century aisled buildings mostly in Essex.[35] At the same general period, the previous earthfast building techniques, in which a building was based on large posts in holes in the ground, was changing into one of timber frames on low masonry walls, which would prolong the useful lives of the timbers. This change is documented well in other towns such as Hartlepool, where analysis of 28 excavated buildings from several sites shows the change in the late 12th and 13th centuries.[36] At York, the technology of box-framing for house construction matured only around 1300.[37] This urban development of timber framing and the house forms which were then possible is seen by one historian as a method whereby 'English burgesses [were able] to demonstrate their status in well-appointed and durable homes', as the common-law concept of burgage tenure liberated them 'from any lingering sense of subservience to seigniorial lords.'[38] In the London region, in Essex, box-framed construction appeared 'fairly suddenly in a fully developed form by the 13th century without clear antecedents';[39] perhaps they are to be found in central London.

Examples of carpentry and carpenters' or assembly marks found on waterfront structures can be compared to surviving medieval buildings in the region, and they suggest characteristics of London buildings (Figure 228, Figure 229). The waterfront timbers included reused timbers from buildings formerly on land, presumably including houses. B:Waterfront 2 of about 1190 had horizontal planks slotted into its large earth-fast vertical post; horizontal planking fitting into grooves in the sides of studs and the underside of a wallplate is seen at the 13th-century Wheat Barn at Cressing Temple (Essex).[40] B:Waterfront 3 of 1220–40 included several posts which may have formerly been in a building, but equally the peg-holes may come from previous use as a waterfront structure, to take plank cladding (Figure 67). There were probably occasional aisled buildings, perhaps of some size, in the waterfront area from the 10th century; in 1285 there is mention of *Stapledehall* in the parish of All Hallows Barking near the Tower.[41] This may be a reference to an aisled hall with posts, from the OE *staple*=post. A late 13th-century aisle post was reused as a baseplate for Waterfront 10 at Riverbank House, forming the riverside end of Tenement 5 in the early 14th century.[42]

The carpenters of the later 12th and early 13th century developed techniques of timber preparation and jointing which paved the way for jetties and taller buildings on land. *Jetties* in the sense of protruding storeys of buildings from the first floor upwards, extending into a street or alley, are first mentioned in London when criticised by perambulating judges in 1246.[43] These

[31] Flüeller and Flüeller 1992, 82.
[32] Ayers 2016, 35–7; Esquieu and Pesez 1998, 207–8; Strobel 1976.
[33] Armitage *et al.* 1981; Schofield 2003, 33–4.
[34] For a brief summary of the regulations after 1212, Schofield 2003, 32–4.
[35] Milne 1992, 132–3; Walker 1999. I am grateful for conversations on this with John Walker and Elphian Watkin, and with Damian Goodburn.
[36] Daniels 2010, 79–118.
[37] Rees Jones and Palliser 2015, 46.
[38] Rees Jones 1002, 90–1.
[39] Andrews 2007, 32.
[40] Walker 1998, 12.
[41] *Survey of London 12*, 2.
[42] Mackinder 2015, 37, fig 33.
[43] Chew and Weinbaum 1970, nos 396, 481. This account of the perambulation by judges in 1246 was published as an appendix in this



Figure 228 Site D: detail of D:Waterfront 14, riverwards side looking north (0.5m scale). All the vertical members were reused timbers, presumably from structures on land; these had been constructed of timbers felled in the two decades either side of 1200



Figure 229 Site D: detail of the assembly marks on the inner, landward side of D:Waterfront 14, enhanced with chalk by the excavators (0.2m scale)

references appear to be the earliest in Europe, and are not yet matched by dendrochronological dates from any country, though protruding first floors are suggested in reconstructions of timber buildings of the late 12th century for instance at Lübeck.[44] The earliest obtained dendrochronological dates from medieval buildings in the counties around London, in Hampshire for instance,[45] are from around 1250, so older timbers from waterfront sites are important for extending back in time the history of specific carpentry joints. While we might reasonably suggest that London had jettied buildings around 1200, there is as yet no confirmation from waterfront structures on this point, that is no joints or timbers which must have come from jettied buildings and which are accurately dated by dendrochronology. There were three-storeyed buildings on City streets by shortly after 1300, and probably before, but probably only in isolation or in small groups at first.[46]

Property boundary walls of wattle and daub are mentioned in the Assize of Nuisance in the 14th century, since they could be a source of concern to neighbours and the experts of the Assize.[47] A mixed construction of brickearth and planks was used for the internal boundary wall between the northern parts of Tenements 15a and 15b on site D after 1350, within the expanded Botolph Wharf (D12.12–13). The sites also produced several examples of small buildings with walls or partitions on thin clay bases, sometimes reinforced with planks on the sides and with traces of the missing sillbeams above. The most complicated case was D:Building 1 on Botolph Wharf, which had several phases of change or repair during the second half of the 13th century (period D10.2 to D11.1–2). This was a small range of timber-framed units at right angles to the river's edge. In the four phases illustrated (there were several others in between), it may be summarised as (a) one large and four small rooms, its south end built onto the edge of D:Waterfront 14, (period D10.2); (b) rebuilding and extension with an enclosed

edition of the London Eyre of 1244.

[44] Gläser 2001, 283, 289.

[45] Roberts 2004, ix and gazetteer of dated buildings in Hampshire.

[46] Chew and Kellaway 1973, nos 206 (1314), 493 (1358), 544 (1368).

[47] Chew and Kellaway 1973, xxii, no. 278.

yard to the north and a verandah-like structure on the west side (period D10.11); (c) the yard modified and the hearth moved into it (period D10.12); and (d) slight changes when the wharf moved south to D:Waterfront 16 (period D11.1–2). Given the public nature of Botolph Wharf during the 13th century, if not before, one wonders if this is some form of public facility to do with the wharf itself.

Smaller and no doubt ancillary structures with clay walls are also found later, after 1350, for example the brickearth sills containing stakeholes representing the remains of wattle wall panelling forming the extension of D:Building 3 in period D12.11. These generally small buildings could have their corners reinforced with stone postpads which would have supported additional vertical timbers. Here we might note a small structure from the next period. In the 15th century a clay-walled structure was added to the buildings on Tenement 6 (B:Building 6). The two arms of the structure had walls of clay surviving 0.4m high, but only 0.1-0.15m thick (Figure 133). It had plaster on its inside and was probably rendered on the outside; it seems to have had a timber floor. Presumably, like the other buildings in the range, it was entered from Black Raven Alley.

Whole buildings including houses with clay walls are known elsewhere, for instance in numbers from excavations in Norwich for the period up to about 1500, but their walls (and those of related cob-walled cottages) are usually much thicker, 0.45m to 0.6m.[48] Earth mixed with other materials was widely used for walls of houses and as boundary walls in medieval England, in both town and country.[49]

There were two 13th-century developments in the construction of stone buildings in London, at least in their lower parts. The first was the use of piles and arched foundations below large stone buildings or long boundary walls, as exemplified by C:Buildings 6 and 7 (Figure 84 to Figure 86 above). A deep trench was dug along the east side of Tenement 9, down to the underlying timbers of the 3rd-century Roman waterfront around which the lowest parts of new foundations were then packed. A large reused timber was laid in the base of the trench, and stakes driven into the base and sides of the trench; these reinforcements piles and a reused sillbeam from either a waterfront structure of possibly a building (Figure 84). Two wide parallel walls of chalk and ragstone, with crude arching, were then built, one along the boundary with Tenement 10, the other a short distance to the west to form the inside of an alley which would run within Tenement 9, along the tenement boundary. These foundations are dated to the decades 1270–90, and may be the building on Tenement 9 mentioned as new in 1294. Such arched foundations are found first in the larger ecclesiastical buildings, such as at Greyfriars from the 1230s, where the underlying strata were not new reclamation, but the equally potentially hazardous strata of the previous 12 centuries of occupation, two or three metres deep. Large stone walls in London would continue to have arches in their foundations; later, foundation arches in brick, modelled on the previous stone arches, became common in the second half of the 15th century.

A second feature of the the 13th century, in London as in other English and Continental towns as far north as Visby (Sweden) on the island of Gotland in the middle of the Baltic,[50] are stone undercrofts with vaulting, either groined (the vaulting unemphasised) or exceptionally with stone arches, sometimes further embellished with carved corbels, occasionally painted. These were significantly different from those beneath stone buildings of the 12th century, and probably more widespread. The new intentionally attractive undercrofts were usually tied to the street, and were entered from it; they might have secondary internal stairs to the house above. They were for storage and selling of valuable commodities, such as wine.[51] A large group is at New Winchelsea, where the needs of the wine trade may have been especially influential. This led to the use of vaulted undercrofts as taverns in several towns in the 14th century, for instance at Winchester and Bristol.[52] In London, several 13th-century vaulted cellars have been recorded since the 19th century, such as that built in 1272–9 on the north side of St Mary le Bow in Cheapside, one end of which was recorded in 1959, which was probably a tavern during its life.[53] At present, no examples of these street-oriented undercrofts have been certainly recorded south of Thames Street, though the reclamation zone had many cellars among its buildings.

By the 1330s there are standing medieval buildings to look at in English towns, which serve as parallels for the lost houses of medieval London. A surviving building, 39 Strand Street, Sandwich, is a general model for a medium-sized house of this period (Figure 230). The ground-floor rooms, at the front probably contained shops (that is workshops). Behind was an open hall, entered only from the yard at the side, and to the back was another building of two and a half storeys over an undercroft. The street frontage was three storeys high, known in London by 1300, and a feature of York streets by the 1320s. This reconstruction of a known house (which still stands) will be used again when a detailed reconstruction of the buildings on site B in the late 14th and 15th centuries is discussed.

[48] Atkin *et al.* 1985, 245.
[49] Dyer 2008.
[50] Westholm 2001.
[51] For London, Schofield 2003, 74–81.
[52] Martin and Martin 2004, 106–28; Leech 2014, 156–61.
[53] Schofield 1995, 173–4 and fig 81.

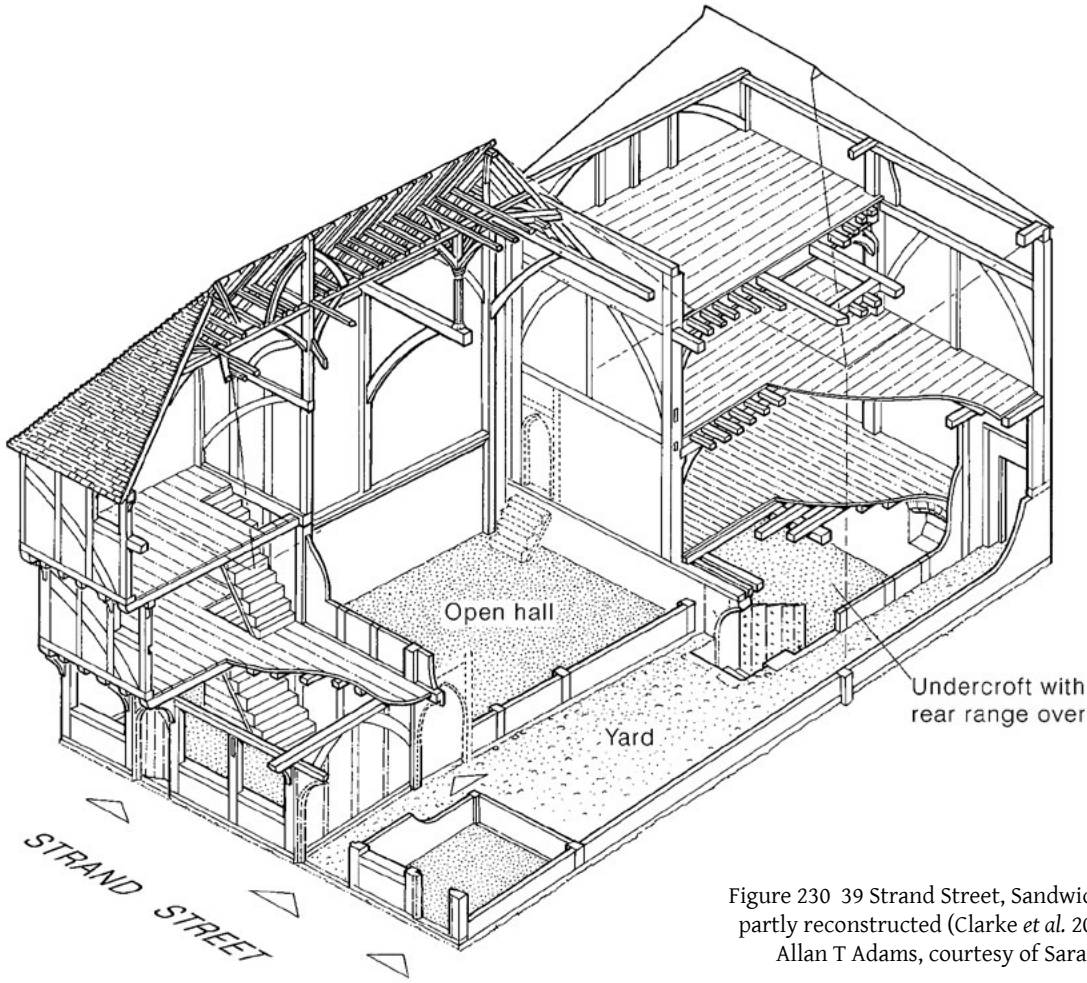


Figure 230 39 Strand Street, Sandwich, of the 1330s, partly reconstructed (Clarke *et al.* 2010, fig 7.22)(© Allan T Adams, courtesy of Sarah Pearson)

Although examples such as Strand Street in Sandwich can give general guidance as to the form and layout of London properties in the period before 1350, those on major streets in the larger city were also subject to other economic forces. Subdivision of properties at least in the commercial areas of the city was common in the 13th century.[54] By 1350, on the waterfront sites, there is documentary evidence for the division of properties into smaller (horizontal) parts. Tenement 10 was divided into two parts between 1308 and 1326, and Tenement 4 was divided into two parts before 1349 (see Table 29). Subdivision of the long properties south of Thames Street is noted elsewhere: tenements studied on the site west of Trig Lane were subdivided into north and south parts in 1256 and 1273.[55] Documentary evidence for subdivision and sub-letting of properties in English towns can be found from the late 13th century, and was no doubt an old practice by then; it points to a market in house property, and periods of much subdivision may indicate economic and population expansion.[56] Several of the studied tenements, and perhaps many of them, had shops (sometimes two or three shops within one property) on Thames Street. When Botolph Wharf was reconstructed in 1325–32, it was evidently part of a lively neighbourhood.

Fixtures and fittings in surviving English historic buildings from 1300 have been catalogued by Linda Hall (2005), and the excavated examples should be a contribution to the earlier end of such a catalogue. So far, principally in Geoff Egan's 1998 volume *The medieval household* in the *Medieval finds* series, there are hinges, lead window cames, iron hooks and handles, possible drape rings and mounts and handles from chests. The earliest of these fittings date from the second half of the 12th century. Slightly later, around 1200, site D has produced examples of glazed floor tiles (see section 6.7), though these might be from St Botolph's church.

From 1350 to 1500

As exemplified by C:Building 10, a distinct form of house is first known from 1350 or perhaps the decades immediately after: next to the street and at right-angles to it, of two rooms with cellars (or perhaps in this particular case a cellar only beneath the rear room) and

[54] Williams 1970, 17.
[55] Dyson in Milne and Milne 1982, 6.
[56] Eg Hilton 1990, 94–8.

several floors high, sometimes with an alley down one side (the upper storeys sailing over it). When present, the alley served lesser buildings along the property, in the Thames Street cases also leading to the waterfront. This house form of two rooms on two or three floors is found in houses in Abchurch Lane surveyed by Ralph Treswell in 1612, which may be those documented as built on the site shortly before 1390; in 1612 what is probably this block of five houses was 3½ storeys high, though they were probably altered by then, particularly by the addition of fireplaces and chimneys.[57] This simple plan is found in other English towns, including York and Exeter; and in the London region, for instance the Chaplaincy at Hornchurch (Essex), destroyed by fire in 1970, which was timber-framed on two storeys with jetties at both ends.[58] It is usual to consider this a new form of house plan in the 14th century, but in truth it only appears so; we have very little information on the plans of 12th- or 13th-century houses below the exceptional stone buildings, in London or elsewhere. The two-room plan form could have originated as early as the late 12th century when timber framing was born.

C:Building 10 was of masonry in its recorded basement and foundations, but could have been timber-framed from the medieval ground level upwards; or the walls forming the property boundaries may have been of stone, but the building essentially timber-framed between these walls. This would allow for the cesspit thought possible in its east wall, if it served the first floor. The number of storeys here in this principal house which faced Thames Street cannot be known, and may have changed during the lifetime of the building. We can class Thames Street as a major street, of houses with three storeys probably by 1400. In central streets such as Cheapside, the houses may have reached four storeys during the 15th century, as they had in the High Street at Bristol.[59]

Although the plan of two rooms on several storeys became common, it was much more usual for a house to evolve over the centuries by losing or gaining component parts, at least as demonstrated by surviving buildings in medieval towns. Recording of buildings in Rye (Sussex) or Coggeshall (Essex) demonstrates that medieval buildings were commonly added to or rebuilt throughout the 16th century, so that by 1600 they had parts of several different dates.[60] Surviving timber-framed buildings in smaller towns and the couontryside today can exhibit up to five periods of building in their structures. Most houses in the City of London in 1500 or in 1600 probably had parts of different dates; some houses shown in 18th- and 19th-century engravings had 12th-century parts.

A particular question to explore for this period is any perceptible changes in the size of house or pattern of buildings on properties as a result of the Black Death and its several successor plagues in 1348–75. If London's population was reduced by 50%, there would have been visible changes to the buildings and uses of properties. In Cheapside and Poultry, larger shops of the 15th century were partly the result of depopulation and falling land values, but also perhaps a change in thinking about what comprised retail premises. The new market was broader, with people expressing more consumer desires, and shops in central streets probably responded to this in becoming larger.[61] In London, as in other towns, there may have been less attraction now in having cellars as shops, so that they went out of use for retailing. Here archaeological analysis is so far a blunt tool, and the waterfront excavations are no exception. The house of two rooms on several floors is exemplified by C:Building 10 and known elsewhere in the City from the 1390s; but the building date of C:Building 10 is uncertain within the period, and it could be of the first half of the 15th century. Further, this house form of probably two or three storeys against the street seems to indicate resources and confidence, not desolation. There are some studies of post-plague houses in other towns, where buildings survive to be recorded. In Sandwich, there is a noticeable development of smaller buildings after the Black Death. Large storage cellars and domestic buildings of the 14th century and earlier gave way to smaller houses, many of which remain. But these were after an interval; no new houses appear to have been built between about 1380 and about 1420, and none survive.[62] In Winchester, there is clear evidence of a reduced area within the walls being occupied, as the outer margins were vacated.[63] But at York, there is no clear idea about the immediate impact of the Black Death.[64] Though this matter is not yet adequately researched, London appears to have been resilient. Large religious building projects such as those at the several friaries continued unabated as though the plague had never happened.[65]

On the study sites, several of the owners and occupiers died in 1348–9. There is no certain evidence of decline or change which might be attributed to the plague. On Tenement 4 there is a hint of development in 1374, when Ralph Lobeham, draper and his wife took over

[57] Schofield 2003, 205–6, fig 48.
[58] Bond 1998, 20.
[59] Leech 2014, 27.
[60] Martin *et al.* 2009 (Rye); Andrews 2013, Stenning with Shackle 2013 (Coggeshall).
[61] Keene 2011, 192. An Italian verse chronicle by Buccio di Ranallo (*c.* 1300–63) condemned the greater materialism which became evident after the Plague: 'People were fewer, but greed was greater.. few there were who cared for their souls; they put their care and energy into getting rich' (Dean 2000, 194–5).
[62] Clarke *et al.* 2010, 119, 164.
[63] Keene 1985; Ford and Teague 2011, 121.
[64] Rees Jones and Palliser 2015, 39.
[65] Holder 2017, 196.

the dyeing establishment and quay there, being also authorised to pull down the stone wall of the tenement at the Thames Street end and replace it with shops. Two patterns seen before 1350 continued and intensified: institutional ownership and the continuing process of subdivision, which would have further contributed to houses having parts of different dates. The properties must have been attractive investments for city institutions, whether they were acquired by purchase or bequest: by 1500 the Dyers' Company had acquired Tenement 1, the Vintners' Company Tenement 2, the parish of St Peter Westcheap Tenement 3 (by 1431), the Mercers' Company Tenement 4, and St Paul's Cathedral Tenement 5 (also before 1431). East of Ebbgate, Tenement 6 had been assigned to Pultney's chantry in St Paul's since 1348, Tenement 7 passed to St Michael Crooked Lane parish in 1391 and Tenement 8 passed to the City in 1477.

Institutional ownership did not inhibit fragmentation. Between 1454 and 1478, there seem to have been up to 25 separate tenancies on Tenement 6, though they cannot be related to the excavated remains. As this property formed the east side of Ebbgate or Swan Lane, it is possible that some of these subdivisions were of small units along the west half of the property which formed the side of the lane; but Tenement 6 was wider than usual, so could have accommodated many tenancies within itself. The paltry amounts charged for rent, in the majority of cases, are notable. Subdivision was to take place in the facing tenement along Ebbgate on its other side, the Moon or Half Moon (Tenement 5), but this is only documented in 1649 (below). Subdivision of waterfront properties was probably a common feature of this area by 1500: a property south of Thames Street and 100m upstream of the study sites was subdivided into 36 tenancies by 1509.[66] So far, it has not proved possible to suggest any case of correlation between a documented subdivision of a property and the archaeological evidence on the study sites. Study of subdivision of properties in 15th-century Bristol suggests that it was a practical matter, that is a large property would be divided by using existing walls, and by using divisions between shops to extend the boundaries to the rear of the plot.[67] In Winchelsea, almost from its establishment in 1292 until well into the 16th century, buildings were frequently subdivided and boundaries adjusted; in Exeter subdivision has been noticed particularly for properties after 1450.[68] It was one of the most common things happening to medieval buildings in towns. But on the present sites, as at others such as in Hartlepool and at Coppergate, York, when buildings are arranged along a plot, it is not possible to assign them individually to different owners or tenants.[69] There is also now documentary evidence for industrial buildings to match the hints in the archaeology, so the properties were filled with buildings having different functions. Brewers and dyers occupied Tenements 2 to 5; at Ebbgate, the brewhouse *Le Mone* on Tenement 5 probably served people using the river stairs at the end of the lane.

This pressure for constant adaptation and expansion of buildings would erode the old insistence on stone party walls. By the time of the surveys of Ralph Treswell in 1607 to 1614, almost all houses in the City, Southwark and Westminster were timber-framed from the ground up, and stone walls forming the sides of buildings above ground were a great rarity.[70] It is possible that the 15th-century and later fashion of close studding (structurally superfluous vertical timbers within panels) had a metropolitan origin. Although information is almost totally lacking, it seems likely that most of the houses on the study tenements after 1350, and in many cases before, were timber-framed, though with stone cellars in some cases. Some houses could have had stone (later brick) side and back walls, with fronts only of timber framing, as suggested was common in Norwich.[71]

One remarkable feature of this period is the occurrence of two separate buildings containing internal chequerwork walling: C:Building 10 in its cellar (Figure 135 to Figure 139), and St Botolph's church in its extension which met up with Reynewell's building (Figure 155, detail in Figure 231). They are similar in design and materials, and both of the period 1350–1450. Chequerwork is found on the outsides of buildings and town gates in medieval towns throughout southeast England, for instance parts of the town wall and the Davis gate of Sandwich (Kent), the latter of the second half of the 15th century.[72] Use of knapped flints in chequerboard-like squares or as bands has been noticed in at least two places on London's medieval city wall, and may have been widespread there.[73] It can be seen today in the precinct wall of the Charterhouse. Knapped flints were also used decoratively on at least one wall at the Steelyard, which survived the Fire to be recorded in 1861; this may have been external when built. Several buildings with details or large parts of their facades in chequerwork are seen in engravings of Savoy Hospital, and seem to be of the hospital period, that is 1512–20 (Figure 168); though some earlier buildings from the palace of the 14th century did survive, possibly into the new construction.[74] The internal use of chequerwork is rare in the London region; a small vaulted undercroft with chequerwork walls has been recorded and

[66] Schofield 2003, 216–17.
[67] Leech 2014, 24.
[68] Martin and Martin 2004, 98–100; Parker and Allan 2015.
[69] Hall and Hunter-Mann 2002, 806.
[70] Schofield 1987b.
[71] Smith and Carter 1983, 6.
[72] Clarke *et al.* 2010, 156–8.
[73] Maitland 1756, i, 31; Milne with Cohen 2002, 28.
[74] Stanford 2015, 1–2.



Figure 231 Site D: a detail of the east wall of the extension of St Botolph's church in the middle of the 15th century, showing the remains of the north jamb of the doorway to the lane (0.2m scale). The chalk blocks have been pecked to take the later layer of plaster. Key: 1, score marks showing the position of a spur wall which came out at rightangles from the doorway; 2, the check for the door. The sloping line in the upper part of the photograph is a mark on the original 35mm slide

preserved at Kingston-upon-Thames, but its date is not certain. Chequerwork is employed in the 15th-century crypt at Guildhall, but clumsily.

A number of the chalk blocks of the internal chequerwork facing of C:Building 10 had masons' marks on them, which had survived in good condition because the walls were internal and had not been rendered during their life from about 1350 to 1666. The marks are indicated on the elevations of the wall, Figure 139. Marks may have originally been present on the other chequerwork wall at St Botolph's, but all the chalk blocks there had been well attacked with picks to help adhesion of the (probably) post-Reformation plaster which covered the wall, so no marks were recorded. Masons' marks are present on medieval buildings from the 12th century, and are perhaps most numerous in the 15th century, such as in Essex churches. The site C marks are the first collection from a secular medieval London building, and they await comparable examples from the London region to be better understood.

Floors of decorated tiles can now be found in secular buildings, as most notably at B:Building 5. Special circumstances must have caused the lack of removal of these tiles, which were in any case old and cracked. Tile floors were considered moveable assets, like doors and window frames.[75]

This period also sees the introduction of a new medieval building material, brick. The late adoption of brick in London is in contrast both to its use in Denmark in the late 12h century (at Ribe) and elsewhere round the Baltic on the one hand, and the perhaps precocious use of brick of the fortifications of Hull from the 1320s on the other.[76] Small yellow bricks, probably imports, were used in the middle of the 14th century in the rebuilding of the south side of St Botolph's church on site D (period D13.1–2). Large red bricks, probably local products, were used in the construction of the cellar of D:Building 5 in the first half of the 15th century (D14.1). Shortly after, brick was used to make the double grave in the new aisle of the church (D15.2). There are probably other early examples to be found, since bricks were being made at Deptford from 1404.[77] The largest construction in brick in 15th-century London was the rebuilding and reinforcement of the City wall of 1477 between Aldgate and Newgate. Brick was also used in monastic and parish church rebuildings and extensions after 1450, for instance the rebuilding of the west end of the church at St Mary Overie Southwark, after it collapsed in 1469, or the south aisle of St Katherine Coleman in Fenchurch Street in 1489. A mid-15th century date for widespread adoption of brick in undercrofts has been noted in London (Crosby Hall, 1470), Lille and Douai.[78] But throughout the second half of the 15th and 16th centuries in central London, brick was mainly used for buildings in the public sphere (such as Clothworkers' Hall in Mincing Lane, 1549) or when put up by institutions, such as almshouses, and in some of the religious precincts; and only very occasionally for superior houses of laypeople. On a private property a house or building totally of brick would have been exceptional before 1600.

Rooftiles became standardised in the 1480s. The process of manufacture and the size of the tiles was regulated by an Act of 1477.[79] At site D this standardisation was evident, in that tiles of the 1480s are in a distinctive fabric and 'have surviving measurements all of which are remarkably similar' (section 6.7 below). This could be a useful dating mechanism for the future.

[75] Eg Chew and Kellaway 1973, no. 646 (1408).
[76] Ayers 2016, 99–103.
[77] Schofield 2003, 150–2.
[78] Claubaut 2006, 159.
[79] Salzman 1967, 230–1.

After 1350 there are more excavated examples of household fittings, for instance from London waterfront contexts which are dated by dendrochronology, ceramics and coins. Though they are displaced from their original settings in buildings, these form an important corpus of hinges, locks and keys, candlesticks, kitchen ware and pieces of louvers from roofs.[80] For London, a brief review of documentary evidence for furnishings of rooms in medieval houses and livery company halls has been attempted.[81] One of the few surviving medieval inventories of household contents from London can be associated, though tentatively, with the buildings in the project on Tenement 6. This was published in 1928, but is presented here again.

In August 1368 Thomas Kynebell, rector of St Martin Pomeroy, came before the mayor and aldermen and asked to be admitted to prove as his own certain goods and chattels which had been attached as being the property of Margery, late wife and administratrix of Geoffrey de Dytton, at the suit of John Manner, attorney of John Croys of Amiens, for a debt of £40. Dytton was in occupation of Tenement 6 in 1363. He may have been dead by 1377, since the occupant was then Geoffrey Puppe. It is possible that Kynebell's suit, to claim chattels of all kinds from Margery, widow of Geoffrey de Dytton, concerned the tenement in Thames Street; though equally, it could have been another London property of de Dytton, who was clearly well-off. It is presented here as a detailed description of a house and its furnishings belonging to de Dytton and his wife, and possibly of the house on Tenement 6.

The goods were as follows (suggested translations of the terms in Table 52):

In The Hall: 2 *dosers*, 4 *costers*, 6 *banquers*, 3 *douseyns quyssyns*, 2 tables, one *countour*, 2 forms, one *skren* with a cupboard, one basin, one *lavour*, one *schekker*, 12 chairs, one large *gaioll* with birds, 2 *chaundelers pendaunz*, one *chaundeler esteant*, 3 *tristells*, one iron bar standing behind the fire, one pair of tongs, 2 *furches*.

In The Chamber: 20 *coverlytes*, 2 *testers*, 2 pairs of *curteyns*, 19 pairs of sheets (*lyntheux*), 15 feather-beds with the *travesyns*, 11 *oralers*, 22 *closours* of linen for beds, 3 large *huches*, 5 small *huches*, one long *chayer*, 2 *countours*, 2 *aundirnes* for the chimney, one standing chandelier, 50 dressed rabbit-skins, 2 pairs of trestles, 2 basins, 4 *lavours*, 2 complete robes, 2 *cotes* with the *chaperons*.

In The Pantry: 4 *bordclothes*, 4 *towaills*, 6 *savenaps*, 4 *salers*, 2 pieces of silver, 5 mazers whole and broken, 6 chandeliers of *laton*, 10 pewter pottle-pots, 4 pewter quartpots and one pint [pot], 2 *gistes*, 2 *almaries*, one small *aunser*, one pair of irons for *waffres*, one *sarce*, one pair of leather quart-bottles.

In The Parlour: one *doser*, 3 *banquers*, one *huche*, one knife for *trenchours*.

In The Kitchen: six brass (*erresme*) pots, one *posnet*, 4 large *payelz* and one small, 4 *caudrouns*, 3 *brandirens*, 2 *gridils*, 3 iron *gromes*, one iron frying-pan, 2 iron *slyce*, one *fleschoke*, one *scomour*, one iron *ladel*, one large iron *broche rounde* and 3 small, 2 large knives for the *cosyne*, 3 *morteres de marbil*, 2 wooden *pestels*, one *myearour*, 2 iron *hokes*, 2 *coloundours* of *latoun*, one large *hache*, 2 stones of mustard, two long iron pails, 2 tables for the *dressour*, one portion of *fowaill*, 6 fother of *carbouns*, one *vache*, one pewter pot for *vyneker*, 5 large *fatez*, 4 *kymlyns*, 3 tubs, one *cuve*, 2 *troghes*, one *fan*, one quarter of malt, one *bultyngton*, 4 barrels for *verjouce*, 6 sacks for wheat, six barrels for ale, 3 barrels of white salt, one quarter of large salt in a piece, one portion of *glas*, 3 tuns of *noys*, 5 pipes *descors de noys*, 10 *aumes* of Rhine wine in 3 pipes.

Thomas Kynebell declared that all the above chattels were his own before, at the time of, and after the said arrest, and his present claim was not by any colour of fraud (*aliquo colore fraudis*) or collusion to exclude any one from his action, but merely to prove that the goods were his own. He was admitted to probate, after which the Court awarded him delivery of the goods.[82]

term	**suggested translation**
almaries	cupboards, presumably movable
aumes	liquid measures, casks
aundirnes	andirons
aunser	? auncel, a balance and weight
banquers	bankers
bordclothes	broadcloths, black cloth
brandirens	gridirons, stands for kettles, trivets
broche rounde	brush or possibly a spit
bultyngton	barrel for sifting (boulting)
carbouns	? coals
caudrons	caldrons
chaperons	hoods, to go with the cotes [coates]
chaundelers pendaunz/esteant	hanging/standing chandeliers
closours	closures, fastenings
costers	wall hangings
cosyne	cook
cotes	coats
countour	counter
coverlytes	coverlets, uppermost covering of a bed
cuve	cask, vat
dosers	? dorserets, canopies
dressour	large board used for preparing food

[80] Egan 1998, with an introductory survey by J Keily.
[81] Schofield 2003, 128–33.
[82] *Cal Plea & Mem R 1384–81*, 91–3.

term	suggested translation
fatez	vats
fowail	fuel, firewood
furches	? forks (in fireplace)
gaioll	birdcage
gistes	? joists, timbers
glas	? seems to be food or drink here
gridils	griddles
gromes	? rings of metal
hache	hatchet
huches	chests
kymlyns	tubs [ME *kim(e)lin*]
lavour	dish for washing
morteres de marbil	mortars of marble [for grinding]
myearour	? mirror [strange in the kitchen]
noys/descors de noys	not known
oralers	pillows
payelz	pails
posnet	small metal pot for boiling, with feet
quyssyns	cushions
salers	saltcellars
sarce	? sieve
savenaps	napkin, towel [*sanap*]
schekker	? checker, table with top designed for gaming
scomour	skimmer
skren	screen
testers	canopies over beds
travesyns	bolsters
trenchours	trenchers, wooden dishes
tristells	? trestles
troghes	troughs
vache	crane device in the kitchen
verjouce	acid juice of sour fruit (grapes, apples), used in cooking
vyneker	vinegar
waffres	wafers

Table 52 Suggested translations of terms used in inventory of 1368

The sheer amount of household stuff and stores in the kitchen is remarkable (the vats and tubs indicate ale was brewed there), and this perhaps argues that the house in question was larger than that on Tenement 6; but it does show the milieu of possessions in which Geoffrey and Margery de Dytton lived. So far archaeological work in London, and in other towns, has not produced a medieval site with material that can be analysed to match this kind of list.

To continue with the speculation that the inventory is of Tenement 6, the rooms described in 1368 can be compared with 39 Strand Street, Sandwich (Figure 230). If Puppes' house, the Black Raven, was similar to that in Strand Street, it would have had a frontage three storeys high. The room behind with the central hearth and decorated tiled floor, possibly the hall, could have been open to the roof two storeys above, as at Strand Street.

The tiles comprising the floor were up to 100 years old when laid in the decades after 1350. Decorated 'Westminster' tiles are found on monastic and parish church sites throughout London and southeast England. Parallels from other towns are few. The only parallel for a floor of decorated 'Westminster' tiles found in situ in a secular medieval urban context is provided by two separate areas of flooring at the standing Clifton House in King's Lynn; though relaid in the 1960s, they possibly represent an original feature of the 13th century in a merchant's house on the waterfront there.[83] In an excavation in Norfolk Street, also in King's Lynn, part of a 14th-century pavement of Bawsey tiles was also recorded; it lay in a building towards the rear of a long property.[84] In the Seal House (site B) case, the tiles were reused, and when revealed by excavation nearly all were cracked into several fragments, which could be from either a long period of use and/or the destruction of the room in the Great Fire of 1666, or both. Clearly medieval floor tiles were normally hardy enough to be reused for up to three centuries; two buildings of the 16th and 17th centuries excavated at Spitalfields in 1991–2007 had floors of reused plain medieval tiles.[85]

The kitchen of the Black Raven remains unlocated. The fact that the south part of the excavated site, including the hearths and B:Building D, became the site of the six small houses by 1600 suggests that the kitchen, an important room in a major house, would not have been there. Tenement 6, the Black Raven, was a wide property bisected by an alley, presumably originally private, which was called 'a little street' in 1333 (see Figure 76). The buildings forming the west side of the tenement, across the alley from the excavation, are completely unknown. It is possible that the kitchen lay across the alley in the western section. The suggestion that the Dytton inventory of 1368 refers to the excavated buildings on Tenement 6 cannot be taken much further, and it is actually fruitful to spread the many items in the inventory around the house at Sandwich as a parallel of appropriate size and arrangement.

The nature of the yards and open spaces which surrounded the excavated buildings on all the sites is poorly known. By the 17th century every inch of open space on these properties was being encroached on, leaving only narrow alleys for access which nevertheless had to reach the far end of the long properties, and often went through to the riverside. Gardens were almost totally absent on the north bank, including it seems at the livery company halls; with one exception. The site south of Thames Street at Trig Lane west of Queenhithe, in 1422 and 1447, included a garden; and as this was adjacent to the wharf, it probably lay behind

[83] Betts 2002, 37–9.
[84] Clarke and Carter 1977, 163–5.
[85] Harward *et al.* 2015, 83.

the quay wall of about 1440 excavated there.[86] The rich organic nature of the reclamation deposits beneath would have encouraged plants. Gardens were common on the south bank, though they were gradually being built over. The Bridge House garden next to the Bridge, from accounts of 1381, contained vines.[87]

From 1500 to 1666

The properties on the study sites in 1500–1666 were a congested and fragmenting mixture of dyehouses, brewhouses, and domestic accommodation; shown well at the beginning of the period in the low-level panorama of about 1530 (Figure 172). This mixture included a new development, the use of parts of the long properties (probably in both cases down the alleys) for almshouses or for similar small houses for indigent company members. This is certainly the case at Tenement 1 for the Dyers, and at Tenement 6 the Fishmongers gradually bought up parts of the property and let them out to indigent members (details in the online documentary section 6.9). In both cases these almshouses were adjacent or close to the company hall, and both upstream of the bridge. It may be significant that such small houses, with their charitable purpose, did not appear on the comparable land south of Thames Street east of the bridge, which would have taken the full force of the legislation of 1559 establishing the Legal Quays. Although the general mixed configurations of properties west and east of the bridge were similar (compare for instance D:Buildings 7–8 and the Treswell plan of Haywharf Lane (Figure 232), both in the first half of the 17th century) the reclamation zone west of the bridge contained, in 1650, four livery company halls and several sets of attached almshouses. The tone of the area was perhaps quieter.

The increased amount of documentary evidence after 1500 means that for the first time we have good information about the detailed character of some of these tenancies, including clear indications of their number of storeys and the parts into which they were subdivided. In 1637, one of the tenancies on Tenement 3 at the Thames Street end comprised 3½ storeys; the corresponding front house on Tenement 5, the White Hart, was also 3½ storeys high in 1649. Part of Tenement 4 was 2½ storeys high in 1602. The building at the head of Tenement 3, from its measurements, probably had jetties on the first and second floors facing Thames Street. By 1649 Tenement 5 was divided into 30 tenancies. This was no doubt partly because Ebbgate (the present Swan Lane) formed its complete east side, and the tenancies would have individual doors to that lane. The six small tenements behind and south of the Black Raven (the main house on Tenement 6) in 1549 are described in formal terms in leases up to the Great Fire, so their character or individual dimensions are not ascertainable from the documents. Between 1574 and 1622 they passed in stages to the Fishmongers' Company. In 1610 the Company agreed to the rebuilding of one of the houses, but it is not known which. Although the six sub-tenancies resurface as six approximately-equal houses after the Fire, it is not clear where the boundaries were from 1500; the six little tenancies cannot be established. As their individual measurements are not available, it is also not possible to say that they would have been the same in area before and after the Fire. We only have their plans after the Fire, not before. Downstream of the bridge, Tenement 11 was in eight parts in the early 16th century, and Tenements 12 to 14 also in several parts by the early 17th century.

The arrangement and dimensions of rooms for some of the buildings become clearer, as in Richard Tredwell's tenancy at the head of Tenement 4 in 1619, on the west side, in his lease from the Mercers' Company. Tredwell, a shoemaker, occupied a house of two storeys with a garret and a cellar. Similar information is available for the house called The Old Swan on Tenement 3 in 1637. Its footprint was 19ft (5.8m) north–south and 12ft (3.7m) east–west. It comprised a shop on the street side, with a chamber over 22ft (6.7m) long, so probably jettied; a garret over the chamber; a staircase 6ft (1.8m) square at the southeast corner 'within Swann Alley', so perhaps giving access from the alley; and a kitchen two stories from the ground next to the house, a further 18ft (5.5m) north–south and 13ft 6in (5.1m) east–west. In 1649 further details are available: the shop had a cellar, and the third storey now had three small rooms with a garret over them. It was now in the occupation of Robert Fitkin, cook. The pre-Fire cellar of this house was briefly seen in the Riverbank House excavation of 2006–9. It was thought to be of 17th-century date in its construction, and it was backfilled with debris of the Great Fire which included fragments of Dutch wall tiles.[88] The buildings on the riverside at this time are shown by Hollar in 1647 (Figure 174).

The congested nature of the long waterfront tenements in this area is vividly shown by surveys of two properties belonging to the Clothworkers' Company in 1612 by Ralph Treswell. They were next to each other on the west boundary of the study area, and details of one have been added by recent excavation. The western of the two was a block forming the south half of buildings on the west side of All Hallows Lane, which went down the east side of the Steelyard, at the west end of All Hallows the Great church. Here nine tenants occupied small houses with doors to the lane, nearly all of two storeys

[86] T Dyson in Milne and Milne 1982, 8.
[87] Harding and Wright 1995, no.85.
[88] Mackinder 2015, 70–1.



Figure 232 Buildings along Haywharf Lane and at the river's edge immediately west of the study sites, surveyed for the Clothworkers' Company in 1612 by Ralph Treswell (Schofield 2003, 215–17 with corrections). The long property is here shown in two parts; that on the right lay to the south of that on the left. The walls in black were timber-framed; the hatched walls were in brick. The numbers 1–7 indicate separate tenancies. Key to ground-floor room and space functions in 1612: K kitchen, L larder, S storehouse, St study, W warehouse, Y yard. The former Wolsey Lane on the east side was blocked by privies and walls

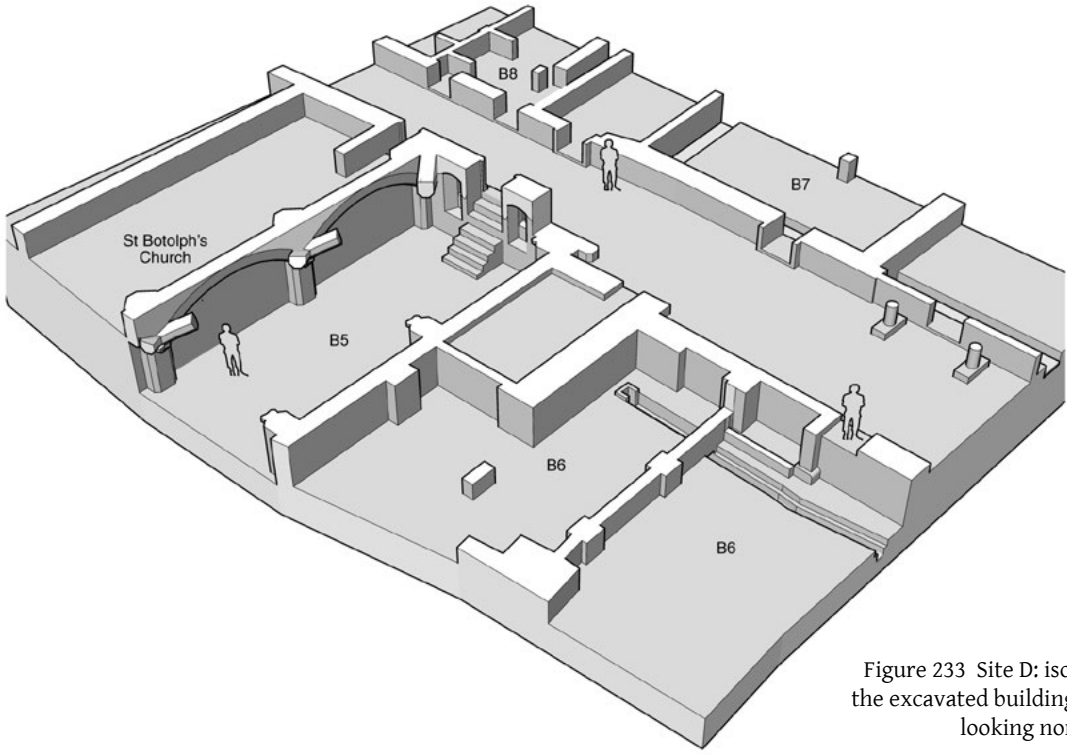


Figure 233 Site D: isometric sketch of the excavated buildings in period D15.9, looking northeast

with garrets. One included an oven of commercial size.[89] The other larger property to the east formed buildings on both sides of Haywharf Lane in its southern half, shown here (Figure 232). This property had been most of the site of the second Coldharbour; apparently no stone walls remained in 1612, but the large kitchen of the brewhouse on the southern half of the site may have been a relic of the medieval mansion. In 1509 the property had 36 tenants. The major tenant in 1612, who presumably ran the brewhouse, was a Clothworker, William Campion. The rooms of the property formed three and a half storeys, including a first-floor hall 42½ft (13m) long and several parlours.[90] Several of the ground-floor rooms are labelled 'Store howse'; they all had one entrance from the alley and no internal stairs (stairs intruding into them were directly to storeys above from outside). These must be the simple rooms also known as warehouses.

The focus can be tightened further; increasingly after 1500 there are glimpses into the rooms of London houses on the waterfront. In 1531, an inventory was compiled of the possessions of John Porth at the George near Billingsgate, probably within the parish of St Mary at Hill, though whether north or south of Thames Street is not known. Porth had at least ten rooms. There were hangings in the hall, parlour and several upper chambers; tables and chests throughout; religious images and printed books.[91] From the opening of the 17th century it is possible to explore the rooms of some of the buildings on these properties in more detail, either in the documents or on the sites. An inventory of the Three Starres in March 1602 survives in the Vintners' records; this was drawn up when 'Mr Glover', alderman and dyer, sold the lease to Cuthbert Joyner, citizen and dyer (above, section 5.2). The Three Starres was a building, or part of a building, probably of two storeys with garrets, workrooms presumably for dyeing, and including parts on the riverside (the kitchen and gallery). Though clearly a dyeing establishment with several buildings dedicated to the processes, the Three Starres also contained a hall hung with painted cloths, and some wainscot panelling round the chimney; a parlour with wainscot round most of its walls, and wainscot in the counting house and gallery.

Study of the Treswell plans of London houses in 1607–14 has allowed, at least for the ground floors which are on the plans, some suggestions about signficant routes through properties, how rooms were significantly arranged in order of access, and how doors led to different parts of larger properties, that is rooms or spaces with commercial, social and service functions.[92] For the first half of the 17th century, excavated artefacts can be linked to rooms and storage spaces on at least one site, the largest. An analysis of the secular buildings on Botolph Wharf in the first half of the 17th

[89] Schofield 1987b, 116–17; 2003, 215–16; www.clothworkersproperty.org/properties/all-hallows-lane.
[90] Schofield 1987b, 118–19; 2003, 216–17; www.clothworkersproperty.org/properties/haywharf-or-heywharf-lane.
[91] Littlehales 1904–5 [1972], 36–50.
[92] Schofield 1987b; 1994b.

century published in 2009 suggested that the pottery and artefacts in the various buildings (Figure 233)[93] were to varying degrees indicative of the function of those buildings at the time. The occupiers of D:Building 7 (judging by the debris which accumulated in drain D[1389]) were affluent, owning foreign pottery, table glass, nine pieces of cutlery/eating implements and a high proportion of articles associated with dress and personal grooming (e.g. lace tags, beads, combs). For D:Building 8 to the north and facing Thames Street, the finds are too infrequent to say anything (it would have incorporated one or more shops). The assemblage from the undercroft or cellar of D:Building 5 is different: a similar mix of native and foreign pottery to D:Building 7, but a different range of artefacts. These included wooden stoppers for casks or barrels. Next to the south, D:Building 6 also did not have many diagnostic artefacts, but it did produce a barrel stave, coal, wooden stoppers and a lead repair patch for a boat. We propose it was a warehouse on Botolph Wharf, as suggested by the documents.

The finds in the use and destruction levels of these buildings therefore suggest that D:Building 7 was domestic above the excavated ground-floor rooms which may have included a warehouse (like the buildings at Haywharf Lane shown by Treswell), D:Building 8 perhaps totally utilitarian, the rebuilding of the vault in D:Building 5 for storage and the rebuilding of D:Building 6 south of it in line with its existing function as a warehouse. If we can assume that the rich array of artefacts in the drain beneath D:Building 7 came from the building above then the occupants of the house can be vividly portrayed as owning expensive cutlery, pottery from several European lands and China, and with Dutch tiles around at least one fireplace. At this time, from the 1640s for several decades, London interiors may have had some Dutch aspects, taking over from an interest in fashions from Antwerp which had been influential from the late 16th century.[94] A study of 2010 identified 21 sites of buildings in central and outer London which have produced during excavation, or which still possess, groups of Dutch tiles, usually in fireplaces. Some of these are buildings constructed after the 17th century, but they include late 17th-century or early 18th-century examples in Fournier Street (Tower Hamlets), Furnival Street (City of London) and two houses in Kensington Square (Kensington and Chelsea).[95] Thus archaeological study is matching recent advances in documentary research, in publication of the Hearth Tax returns for London and Middlesex in 1662–6, where 'named individuals are anchored in time and space, and it is possible to map the social topography of the metropolis on the eve of the Great Fire.'[96] The same study asserts a general view that 'the signaling of social distinction was left to the interior fittings' of houses, not their physical fabric or extent.[97]

As to building materials at this period, the excavated sites have something to say about the use of timber and brick. Weatherboarded sheds are shown on the low-level panorama (Figure 172); from the 16th century boards, usually of stout section, were used to cover all storeys of houses up to the attic, all over London. The 16th century was also the time of more widespread use of brick in secular London buildings. Brick was used for floors and drains, as at the 16th-century C:Building 11 and the 17th-century D:Buildings 7 and 8, generally for chimneys and for garden walls as shown on the Treswell plans, where the majority of houses in the conurbation are of timber-framing. Treswell shows one case of a brick range called a parlour in a house at the end of Monkwell Street (just behind the length of City wall which is preserved today), but that was tacked onto the former chapel of St John, a stone building of 12th-century origin, so here the brick wall may have been a matter of prestige, to go with the ashlar stonework.[98] Under the pressure of royal and civic regulation, new buildings in the central conurbation were expected to be in brick after about 1620, and surviving plans and archaeological work show that they were to be found throughout the City and its suburbs well before the Great Fire, and were not only for the rich and fashionable.[99] The recent major excavations at Spitalfields, immediately northeast of the City, have recorded a large number of brick houses of the early 17th century, many of small size.[100] Use of brick in the first half of the 17th century may have been considered aesthetically pleasing and therefore bringing a little prestige.[101] At the same time some deception was going on, with houses occasionally given brick facades, but totally built of timber behind.[102] Exterior walls of square timber panels filled with brick are known in the London area, probably of this period,[103] and were also no doubt a respectable alternative in the City (until 1666).

The few documentary references to the number of storeys of buildings on the waterfront sites indicate that down the alleys, and very probably along Thames Street at the heads of properties, buildings of 3½ storeys were common around 1600. A house in Pudding Lane, about 100m north of the New Fresh Wharf and Billingsgate

[93] The building numbers have been revised for this drawing from the version published in Schofield and Pearce 2009, fig 28.
[94] Keene 2001, 27, with references to earlier studies.
[95] Betts and Weinstein 2010, 51–83.
[96] Harding 2014, 26.
[97] Warren 2014, 132–4.
[98] Schofield 1987b, pl 9.
[99] Examples in plans of houses built from the 1620s, in Gerhold 2016, 173–4, 232, 236, 260.
[100] Harward *et al.* 2015, 51–2, 329–31.
[101] Warren 2014, 132.
[102] Gerhold 2016, 164, fig 187 (Houndsditch).
[103] Eg a row of small houses at Eltham, photographed in 1926: Davies 2009, 329.

sites, was of 3½ storeys when surveyed by Treswell in 1611.[104] Such heights were common on London streets; probably only in the major streets such as Cheapside or Leadenhall Street were houses occasionally of more storeys and greater heights.

Industries and trades on the waterfront

The locations of many industries of the City of London were influenced, if not governed, by their needs in terms of raw materials, and in some cases perhaps by pressures from contemporary society. Dyers and brewers were common along the waterfront because they needed a constant supply of water. Founders and probably potters were to be found in the northern and eastern parishes, downwind of the homes of the rich and powerful.

From the 12th century to the 17th century, the properties and their wharves above London Bridge were partly and in the block immediately west of Ebbgate (Swan Lane) perhaps largely of an industrial character. Big ships did not dock here, and perhaps some of the private quays were used to land fish for smoking or drying. A quay was clearly a prized asset, but it is not clear how it was used. Further, there were many quayside buildings. By the time of the first panoramas (the earliest perhaps of the 1530s), there was hardly any open space at the water's edge; buildings came to the riverfront everywhere, occasionally punctuated by alleys or watergates within the facades of larger buildings. Areas which were still used as quays had cranes, as at Three Cranes Wharf, the Steelyard, and Botolph Wharf; and, from Wyngaerde's panorama of about 1540, on some private properties east of Billingsgate in the zone which would become the Legal Quays in 1559.

Dyeing and fulling

There is artefactual evidence of dyeing and other industries concerned with the finishing of cloth in the City from at least the 10th century;[105] but so far no certain indications of work-places for these industries before 1100. By the late 12th century dyers were on Tenement 3 at site A, with what may have been a substantial dyehouse, by the late 12th century on archaeological grounds; dyers occupied Tenement 5 in 1331–7 and Tenement 8 in 1340; Tenement 4 was described as a tenement for dyeing, with its quay, in 1375, and Tenement 5 belonged to a dyer sometime before 1427, though in 1401 it was a brewhouse, *le Mone on the Hop*. The Dyers established their company hall on Tenement 1 probably from 1484, where the inventory of 1602 describes the buildings as including an upper and nether workhouse with metal vats, a woadhouse, firehouse, warehouse and a 'blackhowse', served by several gutters and pipes from the waterside. By 1514 Tenement 3 had several dyehouses, and details of the dyer's equipment on Tenement 4 are known in 1522. Details of the hearths and discussion of the significance of finding deposits of fuller's earth on the site are found in a paper by the excavator, Geoff Egan.[106] It has not been possible to integrate these details into the present account, and further work on this aspect with the records may be fruitful.

Dyers also had drains taking away their effluent and pouring it into the Thames. Thus the river by their properties, such as those near Ebbgate, must have sometimes been brightly coloured with dye. There does not seem to have been any feeling at the time that this contaminated drinking water which would be drawn from the river.

This central part was not the only stretch of the riverfront used by the dyers. Royal justices in their inquest into purprestures in 1246 noted 'let there be a discussion about the dyers near the Tower',[107] tenter-grounds, which would have been used by the related profession of fullers, are mentioned in the parish of St Dunstan in the East in 1271–2.[108] In 1277 four dyers lived in close proximity in Castle Baynard Ward, at the other, west end of the city, since they were involved in an enquiry into the accidental death of their neighbour, a fifth dyer Thomas de Ewesham, who had fallen into a tank of boiling water, presumably in his workshop.[109] The alderman and popular leader John de Northampton bought a dyehouse and two tenements in Wendegooselane near the Steelyard in 1380–2; dyers of Dowgate ward were indicted for throwing their rindes (bark or peel) into the Thames in 1422.[110] At the Trig Lane-Millennium Bridge site, excavated in 1974 and 1998, several properties owned or occupied by dyers from the early 14th to the 15th centuries have been identified and excavated; it may be that the town house of the abbots of Chertsey, on the Trig Lane site by 1307, was at least partly leased to a dyer for a *Dyhous* in the 1480s.[111] Tabulation of the main residences of dyers whose wills survive in the Commissary Court of London for the period 1374–1488 by parish (Table 53) shows that of the 35 recorded, only one dyer lived away from the waterfront, in the parish of St Mary Aldermanbury; otherwise all but two lived in waterfront parishes upstream of the bridge, with the largest number in the parish of St Peter Paul's Wharf.

[104] Schofield 1987b, 110–11.
[105] Pritchard 1991, 123–4.
[106] Egan 1991.
[107] Chew and Weinbaum 1970, no. 466.
[108] Hodgett 1971, no. 195.
[109] *Cal L Bk B*, 168–9.
[110] Bird 1949, 9–10.
[111] Ayre and Wroe-Brown 2002, 34–5, 48.

parish	number of wills	date-range
St Michael Queenhithe	3	1378–1486
St James Garlickhithe	3	1385–1487
St Peter Paul's Wharf	7	1389–1482
St Botolph Billingsgate	1	1393
St Mary Somerset	3	1395–1475
All Hallows the Great	5	1400–85
St Mary Aldermanbury	1	1408
St Benet Paul's Wharf	4	1415–89
St Mary at Hill	1	1427
All Hallows the Less	2	1429–80
St Andrew Baynard Castle	1	1431
St Martin Orgar	2	1440–86
St Lawrence Pountney	1	1467

Table 53 The homes of dyers according to their wills in the Commissary Court of London, 1374–1488, by parish (Fitch 1969)

The Fullers and Dyers were at first apparently a joint craft with a single set of ordinances by 1297–8.[112] There is some evidence that a concentration of the cloth-finishing industry at the time was around Cannon Street, a short distance north of the Swan Lane site. Burel was a coarse cloth that could be supplied in large quantities, for instance 2,000 ells sent to the king's army in Ireland in 1172.[113] During the 13th century the burellers (cloth merchants) of Cannon Street (Candlewick Street) were regular visitors to St Giles's fair at Winchester, where they had a seld or showroom, and one of the temporary streets in the fair was named Burellers' Street or Candlewick Street. In 1285–6 a will mentions a tenter-ground on the north side of Cannon Street. For Edward III's coronation in 1327, 'cloth of Candlewick Street' was ordered to make hangings and bankers.[114] The burellers were an organised craft by 1300, which tried to disentangle itself from the weavers in 1335; two of the former were from *Candelwyckstrete*. In 1345 John de Aylesham, a rich London mercer with family in Norfolk, made a bequest to the fraternity of burellers of Candelwyckestrete.[115] It may be that (despite the reference to the tenter-ground of 1285–6) the Cannon Street area was where cloth was sold, rather than made or finished. The dyers and fullers would need the constant supply of Thames water available in the riverfront zone below Cannon Street. References to the cloth-finishing trades in the area continue. In 1400, for instance, Juliana Purbyk was accused of fixing her tenterframes to a stone boundary wall with a neighbour for a distance of 21½ yds (19.7m) in the parish of St Martin Orgar, which reached up to Cannon Street as well as incorporating Tenements 6–8 at the riverside.[116] By 1381–2 the Fullers and Dyers were separate crafts,[117] and remained so thereafter; the Fullers united with the Shearmen to become the new Clothworkers' Company in 1528, and the Dyers were a separate body by then. There was presumably much less fulling going on in the 16th century, when the worsted cloths called the New Draperies, which used wool which was not fulled, became widespread.

Fulling and dyeing may have been carried out on the same premises in the 12th and 13th centuries, but fulling could also be done in later decades at a watermill, which meant a location outside London in the countryside. Fulling, it has been said, 'is one of the few tasks that underwent a revolutionary mechanization during the Middle Ages'.[118] In their ordinances of 1297–8 the fullers and dyers ruled that nobody of their craft would send cloth to mills outside the City; but by 1404 there is mention of a mill called *Spylemansmylle* in Stratford at Bow, east of the city, which belonged to London Bridge. The tenancy there included the watermill for fulling, four acres of meadow, an embankment three furlongs (604m) long (perhaps the mill leet, but possibly also referring to an embankment along the Thames bank) and one *roda* or landing-place.[119] By the late 14th century, the fullers seem to have been much less concentrated on the waterfront, at least as far as their main residences were concerned. In the index to the Commissary Court wills of 1374–1488 used for Table 53, fullers are found all over the City, including the suburbs. Possibly the better-off among the fullers lived away from their workplaces by this time. The dyeing establishments in and around site B, including those shown by Hollar in 1647, were part of a group of cloth-finishing industries which by the second half of the 16th century employed about a third of London's adult male labour force.[120] This is the setting also for the 'thousands' of cloth seals along the waterfront from dyehouses dating from the late medieval period to the 19th century.[121]

Evidence for dyers in London can be compared with that from other towns. To be important in the cloth-finishing businesses, a town needed a river. In Siena, for instance, which never had a river, these industries were never strong. By 1300, and possibly earlier, parts of the London waterfront above the bridge with their concentrations of dyers and perhaps, though not certainly, fullers may have resembled the contemporary riverfront at Norwich, a location where these two trades were also to be found in significant numbers, and on both banks of the river Wensum.[122] There was a similar mixing of dyers, fullers and weavers in a specific area of Winchester, where there is clear evidence of the reliance of the dyers on supplies of clean water; dyers were also to be found on the riverfront side of town at Salisbury

[112] *Cal L Bk C*, 52.
[113] Bartlett 2000, 369.
[114] Keene 1985, 1097–8; *Cal Wills* i, 75; Brayley and Britton 1836, 142.
[115] *Cal Early Mayor's Ct R*, 53–4; Consitt 1933, 26–8; *Cal Wills* i, 484.
[116] Chew and Kellaway 1973, no 643.
[117] *Cal Plea & Mem R 1381–1412*, 30.
[118] Bartlett 2000, 369–70.
[119] Harding and Wright 1995, nos. 143, 251, 329.
[120] Rappaport 1989, 90–3.
[121] Egan 1991. The term thousands is from the abstract to his paper.
[122] Kelly *et al.* 1983; Ayers 1991; Rutledge 2004, 162.

and Bristol.[123] The best recent archaeological example of medieval dyehouses is provided by excavation in 1983–6 at 33–35 Eastgate, Beverley.[124] Here dyeing seems attested from the later 11th century to the late 14th century, thereafter being squeezed out by other land uses. Key-hole ovens, stacked-tile hearths, and wooden vats were all found. Ponds on the properties, near the vats, contained wool fats and dye-plants in their fills; they were probably sumps for waste fluids and liquid by-products of dyeing. The recorded structures at Swan Lane are only an outline by comparison, though it does seem they were concerned with cloth-finishing.

As they needed clean water, and lots of it, the dyers in London tended to be upstream of other trades using the river. This arrangement of the trades along a river bank or river system is known in many other medieval towns: for instance, dyers tended to be upstream of both butchers and tanners in Auxerre, Beauvais, Caen, Provins, Rouen and Troyes. At Norwich by 1300, all branches of the textile industry were in the western, upstream part of town, and all on the river or its contributory streams.[125] In London at this time, from present evidence, there were virtually no dyers downstream of the bridge on the City side; here the butchers used Rothersgate (which means *cattle gate*) to dispose of their offal which would have been carried away from the city by the river pouring at great velocity through the arches of the bridge. But on the south bank, Sir John Fastolf built houses for dyers along the south side of what is now Tooley Street in the 15th century; they used the several streams there, including mill races, for their washing, so perhaps they were not concerned about the quality of water from the main river.[126]

Brewing

Clearly dyers and brewers tended to occupy and use the same kind of buildings and equipment. By the end of the 14th century there were brewhouses on the studied properties south of Thames Street; Tenement 2 in 1391 contained the brewhouse called *le Cok on the Hoop* as well as a building called *le Stewehous* with its adjacent wharf. The equipment specifically for brewing is mentioned in a will of 1450 bequeathing the property; but by 1459 the tenement had passed to a dyer. Three doors away at Tenement 5, the brewhouse of the Dean and Chapter of St Paul's called *le Mone on the Hop* is mentioned in 1401. Next door at Tenement 6 an alehouse was indicted in 1422. Downstream of the bridge, a brewhouse is mentioned on Tenement 11 in 1368, and in 1480 at Tenement 9, the property was principally a brewhouse called the Cokk; its wharf and shops were ancillary (or down the alley along the property). By the early 16th century Tenement 3 was divided into the *Swan*, occupied by a brewer, and three dyehouses of varying sizes. Presumably the availability of Thames water was an important consideration for both trades; as shown by the water-raising device called the sweep on Tenement 4 which served both a dyehouse and a brewhouse on the property in 1522, and which is perhaps the crane-like device shown by the low-level panorama a few years later (Figure 172). The lead-lined drain it served is probably that first mentioned in 1514. Elsewhere, for instance at Hull, buildings containing emplacements for large vats may be for brewing.[127]

Partial plans of London brewhouses and their installations are known, but from after 1400 (and they are surprisingly scarce in European towns, given that brewing was a significant industry in towns from the 13th century if not before). A building excavated at the Watermark House site in Upper Thames Street in 2005–7, on the tenement immediately west of the first Coldharbour, contained several successive configurations of hearths which were bases for vats. These remains were dated to the 15th or 16th centuries, and the property is known to be a brewery in the later 16th.[128] The word *brewery*, according to OED, is first mentioned in 1658. What may be the earliest plan of a London brewhouse or brewery on a substantial scale with internal fittings is that of the Bridge House brewhouse in Southwark in 1653. Another, perhaps reflecting rebuilding or repair works of 1653–7, was the Peacock in Whitecross Street (now beneath the Barbican estate), surveyed for the Fishmongers' Company in 1686 by William Leybourn.[129]

The development and expansion of the brewing industry in London may have been due to the influx of Fleming immigrants. In linguistics, two areas of Dutch expertise in the 15th century were boat-building and beer-brewing, and English boatbuilding and brewing terminology became imbued with Dutch terms.[130] Breweries employing large numbers of alien (foreign) servants lay in Portsoken and tower wards in 1483, not the sometimes supposed centre of the alien brewing industry in Southwark.[131] One immigrant family which prospered in brewing in the 1590s on the Southwark waterfront has nevertheless been noted in a recent report on archaeological work. Fastolf Place, once the town house of Sir John Fastolf, was a brewery in the late 16th century. It was purchased in 1589 by Wessell Webling, a beer brewer from the duchy of Cleves; at his death in 1610 he owned 103 properties and two wharves.[132] But no

[123] Keene 1985, 302–4; RCHME 1980, xli; Jones 1991, 25–6.
[124] Evans and Tomlinson 1992; Evans 2006 (which also considers zoning of crafts in Beverley). A national survey of evidence for medieval fulling and dyeing is Walton 1991, 330–7.
[125] Kelly *et al.* 1983, 13–39.
[126] Blatherwick and Bluer 2009, 83.
[127] Ayers 2016, 82–3.
[128] Fowler and Mackinder 2015, 36–9, Building 5.
[129] Gerhold 2016, figs 175–6.
[130] Wright 1995.
[131] Bolton 1998, 20–1.
[132] Blatherwick and Bluer 2009, 127.

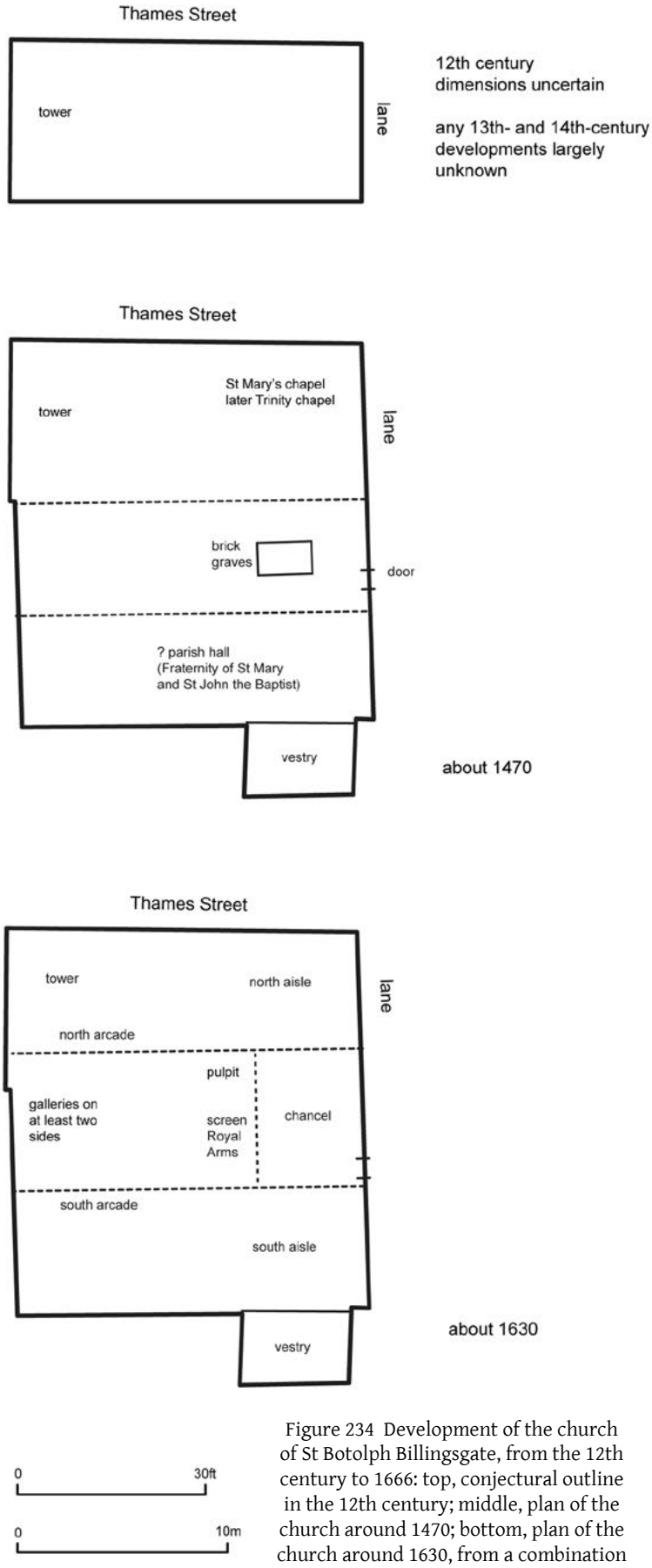


Figure 234 Development of the church of St Botolph Billingsgate, from the 12th century to 1666: top, conjectural outline in the 12th century; middle, plan of the church around 1470; bottom, plan of the church around 1630, from a combination of the archaeological and documentary evidence

details of his brewing installations have yet been identified.

Drying or smoking of fish

Stockfishmongers, who sold and presumably dried fish, were scattered through the area as owners and tenants (with a long history on Tenement 7). This part of Thames Street was known by John Stow's time (1598) as Stockfishmonger Row, and was where dried fish, as opposed to fresh or wet fish, could be bought. To Stow this name was ancient, and referred to Thames Street from the north end of the bridge to Ebbgate, though he does not say on which side of the street; it was presumably the south side, where Stockfishmongers' Hall lay next to the hall of the Fishmongers' Company by the 16th century. The name *Stokfisshmongerrowe* first occurs in 1373.[133] In present-day usage, *stockfish* is unsalted fish, especially cod, dried by cold air and wind on wooden racks. Fish could also be preserved by smoking, conventionally in a building called a smokehouse, in which quantities of fish would be both smoked and stored. An excavated building on the Seal House site (B:Building 4) may be a 'fish house' mentioned in 1454 (though it might instead, or also, have been the tenement's kitchen). It had a large hearth which was replaced at least three times over a long period (for the first two phases, see Figure 129). A parallel for the hearths of B:Building 4 is provided by a 'fish house' excavated at Dragon Hall, Norwich, a 13th-century building which contained substantial hearths.[134] Buildings interpreted as smokehouses have been excavated at a rural site in Sweden.[135]

B:Building 4 and others on the property at the time were based on a thick layer of oyster shells (B[59]), which were presumably debris from the fishmongers. The incorporation of amounts of oyster shells in layers in reclamation deposits occurs at other sites, but nowhere as much as on site B. Here the backyard covered by oysters in the years shortly after 1270 would have been behind the houses forming part of Stockfishmonger Row a century later. Older and more extensive oyster middens have been found in the much smaller medieval

[133] Stow i, 81, 213; *Cal Wills* ii, 154, 213.
[134] Shelley 2005, 54–6.
[135] Ayers 2016, 87–9.

port at Poole (Dorset),[136] and there are probably more instances of the reuse of such middens as bases for construction in London contexts to be found.

Other industries

Medieval tools from the waterfront sites have not yet been studied in detail, so the contribution of the City waterfront reclamation dumps and foreshores of 1100–1500 to a study of other industries or crafts is not yet assessed; and any case such tools could not be associated with activities on waterfront sites. It seems likely that the industries which developed their facilities south of Thames Street on the waterfront in the medieval period were those which needed Thames water, especially for dyeing and brewing; or trades which were naturally on the river's edge, such as shipbuilders, known near the Tower from the late 13th century until about 1400, or ropemakers, who brought the local names *Roperie* or *Corderie* to Thames Street next to All Hallows the Great, by Dowgate, by the end of the 13th century.[137] Perhaps the long walks required for the making of ropes were the alleys down to the Thames rather than in the main street; by this time the alleys were about 100m long, like rope walks of later years known from plans and maps of Southwark and other suburbs. Evidence of making ropes in the form of mosses and cordage was found in the *Corderie* on the Watermark Place site in 2005–7.

The places of manufacture of many of the buckles, strap-ends and other metal objects found in the river silts from the 12th century were probably some distance away across the city, around the north and especially northeast edge of the built-up area within the walls; an area of making buckles and other items such as candlesticks is strongly suggested to have lain in the Basinghall Street area, from excavations around Guildhall, from the third quarter of the 11th century. Here, in Basinghall Street, the Girdlers would establish their hall in 1420.[138]

Finally, the possible industrial character of the whole zone south of Thames Street can be assessed. There were many pockets and areas of industrial character in medieval and Tudor London, and no area was one hundred per cent industrial in tone. Further, excavation and detailed documentary work over the whole period has only been undertaken for parts of the zone south of Thames Street, the choice of sites governed by modern development; so our knowledge of the entire strip from Baynard's Castle to the other castle, the Tower of London, is still partial. But it might be suggested that parts of Thames Street did seem at times to resemble an industrial suburb. As the street lay below the ridge followed by Cannon Street and Eastcheap, and the slope was steeper before the Fire than now, Thames Street would have seemed to form an entity of its own, down by the river. In 1600, both sides of the street had ordinary houses along them, and according to Stow those forming Stockfishmongers' Row, between the bridge and Ebbgate, were 'fair houses for marchants';[139] but behind, on the waterfront side, were dyehouses, large brewing establishments and warehouses.

St Botolph Billingsgate church

A feature of the excavation at site D (Billingsgate) in 1982 was that the trench was placed to overlie the southern two thirds of the church of St Botolph Billingsgate in its final pre-Fire plan; it was known that the northern third lies under Thames Street and its pavement. This section briefly summarises the history and archaeology of the church and discusses parallels for its stages of development (Figure 234).

The earliest archaeological remains were found on the adjacent site C (New Fresh Wharf) in 1974: a deep stone foundation seen in the east side of the excavation was almost certainly the west end in the 12th or 13th century; it may have supported a tower, but there is no certain information about a tower until its appearance on Wyngaerde's panorama around 1540 (Figure 220). The church is first mentioned in 1140, and the foundation is undated archaeologically, but probably of the 12th century. On site D, there is no clear evidence for the church until its south wall of the mid to late 14th century, and its presence is noted as a suggestion on the period plans of the 12th and 13th centuries. There was a rebuilding at least of the south wall in the 14th century (Figure 143; Figure 144) and extension to the south to meet Reynewell's house, which had been bequeathed to the parish, in the second half of the 15th century, possibly in 1445–55. Now it had a plan which was most unusual for a London church (Figure 234). Churches were being increased in size by the addition of aisles from the 12th century, and the practice continued until the 16th century Reformation. Two nearby examples are St Dunstan in the East, given a south aisle in 1381 designed by Henry Yevele,[140] and St Mary at Hill, where the north aisle was probably built for the first time in 1487–1503; the north wall of this survives within the Wren outline.[141] Several pre-Fire parish churches in the City have been studied by modern archaeological excavation, and they all developed and expanded in stages between the 12th century and the Great Fire.[142] One development of the late 14th and 15th centuries was the addition of semi-private chapels to parish

[136] Horsey and Winder 1991.
[137] Dyson 1996; Barron 2004, 74; C Phillpotts in Fowler and Mackinder 2014, 7–8.
[138] Schofield 2003, 159; Bowsher *et al.* 2007, 462–71.
[139] Stow i, 213.
[140] Salzman 1967, 462–3; Ledfors 2015.
[141] Schofield 1994a, 119–20.
[142] St Alban Wood Street, Milne with Cohen 2002; St Bride Fleet Street, Milne 1997; St Nicholas Shambles, Schofield 1997. For a review of all parish churches, Schofield 1994a.

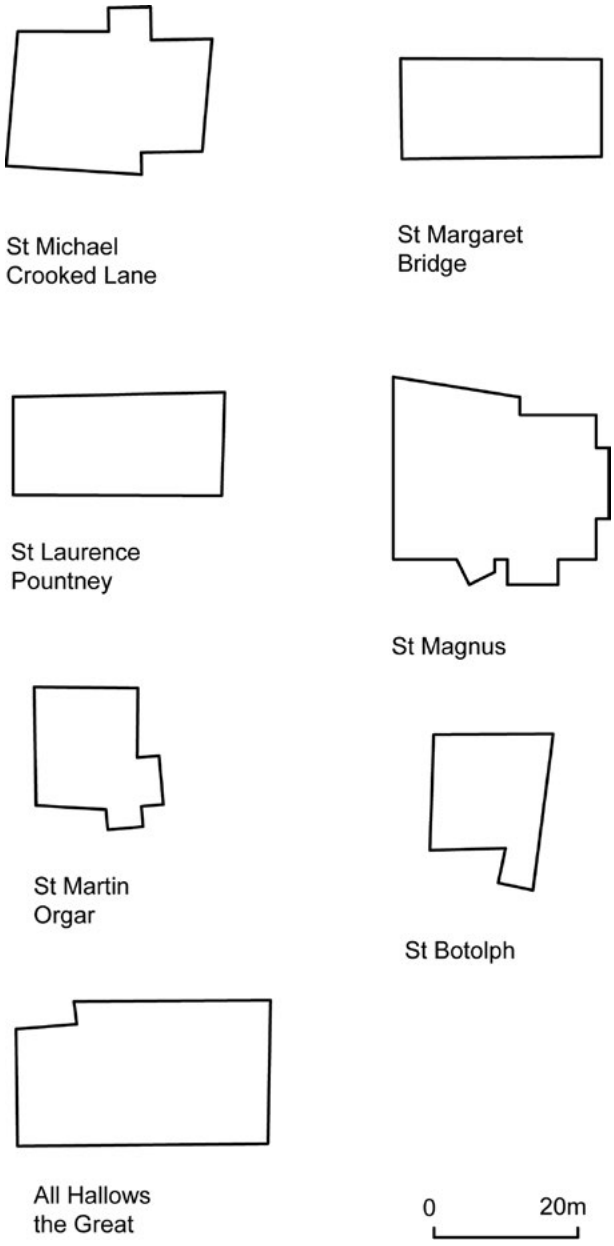


Figure 235 Plans of medieval churches in the area around London Bridge in their immediately pre-Fire form, as drawn by Leake in his Exact Surveigh of the City in 1667 (BL, Add. MS. 5415.1.E)

churches. But there are no close London analogies for the character of the ambitious 15th-century expansion at St Botolph. The only possible parallel within the City for a church absorbing a separate and pre-existing stone building is at St Olave Hart Street, where a comprehensive rebuilding in the 15th century, about 1465, produced the present church outline of nave, two aisles and southwest tower, incorporating a 13th-century two-bay crypt at the west end of the nave.[143]

[143] Plan in RCHME 1929, 181.

Parts of the 13th-century walling of the building above ground survive, forming the west end of the church. This is a previous building enveloped by the rebuilding of the church, and it could have been a secular structure. So the practice of expanding a church over a standing, possibly secular, building is not unique. Within the new extension at St Botolph was a double brick grave containing the skeletons of a mature man and a woman. We propose that this was the tomb of John Reynewell himself, and that the male skeleton was him.

Wyngaerde shows the church comprised two separately-roofed aisles, with the prominent tower at the west end of the north aisle. The southern of the two roofs must therefore have been above the extension. Wyngaerde ghosts in windows along its south side, so there were windows in the south wall of the church and D:Building 5 to the south must have had a lower roof. The precise way Reynewell's originally separate building was incorporated into the church is not known, and there are no clear documentary references to its use. The undercroft forming its lower storey was always a separate feature, entered only from the lane after it had been rebuilt with vaulting. The floor above, the main floor of the building, did not survive to be recorded. There was probably some form of access from the church. We propose the main room became some kind of parish space, a long hall (or succession of rooms) equivalent in area to the three bays of the undercroft beneath. There is no information on whether the building had, or then acquired, rooms above. The only London analogy for which there is graphic evidence is the hall of the Fraternity of the Trinity at St Botolph Aldersgate established by 1389, possibly in 1377. This was a first-floor hall in a timber-framed range which belonged to the Fraternity, a short distance from the church in Aldersgate; its site is now covered by the roundabout at the junction of Aldersgate and London Wall highways.[144] It is similar in size. Overall, even with this increase, St Botolph remained a small church by comparison with others in the immediate neighbourhood around it (Figure 235).

At the end of the medieval period, there were one or more periods of radical internal rebuilding at the church. Five phases of activity are assigned to the period *c* 1500–1666. In period D15.3, the chequerwork on the east wall of the 15th-century extension was rendered over, and some kind of architectural feature, or panelling, placed against it, as suggested by a mark in the plaster. A new set of steps led from the body of the old church on the north into the extension, which was slightly lower. This phase is placed in the 16th century, but without accurate evidence; an argument could be made that the plastering is from before 1530, in which case the mark in the plaster

[144] Schofield 1987b, 36–7. Internal views of the hall with the redrawn Treswell plan are in Schofield 2003, figs 118a–b, 129, 188.

could be from an altar and reredos. In period D16.2, the floor within the extension was raised by importing soil, and steps inserted in the doorway to the lane to access the new internal level; a new arcade was built between the north part of the church and the extension, and the east bay of the extension was probably partitioned off, or there was a new screen. This is proposed to be the documented rebuilding of the church in 1607–9. Now the floor level within the extension must have been near the level of the floor above the undercroft (though the latter is not accurately known). A pier base in the wall between the extension and Reynewell's building suggests the common wall was rebuilt as another arcade, giving access to the space. Burials then followed in the extension, which was now the middle aisle of the church; so they would have been in what was probably after 1455 the chancel, the most prestigious place for them.

The seismic changes to the internal appearance of London's parish churches at the Reformation have been described and discussed many times. Images were being thrown out of London churches, some being pricked to see if they bled, in October 1533.[145] The main purge was over a period of months in 1547: walls were whitewashed, pulpits replaced the communion table as the centre of the place, and plain glass was put in the windows. All images and altar equipment were removed. Service books in Latin were sold and replaced by English books of psalms.[146] In the case of St Botolph's the church, by 1600, was whitened but congested with galleries and pews. Its floor had been raised several times, and by 1600 or shortly after the patches of medieval tiles, individually up to three centuries old, were replaced by larger plain tiles from the Low Countries. Internal views of two other London churches, in these cases which escaped the Great Fire, can be cited to provide parallels and some hints: the interior of St Martin Outwich in 1795, full of pews, and St Olave Hart Street in 1837, a church of similar size to St Botolph, crammed with galleries in the north and south aisles.[147]

The panoramas which show the site by Wyngaerde and Hollar (Figure 220; Figure 221) can now be considered in light of this sequence, since the rebuilding of 1607–9 took place between them (about 1540 for Wyngaerde, 1647 for Hollar). The church is labelled 'S Botulfe' by Wyngaerde, and it seems likely that the church is shown by Hollar (he draws an approximation of the short spire). Both have the tower at the northwest corner. Wyngaerde shows the body of the church with two parallel roofs, and Hollar seems to indicate one large building with a single, lower roof instead. It is possible that this represents the rebuilt church.

A monument of 1622 of Anna Saris would later be described by John Strype as being 'in the wall of the south aisle' of the church, presumably the former Reynewell building; though from this phrasing the monument could have been on any of its three external walls.[148] She was the wife of John Saris (*c* 1580–1643), the captain of the first English voyage to Japan in 1613 (the better known William Adams was the first Englishman to arrive in Japan in 1600, but he was a navigator on a Dutch ship). Saris was a captain of the East India Company, who fell into disgrace on his return in 1613 and made no further expeditions. He married Anne (Anna) Meggs around 1615; the date of her death is adjusted to February 1623 by the editor of Saris's manuscript journal, published in 1900. Presumably this indicates that the couple lived nearby, perhaps in the parish, in 1623. Saris must have then removed to Fulham, where he was buried in All Saints Fulham church in 1643.[149]

6.3 The people and burials at St Botolph Billingsgate

Jelena Bekvalac and John Schofield

St Botolph Billingsgate did not have a churchyard or a cemetery until the 1390s. There would have been a few burials in the church, but these would have been a very small minority of rich or influential people. Where the great majority of its parishioners were buried is unknown. Perhaps the fact that the patron of the church was St Paul's Cathedral, which acquired the church by the gift of Orgar (Ordgar) the deacon in the 12th century,[150] facilitated the use by the parish of the large cathedral churchyard.

In 1392 Gilbert Maghfield (and other spellings), who owned Tenement 11 next to St Botolph's church (above, section 4.4), and John Claveryng obtained a royal licence to grant to the parish a plot of land, a secular property, in Botolph Lane to be a cemetery. It lay about 80m up Botolph Lane on the other side of Thames Street, so nearby. This was dedicated in March 1393.[151] Thereafter, presumably, most bodies were buried there. Whoever the two people buried in the brick tombs in the church in the middle of the 15th century were, they would have been privileged and important. In 1596 John Stow recorded that the church formerly contained many fair monuments, but 'al destroyed by bad and greedy men of spoyle.' He had found records of the burials of Reynewell, Stephen Forstar who was mayor in 1454 and his wife Agnes, and two sheriffs of 1423 and 1480.[152] Many other burials are requested in the wills listed by Stephen Freeth in section 6.10 below.

[145] Duffy 2005, 381.
[146] Brigden 1989, 426–33.
[147] Schofield 1994a, figs 26–7.
[148] Strype 1720, I.ii, 167.
[149] Satow 1900.
[150] Newcourt 1708–10, I, 209.
[151] Documentary research by T Dyson in Blair and Sankey 2007, 20–1.
[152] Stow i, 207–8.

The skeletal remains of 66 individuals buried in the south part of St Botolph Billingsgate have been studied (section 6.8 below). Six probably dated to the 15th century, and the rest to the first half of the 17th century. Their osteological characteristics are summarised here as a single group. The most common pathological changes recorded were non-specific infection, seen predominately in the leg bones with periostitis and degenerative joint disease, including rotator cuff disease, osteoarthritis of load bearing joints and in the spine as well as a case of gout and four individuals, all older males affected by Diffuse Idiopathic Skeletal Hyperostosis (DISH). Other spinal joint diseases observed were osteophytosis and intervertebral disc disease, both of which increased in prevalence with age, and Schmorl's nodes. There was a low rate of fracture trauma, one young male had a possible cranial blunt force trauma and two individuals had possible dislocation of joints. Soft tissue trauma was observed in five adults with the majority affecting the legs and feet. The metabolic disorder of rickets was recorded both in children, with one child displaying active rickets at the time of their death and the adults as residual rickets. Two females that had crania with post-mortem damage manifested the bony changes of Hyperostosis Frontalis Interna (HFI) and one female possibly having bone changes associated with Paget's disease. A number of congenital and developmental anomalies were recorded in the vertebrae including scoliosis, spondylolysis, spina bifida occulta and vertebral border shifts. Two males had anomalies in their feet.

The dental health of the adult individuals followed a similar pattern in that with increasing age there was an increase in the build-up of dental calculus, periodontal disease and ante-mortem tooth loss. Carious lesions were observed but they were not overall as gross and at such high rates as those recorded in the later post-medieval skeletal collections. All of the individuals affected with abscesses did have poor dental health and suffered from dental decay. Enamel hypoplasia was recorded in 30 of the individuals, indicating episodes of stress during their growth and affected predominantly the canine and anterior teeth, a pattern often seen in post-medieval collections. The dental health of the children was fairly good; most had dental calculus and only two had caries in their deciduous dentition.

Of particular interest was the cranial anomaly observed in a female who had an extremely elongated and reduced in height cranium, which may have been caused by the premature closure of the frontosphenoidal suture, an infrequently observed craniosynostosis, producing synostotic frontal plagiocephaly (D[905], Figure 272). The head shape of people does appear to alter through time with those in the post-medieval period exhibiting a longer head shape (dolichocephalic) and this was certainly the case in the individuals who had complete crania in the St Botolph group; but the female D[905] was an exception and indicated that there was a congenital variation for the alteration to the shape.

Skeleton D[783] is suggested to be that of John Reynewell, mayor in 1426–7, who died in 1445; his age at death is unknown. Analysis of his bones puts him in the 'over 46' group, and age estimation based on the pubic symphosis and auricular surfaces on the pelves would place him in his early 60s. His bones contained evidence of his rich eating habits, yet he also had iron deficiency anaemia. If this is Reynewell, he is perhaps the earliest named individual from London to be identified in a grave. A lead seal D<983> (Figure 158) from a papal document of Urban VI (1378–89), perhaps an indulgence, was found in the pebbly silt which covered his coffin, but this may not have been a part of his burial. His coffin may have been moved from the empty northern of the two brick chambers to lie in the southern; though why this should have happened cannot be ascertained. Two further papal seals, both of Gregory XI (1370–8), were found in later burial deposits in the church, and were presumably from other burials (Figure 191). For what it is worth, we can note that both Gregory and Urban were the popes officially supported by England in the Great Schism of 1378–1417; they were based in Italy, whereas Clement VII was based in Avignon.[153] What is curious is that these three seals, all of sometime in the narrow date range 1370–89, are about 60 years older than the earliest burials recorded in the excavated part of the church. Either they came from soil moved about in the building from 14th-century burials which lay outside the excavated area; or they were incorporated into the 15th-century burials, the belief being that the indulgences still had religious potency.

The Great Plague of 1665 killed 69,000 people in London; another statistic sometimes quoted is that 20% of the population died, which if the two figures are put together gives a total population for the London conurbation of 345,000. In St Botolph's parish, the Bills of Mortality for 1665 state that 83 people were buried by the parish in that year, 50 of whom died of the Plague. One excavated burial D[342] was of a man in a coffin on which the excavators traced the date 1665 or 1666 laid out in studs or nails. He had a large stone placed in his mouth (Figure 190). This may have been to stop any miasmic vapours coming from him, though dead; according to beliefs of the time, contagion was spread by breathing.[154] A second burial, of a woman aged 18 to 25 D[125], had a layer of chalk in the grave. Placing the coffin on a layer of chalk was a very old practice, for instance being found at the cemetery of St Nicholas Shambles in the 11th or 12th century,[155] but it seems to

[153] Wickham 2016, 212–13.
[154] Twigg 1993, Champion 1993, Harding 1993.
[155] White 1988, 18.

have indicated something; precisely what is unknown. In this particular case, her burial being in period D16.5, the woman could well have died of plague.

Archaeological investigations of London parish churches, including the medieval predecessors of Wren churches, which have included burials have not been numerous.[156] One small parish church, St Nicholas Shambles, and its internal burials and north cemetery were excavated in 1975–9.[157] Grimes's excavations of St Bride Fleet Street and St Alban Wood Street immediately after World War II are notable, but they did not include human remains from medieval burials.[158] As the analysis of human remains in this report shows, the skeletons from St Botolph's are now explained by parallels with post-medieval churchyards excavated in more recent years outside the City, such as those at Marylebone, All Saints Chelsea or sites in Tower Hamlets.[159] More information about burials and human remains in City churchyards will be forthcoming in the future, for instance from St Mary Spital and the Crossrail project.[160]

6.4 The significance of the non-ceramic artefacts, 1100–1450

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The non-ceramic artefacts from these sites have so far been studied in detail only to about 1450, the end-date for the *Medieval finds* series of publications of 1987 to 1998 – and then with major exceptions. A group of artefacts from 17th-century levels at site D (Billingsgate) has been studied in a publication of 2009,[161] and the results are summarised in the site narrative above (period P1); but much work remains to be done. This section considers the research undertaken on finds of the period 1100–1450 from the sites, while placing them in context of research on artefacts from the whole medieval waterfront.[162]

In 1998, it was still argued that sites away from the waterfront had 'failed to match the richness, in terms of both the proliferation and the variety of finds, in the deposits of the Thames-side area'; but the study of items loosely representing household activities in which this was said did include material from 54 sites from all over the City of London.[163] There are some other local areas in the city where survival has been exceptional, such as at the Guildhall Art Gallery site excavated from 1987, where perhaps the depth of stratigraphy, aided by the shield of the old Roman earth embankment of the amphitheatre, has produced comparable, and indeed exceptional finds.[164] But even so, and for years to come, it will be the case that the waterfront zone south of Thames Street is the treasury of London's late Saxon and medieval artefacts of all kinds, arranged in their large and well-dated groups by a combination of coins, dendrochronology, and increasingly finely-dated pottery. Given the rich survival of deposits and finds along the waterfront, in comparison to the rest of the medieval city, it has been suggested that the artefacts in London's waterfront dumps are an important, if not vital, representation of the city as a whole: 'but for the waterfront assemblages, the surviving material culture from medieval London – with the exception of ceramics and, less directly, the various structural remains – would give little indication that this was the most important city in the realm and the thriving market for the consumption of goods that documentary sources attest'.[165]

Although we are here principally concerned with the four excavations around the bridgehead – Swan Lane (A), Seal House (B), New Fresh Wharf (C) and Billingsgate including the watching brief during construction (D) – we also consider artefacts excavated on other medieval London waterfront sites since 1972, since their finds also formed the material drawn on for the *Medieval finds* catalogues. The locations of these sites are shown on the introductory maps at the beginning of this report. The artefacts catalogued in the seven *Medieval finds* volumes are summarised in Table 54, and there are many more in fragmentary form in the archive. At a guess, a comparable number of medieval artefacts has been dug up on London sites since the mid 1990s; but that cannot be our concern here. The artefacts selected for illustration in this report, selected only to show their rich variety and state of preservation, are listed in Artefact Table 38.

Medieval finds catalogue	Number of artefacts
Knives and scabbards (Cowgill *et al.* 1987)	491
Shoes and pattens (Grew and de Neergaard 1988)	about 150
Dress accessories (Egan and Pritchard 1991)	1784
Textiles and clothing (Crowfoot *et al.* 1992)	459
The medieval horse and its equipment (Clark ed 1995)	399
The medieval household (Egan 1998)	1059
Pilgrim souvenirs and secular badges (Spencer 1998)	332

Table 54 Artefacts catalogued in the *Medieval finds* series, 1987–98. These figures include objects from other sites in the City of London besides the four study sites in this monograph

[156] Schofield 1994a.
[157] White 1988; Schofield 1997.
[158] Grimes 1968; Milne 1997; Milne with Cohen 2002.
[159] Miles *et al.* 2008; Cowie *et al.* 2008; Henderson *et al.* 2013.
[160] The latter now published, Hartle 2017.
[161] Schofield and Pearce 2009.
[162] We are grateful to Francis Grew for several comments incorporated into this section.
[163] Egan 1998, xii, 2–3.
[164] Bowsher *et al.* 2007.
[165] Egan and Pritchard 1991, 1.

Group	Stratigraphic date	Illustrations	Illustrated artefacts
A42	1170–1200	Figure 31	iron lock, ash bowl
A49	1180–1270	Figure 52	candlestick
A61	1280–1350	Figure 53	dress accessories, chess piece, pilgrim souvenir
A74	around 1350	Figure 54 to Figure 61	dress accessories, keys, strike-a-light, pricket, flesh-hook, flagon lid, wooden bowls, stave, spoon, knives, shears, scabbards, horseshoe, rowel spurs, pilgrim souvenirs, seal matrix, window came
A55 (Egan)	1180–1240	Figure 65	cased mirror
B31b	around 1240	Figure 73	shears, scabbards, horse furniture
B54	1270–1300	Figure 78	cased mirror, knife handle, scabbards
period B7.2	1300–50 with intrusions	Figure 80	scabbard, stirrup, handle
A85	1350–1400	Figure 115 to Figure 116	dress accessories, iron hook, scabbard, horse furniture, pilgrim souvenir
A100	1450–1500	Figure 118	mounts on a belt, ceramic whistle
A93	after 1380–1400	Figure 119	brooch, cloth seal, gaming counter
A95	after 1350	Figure 120	strap-ends, key, knife
A102	1450–1500	Figure 121 to Figure 122	dress accessories, spoon, thimble, pilgrim souvenirs, secular badge
A103	1480–1500 and later	Figure 123 to Figure 128	girdle and dress accessories, armorial mounts, comb, vessel decoration, turned wood box, glass drinking vessel, cloth seals, spoon, thimble, stylus, knife, pilgrim souvenirs and secular badges
B61	after 1350	Figure 130	knife, rowel spur

Table 55 Summary of illustrated non-ceramic artefacts in their stratigraphic groups from sites A and B, 12th to 15th centuries

This essay is structured in five parts: a brief history of previous publication of the finds, the question are the artefacts in the waterfront dumps and foreshores from the site or from the city, dating the finds and the extent of residuality (how long they lay in rubbish heaps before being moved to the waterfront), the research significance of the finds now, and scope for future research into them and publication.

Much of the following discussion, when considering the dating of the deposits from which the finds come, uses the broad 'Ceramic Phases' established by Alan Vince and colleagues in the 1980s. This applied a dating structure from the many types of pottery in the deposits, which was being developed on the basis of dendrochronology and coins. As described in the section in this report on research into the pottery (6.6), this broad scheme is now superseded as a method of dating individual groups of layers or individual layers. But for the moment, it is necessary to refer to it.

The finds: previous publication

Looking back on the record for publishing London finds in the period 1974 to 1991 Alan Vince wrote:

> Until the early 1980s it was the policy of the DUA to publish sites and their associated finds sequentially. The first sites to be excavated became the first sites to be studied and prepared for publication... For the publication of finds, however, the policy was demonstrably a failure. In the main the problem was that a multi-period site would reveal small quantities of a whole range of artefacts, each of which required classification and study before the particular finds from the site could be adequately interpreted. The need for original research across a wide range of material, from the early Roman to the post-medieval periods, stretched the resources of the DUA finds section too far and in 1981 work was still underway on sites excavated in 1974 and 1975.[166]

In 1983–4 a new publications strategy was devised, largely by John Schofield and Alan Vince, to take advantage of funding to be allocated by the Historic Buildings and Monuments Commission (the alternative name of English Heritage) to publication backlog projects. Medieval finds from a range of sites would be published together in a series of thematic volumes. The themes originally proposed were – using the original project numbers:[167]

24. Textiles from the City of London, 12th–16th centuries (to be published in series with Project 25 as Medieval dress 1)
25. Metalwork and small finds from dated medieval contexts in the City of London, to be published in several parts:

    1. Knives and scabbards
    2. Medieval dress 2: Shoes and pattens
    3. Medieval dress 3: Dress accessories
    4. Coins, jettons, tokens; pilgrim souvenirs; horse furniture

[166] Vince 1991, 7.
[167] Schofield 1987a described the intended programme, including its archive components.

5. Domestic artefacts
6. Medieval house fittings
7. Medieval trade and industries

This policy was the origin of the *Medieval finds from Excavations in London* series, published in seven volumes between 1987 and 1998. Changes were made to the proposed titles and allocation to parts, parts 5 and 6 being combined largely as *The Medieval Household* and 'pilgrim souvenirs' and 'horse furniture' becoming separate volumes. Although some work was done on the subject, 'Coins, jettons, tokens' was never completed, and 'Medieval trade and industries' was abandoned as a separate topic. The significance of these unpublished groups of material is discussed below.

That this was an appropriate method for dealing with such a large number of finds of disparate types, providing dated sequences and typologies for everyday medieval objects, of use at least to finds specialists, seems to be confirmed by the fact that each volume has been reprinted several times, and all remain in print twenty years later. More recent London excavation publications, in which finds reports are integrated with the site report, draw largely upon the *Medieval finds* series for comparanda and for dating.

Two objects of European importance from the waterfront have received detailed individual analysis: a pair of 15th-century bone spectacles found at Trig Lane,[168] and a medieval trumpet recovered during the earth-moving episode at Billingsgate in 1983–4, which is the subject of a report here (section 6.5). Both are thought to be imports.

The artefacts from layers in the present study are listed in Artefact Tables 1 to 38. A range of artefacts from the groups have been illustrated, taken from the *Medieval finds* catalogues. This illustrated subset of the artefacts can be taken as representative of the evidence to be considered here (Table 55). Most of the waterfront groups (reclamation units and foreshores) contained quantities of pottery which are the main method of dating the strata.

Are they from the site or from the city?

A group of research questions addressed during writing this report has been a simple one: where did the earth come from to make the reclamation units behind these revetments, and why is it nearly always full of broken pottery, home and trade waste, and a wide range of artefacts, including Roman and medieval coins? A city with a population varying between 50,000 and 100,000 people would generate a vast amount of everyday rubbish over the 400 years of waterfront expansion. The available documentary evidence, corroborated by the character of the pottery and artefacts, gives the answer that the reclamation units were backfilled with waste material from an unknown range of places in the City, possibly including public rubbish tips such as laystalls. The Billingsgate trumpet, no doubt a valuable and exceptional object, was lost in the foreshore just south of Botolph Wharf, not buried in a reclamation unit.

In simple terms it is possible to distinguish three main types of context on these sites from which the finds are chiefly drawn: dumped deposits behind waterfront revetments; silting in front of the revetments and direct dumping onto this active foreshore; and structural and other contexts directly related to the occupation of the site and its constituent tenements. Since very few artefacts of the third category were found, the study of waterfront finds since the 1970s and as reflected here is based on the first two types of context. Although material from the silt may have originated from activity on the waterfront tenement directly behind it, we now assume that finds in the dumped make-up behind each revetment comprise rubbish brought in from a much wider area.

The cleaning of the streets and removal of dung-heaps, and the conveyance of the rubbish to dungboats or to laystalls outside the City were responsibilities of 'rakers' appointed by the City wards, and it was to the wardmotes that citizens brought their complaints about offensive rubbish heaps.[169] However, the relative age of many of the finds, suggesting that they had already had a previous existence in rubbish heaps dating back 60 years or more, may indicate that they came from the clearance of long-lived, possibly extra-mural, laystalls, perhaps following complaints by the king or by the landowners on whose property rubbish had been dumped.[170] Paradoxically, this may give the artefacts and pottery greater value, as representing the entire city and not just one area. Alan Vince considered this as he reviewed recent pottery studies in the London area, noting that the waterfront dumps provide a 'generalised picture of pottery use in the City which must be augmented by study of the material from occupation sites' and yet the dumps are also 'the largest, best-dated assemblages likely ever to be found in the City (if not the entire country)'.[171]

Although chapters in each of the *Medieval finds* volumes on 'The excavations' or 'Dating and context of the finds' provide schematic site plans and a link from the catalogued finds to their context on the site at a very basic level, there is no explicit discussion of the distribution of

[168] Rhodes 1982b.

[169] Sabine 1937, 23–4 and *passim*.
[170] Sabine 1937, 27–8; 41.
[171] Vince 2000, 242.

finds within a site or their relative distribution between sites. Such discussion has remained at a fairly anecdotal level – as with suggestions that the high quality finds from the fill of the East Watergate dock at Baynard's Castle represented disposal from the nearby royal Great Wardrobe.[172] Yet even at this level of detail there are interesting differences in the distribution of the published finds. Thus the two most 'productive' groups of contexts at Swan Lane were Groups A74 and A103, both reclamation dumps, the first of mid 14th-century date, the second mid 15th-century. Both contributed large numbers of items to the *Dress accessories* volume, respectively 139 and 195 objects. However, the earlier group also contributed largely to *The medieval horse and its equipment* with 42 items, including two curry combs (overall an extremely rare find); by contrast, the later group contained only a single fragmentary horseshoe and two fragments of spurs. How can one explain the prevalence of horse equipment, perhaps from stable sweepings or clearance, only in the earlier group?

The later Group A103 is in fact the most remarkable single assemblage in the project, a 15th-century reclamation dump in front of Tenements 3 and 4. Besides containing the largest group of pottery from any of these sites, it produced a wide range of significant artefacts: coinage including English, Scottish and Portuguese coins, along with several French jettons and some 65 lead tokens; over 100 buckles (many of them cheap lead-alloy shoe buckles), 12 strap-ends, 45 mounts, eight brooches, four finger rings, seven possible curtain rings, three fragments of glass drinking vessels, four spoons, a padlock, five cloth seals, eight weights, 12 knives, 28 pilgrim badges from the shrines of Thomas Becket at Canterbury (comprising six different designs), Our Lady Undercroft (also at Canterbury), possibly Walsingham, the Rood of Grace at Boxley Abbey (Kent), St Edward the Confessor at Westminster, and other unidentified places, nine secular badges, two book-clasps and a stylus. Of all the waterfront reclamation groups catalogued here, Group A103 seems to represent medieval London at its most vivid and luxurious. By this argument, the reclamation dumps must be drawn from a wide variety of sources. This contrasts with current thinking about the pottery, which sees the possibility of concentrations of pottery types in certain areas of the waterfront to be significant (see section 6.6).

The foreshores in front of the timber and stone river walls, on the other hand, might contain material which was more localised – in fact, having been thrown into the river from the adjacent wharf. In the 14th century there were constant complaints about, and proclamations prohibiting, the practice of throwing rubbish into the Thames.[173] The City's concern was with the obstruction of the public wharves and quays – indeed in 1368 ordinances concerning Botolph Wharf prohibited the dumping of dirt or filth on the wharf – but it seems unlikely that residents in tenements attached to private wharves would have been much more careful in the disposal of their waste.

This suggestion that finds from the foreshore and foreshore silts may be more 'local' has been examined by several writers. Considering the foreshores and reclamation units at Trig Lane excavated in 1974–6, Michael Rhodes compared assemblages and concluded that there was not much difference in productivity of artefacts between them. He did point to artefactual evidence for fishing, on this site in the reclamation deposits.[174] Geoff Egan found objects in foreshores which may have local connotations on two occasions. First, at site A (Swan Lane), he found cloth seals of the late 16th to early 18th century on the foreshore near the dyeing premises which may have generated them (above, period P1). This however prompts a question: cloth seals would have been attached to cloths only after fulling, not after dyeing, so what is the precise connection here? Second, the finding of the Billingsgate trumpet in 1984 is relevant. The metal detector specialist working with Egan found it probably in silt against the medieval quay wall. It probably fell from a boat.

The following discussion of the artefacts from waterfront sites largely places the exceptional deposits at Baynard's Castle, excavated in 1972, to one side. The dock fill of the late 14th century was described in 1992 as 'the greatest quantity of finds ever excavated from one deposit in the City.'[175] An attractive interpretation for the circumstances of this dumping is that it was a clearout of the nearby royal Great Wardrobe. It included over 400 shoes which had hardly been worn;[176] and several hundred pieces of textiles, including a piece of a sleeve dyed crimson with at least 46 small buttons, snippets of Italian fabrics, braids, hairnets, tapestry, garters and possibly a cloth hat.[177] This discovery was exceptional, though we hope it may be repeated in future excavations. The textiles found on other waterfront sites, including those in the present study, were by comparison small and less grand.

Overall, the reclamation dumps and foreshores studied here are similar in their range of pottery and other artefacts. The reclamation dumps appear to have a wider range of material, but that is largely due to the much greater cubic volume of them that was excavated. In some cases, moreover, the distinction between reclamation and foreshore was unclear, particularly in

[172] Dyson 1989, 10–12; MoL site code BC72.
[173] Sabine 1937, 37–9; Sharpe 1905, 225.
[174] Rhodes 1982a.
[175] Crowfoot *et al.* 1992, 3.
[176] Grew and de Neergaard 1988, 28.
[177] For the 395 catalogued items, Crowfoot *et al.* 1992, 202–8. Over 200 other items are mentioned.

the rushed and restricted circumstances of watching on a construction site. Of Billingsgate (site D), for example, Egan commented:

> Because in some areas water-lain deposits appeared to have accumulated over land-reclamation dumps, and some deposits defined as foreshores included extensive organic etc. dump-like material (perhaps rubbish discarded in the river), it is difficult to categorise each context firmly as either reclamation dump or foreshore.[178]

Dating the finds

A conclusion that the finds from the reclamation dumps do not reflect local activity is supported by the range of dates represented when the finds are intrinsically datable in such groups – many of them must comprise old redeposited rubbish brought in from elsewhere. Here are two examples. In period D12 at the Billingsgate excavation (site D) (above, section 3.5), because the revetment to the south was off the edge of the site, unexcavated and could provide no dendrochronological date, the sketch plan used in the *Medieval finds* publications marked it as 'Group [ie period] 12 revetment (presumed) to south of excavation area (c.1250+)' – the date derived from a preliminary assessment of the pottery from the reclamation fill.[179] The finds from this group included in the *Medieval finds* series – over 60 objects, including knives, leather scabbards, wooden dishes, buckles, buttons, belt fittings, horse harness pendants and part of a pilgrim ampulla from the shrine of the Holy Rood of Bromholm, Norfolk – were therefore published as 'ceramic phase 8' with the nominal date 'c.1230-c.1270'.[180] This dating seems to be internally consistent, matching that of similar objects dated to the same phase from other sites, and a large proportion of the pottery does seem to suit such a dating. Brian Spencer independently associated a Bromholm (Norfolk) ampulla with the great popularity of that shrine in the reign of Henry III, in the second quarter of the 13th century.[181] The eight unpublished medieval silver coins from the group are equally instructive. Four are of the reign of Henry III, two of them being short cross type (1223–42 and 1242–7), and two of them long cross type (1248–72). The others are less identifiable, though clearly short cross coins struck within the general range 1180 to 1247. There are also 13 lead tokens, most of them recognisable as 'Winetavern Street' designs, for which a date in the third quarter of the 13th century has been proposed.[182] More recent consideration of the pottery has however confirmed the presence of material dating to the early 14th century, consistent with the evidence from documentary sources that Botolph Wharf was reconstructed in 1325–32. Thus this deposit appears to contain a large proportion of material that was some 60 years old when it was dumped as makeup behind the new revetment. One may speculate how long everyday objects survived in use – although the coins would have been demonetised in 1280 and officially at least no longer circulated after that date – but the redeposit of rubbish from elsewhere seems to provide the most likely explanation.

Similarly the large reclamation dump A74 at Swan Lane, given an end date of around 1350, included coins mainly of the mid and the third quarter of the 13th century; of over 30 identified coins from this group all (including three pennies of Alexander III of Scotland and a French denier of Philip II) date before 1280. Pottery from the same group ranged from the mid 13th century to the mid 14th century (with only two sherds providing this end date). The published finds were assigned to the relatively long ceramic phase 9 (nominally '*c* 1270–*c* 1350'), but it would be arguable on the basis of the coin and pottery evidence that the majority of them must date to the earlier half of this extended period. Indeed, in *The medieval horse and its equipment*, Blanche Ellis dated four of the five complete rowel spurs from the group to the period '1250–1300' on grounds of form, and one to 'probably 1260–1320'.[183] For a fine costrel-shaped pilgrim ampulla of Thomas Becket, Brian Spencer, while assigning it to ceramic phase 9, cited a date 'between *c* 1250 and 1279' for its deposit at Swan Lane, crediting this date to Geoff Egan, and accepted this as a likely date for its use.[184] He quoted a similar date of deposit in his discussion of a badge from the shrine of the Virgin at the Carmelite Friars, Toulouse (<S54>, mentioned below and in Figure 236), and also preferred a date in the first half of the 13th century for an ampulla from Walsingham from the same group.[185]

A recent reconsideration of the seal matrix of Walter de Reigate (above, Figure 63) suggests that rather than the '*c* 1270' date that was derived from the dating of this deposit when the seal was first published,[186] it belongs earlier in the 13th century. John McEwan (pers comm) notes that it is similar in style and content to a number of London seal impressions which can be dated by the documents to which they are attached.[187] He comments that circular seals seem to steadily decrease in size during the 13th century, and that at 32mm in diameter this matrix reflects a size that would be normal in *c* 1220, common in *c* 1240, but very rare after *c* 1260. The seal has been deliberately defaced, presumably to make

[178] Egan and Pritchard 1991, 4.
[179] For example, Egan and Pritchard 1991, 5 fig 2.
[180] 'c.1230-c.1260' in some volumes.
[181] Spencer 1998, 161–3.
[182] Mitchiner and Skinner 1983, 49.
[183] Clark 1995, 134–7.
[184] Spencer 1998, 71.
[185] Spencer 1998, 145–6 and 242–3.
[186] Spencer 1984, 377–8, fig 3 no. 2.
[187] For example McEwan 2016, 63, no. 450, dated to 1246x1247.



Figure 236 Site A: pilgrim souvenir from the shrine of the Virgin at the Carmelite Friary in Toulouse (A<2150>) (height 53mm) (<S54>). A female pilgrim on the left is being miraculously delivered from insanity, a winged devil issuing from her mouth; an allusion to a miracle of 1265. On the right, a male pilgrim stands up, recovered from paralyis. Below the Virgin, a Carmelite friar kneels in prayer (Spencer 1998, 242–3)

it unusable, before being discarded, perhaps on the death of the owner; we cannot know how long Walter had lived and continued to use his seal.

With such discrepancies in dating, it is unfortunately not possible to rely on the finds from a particular reclamation dump to date its deposition by themselves; nor, if brought from further afield, can they tell us about activities taking place in a particular waterfront tenement. No such connection between finds in the reclamation deposits and activities on land has been identified for the sites studied here; though it may be possible in future excavations. The foreshores are a little better at suggesting trades on the waterfront, in the case of the cloth seals found both on excavated foreshores within developments and on the present foreshore at site A and its companion to the west, Riverbank House.[188]

Throwing things away and a consumer culture: the research significance of the finds

Since the reclamation deposits are not interpreted as containing material dumped from elsewhere in the city, it is as things in everyday use in medieval London that the finds need to be interpreted. We wish to highlight two aspects. The first is that medieval Londoners or people passing through London threw away a lot of pilgrim souvenirs and secular badges which indicate group membership; and from these much about beliefs, loyalties and perhaps literacy can be ascertained. In 1998 Brian Spencer produced his *Pilgrim souvenirs and secular badges* volume in the Museum's *Medieval finds from excavations in London* series; this catalogued around 800 recently-discovered badges from the City of London as a whole. The true number of recovered badges in recent decades has been much larger. The majority of those catalogued by Spencer were from waterfront sites, and a total of 378 were from the four study sites: 63 from site A (Swan Lane), seven from site D (Billingsgate), and 189, over a third, from the watching brief on earth moving after excavation at Billingsgate (see Table 5 above). The remarkable numbers at site A and from the watching brief at site D were largely the product of Geoff Egan's work with skilled users of metal detectors, both on and off the sites. These 378 badges, from the 12th century to the 15th century, figure a galaxy of saints, from both British and Continental sites. From site A came two 13th-century examples from French sites, five 13th-century Canterbury ampullae (e.g. Figure 53), and from later deposits more badges from Canterbury (Figure 61, Figure 116, Figure 122, Figure 128), Walsingham (also Figure 122), St John of Beverley (Figure 128), Toulouse (Figure 62; an enlarged view, Figure 236) and Saint-Denis. From the Billingsgate excavation came a pewter or brass pin with the head of Christ, an early example of a representation of the vernicle or Verona in Rome (Figure 89), as well as badges from other sites in Italy. There were over 60 badges from Canterbury, some of high artistic quality (Figure 165). Secular badges tended to be from later strata, of the 15th century. Notable

[188] Fowler and Mackinder 2014, 71.

among the other secular objects from the sites were lovers' trinkets and a mirror case with scenes from the story of Tristan and Isolde. Quite a few pilgrim souvenirs have Latin or French inscriptions, sometimes abbreviated, alluding to their site ('Behold Edward!'), though others have mistakes which indicate a struggle with literacy.

The second matter is to speculate on the relations between mass production, recycling, consumer demand, the satisfaction of demand by imports, and the possibly special character of urban material culture. From the project sites, the quality of the excavated artefacts varies, with a preponderance of items of cheap materials, sometimes crudely made. The *Dress accessories* catalogue showed how ordinary people's clothes and belts were decorated with items made from lead, tin or copper alloy, not gold or silver. On knives, decoration in silver and brass is found in 13th-century examples, but thereafter alloys of copper, zinc and tin were employed. A group of five pairs of shears and ten knives, analysed for the quality of their construction and constituent metals, found a wide range of quality of metal from excellent to very poor.[189]

There may have been some recycling of clothing and shoes, and there is certainly documentary evidence for the hoarding and reuse of scrap iron by blacksmiths and others.[190] Small items were sometimes carefully repaired, suggesting a prudent regard for their value.[191] But at first sight the rich variety of artefacts within the reclamation dumps seems to reflect a culture which threw away all kinds of objects when they were broken or no longer required, with a profligacy which has been to the benefit of modern archaeologists. As far as pottery was concerned, broken pots were thrown away in quantity and ended up in deposits along the waterfront from the late 11th century, as shown at site C (section 2.4). Yet the relative rarity of self-evidently useful or resalable items like tools, weapons, and large metal cooking vessels in the corpus suggests that owners took good care of such items and did not carelessly toss them away, even when broken or damaged – or that if they found their way into the general rubbish they were quickly retrieved for resale or recycling by a waste picker or a predecessor of the 'sifters' on the dust-heaps of Henry Mayhew's 19th-century London.[192] We know nothing of how recycling was organised in medieval London; how scrap metal was collected and marketed, whether the rag-and-bone man was already a familiar figure in the streets of the medieval city. But quite evidently the items that found their way into the waterfront reclamation dumps were merely the ones that had escaped recycling; there seems no plausible way of estimating the number, for example, of copper-alloy buckles that were made, worn, and then collected as scrap and melted down, compared to the number that came ultimately to be buried in these waterfront dumps. An unanswered question arises: were there really so many more lead tokens in everyday use than silver coins, or were they simply more often discarded, less thoroughly searched for if dropped?

The finds from even the most productive of these sites, Swan Lane (site A) and the watching brief at Billingsgate (site D) are no more than a sample (and not a statistically valid sample) of the material in circulation in the medieval city. Even so, the range of these everyday things, the evidence of mass production of, for example, buckles, belt fittings and dress ornaments, and the sheer number of near-identical items witnesses to 'the thriving market for the consumption of goods that documentary sources attest', as noted by Geoff Egan.[193] His suggestion has been well received by historians; Derek Keene notes this mass market for consumer products was on a large scale by 1300, and it perhaps started in the 11th century in the peculiar circumstances of London.[194] Whether an increasing standardisation of style in objects of everyday use such as dress accessories was imposed by suppliers or demanded by consumers is a separate question, not yet tackled.

With a consumer society came fashion; not merely changing styles of, for example, buckle, but evidence that styles common among the wealthy and privileged were trickling down. Pewter or copper-alloy finger rings set with glass 'gems' or simply cast with a solid bezel imitating a stone setting, all in imitation of costly gold and silver gemstone-set jewellery, are a good example.[195] From a study of nearly 1500 excavated medieval shoes, the main styles of the period 1100–1450 have been elucidated.[196] Some styles were short lived, such as embroidered silk strips along the shoe in the 12th century (as in a shoe from site B, Figure 38), or the very long shoes called poulaines of the 14th century; these were mostly for adults, but the fashionable pointed style influenced children's shoes also. Archaeological study of fashion is perhaps most potent in the world of clothing and textiles, in which certain deposits along the waterfront have been rich; most notably at Baynard's Castle. The practice of cutting cloth into shapes as ornamental edges, for instance, began in the 14th century and was elaborated over the next three centuries. These ornaments, known as dagges, were widespread on hoods, capes and sleeves; one excavated example 'would certainly have fluttered attractively in a breeze.'[197]

[189] Cowgill *et al.* 1987, 15, 62–74.
[190] Clark 1995, 93.
[191] See for example the items discussed by Egan and Pritchard 1991, 34.
[192] Mayhew 1861, vol 2, 171–2.
[193] Egan and Pritchard 1991, 1.
[194] Keene 2000, 201.
[195] Egan and Pritchard 1991, 326, 332–5.
[196] Grew and de Neergaard 1988.
[197] Crowfoot *et al.* 1992, 194–8.



Figure 237 Detail of leather strap with lead-tin mounts from site D, <S139> (length of portion shown 90mm)

Possibly consumer demand increased in new ways after 1350, when the population of London, as elsewhere in England, was severely reduced. Demand for products would decline; but rising standards in living for the fewer people now around brought new patterns of expenditure, a better standard of comfort.[198] It is now argued that there was a new and growing commercialisation in the economy, and greater demand for consumer goods. This resulted in more people exercising a wider range of choices in what they ate, drank, and wore. Mass produced goods become more common. Pilgrim souvenirs and other badges of affiliation increase. Glassware and pewterware, while still carrying a certain prestige, also become more widely available. Lead tokens proliferate, suggesting greater formalisation of small purchases and the usefulness of small change.

Much of the material culture in medieval London was of foreign origin. In the 15th century Venetian galleys came regularly to London, bringing vast quantities of luxuries which were both welcomed and criticised as morally unsound.[199] Analysis of the Petty Custom accounts for 1480–1 suggests that Londoners, and perhaps other town-dwellers, were demanding cheaper, mass-produced goods, many of which were imported.[200] This had led in the early 1460s to complaints from the manufacturing crafts in London about the finished objects from abroad flooding the market. However, this late medieval evidence for the import of manufactured goods – in the single year 1480–1 about 28,000 leather, latten, wire, thread and silk girdles and over 46,000 knives and daggers of various sorts were imported into London by aliens – needs to be set alongside the plentiful (but as yet largely unpublished) evidence from these waterfront reclamation dumps, comprising tools, ancillary equipment and by-products, waste material and slag, that there was a strong local manufacturing industry. Questions to be researched include whether we can sufficiently distinguish imported from locally-made artefacts to be able to identify any changes in the proportions of such items over the period represented on these sites; and was there indeed a surge in the quantity of imported goods entering London in the 15th century, sufficient to provoke complaints from local craftspeople and traders, and can we recognise it in the contents of the 15th-century waterfront deposits.

It may be early days in the research, but it is no longer advisable to assume that people before the 17th century were without consumer interests, a view which characterises recent historical work as the study of 'the transformation of the medieval void into a culture full of objects'.[201] The medieval period is no longer a void lacking in objects, at least in London. But it is also useful to be aware of the main conclusions of work by Lorna Weatherill on the contents of inventories, including some of Londoners, in the century after 1660.[202] She suggests that in this later period there were social boundaries to consumption, that is different kinds of people had different tastes. Tradespeople and professional people were more likely to have decorative goods in new fashions than were the gentry or farmers. Second, she cannot point to a mass market for consumer goods from people below the level of the middle ranks of society, since the poor are almost universally unrecorded in inventories. These conclusions for the period 1660–1760 can be borne in mind when we consider the medieval and Tudor periods. Both aspects can be pursued in the medieval material; especially the second, in that the sheer volume of objects in the reclamation zone and foreshore must have come from all sections of society, not just those who are later represented by inventories.

[198] Britnell 1996, 164.

[199] Bradley 2012, xviii–xix.
[200] Cobb 1990.
[201] Brewer and Porter 1993, 1.
[202] Weatherill 1996, 189, 191–6.

A further avenue of thought, not yet pursued with the London material, is that urban and rural medieval societies were perhaps different in their value systems and that these would be reflected in their material culture.[203] Patterns of consumption across different classes of settlement within south-east Britain in the Roman period have been studied, though most of the results did not contain any surprises.[204] A distinctive urban culture and lifestyle can be traced in English towns from the 10th century.[205] In medieval France, there was a distinct urban culture.[206] We suggest such potential differences might be fruitfully considered.

Finally in this section, we note that some objects still require explanation. In 1991 Egan and Pritchard published in their *Dress Accessories* volume a leather strap or fastening embellished with three lead-tin mounts (<S139>, Figure 89, and detail in Figure 237). Several pieces of leather strap are bound together by the rivets beneath the mounts. The authors note 'the function of this complicated object is unknown';[207] it still is.

Omissions from the finds volumes and scope for future finds research

The undoubted importance and success of the *Medieval finds* series should not be allowed to mask its drawbacks. The material studied had not benefited from the formal 'finds assessment' process normal on more recent sites, which would highlight items and groups of material considered worthy of further investigation; the full study of the sites themselves had not taken place, so that the significance of the finds within the site was impossible to assess; and dating sometimes depended upon interim 'spot-dating' (brief examination) of associated pottery.

Moreover, the titles of the proposed volumes in the series prejudged what material would be included or omitted. For example, the small number of weapons (mostly arrowheads) found clearly did not warrant a volume on 'arms and armour'; but no volume on 'miscellanea' in which they might have appeared was envisaged. Work on a proposed volume on coinage was proposed, but not pursued far. The coinage from the sites under review includes both English and Continental official issues, as well as copper-alloy jettons, and a very large number of cast lead-alloy tokens, the essential small change of the medieval urban economy. According to the registered finds data from the Billingsgate Market Lorry Park watching brief (site D, BWB83), apparently the most productive site in terms of later medieval coin finds (some 625 in all), 66 (10.5%) were official silver coins; and 85 (13.5%), described as 'copper', are likely to be jettons and 474 (76%), described as 'lead alloy', are likely to be tokens. The large Group A74 from Swan Lane already referred to contained no copper-alloy jettons, but did contain 89 lead tokens alongside the 34 silver coins. This preponderance of lead tokens among the numismatic finds from waterfront sites seems to be confirmed by a recent study of a much smaller group of medieval coin finds from Watermark Place, where 36 of the 50 medieval coins (72%) were tin or lead tokens.[208]

Fragile tin/lead alloy items survive better in the waterlogged soil of these waterfront sites than they do on drier inland sites, but this huge preponderance of tokens warrants further investigation. Although some studies of tokens have been published, these sites provide an unparalleled corpus, and should permit a fuller study of their typology and chronology, and contribute to consideration of their role in the medieval economy. The prevalence of foreign coins from the waterfront sites is also of interest. Future research may find out if they reflect a mercantile milieu, and the presence of many foreign merchants and sailors, or were such coins circulating widely in the city; and whether foreign coins are more common on sites east of London Bridge, the main area of foreign trade, or are they found equally to the west of the Bridge on sites like Trig Lane and Baynard's Castle.

Another omission from the *Medieval finds* series is a comprehensive study of tools and craft equipment – originally envisaged as contributing to a volume on 'Medieval trade and industries'. Thus, for example, early medieval hones were included in volume 2 of *Aspects of Saxo-Norman London*; their later medieval counterparts did not appear in the *Medieval finds* series. A proper study of the evidence for industrial activity would entail consideration of ancillary equipment and by-products, such as crucibles and any residue they might contain, moulds (groups of bell mould fragments from both of the Billingsgate sites, for example), waste material (metalworking waste in particular occurs in large quantities from several of the sites) and slag. Evidence for leather working would also need to be sought amongst the bulk leather finds. Finds of coal, listed from several of the sites, might also repay study. Within each site finds of tools, equipment or waste would need to be related to any *in situ* remains of industrial activity, such as hearths – although it is likely that the waste material found in waterfront dumps of refuse was brought from elsewhere and does not reflect local activity.

A survey of the finds cards suggests that the majority of excavated medieval artefacts not included in the

[203] Goldberg 2008.
[204] Research by A Wardle in Perring and Pitts 2013.
[205] Dyer 2002, 68, reflecting many pieces of historical and archaeological research.
[206] Le Goff 1980, 19.
[207] Egan and Pritchard 1991, 198.
[208] Fowler and Mackinder 2014, 66–7, Table 6.

Medieval finds series were omitted because they fell into one or more of the following categories:

a. they belonged to classes that were deliberately excluded – coinage, weaponry or craft/industrial equipment;[209] or
b. they fell outside the prescribed date-range *c* 1150 – *c* 1450; or
c. being fragmentary, insignificant, unidentifiable or undiagnostic, they were considered not worth publication.

Material within category a) from the sites under consideration here includes some 1100 coins, the majority being lead tokens; 60 items of weaponry; and about 350 tools. The last figure rises to over 2000 if combined, as would be desirable, with a study of slag, waste materials and products, crucible residues and mould fragments, for which metallurgical or other scientific analysis would also be required. The volume of material falling into category b) cannot readily be estimated, given the perceived unreliability of the 'MED', 'PMED' and 'SAX' dates assigned in the original registered finds data files, and the prevalence of 'undated' finds (over one-third in the case of Billingsgate, BIG82). However, the dating evidence from the sites now exists.

With the greatly refined dating of the pottery contained within the reclamation dumps that is now possible, and the additional information from documentary sources, together with the evidence from other London sites that have been published since the *Medieval finds* volumes were written, it would be possible to revisit the dating and the typological chronologies established in those volumes. Any future study of types of artefact included in the *Medieval finds* series should not take for granted the dates or typologies assigned there, but should refer to evidence that has accrued since then, even for those productive sites that were included in those publications' original remit.

Rather than relating to specific tenements, therefore, the finds on these waterfront sites can inform our understanding of activity in the city in general. We can probably derive more information about the organisation of waste disposal in the City from the nature and content of what appear to be redeposited major dumps or laystalls. There may be differences in the patterns of deposition of individual types of object that may indicate zoning of particular activities and perhaps changes over time, though these are as yet elusive. We are still some way from extracting all the possible information from these objects. Students are invited to consult the project archive, on line at www.colat.org.uk, to use the material for their own research and to investigate these questions and possibilities. Finally, we again draw attention to the large number of artefacts not yet fully assessed and researched: categories of finds from 1100 to 1450 not yet published, and a wide variety of non-ceramic artefacts for the period 1450 to 1666. Let further research begin.

[209] For the period before 1150, material in category a) was included in *Aspects of Saxo-Norman London II* (Vince 1991a).

6.5 The Billingsgate trumpet

Sabine K Klaus

Introduction

To date, only one example of a European straight trumpet from medieval times is known to survive.[210] This trumpet was excavated in March 1984 during a post-excavation watching brief at the Billingsgate lorry park, where access was severely constrained by the developers until most of the structural sequence had already been removed.[211] It was found, however, just a few centimetres south of the controlled excavation site, where the strata had not yet been disturbed.[212] The parts were buried, still in situ, in an undisturbed organic deposit within the Thames foreshore, which was possibly below water at high tides. The parts were discovered with the help of a metal detector, despite significant signal interference from a nearby concrete retaining wall, by Tony Allen, a volunteer in a small team from the Society of Thames Mudlarks and Antiquarians. While Geoff Egan originally dated the find to the late 14th or early 15th century, the area immediately to the south of the main Billingsgate excavation site was later thought to be from what was then called ceramic phases 8 and 9.[213] It is therefore possible that the trumpet remains are as early as c 1260 to 1350.

The trumpet was found in four parts but bundled together, with the mouthpiece section inside the bell section. This clustered position may indicate that the metal tubes were kept together in a case or a bag, or were wrapped up inside a banner, when they were dumped or more likely accidentally dropped from a vessel and lost in the Thames. The potential wrapping material would have been organic matter,wood or more likely leather or cloth,that has now disappeared. Geoff Egan, who was the first to report about this find in the London Archaeologist in 1986, assessed its significance as follows: 'among the most important objects found during the Department of Urban Archeology's watching brief at Billingsgate,

[210] Another, highly decorated, straight trumpet of a similar age was found by a fisherman in Romney, Kent, in the mid-19th century 'on the shore between high and low water marks' (Smith 1852, 63–6, 270–1). My thanks to Howard Weiner for drawing my attention to this publication. This trumpet was in the possession of Henry Bean Mackeson (1813–94), owner of the brewery of the same name in Hythe, Kent. Its current whereabouts are not known but under investigation.

[211] For a diagram of the layout of the main excavation site at Billingsgate and the surrounding watching-brief areas, see Egan and Pritchard 1991, 7.

[212] Egan 1986 and Lawson 1987.

[213] Egan 2002, p 7.



Figure 238 The four sections of the Billingsgate Trumpet: (1) mouthpiece section; (2) plain (a) and repaired (b) section; (3) knob section; and (4) bell end section (BWB83[335] <225>) (S Klaus and M Rose)



Figure 239 X-ray of the mouthpiece section (1), showing the overlapping seam (grey longitudinal stripe) and the lack of a cup, throat or backbore (Museum of London)

following the formal excavation, is a complete copper alloy straight trumpet in four sections.'[214] Egan realized that the trumpet sections were inhomogeneous in metal composition and workmanship, and therefore likely not all made at the same time by one craftsman. Egan's observations were supported by metal analysis, carried out by Mike Cowell from the British Museum Research Laboratory in 1985.[215]

The spectacular find was made known to the musical community in 1988 with two articles in the Galpin Society Journal, the British society for the study of musical instruments. The first article by John Webb put the discovery in its historical context, comparing it with iconographical representations of similar trumpets and some later surviving instruments.[216] A detailed report by the music Archaeologist Graeme Lawson and by Geoff Egan was published in the same issue of this journal.[217] In it, questions were raised whether the trumpet sections originally belonged together, and if they ever did, whether they represented a complete instrument. More recently, Jeremy Montagu has suggested the possibility that the parts could merely have been the stock of tubing and a bell of a trumpet maker.[218] How the trumpet parts may have fitted together, at least at some point during their existence,was examined by Graeme Lawson in another article in the Galpin Society Journal in 1991.[219] Lawson also made a functioning reconstruction of the trumpet, and Nathaniel Wood in Basel has made replicas.[220] The only reproduction of the Billingsgate trumpet by Wood with authentic mouthpiece, which was measured for its acoustical properties for the present analysis, is owned by Nikolai Manttari. A video of Mr Mantarri playing the reproduction, which shows the range of notes it can produce, is in the online archive for this project.[221]

[214] Egan 1986.
[215] Mike Cowell, 'Report on the Examination of a Medieval Trumpet,' 31 October, 1985 (Museum of London, files). See also Alice Louise Bacon, 'A Technical Study of the Alloy Composition of 'Brass' Wind Musical Instruments (1661–1867) Utilizing Non-Destructive X-Ray Fluorescence' (PhD diss., Institute of Archeology, University College of London, University of London, 2003), vol. 2, pp 381–83.
[216] Webb 1988.
[217] Lawson and Egan 1988.
[218] Montagu 2014, 92.
[219] Lawson 1991.
[220] https://woodbrass.wordpress.com/2014/06/19/busine-after-billingsgate-nr–3/ (accessed March 10, 2016).
[221] www.colat.org.uk/london-waterfront/.



Figure 240 A half-round wire serves as a rim to cushion the embouchure (S Klaus and Malcolm Rose)

Depth from rim	ID	OD
0	20.0	29.5
5	18.1	19+
10	16.2	17.2
15	15	16.1
20	14.4	15.3
25	14.0	14.9
30	13.6	14.5
35	13.2	14.1
40	12.8	13.8
45	12.6	13.4–14.0
50	12.4	13.5
100	11.2	12.0–12.6
125	10.8	11.5–12.1
150	10.8	11.5–12.5
200	10.8	11.5–12.0
250	10.8	11.5–12.0

Table 56 Diameter measurements: OD = outside diameter in mm; ID = inside diameter in mm; small numbers extrapolated from outside diameters minus wall thickness (Wood 2014).



Figure 241 X-ray of the plain repaired section (2), showing (from right to left): the ferrule with four regularly impressed lines; the two unaligned overlapping seams (grey longitudinal stripes); and the overlap between earlier tubing (a) and later repaired tubing (b) (Museum of London)

Physical description

Cowell described the four surviving sections of the trumpet as (1) mouthpiece section; (2) repaired section; (3) knob section; and (4) bell end section (Figure 238, top to bottom).[222] The metal colours of the parts range from dark brown and dull (section 1 and section 2 a) to a bright gold-brass look with dark spots (section 2 b, and sections 3 and 4). The present colour scheme represents that of the day of the discovery; the trumpet parts glinted brightly the moment they were unearthed. Unfortunately, the shininess of the brighter parts is misleading: it does not represent the original surface but is caused by burial in waterlogged soils; original surfaces may be represented by the duller areas, although these too could be a product of corrosion.[223] Low-power optical microscopy shows that the duller patches on the shiny parts form smooth and basically flat platforms with deep scratch marks of various types, whereas the surrounding etched surfaces have only traces of deeper abrasion.[224] Rough, pitted areas, resembling metals that have been etched, are typical in copper-alloy objects with sulphide corrosion found in waterlogged soils.[225]

Mouthpiece section (1)

The first segment, which includes the mouthpiece, has the best preserved continuous surface area, because it was lodged within the bell section (4) when it was found, and therefore rested in a protected microenvironment for centuries. The metal has a dull, brown colour and reveals under a low-power optical microscope near-parallel minute scratch marks, possibly from polishing, and oblique abrasion, likely caused by filing. These marks extend underneath the seam of the rolled-up sheet metal (seen in the X-ray, Figure 239). Lawson associated them with the preparation of the seam during manufacture and observed similar filing and polishing marks on the other sections.[226]

The mouthpiece section is 403mm long and was formed from sheet metal with greatly variable thicknesses (between 0.28 and 0.47mm) into a tube with a seam that overlaps by about 3mm. The mouthpiece section

[222] Cowell 1985 (see note 6).
[223] Duncan and Ganiaris 1987, esp. 110, fig. 4.
[224] Lawson 1991, 150–1.
[225] Duncan and Ganiaris 1987, 110.
[226] Lawson 1991, 151.

weighs 61.94 grams.[227] The tube is mostly cylindrical with an external diameter of about 12mm, but flares outward to form the mouthpiece at the beginning, and tapers slightly inward at the distal end to fit into the following section. Soldered to the flaring mouthpiece end is a rim, consisting of a 2.2mm thick, half-round wire; a butt seam is visible where the wire was closed to form a ring (Figure 240). There is no cup, throat or backbore, as in a modern trumpet mouthpiece; instead the funnel-shaped mouthpiece resembles that for an eighteenth-century horn but with a much wider internal diameter of 20 to 21mm at the beginning and about 10.8mm at the narrowest point.[228] The most detailed measurements of the Billingsgate trumpet, taken to date, were assembled by Nathaniel Wood, an independent researcher, performer and instrument maker in Basel, Switzerland, for the purpose of making exact replicas of the trumpet (Table 56).[229]

Plain repaired section (2)

The second tube segment is a composite of two slightly different metals, visually distinguishable as well as through metal analysis (Table 57). The first or proximal part (a) has a darker colour and exposes 108mm of its length, the second or distal part (b) has a brighter colour and is 220mm long; altogether section (2) weighs 40.59 grams.[230] The two parts were assembled with the distal part (b) overlapping the proximal part (a) by about 8 to 9mm, thus indicating that (a) is earlier and (b) a later repair. Like the mouthpiece section(1), each of the two parts of the plain section (2) were formed with a seam that overlaps by about 3mm, but the seams of the two parts do not line up (two grey longitudinal stripes in Figure 242). Lawson observed under the microscope that the proximal section (a) has the same parallel polishing and diagonal filing marks as the mouthpiece section (1).[231] These marks extend into an indentation immediately next to the repair joint, indicating that they were part of the manufacturing process, and predate the dent that may have led to the repair. Lawson also observed faint traces on either side of the repair joint which may be the remains of a ferrule or knob that formerly covered the joint.

The proximal tube (a) is more or less cylindrical with an outside diameter of about 12.00 (+/– 0.1mm), equalling the diameter of the cylindrical part of the mouthpiece section (1), while the distal tube (b) tapers slightly from about 12.2 to 10.6mm towards the end; the metal thicknesses range between 0.36 and 0.39mm.[232] The beginning of the proximal tubing (a) is strengthened with a 11.5mm long ferrule with four impressed lines; it differs noticeably in style from the other two ferrules at the beginning of sections (3) and (4), and lacks their refinement (Figure 241).

Third or knob section (3)

The third or knob section (Figure 242; Figure 243) differs from the first two sections in both, colour and metal composition (see Table 57), but matches the bell section (4). The surface of the knob section is largelyshiny and etched by sulphide corrosion; only the above-mentioned darker areas may represent platforms of original surface area, although they, too, may be affected by the same corrosion process.[233] Section (3) is defined by its small knob (maximal diameter 27.5mm and 12mm length), made from two hemispherical sheet-brass halves, bordered by two wire rings of c 2mm width on either side. The knob is purely decorative and does not cover a joint; the wire rings do

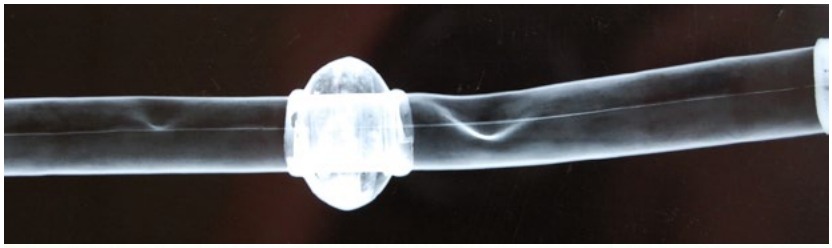

Figure 242 X-ray of the knob section (3). The knob consists of two hemispheres, the rings on either side do not extend underneath it, and it covers no joint. The fine grey longitudinal line is the butt seam



Figure 243 Close-up of the knob and the short ferrule at the beginning of the knob section (3) (S Klaus and M Rose)

[227] Lawson 1991, 156.
[228] An 18th- or 19th-century horn mouthpiece has about half that diameter at the narrowest point.
[229] Nathaniel Wood, 'Examination notes and measurements,' 4 March 2014 (Museum of London, files).
[230] Lawson 1991, 156.
[231] Lawson 1991, 151.
[232] Measurements by the author and Wood, 2014.
[233] Duncan and Ganiaris 1987, 110.



Figure 244 Black (tarnished silver) tab seam on the bell and narrow garland with one engraved line (S Klaus and M Rose)



Figure 245 Original hole in the bell and the garland for banner attachment (S Klaus and M Rose)

not extend underneath it. The knob section is stabilized at the beginning with a small ferrule of 6.5mm length with two impressed lines. Wood has concluded from the professional appearance of this concentrically round tube with expertly made butt seam that it may have been drawn through a die rather than being hand-formed over a mandrel or rod, the likely technique with which sections (1) and (2) were made.[234] Lawson has observed some of the same oblique, partly solder-filled file marks around the knob, as described before, and rougher tool marks at the distal end, which may indicate how far section (3) was inserted into the bell section (4).

The knob section is 448mm long; it is cylindrical with an outside diameter of 11.0mm, consistent within 0.1mm over the whole length (a bit more near the ferrule +/– 0.2mm); the distal end tapers over a length of c 25mm for insertion into the bell, arriving at a minimuminternal diameter of 10.0mm. The thickness of the metal ranges between 0.38 and 0.46mm, measured at the distal end. The knob section weighs 61.56g.[235]

Bell section (4)

The bell section is the most sophisticated among the four surviving parts. For its manufacture, specialized skills and tools were required that only a trumpet maker would have. The surface of the bell section shows the same shiny brassiness as most of the knob section (3). The conical part of the tubing is formed with a neat butt seam, the flaring part has an overlapping tab or coppersmith's seam over a length of c 130mm (Figure 244). One edge of the sheet metal that was to become the bell seam was thinned, and into the other regular, ca. 4mm wide tabs were cut, then bent alternately upward and downward to interlock with the plain edge. While the Billingsgate trumpet is the earliest known representative of this technique in a trumpet from Europe, this kind of meandering seam is already found in two trumpets from ancient Egypt that were excavated from the tomb of the boy king Tutankhamun and date from 1323 BCE or before.[236] The strong tab seam is particularly important where metal is stretched to form it into a specific shape, as was necessary to create a flaring bell.

The bell section has a total length of 432mm and is strengthened at the beginning of the conical tubing with a ferrule similar in design and size to that on the knob section (3). Wood has observed that the edge of the bell was reinforced by folding it back on itself, forming a narrow garland, and that the tab seam continues unbroken around this fold. This fact is easily

[234] Wood 2014 (Museum of London files).
[235] Lawson 1991, 156.
[236] Montagu 1976; Klaus 2012, 38.

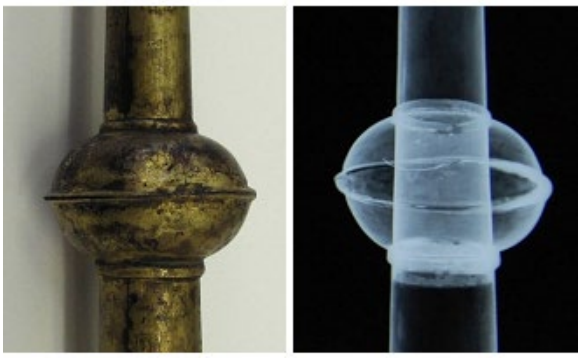

Figure 246 Just below the knob, the bell section is joined; the two parts telescope into each other and interlock. The joint is not visible on the outside but a lighter area in the x-ray reveals this apparently original design (S Klaus and M Rose)

Area	Section	Cu	Zn	Pb	Sn	Ag	As	Sb
1	Mouthpiece section (1)	86	8	0.1	6	0.1	0.1	0.1
2	Mouthpiece rim (1)	85	8	2	3	0.1	0.5	0.3
3	Plain section proximal (2 a)	86	10	0.3	4	0.1	<0.1	<0.1
4	Repaired section distal (2 b)	88	5	2	4	0.2	0.5	0.3
5	Knob section (3)	76	24	0.2	0.3	<0.1	<0.1	<0.1
6	Bell section (4)	75	24	0.4	0.2	<0.1	<0.1	<0.1
7	Repair patch on bell (4)	86	10	0.3	4	0.1	<0.1	<0.1

Table 57 Semi-quantitative XRF analysis in % conducted by Mike Cowell at the British Museum Research Laboratory on 31 October 1985. The colours are explained in the text

overlooked since most of the edge is now cracked at the fold and therefore appears as if it was a separate strip of brass. The garland is 6.5–7mm wide and decorated with one engraved line. Wood took sample thicknesses of the bell where a single layer is exposed; he observed that the metal for the bell was burnished from 0.3 to 0.4mm thickness down to 0.15 and 0.2mm at the end. A hole through the garland and the bell (Figure 245) is purposeful and served to attach a banner, a custom frequently documented in iconography of the time (see below).

The knob at the bell section is larger than that on the knob section (3), measuring 37 outside diameter and 27mm in length, but is likewise made of two sheet-brass halves. The edge of each hemisphere is bent outward to provide more surface area for the solder, resulting in a decorative central protrusion. X-rays show that here, too, the bordering, half round wire of 2mm width and 0.8mm thickness does not extend underneath the knob. A lighter area in the X-ray just below the knob indicates, however, that another sheet-metal layer is present here (Figure 246). This suggests that the bell section is not made in one part but is a composite of two segments, overlapping just below the knob by about 5mm. Since there is no overlap visible on the outside of the tubing, Wood's conclusion that the conical part of the bell was inserted into the flaring part from the wider end and overlaps on the inside is convincing.[237] The care with which this joint was executed indicates that it is part of the original design. This method of bell assembly is used in telescoping ethnic trumpets, for example in long trumpets from Tibet and India, and is also found in a trumpet by Marcian Guitbert, made in 1442 in Limoge, the next-oldest European trumpet to survive to date and the earliest that is folded to form a loop.[238]

Wood took detailed measurements of the circumference of the now squashed bell of the Billingsgate trumpet in 10mm increments and calculated from them the diameter of the originally round bell for his reproductions.[239]

Metal analysis

Several authors and researchers have stressed over the years that there is no guarantee that the four parts of trumpet were ever designed to make up one complete instrument. Even if the preserved pieces once formed a single trumpet, there are clear signs of different stages in its history. The discrepancy between the simple overlapping seams with which the first two tube segments were constructed and the more sophisticated butt and tab seams of the third and fourth sections indicates that they are of a different age and made by more than one craftsman. These visual observations were confirmed soon after the excavation with in situ energy dispersive X-ray fluorescence (XRF) analysis.[240] This surface analysis was done in an area of about 2mm diameter to a depth of at most 100 microns. Since the method is only effective when the examined area is polished flat and completely homogeneous, selected small areas on the main components of the trumpet were abraded with silicon carbide paper to remove surface contamination from the burial environment prior to the analysis; the solder seam areas for analysis were not abraded. Cowell pointed out that the curvature of the analyzed parts introduced further difficulties, and regarded the results as semi-quantitative with a wider margin of error than in a full quantitative analysis.

The metal analysis confirmed the differences in physical appearance and the grouping of the sections.

[237] Internal endoscope examination confirmed an overlap of the parts on the inside of the bell.
[238] Madeuf *et al.* 1999.
[239] Wood 2014 (Museum of London files).
[240] Cowell 1985.

The knob (3) and bell sections (4) are of an advanced binary alloy consisting of about 75% copper and 24% zinc, plus some traces of lead and tin (Table 57).[241] The mouthpiece section (1) and the plain section (2), on the other hand, are made of a ternary alloy of copper, much less zinc, and a significant percentage of tin, dating them to a different phase or possibly even another country of origin.

The metal analysis suggests the following stages in the trumpet's life:

1. The knob (3) and the bell (4) sections are likely the oldest part.
2. The proximal part of the plain section (2 a) dates from the same time as a shield-shaped repair patch on the bell (4) which covers a damage or hole (visible in the X-rays).[242] The bell repair patch and the plain section (2 a) have the same alloy composition (blue in Table 57).
3. The mouthpiece section with its separate rim (1) shows a very similar but not identical alloy (yellow in table 2) to the plain section (2 a) and the patch on the bell, and could date from the same period.
4. The repair tube of the plain section (2 b, green in Table 57) has a higher copper and lower zinc content than (2 a), confirming that it was a repair, performed after the damaged bell had been mended.

Since the areas with solder were not prepared for analysis by abrading, only qualitative information is available for the solder material that was used.[243] The overlapping seams of the mouthpiece (1) and plain sections (2) consist of soft solder (copper-lead-tin-zinc alloys) and do not contain silver. Soft solder without silver (yellow in Table 58) was also used for all the repairs. The butt seam on the knob section (3) and the butt and tab seams on the bell section (4) contain silver (copper-zinc-silver), defining them as hard solder of greater strength that allowed greater metal deformation during the forming of the parts without the risk of the seam opening up.

Solders:

Area	Description	Cu	Zn	Pb	Sn	Ag
a	On mouthpiece section (1)	++	+	+	+	
b	On mouthpiece rim (1)	++	+	++	++	
c	At repair on plain section (2 b)	++	+	+	++	
d	At seam on knob section (3)	++	++			+
e	At seam on bell end section (4)	++	++			++
f	On shield-repair on bell section (4)	++	++	++	++	
g	Removed sample on seam of bell section (4)	++	+			++

Table 58 Qualitative analysis of solder material found in seams and repair elements.[244]
++ = major component
+ = minor component
Soft-solder alloys containing no silver highlighted in yellow.

Microscopic analysis

Low-power optical microscope examination, carried out by Graeme Lawson, revealed similar manufacturing techniques for all four parts. Parallel scratch marks may have been caused by polishing, while diagonal marks are presumably the result of filing.[245] Parallel marks on the knob section (3) may further support Wood's idea that this tube was drawn through a die during the manufacturing process. Profilometry, also carried out by Lawson using non-destructive acetate peel techniques in combination with scanning electron stereo-micrography, provided some evidence how the four parts may have been assembled at one time.[246] It revealed in certain areas abrasive markings that are distinctly different from those related to the manufacturing process, mainly at the distal end of the tubes. The mouthpiece section (1) shows grit-etched gouge marks and dark perpendicular bands of surface bruising at the distal end that indicates that it was once inserted up to c 55mm into the plain section (2 a). Similar marks on the repaired section (2 b) point at an insertion by 45mm or as much as 60mm into the knob section (3). Diagonal scratches and tool-chatter marks imply that the knob section (3) was inserted into the bell section (4) with an overlap of about 50mm.[247] In each case, the previous section (male) is inserted into the following tubing (female). These marks seem to imply that the four sections were indeed used as one trumpet at least at one time. Subtracting these overlaps from the total length of all the parts (1610mm) results in an effective sounding length of c 1445 to 1460mm, approximately equivalent to a modern B-flat trumpet.

[241] In 1985 Cowell assumed that this was the highest grade brass obtainable with the cementation process, before zinc could be smelted directly with copper. However, more recent experiments have shown that copper alloys with higher zinc content (at least 40%) can also be produced with the cementation process. See Bourgarit Bauchau 2010.
[242] Egan and Lawson 1988, plate VII (c).
[243] Only one sample was removed from the solder seam of the bell and could therefore be analysed properly.
[244] Cowell 1985 (see note 6).
[245] Lawson 1991, 151.
[246] Lawson 1991, 152.
[247] Lawson 1991, 152.



Figure 247 Decretals of Gregory IX with glossa ordinaria (the 'Smithfield Decretals'), Southern France, possibly Toulouse, last quarter 13th century or first quarter 14th century, showing two trumpets with the banners attached to the bell (British Library, Royal 10 E.IV, fol. 65v) (© The British Library Board)



Figure 248 Luttrell Psalter, East Anglia, ca. 1325–35, showing two ship's trumpeters with straight instruments and central banner attached to the knob (The British Library Board, Add. 42130, fol. 161v) (© The British Library Board)

Historical and iconographical context

The origins of the European trumpet have long been debated. Some scholars have argued that there was a continuous lineage between the medieval European straight trumpet and its Roman ancestor, the straight tuba.[248] Others assumed Arabic influence entering Europe through the Crusades,[249] while yet others are of the opinion that the European trumpet adopted Byzantine elements,[250] or that Rome influenced Byzantium, which in turn provided models for both Arabic and early European trumpets.[251] Jeremy Montagu sees a connection between the North- and West-African long straight trumpets, the kakaki of the Hausa people in Nigeria and Moroccan al nafir (long trumpet), both still in use today, and the straight trumpet in medieval Europe.[252] For Montagu, the Billingsgate trumpet is the single most important physical proof of this connection: 'The recent discovery of a 14th-century trumpet in the mud of the River Thames (...) has shown that the apparent resemblance of the kakaki of the Hausa people of Nigeria and al nafir of the Moroccans to the illustrations of the medieval instrument is in fact true.'[253]

In illuminated Old Testament and Psalter manuscripts, trumpets feature prominently to illustrate texts in

[248] Smithers 1989.
[249] Meucci 1991, esp 18 and 19.
[250] Žak 1979, 72.
[251] Büchler 2000.
[252] Montagu 2006.
[253] Montagu and Montagu 1998, 76.

which they are mentioned. In these manuscripts, Byzantine straight trumpet illustrations from the 9th century onward show conical tubing with or without a flaring bell but no knobs.[254] A representation of an angel with a straight trumpet and bulbous bell is found in the Basilica Sant'Angelo in Formis in Southern Italy, datable between 1072 and 1087; [255] the rich frescos in this basilica show Byzantine influence. Trumpets with cylindrical sections, a flaring bell and one or several knobs start to appear in the late 11th century, by the time of the first Crusade, and the knobs have been considered signs of Arabic influence on the Western European straight trumpet.[256] Typical representations of long trumpets of this type are those in the Spanish Cántigas de Santa Maria, written and illustrated during the reign of Alfonso X El Sabio (1221–1284, reigned from 1252 until his death). The straight trumpets with moderately flaring bell and one or more prominent knobs, illustrated in the Cántigas, have triangular or square banners loosely hanging from them.[257] Spain and Southern Italy have long been considered the entrance point of the Arabic trumpet into Europe. By the last quarter of the 13th century, straight trumpets are also found in English church architecture, for example in Lincoln Cathedral.[258] Straight trumpets frequently feature in late 13th and early 14th-century French and English illuminated manuscripts, for example the Smithfield Decretals (Figure 247), the Howard Psalter,[259] the Macclesfield Psalter,[260] and the Luttrell Psalter (Figure 248), to name just a few. While straight trumpets continued to be a subject in illuminated manuscripts and church architecture into the 15th century, S-shaped and folded trumpets started to appear in England in the last quarter of the 14th century, and on the European continent soon after. The earliest representation of an S-shaped trumpet is a carving on a misericord in Worcester Cathedral from 1379.[261]

Function and use

From the 12th century onward, the trumpet assumed two main functions in Europe: it was a signaling instrument in times of war and a representative symbol in times of peace; between these two functions stood its use in tournaments. The power of a ruler, a city or family was symbolized by the banner attached to the trumpet. While triangular banners such as those found in the Cántigas are rare, square banners are more commonly illustrated. They were attached at two places: the knob and the bell, and located either in the centre of the trumpet or toward the bell end (see Figure 247 and Figure 248). In the latter case a hole was required in the bell as present in the Billingsgate trumpet. The attachment of a banner to the trumpet was almost universal, and the coat of arms in the banner often allows attribution of illuminated manuscripts to a particular family, ruler or town, and a specific period. In the case of the Billingsgate trumpet, the cloth banner would long have perished, and may have been slung around the four pieces of tubing to hold them together when they were dumped or accidentally lost. The location where the Billingsgate trumpet was found, strongly suggests that it was once used as a signaling instrument on a vessel that entered or left London on the River Thames.

The mouthpiece of the Billingsgate trumpet is no more refined than those found in the Tutankhamun trumpets from Egypt, dating from more than two and a half millennia earlier. This fairly unsophisticated mouthpiece design, similar to that of the Nigerian kakaki and Moroccan al nafir,[262] tallies with reports of the loud, noisy, and roaring sound of medieval trumpets, often played with puffed cheeks.[263] The present mouthpiece precludes a serious musical use of the Billingsgate trumpet, at least in the later stages of its functional life; only a few harmonics would have been playable on it.[264]

Dating and provenance

Iconographical representations of straight trumpets that share features with the Billingsgate trumpet coincide with the former ceramic phase 9 (c 1270 to 1350), although an earlier or later date cannot be excluded on the grounds of iconography. Straight trumpets with several knobs were known all over Europe in this period. Iconography therefore does not help in locating where the parts of the Billingsgate trumpet may have come from.

The knob (3) and bell (4) sections show high grade sheet brass, while the mouthpiece (1) and plain section (2) were made of lower grade ternary copper alloys. This raises questions not only of the different age of these parts, but also their possible provenance from different regions or even countries. The bell and knob sections could only have come from a location where high-quality sheet brass was available, and also the skills to form it into a trumpet with a flaring bell. Records show that Paris housed a trumpet maker, Rog. L'Englois, as early as 1297.[265] Although L'Englois was active in France, the name suggests that he originated from England.

[254] Büchler 2000, 26, 29.
[255] For an illustration see Tarr 1994, opposite p 41.
[256] Büchler 2000, 46.
[257] See http://www.warfare.altervista.org/Cantiga/Cantigas_de_Santa_Maria–187b–6.htm.
[258] Montagu 1998, 3.
[259] East Anglia, *c* 1310–20, British Library, Arundel 83.
[260] East Anglia, *c* 1325–35, Fitzwilliam Museum, Cambridge, Ms.1–2005.
[261] Klaus 2012, 66.
[262] Baines 1993, 77.
[263] Montagu 2006, 190.
[264] Acoustical tests with the reproduction trumpet by Wood show that a few notes of a harmonic series somewhere near G are playable.
[265] Pierre 1893, 8.

An early centre for sheet-brass production was Nuremberg in Germany. Although no trumpet makers are known at this early period, the city was famed in later centuries for the finest trumpets in Europe. The beginnings of brass casting in Nuremberg go back to around 1300; between 1370 and 1429 the craft of brass casters, from which the later trumpet makers emerged, counted 74 masters.[266] The beginnings of trade in Nuremberg wares through the Hanseatic League is traceable to the first half of the 14th century.[267] On these grounds, a Continental European origin seems likely for the knob (3) and bell (4) sections. The mouthpiece (1) and plain section (2), on the other hand, could have been made and repaired anywhere by a craftsman who was familiar with basic plumbing, maybe after the trumpet arrived damaged in London.

Conclusion and questions

The Billingsgate trumpet is of outstanding importance for the documentation of the early history of the trumpet in Europe. It is the only physical evidence of the type of straight trumpet that is depicted in numerous medieval illustrations. It shows that trumpet making had reached a high degree of perfection in some aspects, such as bell and tube making. On the other hand, it also reveals that the trumpet was not a musical instrument but was used for signaling with a fairly unsophisticated mouthpiece that could generate only a few notes.

Ultimately, many questions remain: Was the original mouthpiece, manufactured for the trumpet's knob and bell sections more sophisticated than the mouthpiece that survives now? Where did the various parts come from? Did they originate all from one place or several countries? Were they ever one trumpet or are they parts of several instruments? Are vital sections missing? We can only hope that future excavations may shine more light on the early period of this important and regal instrument, the trumpet, in Europe.

Acknowledgements

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[266] Baumgärtel 2002, 177, and Wörthmüller 1954.
[267] von Seggern 2002.

Medieval fabric code	Expansion	Date range
ALKG	alkaline-glazed ware	1270–1450
ANDA	Andalusian lusterware	1250–1400
ANDE	Andenne-type ware	1050–1200
ARCH	archaic maiolica	1270–1350
BLGR	blue-grey/Paffrath-type ware	1000–1200+
CBW	coarse Surrey-Hampshire border ware	1270–1500
CBW BIF	coarse Surrey-Hampshire border ware cooking pot with bifid rim	1380–1500
CBW CIST	coarse Surrey-Hampshire border ware bunghole jug	1340–1500
CBW LCUP	coarse Surrey-Hampshire border ware lobed cup	1380–1500
CBW LGR	coarse Surrey-Hampshire border ware large rounded jug	1340–1500
CHEA	Cheam whiteware	1350–1500
CHEA BAR	Cheam whiteware barrel-shaped jug	1430–1500
CHEA BIC	Cheam whiteware biconical jug	1350–1440
CHEA BIF	Cheam whiteware cooking pot with bifid rim	1440–1500
COLS	Colchester-type slipware	1400–1550
DEVS	developed Stamford-type ware	1150–1250
DUTR	Dutch red earthenware (rare before 1350)	1300–1500
DUTSL	Dutch slipped red earthenware	1300–1500
EARL	Earlswood-type ware	1200–1400
EGS	proto- and near-stoneware	1200–1300
EMCH	early medieval chalk-tempered ware	1050–1150
EMCR	early medieval crucible fabric	1000–1200
EMFL	early medieval flint-tempered ware (mainly 1000+)	970–1100

Medieval fabric code	Expansion	Date range
EMGR	early medieval grog-tempered ware	1050–1150
EMIS	early medieval Surrey iron-rich sandy ware	1050–1150
EMS	early medieval sandy ware	970–1100
EMSH	early medieval shell-tempered ware	1050–1150
EMSS	early medieval sand- and shell-tempered ware	1000–1150
ESHER	early south Hertfordshire-type coarseware	1150–1300
ESUR	early Surrey ware	1050–1150
ITALS	Italian slipware	1400–1500
KING	Kingston-type ware (possibly from 1200)	1240–1400
KING ANT	Kingston-type ware with anthropomorphic/zoomorphic decoration	1240–1350
KING HD	Kingston-type ware in the highly decorated style	1240–1300
KING LGR	Kingston-type ware large rounded jug	1340–1400
KING METCOP	Kingston-type ware metal copy jug	1270–1350
KING NFR	Kingston-type ware with north French style decoration	1240–1300
KING PELL	Kingston-type ware with pellet decoration	1270–1350
KING POLY	Kingston-type ware with polychrome decoration	1240–1300
KING SBOSS	Kingston-type ware stamped boss decoration (except wheat ear type)	1270–1350
KING SQU	Kingston-type ware squat jug	1270–1400
KING TUL	Kingston-type ware tulip-necked baluster jug	1340–1400
KING WSBOSS	Kingston-type ware wheatear stamped boss decoration	1340–1400
KINGSL	Kingston-type slipware	1250–1400
LANG	Langerwehe stoneware	1350–1500
LARA	Langerwehe/Raeren stoneware	1450–1500
LCALC	calcareous London-type ware	1080–1200
LCGR	Low Countries greyware	1350–1500
LCHD	Low Countries highly decorated ware (formerly AARD)	1250–1500
LCOAR	coarse London-type ware	1080–1200
LCOAR CALC	coarse London-type ware with calcareous inclusions	1080–1200
LCOAR EAS	coarse London-type ware with early style decoration	1140–1200
LCOAR GRIT	coarse London-type ware with gritty inclusions	1080–1200
LCOAR NFR	coarse London-type ware with north-French style decoration	1170–1200
LCOAR SHEL	coarse London-type ware with shell inclusions	1080–1200
LIMP	Limpsfield-type ware	1150–1300
LLON	late London-type ware	1400–1500
LLSL	late London-type slipware	1400–1500
LMCR	later medieval/early post-medieval crucible fabric	1240–1480
LMHG	late medieval Hertfordshire glazed ware	1340–1450
LOGR	London-area greyware	1050–1150
LOND	London-type ware	1080–1350
LOND BAL	London-type ware baluster jug	1180–1350
LOND DJ	London-type ware drinking jug	1270–1350
LOND EAS	London-type ware with early style decoration	1140–1200
LOND FLAR	London-type ware flared baluster jug	1240–1350
LOND HD	London-type ware in the highly decorated style (including anthropomorphic/zoomorphic)	1240–1350
LOND NFR	London-type ware with north-French style decoration	1180–1270

Medieval fabric code	Expansion	Date range
LOND PELL	London-type ware with pellet decoration	1140–1220
LOND POLY	London-type ware with polychrome decoration	1240–1350
LOND ROU	London-type ware with Rouen-style decoration	1180–1270
LOND TUL	London-type ware tulip-necked baluster jug	1270–1350
LOND WSD	London-type ware with white slip decoration	1240–1350
LSS	late Saxon shelly ware	900–1050
MAGR	Mahgrebi ware	1270–1350
MEDM	Mediterranean maiolica	1300–1500
MG COAR	Mill Green coarseware	1270–1400
MG CON	Mill Green ware conical jug	1270–1330
MG SQU	Mill Green ware squat jug	1290–1350
MG WSD	Mill Green ware with white slip decoration	1290–1350
MISC	miscellaneous unsourced wares	900–1500
NEOT	St Neots ware (possibly from 950)	970–1100
NFM	north French monochrome ware	1170–1300
NFRE	north French unglazed ware	900–1200
NFRY	north French yellow-glazed ware	900–1200
NMDX	north Middlesex ware	1050–1200
NORG	Normandy glazed ware	1050–1200
NORM	Normandy gritty ware	1050–1250
REDP	red-painted/Pingsdorf-type ware	900–1200
REDP BUF	red-painted/Pingsdorf-type ware with buff fabric	900–1200
REDP OLV	red-painted/Pingsdorf-type ware with olive fabric	900–1200
RHGR	Rhenish Tiel-type greyware	900–1100
ROUL	late Rouen ware	1250–1350
SAIC	Saintonge clear-glazed ware with sgraffitto decoration	1250–1350
SAIG	Saintonge ware with even green glaze	1280–1350
SAIM	Saintonge ware with mottled green glaze	1250–1650
SAIN	Saintonge ware	1250–1500
SAIP	Saintonge ware with polychrome decoration	1280–1350
SAIU	unglazed Saintonge ware	1250–1650
SATH	sandy Thetford-type ware	1000-1150
SCAR	Scarborough ware	1200–1350
SEMS	south Essex shell-tempered ware	1100–1300
SHER	south Hertfordshire-type greyware	1170–1350
SHER COAR	coarse south Hertfordshire-type greyware	1170–1350
SHER FINE	fine south Hertfordshire-type greyware	1170–1350
SHER FL	south Hertfordshire-type flint-tempered greyware	1170–1350
SIEB	Siegburg stoneware with iron wash	1450–1550
SIEG	Siegburg stoneware	1300–1500
SIEG BIC	Siegburg stoneware biconical jug	1350–1450
SIEG DBOWL	Siegberg stoneware drinking bowl	1450–1550
SIEG JACO	Siegburg stoneware *Jacobakanne*	1370–1500
SIEG TRIC	Siegburg stoneware Trichterhalsbecher/krug	1400–1500
SPAM	Merida-type micaceous ware	1270–1650
SPOA	miscellaneous unsourced Spanish amphorae	1200–1500
SPOW	miscellaneous unsourced Spanish wares	1250–1500
SSW	shelly-sandy ware	1140–1220

Medieval fabric code	Expansion	Date range
STAM	Stamford-type ware	1050–1150
THET	Ipswich/Thetford-type ware	900–1100
TUDG	'Tudor green' ware	1350–1500
VALE	early Valencian lustreware	1380–1450
WINC	Winchester-type ware	970–1100
Post-medieval fabric code	**Expansion**	**Date range**
BORD	Surrey/Hampshire border whiteware	1550–1700
BORDB/G/O/Y	Surrey/Hampshire border whiteware with brown glaze	1620–1700
CHPO BW	Chinese porcelain with blue and white decoration	1590–1900
DUTR	Dutch red earthenware (rare before 1350)	1480–1650
EBORD	early Surrey/Hampshire border whiteware	1480–1550
ENGS	English stoneware	1700–1900
FREC	Frechen stoneware	1550–1700
KOLS	Cologne stoneware	1500–1580
LCW	Low Countries wares (various)	1480–1650
LIGU	Ligurian maiolica	1520–1700
LONS	London stoneware	1670–1900
MART	Martincamp-type ware	1480–1650
MART1	Martincamp-type ware type I flask (buff earthenware)	1480–1550
MART2	Martincamp-type ware type II flask (dark brown stoneware)	1500–1600
MART3	Martincamp-type ware type III flask (red earthenware)	1600–1650
MEDM	Mediterranean maiolica	1480-1600
METS	metropolitan slipware	1630–1700
MLTG	Montelupo polychrome maiolica	1500–1700
MPUR	Midlands purple ware	1480–1750
NHS	north Holland slipware	1570–1750
NIMS	north Italian marbled slipware	1600–1750
NISG	north Italian (Pisa) sgraffitto redware	1550–1750
OLIV	Spanish olive jar	1550–1750
PMBL	post-medieval black-glazed ware	1580–1700
PMFR	post-medieval fine redware	1580–1700
PMFRB/G	post-medieval fine redware with brown/green glaze	1580–1700
PMR	London-area post-medieval redware	1580–1900
PMRE	London-area early post-medieval redware	1480–1600
PMSRG/Y	London-area post-medieval slipped redware with Green/yellow glaze	1480–1650
POTG	Portuguese tin-glazed ware	1600–1700
RAER	Raeren stoneware	1480–1610
RBOR	Surrey/Hampshire border redware	1580–1800
RBORB/G	Surrey/Hampshire border redware with brown/green glaze	1580–1800
SNTG	south Netherlands maiolica	1480–1575
SPGR	Spanish green-glazed ware	1480–1900
SPOA	miscellaneous unsourced Spanish amphorae	1480–1650
TGW	English tin-glazed ware	1570–1800
TGW A	tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (Orton style A)	1570–1650
TGW B	tin-glazed ware with manganese-mottled glaze (Orton type B)	1630–1680
TGW C	tin-glazed ware with plain white glaze (Orton type C)	1630–1800

Medieval fabric code	Expansion	Date range
TGW D	tin-glazed ware with external lead glaze/polychome painted (Orton type D decoration)	1630–1680
VALL	late Valencian lustreware	1480–1600
WERR	Werra slipware	1580–1650
WESE	Weser slipware	1580–1630
WEST	Westerwald stoneware	1590–1900
WOOLS	Woolwich Ferry white stoneware	1650–1700

Table 39 Expansions of pottery fabric codes used in this report

Form code	Expansion
ALB	albarello
AMPH	amphora
BART	bartmann
BEAK	beaker
BEAK TBEC	*trichterhalsbecher* (Siegburg stoneware, funnel-necked beaker)
BOT	bottle
BOWL	bowl
BOWL BIF	bifid-rimmed bowl
BOWL FLAR	flared bowl
BOWL RND	rounded bowl
BOWL 2HFL	two-handled flared bowl
BOWL 2HND	double-handled bowl
BOWLDISH	bowl/dish
BUTP	butterpot
CAUL	cauldron
CAULPIP	cauldron/pipkin
CHAF	chafing dish
CHAR	charger
CHP	chamber pot
CHP1	chamber pot (type 1, everted rim)
CHP 2	chamber pot (type 2, flat-topped rim)
CNDST	candlestick
COL	colander
COST	costrel
CP	cooking pot
CP BIF	bifid-rimmed cooking pot
CRUC	crucible
CUCU	cucurbit
CUP	cup
CUP CORR	corrugated cup
CUP LOB	lobed cup
CUP PED	pedestal cup
CUP RND	rounded cup
CURF	curfew
DBOWL	drinking bowl
DISH	dish
DISH COND	condiment dish
DISH DRIP	dripping dish
DISH FBB	Britton charger shape b (London)
DISH FBC	Britton charger shape c (London)
DISH FBE	Britton charger shape e (London)
DISH FLAR	flared dish
DISH FLNG	flanged dish
DISH FLUT	fluted dish
DISH LOB	lobed dish
DISH 2HOV	two-handled oval dish
DJ	drinking jug

Form code	Expansion
DJ BAL	baluster drinking jug
DJ BICON	biconical drinking jug
DJ CON	biconical drinking jug
DJ JACO	*Jacobakanne* drinking jug
DJ RND	rounded drinking jug
FINI	finial
FLP	flower pot
FRYP	frying pan
GOB	goblet
JAR	storage jar
JAR BUNG	bunghole jar
JAR CYL	cylindrical jar
JAR HAND	handled jar
JAR ST	storage jar
JAR STR	straight-sided jar
JUG	jug
JUG ANT	anthropomorphic jug
JUG BAL	baluster jug
JUG BAR	barrel-shaped jug
JUG BICON	biconical jug
JUG BUNG	bunghole jug
JUG CON	conical jug
JUG EBAL	early baluster jug
JUG ERND	early rounded jug
JUG GLOB	globular jug
JUG HD	highly decorated jug
JUG LG SQU	large squat jug
JUG LGRND	large rounded jug
JUG METCOP	metal-copy jug
JUG MINI	miniature jug
JUG PUZZ	puzzle jug
JUG RND	rounded jug
JUG SMR	small rounded jug
JUG SQU	squat jug
JUG TULBAL	tulip-necked baluster jug
JUG WPEAR	waisted pear-shaped jug
JUG; CIST	jug/cistern
KUGL	*Kugeltopf* (rounded pot in BLGR, usually with ladle handle)
LAMP	lamp
LAVA	lavabo
LID	lid
LOUV	louver
MBOX	money box
MEAS	measure
MUG	mug
MUG CYL	cylindrical mug
MUG RND	rounded mug

Form code	Expansion
MUG STR	straight-sided mug
OINT	ointment pot
PEG	pégau
PIP	pipkin
PLATE	plate
PLATE FBI	Britton plate shape i
PLATE OCT	octagonal plate
PTCH	pitcher
PORR	porringer
PORR A	porringer (type a, carinated)
PORR CARN	carinated porringer
PORR RND	rounded porringer
SALT	salt
SAUC	saucer
SKIL	skillet
SPP	spouted pitcher
STOOP	stool pan
TPIP	tripod pipkin
TPIP1	tripod pipkin (type 1, ribbed with internally lid-seated rim)
TPTCH	tripod pitcher
TROU	trough
TYG	tyg
VASE	vase
WHIS	whistle

Table 60 Summary of pottery vessel form codes

6.6 Medieval and post-medieval pottery

Lyn Blackmore and Jacqui Pearce

Introduction

This discussion of the medieval and post-medieval pottery (to 1666 only) is divided into four parts. The first is in essence the conclusions of the study at the present time: it summarises the chronological trends, addresses the research questions of the larger project, and raises questions to explore in the future. The second, third and fourth parts are more technical. The second part describes the changes in ceramic studies since the sites were first excavated and the methodologies used for the present study. The third part discusses the ware types represented on the two sites upstream of the Bridge, Swan Lane (A) and Seal House (B), the quantified medieval and post-medieval pottery from which totals 17226 sherds (10455 ENV), or 329.406kg of standard domestic equipment (Table 70, Table 71, Table 79, Table 80). The fourth part comprises a first account of the pottery from the two sites downstream of the Bridge, New Fresh Wharf (C) and Billingsgate (D), which have been studied to a lesser extent. For site C the medieval assemblage is slightly smaller than that from site A, totalling 3075 sherds (1453 ENV, 63.680kg), but in the case of Billingsgate much remains to be done and no figures are available. Two specific post-medieval groups have been analysed and published, both from drains which may be associated with specific people or their tenants (the Widmores on site C, the Soanes on site D: Schofield and Pearce 2014, Schofield and Pearce 2009 respectively).

Two tables are placed here to explain the pottery acronyms used in the main text and in the tables. Table 59 lists the pottery wares, with their acronyms which are used in the tables and occasionally in the text; Table 60 lists the main forms with their acronyms. This system has been developed at the Museum of London over the past four decades, largely a product of the study of pottery from the waterfront sites; its development continues.

Research questions answered, and those for the future

The following discussion seeks to address the questions the study set itself (section 1.6), rephrased to be addressed through the ceramics. Building on previous observations (notably Vince 1985; Blackmore and Pearce 2010, 7–21 and 234–48), it considers aspects of the spatial distribution of the pottery within the context of the sites, focussing on sites A and B, but also including the evidence from Riverbank House (RKH06; Mackinder 2015), which covers the same area as site A and the pavements outside it, and Watermark Place (UPM05) immediately to the west of site A (Mackinder and Fowler 2014). From this, the discussion broadens to consider some of the wider questions which the study of the pottery from these sites can shed light on.

The first three questions are very closely linked. The first two will be considered together, and then the third, with a conclusion that applies to all three.

1 Comparing the pottery and dendrochronological dates or revetments, were the waterfront dumps generally fresh and contemporary; or a few decades old; or up to 100 years old?

2a From the pottery, how fresh were the waterfront revetment/ reclamation dumps?

2b Is the pottery generally found in foreshores less mixed and therefore more recent than pottery in the adjacent reclamation units?

The dates of the foreshore and reclamation deposits are based not only on the pottery, but also on dendrochronology, metalwork and other forms of dating evidence. Pottery dating has advanced considerably since the sites discussed here were first excavated, but in most cases it is still not possible to tie specific fabric and form combinations down to closer than thirty years, for example 1240–70, and many have wider date ranges (e.g. 1270–1350). This is particularly true when the surviving sherds are small and difficult to assign

to individual forms or datable decorative styles. For many excavated structures there is no dendro dating, and where it exists there remains the possibility that it is skewed by reused timbers or by intrusive/residual artefacts introduced by the disturbance of deposits when revetments were replaced. In answering this question, therefore, it is not just a matter of whether the pottery is the same date as, or older than, the dendro dates, but whether it is actually significantly later. Blind reliance on the dendro dating over that of the pottery can, and did, lead to some errors in original ceramic chronology, and it has been observed that dates assigned to wares in London are often considerably earlier than in other parts of the country (D Evans pers comm), which merits further research. This problem has also been encountered on the site of Watermark Place, where, as on sites A and B, some period 2 deposits, dated to *c* 1270–1350, contain fabrics and forms that are conventionally dated to the mid 14th century or later (collectively amounting to over *c* 5% of the total 1661 sherds (Pearce 2014, 57–60, table 2; LLSL omitted)). Thus, while the original dating on sites A, B and C has been reassessed where possible, there is still a danger of circular argument, as many pottery dates are based on the old waterfront chronology, which is largely based on sites A–D. It remains, therefore, difficult to differentiate reliably between the dates of the pottery in some of the foreshore and revetment groups along the Thames waterfront.

Although the pottery found on these waterfront sites falls into two groups – that from foreshore deposits and the generally much larger groups from the reclamation dumps, the former are harder to identify as they are buried beneath later reclamation dumps, potentially resulting in disturbance or mixing. In theory, pottery from the foreshore could derive from activity along the waterfront, whether from riverside buildings or from boats moored nearby, as was probably the case at Dowgate, where a large dump of Rhenish pottery was found (Dunning 1959, 73–7; Vince 1985, 85; 1988). In practice, however, this is hard to prove on the present sites, partly due to differential distribution, and partly due to the method of recording, both in the 1970s–80s and in the review of the assemblages for this study, which did not note condition. The foreshore groups on sites A and B include some material that is abraded due to exposure, but not obviously afected by tidal action and, from the fabric codes listed, some potentially residual material. This makes it hard to determine whether the material was originally newer, or fresher, than that in the revetment dumps when discarded, especially when the dates of the different advances of the waterfront are quite close together. A detailed discussion of this question looking at the evidence from sites A and B is in the online supplement to this text, section 6.6.

3. Where did the pottery and artefacts incorporated into reclamation units come from? Do the pottery and artefacts have any significance in their locations behind waterfront revetments or on foreshores, or are they all hopelessly mixed up because they were mixed up before they were brought here?

The pottery in the reclamation dumps is unlikely to have been carried a very great distance to its ultimate destination as part of the waterfront construction programme, and there is some evidence that much of it is derived from activity in the immediate area of the site on which it is found. First, most groups mainly contain assorted wares of broadly contemporary date, often with sherds that are fairly large and fresh, suggesting that they had not been redeposited more than once. Second, some contain clusters of imports or other wares which are found in waterfront assemblages but are rare or absent elsewhere in the city. The large amount of shelly-sandy ware (SSW) found on the Billingsgate site, for example, is unparalleled in the City and suggests that it is associated with activities relating specifically to the port (Blackmore and Pearce 2010, 69–70, 81, 82, 240), and the imports must also reflect trading activities. Some imported wares are found on sites away from the river, but others are not. The cluster of Maghrebi ware in period M2 on site A, for example, must derive from a specific property or cargo and may reflect a single event. At Watermark Place, just to the west of site A, a relatively high proportion of the pottery from periods 2, 3 and 4 (late 13th- to 15th-century) comprised large unabraded sherds from the same vessels, with many joining to form vessel profiles (Pearce 2014, 56–7), which suggests that the pottery was relatively fresh and had not been in a midden or redeposited. The high proportion of Siegburg stoneware in period 4 on this site, notably in a dump over W10, may reflect the proximity of the site to the Steelyard (Fowler and Mackinder 2014, 35; Pearce 2014, 65, table 5). The same deposit, however, also contained 57 sherds of Merida-type micaceous ware (SPAM), one of the largest groups in London, and one of Paterna blue (Fowler and Mackinder 2014, 63, fig 49; 71), which may reflect a particular cargo or warehouse. Other specific clusters of different wares along the waterfront have been noted elsewhere (Vince 1985; Blackmore 1994). This argument for concentrations of pottery in the waterfront reclamation units being locally significant, because locally derived, contrasts with the theories arising from study of the non-ceramic artefacts (see above, 6.4). Accumulations on the foreshore can present a rather different picture, as seen in the finds from site C, period M2, which show different episodes of dumping over a lengthy period.

In answer to questions 1–3, therefore, the observation that the reclamation dumps were 'usually of slightly mixed date but probably coming from the general area



of the waterfront in question', whereas the foreshores contained more contemporary material (Blackmore and Pearce 2010, 10) still holds (this statement was largely based on the finds from the sites discussed here). The revetment dumps certainly comprise relatively large groups of material, to some extent of mixed date, deposited in a single event, or at least in a short time. Where residual material is present, it indicates redeposition and mixing, whether in temporary middens or through the disturbance of earlier deposits during the construction and reconstruction of the different waterfront structures. The foreshore groups are smaller, and accumulated over months or years rather than days (Vince 1985, 85; 1992, 142).

The next three research questions are also considered together as they too are closely related; again the answer concerns the medieval period only.

4 Did the pottery reveal any differences between the sites?

Upstream from the bridge, the area investigated on sites A and B spanned eight tenements: nos 1–5 on site A (Mackinder 2015) and nos 6–8 on site B (though only Tenement 6 was excavated). Downstream, a further eight tenements were identified, nos 9–14 on site C and nos 15–16 on site D. Buildings were identified by excavation on most tenements. From work up to the present, the archaeological evidence for buildings and occupation suggests that there was little difference in status between the properties on sites A and B. The taphonomic processes governing the distribution of finds are also much the same, but, as already noted above, the distribution of the pottery is subtly different, as are the proportions of the different ware types.

Taking the two sites A and B together, the medieval pottery from period M1 (1100–1220) amounts to 2665 sherds (1949 EVEs, 41.155kg; Table 75). In period M1 the amount of pottery from site B is over twice that from site A, but most is derived from waterfront dumps and foreshore deposits, whereas some of the pottery from site A is associated with buildings. There is, however, little difference between the wares and form present: both assemblages are entirely domestic in character, dominated by jugs but with a mix of forms used for cooking and food preparation. 'Early medieval' wares (ie with a date range up to *c* 1150, or *c* 1170 for LOGR) are fairly common in the earlier deposits on each site, but decline toward the end of the period, while SSW becomes more abundant; south Hertfordshire greywares are present but not common on either site. London-type wares dominate both assemblages at all times. Most sherds are from early-style jugs but a small proportion are in the north French and Rouen styles; some may be stratified, others intrusive. Imports are not abundant on either site, but one or two sherds are present in most groups, mainly from Andenne and the Rhineland (mainly red-painted/Pingsdorf-type ware with a few sherds of blue-grey/Paffrath-type ware). North French wares are much less common, possibly because the French wine trade was mainly concentrated to the west of the Walbrook.

The amount of pottery from period M2 deposits (1220–1350) is considerably greater: 9881 sherds (6371 ENV, 141.760kg; Table 76) but the pattern is much the same, and over twice as much pottery was found on site B as on site A. Most is derived from waterfront dumps and foreshore deposits, but a large amount can be associated with the construction use and demolition of B:Buildings 1–5 (3190 sherds, 33.222kg); while on site A, in contrast, only 359 sherds (4.811kg) are associated with A:Buildings 16, 17, 20, 21, 22, 25 and 27. The finds from periods A3 and A4, B5 and B6 are quite homogeneous, mainly comprising 12th- to early 13th-century material with only a little later material. Periods A5 (total 1430 sherds), B7.1 and B7.2 (total 4998 sherds) differ in that they include significant amounts of pottery dating to after 1240 (Kingston-type ware), after 1250 (Saintonge ware, early German stoneware) and 1270 (coarse Surrey-Hampshire border ware, Mill Green ware, Spanish and Mediterranean wares), showing that these are contemporary deposits. The main difference between these later groups is the fact that Kingston- and Earlswood-type ware and Mill Green wares are much more common on site A (309 sherds, 21%; 419 sherds, *c* 29% respectively) than on site B (468 sherds, 9%; 68 sherds, 1%). The imports from each site are more consistent, amounting to 6% on site A and 5% on site B, although the former are more varied. Although limited in number, they demonstrate increasingly wide trade connections from the late 13th century onwards, not only with northern Europe, but also with southern France and the Mediterranean.

In period M3 (1350–1500), the large assemblages from the reclamation groups and other deposits of periods A6 and A7 at Swan Lane (total 1773 sherds, 1084 ENV, 47.324kg; Table 77) show a clear progression from the 14th to 15th centuries. Coarse Surrey-Hampshire border ware (CBW) is by far the most common ware, followed by London-type wares (both contemporary and residual); rather surprisingly, imports are in third place, mainly comprising German stonewares but including Low Countries redwares and greywares, and Mediterranean wares. Later Surrey whitewares (Cheam, Tudor Green) and regional glazed wares (including LMHG as well as Mill Green ware) are also well represented, and a few early post-medieval ware types are also present. The finds from Seal House (site B), by contrast, are all related to buildings, and although some could date to the 15th century, the chronological sequence is less clear due to the smaller size of the groups (333 sherds, 196 ENV, 3.110kg), and the presence of fewer contemporary wares/form types.

For sites A and B in the period 1100–1500, therefore, there are minor differences in the presence/absence and quantities of different ware groups on the diffferent sites, but others follow the same general trends, as do the adjacent sites of Riverbank House and Watermark Place (Pearce 2014; 2015). Some differences in the distribution of imports are noted below. In the main, there are no great differences in the character of the pottery found on the two sites.

5 What were the functions of the buildings and open areas? How did they change over time? To what extent is this illustrated by the pottery and artefacts?

The distribution of pottery in and around the medieval buildings is described in the stratigraphic discussion of the different sites. In the case of sites A and B, the distribution is uneven. Taking all periods together, a large amount of medieval pottery (2011 sherds, 1217 ENV, 20.772kg), could be associated with the use and demolition of B:Buildings 1, 2, 3, and 4 on site B, the largest amounts being from B:Buildings 2 and 4 (periods M2/B5.1 and M2/B7.2). The 1511 sherds (872 ENV, 15.553kg) from construction deposits are less reliable indicators and may be from earlier buildings). On site A, however, much less pottery (755 sherds, 457 ENV, 9.409kg) was recovered from a much larger number of buildings (A:Buildings 1, 6, 7, 11, 13, 16–17, 20–2, 25, 27–31), the main concentrations being associated with A:Building 11 (period M1/A2), A:Building 16 and A:Building 17 (period M2/A3) and A:Building 27 (period M2/A5). Again these all contain standard assemblages with some earlier ware types and a few possibly intrusive sherds and no unusual clusters of specific form types. Not all of these sherds, however, are from occupation layers in the building; some are from external deposits and so might be derived from other sources, incuding a previous structure on that spot. Finds from demolition levels may come from the building itself, but could include rubbish from the general area. As the buildings have different numbers, even if sharing the same footprint as an earlier one, plotting patterns in pottery/building use over time requires a 'family tree' of buildings and open areas, and this has yet to be prepared.

It is therefore too early to consider this question in detail. The pottery from sites A and B is generally homogeneous regardless of whether it is from a building, open area, waterfront dump or foreshore, and the pottery from the buildings and open areas bears little relationship to the documented trades (dyeing, brewing, tanning, fish-smoking) that were, or might have been, taking place on the two sites. All the pottery from the hearths outside B:Building 1 (period M2/B.5.2), or that from the various hearths in B:Building 4 or B:Building 5, for example, comprises standard domestic wares. As the pottery from the overlying demolition deposit contains the same range of wares, with one contemporary import of Low Countries highly decorated ware, these sherds could represent breakages within the building that were swept outside, but this cannot be proven. The pottery from the different parts of the period M2 B:Building 2 is also very homogeneous. B:Building 4 spans periods M2/B7.2 and M3/B8 and changes in the pottery from it can be noted, the later finds being similar to the period M3 B:Building 5, which has different rooms and was modified more than once during period M3 before demolition in period P1. In both buildings the pottery in period M3 includes a range of 14th- and 15th-century fabric types as well as contemporary imported wares.

The best picture of port activities in the 12th to 13th centuries is to be gained from site D (and to some extent on nearby sites), where the amount of shelly-sandy ware (SSW) is significantly greater than that from sites A and B. This suggests that the SSW pots may have been taken by water from the kiln site (location unknown but possibly in Woolwich) and landed at Billingsgate. Here they might be kept for redistribution, possibly filled with a food commodity, upstream along the Thames and around the east coast to Scotland and even as far as Norway (Blackmore and Pearce 2010, 82). Other clusters of imported wares, such as the French and Maghrebi wares in period 2 on site A, or Dutch redwares on site B in period M3, noted elswhere in this discussion, may also reflect the activities of merchants as much as household possessions.

6 How does the study of pottery illuminate the lifestyles of the occupants of the waterfront properties?

As noted above, the medieval pottery found on sites A to D probably came from properties relatively close by, but for the most part even the groups associated with the excavated buildings are too fragmented and too mixed to comment on the range of wares or forms that may have been used in particular households, other that everyone was using much the same equipment for cooking, serving and other aspects of daily life. There are, however, a few more complete vessels. In period M2 on site B, the new floor in B:Building 2 contained sherds from part of an early baluster jug in the north French style (B<P76>) and a highly decorated jug, both in LOND, the latter internally sooted and so possibly used for cooking; part of a SHER cooking pot with a white internal residue was found in the subsequent demolition deposit. B:Building 3 contained a large amount of pottery, including the most complete jug from period B6 (B<P83>), found in a dump between hearths inside the building. For the most part, however, groups of vessels that must derive from the same household only survive in deeper features such as cesspits, which are absent from sites A and B before the 16th century but occur on site C as the cellared structure C:Building 10.

Considering status, the pottery presents a similar picture on all four sites. Locally and regionally made pottery was readily available to, and used by Londoners at all levels of society (apart from the homeless), even if only in the form of simple jars or cooking pots, bowls and dishes. Larger, better-off households were typically well stocked with ceramics, including glazed tablewares, such as jugs in London-type or Kingston-type wares, although the less well-off would be unlikely to own many such items. When all such wares are mixed together in general deposits, it is the presence of non-local or imported wares that might signal differences between properties and the connections of those living in them. For example, the presence of sherds from two knight jugs in Scarborough ware, along with part of a large KING jug decorated with stamped bosses and other jugs in the highly decorated style in LOND and KING from reclamation dumping on Tenement 9 on site C (see Table 131) may be indicative of a relatively well-to-do household, capable of entertaining on a reasonable scale, but the layer is general dumping and not from a specific building. Large amounts of local and regional 14th- to 15th-century pottery, including some complete or near-complete vessels, were recovered from the cellared structure C:Building 10 (mainly period C4.3 and C4.4), including drinking jugs C<P80> and C<P81>, a large rounded or bunghole jug in CBW (C<P82>); one sherd of Scarborough ware was present but no Continental imports were found. A cluster of Scarborough ware, including A<P33>, A<P34> and A<P35>, was also associated with A:Waterfront 13.

It would, however, be a mistake automatically to correlate Continental imports with wealth and status, as the waterfront location brought foreign goods into relatively widespread circulation, even if the various ceramic wares were still in a minority when compared with locally-made fabrics. Furthermore, not all the imported wares that entered the capital were of the highest quality; some were everyday utensils, perhaps coming in as containers or as part of the shipboard equipment of trading ships, while others might be souvenirs or gifts brought in by returning merchants.

This is demonstrated by the fact that almost all the pottery from the Low Countries consists of sherds from Dutch redware (DUTR) cooking pots, including A<P43>, A<P59>, A<P75>, A<P98>, A<P99>, A<P100>), which are concentrated on site A in periods M3/A6 and M3/A7, although present as occasional sherds before this. These are mundane vessels, but two highly decorated jugs (LCHD), a Low Countries greyware (LCGR) bowl and part of a DUTR lavabo (A<P58>) are rarer finds which might have belonged to wealthier households. As these wares are limited to four sherds from site B and are absent on site C, the finds from site A might suggest some residents from the Low Countries in the area. On site B, a small cluster of North French pottery associated with B:building 3 might suggest different connections.

In relation to the distribution of the imports, most are found in open areas, dumps and foreshores and so of uncertain origin. On site A, only 22 sherds of imported pottery are associated with buildings: A:Building 11 (4 sherds), A:Building 13 (period M1: four and three sherds respectively, some possibly residual); A:Building 17, and A:Building 27 (period M2, 11 sherds (7 ENV) and one sherd respectively, mostly residual); A:Building 22 and A:Building 27 (period M3, one and four contemporary sherds respectively). None are from a post-medieval building. The amounts are higher on site B, although there are no imports associated with buildings in period M1. In period M2 they are present in B:Building 2 (nine sherds, 8 ENV), B:Building 3 (56 sherds, 24 ENV) and B:Building 4 (29 sherds, 21 ENV), the latter two including contemporary material. In period M3 most come from the different phases of B:building 5 (24 sherds, 15 ENV), with one sherd from B:building 1 and five sherds (3 ENV) from B:Building 6, all including contemporary material. .

On site A the majority of imports cluster on Tenement 3 (161 sherds, 36 ENV); additionally 118 sherds (76 ENV) are from deposits spanning Tenements 2 and 3, and 121 sherds from deposits spanning Tenements 3 and 4, most of which are probably also from Tenement 3. On site B all are from Tenement 6. The range of sources is generally the same on the different sites, with the main emphasis on the Rhineland and northern France in the 11th to 13th centuries, Germany and the Low Countries in the 14th and 15th centuries, with occasional Mediterranean wares from *c* 1270/1300 onwards.

Two notable post-medieval (early 17th century) groups from site C and D which have been individually published are summarised in the site narrative above and here. The large group of pottery recovered from site C (C[511]) throws light on the material goods of one individual living on Hammond's Quay during the early 17th century. The finds were recovered from a brick drain to the south of a cellar along the quay, and were probably thrown away together during the tenancy of William Widmore, plaisterer, between 1609 and 1641, or his widow, Joan, between 1641 and 1656 (Schofield and Pearce 2014). At least 63 vessels include many recontructable profiles and complete vessels, suggesting that they were thrown away together or over a short period. A range of imported wares includes Portuguese faience, late Valencian lustreware, Dutch red earthenware, Frechen stoneware and Werra slipware. A study of part of the rich 17th-century (pre-Fire) strata at site D (known informally as the Soane study from the name of the main person mentioned in the documentary sources) has also been published. Detailed analysis of the finds, closely allied to stratigraphy, building history

and documentary research made it possible to identify distinctions between individual spaces within the excavated area. The pottery was considered alongside other artefactual evidence, particularly ceramic building material, clay tobacco pipes, glass, coins and a wide range of accessioned finds. Close examination of ceramic fabric and form were able to provide insights into patterns of supply, marketing networks, functional preferences, fashion and personal choice, wealth and social status (Schofield and Pearce 2009).

Analysis of the major ceramic sources provides a better understanding of the complex inter-relationships between the many and varied manufacturing centres that supplied Londoners' pottery. The waterfront location of the Billingsgate site is an important factor, and the Soane study has thrown up evidence for the role of imported wares in London's ceramic supply and their place in the domestic sphere as well as enhancing understanding of the appearance of individual domestic interiors in the 17th century. An examination of functional groupings, based on ceramic forms, reflects on the way pots were used over time and their place in the home, both as practical utensils and as objects to be admired in their own right. This in turn allows us to gain a greater understanding of those who owned and used these items. During the course of analysis for the Soane project, ceramic vessels were classified not only by form, but also by broad functional type: pottery for use in cooking and food preparation, for serving food and drink, for storage and for functions related to health and hygiene, as well as vessels for pharmaceutical and horticultural use, and for leisure activities. Further subdivisions within these broad categories open up the microcosm of individual lives, households and other properties.

Conclusions for the questions and avenues for new research

Taken together, the medieval pottery from all contexts on sites A and B totals 15440 sherds (10045 ENV), with a combined weight of 243.612kg. To this can be added 3075 sherds (1453 ENV, 63.680kg) from site C, and the extremely large assemblage from Billingsgate (yet to be quantified), making an exceptional collection. At present the assemblages from sites A, B and C are the only ones from waterfront sites of the 1970s and 1980s to be fully quantified, and sites A and B are the first to be discussed and interrogated in such detail. Since then, the excavations and pottery assemblages from Riverbank House (on the same footprint as site A) and Watermark Place have been published (Pearce 2014; 2015), which enhance the picture for the riverside between London Bridge and Cannon Street railway station viaduct. Of the other early excavations, the pottery from Trig Lane was only published in a very summary form (Orton 1982a; Vince 1985), while that from the Millennium Bridge site was only recorded by sherd count (total 2549 sherds, of which 36 are post-medieval; Blackmore 2002, 90).

Although based on less data than are available today, the ceramic chronology established has stood the test of time; it has been tested in Bergen, Norway (Blackmore and Vince 1993), and, although debated in Perth (Scotland) (Hall *et al.* 2007), has only been slightly refined over the years (Blackmore and Pearce 2010). The true test of the stratigraphic and ceramic chronologies, is the correlation of the original data with that from more recent work (above, Table 61). Despite initial reservations (Goodburn 2015, 77), it has demonstrated above that, where dendro dating is available for Riverbank House, the dates for the two sites are consistent, as for the most part are the compositions of the groups and the dating of the latest pottery in a group. This reinforces the overall reliability of the London sequence, and although intrusive wares do occur, they can usually be easily detected.

The assemblages discussed here provide an excellent sample of the range of wares used in the capital during the medieval period, as there is an unbroken sequence from *c* 1150 to 1500; there are also some significant 17th-century groups. While some individual context groups are small, when viewed as larger units, in some cases as sub-periods, but in general as broad periods (M1, M2 and M3), the amounts are statistically valid. Study of the finds from sites A and B has also demonstrated subtle differences in the composition of the two assemblages. Despite the different numbers of finds from the two sites, the dominance of London-type wares over the local market in periods M1 and M2 is obvious, as is their decline in period M3. The changing patterns of SSW and SHER can also be charted at Seal House, the former being ousted by the latter in the mid 13th century. Most notable at Swan Lane is the rise of Surrey whitewares, first Kingston-type ware and then coarse Surrey-Hampshire border ware in period M2, from *c* 1240 and *c* 1270 respectively, and the fact that these wares then dominate the market until *c* 1500 is also clear to see.

Trends in the smaller industries, such as Mill Green ware and late medieval Hertfordshire glazed ware are less easy to track as, due to their reduced numbers, they were combined together with other imports such as Scarborough ware. A peak in period M2 at Swan Lane is, however, clearly visible. Imports form a smaller but important component of the two assemblages, especially when compared with sites away from the waterfront. The decline of the early imports (Andenne ware and Rhenish wares) and the shift to wares to southern France and the Mediterranean in the second half of the 13th century is demonstrated by the pottery from period M2, while the increase in stonewares from the Rhineland from the mid-14th century and during

the 15th centuries is apparent on both sites in period M3. Sites C and D have been studied less extensively, but, like sites A and B, both are included in the overview of the distribution of shelly-sandy ware and the greyware industries (Blackmore and Pearce 2010).

Tracking changes in the distribution of forms has been tackled on a broad basis, but there is certainly scope to develop this in different ways, e.g. comparing the proportion of jugs to other forms, or considering the spatial distribution of the pottery on a tenement by tenement basis, ideally comparing it with that of other finds. A further step would be to consider trends within the different medieval pottery industries within the wider socio-economic context, to examine the introduction of specific ceramic forms for specific purposes (Pearce and Vince 2010, 226–33, 237–8), e.g. lamps in the 10th and 11th centuries or drippping dishes in the 12th century, and the replacement of some forms with equivalents in other more suitable materials, notably metal fittings for lighting, glass hanging lamps, metal cauldrons and pipkins in the 14th century, or glass beakers from the 15th century onwards. The post-medieval groups (above, question 6) in particular demonstrate the development of new forms to accomodate contemporary fashions in the preparation, serving and consumption of food.

Within the wider context of the City of London, other possible avenues of research include the development of international trade. This has been partly touched on here within the context of sites A, B, C and D, which show clearly how pottery and other artefacts now coming from London waterfront sites in the 12th century are beginning to tell us about international trade and traders, including where they congregated and lived on the waterfront. Such a study would, however, be significantly more meaningful if these sites were to be compared with other riverside finds assemblages, notably the port area at Queenhithe, where sherds jars and cooking pots from the Rhineland were found in from 10th- and 11th-century contexts. As these finds are rare elsewhere before the 12th century, even along the waterfront, they may indicate the activities of visiting seamen (Pearce 2015a, 181). In general, the highest amount of imported pottery is from sites along the waterfront, that is south of Thames Street, since that is where the dumps full of rubbish were needed for reclamation. The fact that less pottery, and so less imported pottery, is found on sites away from the waterfront reflects in part the rules governing rubbish disposal, but also due to the patchy survival of medieval stratigraphy over much of the city (Blackmore 1994; 1999b, 53). Nonetheless, occasional concentrations do occur in wells and cespits, notably at Plantation House, Fenchurch Street (Blackmore and Tyson 2013; Pitt 2013, 23, 43–7), where important assemblages of 13th-century Islamic-style glass vessels and 14th–16th fritware albarelli, glass flasks and goblets from the Middle East were found. Such hints of luxury in the period to *c* 1550 are so far confined to the streets above the waterfront area, notably those occupied by Italians or with other strong merchant connections, and are absent from the working environment of the waterfront (with the possible exception of Baynard's Castle, at the western end of the waterfront (BC72; unpublished). Nonetheless, the waterfront sites are the point of entry and the study of trade, consumerism and the distribution of imported goods across the City can be considered by comparing the waterfront finds with those from sites inland and there is a need to update the existing surveys (Vince 1985; 1988; 1995; Blackmore 1994; 1999b) with a new review incorporating more recent finds.

For the post-medieval period, there is scope for a more detailed comparison of the four 17th-century groups from sites A, C and D within the contexts of these three sites and in relation to other pre- and post-Fire assemblages from similar closed deposits in the City.

Early pottery recording in London and general methodology for this publication

Early pottery recording in London

Fabrics, forms and recording

The development of pottery recording in London has been summarised elsewhere (e.g. Blackmore and Pearce 2010, 17), but is worth outlining here as it has affected the study of the pottery from the four sites discussed in this publication, which were among the first to be recorded by the then DUA and which have all formed part of the core group used for various London pottery and finds corpora.

The initial recording of the first significant waterfront pottery assemblages from London excavated by the Museum of London, carried out in the 1970s and 1980s by members of the DUA, took the form of 'spot-dating' on index cards, in which ceramic fabric was the prime criterion. The level of information recorded was standard at the time, when current systems/procedures were still evolving, and computers were only just coming into use in the DUA (at that time the Unix system was used). In due course selected groups from sites A, B, C and D and elsewhere were quantified for the preparation of the various London medieval pottery type-series (Vince 1985); the data comprising context, fabric, basic form and weight were recorded, along with the estimated vessel equivalent (EVE), or percentage of the circumference surviving where rims were present. However, although these publications established the form classifications now in current use, the original pottery records (both spot-date cards and quantified data) rarely specify decorative styles and types within individual fabrics that would allow refinement of the dating and a clearer understanding of the nature of the excavated assemblages. For the most part the broad ware name only is given (for example, LOND for London-type ware, *c* 1080–1350), rather than chronologically sensitive variants within that (such as LOND ROU or London-type ware with

Ceramic Phase (CP)	Old dating (approximate)	Suggested dating (approximate)	Defining pottery type
1	900–1000		LSS
2	970–1050		EMS
3	1000–50		EMSS
4	1050/80–1150		EMSH, ESUR
5	1080–1150		LOGR, LCOAR, LOND
6	1150–1200	1140–1220	SSW, LOND EAS
7	1200–30	1180–1230	LOND ROU, LOND NFR
8	1230–60	1230–70	KING
9	1270–1350		MG, CBW
10	1330–80		LMHG
11	1350–1400		CHEA, CBW in bulk
12	1400–50	1380–1500 1400–1500	CHEA, CBW with bifid rims LLON

Table 61 Suggested revisions to the Ceramic Phases used in pottery studies and in the Medieval finds catalogue series in the 1990s, from Blackmore and Pearce 2010, table 3

Rouen-type decoration, dated to *c* 1170–1270) which are now recorded as a matter of course.

The original records also placed less emphasis on the recording of forms, except where complete vessel profiles survived, with the result that there are large gaps in the data; where form is noted it is generally as the most basic level (i.e. JUG) rather than the specific type within that form (e.g. JUG BAL or baluster jug), which can be significant. One record can cover a number of vessels, and in some cases no form at all is listed. Again, the level of detail on form and decoration has increased as computer systems have been improved, and is now quite comprehensive; all pottery is recorded to a standard level as a matter of course, noting fabric, form, sherd count, estimated number of vessels (ENV) and weight.

Dating, chronology and quantification

As with the actual identification and description of sherds, dating, the essential foundation on which all archaeological enquiry is built, has also advanced considerably since the 1970s (Vince 1991; Blackmore and Pearce 2010, 4, 17–18, table 3). The London chronology is mainly based on a combination of the dendronchronological analysis of the waterfront revetments and the stratigraphic distribution of the large amounts of pottery, coins and other datable artefacts such as pilgrim badges found in the associated dumps and foreshores. The part played by the present four sites in this evolving study, now seen to be of national importance for the archaeology of these periods, is laid out in the present work. The first step in developing the overall sequence was the creation of broad 'ceramic phases', a pioneering dating system for the period 900–1450, developed by Alan Vince and colleagues in the DUA, based on the coincidence, or association, of specific ware types (Table 61). This system forms the dating framework of all the London medieval pottery and finds corpora produced in the 1980s and 1990s, and also for early site reports, including Cheapside (Schofield *et al.* 1990) and the publication of the earliest post-Roman levels on sites A to D (Steedman *et al.* 1992; overlapping with the present work).

In these early site publications quantification was limited; the published record mainly consisted of a list of fabric codes (e.g. in Schofield *et al.* 1990), and where quantification had been carried out it was confined to microfiche (Vince 1991a; Steedman *et al.* 1992). During the 1990s, however, the ceramic dating framework became more secure and with the subsequent availability of more dendro dates and the development of more sophisticated computer systems it was possible to link date ranges to the different fabric and form codes in the recording system. The dating assigned to non-local industries also reflects current thinking. In this way a scientific (ie objective) date can be proposed for the pottery in any one context, which can then be modified where redeposition or intrusive material are suspected. Ceramic phases have thus become redundant, and although they still act as a guide to the types of pottery likely to be present in the different deposits selected for the pottery and finds corpora, the data and dating presented in this volume should be taken as final for sites A, B and C. The current dating of the different wares as they occur in London are given in Table 4 at the beginning of this monograph, but it should be noted that, for various reasons, the date of final deposition may differ from the actual production periods.

General methodology for this publication

As noted above, the pottery from the four sites discussed here was initially recorded in the 1970s and 1980s by members of the then DUA, and, as the sites have formed part of the core group used for various pottery and finds corpora, selected groups/ware types had been quantified. Until now, however, the material had never been studied in terms of stratigraphic sequences, or as assemblages related to specific buildings or features. For this reason the bulk of the collections from sites A to C, but not site D were re-examined, re-identified and/or redated as appropriate by the present authors, with reference to more recent research (for example, on wheelthrown coarsewares of the 12th to 14th centuries, and 16th/17th-century Surrey-Hampshire border wares) and recorded in accordance with current MOLA procedure, using standard codes for fabric, form and decoration (Table 59 and Table 60; these can also be accessed on the MOLA website: http://

www.mola.org.uk/resources/medieval-and-post-medieval-pottery-codes). Over the years some pieces, removed for illustration or other purposes, have unfortunately gone missing, and so details could not be checked, but as far as possible sherd count (SC), estimated vessel count (ENV), weight in grams were checked and recorded where necessary. These three measures are routinely used by MOLA ceramic specialists as the basis for assessment and analysis. Estimated vessel equivalents were recorded as an additional measure for site C, since they were originally included during partial recording by the DUA during the 1970s and 1980s. This will allow closer comparison to be made between pottery from site C and from other waterfront sites recorded using the same statistical measures.

For ease of manipulation, full databases have been created (in Microsoft Excel) in which all medieval and later (up to 1666) pottery from all five sites is recorded and combined with data on period and landuse. The data will in due course be transferred onto the MOLA Oracle database. In addition to fields for fabric, form, decoration and quantification, items that have already been published as illustrations are noted, as well as Item Nos and Corpus Nos. These last two derive from systems formerly used by the DUA for assigning unique numbers to individual ceramic items on the grounds of diagnostic features (such as rims, vessel profiles, decoration). Although record cards were kept for Corpus Nos (CN) and can be consulted in the Museum of London Archaeological Archive, neither system was maintained beyond the mid 1980s. The sherds selected for future study and illustration, and their contexts, are given here in Table 64 (site A), Table 65 (site B) and Table 81 (site C). To conduct further research on the pottery from the project sites, the researcher will have to be familiar with the original Museum sitecodes (see Table 2 at the beginning of this monograph)

To date, seven studies of individual medieval wares or ceramic traditions and one on post-medieval pottery have been published (Pearce *et al.* 1982; Jenner and Vince 1982; Vince 1985; Pearce *et al.* 1985; Pearce and Vince 1988; Vince and Jenner 1991; Blackmore and Pearce 2010), along with a few more synthetic studies (Vince 1985; 1991; Blackmore 1994; 1999a, 1999b). However, although invaluable in their own right, these studies largely ignore the context, and ceramic associations, of the finds presented as examples of their type. A holistic approach to the individual sites discussed here has, until now, been notably lacking – and this imbalance is something the present project aims to redress.

The dating of the different fabric types has been built up over time; for regional wares it is mainly based on London evidence, but also takes external chronologies into consideration. The current dating of the different wares as they occur in London are given in Table 4, but it should be noted that due to patterns of trade this may differ from the actual production periods. In most of the following discussion and tables the overall project periods are used: period M1=1100 to 1200/1220, M2=1200/1220 to 1350/1370, M3=1350/1370 to 1500, P1=1500 to 1666, P2=1666 to 1750. With the exception of 1666, each of these dates is approximate, but the structure facilitates comparison of the broad ceramic trends on each site.

Site A: medieval wares

Category	Fabric	Sherds	%	ENV	%	Weight	%
import	ANDA	5	0.1%	5	0.2%	51	0.1%
import	ANDE	17	0.3%	15	0.5%	126	0.1%
import	ARCH	1	0.0%	1	0.0%	7	0.0%
import	BLGR	7	0.1%	2	0.1%	42	0.0%
Surrey whiteware {b}	CBW	843	17.1%	530	15.9%	23700	23.3%
Surrey whiteware {c}	CHEA	168	3.4%	108	3.2%	4662	4.6%
regional/non local	COLS	9	0.2%	5	0.2%	306	0.3%
regional/non local	DEVS	1	0.0%	1	0.0%	10	0.0%
import	DUTR	72	1.5%	28	0.8%	2557	2.5%
import	DUTSL	1	0.0%	1	0.0%	2	0.0%
Surrey whiteware {a}	EARL	27	0.5%	18	0.5%	563	0.6%
import	EGS	18	0.4%	12	0.4%	665	0.7%
'early medieval'	EMCH	4	0.1%	4	0.1%	61	0.1%
'early medieval'	EMFL	10	0.2%	6	0.2%	58	0.1%
'early medieval'	EMGR	4	0.1%	2	0.1%	91	0.1%
'early medieval'	EMIS	2	0.0%	2	0.1%	12	0.0%
'early medieval'	EMS	16	0.3%	14	0.4%	258	0.3%
'early medieval'	EMSH	55	1.1%	50	1.5%	826	0.8%
'early medieval'	EMSS	48	1.0%	41	1.2%	658	0.6%
'early medieval'	ESHER	1	0.0%	1	0.0%	38	0.0%
'early medieval'	ESUR	86	1.7%	72	2.2%	1623	1.6%
Surrey whiteware {a}	KING	465	9.4%	372	11.2%	9496	9.3%
import	LANG	16	0.3%	11	0.3%	1232	1.2%
import	LARA	4	0.1%	3	0.1%	25	0.0%
London-area	LCALC	29	0.6%	21	0.6%	466	0.5%

Site A: medieval wares							
Category	Fabric	Sherds	%	ENV	%	Weight	%
Import	LCGR	1	0.0%	1	0.0%	46	0.0%
Import	LCHD	2	0.0%	2	0.1%	10	0.0%
London-area	LCOAR	144	2.9%	115	3.5%	2041	2.0%
London-area	LIMP	5	0.1%	5	0.2%	172	0.2%
London-area	LLON	51	1.0%	26	0.8%	1797	1.8%
London-area	LLSL	2	0.0%	2	0.1%	97	0.1%
regional/non-local	LMHG	56	1.1%	17	0.5%	1165	1.1%
'early medieval'	LOGR	50	1.0%	46	1.4%	786	0.8%
London-area	LOND	1371	27.8%	939	28.2%	25812	25.4%
Late Saxon	LSS	8	0.2%	7	0.2%	91	0.1%
import	MAGR	16	0.3%	11	0.3%	129	0.1%
regional/non local	MG	555	11.2%	392	11.8%	7608	7.5%
regional/non local	MG COAR	18	0.4%	16	0.5%	343	0.3%
miscellaneous	MISC	2	0.0%	2	0.1%	21	0.0%
'early medieval'	NEOT	1	0.0%	1	0.0%	14	0.0%
import	NFM	27	0.5%	15	0.5%	468	0.5%
import	NFRE	4	0.1%	2	0.1%	63	0.1%
wheel-thrown coarseware {b}	NMDX	1	0.0%	1	0.0%	12	0.0%
import	NORM	1	0.0%	1	0.0%	10	0.0%
import	REDP	20	0.4%	17	0.5%	229	0.2%
import	ROUE	115	2.3%	3	0.1%	484	0.5%
import	SAIN	55	1.1%	35	1.1%	893	0.9%
regional/non local	SCAR	25	0.5%	9	0.3%	763	0.8%
wheel-thrown coarseware {b}	SHER	178	3.6%	110	3.3%	4321	4.2%
import	SIEB	3	0.1%	2	0.1%	46	0.0%
import	SIEG	88	1.8%	51	1.5%	3015	3.0%
import	SPAM	2	0.0%	2	0.1%	30	0.0%
import	SPOA	1	0.0%	1	0.0%	135	0.1%
wheel-thrown coarseware {a}	SSW	193	3.9%	145	4.4%	3159	3.1%
'early medieval'	STAM	5	0.1%	5	0.2%	42	0.0%
'early medieval'	THET	1	0.0%	1	0.0%	33	0.0%
Surrey whiteware {c}	TUDG	23	0.5%	11	0.4%	271	0.3%
import	VALE	2	0.0%	2	0.1%	16	0.0%
Grand Total		4935	100.0%	3326	100.0%	101697	100.0%

Table 62 Site A: overall quantification of the medieval pottery by sherd count, estimated number of vessels (ENV), and weight, with correlation of fabric codes and categories

Site B: medieval wares							
Category	Fabric	Sherds	%	ENV	%	Weight	%
import	AARD	1	0.0%	1	0.0%	5	0.0%
import	ALKG	1	0.0%	1	0.0%	5	0.0%
import	ANDA	1	0.0%	1	0.0%	3	0.0%
import	ANDE	34	0.3%	29	0.4%	260	0.2%
import	ANDE SL	1	0.0%	1	0.0%	11	0.0%
import	BLGR	9	0.1%	8	0.1%	84	0.1%
Surrey whiteware {b}	CBW	339	3.2%	167	2.5%	3190	2.2%
Surrey whiteware {c}	CHEA	12	0.1%	9	0.1%	150	0.1%
regional/non local	DEVS	3	0.0%	3	0.0%	86	0.1%
import	DUTR	3	0.0%	3	0.0%	597	0.4%
Surrey whiteware {a}	EARL	9	0.1%	8	0.1%	87	0.1%
import	EGS	12	0.1%	9	0.1%	235	0.2%
'early medieval'	EMCH	7	0.1%	6	0.1%	101	0.1%

Site B: medieval wares							
Category	Fabric	Sherds	%	ENV	%	Weight	%
'early medieval'	EMCR	5	0.0%	5	0.1%	39	0.0%
'early medieval'	EMFL	10	0.1%	7	0.1%	110	0.1%
'early medieval'	EMGR	17	0.2%	15	0.2%	275	0.2%
'early medieval'	EMS	61	0.6%	57	0.8%	1069	0.8%
'early medieval'	EMSH	164	1.6%	139	2.1%	3341	2.4%
'early medieval'	EMSS	78	0.7%	73	1.1%	1299	0.9%
'early medieval'	ESUR	232	2.2%	187	2.8%	3080	2.2%
import	ITALS	9	0.1%	1	0.0%	92	0.1%
Surrey whiteware {a}	KING	653	6.2%	392	5.8%	6869	4.8%
Surrey whiteware {a}	KINGSL	10	0.1%	9	0.1%	238	0.2%
import	LANG	21	0.2%	14	0.2%	119	0.1%
import	LARA	1	0.0%	1	0.0%	5	0.0%
London-area	LCALC	29	0.3%	17	0.3%	482	0.3%
London-area	LCOAR	499	4.8%	383	5.7%	6710	4.7%
London-area	LCOAR CALC	78	0.7%	65	1.0%	767	0.5%
London-area	LCOAR GRIT	9	0.1%	7	0.1%	123	0.1%
London-area	LCOAR SHEL	13	0.1%	10	0.1%	225	0.2%
London-area	LIMP	8	0.1%	4	0.1%	158	0.1%
London-area	LLON	7	0.1%	6	0.1%	164	0.1%
London-area	LLSL	3	0.0%	3	0.0%	174	0.1%
miscellaneous	LMCR	3	0.0%	2	0.0%	42	0.0%
regional/non local	LMHG	6	0.1%	5	0.1%	38	0.0%
'early medieval'	LOGR	316	3.0%	223	3.3%	4619	3.3%
London-area	LOND	5354	51.0%	3105	46.2%	66800	47.1%
Late Saxon	LSS	25	0.2%	24	0.4%	614	0.4%
import	MEDM	12	0.1%	3	0.0%	85	0.1%
regional/non local	MG	130	1.2%	58	0.9%	942	0.7%
regional/non local	MG COAR	6	0.1%	5	0.1%	52	0.0%
miscellaneous	MISC	8	0.1%	6	0.1%	155	0.1%
import	NFM	178	1.7%	86	1.3%	1255	0.9%
import	NFRE	3	0.0%	2	0.0%	20	0.0%
import	NFRY	1	0.0%	1	0.0%	3	0.0%
import	NORG	1	0.0%	1	0.0%	5	0.0%
import	REDP	52	0.5%	37	0.6%	647	0.5%
import	RHGR	4	0.0%	4	0.1%	136	0.1%
import	ROUE	20	0.2%	9	0.1%	129	0.1%
import	ROUL	6	0.1%	3	0.0%	43	0.0%
import	SAIM/N/U	41	0.4%	20	0.3%	534	0.4%
'early medieval'	SATH	1	0.0%	1	0.0%	41	0.0%
regional/non local	SCAR	2	0.0%	2	0.0%	17	0.0%
wheel-thrown coarseware {b}	SHER	1331	12.7%	997	14.8%	21023	14.8%
import	SIEB	3	0.0%	3	0.0%	49	0.0%
import	SIEG	26	0.2%	20	0.3%	446	0.3%
import	SPAM	2	0.0%	2	0.0%	13	0.0%
import	SPOA	31	0.3%	4	0.1%	2606	1.8%
wheel-thrown coarseware {a}	SSW	573	5.5%	430	6.4%	10970	7.7%
'early medieval'	STAM	9	0.1%	6	0.1%	47	0.0%
'early medieval'	THET	13	0.1%	12	0.2%	291	0.2%
Surrey whiteware {c}	TUDG	3	0.0%	3	0.0%	27	0.0%
regional/non local	WINC	6	0.1%	4	0.1%	113	0.1%
	Grand Total	10505	100.0%	6719	100.0%	141915	100.0%

Table 63 Site B: overall quantification of the medieval pottery by sherd count, estimated number of vessels (ENV), and weight

A<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
Late Saxon/ 'early medieval' (Vince and Jenner 1991)							
1	M1	A.2	26	3015	STAM	SPP	No. 228
London-type wares (Pearce and Vince 1985)							
3	M1	A2	47.30	341	LCALC	CHAF	
6	M2	A3	38	2255	LOND ROU	JUG BAL	
12	M2	A5	74	2018	LOND HD	JUG	
13	M2	A5	74	2057	LOND	CAUL	
14	M2	A5	74	2071	LOND	DISH DRIP	
45	M2	A3	56.8	192	LOND	JUG LG SQU	
148	-	-	-	2053	LOND	DISH COND	No. 398
South Herts-type greyware (Blackmore and Pearce 2010)							
4	M1	A2	48.58	287	SHER	JAR ST	
7	M2	A4	61	2150	SHER	JAR ST	
8	M2	A4	61	2142	SHER	JUG	
31	M2	A5	74	2141	SHER	JUG	No. 1265
32	M2	A5	74	2137	SHER	JUG	
149	-	-	-	2021	SHER	JUG BAL	No. 1148
Surrey whitewares (Pearce and Vince 1988)							
5	M2	A4	58	2052	KING	CP	No. 298
19	M2	A5	74	2018	KING HD	JUG	
20	M2	A5	74	2063	KING HD	JUG	
21	M2	A5	74	2071	KING SBOSS	JUG	
22	M2	A5	74	2030	KING	CP	No. 307
23	M2	A5	74	2018	KING	FRYP	No. 334
24	M2	A5	74	2018	KING	DISH DRIP	No. 327
25	M2	A5	74	2018	KING	DISH DRIP	No. 326
26	M2	A5	74	2141	KING	DISH DRIP	No. 328
27	M2	A5	74	2146	KING	SKIL	No. 345
28	M2	A5	74	2018	KING	BOWL	
47	M3	A6	80	2016	EARL	JUG	
49	M3	A6	59.60	2065	KING SBOSS	JUG	
50	M3	A6	85	2056	KING	CP	No. 302
51	M3	A6	85	2055	KING	DISH DRIP	No. 325
52	M3	A6	85	2055	KING	FRYP	No. 332
53	M3	A6	85	2065	EARL	JUG BAL	
76	M3	A7	74	2108	KING	SAUC	No..348
101	M3	A7	104	2006	KING	CP	No. 306
29	M2	A5	74	2018	CBW	BOWL	
30	M2	A5	74	2018	CBW	BOWL	
46	M3	A6	77	2126	CBW	JUG PUZZ	No. 463
63	M3	A7	100	994	CBW	WHIS	
67	M3	A7	102	2107	CBW	JUG CIST	No. 447
68	M3	A7	102	2115	CBW	CAUL	No. 484
77	M3	A7	103	2117	CBW	JUG CIST	
78	M3	A7	74	2108	CBW	BOWL	
79	M3	A7	103	2100	CBW	BOWL FLAR	No. 500
80	M3	A7	103	2097	CBW BIF	BOWL BIF	
81	M3	A7	103	2097	CBW BIF	BOWL BIF	
82	M3	A7	103	2117	CBW BIF	BOWL BIF	
83	M3	A7	103	2108	CBW BIF	BOWL BIF	
84	M3	A7	103	2106	CBW BIF	JAR HAND	
85	M3	A7	103	2097	CBW BIF	CAUL	
69	M3	A7	102	2115	CHEA	CUCU	
70	M3	A7	102	2115	CHEA	TROU	
86	M3	A7	103	2097	CHEA	CP	
87	M3	A7	103	2103	CHEA	MEAS	No. 561
88	M3	A7	103	2097	TUDG	CUP LOB	
89	M3	A7	103	2103	TUDG	CUP	No. 596

A<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
90	M3	A7	103	2112	TUDG	CUP LOB	No. 594
72	M3	A7	102	2102	COLS	CP	
Regional/non-local wares							
17	M2	A5	74	2081	MG	JUG	
18	M2	A5	74	2137	MG	JUG	
15	M2	A5	74	2051	MG CON	JUG CON	
16	M2	A5	74	2061	MG CON	JUG CON	
33	M2	A5	74	2018	SCAR	JUG HD	
34	M2	A5	74	2061	SCAR	JUG	
35	M2	A5	74	2061	SCAR	JUG	
64	M3	A7	100	2054	LMHG	JUG	
65	M3	A7	100	994	LMHG	PIP	
Imports							
37	M2	A5	74	2018	NFM	JUG	
38	M2	A5	74	2031	NFM	JUG	
39	M2	A5	74	2137	NFM	JUG BAL	
56	M3	A6	85	2055	NFM	JUG BAL	
2	M1	A2	47.23	246	ROUE	JUG BAL	
36	M2	A5	74	2063	SAIM	JUG BAL	
57	M3	A6	85	2055	SAIM	PEG	
150	-	-	-	2053	REDP	KUGL	No. 260
9	M2	A4	61	2136	EGS	BEAK	
10	M2	A4	61	2140	EGS	DJ	
11	M2	A4	61	2150	EGS	DJ	
42	M2	A5	74	2063	EGS	JUG	
55	M3	A6	85	2055	EGS	BEAK	
54	M3	A6	85	2055	EGS	JUG	
102	M3	A6	58.32	61	LANG	JUG	
97	M3	A7	103	2097	LANG	JAR	
73	M3	A7	102	2115	SIEG	BEAK	
74	M3	A7	103	2082	SIEG	DBOWL	
66	M3	A7	100	2069	SIEG	DBOWL	
74	M3	A7	102	2102	SIEG	DBOWL	
48	M3	A6	80	2016	SIEG	DJ JACO	
96	M3	A7	103	2097	SIEG	DJ JACO	
92	M3	A7	103	2082	SIEG	BEAK TBEC	
93	M3	A7	103	2100	SIEG	BEAK TBEC	
94	M3	A7	103	2103	SIEG	BEAK TBEC	
95	M3	A7	103	2112	SIEG	BEAK TBEC	
43	M2	A5	74	2149	DUTR	FRYP	
59	M3	A6	85	2055	DUTR	BOWL	
58	M3	A6	85	2055	DUTR	LAVA	
75	M3	A7	102	2115	DUTR	CAUL	
98	M3	A7	103	2082	DUTR	CAUL	
99	M3	A7	103	2113	DUTR	FRYP	
100	M3	A7	103	2103	DUTR	FRYP	
60	M3	A6	85	2055	LCGR	BOWL	
40	M2	A5	74	2051, 2070	MAGR	ALB	
41	M2	A5	74	2137	MAGR	ALB	
37	M2	A5	74	2144	MAGR	ALB	
62	M3	A6	85	2055	MAGR	JAR	
147	P2	A9	59.60	981	POTG	PLATE	
44	M2	A5	74	2018	SPOA	AMPH	
61	M3	A6	85	2042	VALE	BOWL	
London-area post-medieval redwares							
103	P2	A9	59.60	980, 981, 986	PMR	PIP	
90	M3	A7	103	2100	PMRE	JUG	

A<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
Essex redwares							
110	P2	A9	59.60	980, 981, 986	METS	DISH FLNG	
108	P2	A9	59.60	980	PMBL	PORR	
104	P2	A9	59.60	980, 981, 986	PMFR	TPIP	
105	P2	A9	59.60	980, 981	PMFR	BOWL RND	
106	P2	A9	59.60	980, 981	PMFR	BOWL FLAR	
107	P2	A9	59.60	980, 891, 986	PMFRG	BOWL 2HFL	
109	P2	A9	59.60	980, 986	PMBL	MUG CYL	
111	P2	A9	59.60	980	PMFRB	CHP	
112	P2	A9	59.60	980, 981	PMFRG	CHP	
Surrey-Hampshire border wares (Pearce 1992)							
71	M3	A7	102	2085	EBORD	CUP	
113	P2	A9	59.60	980	BORDY	TPIP	No. 163
114	P2	A9	59.60	981	BORDO	TPIP1	
115	P2	A9	59.60	980	BORDG	CHAF	No. 188
118	P2	A9	59.60	980	BORDY	PORR RND	
119	P2	A9	59.60	980	BORDY	PORR CARN	
120	P2	A9	59.60	980, 981, 986	BORDY	PORR CARN	
121	P2	A9	59.60	980, 981	BORDB	MUG RND	
122	P2	A9	59.60	980	BORDB	MUG RND	No. 266
123	P2	A9	59.60	980	BORDO	CUP PED	
124	P2	A9	59.60	980	BORDO	MBOX	No. 388
125	P2	A9	59.60	980, 981, 986	BORDO	CHP1	
126	P2	A9	59.60	980, 981, 986	BORDG	CHP1	
127	P2	A9	59.60	980	BORDY	CHP1	
128	P2	A9	59.60	980	BORDY	CHP2	
116	P2	A9	59.60	981	RBOR	LID	
117	P2	A9	59.60	980, 981	RBORG	DISH FLNG	
Tin-glazed wares							
129	P2	A9	59.60	980	TGW D	CHAR	
130	P2	A9	59.60	980	TGW D	CHAR	
131	P2	A9	59.60	980	TGW D	CHAR	
132	P2	A9	59.60	980	TGW D	DISH	
132	P2	A9	59.60	981	TGW D	DISH	
133	P2	A9	59.60	980	TGW D	DISH	
134	P2	A9	59.60	980	TGW D	DISH	
135	P2	A9	59.60	980	TGW D	DISH FLNG	
136	P2	A9	59.60	981	TGW D	SAUC	
137	P2	A9	59.60	980	TGW B	BOWL RND	
138	P2	A9	59.60	980	TGW D	BOWL	
139	P2	A9	59.60	980	TGW C	PORR A	
140	P2	A9	59.60	980	TGW C	PORR A	
141	P2	A9	59.60	980	TGW B	CUP RND	
142	P2	A9	59.60	980	TGW B	CUP RND	
143	P2	A9	59.60	980, 981	TGW C	MUG	
144	P2	A9	59.60	980, 981	TGW C	MUG RND	
145	P2	A9	59.60	980	TGW B	MUG STR	
146	P2	A9	59.60	980, 981, 986	TGW D	ALB	

Table 64 Site A: medieval and post-medieval pottery of note mentioned in the text by ware category and fabric and with references to finds published in other studies. This includes a large group of sherds from a post-Fire cesspit A[980] (Group 59.60)

B<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
Late Saxon/ 'early medieval' (Vince and Jenner 1991)							
10	M1	B3.4	18	407	EMGR	JAR ST	
8	M1	B3.1	19	451	EMSH	CP	No. 104
9	M1	B3.4	18	407	EMSH	CP	No. 105
17	M1	B4.1	20	536	EMSH	CP	No. 106
18	M1	B4.1	20	536	EMSH	DISH	No. 118
1	M1	B3.1	9	620	EMSS	JAR	
7	M1	B3.4	19	451	EMSS	CP	
2	M1	B3.1	9	627	LOGR	JAR	
11	M1	B3.4	19	451	LOGR	SPP	
19	M1	B4.1	20	483	LOGR	CP	
20	M1	B4.1	20	536	LOGR	SPP	
14	M1	B3.4	18	407	STAM	BOT	
London-type wares (Pearce and Vince 1985)							
13	M1	B3.4	19	451	LCALC	JUG	
31	M1	B4.1	20	536	LCOAR	SPP	
52	M2	B5.1	31B	484	LCOAR	LOUV	No. 451
58	M2	B5.1	31B	467	LCOAR	CP	
77	M2	B6.1	42	356	LCOAR	JUG	
3	M1	B3.1	9	620	LCOAR SHEL	CP	
4	M1	B3.1	9	620	LCOAR SHEL	CP	
129	P1	B8.2	96	143	LLSL	DJ	
-	M2	B7.2	52b	301	LOND NFR	JUG SQU	No. 274?
5	M1	B3.3	17	524	LOND	DISH DRIP	
32	M1	B4.1	20	483	LOND NFR	JUG EBAL	
33	M1	B4.1	20	483	LOND	DISH DRIP	
34	M1	B4.1	20	483	LOND	CHAF	
35	M2	B5.1	29	457	LOND EAS	JUG ERND	
36	M2	B5.1	29	457	LOND	JUG BAL	
37	M2	B5.1	29	457	LOND ROU	JUG SP	
44	M2	B5.1	31B	484	LOND ROU	JUG BAL	No. 67
45	M2	B5.1	31B	484	LOND ROU	JUG BAL	No. 87
46	M2	B5.1	31B	484	LOND ROU	JUG BAL	No. 96
47	M2	B5.1	31B	484	LOND NFR	JUG	No. 268
48	M2	B5.1	31B	484	LOND NFR	JUG	No. 271
49	M2	B5.1	31B	484	LOND	PIP	
50	M2	B5.1	31B	484	LOND	CHAF	
51	M2	B5.1	31B	484	LOND NFR	AQUA	No. 411
66	M2	B5.1	31B	394	LOND ROU	JUG	No. 60
67	M2	B5.1	31B	394	LOND ROU	JUG	No. 8d
68	M2	B5.1	31B	394	LOND NFR	JUG BAL	No. 133
69	M2	B5.1	31B	394	LOND NFR	JUG	No. 10a
70	M2	B5.1	31B	394	LOND NFR	JUG	No. 10f
71	M2	B5.1	31B	394	LOND PELL	JUG LGSQU	
72	M2	B5.1	31B	394	LOND HD	JUG	No. 269
73	M2	B5.1	31B	394	LOND WSD	JUG	No. 294
76	M2	B6.1	42	356	LOND NFR	JUG BAL	No. 132
78	M2	B6.2	40	376	LOND NFR	JUG BAL	No. 10d?
79	M2	B6.2	40	325	LOND	LOUV	
83	M2	B6.3	44	310	LOND ROU	JUG BAL	No. 100
84	M2	B6.3	45	374	LOND	LID	
86	M2	B7.1, B7.2	54, 52b	386, 301	LOND	JUG EBAL	
87	M2	B7.1	54	468	LOND NFR	JUG	No. 10e?
88	M2	B7.1	54	386	LOND NFR	JUG PEAR	
89	M2	B7.1	54	468	LOND HD	JUG	No. 254
90	M2	B7.1	54	386	LOND HD	JUG	No. 266
91	M2	B7.1	54	386	LOND HD	JUG	No. 11e

B<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
92	M2	B7.1	54	468	LOND	FINI	No. 433
93	M2	B7.1	54	386	LOND	LAMP	
112	M2	B7.1	49	59	LOND ROU	JUG BAL	No. 95
113	M2	B7.1	49	59	LOND NFR	JUG BAL	No. 11d
115	M2	B7.2	59	382	LOND HD	JUG LGRND	No. 272
116	M2	B7.2	59	355	LOND	JUG ANTH	No. 218
120	M2	B7.2	58	303	LOND NFR	JUG BAL	No. 137
123	M2	B7.2	52a	435	LOND HD	JUG	No. 257
127	M3	B8.1	74	269	LOND HD	JUG	
Shelly-sandy ware (Blackmore and Pearce 2010)							
12	M1	B3.4	19	451	SSW	CP	No. 119
21	M1	B4.1	20	553	SSW	CP	No. 62
22	M1	B4.1	20	536	SSW	CP	
23	M1	B4.1	20	483	SSW	CP	
24	M1	B4.1	20	483	SSW	FRYP	
25	M1	B4.1	20	536	SSW	DISH	
38	M2	B5.1	31B	484	SSW	CP	No. 78
54	M2	B5.1	31B	467	SSW	CP	
80	M2	B6.2	40	325	SSW	DISH FLAR	No. 159
122	M2	B7.2	52a	435	SSW	CP	No. 67
South Herts-type/Limpsfield greywares (Blackmore and Pearce 2010)							
57	M2	B5.1	31b	467	LIMP	CP	No. 1318
65	M2	B5.1	31b	394	LIMP	CP	No. 1317
26	M1	B4.1	20	483	SHER	CP	No. 841
27	M1	B4.1	20	483	SHER	CP	No. 843
28	M1	B4.1	20	483	SHER	CP	No. 902
29	M1	B4.1	20	483	SHER	CP	No. 915
30	M1	B4.1	20	536	SHER	JUG	No. 1006
39	M2	B5.1	31b	484	SHER FINE	CP	No. 813
40	M2	B5.1	31b	484	SHER	CP	No. 840
41	M2	B5.1	31b	484	SHER	CP	No. 1037
42	M2	B5.1	31b	484	SHER	JUG RND	No. 1197
43	M2	B5.1	31b	484	SHER	DISH FLAR	No. 1125
55	M2	B5.1	31b	467	SHER	CP	No. 827
56	M2	B5.1	31b	467	SHER	CP	No. 1023
60	M2	B5.1	31b	394	SHER	CP	No. 826
61	M2	B5.1	31b	394	SHER	CP	No. 839
62	M2	B5.1	31b	394	SHER	BOWL	No. 1079
63	M2	B5.1	31b	394	SHER	CP	
64	M2	B5.1	31b	394	SHER	JUG	No. 1250
96	M2	B7.1	54	386	SHER	JUG	No. 1132
97	M2	B7.1	54	386	SHER COAR	JUG	No. 1137
98	M2	B7.1	54	468	SHER	JUG	No. 1145
99	M2	B7.1	54	386	SHER	JUG	No. 1273
100	M2	B7.1	54	386	SHER	JUG	No. 1294
101	M2	B7.1	54	386	SHER	JUG	
102	M2	B7.1	54	386	SHER	JUG	
103	M2	B7.1	54	386	SHER	CP SM	No. 818
104	M2	B7.1	54	386	SHER	CP	No. 833
105	M2	B7.1	54	386	SHER	CP	No. 1007
106	M2	B7.1	54	386	SHER	CP	No. 1008
107	M2	B7.1	54	386	SHER	JAR	No. 1009
108	M2	B7.1	54	386	SHER	CP	No. 1044
109	M2	B7.1	54	386	SHER	CP	No. 1045
110	M2	B7.1	54	386	SHER	BOWL RND	No. 1088
111	M2	B7.1	54	386	SHER	BOWL	No. 1089
121	M2	B7.2	58	303	SHER	JUG	No. 1296

B<P> no	Period	Sub-period	Group	Context	Fabric	Form	Pub ref
124	M2	B7.2	52a	435	SHER	CP SM	No. 821
125	M2	B7.2	52a	436	SHER	JUG RND	No. 1158
Surrey whitewares (Pearce and Vince 1988)							
81	M2	B6.2	40	325	KING POLY	JUG	
94	M2	B7.1	54	386	KINGSL	JUG LGRND	
95	M2	B7.1	54	386	KING POLY	JUG SP	
126	M3	B8.1	46	283	KING	LID	
114	M2	B7.1	49	59	CBW	BOWL SP	
Regional/non-local wares (Pearce *et al.* 1982)							
6	M1	B3.3	17	524	DEVS	JUG SP	
82	M2	B6.2	40	325	MG	LOUV	No. 436?
15	M1	B3.4	19	451	WINC	PTCH	
15	M1	B4.1	20	483	WINC	PTCH	
Imports							
74	M2	B5.1	31B	394	NFM	JUG	
75	M2	B5.1	31B	394	NFM	JUG	
75	M2	B7.1	54	386	NFM	JUG	
117	M2	B7.2	59	382	NFM	JUG	
115	M2	B7.1	54	468	SAIM	JUG	
128	M3	B8.1	91	166	LANG	CUP	
128	M3	B8.1	84	222	LANG	CUP	
131	P2	B9	109	147	LANG	JUG	
59	M2	B5.1	31B	467	RHGR	JAR	
16	M1	B3.4	19	451	ANDE	SPP	
130	P1	B8.3	103	15	SPGR	JAR	
144	P1	B10	137	88	SPOW	JAR	
London-area post-medieval redwares							
133	P3	B10	137	88	PMR	BOWL HND	
Essex redwares							
134	P3	B10	137	88	PMFR	PORR	
Surrey-Hampshire border wares (Pearce 1992)							
135	P3	B10	137	88	BORDG	BOWL HND	
137	P3	B10	137	88	BORDG	PORR	
138	P3	B10	137	88	BORDG	PORR	Omit??
136	P3	B10	137	88	BORDY	DISH FLNG	
141	P3	B10	137	88	BORDY	STOOP	
139	P3	B10	137	88	RBOR	PORR	
140	P3	B10	137	88	RBOR	COL	
Tin-glazed wares							
132	P3	B10	135	3	TGW C	VASE	
142	P3	B10	137	88	TGW C	CNDST	
Non-local wares							
143	P3	B10	137	88	STSL	MUG	

Table 65 Site B: medieval and post-medieval pottery of note mentioned in the text, by ware category and fabric and with references to finds published in other studies. This includes some sherds from periods P2 and P3 (after 1666).

Site A: medieval						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/ 'early medieval'	290	5.9%	251	7.6%	4553	4.5%
Imports	478	9.7%	223	6.7%	10281	10.1%
London-type wares	1596	32.4%	1104	33.3%	30201	29.7%
regional/non-local wares	664	13.5%	440	13.3%	10225	10.1%
Kingston-type and Earlswood wares	492	10.0%	390	11.7%	10059	9.9%
coarse Surrey-Hampshire ware	843	17.1%	530	16.0%	23700	23.3%
Cheam and Tudor Green wares	190	3.9%	119	3.6%	4933	4.9%
shelly-sandy ware	193	3.9%	145	4.4%	3159	3.1%
south Herts-type/Limpsfield wares	186	3.8%	118	3.6%	4546	4.5%
Grand Total	4932	100.0%	3320	100.0%	101657	100.0%
Site B: medieval						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	938	8.9%	755	11.2%	14926	10.5%
Imports	473	4.5%	264	3.9%	7387	5.2%
London-type wares	5992	57.0%	3596	53.5%	75445	53.2%
regional/non-local wares	11	0.1%	8	0.1%	197	0.1%
Kingston-type and Earlswood wares	153	1.5%	77	1.1%	1248	0.9%
coarse Surrey-Hampshire ware	672	6.4%	409	6.1%	7194	5.1%
Cheam and Tudor Green wares	339	3.2%	167	2.5%	3190	2.2%
shelly-sandy ware	15	0.1%	12	0.2%	177	0.1%
south Herts-type/Limpsfield wares	573	5.5%	430	6.4%	10970	7.7%
Early medieval	1339	12.7%	1001	14.9%	21181	14.9%
Grand Total	10505	100.0%	6719	100.0%	141915	100.0%

Table 66 Site A and site B: overall quantification of the medieval pottery from contexts discussed in this report, by ware category, sherd count, estimated number of vessels (ENV), and weight

Site A: period M1						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	185	21.4%	169	30.3%	2856	25.4%
Imports	145	16.7%	26	4.7%	698	6.2%
London-type wares	321	37.1%	235	42.2%	3988	35.4%
regional/non-local wares	21	2.4%	4	0.7%	22	0.2%
Kingston-type and Earlswood wares	5	0.6%	3	0.5%	67	0.6%
shelly-sandy ware	139	16.1%	101	18.1%	2136	19.0%
south Herts-type /Limpsfield wares	50	5.8%	19	3.4%	1488	13.2%
Grand Total	866	100.0%	557	100.0%	11265	100.0%
Site B: period M1						
Category	Total	%	ENV	%	Weight	%
Late Saxon/'early medieval'	546	30.4%	452	32.5%	9613	32.2%
Imports	86	4.8%	65	4.7%	1029	3.4%
London-type wares	845	47.0%	616	44.3%	13066	43.7%
regional/non-local wares	7	0.4%	5	0.4%	182	0.6%
Kingston-type and Earlswood wares	2	0.1%	2	0.1%	39	0.1%
shelly-sandy ware	254	14.1%	205	14.7%	4994	16.7%
south Herts-type /Limpsfield wares	57	3.2%	46	3.3%	924	3.1%
Miscellaneous	2	0.1%	1	0.1%	43	0.1%
Grand Total	1799	100.0%	1392	100.0%	29890	100.0%

Table 67 Site A and site B: broad quantification of the medieval pottery from period M1, by ware category, sherd count, estimated number of vessels (ENV) and weight (grams)

Site A: period M2						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	101	4.5%	78	4.8%	1635	3.9%
imports	122	5.5%	84	5.2%	2140	5.1%
London-type wares	992	44.6%	711	43.7%	19880	47.4%
non-local glazed wares	453	20.4%	311	19.1%	7152	17.1%
Kingston-type and Earlswood wares	334	15.0%	274	16.9%	6584	15.7%
coarse Surrey-Hampshire ware	48	2.2%	40	2.5%	1174	2.8%
Cheam and Tudor Green wares	2	0.1%	2	0.1%	15	0.0%
shelly-sandy ware	52	2.3%	42	2.6%	931	2.2%
south Herts-type/Limpsfield wares	120	5.4%	84	5.2%	2417	5.8%
Grand Total	2224	100.0%	1626	100.0%	41928	100.0%
Site B: period M2						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	373	4.9	285	6.0%	4905	4.9%
Imports	299	3.9	147	3.1%	4747	4.8%
London-type wares	4780	62.6	2768	58.6%	55738	56.1%
regional/non-local wares	72	0.9	38	0.8%	480	0.5%
Kingston-type and Earlswood wares	524	6.9	318	6.7%	5917	6.0%
coarse Surrey-Hampshire ware	51	0.7	35	0.7%	863	0.9%
Cheam and Tudor Green wares	1	0.0	1	0.0%	15	0.0%
shelly-sandy ware	303	4.0	214	4.5%	5801	5.8%
south Herts-type /Limpsfield wares	1227	16.1	915	19.4%	18869	19.0%
Miscellaneous	6	0.1	5	0.1%	96	0.1%
Grand Total	7636	100.0%	4726	100.0%	99431	100.0%

Table 68 Site A and site B: broad quantification of the medieval pottery from period M2, by ware category, sherd count, estimated number of vessels (ENV) and weight (grams)]

Site A: period M3						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	2	0.1%	2	0.2%	27	0.1%
Imports	202	11.4%	105	9.7%	7331	15.5%
London-type wares	275	15.5%	152	14.1%	6159	13.0%
regional/non-local wares	182	10.3%	117	10.8%	2923	6.2%
Kingston-type and Earlswood wares	143	8.1%	106	9.8%	3353	7.1%
coarse Surrey-Hampshire ware	764	43.1%	467	43.3%	21925	46.3%
Cheam and Tudor Green wares	187	10.6%	116	10.8%	4913	10.4%
shelly-sandy ware	2	0.1%	2	0.2%	92	0.2%
south Herts-type /Limpsfield wares	15	0.8%	14	1.3%	601	1.3%
Grand Total	1772	100.0%	1079	100.0%	47324	100.0%
Site B: period M3						
Category	Sherds	%	ENV	%	Weight	%
Late Saxon/'early medieval'	2	0.6%	2	1.0%	47	1.5%
Imports	30	9.0%	19	9.7%	126	4.1%
London-type wares	129	38.7%	69	35.2%	1366	43.9%
regional/non-local wares	31	9.3%	17	8.7%	208	6.7%
Kingston-type and Earlswood wares	71	21.3%	37	18.9%	487	15.7%
coarse Surrey-Hampshire ware	36	10.8%	24	12.2%	399	12.8%
Cheam and Tudor Green wares	2	0.6%	2	1.0%	6	0.2%
shelly-sandy ware	6	1.8%	5	2.6%	81	2.6%
south Herts-type /Limpsfield wares	26	7.8%	21	10.7%	390	12.5%
Grand Total	333	100.0%	196	100.0%	3110	100.0%

Table 69 Site A and site B: broad quantification of the medieval pottery from period M3, by ware category, sherd count, estimated number of vessels (ENV) and weight (grams)

Swan Lane (site A) and Seal House (site B): medieval wares

This part and the next comprise detailed analysis of the medieval and post-medieval pottery from sites A and B only: quantification of types, their regional and foreign sources. Within the first section are two tables which list the sherds selected for future study from both periods together, from site A (Swan Lane) at Table 64 and from site B (Seal house) at Table 65.

Introduction

The stratified medieval material amounts to 4935 sherds (3326 ENV, 101.697kg) from Swan Lane, and 10505 sherds (6719 ENV, 141.915kg) from Seal House. Total figures for the medieval fabrics from each site are given in Table 62 and Table 63, which also correlate the fabric types with the broad categories used in the quantification tables for each period (Table 64 to Table 67). In addition, there are small amounts of residual medieval pottery which are included in the overviews for each of the two post-medieval periods (Table 73 and Table 74). Unless otherwise stated, these figures form the basis of percentages quoted in the text, depending on the ware type and measure used. As in the main text above, group and context numbers are prefixed by the site letter code (e.g. A12, A[345]; B67, B[890]), but where periods are quoted it should be remembered that each site has its own sequence within the broader framework and so comments tend to be site specific. Context details are given for unpublished sherds of interest, but those for finds that have previously been published are listed in Table 64 and Table 65. The main text and all tables of quantification were completed in November 2008, with some revisions in 2009, 2010 and 2016. The totals in these tables and in the text will differ from those used in the analysis of shelly-sandy ware and greywares (Blackmore and Pearce 2010, 306–7, fig 6), and must be taken as the definitive statement.

The assemblages from periods M1, M2 and M3 mainly comprise sherds of fairly local or regional origin, but, not surprisingly for waterfront sites, there are some English wares from further afield and a wide variety of imported wares. All sherds of late Saxon shelly ware are definitely residual and probably also most wares that, for historic reasons, are described as 'early medieval', some doubtless derived from earlier deposits on sites A and B, the pottery from which has been summarised by Vince (1991, 139–42).

Late Saxon and 'early medieval' fabrics

The earliest post-Roman pottery from sites A and B is late Saxon shelly ware (LSS) from Oxfordshire, dated to AD 900–1050. Ten wares are of local or regional origin, comprising early medieval chalk-tempered ware (EMCH), early medieval flint-tempered ware (EMFL), early medieval grog-tempered ware (EMGR), EMIS, early medieval sand-tempered ware (EMS), early medieval shell-tempered ware (EMSH), early medieval sand- and shell-tempered ware (EMSS), early Surrey ware (ESUR) and London-area greyware (LOGR). From further afield are St Neots ware (NEOT), Stamford ware (STAM) and Thetford ware (THET). As the different fabrics and associated form types have been published elsewhere (Vince and Jenner 1991), they are not repeated here. Most of these wares went out of use *c.* 1150, but LOGR continued in use until *c.* 1170. In period M1, LSS amounts to only four residual sherds from Swan Lane (4 ENV, 42g) and 10 sherds from Seal House (9 ENV, 363g). Other early medieval wares total 181 sherds from Swan Lane (165 ENV, 2.814kg) and 446 sherds from Seal House (443 ENV, 9.250kg). Some of the latter could be stratified but all finds from later periods are residual; both sites show a consistent decline in numbers over time (Table 76 to Table 78).

With the exception of early Surrey ware (*c* 1.6%–1.7% by sherd count and weight), none of the 'early medieval' wares amounts to more than 1% of the total medieval assemblage from Swan Lane. Considering these fabrics as a single group, however, ESUR comprises *c.* 30% of the total 290 sherds, EMSS and EMSH comprise *c.* 19% and *c.* 17% respectively (*c* 33% by weight). At Seal House LOGR is the most common fabric type, comprising 33% of the 938 'early medieval' sherds (31% by weight) and *c.* 3% of the total medieval assemblage. Of note in period M1 are a cooking pot with incised wavy line decoration, B<P19> (B20, B[483]), a rouletted jar, B<P2> (B9, B[627]) and one or two rouletted pitchers, B<P11> (B19, B[451]) and B<P20> (B20, B[536]). Other finds include a jar with thumbed rim and a cooking pot in EMSS (B<P1>; B9, B[620]; B<P7>; B19, B[451]), three cooking pots and a dish in EMSH (B<P8>; B<P9>, B<P17> and B<P18>; Vince and Jenner 1991, fig 2.45, nos 104, 105; fig 2.46, nos 116, 118) and a jar with rouletted decoration in EMGR, B<P10> (B18, B[407]).

Wares from outside the general region found at Swan Lane comprise one sherd of Thetford ware, one of St Neots ware and five sherds of Stamford ware (Kilmurry 1980; McCarthy and Brooks 1988, 154–6), including a green-glazed handle with inlaid twist decoration A<P1> (Vince and Jenner 1991, fig 2.101, no.228; cf. Kilmurry 1980, fig 78). The range at Seal House is much the same, with 13 sherds of Thetford ware, one of sandy Thetford ware and nine of Stamford ware, the latter including part of a bottle, B<P12> (M1: B18, B[407]). Some of the imported sherds might also fall into this chronological group (e.g. red-painted/Pingsdorf-type ware, A<P148>).

Regional coarsewares

Shelly-sandy ware

Shelly-sandy ware (SSW), the latest of the shell-tempered wares, has a general date range of *c* 1140–1220 (Blackmore and Vince 1993; Blackmore and Pearce 2010). At Swan Lane this ware (145 ENV, 3.159kg) comprises only *c.* 3–4% of the total of the stratified medieval pottery, but a much larger assemblage was found at Seal House, where it is the fourth most common ware by ENV and weight (6.4% and 7.8% of the medieval assemblage), and the fifth most common by sherd count (573 sherds, 5.5%). In chronological terms (Table 76 to Table 78), the ware is most abundant in period M1, being the third most common by ENV and weight at Swan Lane (fourth most common by sherd count). At Seal House it is the third most common by all units of measure and the second most common contemporary ware. In period M2 the amount drops significantly, to *c.* 2–3% at Swan Lane and between 4% and *c.* 6% at Seal House. On both sites there are virtually no sherds from period M3, and although the ware amounts to 2–3% of the pottery from Seal House, this is due to the small size of the assemblage rather than other factors.

Most sherds are from cooking pots and jars. Two of the Swan Lane finds have thumbed rims (M1: A48.15, A[419A]; M2: A38, A[2252]) and two have applied strips (M1: A48.15, A[419A];

M2: A58.16, A[47]). One sherd has spots of glaze on the outer wall (M2: A56, A[192]). Cooking pots and jars from Seal House include at least six with thumbed rims (B<P13>; Blackmore and Pearce 2010, no. 119), one of which has two sets of thumb impressions, B<P22> (B20, B[536]); some 13 have applied thumbed strips, including B<P23> (B20, B[483]). Other rims from period M1 include B<P21> (no. 62), while those from period M2 include <B38> (no. 78) and B<P54> (both from B31b, B[484]), and B<P122> (no. 67).

Other forms from Swan Lane comprise part of a curfew (period M1: A48.29, A[377]) and rims from two possible cauldrons (period M1: A26, A[3015]; A47.30, A[341]). At Seal House, sherds from three bowls, five dishes, including B<P25> (Blackmore and Pearce 2010, no. 160) and B<P80> (no. 159) were found, together with a curfew and frying pan B<P24> (no. 163). The latter has an applied thumbed strip on the bridge of the socketed handle). Of particular interest is part of a probable dripping dish with internal green glaze, found in period M2 (B54, B[386]), a unique find in this ware type.

South Hertfordshire and Limpsfield-type greywares

This category includes sherds recorded as early south Herts-type greyware (ESHER), South Herts-type greyware (SHER), North Middlesex greyware (NMDX) and Limpsfield greyware (LIMP). These wares form the subject of a detailed survey (Blackmore and Pearce 2010), which places their dating in London at *c.* 1170–1350 for SHER and *c.* 1150–1300 for LIMP (although the industries themselves may have been longer-lived). For earlier studies of the Hertfordshire wares see Sheppard (1977), Havercroft and Turner-Rugg (1987), Salveson and Blackmore (1985), Turner-Rugg (1995); the Limpsfield wares have been discussed by Renn (1964), Prendergast (1973; 1974) and Jones (2000, 218–9, 231–2). Of the 193 sherds found at Swan Lane, 186 are of SHER, seven were identified as LIMP and single sherds were recorded as ESHER, NMDX and MISC. At Seal House a much larger amount was found, totalling 1331 sherds of SHER and eight of LIMP (total 21.181kg). The former is the second most common ware on this site, comprising *c.* 13% of the total assemblage by sherd count and *c.* 15% by ENV and weight. The largest amounts are from groups B31b and B54.

As shown in Table 67 and Table 68, these ware types are present, but not overly common, in period M1 (50 sherds, 19 ENV at Swan Lane; 57 sherds, 46 ENV at Seal House), although by weight they are the fourth most abundant type at Swan Lane and the fifth at Seal House. In period M2 the number of sherds increases, but at Swan Lane they are smaller in size, so that the overall proportion by sherd count, ENV and weight is consistently between *c* 5% and *c* 6%. At Seal House, by contrast, these coarsewares total *c.* 16% of the M2 assemblage by sherd count, and *c.* 19% by ENV and weight. By period M3 the amount has dropped dramatically, with only 26 sherds from Seal House, where the relatively high percentage due to the small size and limited range of the assemblage. At Swan Lane the 16 sherds make up only *c.* 1% of the period assemblage. Decoration mainly consists of thumbing on the jugs or rilling on the jars, but a few sherds have combed or incised wavy lines or applied thumbed strips and some from Seal House have thumbed cordons while others have nicked or notched bands.

Cooking pots and jars are the most common types on both sites, with 152 sherds (94 ENV) from Swan Lane plus part of a possible bunghole jar (period M3: A100, A[2054]), and three storage jars. The latter comprise one large rim sherd (diameter 360mm), one base with continuous thumbing around the angle (A<P4>; period M1: A48 (A[287]; cf. Pearce in 2010, nos 1055–8) and one with a wide, deeply thumbed applied strip (A<P7>; period M2, A4, A61, A[2150]). At Seal House sherds from 760 vessels were recorded as cooking pots and 189 as jars. Cooking pot rims of note from period M1 include B<P26>, B<P27> B<P28>, B<P29> (all from B20, B[483]; Blackmore and Pearce 2010, nos 841, 843, 902, 915). From period M2, group B31b are B<P39>, B<P40>, B<P41> (all B[484]; nos 813, 840, 1037), B<P55>, B<P56>, B<P57> (all B[467]; nos 827, 1023, 1318); B<P60>, B<P61>, B<P63>, B<P65> (all B[394]; nos 826, 839, 1317). From group B54 are B<P103>, B<P104>, B<P105> (thumbed cordon), B<P106> (nicked decoration), B<P108>, B<P109> (all B[386]), while B<P124> is from B52a (B[435]). The jars include B<P107>, with a thumbed cordon (B89, B[237]; no. 1009). In addition there are sherds from two pipkins.

Jugs are much less common, with only ten sherds from nine vessels at Swan Lane; these include A<P8> (period M2: A61, A[2142], A<P149> [not assigned to a phase]), and three thumbed handles. One of these has neatly paired impressions (A<P31>; Blackmore and Pearce 2010, no. 1265), while on another they are deeper and form a chevron (A<P32>; M2: A74, A[2137]). At Seal House up to 43 jugs are represented. Those from period M2 include B<P30>, B<P124> (both B20, B[536]), B<P42> (B31b, B[484]), B<P64> (B31b, B[394]), B<P96>, B<P97>, B<P101>, B<P102> (all B31b, B[386]; nos 1132, 1137), B<P98>, B<P99> (B54, B[468]; nos 1145, 1273), B<P100> (B54, B[368]; no. 1294), B<P121> (B58, B[303]) and B<P125> (B52a, B[436]). Several of these have decoratively slashed or thumbed handles, while B<P125> has a rouletted cordon.

Other forms from Swan Lane are represented by sherds from two bowls, a bowl/dish, two dishes, two cauldrons, a pipkin and a drinking jug. From Seal House are sherds from nine bowls, two dishes and three curfews, two with applied strips. The bowls include one with a slightly carinated profile, B<P62> (Blackmore and Pearce 2010, no. 1079) and two with nicked or stabbed decoration around the top of the rim, B<P110> B<P111> (nos 1088, 1089). The dishes include B<P43> (no. 1125).

London-type wares

London-type wares have been discussed by Pearce *et al.* (1985) and Blackmore and Vince (1993). They fall into two groups, a range of coarse wares (LCOAR, LCOAR CALC, LCOAR GRIT, LCOAR SHEL) and the finer wares (LCALC, LOND, LLON, LLSL). Taken together, these various types amount to 1598 sherds (1106 ENV, 30.271kg) from Swan Lane; this equates to *c.* 32–33% of the medieval assemblage by sherd count and ENV, and *c.* 30% by weight. At Seal House, London-type wares are by far the most common category, comprising *c.* 57% of the stratified medieval sherds and *c.* 53% of the total ENV and weight (5924 sherds, 3574 ENV and a massive 75.023kg). The coarse fabrics (LCOAR etc) mainly went out of use by *c.* 1200, while LOND seems to have gone out of use around the Black Death. The late medieval fabrics LLON and LLSL are dated from *c.* 1400 to *c.* 1500, suggesting a possible hiatus in supply of *c.* 50 years, although production may have been continuous.

The coarse fabrics are in the minority at Swan Lane, with only 144 sherds (115 ENV, 2.041kg), compared to 1402 sherds of LOND and LCALC (961 ENV, 26.266kg). The later fabrics (LLON, LLSL) amount to 51 sherds (28 ENV, 1.894kg). As shown in Table 67 and Table 68, London-type wares are collectively the most common category in both periods M1 and M2, rising from *c.* 37% to *c.* 45% of the sherd count (*c* 42% to *c.* 44% by ENV and *c.* 35% to *c.* 48% by weight). There is a noticeable decline in period M3, when they account for *c.* 16% of the total sherds, *c.* 14% by ENV, *c.* 13% by weight). At Seal House these wares are consistently the most abundant, comprising *c.* 47% of the total sherd count in period M1 (*c* 44% by ENV and weight); in period M2 this rises to *c.* 62% by sherd count (*c* 58% and *c.* 56% by ENV and weight). The amount is still relatively high in period M3 (35%–44% depending on unit of measure).

Coarse London-type ware

The coarser fabrics (LCOAR and its variants) were mainly used for jars and cooking pots (74 out of 137 ENV at Swan Lane; 337 out 464 ENV at Seal House). Those from period M1 at Seal House include two rims in LCOAR SHEL (B<P3>, B<P4>; B9, B[620]); from period M2 there is a jar with a horizontal band of oblique impressions around the shoulder (B<P58>; B31b, B[467]). Other forms from Swan Lane comprise sherds from two dishes, a dripping dish, a possible spouted pitcher and up to 38 jugs. Some of the latter have white slip decoration and one has incised wavy lines (M1: A48, A[421]). At Seal House jugs are also the second most common form, with up to 99 ENV; there are also sherds from up to 10 spouted pitchers, including B<P31>; M1: B20, B[536]). This and most of the other examples have rouletted decoration, although one has incised wavy lines. One of the jug bases is extremely crudely made and may be a waster (B<P77>). Also present are sherds from a roughly finished thick-walled bottle (M2: B81, B[231]) similar to finds from St Mary Clerkenwell and the Fleet Valley (Blackmore 1993, 133; 2012, 51, 227, fig 31, no. 49), three bowls and three dishes, a cauldron and two pipkins, two dripping dishes, a curfew and two louvers. The latter include B<P52> (Pearce *et al.* 1985, fig 82, no. 451).

London-type ware and calcareous London-type ware

Some 87% of the LOND sherds from Swan Lane and *c.* 93% from Seal House are from jugs (*c* 76% by weight at Swan Lane, *c.* 90% at Seal House). Of these, jugs in the early style (ie dating to the 12th century) are the third most common type at Swan Lane, with *c.* 178 sherds from up to 135 early rounded examples. Related to these are sherds from a few jugs with pellet decoration and/or of early baluster form and two sherds from a spouted jug, probably of large squat form (M2: A56, A[192]). The latter, A<P45>, has a simple, slightly thickened rim and a complete strap handle with a row of thumbing down the centre of the back, flanked by rows of smaller dimples, each with a fingernail impression towards the upper edge. The clear glaze has almost completely worn away on the handle, but it survives on the other rim sherd, which has applied floral rosettes (similar to later Dutch vessels) on the neck. This is, therefore, a hybrid piece, partly in the early style and partly in the north French style, and on this basis could date to *c.* 1180–1200. Another large squat jug, from an unphased context ([2278]) has an expanded, flat-topped rim and broad strap handle with exaggerated thumbed strip down the back (A<P102>; cf. Pearce *et al.* 1985, fig 18).

Although tenuous evidence from Billingsgate and Seal House suggested that Rouen-style jugs may have been introduced in the late 12th century (Pearce *et al.* 1985, fig 9; Vince 1991c, 268), this was not confirmed until sherds were found securely stratified beneath one of the piers of London Bridge, rebuilt in stone between 1176 and 1210 (Pearce 2001, 197; Blackmore and Pearce 2010, 14, 21,70). This jug form must, therefore, predate the completion of the structure. Sherds were also found in a large pit group at St Mary Clerkenwell, Islington thought to be associated with documented works of *c.* 1185. From this, Rouen-copy jugs in LOND are currently dated to *c.* 1180–1270, although a start date of *c.* 1200 may be more appropriate; it is also possible that this decorative style reached other parts of the country later than London. The finds from Swan Lane (sherds from *c.* 59 examples) include an unusual flanged rim from period M2 (A<P6>; A38, A[2255]). Rouen copy jugs are less abundant than those in the north French style (also 1180–1270), which are the second most common type (260 sherds, 174 ENV). These have a wide range of decoration and some could belong to the highly decorated group (dated to 1240–1350), which includes part of a jug with ring-and-dot stamps and another with repoussé raspberry bosses A<P12>. Baluster jugs (1180–1350) are the most common category, with over 460 sherds (*c* 312 ENV). Also present are sherds from three possible miniature jugs, two squat jugs, 13 conical jugs and part of an anthropomorphic jug (period M2: A74, A[2051]). One sherd from M2 (A<P15>; A74, A[2051]) was quantified as Mill Geen ware but is in fact a London ware (cf. Pearce *et al.* 1985, fig 36, no. 120); as the form was made at both centres it is unclear which industry was copying the other.

Early style jugs are the fourth most common group at Seal House (436 sherds, 341 ENV), including a rim and handle with nicked decoration (B<P35>; M2: B29, B[457]). Probably contemporary with these are a few large squat jugs, including B<P71> (M2: B31b, B[394]) and sherds from an early baluster jug with complex rouletted decoration (B<P86>; Pearce *et al.* 1985, fig 61, no. 275; see also M2: B52b, B[301], B54, B[386]). Rouen-style jugs (582 sherds, *c.* 295 ENV) come in third place. Those from period M2 include B<P37> (B29, B[457]): B<P44>, B<P45>, B<P46> (B31b, B[484]; fig 28, no. 67; fig 31, no. 87, fig 32, no. 96), B<P66>,B<P67> (B31b, B[394]; no. 60, pl 8d), B<P83> (B44, B[310]; fig 32, no.100), B<P112> (B49, B[59]; fig 32, no. 95). On this site general baluster jugs (*c* 1388 sherds, 933 ENV) are the second most common category, while jugs in the North French style are the most common (1667 sherds, *c.* 978 ENV); most are balusters but other forms are also represented, such as large rounded and pear-shaped. Those from period M1 include two possible early baluster jugs (B<P32>; B20, B[483]). Those from period M2 include B<P47>, B<P48>, B<P51> (B31b, B484; fig 61, nos 268, 271), B<P68>, B<P69>, B<P70> (B31b, B[394]; no. 133; pls 10a, 10f), B<P78> (B40, B[376]; pl 10d), B<P87> (pl 10e?), a pear-shaped jug, B<P88> (B54, B[368]), B<P113> (B49, B[59]; pl 11d), B<P120> (fig 40, no. 137). Sherds recorded as being from highly decorated or polychrome jugs are less common (224 sherds, 71 ENV; 27 sherds, 21 ENV respectively). The former include (from period M2) B<P72> (fig 61, no 269), B<P89>, with ribs and ring-and-dot stamps (fig 60, no. 254), B<P90>, B<P91> with applied cartwheel stamp (B54, B[386]; fig 61, no. 266; pl 11e), B<P115> with panels of diagonal ribs (fig 61, no.272), B<P123> (fig 60, no. 257). Finds from period M3 include a sherd with ribs and ring-and-dot stamps (B<P127>; B74, B[269]). The baluster jugs include one

with a heavy base and decorated shoulder, B<P36> (M2: B29, B[457]). Also present are sherds from up to 66 jugs with white slip decoration, a few large rounded, pear-shaped, squat and conical jugs, and a possible miniature jug (B[386]). Other forms associated with the storage, serving and consumption of drink are represented by sherds from two aquamaniles, including a leg B<P51> (M2: B31b, B[484]; fig 75, no. 411; also B52a, B[435]), four bottles, 11 drinking jugs, a spouted pitcher and a tripod pitcher.

One of the more unusual finds from Swan Lane is the rim of a possible chafing dish found in period M1, which has incised wavy line decoration both inside the bowl and on top of the rim and appears to be in LCALC, although it could be a very fine Kingston ware (A<P3>; A47.30, A[341]). Other domestic forms from this site are represented by sherds from up to: two cauldrons, including A<P13>, which has a deep everted rim (M2: A74, A[2057]), 24 cooking pots, three jars, 13 pipkins, a frying pan, 17 dripping dishes, one of which has a tapering strap handle that is rolled under at the end (A<P14>; M2: A74, A[2071]), nine drinking jugs, and part of a rectangular condiment dish ([2063]). The latter is similar to an example from an unphased context ([2053]), which has a clear/green glaze internally and is externally sooted (A<P148>; cf. Pearce *et al.* 1985, fig 72, no. 398).

Forms from Seal House that are associated with cooking and food preparation are represented by sherds from a bowl, a cauldron, 47 cooking pots, 38 pipkins, a tripod pipkin, 49 dripping dishes, two lids. One of the latter has an applied foot and loop handle with internal green glaze, B<P5> (M1: B17, B[524]), while another is thick-walled with an unusual 'pinked' rim and internal green glaze, B<P33> (M1, B20, B[483]). Of the two probable chafing dishes, one is represented by a thick walled, green-glazed rim B<P34> (M1: B20, B[483]), while the other, also green glazed, comprises *c.* 60% of the bowl and part of the pedestal B<P50> (M2: B31b, B[484]). Part of a brazier may also have been used for cooking, if not an industrial purpose (P1: A103, A[114]). Two dishes may have been used for serving, while 26 or 27 jars may have been used for storage. One of the most unusual finds is a remarkably crude square pedestal base, probably from a lamp, made up of different slabs of clay and encrusted with sand underneath; the upper side has a splashed green glaze over a white slip, B<P93> (M2: B54, B[386]).

In addition there are fragments of roof furniture from both sites. Two roof finials were found at Swan Lane (M2: A57, A[113]; M3: A85, A[2055]) and two at Seal House, B<P92> (M2: B54, B[468]; also B42, B[356]); while one louver was found at Swan Lane (M2: A74, A[2018]) and four at Seal House (M2: B42, B[356]; B62, B[260]; P2: B93, B[235]). A sherd recorded as a jar may in fact be from another louver (B<P72> (M2: B40, B[325]); while another from the same context was erroneously quantified as Mill Green ware but is in fact from London, B<P82> (Pearce *et al.* 1985, fig 78, no. 436).

Late London wares

Late London wares are not common at Swan Lane, amounting to 51 sherds (28 ENV, 1.837kg) of LLON and two sherds of the slip-coated variant LLSL, all from period A7 (project period M3). At Seal House they are even rarer, with only seven sherds (4 ENV, 164g) and three sherds of LLSL (3 ENV, 150g). The latter include part of a drinking jug B<P129>) found in period P1 (B96, B[143]). Other forms comprise jug, jars, bowls, a cauldron and a dripping dish.

Surrey whitewares

The forms and dating of Kingston-type wares, coarse Surrey-Hampshire border ware, Cheam ware and 'Tudor green' ware have been considered by (amongst others) Orton (1979a, 1979b, 1982) and Pearce and Vince (1988), and 'Tudor green' ware has also been considered by Pearce (2007). The Kingston industry has also been discussed by Miller and Stephenson (1999) and by Darton *et al.* (in prep). For comments on Earlswood ware see Turner (1974). Collectively, these wares are more common at Swan Lane by total sherd count (1525 sherds, 31%) than at Seal House (1026 sherds, *c.* 10%). By weight the contrast is even more marked: *c.* 38% at Swan Lane, but only 7.4% at Seal House (see Table 69). For the purposes of quantification these wares were divided into three chronological groups, as described below.

Kingston-type and Earlswood wares

In London, Kingston-type wares (KING, KINGSL) are dated from *c.* 1240–1400, while Earlswood ware (EARL) is dated to *c.* 1200–1400. In both the Swan Lane and Seal House assemblages Kingston-type wares are the fourth most common ware by sherd count and ENV. At Swan Lane they amount to 465 sherds (*c* 9%; 372 ENV, *c.* 11%); they are the third most common regional ware by weight (9.496kg, *c.* 9%), but remain in fourth place when imports are considered. At Seal House, Kingston wares total 663 sherds (*c* 6%; 401 ENV, *c.* 5%). By weight they are the fourth most common regional ware type (7.107kg, *c.* 5%) but in fifth place overall due to the greater amount of 'early medieval' pottery. Earlswood ware (EARL), which dates from *c.* 1200–1400 (Turner 1974) is limited to 27 sherds (18 ENV, 563g) at Swan Lane, while at Seal House only nine sherds were found (87g).

Taking both wares together (see Table 67 to Table 69), the five sherds from period M1 at Swan Lane and the two sherds from Seal House should be intrusive (or atypical French wares). In period M2 at Swan Lane the 335 sherds account for *c.* 15% of the total medieval sherds (*c* 17% by ENV, *c.* 16% by weight); the largest single group is from A74 (dump on Tenements 2/3), which contained 268 sherds and all but one of the 14 sherds of KINGSL. At Seal House the number of sherds jumps to 524, but only comprises *c.* 6%–7% of the period sherd count, ENV and weight due to the very large amount of London-type wares. Small amounts are also present in periods P1, P2 and P3 (51, 21 and four sherds respectively).

In period M3 at Swan Lane the amount of Kingston-type and Earlswood ware drops to between *c.* 7% and *c.* 10% depending on the unit of measure, reflecting the fact that both wares went out of use *c.* 1400 and that some finds are probably residual; the largest single group is from A85 (dump on Tenements 2/3). Nine residual sherds are also present in period P2 (A59.2, A59.8). At Seal House, by contrast, the amount rises to *c.* 20% of the total sherds (15–17% by ENV and weight), but as noted above this reflects the small size of the group.

A wide range of forms is represented on both sites, although jugs are the most common (296 ENV at Swan Lane, 331 at Seal

House). Most jugs are of baluster or large rounded form, many in the north French and highly decorated styles. The latter have a range of decoration, both monochrome and polychrome. Those from Swan Lane include two examples with stamped decoration from period M2, A74, A<P19> (A[2018], with cartwheel stamp) and A<P20> with bichrome ring-and-dot stamps (A[2063]). The Seal House examples include two polychrome examples, B<P81> (M2: B40, B[325]), and spouted jug with floral decoration B<P95> (M2: B54, B[386]), and a large rounded jug with rouletted decoration, B<P94> (M2: B54, B[386]). A few metal copy jugs are present on both sites, together with two probable conical jugs from Swan Lane. Two jugs from Seal House and *c.* 10 from Swan Lane have repoussé bosses, with joining sherds from a jug with fleur-de-lis, shell and coin-type bosses (A<P21>/A<P49>) found in period M2, A74 (A[2071]) and period M3, A85 (A[2065]). One jug from each site may be of anthropomorphic form (M2: A74, A[2018]; M2: B89, B[237]), two bases may be from miniature jugs (M2: A74, A[2018], A85, A[2065]). The few sherds of Earlswood ware include a jug with sgraffito decoration, A<P47> (M3, A74, A[2016]).

Cooking pots and jars are less common, but at Swan Lane they are represented by sherds from up to 54 examples, including A<P5>, A<P22>, A<P50>, A<P101> (Pearce and Vince 1988, fig 94, nos 298, 302, 306, 307). Other kitchen wares include sherds from five dripping dishes (A<P24>, A<P25>, A<P26>, A<P51>; fig 96, nos 325–8), three frying pans (A<P23>, A<P52>; fig 96, no. 332, fig 97, no. 334), three pipkins, two tripod pipkins, and a heavily sooted skillet (A<P27> (fig 98, no. 345). The frying pan from A[2018], A<P23> has a socketed handle and is heavily sooted. The Seal House assemblage includes sherds from *c.* 47 cooking pots and eight jars; in addition there are sherds from two cauldrons, two pipkins, a spouted bowl, a dripping dish and a lid, B<P126> (M3: B46, B[283]).

Forms from Swan Lane that might have been used at the table include a bowl (A<P28>; period M2: A74, A[2018]), a dish, a rectangular condiment dish, a drinking jug and a saucer (A<P76>; fig 98, no. 348). From Seal House are sherds from four dishes, part of a drinking jug and a money box. Also present are at least three crucibles from Swan Lane and one from Seal House.

Coarse Surrey-Hampshire Border Ware

Coarse Surrey-Hampshire border wares (CBW) probably started to reach London from *c.* 1270, and were the dominant ware from *c.* 1350 to 1500. At Swan Lane, CBW is the second most common fabric after London wares, accounting for *c.* 16%–17% of the medieval assemblage by count (843 sherds, 530 ENV), and *c.* 23% by weight (23.7kg). At Seal House it is much less common, with only 339 sherds (167 ENV, 3.190kg), amounting to only *c.* 2–3% of the total assemblage.

The ware is absent from both sites in period M1, and at Swan Lane it accounts for only *c.* 2–3% of the pottery from period M2 (less than 1% at Seal House). It is, however, by far the most common ware type in period M3 at Swan Lane (*c* 43% by sherd count and ENV; *c.* 46% by weight). Small amounts are still present in periods P1 (19 sherds) and P2 (12 sherds). At Seal House the amount from period M3 is low (36 sherds), although proportionally a relatively high percentage of the period assemblage (*c* 11%–13%). In period P1 a larger amount was present as residual material (209 sherds), but the amounts decline in periods P2 and P3 (21 and nine sherds).

Jugs account for over half the finds from Swan Lane (315 ENV), and approximately one third at Seal House (*c* 50 ENV). Of these most sherds are probably from bunghole jugs/cisterns; two bungholes were found in A102 (A[2107]). Two examples of note were found on Tenements 3–4, the first with incised radial lines on the rim (A<P67>; Pearce and Vince 1988, fig 113, no. 447), the other repaired with a lead plug (A<P77>; M3: A103, A[2117]). Many others have incised, slashed or stabbed handles and/or vertical stripes of red slip on the body. Other forms found at Swan Lane include conical jugs, rounded and large rounded jugs, biconical jugs, a barrel jug, the base of a possible miniature jug, a puzzle jug (A<P46>; fig 113, no. 463).

Most other sherds are from utilitarian cooking vessels. Cooking pots total 152 ENV at Swan Lane, up to 16 of which have bifid rims; ten cauldrons, including A<P68> (fig 116, no. 484) and a rim with three incised lines down the back of the stabbed strap handle (A< P85>; A103, A[2097]), a pipkin and two tripod pipkins. Also present are sherds from four jars and two handled jars/cauldrons; one of the latter has three incised lines down the back of the stabbed strap handle like A<P85> (A<P84>; A103, A[2106]). Five lids, one with an applied butterfly handle (A103, A[2114]; cf. fig 101, no.393) were doubtless used in conjunction with jars. At Seal House *c.* 27 vessels were identified as cooking pots and 75 as jars, of which five have bifid rims. In addition there are two pipkins, a spouted bowl, B<P114> (period M2: B49, B[59]) and two lids.

Other vessels used for the preparation and serving of food at Swan Lane comprise a number of bowls and dishes. The former (25 ENV), include four sizable rim sherds A<P29>, A<P30> (M2: A74, A[2018]), A<P78> (M3: A103, A[2108]), A<P79> (M3: A103, A[2100]); two of these are internally sooted and so could be curfews (A<P29>, A<P30>), although no other curfews are known in this ware. There are also up to four bowls with bifid rims, all from A103 (A<P80>–A<P83>; A[2097], [2108], [2117]). Two bowls/dishes and three dishes may have been used for serving, while seven lobed cups would have been used for display and/or for drinking. The most unusual find is a ceramic whistle from A100 (A<P63>; A[994]), although the form has also been found on a kiln site at Farnborough Hill (Pearce 2007, 63). Other forms from Seal House comprise sherds from four bowls, a cup and a lobed cup.

Cheam whiteware and Tudor Green

Cheam whitewares (CHEA) account for *c.* 3% of the pottery from Swan Lane (168 sherds, 108 ENV; 4.662kg, *c.* 5% by weight), with 23 sherds of Tudor Green ware (TUDG; 12 ENV, 271g), but are rare at Seal House, with only 12 sherds of Cheam ware and three of TUDG. At Swan Lane only two sherds of CHEA are from period M2 deposits, whereas 165 sherds and all 23 sherds of TUDG are from period M3 (105 ENV, 4.642kg). Most are from groups A103, followed by A100 and A102, all of late 15th-century date, with scattered sherds from a few late 14th- to 15th-century contexts.

The term 'Tudor green' is problematic as it can mean different things to different researchers. It was initially applied to fine late medieval/transitional wares such as those made at Farnborough/in the Blackwater valley and used in at Inns of Court (Holling 1977; Pearce and Vince 1988, 79; Pearce 2007, 17–8), which in London would now mainly be classed

as early Surrey-Hampshire border wares (EBORD; Pearce 2007, 21–2, 182). The term has also been applied to a range of earlier forms in a different fabric and from a different source, and recent petrological analysis confirms a genuine difference between the two traditions. Moorhouse (1979, 54–5) suggested that the earlier ware was in use by the early 15th century, and this was not debated by Pearce and Vince (1988). Subsequent work in London put the first appearance of 'Tudor green' back to 1380, and then again to *c.* 1350. While this early start date given to the tradition in London may be somewhat controversial outside the capital, it should be noted that handled cups and lobed cups, possibly copies of French imports (Hurst 1964, 141; Pearce 2007, 183), were being made at both Kingston and Farnborough by *c.* 1325, and possibly the late 13th century (Miller and Stephenson 1999, 25, 41, fig 28.63; Pearce 2007, 182–3). They were also made at Cheam from the late 14th century (Orton 1979a, 1979b, 1982). Most finds in London, however, are more developed forms from 15th- and early 16th-century contexts, and this fits well with the distribution at Swan Lane.

At Swan Lane at least 57 jugs are represented in CHEA, at least 11 of which are of barrel form and three are rounded; in addition there are sherds from some nine drinking jugs. Kitchen wares comprise four pipkins and up to 26 cooking pots, including A<P86>; A103, A[2097]) and five examples with bifid rims. Other forms include five dishes, two lids and a measure (A<P87>; Pearce and Vince 1988, fig 123, no.561). The most unusual stratified forms, both from the late 15th-century foreshore A102 (A[2115]), are a cucurbit (A<P69>) and a trough (A<P70>). The cucurbit, which has clear evidence for exposure to heat at the base, is the first definite industrial form in Cheam ware known to the writer. An example in CBW was, however, found at the Baltic Exchange site (BAX95, period 7, OA7) together with a sherd of Cheam ware that has a red internal deposit and may have been used for a similar purpose (Pearce 2002, 61–3, fig 64, <MP23>). Other whiteware cucurbits have been found at Bermondsey Abbey (Pearce 2011) and at Farnborough Hill (Pearce 2007, 62). The trough is at least 200mm long with a maximum width of 50mm; it is shoe-shaped, being slightly waisted at the centre, rounded at one end and pointed at the other; the underside is slightly sooted. Neither this form nor the related 'double dish' have been found in any of the medieval Surrey whiteware fabrics. The latter is a 16th-century innovation, possibly associated with candle-making (Hurst *et al.* 1986, 140, pl 22; 144, fig 65, no. 222). Introduced from the Low Countries, the form was copied by the London-area post-medieval redware potters, and then in Surrey-Hampshire border ware, for example at Farnborough (Pearce 1992, fig 46, nos. 447–8; 2007, 177, 190, 193, fig 110.678). This raises the question as to whether A<P70> from A[102] is a post-medieval object, and so intrusive in the dump in which it was found, or if it is in fact an import. Frustratingly the second example cannot help to answer this question as the context (A[2089]) is not listed in the site index and cannot be located. Most of the sherds from Seal House are from jugs but a drinking jug and four cooking pots/jars, two with bifid rims, are also represented.

Most sherds of TUDG are from cups or lobed cups (A<P88>, A<P89>, A<P90>; fig 127, nos 594, 596; A103, A[2097]). The sherds from Seal House derive from two jugs and a money box.

Regional and non-local glazed wares

Developed Stamford ware

The first Stamford wares, from Lincolnshire, are noted under 'early medieval wares'. The later, or developed products are not unlike north French wares (especially NFM), with a dense creamy-buff fabric and a soapy texture; they characteristically have a mottled green glaze with strips of combed decoration and date to *c.* 1150–1250 (McCarthy and Brooks 1988, 255–8; Cotter 2006, 192–3). One small sherd (10g) from Swan Lane (M2, A58, A[117]) may be of this fabric type, if not an atypical French ware. Three sherds (86g) were found at Seal House, all in period M1 contexts; one is from a bridge-spouted vessel with combed decoration along one edge of the applied strut, B<P6> (M1: B17, B[524]).

Winchester ware (?)

This is a problematic fabric as it is not really like Winchester ware, but is unlike any Surrey whiteware found in London; it is possible that the six sherds (3 ENV, 113g) from Seal House are in fact imports or related to LCALC; all are from period M1. Four of the six sherds from Seal House are from a large pitcher with pale greenish glaze, B<P15> (M1: B19, B[451]; B20, B[483]). The decoration comprises an applied thumbed band around the base of the neck and vertically applied thumbed strips, all in red clay; between the latter are intersecting diagonal bands of notched rouletting.

Scarborough ware

Scarborough wares are conventionally divided into two types, of which phase I started *c.* 1200 and phase II followed soon after; both continued into the 14th century (Farmer 1979, 28–31; McCarthy and Brooks 1988, 142, 227–30; Jennings 1992, 6, 22). The former is a soft sandy pinkish-red fabric, while the latter is harder, smoother and paler in colour with sandy inclusions (McCarthy and Brooks 1988, 230; Cotter 2006, 194–5). Both types reached south England and are found in ports such as Dover and New Romney, and are separately identified in Kent. In London the ware is much rarer; no sub-divisions are made, and dating spans the period 1200–1350. Only two small sherds were found in period M2 and P3 contexts at Seal House (17g), but the 25 sherds (763g) from Swan Lane are all from period M2 (site period A5); most are from Gp A74, with only three sherds from Gps A54.7 and A54.10. They derive from up to nine jugs, including two possible knight jugs, a mid 13th century form. The first is represented by a ribbed rod handle and shield with incised and impressed decoration on a supporting strut (A<P33>, A[2018]). The second is represented by 15 joining sherds from another with applied zig-zag thumbed strip (A<P34>, A[2061]; cf. McCarthy and Brooks 1988, fig 127, no. 647). This find is similar to a jug from Dartford (Dunning 1973; Farmer 1979, fig 9). A third find has bands of horizontal rilling and part of a narrow vertical strip, possibly thumbed (A<P35>, A[2061]).

Mill Green ware

This Essex ware has been the subject of several studies (Pearce *et al.* 1982; Meddens 1992; Meddens *et al.* 2002–3; Carew *et al.* 2009). It dates from *c.* 1270 to 1350 and is usually among the five most common fabrics on sites with the City of London. At Swan Lane it is in third place (*c* 12%) by sherd count (573

sherds, 408 ENV, 7.956kg), but as most sherds are very small it comprises only 7.6% of the total weight. At Seal House the amount is much smaller (*c* 136 sherds, 63 ENV, 994g), amounting to *c.* 1% of the assemblage by sherd count and ENV, and 0.7% by weight; one of these is in fact of London-type ware (B<P82>; see above). Of these, only 18 sherds at Swan Lane and six at Seal House are in the coarse fabric (MGCOAR).

At Swan Lane the ware is present in period M1 but the 21 sherds (4 ENV) should be intrusive. By far the largest amount is from period M2, with 434 sherds, (308 ENV, 6.474kg) from Swan Lane and 80 sherds (40 ENV, 520g) from Seal House. Although the ware is still well represented in period M3 at Swan Lane (118 sherds, 96 ENV, 1.455kg), the majority should be residual; at Seal House only 16 sherds were found (9 ENV, 102g), with a few more in periods P1 and P3 (21 and 19 sherds respectively).

Almost all sherds from both sites are from jugs in the standard fine ware (MG), mainly of conical form. At Swan Lane sherds from up to 37 rounded examples, one large rounded jug, seven baluster jugs, and two squat jugs are also present, while at Seal House sherds from one baluster jug and one squat jug were identified. Of interest is a rim sherd from period 2 (A<P18>, A74, A[2137]) with irregular stab marks on the inner wall indicating where the handle was to be applied, a form of attachment rarely seen in this ware. The handle itself has the typical deep, elongated thumb stops at the top and a row of stab marks in slightly zig-zag formation down the back. Vertical combing is the most common form of decoration, but a sherd from period M2: A74, A[2081]) has an allover pattern of short slightly wavy lines made with a triple-toothed implement (A<P17>). One or two conical jugs found in period M2, A74, have collared rims with cabled cordons around the neck (A<P16>, A[2061]; cf. Pearce *et al.* 1982, fig 14, no. 42; Ayre and Wroe-Brown 2002, fig 42). Another jug, first thought to be from Mill Green and quantified as such, is in fact a London copy of the same form (A<P15>, A[2051]). At least five other jugs have white slip decoration. Other finds in both the fine and coarse fabrics, comprise sherds from two jars found at Seal House and *c.* 19 cooking pots and five jars from Swan Lane; two of the latter have applied thumbed strips and one has incised wavy line decoration (period M3: A85, A[2042]).

Late Medieval Hertfordshire glazed ware

This ware (LMHG) has been discussed by Jenner and Vince (1983), Vince (1985) and Turner-Rugg (1995) and is dated to *c.* 1340–1450. It is not common at Swan Lane, amounting to only *c.* 1.1% or less of the medieval assemblage (56 sherds, 17 ENV, 1.165kg). It is also rare at Seal House, with only six sherds from period M3 and P1 contexts (5 ENV, 38g). Almost all sherds are from jugs, the most complete being represented by 34 sherds from period M3, Tenement 1 (A<P64>; A100, A[2054]). This is of rounded form with three bands of wheatear-type/elongated raspberry bosses (cf. Jenner and Vince 1983, fig 2, nos 4, 6). The other finds comprise eight sherds from two bowls and four pipkins, including A<P65> (A100, A[994]). With the exception of one sherd from period M2 (A58.24), all are from period M3 deposits. Of note in is a possible dripping dish from Seal House (B66, B[203]), which, if correctly identified, would be the first to be recognised in London.

Colchester(?) wares

This category appears to be a late medieval/early post-medieval continuation of fine Essex-type fabrics, the actual source of which is unknown but which could be Colchester; the industry as a whole has been discussed by Cotter (2000, 107–180). The ware is not common in London and mainly occurs in sites well to the east of the City, such as Stratford Langthorne, Barking and Dagenham.

At Swan Lane nine sherds (5 ENV, 306g), all from period M3 contexts (A102, A103) were identified as possible Colchester wares, corresponding with the late variant of the tradition (108–9). One is from a cooking pot with flat-topped rim (A<P72>; A102, A[2102]) but the others are from large jugs; one has a bunghole, while two others have painted white slip decoration. No examples of this ware were identified at Seal House.

Imported wares

Imports are one of the most important aspects of the waterfront sites as they demonstrate changes in trade (or at least the routes by which commodities arrived) over time. At Swan Lane, the 478 sherds form between *c.* 7% and *c.* 10% of the total assemblage, but at Seal House the amount is proportionately lower, the 472 sherds making up only *c.* 4%–*c* 5% of the assemblage. As shown in Table 67 to Table 69, they represent *c* 5–6% of the period M1 and M2 assemblages at Swan Lane, and the high percentage for the period M1 sherd count is due to numerous sherds from a single Rouen ware jug (below). In period M3 they are more common, amounting to *c.* 10–11% by sherd count and ENV, and *c* 16% by weight (due the presence of amphorae fragments). At Seal House they comprise between *c.* 4% and *c.* 5% of the total sherds, ENV and weight of the period M1 and M2 assemblages, and although this rises slightly in periods M3, only 29 sherds were found.

Germany and the Low Countries

The first imports to reach London in the Late Saxon period were from Germany and the Low Countries (Pearce 2015); their current dating, outlined below, is in some cases rather earlier than that suggested for other English medieval ports and sites outside the capital, a point that needs resolving.

At Swan Lane, German wares are the second most common import by sherd count (156 sherds) but the most abundant by ENV and weight (99 ENV, 5.254kg). At Seal House they are the second most common by count (140 sherds, 102 ENV), and the most common by weight (2.212kg). The earliest are red-painted wares (REDP and variants), and blue-greyware (BLGR) from the Rhineland. The former mainly comprise jars and spouted pitchers and are probably from a number of centres around Pingsdorf in the Cologne Vorgebirge (Reineking von Bock *et al.* 1985; Vince 1985, 75–6; Lüdtke 1989, 39–42; Redknap 1990; Vince and Jenner 1991, 100–2; Sanke 2002; Cotter 2006, 234–5), although similar wares were produced in the Meuse valley and in France. Their dating in London spans the period *c.* 900–1250, but they are most common after *c.* 1000.

The blue-grey wares found in London are probably from Paffrath, near Cologne, or other centres in the middle Rhineland (Dunning 1959, 75–6; Vince and Jenner 1991, 103–4; Cotter 2000, 276; 2006, 235) and have a broad dating of *c.* 1000

to the early 13th century. They comprise sherds from small globular jars (*Kugeltöpfe*), usually with ladle handles, which are typical of the period *c.* 1150–1200 (Friedrich 1988, figs 3, 13; Cotter 2000, 276; 2006, 235). One of the more complete examples is A<P150>, from an unphased context. A few sherds from globular cooking pots and jars from site B are in a coarse greyware that could be from the Rhineland (RHGR) or the Low Countries. Blue-grey wares were also produced in Limburg, where a later tradition continued into the 14th century (Janssen 1983, 133, 171; the equivalent ware found in London is known as Low Countries greyware, LCGR). The blue-grey wares reported in Hull and Norwich, apparently stratified in contexts as late as *c.* 1260 and 1280 (D Evans pers comm), probably fall into this later group.

In Germany and the Netherlands, Pingsdorf-type (red-painted) ware is thought to have gone out of use by *c.* 1200 (Lüdtke 1989; Keller 1995; Bartels 1999, 43, 416), when it was replaced by proto-stoneware; the latter continued until *c.* 1280, although the main period was 1200–50). From *c.* 1250–1310 near stoneware was also in use, the main period being *c.* 1250–90. The first true stonewares, from Siegburg, are dated to *c.* 1280 (ibid). As these wares are relatively uncommon in London, the classification is simpler than elsewhere, and proto- and near-stoneware are classed together (EGS). They appear to have started reaching the capital after 1250 (Vince 1985; 1988), followed from *c.* 1300 by small amounts of Siegburg stoneware (SIEG); the latter, however, is much more common after *c.* 1350 and more so in the 14th century (242; Blackmore 1994, 35–7). From *c.* 1350 Langerwehe (LANG) stonewares are also present (Vince 1985; 1988; Blackmore 1994, 37). Both industries are summarised by Hurst *et al.* (1986, 176–90).

In period M1 German wares are not especially common at Swan Lane (19 sherds, 12 ENV, 129g), where they mainly comprise red-painted/Pingsdorf-type wares (REDP) with some blue-grey/Paffrath-type ware (BLGR). The amount is a little higher at Seal House (49 sherds, 34 ENV, 731g), again mainly REDP, with only five sherds of BLGR, two of Rhenish greyware (RHGR) and one of EGS (presumed intrusive in B9, B[620]).

In period M2 the numbers rise slightly at Swan Lane (26 sherds, 19 ENV, 684g) and EGS is the most common (15 sherds, 10 ENV, mainly from A61 and A74). These include a beaker (A<P9>, A61, A[2136]), up to five drinking jugs (A<P10>, A<P11>; A61, A[2140], A[2150]) and four jugs (A<P39>, A74, A[2063]). Single sherds of Siegburg (SIEG) and Langerwehe (LANG) stoneware occur in Gp A74 (dated *c.* 1340–1360/70) with one intrusive sherd of Raeren stoneware. At Seal House the number drops to 33 sherds (29 ENV, 436g). These include some REDP and RHGR (both presumed residual), the latter including B<P59> (B31b, B[467]), but also eight sherds of EGS; two sherds of LANG and seven of SIEG (Gps B56, B62, B71); some of the latter, however, are of 15th-century date and should be intrusive (or the groups should be dated to period M3).

The amount of stoneware remains low in period M3 at Seal House, with only 13 sherds, including six of SIEG and seven LANG. At Swan Lane, by contrast, these wares are much more common in period M3 (106 sherds, 64 ENV, 4.368kg). Only three are of residual EGS, including a jug (A<P54>) and a beaker A<P55>, both from A85 (A[2055]). Siegburg stoneware totals 88 sherds (50 ENV), including drinking jugs (A<P48>, A<P95>; A80, A[2016]; A103, A[2097]) and beakers. One of these has a rilled collared rim with applied coin/raspberry roundels on the shoulder (A<P73>; A102, A[2115]). Others are of funnel-necked form, or *Trichterhalsbecher,* with several from A103 (A<P92>, A<P93>, A<P94>, A<P95>: A[2082], A[2100], A[2103], A[2112]; cf. Hurst *et al.* 1986, pl 30, left). Also present are sherds from two drinking bowls dating to the later 15th century (A<P66>, A<P74>; A100, A[2069]; A102/A103, A[2082]/A[2102]; cf. 178, fig 88, no. 257).

Langerwehe stonewares amount to 15 sherds (10 ENV), including the base of a jar (A<P97>; A103, A[2097]) and large jug of Hurst (1977) type 1 with a deep rouletted band around the base of the collared rim (diameter 90mm) and at least two rouletted cordons on the shoulder A<P102>; A58.32, A[61]). One sherd could be of Langerwehe or Raeren stoneware (A58.17, A[102]). Five sherds of Siegburg and Langerwehe/Raeren stoneware were also present in period P2 at Swan Lane (groups A59.2, A59.11) and in periods P1, P2 and P3 at Seal House (18 sherds, six and five sherds respectively). These include sherds from a cup (B<P128>; P1: B91, B[166]) and a jug in LANG (B<P131>; P2: B109, B[147]).

For both sites A and B the term 'Low Countries' is used collectively to cover wares which could be from the Netherlands or Belgium and the term 'Flemish', although still used for building materials, is now avoided for pottery as without scientific analysis it is impossible to be sure of such an identification. At Swan Lane, pottery from the Low Countries is the third most common by count (93 sherds, 47 ENV), but the second most common by weight (2.741kg). The amount is rather lower at Seal House (44 sherds, 38 ENV, 976g). The earliest wares are from Andenne in Belgium (ANDE), dated from *c.* 1000 to 1200, which have a fine buff body with a clear or greenish glaze (for descriptions see Vince and Jenner 1991, 104–6; Cotter 2000, 266; 2006, 232–3). Later finds include a few possible sherds from Low Countries highly decorated jugs (LCHD) dated to 1250–1500 and a few greyware sherds (LCGR), dated to 1350–1500. Redwares, which for historical reasons are grouped in the present analysis under the codes DUTR and DUTSL, are thought to have started reaching London *c.* 1300 but are rare until *c.* 1350; they are most common in the later 15th and 16th centuries (Vince 1985; Blackmore 1994, 37–8; for descriptions see Hurst *et al.* 1986, 130–75; Cotter 2006, 232–3).

In period M1, all ten sherds from Swan Lane and all 26 from Seal House are of Andenne ware (including B<P16>; B19, B[451]), and one with a red slip under a clear glaze from the period B3.3 foreshire deposit B[514], and there are still seven sherds (6 ENV) from period M2 deposits at Swan Lane and nine at Seal House. At this time, however, Dutch redwares are appearing (five sherds at Swan Lane) and these become the most common type in period M3 (67 sherds, 23 ENV, 2.474kg) of DUTR and one of DUTSL (mainly from Gps A85 and A103); there are also sherds from two LCHD jugs and a bowl/lid in LCGR (A<P60>). At Seal House the two sherds from period M3 are from an LCHD jug and a DUTR dish; single sherds of LCHD and DUTR were also found in period P1 and P3 contexts. Most sherds are from cooking vessels, with several cauldrons and pipkins, including A<P75>, A<P98> (A102, A[2115]; A103, A[2082]), a skillet and four frying pans (A<P99>, A<P100>; A103, A[2103], A[2113]). The most unusual forms, both from A85, A[2055], are part of a possible lavabo and the rim of a

large bowl. The former, A<P57>, which is green glazed, has a large applied spout that appears to be anthropomorphic, as although the central section with the nose and eyes is missing, there is a clear chin, possibly bearded. Beneath the head are three applied thumbed strips that radiate over the body. The latter is a skeuomorph of a metal equivalent as the squared handle has applied pellets emulating rivets (A<P58>).

France

On both sites A and B the earlier French wares comprise a mix of North French monochrome (NFM) and Rouen-type wares (ROUE). Also present are a few sherds of north French unglazed ware (NFRE), dated to 900–1200, Normandy gritty ware (NORM), dated to 1050–1250 (Vince and Jenner 1991, 106–10) and late Rouen ware (ROUL, dated 1250–1350). In London NFM and ROUE are both currently dated to 1170–1300; for discussions of these wares in Southampton and Dover see Brown (2002, 21–6) and Cotter (2006, 206–16). From the Parisian typology, the type 13 jug forms found in London should date to the end of the 12th or early 13th century (Nicourt 1986, 114–15) and a date of *c.* 1200 was also proposed for finds in Bergen (Deroueux *et al.* 1994, 173). There is little doubt that London wares imitating these imports are present in a context of *c.* 1176–1210 (see above), and so the orginals must date to before this, but how much earlier than 1200 is uncertain. Saintonge green-glazed wares started to reach London from *c.* 1250, with polychrome jugs and large wine pitchers (*pégaux*) appearing *c.* 1270–80; the latter, however, are more common in the 14th century (Vince 1985, 56; 59; Hurst *et al.* 1986, 76–8; Blackmore 1994, 34–5; Cotter 2000, 262–3; 2006, 216–8; Brown 2002, 26–8).

At Swan Lane, French imports (202 sherds, 56 ENV, 1.918kg) are the most common by sherd count, but this is inflated by 112 sherds from a single Rouen jug found in period M1 (A<P2>; A47.23, A[246]). None of the other four sherds from this period is of any size; three are of NFM, while another is of Rouen ware. In period M2 there are still 25 sherds of NFM and Rouen ware (mainly NFM), but as most are from period A5 they must be residual. These finds include two handles and a base from Gp A74 (A<P40>–A<P42>; A[2018], A[2031], A[2137]). New in this period and contemporary with it are a range of Saintonge wares (42 sherds, 27 ENV; SAIG, SAIM, SAIN, SAIP, SAIU). These include a base sherd in SAIM (A<P36>; A74, A[2063]) and two sherds with polychrome decoration (SAIP). In period M3 only five sherds are of NFM (including a jug base, A<P56>; Gp A85, A[2055]); the other 12 sherds are all from the Saintonge, including the rim and spout of a large pitcher (*pégau*; A<P57>; A85, A[2055]). A single sherd was also found in a period P1 context.

At Seal House, French imports are collectively the most common by all units of measure (256 sherds, 125 ENV, 1.999kg). The same sequence applies, with only small amounts of NFM, NFRE, NORG and ROUE in period M1 (11 sherds). In period M2 the number increases dramatically to 214 sherds (1.566kg), i.e. *c* 73% of all imports by sherd count but only *c.* 32% by weight. Most of these (169 sherds) are of NFM, with one of NFRY and 19 of Rouen ware, which must be derived from periods M1 and M2; the NFM jugs, which mainly have applied decoration, include B<P74> and B<P75> (B31b, B[394]); one has combed wavy lines B<P117> (B59, B[382]). This period sees the first Saintonge wares (19 sherds, 12 ENV), including rim sherd B<P115> (B54, B[468]); there are also a few sherds of late Rouen ware. As at Swan Lane, there is a dramatic drop in period M3, with only ten sherds of French pottery; between one and ten sherds also occur in deposits assigned to periods P1, P2 and P3.

The Mediterranean

Finds of archaic maiolica (ARCH) in London have been discussed by Blackmore (1994, 40; 2002, 33–4; 79, fig 41), while Spanish wares in the City have been considered by Vince (1982; 1985; 1995) and Blackmore (1994, 38–9). Andalusian wares (ANDA) are generally dated to 1250–1450, and Valencian wares (VALE) to 1380–1450. Of the sherds from sites A and B, those with metamorphic (schistose) inclusions were ascribed to Andalucia, while those with a more calcareous fabric were identified as Valencian wares. The two ware types can usually be distinguished visually and in thin section (Vince 1982; Gerrard *et al.* 1995, 282–287), chemically they are less easy to differentiate (Hughes 1995). It is likely that the Merida-type micaceous wares (SPAM) were produced over a wide area of both Spain and Portugal (Hurst *et al.* 1986, 69), but most amphorae probably came from the area of Seville or Cadiz (Vince 1982, 139–40; Williams 1984, 145; Hurst *et al.* 1986, 66).

At Swan Lane, most of the 27 sherds (22 ENV, 368g) in this group are from Spain, with only one sherd of archaic maiolica, probably from Italy. Some five sherds are from bowls, a jug and an albarello in Andalusian lustreware, scattered across periods M1 and M2. Two sherds are from bowls in Valencian

Site A: post-medieval						
Category	Sherds	%	ENV	%	Weight	%
imports	43	6.2%	19	12.2%	1427	6.0%
miscellaneous	2	0.3%	1	0.6%	24	0.1%
non-local wares	6	0.9%	1	0.6%	812	3.4%
London-area redwares	39	5.6%	17	10.9%	2264	9.5%
Essex redwares	252	36.3%	25	16.0%	10080	42.2%
Surrey-Hampshire border wares	203	29.3%	57	36.5%	4944	20.7%
tin-glazed ware	149	21.5%	36	23.1%	4433	18.6%
Grand Total	694	100.0%	156	100.0%	23894	100.0%
Site B: post-medieval						
Category	Sherds	%	ENV	%	Weight	%
imports	105	9.6%	48	18.9%	5856	9.5%

Site A: post-medieval						
Category	Sherds	%	ENV	%	Weight	%
industrial finewares	115	10.5%	44	17.3%	7872	12.7%
miscellaneous	1	0.1%	1	0.4%	10	0.0%
non-local wares	5	0.5%	5	2.0%	149	0.2%
London-area redwares	639	58.5%	48	18.9%	38788	62.7%
Essex redwares	18	1.6%	13	5.1%	746	1.2%
English stonewares	7	0.6%	7	2.8%	782	1.3%
Surrey-Hampshire border wares	97	8.9%	37	14.6%	4994	8.1%
tin-glazed ware	105	9.6%	51	20.1%	2603	4.2%
Grand Total	1092	100.0%	254	100.0%	61900	100.0%

Table 70 Site A and Site B: Overall quantification of the post-medieval pottery from contexts discussed in this report, by ware category, sherd count, estimated number of vessels (ENV), and weight in grams

Site A: post-medieval wares							
Category	Fabric	Sherds		ENV		Weight	
		Total	%	Total	%	Total	%
Surrey-Hampshire border wares	BORD	158	22.8%	39	25.0%	3597	15.1%
imports	DUTR	1	0.1%	1	0.6%	22	0.1%
Surrey-Hampshire border wares	EBORD	12	1.6%	10	5.8%	303	1.1%
imports	FREC	8	1.2%	6	3.8%	141	0.6%
Essex redwares	METS	72	10.4%	5	3.2%	2677	11.2%
miscellaneous	MISC	8	1.2%	2	1.3%	836	3.5%
imports	NIMS	1	0.1%	1	0.6%	1	0.0%
imports	OLIV	1	0.1%	1	0.6%	47	0.2%
Essex redwares	PMBL	40	5.8%	6	3.8%	681	2.9%
Essex redwares	PMFR	140	20.2%	14	9.0%	6722	28.1%
London-area redwares	PMR	31	4.5%	9	5.8%	1830	7.7%
London-area redwares	PMRE	10	1.4%	10	6.4%	442	1.8%
imports	POTG	8	1.2%	1	0.6%	224	0.9%
imports	RAER	2	0.3%	2	1.3%	9	0.0%
Surrey-Hampshire border wares	RBOR	38	5.5%	11	7.1%	1174	4.9%
imports	SPOA	16	2.3%	3	1.9%	893	3.7%
tin-glazed ware	TGW B	22	3.2%	7	4.5%	461	1.9%
tin-glazed ware	TGW C	31	4.5%	11	7.1%	741	3.1%
tin-glazed ware	TGW D	96	13.8%	18	11.5%	3231	13.5%
	Grand Total	694	100.0%	156	100.0%	23894	100.0%

Table 71 Site A: overall quantification of the post-medieval pottery by sherd count, estimated number of vessels (ENV), and weight in grams

Site B: post-medieval wares							
Category	Fabric	Sherds		ENV		Weight	
		Total	%	Total	%	Total	%
Surrey-Hampshire border wares	BORDB	83	7.6%	27	10.6%	2960	4.8%
imports	CHPO	12	1.1%	5	2.0%	262	0.4%
imports	CHPO ROSE	2	0.2%	1	0.4%	87	0.1%
industrial finewares	COLGE	3	0.3%	1	0.4%	150	0.2%
industrial finewares	CREA	46	4.2%	15	5.9%	2625	4.2%
industrial finewares	CREA PNTD	1	0.1%	1	0.4%	40	0.1%
industrial finewares	CREA SLIP	3	0.3%	2	0.8%	222	0.4%
non-local wares	CSTN	1	0.1%	1	0.4%	9	0.0%
Surrey-Hampshire border wares	EBORD	2	0.2%	2	0.8%	8	0.0%

Site B: post-medieval wares							
Category	Fabric	Sherds		ENV		Weight	
English stonewares	ENGS	25	2.3%	8	3.1%	3452	5.6%
imports	FREC	12	1.1%	5	2.0%	275	0.4%
imports	MART3	4	0.4%	2	0.8%	14	0.0%
miscellaneous	MISC	1	0.1%	1	0.4%	10	0.0%
non-local wares	MPUR	2	0.2%	2	0.8%	107	0.2%
imports	NIMS	2	0.2%	2	0.8%	34	0.1%
industrial finewares	PEAR	4	0.4%	3	1.2%	19	0.0%
Essex redwares	PMBL	8	0.7%	5	2.0%	202	0.3%
London-area redwares	PMBR	4	0.4%	2	0.8%	49	0.1%
Essex redwares	PMFR	10	0.9%	8	3.1%	544	0.9%
London-area redwares	PMR	586	53.7%	19	7.5%	37932	61.3%
London-area redwares	PMRE	51	4.7%	29	11.4%	1324	2.1%
London-area redwares	PMREM	4	0.4%	1	0.4%	34	0.1%
London-area redwares	PMSRY	3	0.3%	2	0.8%	76	0.1%
imports	RAER	31	2.8%	13	5.1%	1001	1.6%
Surrey-Hampshire border wares	RBOR	18	1.6%	12	4.7%	2061	3.3%
industrial finewares	REFW	10	0.9%	5	2.0%	1274	2.1%
imports	SNTG	8	0.7%	3	1.2%	12	0.0%
imports	SPAM	2	0.2%	1	0.4%	85	0.1%
imports	SPGR	3	0.3%	1	0.4%	26	0.0%
imports	SPOW	10	0.9%	2	0.8%	3766	6.1%
non-local wares	STSL	1	0.1%	1	0.4%	29	0.0%
non-local wares	SUND	1	0.1%	1	0.4%	4	0.0%
tin-glazed ware	TGW	40	3.7%	18	7.1%	763	1.2%
tin-glazed ware	TGW A	13	1.2%	3	1.2%	739	1.2%
tin-glazed ware	TGW B	4	0.4%	1	0.4%	44	0.1%
tin-glazed ware	TGW C	35	3.2%	20	7.9%	917	1.5%
tin-glazed ware	TGW D	10	0.9%	7	2.8%	91	0.1%
tin-glazed ware	TGW E	2	0.2%	1	0.4%	33	0.1%
tin-glazed ware	TGW F	1	0.1%	1	0.4%	16	0.0%
industrial finewares	TPW	1	0.1%	1	0.4%	9	0.0%
industrial finewares	TPW1	2	0.2%	2	0.8%	11	0.0%
industrial finewares	TPW2	18	1.6%	9	3.5%	394	0.6%
imports	WERR	1	0.1%	1	0.4%	43	0.1%
imports	WEST	4	0.4%	4	1.6%	43	0.1%
non-local wares	YELL	1	0.1%	1	0.4%	50	0.1%
non-local wares	YELL SLIP	7	0.6%	2	0.8%	54	0.1%
	Grand Total	1092	100.0%	254	100.0%	61900	100.0%

Table 72 Site B: overall quantification of the post-medieval pottery by sherd count, estimated number of vessels (ENV), and weight in grams

Site A: period P1				Site B: period P1			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A (med)	20	16	509	B8.2 (med)	254	124	3063
A (pmed)	3	2	102	B8.2 (pmed)	12	8	295
				B8.3 (med)	209	77	1875
				B8.3 (pmed)	20	8	315
				B8.4 (med)	17	17	200
				B8.4 (pmed)	3	1	175
Total	23	18	611	Total	480	218	5138

Table 73 Period P1: broad quantification of the medieval and post-medieval pottery from site A and site B by sub-period

Site A: period P2				Site B: period P2			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A (med)	31	24	270	B9 (med)	102	86	1502
A (pmed)	655	126	23004	B9 (pmed)	21	15	245
Total	686	150	23274	Total	123	101	1747

Table 74 Period P2: broad quantification of the medieval and post-medieval pottery from site A and site B

lustreware, both from period M3, notably a find from A85 (A<P61>; A[2042]; also A102, A[2115]). Also present are sherds from one or two costrels in Merida-type micaceous ware (periods M1 and M2), and a large handle from an amphora (period M2, A74, A[2018]). At Seal House the 44 sherds are more mixed, with Spanish wares comprising one sherd of Andalusian lustreware, two from SPAM costrels and 31 large sherds from one or two amphorae; those from period M2, B31b (B[386] and B[394] are certainly from the same vessel, which has impressed decoration, either rouletted or made by a twisted cord. One sherd from an Italian white slipped ware (ITALS) albarello is perhaps from Tuscany (period P1: B70, B[137]). Also probably from this area are sherds from a small jar or costrel in a redware fabric with clear glaze over both surfaces (MEDM), found in period M2, B7.2 (B59, B[352], B[355]; B76, B[354]). A rim sherd from the same period may also be from the same source (B31b, B[301]).

Magrebhi-type wares (MAGR) from North Africa are rare in London (Vince 1985; Blackmore 1994, 38) but there is a cluster at Swan Lane in period M2, A74 (various contexts; see landuse text above); the finds include A<P37> (base and body sherds; A[2051], A[2070], A[2144]) and A<P38> (carinated; A[2137]). The only other sherd is from A84 (A<P62>; A[2055]). A sherd of alkaline glazed ware (ALKG) from period P1 at Seal House (B70, B[137]) may also belong to this general group. The Swan Lane finds are significant as the only definite examples of the ware in London; all other possible finds are small sherds with poorer glazes.

Swan Lane (site A) and Seal House (site B): post-medieval wares

As summarised in Table 70, the post-medieval pottery amounts to 694 sherds (156 ENV, 23.884kg) from Swan Lane and 1092 sherds (254 ENV, 61.9kg) from Seal House Of these, 36 sherds (28 ENV, 878g) from Swan Lane are intrusive in medieval levels, while the remainder are from periods P1 and P2 (after 1500). At Seal House 14 sherds are from medieval levels, while the rest are from periods P1–P3. For reasons of economy, the different industries are not dicussed in detail, but the groups are detailed in the stratigraphic narrative above, while the full range of fabric types for each site is listed in Table 71 and Table 72. In addition a small amount of medieval pottery is present in each of the post-medieval periods, which is included in the overview for each post-medieval period.

Some few remarks are made here about pottery from post-Fire features, which will be picked up in future publications of the sites. The range of wares and forms present in the large period P2 (post-Fire) cesspit group at site A (context A[980, 981]) is shown in Table 64. Taking the assemblages from each site as single groups, they mainly comprise sherds of fairly local or regional origin. As shown in Table 70, redwares from the Essex (see Davey and Walker 2009) are more common at Swan Lane than those from the London area (see Pryor and Blockley 1979; Jarrett 2004), but the reverse applies at Seal House. Surrey Hampshire border wares (see Pearce 1992; 2007) are the second most common group at Swan Lane, but in fifth place at Seal House, where industrial finewares are more common. At this site, tin-glazed wares (see Bloice 1971; Noël Hume 1977; Britton 1987; Tyler *et al.* 2008) and imports are in third place, being equally represented by sherd count and more or less so by weight (although the weight for Seal House is distorted by several large sherds from a Spanish amphora or storage jar weighing 3.417kg). At Swan Lane, tin-glazed wares are in third place, followed by imports. All other fabrics on both sites are minor types. The range of imports in both sites can be seen in Table 80 and Table 81; those from the earlier groups mainly comprise stonewares from France and Germany, while the later groups include small amounts of Chinese porcelain and a few Spanish wares. The most important find is an armorial plate in Portuguese tin-glazed ware, which merits further study (A<P147>).

Site A: M1				Site B: M1			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A1	44	40	678	B3.1	192	145	2963
A2	822	517	10587	B3.3	390	328	7139
				B3.4	373	304	6086
				Sub-total	955	777	16188
				B4.1	823	596	13163
				B4.2	21	19	539
				Sub-total	844	615	13702
Total	866	557	11265	Total	1799	1392	29890

Table 75 Period M1: broad quantification of the medieval pottery from site A and site B by sub-period

The chronological distribution of the pottery on sites A and B

The pottery from the earliest post-Roman levels on the waterfront sites discussed here was briefly outlined in the study of the bridgehead and Billingsgate to 1200 (Vince 1992). The present study overlaps with this work, but it is difficult to correlate the two as the former works on ceramic phases rather than defined periods. Similarly, the dating presented by Blackmore and Pearce (2010, 306–7) may also have now been modified; the following is, therefore the final statement on the chronological sequence.

Period M1 (1100–1200/1220)

The quantification of the pottery from period M1 on both sites by sub-period is summarised in Table 75, and by ware category, sherd count, estimated number of vessels (ENV) and weight in Table 67.

Site A (Swan Lane)

The pottery from periods A1 and A2 amounts to 866 sherds (557 ENV, 11.265kg). Most of this is from period A2, with only 44 sherds from period A1. These include a few 'early medieval' fabrics (ie types that went out of use *c.* 1150), with 13 sherds of shelly-sandy ware, which was introduced *c.* 1140. London-type wares are the most common, with cooking pots and a range of early-style jugs in LCOAR, LCALC and LOND, but only one sherd from a jug that might be in the north French style, i.e. dating to after 1180. This, together with the absence of any SHER, suggests that the group as a whole dates to 1150–80. Imports are limited to a single sherd of red-painted/ Pingsdorf-type ware.

The pottery from period A2, by contrast, comprises a much larger group (822 sherds, 517 ENV, 10.587kg). The largest groups are associated with a wall of tenement 3 (A47.30, 128 sherds, 2.415kg) and associated with building 11 (A48, 280 sherds, 3.521kg), with a total of 117 sherds (103 ENV, 1.869kg) from foreshore deposits A24, A26 and A28. Small amounts of pottery were also associated with buildings 6, 7 and 13. Taking the finds together, residual 'early medieval' wares are still well-represented (180 sherds, *c.* 22% of the total, of which 51 sherds are from the foreshores), but London-type wares dominate, with 296 sherds in all (213 ENV, 3.674kg). As in period M1, most are from early rounded or early baluster jugs, some with pellet decoration (*c* 135 sherds). Some 21 sherds, however, are from north French and Rouen-style baluster jugs dating to after *c.* 1180 (*c* 10% of the 206 jug sherds), and the presence of 49 sherds of SHER (19 vessels, 1.450kg) also confirms that the pottery from this period was deposited after *c.* 1170. The amount of SSW has also increased dramatically to 122 sherds (89 ENV, 1.727kg), making it the second most common type. Imports are also much more common, with sherds from up to 25 different vessels; the total of 144 sherds, however, is distorted by the fact that 112 are from a Rouen jug (B<P2>). The other fabrics comprise Andenne ware (sherds from up to nine spouted pitchers), blue-grey/Paffrath-type ware (two *kugeltöpfe*), red-painted/Pingsdorf-type ware (up to 10 jars) and north French monochrome ware (up to three jugs). Five sherds of possible Kingston-type ware are problematic (A47.30, A[341]; A48.28, A[290]; A48.62, A[179]), as they could be very early wares in this tradition, intrusive, or from another source, such as Winchester or France. Whatever their status, however, 21 tiny sherds of Mill Green ware (A26, A[2157]; A47.54, A[3009]), and single sherds of Dutch redware and early post-medieval redware (both 55.19, A[2007]) must be intrusive.

Site B (Seal House)

Large amounts of pottery were recovered from both periods B3 (955 sherds, 777 ENV, 16.188kg) and B4 (844 sherds, 615 ENV, 13.702kg). Within period B3, the main groups are those from the silting, B17 (B3.3, 362 sherds, 303 ENV, 6.513kg), and from the construction of, and dumping behind, Waterfront 1 in B5, B14, B18, B19 (B3.4, 373 sherds, 304 ENV, 6.086kg, mainly from B19). No pottery was associated with B:Building 1. As there is little difference in the overall composition of

Site A: M2				Site B: M2			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A3	388	246	5665	B5.1	1240	895	22765
A4	427	338	7434	B5.2	127	94	2141
A5	1430	1061	29230	Sub-total	1367	989	24906
				B6.1	588	368	6120
				B6.2	203	131	2427
				B6.3	481	218	4730
				Sub-total	1272	717	13277
				B7.1	2145	1272	29560
				B7.2	2852	1748	31688
				Sub-total	4997	3020	61248
Total	2245	1645	42329	Total	7636	4726	99431
A3 PPOT	7	3	138	B5.1	2	2	9
A5 PPOT	1	1	6	B7.2	1	1	3
Grand total	2253	1649	42473		7639	4729	99443

Table 76 Period M2: broad quantification of the medieval pottery from site A and site B by sub-period

the two sub-periods, the two are considered together, noting differences where they occur. At all times London-area pottery is the most common (LOND, LCOAR and its variants and LCALC), the 426 sherds comprising *c.* 44% of the pottery from period 3, *c.* 46% by weight (7.514kg). In period B4 this rises to *c.* 50% (419 sherds); but is slightly less by weight (*c* 41%, 5.552kg). Most sherds derive from jugs (653 sherds, 483 ENV in all). The majority are in the early style, but some pieces in the north French, Rouen and highly decorated style date to after 1180. These appear to be more common in period B3 (*c* 130 sherds, 91 ENV) than in period B4 (17 sherds, 11 ENV). This can probably be explained by the fact that almost all those from period B3 are from the group B17 silt; they could therefore be from the surface of this deposit, have sunk into it when discarded, or have been introduced during later disturbance. The 25 sherds from period B4, by contrast, could be stratified but fairly new when discarded. A notable feature of the period B4 finds is the presence of some eight spouted pitchers with rouletted decoration (LOGR, LCOAR and LOND), forms that must have gone rapidly out of fashion once glazed jugs became available. 'Early medieval' wares are the second most common category in period B3, when they comprise *c.* 40% and *c.* 41% by count (383 sherds) and weight (6.707kg). In period B4 this drops to *c.* 19% (163 sherds) and *c.* 21% (2.906kg). Conversely, wheel-thrown coarsewares are less common in period B3 (*c* 7% by weight, *c.* 9% by sherd count) than they are in period B4 (*c* 27% by sherd count, *c.* 34% by weight). In period B3, SSW is the third most common ware, following the 'early medieval' fabrics (61 sherds, *c.* 6%; 843g, *c.* 5%), but in period B4 it has become the second most frequent, accounting for *c.* 23% by count (193 sherds) and *c.* 30% by weight. SHER is much less common, with only 26 and 31 sherds in periods B3 and B4 respectively. Imports (mainly from Germany and the Low Countries, with a small amount from Normandy) comprise *c.* 6% of the pottery from period B3 (55 sherds; 4% by weight) and less in period 4; a large base sherd from period B3 recorded as proto-/near-stoneware is more probably an altered red-painted/Pingsdorf-type ware. Non-local glazed wares (developed Stamford ware and possible Winchester ware) are even less common. A single sherd of Surrey-Hampshire border ware in period B3 (B19, B[451]) is clearly intrusive.

Period M2 (1200/1220–1350/1370)

The amounts of pottery from period M2 are broadly summarised by sub-period in Table 76 and by ware category, sherd count, estimated number of vessels (ENV) and weight in Table 68.

Site A (Swan Lane)

The medieval pottery from period M2 amounts to 2245 sherds (1645 vessels, 42.239kg); in addition there are eight post-medieval sherds, seven of which are associated with A:Building 17 and are considered intrusive. As shown in Table 86, the bulk of this is from period A5, which yielded considerably more sherds than periods A3 and A4 together, and over twice as much by weight. Most sherds are from waterfront dumps but some are associated with buildings 16, 17 (A3), 20, 21and 22 (A4) and 22, 25 and 27 (A5). In terms of dating, the different phases follow a chronological progression, despite the large amounts of residual material that are present.

Periods A3 and 4

In periods A3 and A4 (total 815 sherds, 634 ENV, 13.099kg) London-type wares amount to *c.* 60% or more of these assemblages by both sherd count (231 and 267 sherds) and weight (3.370kg and 4.597kg respectively). Most sherds in period A3 are from jugs in the early north French and Rouen styles, with nothing obviously later. The same applies in period A4. In period A3 the amounts of SSW and south Herts-type greyware are fairly equal (7% and 9% by sherd count, *c.* 9% and *c.* 6% by weight respectively). In period A4, SHER is more common (*c* 10% by sherd count, *c.* 12% by weight) but SSW is less so. The proportions of the other fabrics vary considerably, with implications for dating. In period A3, only two contexts out of a total 31 date to after 1240, and the four sherds of coarse Surrey-Hampshire border ware, and a single sherd of Cheam ware are presumed intrusive. In period A4, by contrast, 17 contexts (out of 45) date to after 1240; one of these dates to after 1250, eight contain sherds dating to after 1270. In all there are 25 sherds of Kingston-type ware (20 ENV) and one of Earlswood ware, with five sherds of CBW; altogether, Surrey whitewares amount to *c.* 7% of the total sherds and *c.* 8% by weight (553g). Also present are 15 sherds of Mill Green ware (176g). Imports have risen from 15 small residual sherds (ANDE, REDP, NFM, NFRE, NORM) in period A3 (244g) to 22 mainly contemporary sherds (511g) that include 10 sherds of proto-/near-stoneware (5 ENV), with single sherds of Saintonge polychrome ware and Andalusian lustreware.

Period A5

In terms of dating, the different phases follow a chronological progression, despite the large amounts of residual material that are present. By period A5, the amount of pottery discarded/redeposited is considerably greater (1430 sherds, 1061 ENV, 29.230kg) and the picture is completely different from that in A3 and A4. A sherd of Raeren stoneware from Gp A74 is considered intrusive, but 45 out of 50 contexts can be dated to after 1240. One of these contains pottery dating to after 1250, while 29 date to after 1270, in one case to after 1280 and in three to after 1290. In addition, eight other contexts contain wares typical of the period after 1340. By far the largest, and also the latest group is that from A74 (*c* 1253 sherds, 932 ENV, 26.334kg), of which contexts A[2018] and A[2022] contain sherds dated to after 1350. London-type ware is still by far the most common ware type, but although the actual amount is greater than in periods A3 and A4, the percentage has dropped to *c.* 35% by sherd count (502 sherds), and *c.* 41% by weight (12.134kg). There is only one sherd of SSW, while SHER has dropped to *c.* 3% of the sherd count (*c* 4% by weight). In second place by sherd count (*c* 29%) but third place by weight (21%) are Mill Green wares (419 sherds, 299 ENV, 6.298kg). Surrey whitewares are also much more strongly represented, with 309 sherds of Kingston-type ware (6.329kg) and 39 of CBW, with one sherd of Cheam whiteware. Together these are the third most common group by sherd count (*c* 25%, but in second place by weight, *c.* 25%). Other glazed fabrics comprise one sherd of possible late medieval Hertfordshire glazed ware dating to after 1340, one of developed Stamford ware, and an important cluster of Scarborough wares (25 sherds, 9 ENV, 763g). Imports are also much more common, and demonstrate increasing trade connections, with 88 sherds from up to 62 vessels (1.420kg), i.e. *c* 6% by sherd count/ENV, 5% by weight. Almost all are contemporary types, with a few

sherds of NFM and a range of Saintonge wares. In addition to proto-/near-stoneware, this period sees the arrival of Dutch redware (five sherds) and Siegburg stoneware (one sherd), which were beginning to reach London from *c.* 1300; there is also a sherd of Langerwehe stoneware (all from A74). Trade was not limited to northwest Europe. There is now better evidence for Spanish, Italian and Mediterranean imports, with single sherds of Andalusian lustreware, Merida-type micaceous ware, Spanish amphora and archaic maiolica. The collection of Maghrebi ware from group A74 is of particular importance as this ware is so far extremely rare in London. All in all, an end date of *c.* 1340–60/70 seems likely for this group. It is at the end of period M2, notionally placed at about 1350.

Site B (Seal House)

By far the largest amount of pottery from site B is from this period. In addition to the medieval assemblage, two sherds of post-medieval pottery were found in period B5.1 contexts, and one in period B7.2.

Period B5.1

Most of the 1240 sherds of pottery (*c* 895 ENV, *c.* 22.765kg) from period B5.1 are from the dumps associated with waterfront 3 (B31b, B32), but 102 sherds are from contexts relating to building 2. Taken as a single group, 104 sherds are residual late Saxon and 'early medieval' pottery, while SHER and SSW total 183 and 82 sherds respectively (3.712kg and 2.182kg). London-type wares are by far the most common, amounting to 813 sherds (*c* 90%) and 13.159kg (*c* 58%). Of these, 325 sherds are from jugs in the north French and Rouen styles (up to 220 ENV); in addition there are *c.* 70 sherds from baluster jugs of varying type. All these are consistent with a date of 1180–1230 for the group as a whole, but 11 sherds of Kingston-type ware and one from a London highly decorated jug from contexts B[394], B[467], B[484] (B31b), B[414] (B35) and B[510] (B32) date to *c.* 1240 or later. These are problematic as they are not sufficiently numerous to give a conclusive date for the waterfront *per se*; however, as Kingston-type ware is even less common in periods 5.2 and 6.1 (see below), they could indicate a final date of *c.* 1240–50 for period B5.1. The two post-medieval sherds in B[394] (BORDG) can be explained by the construction cut for a later well through the stratum. Those in B[467] must have been introduced by disturbance when the well was dug, or during the excavation itself. Also present are a sherd of possible Winchester ware and 43 imports, mostly jugs from North France, but including a few Rhenish wares. Context B[394] also contained 11 sherds from a Spanish amphora; if stratified this would be one of the earliest post-Roman occurrences in London. However, as more of the same vessel was found in B[386] (period B7.1), which lay immediately above, it is possible that these sherds are intrusive.

Period B5.2

Compared with period B5.1, very little pottery was recovered from contexts assigned to period B5.2 (127 sherds, 2141g). Most dates to the later 12th or early 13th century, but there are seven sherds of Kingston-type ware, a few sherds from LOND highly decorated jugs dating to after 1240 and one sherd that could be from a pear-shaped jug of *c.* 1270 (B[509]). As for period B5.1, the status of these sherds is uncertain; the Kingston-type wares could be among the first to be used in the capital, but the latest sherd could be intrusive. Nonetheless, while there is very little dating evidence for period B5.2, the waterfront was being used until period B6.2 and it may have been in use from *c.* 1240 until *c.* 1300, the date of the succeeding B:Waterfront 4 (off the excavated site to the south, but implied by the dumps in front of B:Waterfront 3).

Period B6.1

More or less the same amount of pottery was found in period B6 deposits as in period B5. That from period B6.1, associated with the destruction of B:Building 2, totals 588 sherds (368 ENV, 6.120kg). The group is very much the same as that from period B5 and probably comprises redeposited material; certainly the 'early medieval' wares (28 sherds) are residual, and probably most of the SSW (64 sherds). As before, London type wares dominate, with 442 sherds (*c* 77%; 4.337kg, *c.* 71% by weight). With the exception of 17 cooking pots, pipkins and jars and two items of roof furniture, all are from jugs. As in period B5, several are in the north French and Rouen styles, but one was recorded as being highly decorated, there are sherds from *c.* 11 jugs with white slip decoration and also a single sherd of Kingston-type ware from B[356] that should date to after 1240. Other ware types comprise SHER (46 sherds) and imports (five sherds of EGS and NFM). The similarity of this group and those from 5.1 and 5.2 suggest either contemporaneity or redeposition of material.

Period B6.2

Much less pottery was found in this period, and the overall composition of the group is much the same as in period B6.1. London wares are again the most common, amounting to 150 of the 203 sherds (*c* 74%; 1.725kg, *c.* 71%); a few of these have white slip decoration or are in the highly decorated style. Kingston-type ware is more common (24 sherds, 276g) and there is one sherd of Mill Green ware, the first dating to after 1270 that might be considered stratified (B40, B[325]). The only import is a small sherd of NFM. Ten sherds are of 'early medieval' date.

Period B6.3

Rather more pottery was discarded in this period, but again the group is very much the same as before. London-type wares comprise 338 of the 481 sherds (*c* 70%; 3.048kg, *c.* 64%); again, a few sherds have white slip decoration or are in the highly decorated style and date to after *c.* 1240. Twenty-two sherds are of Kingston-type ware (143g), while one is of Mill Green ware (B45, B[351]). The difference between this group and those from periods 6.1 and 6.2 is in the imports, which include single sherds of late Rouen ware, Saintonge ware and proto-/near-stoneware, all dating to after 1250. In addition, there are 17 residual sherds of 'early medieval' pottery.

Period B7.1

The medieval pottery from period B7.1 amounts to 2145 sherds (1272 ENV, 29.560kg), most of which was from the dumping between waterfronts B:3 and B:4 (B49, B54, B81: 1867 sherds, 27.410kg). The composition of the group differs from those of periods B5 and B6. The bulk of the material is typical of the mid-13th century, but the fact that later 13th-/early 14th-

Site A: M3				Site B: M3			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A6 MPOT	501	315	10325	B7.3	110	54	1107
A7 MPOT	1272	769	36999	B8.1	223	142	2003
Total	1773	1084	47234	Total	333	196	3110
A6 PPOT	6	4	50	B8.1	8	3	142
A7 PPOT	18	17	551				
Grand total	1797	1105	47925		341	199	3252

Table 77 Period M3: broad quantification of the medieval and later pottery from site A and site B by sub-period

century wares are much more common suggests that much of the pottery is residual. As before, the bulk of the assemblage comprises London-type wares, which amount to 1231 sherds (*c* 57%), 15.823kg (*c* 54%); some 35 jugs are typical of the period after 1240. In second place, however, is south Herts-type greyware, with 523 sherds (*c* 24%) weighing 7.759kg (*c* 26%), while Surrey whitewares collectively comprise *c.* 9% of the group by both count (185 sherds) and weight (2.777kg). Most of these are Kingston-type ware, but there are 40 sherds of CBW (730g; mainly from B[386]) and one of possible Tudor Green ware (B[196]). Also present are seven sherds of Mill Green ware, which were scattered through five different contexts. Imports are the fourth most common category, with 119 sherds (1.962kg); these include a few sherds of proto-/near-stoneware and Saintonge ware that date to after 1250, and 18 sherds (1.277kg) from the same Spanish amphora that was found in period B5.1 (B[394]). Of the other types, SSW amounts to only 14 sherds, while 64 of the 65 residual 'early medieval' wares are from B[386] (B54). This layer, therefore, contains both the earliest and some of the latest material.

Period B7.2

The quantified medieval pottery from period 7.2 amounts to 2852 sherds (1748 ENV, 31.688kg). The main groups are from the foreshore (B51a, B51b: 268 sherds, 3.220kg; B52b: 339 sherds, 5.867kg). Residual wares comprise 139 late Saxon/'early medieval' sherds (1.377kg) and 84 of SSW (1.635kg). London-area pottery dominates the collection, totalling 1738 sherds (61%; 18.366kg, 58%). These include sherds from 26 highly decorated jugs, 27 with white slipped decoration, two tulip-necked baluster jugs and three drinking jugs; the latter two forms dating to after 1270. As in period 7.1, SHER is the second most common type, with 379 sherds (*c* 13%), 5.754kg (*c* 18%). The amount of Surrey whiteware pottery has increased significantly, with 335 sherds (3.316kg). Most is from Kingston, including a jug with bossed decoration that dates to after 1340 (B[259]), but there are also 11 sherds of coarse Surrey-Hampshire border ware. The amount of Mill Green ware has also risen to 59 sherds from up to 28 vessels (317g). One sherd of Scarborough ware was also found. Approximately half of the 125 sherds of imported pottery (72 ENV, 935g) comprise north French monochrome ware (63 sherds), but a variety of other types is present. These include 16 sherds from ten late 13th- or 14th-century jugs from the Saintonge, three small sherds of Langerwehe stoneware and sherds from six drinking jugs and a drinking bowl in Siegburg stoneware. The drinking jugs probably date to after 1380, while the drinking bowl and a sherd with iron wash date to *c.* 1450–1500 (B[224], B[260]). The latter may be intrusive, as is a sherd of Raeren stoneware (B[301]), but the fact that the jug sherds occur in five different contexs (B56, 62, 71) suggests they may be stratified; if so they mark the end of period 7.2. Other finds comprise sherds from a costrel and a jar in Mediterranean maiolica (B59 and B76), one small sherd of a Spanish micaceous ware costrel and one from a Spanish amphora. While it is difficult to determine whether fabrics that span the 13th and 14th centuries (such as CBW, KING and MG) date to one or the other, the presence of a few distinctive imports suggests that much of the period 7.2 pottery is of 14th-century date.

Period M3 (1350/70–1500)

The pottery from period M3 is broadly summarised by sub-period in Table 77 and by ware etc. in Table 69.

Site A (Swan Lane)

Periods A6 and A7

The deposits and cut features assigned to period M3 at Swan Lane yielded a total of 1773 sherds of medieval pottery (1084 ENV, 47.234kg); as a number of pieces are missing the total could be greater than this. As shown in Table 88, over twice as many sherds were found in period A7 contexts as in those assigned to period A6 (over three times as much by weight). By the beginning of period M3, production of London-type wares had either ceased or was greatly diminished, and so most of the 194 sherds of this ware from period A6 and the 30 sherds from period A7 should be residual. The same applies to Mill Green ware (97 sherds from A6, 21 from A7). The 51 sherds in late London-type ware (28 ENV) and two sherds in the slip-coated equivalent LLSL (total 1.934kg) however, are from 15th-century vessels found in period A7 contexts, and should be contemporary waste. Kingston- and Earlswood-type wares were produced until *c.* 1400, and so could be contemporary in the earlier contexts, but residual in later levels. This is reflected by the diminishing numbers (103 sherds, 2.619kg in A6; 40 sherds, 734g in A7). Conversely, coarse Surrey-Hampshire border wares increase in number (39 sherds, 564g in period A6; 725 sherds, 21.361kg in A7) and are by far the most common ware type present, with sherds from up to 440 vessels (23% by sherd count, *c.* 46% by weight). Some could be residual, but the majority should be reliably stratified, and the 21 bifid-rimmed forms from period A7 should all date to after 1380. Large jugs/cisterns are a noticeable component of these groups, with fragments from up to 145 examples, all but one of which are from period A7. Cheam whiteware is present in A6, but limited to six sherds (59g); in period A7, by contrast, the amount rises to 159 sherds (101 ENV, 4.583kg); all 23 sherds of Tudor

Green ware are also from this period (12 ENV, 271g). Other contemporary wares comprise late medieval Hertfordshire glazed ware, which dates to between *c.* 1340 and 1450 (nine sherds, 6 ENV, 103g from A6; 46 sherds from 10 vessels, 1.059kg in period A7), and late medieval Colchester-type ware (COLS, nine sherds, 5 ENV, 306g from A7). The range of imports (total 205 sherds, 109 vessels, 7.366kg) has also changed, and differs between the two periods. In A6, the 46 sherds mainly comprise Low Countries redwares (DUTR, LCHD: 15 sherds, 8 ENV) with fairly equal amounts of French pottery (NFM, SAIC, SAIM) and German stonewares (EGS, SIEG, LANG) with four sherds of Spanish/Mediterranean pottery (ANDA, VALE, MAGR, SPAM). In period A7 the range of wares is the much same, but Low Countries redwares are more numerous (54 sherds, 17 ENV) and French wares are limited to two sherds (SAIN, SAIM), while German stonewares (LARA, LANG, SIEG) are by far the most common, amounting to 95 (57 ENV, 3.410kg) of the 156 sherds (81 ENV, 5.279kg). Also present are the sherds of Spanish pottery (ANDA, VALE). The Siegburg wares include typical 15th-century forms, with sherds from up to 13 *Trichterhalsbecher* and four *Jacobakanne*-type drinking jugs, as well as sherds from two 15th-century drinking bowls dating to after 1450 (A[2069], A[2082]/[2102]). As a whole, therefore, the medieval pottery from A7 is noticeably later in character than that from period A6.

In addition there are 24 sherds of post-medieval pottery. The four sherds from period A6 all date to after 1550 and so are intrusive (A[76], [A[1131]). The finds from period A7, however, found in 12 different contexts, are mainly types that could well have been in use in the last decades of the 15th century (early Surrey-Hampshire border ware, early post-medieval redware and Raeren stoneware, olive jar). These sherds, therefore date the end of period A7 to the late 15th/very early 16th century.

SITE B (SEAL HOUSE)

PERIODS B7.3 AND B8.1

The pottery from period M3 at Seal House amounts to 333 sherds (196 ENV, 3.110kg), with several sherds of late 14th- or 15th-century date. The pattern is much the same as for Swan Lane, in that the group from B8.1 is approximately twice the size of that from B7.3; the wares present are also slightly later in character, although less obviously so. In period B7.3 London-type wares are still the dominant type, although limited to 43 sherds (595g). Surrey whitewares are in second place, but Kingston wares (36 sherds, 306g) are more numerous than CBW (two sherds); Mill Green wares are in third place (23 sherds, 172g). There is no Cheam ware and only one sherd of LMHG. Other fabric types are all confined to one or two sherds only.

In period B8.1 London wares still comprise 38% of the group by both sherd count and weight (86 sherds); two of these are of LLON and LLSL and date to after 1400. Kingston wares and CBW are more or less equally represented by sherd count (32 and 34 respectively), although the latter is more common by weight (390g); single sherds of Cheam ware and Tudor Green ware, and two or three of late medieval Hertfordshire glazed ware also corroborate a later 14th- or 15th-century date. SSW and SHER are more common than in period B7.3, but should all be residual, as are the few sherds of Mill Green ware. Imports amount to c. 11% of the total sherds, but only 3% of the total weight. They mainly comprise German stonewares from Siegburg and Langerwehe, probably of 15th-century date, with single sherds of Dutch redware and Saintonge ware; a few earlier types are also present. The latest finds are three sherds of early post-medieval redware and Raeren stoneware from B[102], B[197] and B[203] which could date to c. 1480–1500.

Period P1 (1500–1666)

SITE A (SWAN LANE)

There is little that can be said about the pottery from site A in period P1 as the amount is so small. Furthermore, of the 23 sherds (18 vessels, 611gm), only three are of post-medieval date, dating to 1480–1550 (early Surrey-Hampshire border ware) and 1480–1600 (early post-medieval redware). The remainder are coarse Surrey-Hampshire border wares that could well be of 15th-century date, but should not be any later than *c.* 1500 and are thus likely to be residual. Taking the two groups together, it is possible that B[39], if not B[36], dates to *c.* 1480–1500 (Table 78).

SITE B (SEAL HOUSE)

There is surprisingly little post-medieval pottery from period P1 at site B (total 35 sherds, 18 ENV, 392g). Whether this is a true reflection of the pattern of deposition or indicates later truncation and/or rebuilding, perhaps following the Great Fire, is unclear, but the medieval material must be redeposited. Six contexts can only be ceramically dated to after 1480 and before *c.* 1600; B[15] and B[17] (B103) and B[140] (B102) however, are dated to after *c.* 1580 by clay pipe, while B[125] (B93) probably dates to between *c.* 1630 and 1680. All the fabrics and form types are quite standard for 16th- to early 17th-century London, with a bias towards local London-area redwares. The imported vessels mainly comprise 15th-century German stonewares, and the only later finds are a few sherds of Raeren stoneware, Italian white-slipped ware, Martincamp stoneware and possibly a Spanish green-glazed ware jar.

Period P2 (1666 to 1750)

This section on pottery from post-Fire periods will be considered in detail in the later publication of the post-Fire strata, but is included here.

SITE A (SWAN LANE)

At Swan Lane, the amount of post-medieval pottery from this period is significantly greater than from period P1, amounting to 655 sherds from up to 126 vessels (23.004kg). Most, however, is from a single cesspit on Tenement 4, which contained 648 sherds (22.901kg). Excavated about 30 years ago, this remains one of the best examples of a closed group of finds from the period 1650–80 found in the City, with an excellent sample of the range of fabrics and forms in use at the time. Much of the pottery is similar to that from three period P3 features at Site B: well group B137, drain B122/B125, and floor B122, but more complete. The finds are discussed in detail in the main text, and so this information is not repeated here. Other than this, the distribution of the pottery is patchy and much is of medieval date (Table 79).

Site A				Site B			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A (med)	20	16	509	B8.2 (med)	254	124	3063
A (pmed)	3	2	102	B8.2 (pmed)	12	8	295
				B8.3 (med)	209	77	1875
				B8.3 (pmed)	20	8	315
				B8.4 (med)	17	17	200
				B8.4 (pmed)	3	1	175
Total	23	18	611	Total	480	218	5138

Table 78 Site A and site B: broad quantification of the medieval and post-medieval pottery from period P1 by sub-period

Site A				Site B			
Period	Sherds	ENV	Weight	Period	Sherds	ENV	Weight
A (med)	31	24	270	B9 (med)	102	86	1502
A (pmed)	655	126	23004	B9 (pmed)	21	15	245
Total	686	150	23274	Total	123	101	1747

Table 79 Site A and site B: broad quantification of the medieval and post-medieval pottery from period P2

Site B (Seal House)

Most of the pottery from period P2 at Seal House, apart from the destruction phase at the end, is medieval, with only 21 sherds of post-medieval date (15 ENV, 245g), some of which are also residual. Most are broadly of 16th- and 17th-century date: PMRE and Raeren stoneware date to between *c.* 1480 and 1600, while Frechen stoneware and Surrey-Hampshire border ware both have ranges of 1550–1700. PMR and PMFR date to after 1580, while Martincamp type 3 stoneware dates to 1600–50. The latest finds (PMFR, TGW and CHPO), are all from [9]/[53], which was the wall of the brick cesspit B99, which is thought to be associated with tenements built in the 1670s (see above, B:Building 9).

Of the finds from period P3, those from well group B137, recorded only in section, could be a late 17th-century clearance group, as several pieces are substantially complete (63 sherds from 15 post-medieval vessels, 4.343kg). Such clearances are more typical of the 18th century and may have been prompted by a number of reasons, one of them being a desire to replace older ceramic styles with the new factory made dinner services in Staffordshire salt-glazed stoneware, creamware and pearlware that were entering the market with dramatic effect on consumer tastes (Blackmore 2005a, 247). In this case, however, rebuilding after the Great Fire seems a more likely explanation. Another such group in the City, dated to *c.* 1740–45, was found at 12–14 Mitre Street (MIR84; Pearce 1998). Later 18th-century groups from Greater London include two at Old Church Street, Chelsea (Jarrett 2000; Blackmore 2005b; Blackmore in Cowie *et al.* 2008, 15–8) and another at Uxbridge (Pearce 2000). As it derives from a floor, not a cut feature, the group of pottery (141 sherds, 49 ENV) associated with the later phase of destruction of the brick range (B122) cannot exactly be considered a clearance group. It comprises a mix of rather small 17th-century sherds with a small amount of mid 18th-century pottery.

Pottery from site C (New Fresh Wharf)

Jacqui Pearce

The pottery from the three sites making up in the New Fresh Wharf project (NFW74, SM75 and FRE78) has been quantified and the analysis of the groups by period and landuse is included in the main narrative above. The medieval assemblage from periods M1, M2 and M3 amounts to 3075 sherds (1453 ENV, 63680kg; Table 80). The sherds selected for illustration and study in the future are given here in Table 81. It has not yet been possible to analyse the composition of the assemblages in the same way as been done for sites A and B, and this makes it difficult to compare the trends on the different sites by period.

On site C the pottery during period M1 is dominated by early medieval handmade coarsewares, with EMSS, ESUR and EMS particularly well represented. The range of forms is limited chiefly to jars or cooking pots, bowls and dishes, which is the common pattern on sites across the City in the period *c.* 1050–1150. Imports consist mainly of Rhenish wares (ANDE, REDP) at this date, with evidence for contact with East Anglia provided by sherds of THET and STAM. London-type wares (LOND, LCOAR and variants) are present from *c.* 1080, as recognised on other waterfront sites, and increase in frequency over the course of the 12th century, typified by early rounded jugs and slip decoration in the early style in mid to late 12th-century contexts. The latest pottery in period M1 that does not appear to be intrusive consists of south Herts-type greyware (SHER), rare sherds of imported NFRE and ROUE, as well as the London-type ware copies (LOND NFR, LOND ROU) found from the last quarter of the 12th century (e.g. on Tenements 10 and 11).

Much of the pottery from site C in period M2 dates to the period *c.* 1270–1350, with MG and CBW as the key diagnostic indicators, as well as tulip-necked baluster jugs in LOND and

Period	Feature	SC	% SC	ENV	% ENV	Wt	% Wt	EVE	% EVE
M1	Tenement 10	556	18.1%	280	19.3%	7489	11.8%	4.4	10.3%
M1	Tenement 11	102	3.3%	67	4.6%	2354	3.7%	1.75	4.1%
M1	Tenement 12	325	10.6%	182	12.5%	5417	8.5%	3.8	8.9%
M1	Tenement 13	90	2.9%	22	1.5%	2371	3.7%	0.14	0.3%
M1	Tenement 14	49	1.6%	34	2.3%	833	1.3%	0.77	1.8%
M2	Tenement 9	82	2.7%	60	4.1%	1702	2.7%	0.5	1.2%
M2	Tenement 10	255	8.3%	168	11.6%	5414	8.5%	2.94	6.8%
M2	C:Buildings 6 and 7	29	0.9%	24	1.7%	537	0.8%	0.19	0.4%
M2	Tenement 11	10	0.3%	9	0.6%	285	0.4%	0.09	0.2%
M2	C:Building 8	6	0.2%	3	0.2%	164	0.3%	0.42	1.0%
M2	Tenement 12	6	0.2%	6	0.4%	203	0.3%	0.1	0.2%
M2	C:Buildng 9	13	0.4%	9	0.6%	139	0.2%	0.15	0.3%
M2	Tenement 13	48	1.6%	37	2.5%	683	1.1%	0.53	1.2%
M2	Tenement 14	69	2.2%	35	2.4%	1381	2.2%	1.06	2.5%
M3	C:Bulding 8 later	1	0.0%	1	0.1%	13	0.0%		0.0%
M2		105	3.4%	26	1.8%	1644	2.6%	0.1	0.2%
M3	C:Building 10	427	13.9%	140	9.6%	9000	14.1%	5.72	13.3%
P1	C: Building 11	384	12.5%	52	3.6%	6776	10.6%	1.84	4.3%
M3	C:Building 9 later	1	0.0%	1	0.1%	11	0.0%		0.0%
M1 or M2		17	0.6%	11	0.8%	301	0.5%	0.19	0.4%
		500	16.3%	286	19.7%	16963	26.6%	18.23	42.5%
		3075	**100.0%**	**1453**	**100.0%**	**63680**	**100.0%**	**42.92**	**100.0%**

Table 80 Site C: quantification of pottery by period and landuse; SC= Sherd count, Wt=weight (grams)

KING metal copy baluster jugs. All groups on Tenement 9 fall within this range, and the fabrics and forms are typical of usage across London at this date. The presence of sherds from two knight jugs in Scarborough ware, along with part of a large KING jug decorated with stamped bosses and other jugs in the highly decorated style in LOND and KING from Tenement 9 may be indicative of a relatively well-to-do household, capable of entertaining on a reasonable scale. Other tenements at this period yielded ceramic assemblages that are generally less suggestive of better quality. Tenement 10 dates to *c.* 1340–1400 at the latest, but includes mainly late 13th- to early 14th-century finds, with LMHG the diagnostic fabric. The pottery is, however, more mixed in date, as it is in most other features on the site assigned to period M2. Overall, minimal Continental imports were identified, consisting mainly of SAIM (14 sherds), SAIU and SAIN (one sherd each), present from the last quarter of the 13th century onwards. There are also sherds from at least seven jugs in SCAR, from Yorkshire, which is never common in London.

Pottery from site D (Billingsgate)

Jacqui Pearce and Lyn Blackmore

At present the basic Unix records for site D (BIG82) include 6595 lines of data relating to medieval pottery from 1262 contexts. These date between the Saxo-Norman period and the end of the 15th century, with major concentrations of pottery in contexts dating from the mid 12th to mid 14th century. Post-medieval pottery was recorded in 312 contexts, and the records include 1068 lines of data for contexts dating between *c* 1480 and 1800, including material already published and analysed in detail for a part of the strata of the first half of the 17th century (Schofield and Pearce 2009). This gives only a very rough idea of how much material was recovered from the site, which amounts to 180 boxes of pottery stored in the Museum of London Archaeological Archive.

In addition to the various problems regarding the level of information on fabric and form noted in the introduction, there are also numerous records of body sherds that include no entry at all for form, where closer analysis would allow the class of vessel at least to be identified (for example – cooking pot, bowl, jug). Other details essential to dating and understanding the pottery, such as sherd count and estimated number of vessels, are also lacking, and EVEs and weight are both only partially recorded. For a large proportion of the excavated pottery, chronological refinement is thus impaired (although unlikely to be grossly inaccurate), and the existing computerised records, derived from data entered on the original Unix system, are inadequate by present standards and not compatible with the updated records made for other sites in the waterfront project. In 1990–1 an attempt was made to correlate the medieval pottery and other finds with the phasing structure established by Trevor Brigham (Blackmore 1991a; 1991b; 1991c), but for reasons stated above, it was not possible to give a true picture of either the range of forms or the date of the different assemblages. The reports are available in the Museum of London Archaeological Archive.

The data have also been used for the study of shelly-sandy wares (early/mid 12th to the early 13th century) and greywares (late 12th century until about 1350; Blackmore and Pearce 2010, 299–30, fig 5), resulting in two new independently

<P> No.	Site	Ctxt	Per	Phase	Tenement No.	Fabric	Form	Previous published refs
P1	SM75	192	M1	3.3	9	ESUR	CP	
P2	SM75	101	M1	3.2	10	EMSH	SPP	
P3	SM75	101	M1	3.2	10	EMSH	CP	
P4	SM75	101	M1	3.2	10	EMSH	CP	
P5	SM75	101	M1	3.2	10	LSS	CP	
P6	SM75	101	M1	3.2	10	LSS	CP	
P7	SM75	104	M1	3.2	10	EMCH	CP	V&J 91, No. 132
P8	SM75	101	M1	3.2	10	NORG	SPP	V&J 91, No. 295
P9	SM75	101	M1	3.2	10	NORG	SPP	V&J 91, No. 293
P10	SM75	101	M1	3.2	10	THET	JAR ST	
P11	SM75	101	M1	3.2	10	THET	SPP	V&J 91, No. 205
P12	SM75	55	M1	3.4	10	THET	JAR ST	V&J 91, No. 170
P13	SM75	146	M1	3.5	10	EMSH	BOWL	
P14	SM75	146	M1	3.5	10	LOND	JUG ERND	
P15	SM75	146	M1	3.5	10	LOND	JUG	
P16	SM75	146	M1	3.5	10	SHER FL	BOWL	
P17	SM75	146	M1	3.5	10	SSW	CP	
P18	SM75	85	M1	3.2	11	EMS	DISH RND	
P19	SM75	103	M1	3.2	11	LSS	DISH FLAR	
P20	SM75	103	M1	3.2	11	LSS	CP	
P21	SM75	103	M1	3.2	11	LSS	JAR ST	
P22	SM75	103	M1	3.2	11	LSS	CP	V&J 91, No. 4
P23	SM75	103	M1	3.2	11	LSS	CP	
P24	SM75	103	M1	3.2	11	LSS	CP	V&J 91, No. 2
P25	SM75	103	M1	3.2	11	LSS	CP	
P26	SM75	103	M1	3.2	11	STAM	SPP	V&J 91, No. 234
P27	SM75	108	M1	3.2	11	EMSS	CP	
P28	SM75	108	M1	3.2	11	LSS	DISH FLAR	
P29	SM75	108	M1	3.2	11	LSS	BOWL	
P30	NFW74	45	M1	3.2	12	ANDE	SPP	V&J 91, No. 271
P31	NFW74	129	M1	3.2	12	ANDE	PTCH	V&J 91, No. 271
P32	NFW74	59	M1	3.2	12	NORG	SPP	V&J 91, No. 294
P33	NFW74	59	M1	3.2	12	NORG	SPP	V&J 91, No. 296
P34	NFW74	59	M1	3.2	12	REDP BUF	BEAK	V&J 91, No. 251
P35	NFW74	124	M1	3.2	12	REDP BUF	SPP	
P36	NFW74	124	M1	3.2	12	THET	SPP	
P37	NFW74	124	M1	3.2	12	NFRE	SPP	V&J 91, No. 282
P38	NFW74	124	M1	3.2	12	NFRE	SPP	V&J 91, No. 283
P39	NFW74	48	M1	3.2	12	EMS	CP	V&J 91, No. 52
P40	NFW74	124	M1	3.2	12	EMS	CP	V&J 91, No. 50
P41	NFW74	129	M1	3.2	12	EMS	CP	V&J 91, No. 56
P42	NFW74	129	M1	3.2	12	EMS	JAR	V&J 91, No. 64
P43	NFW74	129	M1	3.2	12	EMS	SPP	V&J 91, No. 53
P44	NFW74	45	M1	3.2	12	EMFL	CP	V&J 91, No. 128
P45	NFW74	129	M1	3.2	12	EMSS	CP	V&J 91, No. 82
P46	NFW74	48	M1	3.2	12	EMSH	BOWL	
P47	NFW74	129	M1	3.2	12	EMSH	BOWL RND	V&J 91, No. 115
P48	NFW74	124	M1	3.2	12	EMSH	CP	V&J 91, No. 104
P49	NFW74	124	M1	3.2	12	EMSH	CP	
P50	NFW74	129	M1	3.2	12	EMSH	CP	V&J 91, No. 111
P51	NFW74	48	M1	3.2	12	EMSH	SPP	
P52	NFW74	124	M1	3.2	12	EMSH	SPP	

<P> No.	Site	Ctxt	Per	Phase	Tenement No.	Fabric	Form	Previous published refs
P53	NFW74	129	M1	3.2	12	EMSH	SPP	V&J 91, Nos 110/124
P54	NFW74	48	M1	3.2	12	ESUR	CP	V&J 91, No. 143
P55	NFW74	59	M1	3.2	12	ESUR	CP	V&J 91, No. 142
P56	NFW74	89	M1	3.2	12	LOGR	CP	V&J 91, No. 165
P57	NFW74	129	M1	3.2	12	LOGR	PTCH	
P58	NFW74	48	M1	3.2	12	EMCH	CP	V&J 91, No. 134
P59	NFW74	59	M1	3.2	12	EMCH	CP	V&J 91, No. 129
P60	NFW74	129	M1	3.2	12	EMCH	CP	V&J 91, No. 135?
P61	NFW74	124	M1	3.2	12	EMCH	CP	V&J 91, No. 130
P62	NFW74	129	M1	3.2	12	EMCH	CP	V&J 91, No. 130
P63	FRE78	186	M1	3.2	13	SATH	SPP	
P64	NFW74	132	M1	3.4	13	ESUR	CP	
P65	NFW74	115	M1	3.2	14	LSS	CP	
P66	NFW74	77	M1	3.2	14	EMSS	CP	
P67	NFW74	123	M1	3.2	14	EMSS	BOWL	V&J 91, No. 83
P68	SM75	163	M2	4.1	9 or 10	LOND	JUG MINI	
P69	SM75	163	M2	4.1	9 or 10	KING METCOP	JUG BAL	
P70	SM75	163	M2	4.1	9 or 10	KING SBOSS	JUG BAL	
P71	SM75	99	M2	4.1	9	SCAR	JUG KNT	
P72	SM75	163	M2	4.1	9 or 10	SCAR	JUG ANTH	
P73	SM75	62	M2	3.6	10	EMSS	CP	V&J 91, No. 74
P74	SM75	62	M2	3.6	10	LMHG	JUG BAL	
P75	SM75	62	M2	3.6	10	SAIM	JUG RND	
P76	NFW74	49	M2	3.6	13	SSW	BOWL FLAR	
P77	NFW74	88	M2	3.6	14	EMS	DISH FLAR	V&J 91 No. 34
P78	NFW74	92	M2	3.6	14	SSW	CP	
P79	NFW74	36	M3	4.2	13	SHER	CP	
P80	NFW74	47	M3	4.3	13	CHEA	DJ BICON	
P81	NFW74	8	M3	4.4	13	CHEA	DJ BICON	
P82	NFW74	44	M3	4.4	13	CBW	JUG RNBG	
P83	NFW74	52	M3		13	SAIM	JUG BAL	
P84	NFW74	55	P1	4.6	13	PMSRG	CHP	
P85	NFW74	2	P1	4.8	13	BORDB	CUP CAUD	Pearce 1992, No. 266
P86	NFW74	121	P1	4.5	14	BORDG	DISH FLNG	Pearce 1992, No. 25
P87	NFW74	121	P1	4.5	14	RBOR	TPIP3	
P88	NFW74	39	P1	4.8	14	PMR	JAR BUNG	
P89	FRE78	511	P1			BORDY	BOWL CARN	Pearce 1992, No. 80
P90	FRE78	511	P1			BORDY	BOWL CARN	Pearce 1992, No. 84
P91	FRE78	511	P1			BORDG	BOWL FLAR	Pearce 1992, No. 59
P92	FRE78	511	P1			BORDG	BOWL FLAR	Pearce 1992, No. 77
P93	FRE78	511	P1			BORDG	COL	Pearce 1992, No. 451
P94	FRE78	511	P1			BORDG	DISH FLNG	Pearce 1992, No. 12
P95	FRE78	511	P1			BORDG	DISH FLNG	Pearce 1992, No. 2
P96	FRE78	511	P1			BORDY	DISH FLNG	Pearce 1992, No. 42
P97	FRE78	511	P1			BORDY	PORR	Pearce 1992, No. 125
P98	FRE78	511	P1			BORDY	SALT PED	Pearce 1992, No. 397
P99	FRE78	511	P1			BORDG	SKIL	Pearce 1992, No. 179
P100	FRE78	511	P1			PMFR	DISH FLNG	
P101	FRE78	511	P1			PMFR	TPIP	
P102	FRE78	511	P1			PMBL	MUG BART	
P103	FRE78	511	P1			PMR	CAUL	

<P> No.	Site	Ctxt	Per	Phase	Tenement No.	Fabric	Form	Previous published refs
P104	FRE78	511	P1			TGW A	DISH	
P105	FRE78	511	P1			POTG	DISH	
P106	FRE78	511	P1			VALL	BOWL	
P107	FRE78	511	P1			VALL	BOWL HAND	
P108	FRE78	511	P1			DUTR	CAULPIP	
P109	FRE78	511	P1			DUTR	CHAF	
P110	FRE78	511	P1			FREC	JUG BART	
P111	FRE78	511	P1			WERR	BOWL RND	

Table 81 New Fresh Wharf (site C): notable medieval and post-medieval sherds, <P> profiles. V&J 91 = Vince and Jenner 1991

updated data files which will need to be merged in any new study. The only part of the site D ceramic sequence that has been recorded to current standards is, therefore, that from period D15/16, analysed for the publication of buildings on the property leased by Thomas Soane from the Grocers' Company in the first half of the 17th century (Schofield and Pearce 2009).

In short, the Billingsgate finds have played a crucial role in the development of the London medieval ceramic sequence, which in turn underpins all research carried out on the wider material culture of Londoners from the Saxo-Norman period onwards. Material from site D (and the watching brief on earth-moving, BWB83) has made a significant contribution to the establishment of a secure and closely focused ceramic chronology for London that has been substantially confirmed by subsequent discoveries. The full ramifications of the evidence, however, have not yet been explored, for the reasons outlined above, and the richness of the site, in terms of pottery, has so far inhibited study for lack of an appropriate level of funds. The authors hope that the present work will draw attention to this need. The size of the collection of shelly-sandy ware sherds, for example, 'far exceeds any other from London in the range and number of forms present' (Blackmore and Pearce 2010, 36) and demonstrates the importance of the site in 12th- to 13th-century trade beyond London and overseas (69–72, 240, 243–5; above, Figure 25). Detailed analysis of the medieval pottery sequence would not only throw valuable light on the questions addressed in the present study, but also provide evidence for the everyday domestic life of people living in the tenements that crowded the waterfront, for industrial activity associated with these same buildings, for the commercial life of the waterside community as goods passed through the capital, and for trading links with the Continent and further afield.

6.7 Ceramic building material from site D

Ian M Betts

This report concerns ceramic building material (floor tiles, bricks, roof tiles) from the medieval and post-medieval levels on site D (Billingsgate). The material is therefore almost all from the stratigraphic periods D7 (1140–1220) to D16 (1600–66). Some pre-Fire material found in layers of the post-Fire period D17 (1666–1750) is included. The material is considered by type and has been arranged in approximate date order of strata. In several cases the tiles were probably reused, and as artefacts had long lives.

The report considers the following: possible early glazed floor tile; the tile pavements in St Botolph's in period D15.3 (16th century); general notes on the types of medieval tiles from various phases of the church (but all laid in post-Reformation floors); tin-glazed floor tiles; tin-glazed wall tiles; roofing tiles; and brick.

Possible early glazed floor tile

Fabric type: 2273

A number of monastic sites in the London area are now known to have used square shaped floor tiles as early as the mid 12th–early 13th century. These were all made using the same distinct sandy clay (fabric 2273), which was also used to make roofing tiles during the same period. At Bermondsey Abbey they are unglazed (Betts 2011, 203) whilst at Stratford Langthorne they are glazed (Smith and Betts 2004), as are a number of probable floor tiles from the Guildhall Yard area of central London (Betts 2007a, 432). All these tiles were presumably made in the London area as the badly truncated remains of a kiln making roofing tile in fabric 2273 were found at Niblett Hall, Fleet Street (Geoquest 1993, 1).

There are three thick (32–34mm) fragments tile in fabric 2273 from site D, all of which have a yellow glaze covering a thick layer (1–4mm) of sandy white slip above the clay body. Although none show evidence of wear it is difficult to believe that these tiles could have been used for anything other than flooring. One corner fragment has two slightly bevelled edges which are a characteristic feature of flooring material.

The earliest of the three probable floor tiles was found in period D4.5 (context D[7064]) associated with D:Waterfront 5 of 1045–90 (Steedman *et al.* 1992, 56). However, it is possible that the tile may represent later contamination as the other two examples are both from period D7. The floor tiles from period D7 were found associated with roofing tile in the same fabric. One tile (in context D[6507]) was found in dumping of period D7.7 above the period D7.1 revetment D:Waterfront 10, whilst the other (D[4888]) was found in what may have

been a hollow behind the same revetment (period D7.8). The deposits in both cases date to 1140–1220 (Table 14).

The tiles in St Botolph's church, period D15.3 (tile floor 1)

There is no doubt that the two areas of tiled flooring in the south extension of the church in period D15.3 (contexts D[361] and D[603]) belong to the same floor (tile floor 1), and they are reported here as one. Both areas contain the same mixture of decorated and and plain floor tiles. They are from several different sources.

'Westminster' tiles (1250–1300)

Fabric types: 2199, 2892, 3081

The south extension floor has both plain (8 examples) and decorated (10 examples) 'Westminster' floor tiles. Two sizes of decorated tiles are present, each with its own set of designs. The smaller tiles which range from 105–119mm across have Betts (2002) design types W3, W55, W108 and W130. The larger type ranges from 134–142mm across and comprises designs W31, W34, W109 and a further design type (tile currently missing). Tiles in both groups are between 22–28mm thick.

Plain tiles of 'Westminster' type can be identified by their fabric type, which in most cases is identical to the decorated examples. Both sizes are present, the small size comprising tiles of yellow and mottled green colour, whilst the larger size are brown and various shades of green.

Penn tiles (1350–90)

Fabric types: 1811, 2894

A total of 35 Penn floor tiles are present, of which 32 are decorated, one is a plain greenish-black, and two are too worn to tell. The plain tile has a diagonal knife cut running across the top surface showing that it was the original intension to split the tile into two smaller triangular tiles, but this was never carried out. All the tiles are of very similar size, ranging from 105–115mm across by 19–23mm thick. The decorated designs have Eames and Hohler (the latter denoted by the letter P) design types: 1399/P121, 1827/P73, 1837/P112, 2223/P46?, 2231/P54, 2262/P130, 2353?/P58?, 2394, 2409?/P66 and 2535/P88. There is also a probable Penn tile with design 2027. Eames design 2535 (Hohler P88) is one of the designs found *in situ* at the Aerary pavement at Windsor Castle laid in 1355 (Keen 2002, 220–5), which suggests that Penn tiles may have been installed in the church sometime in the 1350s. In addition, another probable unpublished Penn tile design was also recovered from the south extension floor (type <T5>). This tile, which is in a Penn fabric (type 2894) measures 108mm square by 21mm in thickness.

Eltham Palace/Lesnes Abbey Group (late 13th- early 14th century)

Fabric type: 2324

A set of eight designs were found in an *in situ* tile pavement at Eltham Palace. They were probably laid during the first few years of the 14th century (Eames 1982, 238). Two tiles from the site D floor seem to be Eltham Palace design type 3, although identification is difficult as both are badly worn. They measure 133–135mm square by 22mm in thickness which matches the dimensions of the Eltham Palace tiles which average 135mm across with a thickness of 18–24mm. The Eltham Palace tiles and the site D examples are the same length/breadth as the larger 'Westminster' tiles and thus could easily be used together. Tiles in the 'Westminster' group can be distinguished by a greater thickness.

Plain Low Countries (14th–16th centuries)

Fabric types: 1678, 2317, 2320, 2497

Apart from the eight plain 'Westminster' and the single Penn tile discussed earlier all the plain floor tiles in the tiled floor are of Low Countries origin. A number of tiles have nail holes visible in their top corners; a characteristic feature of Low Countries made tiles. On other tiles the holes have either worn away or are covered on yellow glazed examples by white slip. Two sizes of tile are present. The smaller measure 117–121mm square by 22–26mm. They have a dark green or yellow glaze and four holes one near each corner. Their fabric is characterised by abundant quartz and white calcium carbonate inclusions (fabrics 2497, 1678). The larger tiles, which measure 130–136mm square by 19–24mm thick, are various shades of green or brown and have just two nail holes, diagonally opposite. Two very worn examples may have had a yellow glaze. The fabric of the larger tiles is quite different from that of the smaller group consisting of varying amounts of quartz but lacking the abundant calcium carbonate (fabrics 2317, 2320). The differences in fabric would suggests that these tiles are the products of two separate tileries and may well be of different date. The smaller four nail hole type is typical of the many thousands of medieval floor tiles which were imported into London from the Low Countries between the 14th to late 15th centuries (Betts 1994, 134). The slightly larger two nail hole variety seems to have first arrived in London around the late 15th century and continued in use into the 16th century.

The only other floor tile from period D15.3 is a solitary plain, partly glazed, green and brown example from occupation debris in the south extension. This is a Low Countries tile, but is in a different fabric (silty type 3082) from the tiles in the pavement. The fabric would suggest a late 15th–16th century date. A medieval brick measuring 210x98x45mm was retained from what has been interpreted as a kerb. Although varying in colour between light red and pale brown, the brick is in fabric type 3031, a fabric normally yellow in colour.

Discussion

Clearly, the 'Westminster', Eltham Palace/Lesnes Abbey and Penn tiles in the south extension floor must have been reused, almost certainly from an earlier floor in St Botolph's church. What is less certain is whether all the Low Countries tiles are reused, although this would seem likely for the probable earlier tiles of smaller size. What is certain is that the floor suffered heavy wear, as many of the tiles are very badly worn, particularly the older 'Westminster' and Eltham Place/Lesnes Abbey series tiles.

The tiles in St Botolph's church, period D16.6 (tile floors 3 and 4)

In this phase two floors of tiles were laid (tile floors 3 and 4; the term 'tile floor 2' is given to a tile floor in the church in period D16.2, from which all the tiles in the area of the excavation had been robbed). The tiles used in tile floor 3 comprise, first,

a series of glazed Low Countries tiles with two square nail holes. The nail holes are roughly square (2–3.5mm) in size and set in diagonally opposite corners. The tiles, which measure 211–214mm square by 21–28mm in thickness, are covered by brown, yellow or mottled yellow and green glaze. Their predominantly silty fabric (2324, 3063, 3082) and the presence of square shaped nail holes would indicate a late 15th–16th century date. Of similar or later date is a 40mm thick Low Countries tile in a calcium carbonate rich fabric (2504). This appears to lack a glazed upper surface, although this could have been removed by wear. There is a single surviving roughly oval shaped nail hole (3x1.5mm).

A large number of complete, or substantially complete Low Countries floor tiles was recovered from the tile floor 4 which followed. There are reused glazed tiles and plain unglazed tiles present. The glazed examples probably date to around 1480–1600 whilst the unglazed examples are probably 17th century, although there is evidence that such tiles may have first been brought into London around *c.* 1580–1600 (Betts 2003). Four sizes were identified (Table 82).

There is only one tile of size 1, which is in a fabric characterised by frequent calcium carbonate (2323). This tile is heavily worn but has traces of what appears to be dark green glaze on the top surface with a circular nail hole 2mm in diameter. The unglazed tiles of size 2 are in a silty fabric type (3063) and all have two nail holes, one diagonally opposite from the other. These holes are roughly square and range in size from 2–3mm square. The earlier glazed tiles, which are is a slightly different silty fabric (2850), have green glaze above a white slip. Many of the floor tiles in size 3 are heavily worn, the glaze often surviving only in isolated cracks or along the tile edge. The glaze colour is dark green, yellow or brown. The tiles in this size are characterised by their unusually large thickness: 40–50mm. None have any visible nail holes, however the fairly common calcium carbonate inclusions in the clay matrix (fabrics 1678, 2504, 2894?) confirms their Low Countries origin. Their heavily worn appearance, as with the tile in size 1, suggests they are earlier tiles which have been reused. The unglazed tiles in size 4 have a silty clay matrix, but the clay used (fabric 2318) is distinctly sandier that that used for the tiles in Group 2. All the tiles have two nail holes, one diagonally opposite from the other. These holes are roughly square measuring around 3x2mm.

A large number of small tile fragments were also used in tile floor 4. Most of these are clearly fragments belonging to size groups 1–4. However, there are a number of plain glazed tiles which apparently do not belong to the groups discussed above. These are in silty fabric types (1977, 3063, 3082) and have either brown or mottled brown and yellow coloured glaze. The heavy wear and presence of glaze on tiles in size groups 1 and 3 indicate that they are from an earlier tiled floor. It is possible these tiles may have been reused from the first tiled floor in D16.6, although none match the size of the small number of surviving tiles in the first floor. The plain unglazed Low Countries tiles of size groups 2 and 4, on the other hand, may well have been brought new to floor the south aisle. A small quantity of roofing tile was used in part of tile floor 4, as was a reused medieval brick (fabric 3043) measuring 183x91x40mm.

General notes on the different types of medieval tiles

'Westminster' tiles

The earliest decorated floor tiles are of 'Westminster' type made in London during the second half of the 13th century (but evidently reused many times on site D, as found on other sites). All the design types found at site D are listed in Table 83. Designs found *in situ* in the tiled floor of D15.3 are W3, W31, W34, W108, W109 and W130 (designs as in Betts 2002). The uncertain designs are mostly tiles which are either too small or worn for the pattern to be identified with any certainty. Also included in the uncertain category are two designs classed as new in 1991 (meaning not in Eames (1980) or Degnan and Seeley (1988)) but which cannot currently be located.

There are two distinct groups of 'Westminster' tiles present which may well differ slightly in date. The first is a series of smaller tiles measuring 105–119mm square (22–29mm thick). These comprise designs: W3, W53, W55, W58, W97, W108, W130. The second series is larger, measuring 133–142mm square (26–31mm thick) comprising a separate set of designs: W25, W31, W33, W34, W104, W109. Both size groups were used in St Botolph's church and presumably represent two different phases of flooring.

Eltham Palace/Lesnes Abbey group

Towards the end, or shortly after the production of 'Westminster' tiles ceased another group of decorated and plain floor tiled began to be used in the London area. These are very different from tiles of 'Westminster' type being larger in size (around 135mm square), made from a different clay and largely decorated with a repertoire of different designs. These tiles were first recognised at Eltham Palace and Lesnes Abbey, hence the name given to tiles of this group. Production must have been on a very much smaller scale than that of the 'Westminster' tilemakers as Eltham Palace/ Lesnes Abbey group tiles only occur sporadically on London excavations. The only major group outside Eltham Palace itself are the 17 different decorative designs found on tiles at Merton Priory, Greater London (Betts 2007b, 203–5). The source of production of the Merton Priory and Eltham palace and the other tiles in this group is unknown.

Group	Size	Fabric type	Comments
1	180mm square x 40mm	2323	glazed
2	195–205mm square x 26–35mm	2850, 3063	glazed, not glazed
3	215–220mm square x 40–50mm	1678, 2504, 2894?	glazed
4	259–260mm square x 31–32mm	2318	not glazed

Table 82 Site D: groups of Low Countries floor tiles from period D16.5

At Eltham Palace the tiles were laid in a hall built for Bishop Anthony Bek, probably around 1300–5. Presumably, Eltham Palace/Lesnes Abbey group tiles were installed in St Botolph's church around the same period as they included one of the design types used in Bishop Bek's hall (Eames 1982, 240, no. 3).

Penn tiles, including possible examples

From context D[75] (<486>) is what at first sight would appear to be a typical 'Westminster' tile. It has the same slightly blurred pattern seen on 'Westminster; tiles and at 24–25mm thick is of similar thickness. However, the clay source used is very similar to that exploited for the manufacture of tiles made at Penn in Buckinghamshire rather than those belonging to the 'Westminster' group. Furthermore, the interlocking diamond and fleur-de-lis is not a 'Westminster' design (Figure 249, <T1>).

The tile may well be an early Penn design, that is one made before the Black Death, which tend to be thicker than later tiles. Certainly, a similar design was used on post-Black Death Penn tiles (Eames type 2210/ Hohler P105). Tiles made prior to the Black Death are occasionally found in London although they are much rarer that those of post-Black Death date. If the tile is from Penn then it probably dates to the 1330s or 1340s.

The floor tiles from Penn, Buckinghamshire, which are first found in D12.1, probably date to the second half of the 14th century. Most are decorated, but a small number of plain glazed tiles are also present. Plain Penn tiles seem to have been used in a limited way, mainly in single tile borders between decorative panels, such as in the Norman Gate Tower at Windsor Castle (Cromwell and Betts 2002–3, 10–11) and the Bloody Tower in the Tower of London (Keen 2002, 227), or alternating with decorated examples as in the Aerary pavement at Windsor Castle (Keen 2002, 220–5).

The Aerary pavement was laid in 1355 and it may be significant that one of the designs used (Eames 2535/ Hohler P88) is also found in the tile pavement of D15.3. This suggests that Penn tiles may originally have been laid somewhere in the church during the 1350s. The other Penn designs found in the pavement are listed in Table 84. A total of 33 design types are present including three unpublished designs (Figure 249, <T1–T3> and one possible unpublished design <T4>) together with one probable Penn design. The 19 tiles with this latter design (type <T5>) are in a fabric (type 2324) unlike most other Penn tiles, but in all other respects are very similar to tiles of Penn origin. There are also a further five tiles with Penn design 2027, but certain of these tiles have an unusual fabric (2851 near 3081) so again it is not certain if these were made at Penn. One other design of interest is Eames design 2805, which was found on a tile from Queen Victoria Street, London (Eames 1980, 352). This is recorded in Eames as a possible Penn design but careful examination of the Billingsgate example (D[494] <1139>) shows that it belongs to the Penn group. The vast majority of Penn tiles measure 105–115mm square (19–26mm thick), but there are a small number of slightly larger tiles. Tiles with designs 2343, 2839 and one of the unpublished designs are 119–131mm square (22–27mm thick) whilst all the tiles with Hohler design P135 measure 131–136mm square (22–26mm thick). As with the 'Westminster' tiles these variations may reflect slight differences in the date of manufacture.

Betts 2002 design no.	No. of tiles
W3	1
W25	1
W31	3
W33	1
W34	3
W53	1
W55	5
W58	1
W97	1
W104	1
W108	1
W109	3
W130	4
Uncertain	7

Table 83 Decorated 'Westminster' floor tile designs from site D

Eames no.	Hohler no.	No. of tiles
1399	P121	9
1827	P73	7
1837	P112	1
1845?	-	2
1846	P153?	1
2027	-	8
2037	-	2
2070	P94	2
2074	P92	10
2223	P46?	1
2231	P54	3
2262	P130	1
2343	-	21
2353?	P58?	3
2391	-	1
2394	-	8
2409?	P66?	5
2535	P88	22
2551	-	2
2552	P85	1
2805	-	1
2819–2820?	-	1
2839	-	1
-	P48	2
-	P81	5
-	P108	1
-	P135	12
-	P155	2
Unpublished		
1	<T1>	2
2	<T2>	1
3	<T3>	1
Uncertain	<T4>	9
Probable Penn	<T5>	19

Table 84 Decorated Penn floor tile designs from site D

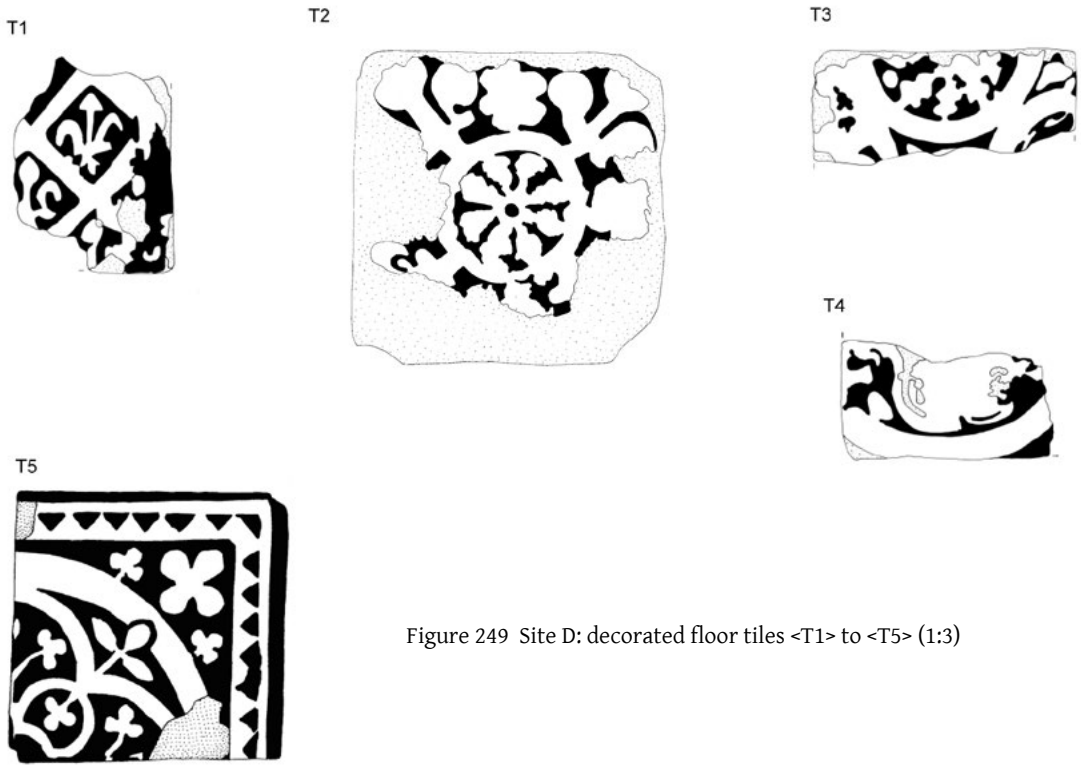

Figure 249 Site D: decorated floor tiles <T1> to <T5> (1:3)

Low Countries 'Flemish' tiles

Fabrics: calcium carbonate types: 1678, 2191, 2497, 2504, 3083; silty types: 1977, 2318, 2850, 3063, 3082; other types: 2317, 2320, 2324

Vast numbers of plain glazed tiles were brought into London from the Low Countries from the 14th century. Most were either yellow, green or brown in colour, the yellow alternating with the brown and dark green examples in a chequerboard pattern. The earliest site D examples were found in period D14.1 where they are dated to the period 1380–1400. Most medieval Flemish tiles found at site D measure 113–125mm square by 18–36mm in thickness, although there are a number of slightly larger tiles measuring 131–136mm square by 19–24mm thick in D15.3, dating to the second half of the 15th century.

There is a striking similarity of size between many groups of medieval floor tiles despite differences of date and source. For example, the small 'Westminster' tiles are identical in size to most Penn tiles manufactured over 100 years later. This similarity in size seems unlikely to have been coincidental. It seems likely that Penn tiles, and perhaps those ordered from the Low Countries, were deliberately made to the same size as earlier 'Westminster'. This would allow Penn and Low Countries tiles to replace areas of worn or damaged 'Westminster' tiles without the need to replace the entire floor. It would also allow old tiles to be reused when new floors were installed.

Around 1480 the size of Low Countries tiles arriving in London suddenly increased. Certain plain glazed tiles were also arriving from a new production area, these having silty fabrics rather that the calcium carbonate speckling of the medieval fabric varieties. A number of these larger tiles were found paving the floor of St Botolph's church. These measure: 155mm square by 28mm thick, 180mm square by 39–40mm thick and 195–205mm square x 26–35mm thick. A number of the latter are unglazed, as are a set of larger tiles measuring 259–260mm square by 31–32mm thick. In London the switch from glazed to unglazed tiles seems to have occurred around the late 16th century.

In periods D14.3 and D15.3 tiles in the smallest size group (113–125mm square) have four round nail holes in their top surface, one near each corner, whilst later tiles in D16.1, D16.4 and D16.5 only have two, either round or square, nail holes. All the other size groups are of the two nail hole type, the nail holes positioned in diagonally opposite corners. The holes, where visible, are all square shaped, with the exception of the tile measuring 180mm square, which has two round holes.

Tin-glazed floor tiles

Fabric types: 1819, 2196, 3067

A number of different decorative tin-glazed floor tile groups are present. All the colours have been applied to a plain white background. They are listed in order of reporting by group in Table 85; the significance of their location in the strata is considered above in the main site narrative. They were recovered mainly from layers of debris of the Great Fire, usually disturbed and moved about, or from the closely following layers of construction of the post-Fire buildings on the site. They are therefore studied and illustrated here as probably coming from the buildings standing on the site in 1666.

Antwerp, Belgium

Two early tin-glaze floor tiles are present ([424] <772>, [1627] <5041>): one was originally *c.* 98mm square by 17mm thick (Figure 219, <T6>), the other hexagonal (Figure 214, <T7>) measuring

91mm in breadth by 17–19mm thick. Both would have been used together in a mosaic floor of the type laid in Herckenrode Abbey, Belgium during 1532–3 (Dumortier, 1999, pl 1). These are believed to have been manufactured in Antwerp, Belgium. The two site D examples are very similar to the tiles used at Herckenrode Abbey which would suggest a 1530s date.

There is a later set of square and possibly rectangular tiles from Antwerp with what appear to be at least three designs in blue and yellow on a white background ([+] <1792> <T9a> (Figure 250), [721] <999>, <1017> (Betts and Weinstein 2010, no. 35), <1313> <T9b>, <1434>, <1568>). One tile ([721] <999>) has been analysed by NAA which has confirmed its Antwerp origin (Betts and Weinstein 2010, no. 34). Its chemical composition closely matches pottery made at the Schoytestraat kiln in Antwerp (Gaimster and Hughes 1999, 179, fig 16.3) which according to the typology of the pottery wasters can be dated to the period 1575–1625 (Veckman 1999, 115). The other tiles are almost certainly from the same source. Size: 14mm thick. One fragment of Antwerp floor tile, unstratified D<1792>, is illustrated here, Figure 250.

London, Aldgate

Production of tin-glazed tiles began in London at a pottery and tileworks at Aldgate by 1571 and continued until around 1615 (Schofield and Lea 2005). One of the tile designs which can be stated with reasonable certainty to have been produced at Aldgate is of 'medallion' type. These are tiles with animal, birds and chequerboard patterns set in a multi-circular border, which on Aldgate tiles is blue and purple. There are four medallion tiles from site D with blue and purple circular borders (D[625] <1346>, D[721] <1567> D[761] <1421>, D[761] <990> (Figure 251, <T10>)). The borders suggest that they are Aldgate products although a Dutch origin cannot be entirely discounted as similar borders are present on tiles made in the Netherlands. The more complete tiles would have measured around 136mm square with a thickness of 19–20mm. A small fragment showing foliage in green, yellow, brown and blue may also originate from Aldgate (D[41] <460>).

Early Dutch

One early Dutch tile has a worn corner of medallion design with a flower petal corner motif (D[625] <1340>). The corner decoration indicates it was made in the Netherlands around 1570–1600 (Pluis 1997, 521, B.02.00.02). Size: 19mm thick.

Dated to the same period is an orange, green and blue tile with a flower vase and flower petal corners (D[1180] <2195>) (Figure 251, <T11>). Pluis illustrates an almost identical Dutch tile (1997, 421, A.05.08.01) and another incomplete tile with the same design was found in Lime Street, London (MoL 23929). The site D tile measures 138mm in height by 17–18mm in thickness.

London, Pickleherring, Southwark

The largest group of tin-glazed floor tiles (15 examples) are of medallion type. The bigger fragments are decorated with dogs (D[1389] <1809>, D[1409] <5024>, a bird (D[1409] <5061> Figure 215, type <T12>) and a rabbit (D[1389] <1914>). All have yellow and blue multi-circular borders which is a characteristic feature of tiles made at Pickleherring, Southwark around 1618–50. Three similar tiles from the same pothouse are illustrated by Noël Hume (1977, 55, fig I, nos 1–3). The tiles were evidently in use for some considerable period before their removal from the floor as most show clear signs of wear. The more complete tiles are 136–141mm square by 15–17mm thick.

Another design known to have been made at Pickleherring is an interlocking strapwork pattern in blue and orange (D[531] <1035>, D[1275] <1748>). Green or yellow would also have been present in two corners. The complete design is shown by Noël Hume (1977, 55, fig II, no. 6) although his tile has pale blue and yellowish green corner decoration. It is 17–18mm thick.

Two other floor tile designs have similar strapwork decoration. One (D[385] <587>) has a similar design to that published on a complete tile by Britton (1987, 174, no. 192). This could have been made at Pickleherring although a Dutch tile of 1570–1600 with a similar design is in Pluis (1997, 331, A.01.70.05). The other design (D[721] <982>) is less certain, but may have been similar to another Pickleherring design published by Noël Hume (1977, 57, fig II, no. 9), a better example of which is in the Museum of London's Ceramic and Glass collection (11897). It is 16–17mm thick.

A common design made at both Pickleherring and at Rotherhithe (see below) was a flower vase pattern painted in

Context	Acc No.	Type in this publication	Source	Period	Location
424	772	<T6>, Figure 219	probably Antwerp	16.8	in metalling of Botolph Wharf lane
1627	5041	<T7>, Figure 214	probably Antwerp	16.7	drain in D:Building 7
721	999	<T8>, Betts & Weinstein 2010, no. 34	Antwerp	17.21	redeposited Fire debris
721	1017		probably Antwerp	17.21	redeposited Fire debris
721	1313		Antwerp	17.21	redeposited Fire debris
[+]	1792	<T9a>	probably Antwerp	[+]	unstratified
721	1434		probably Antwerp	17.21	redeposited Fire debris
721	1568		probably Antwerp	17.21	redeposited Fire debris
721	1313	<T9b>	probably Antwerp	17.21	redeposited Fire debris
625	1346		Aldgate	17.21	redeposited Fire debris or construction
721	1567		Aldgate	17.21	redeposited Fire debris
761	1421		Aldgate	17.21	post-Fire reconstruction
761	990	<T10>	Aldgate	17.21	post-Fire reconstruction
41	460		?Aldgate	17.18	post-Fire reconstruction
625	1340		Early Dutch	17.21	redeposited Fire debris or construction

Context	Acc No.	Type in this publication	Source	Period	Location
1180	2195	<T11>	probably Early Dutch	17.1	redeposited Fire debris
1369	1809		Pickleherring	16.7	drain in D:Building 7
1409	5061	<T12>, Figure 215	Pickleherring	16.7	drain in D:Building 7
1369	1914		Pickleherring	16.7	drain in D:Building 7
531	1035		Pickleherring	17.7	primary surfaces in post-Fire D:Building 9
1275	1748		Pickleherring	16.7	drain in D:Building 7
385	587		Pickleherring	17.18	post-Fire reconstruction
721	982		Pickleherring	17.21	redeposited Fire debris
42	465	<T13>, Betts & Weinstein 2010, no. 141	Rotherhithe	17.18	post-Fire reconstruction
531	1452		Rotherhithe	17.7	primary surfaces in post-Fire D:Building 9
394	998		?Rotherhithe	17.6	post-Fire D:Building 13
540	991	<T14>, Figure 252	probably London	17.22	post-Fire D:Building 12
22	458		probably London	17.16	redeposited Fire debris
721	1005	<T15a>, Figure 252	probably London	17.21	redeposited Fire debris
721	5934	<T15b>, Figure 252	probably London	17.21	redeposited Fire debris
1621	2057		probably London	16.7	drain in D:Building 7
1621	2064		probably London	16.7	drain in D:Building 7
197	1022		probably London	17.15	post-Fire D:Building 13
282	4798		probably London	17.15	post-Fire D:Building 13
294	1029		probably London	17.26	post-Fire D:Building 12

Table 85 Tin-glazed floor tiles from site D

blue on white. At least two tiles with this design were found in period D17.6 (ie the post-Fire period). The complete pattern is shown on a tile in the Museum of London's Ceramic and Glass collection (A4632). They are 12–14mm thick.

London, Platform Wharf, Rotherhithe

A total of 28 tile design types have been identified from the Rotherhithe pothouse which began operation around 1638 and finishing about 1684. Five designs feature a tulip flower set within a diamond shaped border with barred ox-head corners (Tyler *et al.* 2008, 86, 89). Two polychrome tiles of this type, almost certainly made at Rotherhithe were found at site D (D[42] <465> (<T13>, [531] <1452>). Both tiles measure 130–131mm square by 14mm thick. Part of a flower vase painted in blue on white with the same type of corner (D[394] <998> <1261>) may also be a Rotherhithe product, although tiles of the same design were also made at Pickleherring.



Figure 250 Site D: floor tile from Antwerp D[+] <1792> (<T9a>) (length of glazed top surface 41mm)

Probable London

A further polychrome floor tile (Figure 252, <T14>), again with barred ox-head corners and measuring 13–14mm in thickness was recovered from context D[540] <991>. A number of tiles painted in similar style, but with different flower types represented, were found at Bevis Marks, London in 1980 (BEV80). These and the site D example are probably London-made products of the mid 17th century, although a Dutch origin cannot be entirely discounted. Similar tulips are found decorating London delftware plates dated between *c.* 1675 and 1710 (Archer 1997, 87–93, A23–A37).

There are at least five fragments of a complex quarter star, grape and fruit design (D[22] <458>, D[721] <1005> <5934>, D[1621] <2057>, <2064> (Figure 252, two from [721] <T15a, b>). The complete pattern is present on a London tile published by Britton (1987, 175, no. 197) who gives the provenance and date as 'probably Southwark, first half 17th century'. The site D tiles are probably also London products dating to the same period although tiles of similar same design were also made in the Netherlands in 1570–1600 (Pluis 1997, 216, A.01.05.07). They are 15–18mm thick.

Three other tin-glazed floor tiles deserve mention, plain white tiles from contexts D[197] <1022>, D[282] <4798> and

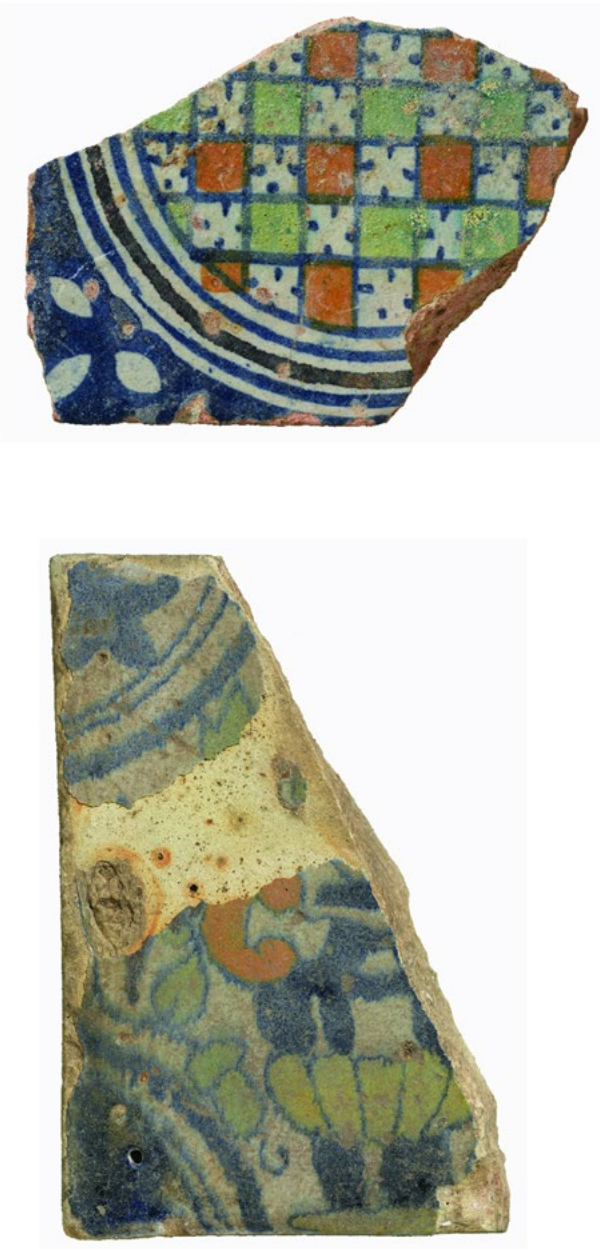

Figure 251 Site D: top, Aldgate tile D[761] <990> (<T10>) (length 113mm); bottom, early Dutch tile D[1180] <2195> (<T11>) (length 140mm)

D[294] <1029>. Plain white tin-glazed tiles were frequently used as walling in London, but their use as flooring seems to have been very rare. They are 12–17mm thick.

Tin-glazed wall tiles

Fabric types: 3064, 3067, 3078

The 17th-century buildings at site D also produced examples of Dutch or possibly English wall tiles. Those studied are listed in Table 86. All but two are from post-Fire buildings, but they are included here.

Early Dutch wall tiles

The majority of tin-glazed wall tiles are decorated in blue on white which was first introduced in the Netherlands around 1620, whilst purple on white tiles were first made around 1650 (Pluis 1997, 103). English tilemakers lagged behind their Dutch counterparts, and the earliest documentary evidence for English wall tile manufacture is dated 1676 (Horne 1986, 17). A variety of early Dutch wall tiles is present at site D.

Designs showing mounted soldiers and with barred ox-head corners form the majority (from numerous contexts) (e.g. D[575] <1000> (above, Figure 218, type <T16>), [1369] <1808> and <1865>, types <T17>–<T18>) (Figure 216). Many tiles have a pitted, distorted or partly blackened surface, the result of exposure to heat during the Great Fire of 1666. Two sets of tiles are present, one with small barred ox-head corners containing two thin semi-circular lines, the other slightly larger size ox-head corners containing three semi-circular lines. Both sets of tiles measure 130mm square by 9–11mm thick.

Tiles showing military figure were very popular in the Netherlands during the mid-17th century. Numerous similar tiles can be found in books on Dutch tiles and examples with similar barred ox-head corners are illustrated in Sabben and Hollem (1987, 90, no. 313), Schaap *et al.* (1984, 130, no. 162) and Pluis (1997, 356, A.02.07.05). Tiles with the smaller type of barred ox-head corner are dated to around 1635–80 by Pluis and van Dam (1991, 80–1, nos 89–94), although both were clearly installed here sometime in the 30 years before the Great Fire. A design showing mounted soldiers and with spider head corners (D[496] <960> <5744>) was found in a post-Great Fire context (period D17.23) where the examples show no evidence of damage or discolouration. Presumably therefore these mid-late 17th century tiles are of post-1666 date. They are 8–9mm thick.

Fragmentary Dutch tiles with spider head corners are mainly from post-Great Fire context D[721] (<965>, <993>, <997>, <1311>). Two other pieces were found unstratified ([+] both <1042>). The largest surviving tile would appear to be a biblical scene showing the prodigal son in misery (Luke 15 v.16) (D<997>, type <T20>, not illustrated here but in Betts and Weinstein 2010, no. 378). An English biblical tile showing similar animals and a kneeling figure is illustrated in Ray (1973, 127, no. 83). The other tiles show pastoral scenes, these including a delightful design showing a young man giving a flower to a young girl (D[721] <965>, type <T21>, Figure 253). A similar romantic scene is shown on a Dutch tile in Schaap *et al.* (1984, 112, no. 133 –B3). It would seem that although <T20> has a biblical meaning, the subject matter meant that it could also be interpreted as a pastoral scene. Tiles with a similar style of spider head corner are illustrated by van Dam (1991, 86, no. 100) and Pluis (1997, 556, C.08.00.11) where they are dated around 1670–1700. They measure 123–127mm square by 8–9mm thick.

Two small fragments painted in blackish-purple (D[41] <459>), probably part of the same tile, have part of a white diamond pattern with mock marbling in each corner (type <T22>, not illustrated here but shown in Betts and Weinstein 2010, no.208). This is a Dutch design dating to 1650–1700 (Pluis 1997, 329, A.01.60.08). One of the fragments is slightly burnt suggesting it was installed shortly before the Great Fire of 1666. They are 10mm thick. Another example has a small area of mock marble decoration in black with white spots, with traces of blue paint on the tile surface (D[721] <1435>). The thickness of 9mm would suggest a mid-late 17th-century date.



Figure 252 Site D, floor tiles probably made in London: above, D[54] <991> (<T14>) (length 100mm); below, two from D[721] <1005>, <5934> (<T15a, b>) (lengths 70mm, 75mm)

The tiles from site D are significant as relatively few 17th-century wall tiles are known from London. More significant still are the two wall tiles which can be firmly dated to before the Great Fire (from the backfill D[1389] of the drain beneath D:Building 7); such are extremely rare in London. A major pre-Great Fire group was found in 1998 at 32–35 Botolph Lane nearby (BPL95; Blair and Sankey 2007). From this site is a fragmentary landscape scene with spider head corners in the same style as those from site D although painted in a slightly brighter shade of blue. The Botolph Lane wall tiles were found with other Great Fire destruction debris in the cellars of a large house. There are differences; the Botolph Lane assemblage has tiles with mythical scenes and warships which have not been found at site D. There is a Dutch tile with a probable mythical sea creature design in period D17.23 at site D but this is clearly later in date, probably late 17th–mid 18th century.

Later Dutch/English Wall tile

There are a number of small fragments of 18th-century wall tile from post-Fire buildings. Few designs can be distinguished, although one tile (D[309] <1257>) has a biblical scene in blue on white, whilst another (D[570] <1264>) shows what appears to be part of a mounted figure in purple on white.

Roofing Tiles

Flanged, curved, shouldered peg and ridge tile

At least some of the mid 12th to early 13th-century buildings on the waterfront would have had ceramic tiled roofs. This would have been of either the flanged/curved or shouldered peg tile system, both of which would have had the crest of the roof covered by curved or specially-made ridge tiles (Betts 1990, 221–3).

A small number of roofing tiles of this type first appears in period D5 dated to the late 11th to early 12th century, suggesting that some of the roofing tile in fabric 2273 could have been introduced slightly earlier than previously thought. In the Guildhall area the evidence suggests that the flanged/curved roofing system may have appeared in the 1120s whilst the shouldered peg tile system may have been introduced in the 1130s (Betts 2007a, 430–1). Tiles of both roofing systems were found associated with the stave revetment D:Waterfront 8 of period D6.1, which dates to the early 12th century, though deposits around it would be later in that century (Figure 254).

Two types of shouldered peg tile are found, one with a single nail hole (type <T23>), the more usual type in London, and the other with two nail holes. One of the two hole type is unusual in showing the impression of the tool head to which the hole punch was attached (type <T24>). Rarer still is a decorated example with wavy lines added with a blunt tool before the addition of glaze and firing (D[3123], <T25>). Also present are two decorated ridge tiles, the more complete of which is illustrated (<T26>). This would probably have resembled a better-preserved example found in the Cheapside area of the city (Betts 1990, 223, fig 62, b).

Peg tile

Fabric types: 2271, 2274, 2276

The standard type of ceramic roofing used in London from the late 12th century to the mid 17th century was the peg tile. A few fragments of peg tiles were found in period D5.3 (11th century) but these almost certainly are from later contamination. The earliest securely dated peg tiles were

Context	Acc No.	Type in this publication	Source	Period	Location
575	1000	<T16>, Figure 218	Dutch	17.22	post-Fire D:Building 13
1369	1808	<T17>, Figure 216	Dutch	16.7	drain in D:Building 7
1369	1865	<T18>, Figure 216	Dutch	16.7	drain in D:Building 7
496	960		Dutch	17.23	post-Fire D:Building 13
496	5744		Dutch	17.23	post-Fire D:Building 13
721	965		Dutch	17.21	post-Fire D:Building 12
721	993		Dutch	17.21	post-Fire D:Building 12
721	997	<T20>, Betts & Weinstein 2010, no. 384	Dutch	17.21	post-Fire D:Building 12
721	1313		Dutch	17.21	post-Fire D:Building 12
721	965	<T21>, Figure 253	Dutch	17.21	post-Fire D:Building 12
41	459	<T22>, Betts & Weinstein 2010, no. 208	Dutch	17.18	post-Fire D:Building 11
721	1435		Dutch	17.21	post-Fire D:Building 12
309	1257		Dutch or English	17.13	post-Fire D:Building 9
570	1265		Dutch or English	17.11	post-Fire D:Building 13
unstratified	1792		Antwerp – later delft		unstratified

Table 86 Tin-glazed wall tiles from site D



Figure 253 Site D: early Dutch wall tile D[721] <965>, type <T21> (length 58mm)

found with the earlier roofing tile types discussed above in the infill and silting of the period 6 D:Waterfront 8.

The vast majority of peg tiles are of the two round nail hole type. A number of later peg tiles dating from *c.* 1480, characterised by fine moulding sand (fabric 2276), have surviving size measurements all of which are remarkably similar. They measure 267–269mm in length by 147–154mm in breadth with a thickness of 14–16mm. Peg tiles continued to be used into the 18th century along with pantiles until they were gradually superseded by slate roofing which became increasingly fashionable towards the end of the 18th and into the 19th century.

Nib tiles

Fabric type: 2816

Nib tiles are restricted to one post-Great Fire context in period D17.17 (<T27>). Such tiles are very rare in London, they seem to be a short lived type that never became fashionable. The site D examples are probably of medieval date as such tiles do not seem to have persisted beyond the 14th century in southeast England. At Stratford Langthorne Abbey east of London nib tiles are believed to be associated with the reconstruction or erection of new buildings during the period *c.* 1230–1350 (Smith 2004, 145). However, a later date cannot be entirely discounted as nib tiles continued to be used in some areas of the country, such as Southampton and in the Severn Valley down to the 16th or even 17th century (Drury 1981, 131).

Pantiles

Fabric types: 2275, 2279

Pantiles were first used to roof building in London on a limited scale from the 1630s. Small quantities of pantiles are recorded from pre-Great Fire contexts (periods D16.1, D16.2, D16.7, D16.8), associated with pottery of 1630–66 date. Their increased frequency in archaeological deposits after 1666 suggests they were used in substantial numbers in the rebuilding following the Great Fire.

Ridge tiles

Fabric types: 2271, 2274, 2276

London houses with peg tile, nib tile and pantile roofs would normally have had a line of ceramic ridge tiles covering the crest of the roof. They differ from those made in fabric 2273 in the 12th and early 13th century in not normally being decorated, although part of one decorated example was found in context D[2950] of period D11.3 (late 13th to early

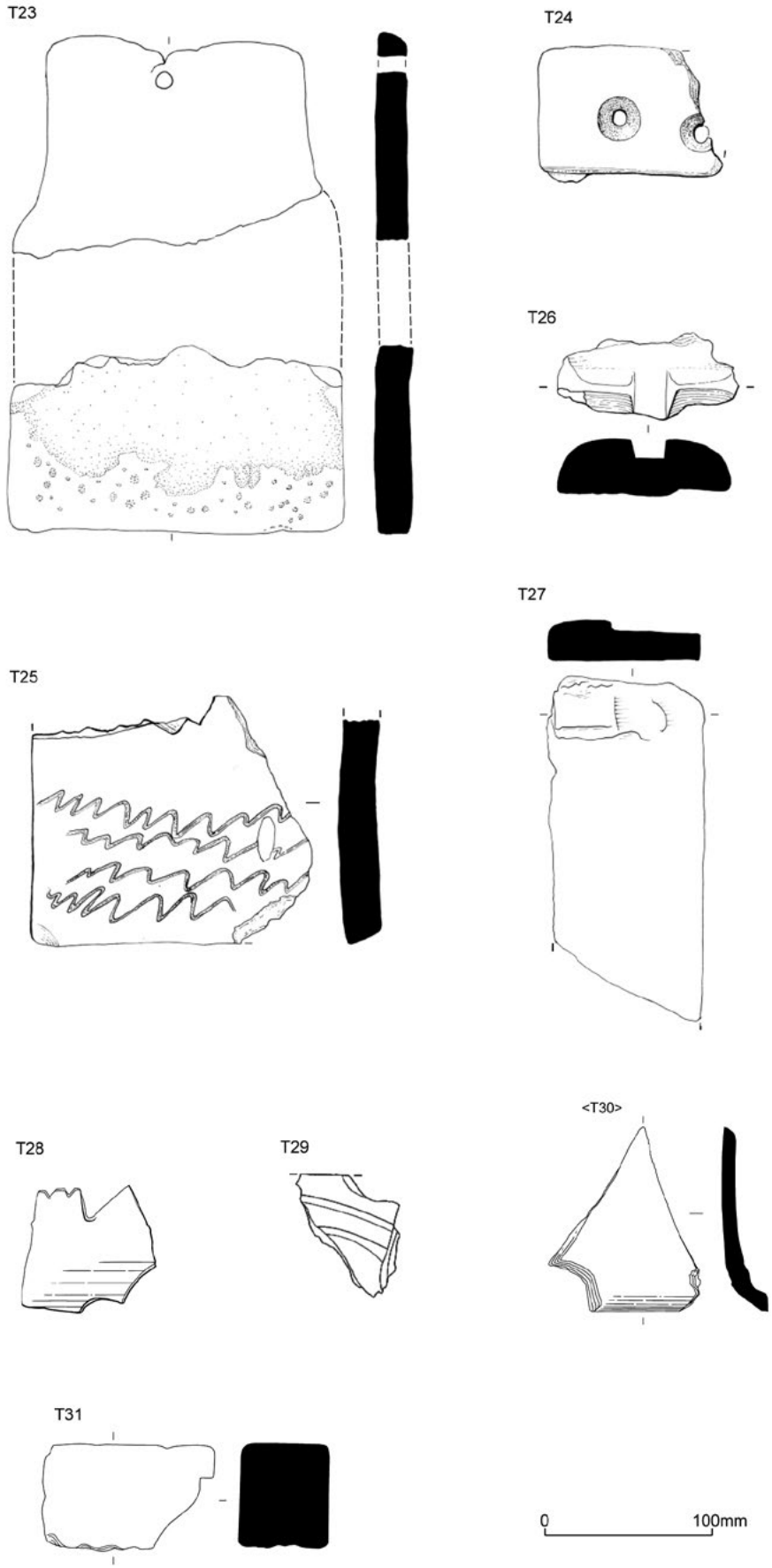

Figure 254 Site D: shouldered peg roof tiles: one-hole type from D[5858] (<T23>) and two-hole type from D[5851] (<T24>), both period D9.2; decorated shouldered peg roof tile from D[3123] (<T25>); ridge tile from D[3469] (<T26>); nib tile from D[494], a post-Fire context (<T27>); ridge tile from D[2950] (<T28>); a fragment of decorated ridge tile D[1389] <1751> (<T29>); gutter tile from D[3394] (<T30>); moulded brick D[193] <5064>, found in a post-Fire context (<T31>) (1:4)

14th century) (type <T28>). Significantly, this is in a pottery fabric (London Ware, tile fabric 2274) indicating manufacture by potters rather than tilemakers.

Occasionally ridge tiles were decorated by the application of white slip on the tile sides. These unusual tiles have now been found at a small number of locations in London such as the Rosary, a royal residence constructed by Edward II in 1324–5 (Betts 2009, 173). One such tile is present at site D, in a 17th-century drain fill (D[1389] <1751>) (type <T29>).

Gutter tile

Fabric type: 2271

Gutter tiles are mentioned in 14th-century building accounts (Salzman 1952, 231), but small fragments are not easy to distinguish from other roof tile types. They would appear to have been similar in appearance to ridge and hip tiles but differ in having glaze applied to the inside surface. A small piece of what is believed to be the end of a gutter tile was found at Swan Lane in 1981 (Pritchard 1982) and a more substantial piece was found in context D[3394] at site D, of period D10.1, the mid to late 13th century (type <T30>).

Brick

The majority of bricks recorded at site D are either yellow or various shades of red. Both types were made in sanded moulds, as moulding sand is found attached to all four sides and the base of individual bricks. The upper surface is scraped smooth and many bricks, particularly those of pre-Great Fire date, have sunken margins. Some examples of post-Fire bricks are mentioned here to extend the study slightly.

Yellow brick

Fabric types: 3031, 3035, 3036

Table 87 lists the yellow and cream coloured bricks used in structural features, ordered by stratigraphic period of the layers or constructions in which they were found; in certain cases the bricks are clearly reused. The significance of their locations in the stratigraphic sequence is considered above in the site narrative and the note on buildings (section 6.2).

In London medieval yellow and cream bricks were used in walling, but were also commonly employed as paving or cut to shape for use as decorative features around door or window openings or as plinths. This may be because when used with red brickwork their yellow-cream colour could be mistaken for stone.

Similar bricks have been found elsewhere in Britain, notably Essex where Ryan (1996, 31) believes they are 'Flemish' (or more accurately Low Countries) imports. The same is probably true of the bricks used as early as 1278 for repair work to the Tower of London (Schofield 1984, 126). The 1000 'fflaundrestiell' brought in to build a fireplace at Westminster in 1357 (Lloyd 1925, 14) could derive from the same brickmaking area.

Yellow and cream Low Countries bricks seem to have continued to be imported into London until the mid-late 15th century when brickmaking began to be undertaken on a substantial scale in the London area. There are a small number of examples in 17th-century pre-Great Fire structures, but it seems reasonable to assume these are medieval bricks which were reused.

The small, hard yellow bricks (fabric 3036) used in the refacing of the south wall and northeast corner of the undercroft in the 17th century (period D16.1) are almost certainly imports. They vary greatly in size but two size groups are apparent. Yellow bricks of similar size, described as Dutch or Flemish, were being sold for £2 the thousand in 1703 (Lloyd 1925, 15, n1). Such bricks were normally set edgeways to form a hard-wearing pavement, so their use for walling at site D is unusual.

A London stock brick (fabric 3035) from a post-Fire floor could date from any time between the mid 18th and mid 20th centuries. Despite being known as London stock, due to their very extensive use in buildings in the City, they were mainly produced in brickyards in north Kent and south Essex.

Red bricks

Red and orange coloured brick in fabrics 3032, 3033 and perhaps 3093 (Table 88) were made using local brickearth deposits at sites close to London. The earliest red firing bricks, which are larger in size, were used to construct the walls of the first phase of the undercroft in D:Building 5 and are of late 14th-mid 15th century date. The single brick in fabric 3093, of late 14th-century date, is only fractionally smaller than those used in this undercroft.

Smaller sized red and orange bricks (fabric 3033), often referred to as 'Tudor bricks' were first used as a facing to a doorway in period D14.10. Provisionally dated to around *c.* 1400–50, they must postdate the larger undercroft bricks. Elsewhere in London such bricks more commonly date from the later 15th century and continued to be used until *c.* 1700, although they were rapidly superseded by red brick in other fabric types after 1666 (Smith 2004, 258).

There seem to be two sizes of 'Tudor brick', one with an average length of around 217–221mm and the other around 227–236mm. These probably represent the use of brick moulds of slightly different size. It is possible they are the products of separate brickyards or represent bricks of slightly different date.

Dark red bricks in fabric 3032 appear for the first time in London after the Great Fire of 1666 and soon began to replace the red and orange coloured examples in fabric 3033. However, many of the site D examples have only a small quantity of flint and pebble inclusions, a characteristic feature of fabric 3032, and are only very marginally different from bricks in fabric 3033. It would seem quite likely that both were the products of the same London brickyards.

Bricks in fabric 3033 are often relatively soft so can easily be cut to a decorative shape after they have been mortared into the wall. One such cut brick was found in period D17.7 (Table 89, illustrated, type <T31>); this has a *cyma recta* moulding which would have formed a decorated band or string course. It probably dates to the late 17th–18th century (T Smith pers comm). A small number of soft red bricks in fabric 3033 continued to be used for decorative work in London after 1666 because the harder fired darker red bricks in fabric 3032 were not suitable for this purpose.

Period	Fabric	Average size (mm)	Location	Date
D13.2	3031	? x ? 47	S wall of St Botolph's church	1350–80
D14.3	3031	226 x 108 x 59	D:Building 5 undercroft	1400–50
D14.10	3031	212 x 100 x 55	D:Building 6 modifications	1400–50
D15.1	3031	207 x 98 x 49	south extension of St Botolph's	1400–50
D15.2	3031	200 x 98 x 46	burial vaults in south extension	1400–50
D15.3	3031	210 x 98 x 45	surfaces within south extension	16th or early 17th century
D15.10	3031	224 x 107 x 58	lane of Botolph's Wharf	1650s (reused)
D16.1	3031	? x 94 x 41	D:Building 5, strengthening of E and S sides	1629–1666 (reused)
D16.1	3036	157 x 74 x 35	D:Building 5, strengthening of E and S sides	1629–66
D16.1	3036	181 x 83 x 44	D:Building 5, strengthening of E and S sides	1629–66
D16.1	3036	237 x 117 x 62	D:Building 5, strengthening of E and S sides	1629–66
D16.2	3031	205 x 99 x 45	piers and floors in south extension of church	1600–1666, perhaps 1630s (reused)
D17.19	3035	216 x 103 x 60	D:Building 13 post-Fire floor	after 1666

Table 87 Yellow and cream bricks from site D

Multi-coloured bricks

All but one brick with multi-coloured fabric were in fabric 3040 and were found in the fill of a construction cut in period D14.9 where they date to the first half of the 15th century, the only exception is a reused example in D16.1. They range in colour from yellow, light grey to light red and have an average size of 248 x 100 x 55mm. The main distinguishing feature of these bricks is the grass impressions on the base. Bricks of similar type are found in Essex where they are believed to be 'Flemish' (Low Countries) imports and have been given the name 'Flemish-type Grass marked' bricks (Ryan 1996, 32).

The remaining single brick in fabric 3043 was incorporated in the second tiled floor in St Botolph's church, and measures 183 x 91 x 40mm. Bricks of this type, which are either light brown, or yellowish-brown, are found in Essex and are also believed to be Flemish. Ryan (1996, 34) has named them 'Flemish-type Estuarine Silt' bricks. Both these and the grass-marked type are dated by Ryan (1996, 94) to the early 14th century.

Table 89 is a concordance of the <T> series established here, with details.

Floor tiles from the watching brief at Site D

Only the floor tiles and a small quantity of brick and roofing tile have been examined from the watching brief at site D (Billingsgate) (BWB83). The decorated floor tiles are worth a brief discussion since there are a number of types not found during the main excavation. Others, notably the 'Westminster', Eltham/Lesnes and Penn types may derive, at least in part, from St Botolph's church. They are listed in the lower part of Table 89 and illustrated in Figure 255.

'Westminster'

Betts (2002) design types W3, W11, W19, W25, W34, W48, W128, W134, W143 and W144 are present. There is also a further tile ([310] <1810>) with a bloated top surface, possible a waster or discarded 'second', with an unpublished design type (<T32>). The tile was found with two other 'Westminster' tiles, but it is not certain if it belongs to the 'Westminster' group as its size (117–119mm square) does not match that of other 'Westminster' tiles found in southeast England (Betts 2002, 21). It may be the product of a related London tile industry thought to have been in operation during the late 13th to early 14th century, the thin 'Westminster' group. Certainly the fabric type (MoL 3081) and thickness (17–18mm) are comparable (Betts 2002, 12, 21).

Eltham/Lesnes group

Three published designs are present, Eames design types 6, 7 and 8 (Eames 1982, 240). In addition, three currently unpublished design types are also present (<T33>–<T35>). One, showing part of a circular border with fleur-de-lis corner motif, is also known from Merton Priory (Betts 2007b).

Penn

A total of 21 different Penn design types are present, most of which are published types in Eames (1980) and Hohler (1942; designs identified by the letter P): 1827/P73, 1837/P112, 2029, 2037, 2074/P92, 2200/P69, 2226/P50?, 2255/P146, 2262/P130, 2337, 2353/P58 or 2354, 2354, 2390/P63, 2394, 2409/P66, 2460/P107, 2551 and 2820/P140. In addition, there is London Museum Catalogue (1967) design type 23 and two fragments of what could be either 1846/P153? or what may be an unpublished type noted still *in situ* in the floor of the Norman Gate, south tower at Windsor Castle (Cromwell and Betts 2002–3, 10–11). A further definite unpublished design type is also present on one tile (<T36>). The latter is somewhat unusual in having had a corner crudely cutaway, or perhaps accidentally damaged, prior to firing. Despite this the tile was certainly used as there is wear on the top surface. There are also a number of probable Penn tiles with another unpublished design which is also known from the site D main excavation (<T5>).

Period	Fabric	Average size (mm)	Date
D14.1	3033	250 x 121 x 58	1380–1400
D14.2	3093	242 x 113 x 53	1380–1400
D14.3	3033	249 x 120 x 56	1350–1450
D14.10	3033	222 x 115 x 60	1400–1450
D14.10	3033	? x 109 x 60	1400–1450
D14.11	3033	? x 118 x 56	1400–1450
D15.3	3033	210 x 98 x 45	1450–1500
D15.4	3033	221 x 106 x 55	1500–1550
D15.4	3033	234 x 112 x 54	1500–1550 (reused brick?)
D15.5	3033	220 x 98 x 53	1500–1550
D15.5	3033	232 x 107 x 57	1500–1550
D15.5	3033	255 x 109 x 55	1500–1550 (reused brick)
D15.8	3033	221 x 111 x 54	?
D15.9	3033	227 x 106 x 60	mid–late 16th c.
D15.10	3033	248 x 105 x 65	17th c. (reused brick)
D16.1	3033	217 x 107 x 55	1600–1666
D16.1	3033	230 x 107 x 61	1600–1666
D16.8	3033/3039	219 x 100 x 55	pre-1666
D16.8	3033	228 x 106 x 57	pre-1666
D16.8	3033	249 x 119 x 58	pre-1666 (reused brick)
D17.4	3033	230 x 108 x 60	after 1666
D17.12	3032	226 x 102 x 66	after 1666
D17.12	3033	225 x 104 x 61	after 1666
D17.13	3032	222 x 99 x 64	after 1666
D17.13	3033	233 x 113 x 58	after 1666
D17.18	3032	227 x 100 x 60	after 1666
D17.18	3033	219 x 99 x 57	after 1666
D17.19	3032	220 x 100 x 64	after 1666
D17.22	3032	230 x 115 x 47	after 1666
D17.22	3033	? x 115 x 55	after 1666
D17.27	3032	? x 104 x 62	after 1666

Table 88 Sizes of red coloured bricks from site D

French, Dieppe group

Billingsgate has produced the largest single assemblage of French tiles found on any London site. These were made in the Dieppe area in around 1375–1400 or at the very beginning of the 15th century, and are found at various sites in England, principally in London and on or near the coast of southeast England. The individual designs have been published by Norton (1993, 89–94) and his design types are referred to here. Present are Norton types 17, 20, 21, 37, 38 or 39, 39, 49 or 50, 65 and possibly 59. Design 65 is illustrated (<T37>) as it is now possible to show slightly more than is present on Norton's drawing.

Bawsey, King Lynn

Perhaps brought into London around the same time as the French tiles is a glazed tile with a relief design made at Bawsey outside Kings Lynn (Norfolk) (<T38>). This tile, which is dated to the last quarter of the 14th century, is highly significant – it is the only tile from Bawsey to have been found in London. It is Eames design type 416. Presumably the Bawsey tile, together with those shipped in from France, were brought into London because Penn tiles were no longer available. The last documentary record of Penn tile used in London is at the Tower of London between 1384 and 1388 (Eames 1980, 222–3).

Source?

Two tiles from the same unknown source have a design comprising two interlocking vesicas with a central petal flower motif (<T39>). The more complete example, which is highly worn, measures 131mm square by 23mm in thickness. The other fragment, which is unworn, is 22–23mm thick. Somewhat oddly the more complete tile has four keying marks in the form of circular shallow scoops in the base, but these are absent on the fragmentary second tile.

Keyed bases are a very rare feature in London, although a tile belonging to the thin-'Westminster' group has this feature so the technique was certainly known to at least one London tilemaker. Keyed bases are far more common on floor tiles made in the southwest of England where they have sometimes

Type	site D period	Context/ [BIG82] Accession/publication in Betts and Weinstein 2010	Type
<T1>	16.5	[75] <486>	Floor tile –Penn?
<T2>	17.22 post-Fire	drawing composed of [601] <1138>, [187] <1115> and examples from other London sites	Floor tile – Penn
<T3>	17.13 post-Fire	[464] <1169>	Floor tile – Penn
<T4>	17.17 post-Fire	[494] <1171>	Floor tile – Penn
<T5>	12.12	<473>, <1146>, <1137> with additions from HNT94 [512]	Floor tile – Penn?
<T6>	16.8	[424] <772> Betts and Weinstein 2010, no. 6	Antwerp – mosaic delft tile
<T7>	16.7	[1627] <5041>	Antwerp – mosaic delft tile
<T8>	17.21 post-Fire	[721] <999> Betts and Weinstein 2010, no. 34	Antwerp – later delft
<T9a, b>	17.21 post-Fire	[+] <1792> & [721] <1313> second is Betts and Weinstein 2010, no. 36	Antwerp – later delft
<T10>	17.21 post-Fire	[7512] <990>	Aldgate – delft

Type	site D period	Context/ [BIG82] Accession/publication in Betts and Weinstein 2010	Type
<T11>	17.1 post-Fire	[1180] <2195>	Early Dutch – delft
<T12>	16.7	[1409] <5061>	Pickleherring - delft 'medallion'
<T13>	17.18 post-Fire	[42] <465> [post-Fire context, new building over St Botolph's church, period D17.18]; Betts and Weinstein 2010, no.141	Rotherhithe (flower) – delft
<T14>	17.22 post-Fire	[540] <991>	London? (flower) - delft
<T15a, b>	17.21 post-Fire	[721] <1005> & <5934>	London? (cone shape) – delft
<T16>	17.7 post-fire	[575] <1000>	Dutch (soldier) - delft
<T17>	16.7	[1369] <1808>	Dutch (soldier) - delft
<T18>	16.7	[1369] <1865>	Dutch (soldier) - delft
<T19>	[from another site in Botolph Lane]	BPL95 [104] <85> compare with three examples above	Dutch (soldier) - delft
<T20>	17.21 post-Fire	[721] <997>	Dutch (biblical?) – delft
<T21>	17.21 post-Fire	[721] <965>	Dutch (pastorial) – delft
<T22>	17.18 post-Fire	[41] <459> two fragments Betts and Weinstein 2010, no. 208	Dutch (diamond) -delft
<T23>	10.15, 9.2	[4085] & [5858]	Bat – 1 hole type
<T24>	9.2	[5851]	Bat – 2 hole type
<T25>	9.2	[3123]	Bat - decorated
<T26>	10.15	[3469]	Ridge tile – fabric 2273
<T27>	17.17 post-Fire	[494]	Nib tile
<T28>	11.3	[2950]	Ridge tile – fabric 2274
<T29>	15.4	[1389] <1751>	Ridge tile – decorated
<T30>	10.1	[3394]	Gutter tile
<T31>	17.7 post-Fire	[193] <5064>	Moulded brick

Illustration no.	Context [BWB83]/Accession	Type
<T32>	[310] <1810>	Floor tile – 'Westminster'?
<T33>	[274] <1844>	Floor tile - Eltham/Lesnes group
<T34>	[298] <1845>	Floor tile - Eltham/Lesnes group
<T35>	[256] <1851>	Floor tile - Eltham/Lesnes group
<T36>	[391] <1792>	Floor tile – Penn
<T37>	[359] <1787>	Floor tile – Dieppe group
<T38>	[369] <1837>	Floor tile - Bawsey
<T39>	[108] <1834> & [352] <1840>	Floor tile – source?
<T40>	[257] <1812> & [293] <1979>	Floor tile - source?
<T41>	[305] <1847>	Floor tile - source?

Table 89 Site D: summary of <T> types of floor tiles, wall tiles, roof tiles and brick; type <T1> to <T31> from the main excavation, type <T32> to <T41> from the watching brief

been referred to as the 'stabbed Wessex series'. There is no indication as to where the Billingsgate tiles originated although it would seem very unlikely they were made close to London. The date of the tiles is also uncertain, although their size is similar to those of the Eltham/Lesnes group made in the early years of the 14th century. It is possible therefore that they were brought in to repair or extend an existing pavement of Eltham/Lesnes tiles which would date the two tiles to the 14th century.

There are a further two tiles from another unknown source. They both have the same diagonal crenellated pattern (Eames design E2052). The design (<T40>) is very similar to that found on certain 'Westminster' tiles (W55–W57) but the Billingsgate

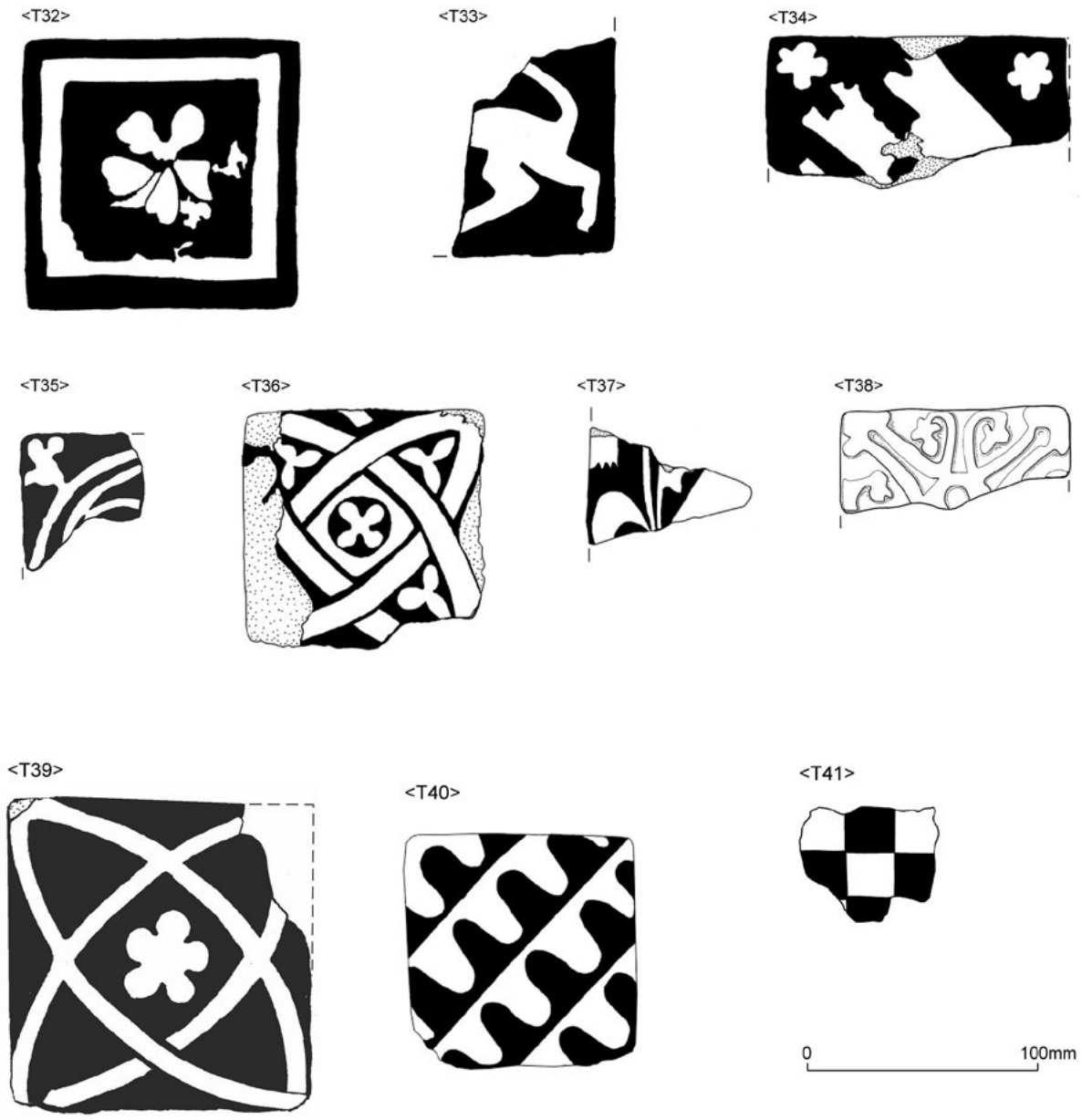

Figure 255 Floor tiles from the watching brief on site D (BWB83), <T32> to <T41> (1:3)

tiles are significantly smaller (99–101mm square) that the vast majority of 'Westminster' tiles and they are both in a different fabric (MoL type 2505). A third tile from the same kiln source has an unpublished chequerboard design (<T41>). Again the design is paralleled on certain 'Westminster' tiles (design W47), although the pattern is smaller. However, the tile has the same scatter of flint in the mounding sand as seen on many London-made 'Westminster' tiles. Until more tiles of these designs are found it is uncertain whether they are of 'Westminster' type or, as seems more probable, belongs to a related group made somewhere in the London area. Their thickness (23–25mm) would certainly suggest that they were made around the same time as 'Westminster' series: sometime in the second half of the 13th century.

Appendix: Ceramic fabric types

It should be noted that most of the building material from BIG82 was recorded in the early-mid 1980s. Since that date there has been modifications to the fabric classifications used in London. Major changes are noted below.

All floor and roof tile fabrics are normally various shades of red, orange or when underfired brown (unless stated otherwise), whilst most tin-glazed wall and floor tiles are fired to a white, cream or pink colour. Some floor and roof tiles have a grey core.

Lead-glazed and unglazed floor tile fabrics:

1678
Common small quartz and calcium carbonate (up to 0.2mm), occasional iron oxide (up to 0.8mm).

1977
Common quartz (up to 0.6mm), frequent red iron oxide/clay inclusions (up to 2.0mm) and cream silt bands and lenses.

1810
Sandy fabric, frequent large quartz grains (up to 0.5mm); occasional iron oxide (up to 2mm).

1811
Fine sandy fabric, common quartz (up to 0.3mm) with fairly common red iron oxide (up to 2mm).

1813
Sandy fabric, frequent quartz (up to 0.5mm)

2191
Less frequent quartz and calcium carbonate, other similar to fabric 1678.

2199
Little or occasional quartz, scatter muscovite and black iron oxide (up to 0.01mm), red iron oxide (up to 1.0mm).

2273
Sandy fabric with frequent quartz (up to 1mm) and common calcium carbonate (up to 0.8mm)

2317
Moderate very small quartz (up to 0.1mm), occasional black iron oxide (up to 0.05mm)

2318
Sandy fabric, abundant quartz (up to 0.5mm), frequent red iron oxide/clay inclusions (up to 2mm) and cream silty bands and lenses

2320
Fine sandy fabric, common quartz (up to 0.3mm) and occasional black iron oxide (up to 1mm), calcium carbonate and rock fragments (up to 2mm)

2322
Fairly sandy fabric, with quartz (up to 0.5mm), and common red iron oxide (up to 1.5mm), and occasional silty bands and black iron oxide. Similar to fabric 2320 apart from silty lenses.

2323
Moderately sandy fabric with quartz (up to 1.3mm) and calcium carbonate (up to 1.5mm), plus occasional black iron oxide (up to 0.6mm) and red clay/iron oxide inclusions (up to 5mm)

2324
Fine sandy fabric, common quartz (up to 0.2mm), with frequent red iron oxide (up to 2mm), and occasional silty bands and inclusions (up to 1mm)

2497
Abundant small quartz and calcium carbonate (up to 0.2mm), occasional iron oxide (up to 1mm).

2504
Common small white calcium carbonate inclusions (up to 0.2mm) and quartz (up to 0.4mm). Scatter of black iron oxide (up to 1mm), Occasional thin silty lenses.

2850
Common quartz (up to 0.5mm), frequent red iron oxide/clay inclusions (up to 2mm), and common silty bands and lenses.

2851
Scatter of visible quartz (up to 0.3mm), moderate black and dark red iron oxide (up to 1mm)

2894
Varying amount of well sorted quartz (up to 0.8mm); occasional iron oxide (up to 1mm).

2892
Sandy fabric, common quartz (up to 0.6mm) and red iron oxide (up to 2mm); scatter of calcium carbonate with occasional flint/chert.

3063
Abundant cream silty inclusions (up to 4mm) and red iron oxide (up to 2mm); occasional quartz (up to 0.5mm).

3076
Abundant red iron oxide/clay inclusions (up to 2.0mm) with frequent well sorted quartz (up to 0.6mm). Scatter of rounded silty inclusions (up to 1.0mm), silty lenses.

3080
Frequent large creamy 'grog' inclusions (up to 16mm), with common red iron oxide (up to 2mm) and small quartz (up to 0.2mm)

3081
Fine smooth clay matrix with almost no quartz; common red, orange iron oxide (up to 3mm).

3083
Finely mottled clay matrix with fairly common quartz (up to 0.4mm) and iron oxide (up to 2mm). Matrix streaky in places.

Tin-glazed wall and floor tile fabrics:

1819
Fairly sandy fabric, quartz common (up to 0.2mm) Moderate red and black iron oxide (up to 0.3mm). Common red clay lenses and rounded cream silty inclusions (up to 4mm) and occasional calcium carbonate.

2196
Fairly sandy, common quartz (up to 0.2mm), Moderate red and black iron oxide (mainly up to 1.2mm) Occasional red clay bands.

3064.
Sandy, common quartz (up to 0.4mm), scatter of light red iron oxide (up to 0.8mm), mainly wall tile.

3067
Fairly sandy, common small quartz (up to 0.2mm), black and red iron oxide (up to 0.3mm), occasional iron oxide (up to 2mm). Mainly floor tile.

3078
Fairly sandy, common small quartz (up to 0.2mm), scatter of red and brown, rounded iron oxide/clay inclusions (up to 1mm) Mainly wall tile.

Roof tile fabrics:

2271
Fine fabric with scatter of muscovite mica (up to 0.05mm), red and black iron oxide and calcium carbonate (up to 0.5mm). Infrequent to common quartz (up to 0.6mm). The more sandy versions of this fabric type are now classified under fabric number 2586, whilst those with fairly common very small

black iron oxide inclusions are now placed in fabrics 2587 and 3060.

2273
See floor tile fabrics

2274
Fine sandy fabric with abundant small quartz (up to 0.3mm) with occasional red and black iron oxide (up to 0.5mm).

2275
Scatter of quartz (up to 0.4mm), red and black iron oxide (up to 3mm), and occasional silty bands and white calcium carbonate (up to 1mm) inm some tiles

2276
As fabric 2271 but with fine moulding sand.

2279
Common quartz (up to 0.5mm) with scatter of white calcium carbonate and occasional dark red iron oxide (up to 0.6mm).

2816
Fairly frequent small quartz grains (up to 0.3mm) with red iron oxide (up to 2mm).

Brick fabric types:

3031
Yellow, cream, pale pink or pale brown colour. Common very small quartz (up to 0.3mm). Scatter of rounded yellow or brown silty pellets (up to 4mm) in some bricks.

3032
Usually dark red. Common burnt black ash and flint inclusions (up to 6mm) with varying amounts of quartz (up to 0.8mm). Clay pipe stems in some bricks.

3033
Commonly red or reddish-orange. Fine fabric with scatter of quartz (up to 0.8mm), with calcium carbonate inclusions (up to 1.5mm) and black iron oxide (up to 1mm). Occasional flint fragments (up to 7mm). The more sandy versions of this fabric type are now classified under fabric number 3046.

3035
Yellow. Common burnt black ash and chalk inclusions (up to 4mm). Scatter of quartz (up to 0.6mm).

3036
Yellow. Hard uniform texture with common quartz (up to 0.3mm), although difficult to distinguish from the background matrix.

3040
Variable colour, often yellow light grey and light red. Fabric with lenses and banding of different coloured clay. Occasional black iron oxide (up to 0.3mm).

3043
Light brown, yellowish-brown. Clay matrix with frequent streaking, plus yellow speckling (best seen under magnification). Occasional shell fragments with a scatter of quartz grains up to 0.6mm. Where frequent, the quartz occurs in sandy bands.

3093
Fine clay matrix with mixture of orange and pink coloured clay types, hence a streaked clay matrix. Occasional iron oxide inclusions (up to 2mm). No quartz.

6.8 Analysis of the human skeletal remains from St Botolph Billingsgate

Jelena Bekvalac

Introduction and methodology

The burials excavated in 1982 from the church of St Botolph Billingsgate are from two periods. The remains of six individuals were recorded in period D15.2, the middle and second half of the 15th century. A second group of 51 skeletons came from periods D16.3 to D16.5, the first half of the 17th century terminating in 1666. Both these groups are listed in Table 90. A further 12 skeletons are in some way deficient in their records, but their pathology is studied; they are listed in Table 91.

The methodology for recording the skeletal remains followed the Wellcome Osteological Research Database (WORD) guidelines by Connell and Rauxloh (2003) and updated by Powers (2012). Estimation of the sex of the adults was established from morphological features of the skull and pelvis (Phenice 1969; Ferembach *et al.* 1980) and was scored on a 5-point scale as: male, possible male, intermediate, possible female and female (Buikstra and Uberlaker 1994). The determination of sex for subadults was not attempted. Metric and non-metric data were recorded following guidelines by Berry (1976), Brothwell (1981) and Buikstra and Uberlaker (1994). Tooth measurements were based on Buikstra and Uberlaker (1994) and Hillson (1996). Stature estimation was made from the maximum femoral length using the formulae devised by Trotter and Gleiser (1958; 1970). Pathology was recorded following Roberts and Connell (2003) with reference to Aufderheide and Rodriguez-Martin (1998), Ortner (2003), Roberts and Manchester (1995) and Salter (1999). Age at death of adults was based on morphological changes on the pubic symphysis (Brooks and Suchey 1990), the auricular surface (Lovejoy *et al.* 1985) and the sternal portion of the ribs (Iscan *et al.* 1984; 1985) and dental wear of the mandibular molars based on Brothwell (1981). For the subadults, age was based on the diaphyseal length of the long bones (Maresh (1970; Scheuer *et al.* 1980), development and eruption of teeth (Gustafson and Koch 1974; Smith 1991) and epiphyseal fusion (Scheuer and Black 2000). The categories of age were divided into 12 stages.

Preservation

Preservation and completeness overall was generally good for the majority of the skeletal material. Of the 69 recorded, 29 (42%) were graded with Level 1 preservation–bone surface good, 29 (42%) were Level 2–bone surface moderate and 11 were graded at Level 3–bone surface is poor (16%). 46.4% of the individuals had been truncated, and a small number of the individuals had concreted substances covering the surfaces of the bones, showing

the effects of taphonomic processes from the burial environment and subsequent changes in the land use.

Green staining of bones was recorded for 23 (33.3%) individuals on a variety of elements indicating the presence of metal in close proximity to the individual in the burial. It is often found in skeletal remains and most commonly associated with the use of shroud pins to hold the material in place, with the green colouration the result of the corroding of the metal.

The completeness of the individuals ranged from as low as 0–5% to 80–85% with the majority over 50% complete. The completeness of the skeletal remains is important for enabling enough of the necessary criteria to be present to assess as accurate as possible estimation for sex and age. Hair was noted as being present for six (8.7%) individuals and if sampled in the future this would be a valuable source of further information about these individuals.

Demography

The group comprised 58 adults (84.1%) and 11 subadults (15.9%), identified as being less than 18 years of age. For the subadults, estimation of sex was not undertaken. The estimation for biological sex and age of the adults were based upon the characteristics and traits of the skull and pelves (Powers 2012). Estimation of age for the subadults was based on diaphyseal long bone measurements, epiphyseal fusion and dental development (Powers 2012). Where the characteristics were present for an estimation of sex to be made there were 32.6% females (15/46) and 67.4% males (31/46). Within the adult group there were 11 individuals where the characteristics to determine sex were not clearly sexually dimorphic and recoded as probable male (5) and probable female (6). When grouped together (combining the probable males and females), there is an adult male: female ratio of 2:1. For 12 individuals it was not possible to assign sex as the necessary elements were missing post-mortem (Figure 256).

The number of subadults in the sample was low at 11 (15.9%) and considerably lower when compared with other later post-medieval collections (Brickley *et al.* 1999; Henderson *et al.* 2013). This is more likely to be as a consequence with the biases of the sample, with the extent of the excavated area, location of burial and the overall number of skeletal remains being quite small. It is therefore not necessarily a true representation of infant mortality rates at this time (Figure 257).

Context (site D)	Period	Sex	Age category	Pathology
783	15.2	male	>46	Dental pathology (caries)**
937	15.2	female	36–45	Dental pathology (caries)**
1118	15.2	male	36–45	Dental pathology (calculus)
1230	15.2	subadult	1–5	Dental pathology in deciduous dentition (caries and calculus)
1258	15.2	subadult	1–6 months	No visible pathology
1569	15.2	male	>46	Vertebral pathology with osteoarthritis of the vertebrae
565	16.3	female	26–35	Vertebral pathology**
1091	16.3	male	36–45	Dental pathology (calculus and linear hypoplasia)**
1112	16.3	male	adult	Dental pathology (caries)
1146	16.3	female	26–35	Dental pathology (calculus)
1159	16.3	subadult	12–17	Dental pathology (calculus)**
1202	16.3	unsexed	adult	Non metric trait right femur hypotrochanteric fossa
2247	16.4	male	36–45	Dental pathology (caries)
2283	16.4	probable female	adult	Dental pathology (caries & calculus)
1001	16.5	male	>46	Ante-mortem tooth loss
1020	16.5	male	36–45	Vertebral pathology
1043	16.5	male	36–45	Dental pathology (calculus)
1086	16.5	probable female	36–45	Dental pathology (calculus)
1092	16.5	male	36–45	Dental pathology (calculus)
125	16.5	female	18–25	Pronounced 'S' shape curvature to two rib shafts
126	16.5	subadult	1–5	Mixed dentition - Dental pathology - (caries)
127	16.5	male	26–35	Osteoarthritis of the right hand
128	16.5	probable male	36–45	Dental pathology (caries and calculus)
129	16.5	male	26–35	Vertebral pathology
130	16.5	female	26–35	Residual rickets in leg bones and marked muscle attachments
131	16.5	subadult	1–5	Active rickets (leg bones)
1328	16.5	subadult	1–5	No visible pathology
162	16.5	male	26–35	Dental pathology (caries)
186	16.5	male	18–25	

Context (site D)	Period	Sex	Age category	Pathology
301	16.5	subadult	6–11	Mixed dentition - Dental pathology - (calculus) deciduous & permanent teeth
302	16.5	subadult	12 –17	No visible pathology. Non metric trait post-cranial
303	16.5	probable female	adult	Ante-mortem tooth loss
342	16.5	male	26–35	No visible pathology**
343	16.5	probable male	adult	No visible pathology
471	16.5	probable male	adult	Dental pathology (caries)**
511	16.5	probable female	18–25	Dental pathology (caries)
558	16.5	unsexed	adult	Marked muscle attachments
573	16.5	female	>46	Dental pathology (calculus)
580	16.5	male	36–45	Dental pathology (calculus)
597	16.5	unsexed	adult	Possible soft tissue injury to the left calcaneus and talus - differential diagnosis tarsal coalition
622	16.5	subadult	1–5	Mixed dentition
623	16.5	female	36–45	Dental pathology (caries)
629	16.5	male	>46	Dental pathology (calculus and linear hypoplasia)
655	16.5	unsexed	adult	Non specific infection
656	16.5	unsexed	adult	Marked ligament attachment distal end left fibula
662	16.5	female	>46	Dental pathology (caries)
673	16.5	unsexed	adult	Marked muscle attachments
675	16.5	male	>46	Marked muscle attachments
75	16.5	male	36–45	Dental pathology
759	16.5	male	>46	Ante-mortem tooth loss
876	16.5	unsexed	adult	Degenerative joint disease
886	16.5	male	>46	Degenerative joint disease
905	16.5	female	26–35	Dental pathology (caries)
935	16.5	male	26–35	Vertebral pathology
938	16.5	male	>46	Ante-mortem tooth loss**
967	16.5	subadult	1–5	Deciduous dentition with developing permanent dentition**
974	16.5	male	>46	Dental pathology (caries)

Table 90 Site D: skeletons, basic data for securely provenanced skeletons. Those marked ** are individually illustrated here, either during excavation or when examined during analysis

Context (site D)	Period	Sex	Age category	Pathology
1367	not mentioned in report	unsexed	adult	No visible pathology
52	not mentioned in report	unsexed	adult	Dental pathology (caries)
1914	index says 12.1 but must be error	male	adult	Dental pathology (caries)
2037	index says 13.4 but must be error	probable female	36–45	Vertebral pathology
1999	index says 13.6 but must be error	male	>46	Dental pathology (calculus and periodontitis)
2051	index says 13.6 but must be error	probable male	>46	Dental pathology (caries)
'41'	error as [41] is tiles in 17.18	unsexed	adult	No visible pathology
'45'	error as [45] is a layer in 17.18	male	26 –35	Dental pathology (caries and calculus)
'321'	error as [321] is a layer in 17.24	unsexed	adult	No visible pathology
'335'	error as [335] is in 17.24	unsexed	adult	No visible pathology
'575'	error as [575] is a layer in 17.7	subadult	6–11	No visible pathology
'505'	error as [505] is a layer in 17.11	female	>46	Dental pathology (caries)

Table 91 Site D: skeletons with deficient stratigraphic data

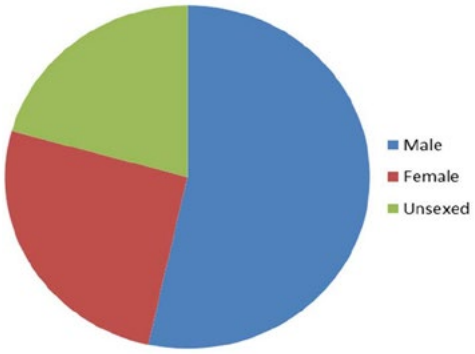

Figure 256 Osteological sex estimation distribution

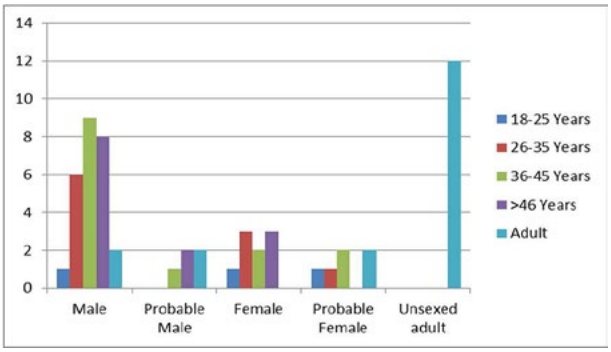

Figure 258 Adult age at death profile

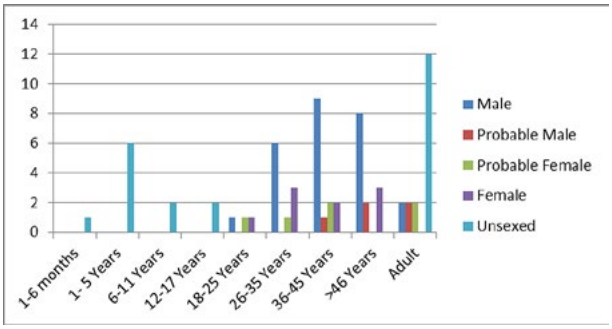

Figure 257 Demographic profile

Adult age at death

The estimation of biological age in skeletal remains is problematical (Roberts 2009, 136) and it has been found that estimation for the younger adults is generally more accurate but as the processes of ageing continue in the adults the degree of accuracy in the middle and older age categories decreases (Cox 2000, 75).

The age at death distribution for males and females was very similar. The total numbers were small but there were no statistically significant variations within the adult age codes. When combining the males and females where age estimation was possible 50% died in the age categories 36–45 years and >46 years. The number of males being higher, there was an even distribution of 10 adult males in each of these two age categories. Similar age at death profiles have been found in other post-medieval and medieval sites (Miller and Saxby 2007; Miles *et al.* 2008; Cowie *et al.* 2008; Henderson *et al.* 2013). Amongst the adults there were 18 (31%) where it was not possible to estimate an age as the criteria necessary were either missing or damaged post-mortem, or obscured in some way (Figure 258).

Sub-adult age at death

For the subadults there was one infant in age code 2 (1 to 6 months) and closer to the early age most probably dying not long after being born, which could be an indication of problems experienced prior to birth and complications during and/or after birth. Childbirth even today with the advancement in medical science and interventions is still extremely hazardous and considering the time period the risks would have increased enormously if there were any complications. The majority of the subadults (6%) were in the age code 1–5 years which covers the age at which weaning would have taken place and was a vulnerable time for the young with mortality rates seen to increase (Roberts and Manchester 1983, 222). This age category of the under-fives, are seen to be a significant group, as they are particularly sensitive to the stresses and impacts of the societal environment and an indicator to the population's health and ability to combat disease in adulthood (Lewis 2007, 12). This pattern of a high number of subadult deaths is also seen in other post-medieval sites (Miles *et al.* 2008 and Henderson *et al.* 2013). Vanessa Harding (2014, 33) has suggested that in the first half of the 17th century higher infant mortality in riverside parishes, and a late-summer peak in infant and child deaths, may have been a result of water-borne and gastric infections; but the present sample size is small. The remaining four individuals were evenly distributed in the age range 6–11 years (18.2%) and age range 12–17 years (18.2%).

Stature and growth

Adult stature is a good indication of the health status of a population for attaining an average or above average height, being a reflection of good access to nutritional food sources, genetics and lower stress impacts from potential malnutrition or childhood illnesses (Roberts and Cox 2003, 308; Lewis 2009, 66). In subadults their growth and development is particularly sensitive to such impacts of poor nutrition and poor health (Roberts and Manchester 1983, 39) which can at a later stage in their development be mitigated with 'catch up growth' (Lewis 2007, 67).

The estimation of stature was based upon the maximum length of the right femur and was possible to estimate for 10 individuals, 8 males and 2 females. The mean stature for females was 155.3cm (5ft 1in), with a range from 152cm (5ft 0in) to 155.5cm (5ft 1¼in), and for the males the mean stature was 175cm (5ft 9in), with a range from 168.5cm (5ft 6.3in) to 182.3cm (6ft 0in). Comparatively the stature of the males and females was within the range for the post-medieval period as found in other sites for London and outside of London (Roberts and Cox 2003; Miles *et al.* 2008; Cowie *et al.* 2008; Henderson *et al.* 2013) and followed the same pattern in not having markedly changed from the medieval period (Roberts and Cox 2003).

With the small number of subadults in the group there were limited possibilities with the data to assess any marked patterns in growth and development within the age groups. As seen in subadults from other post-medieval sites where it was possible to plot dental development to growth (Miles *et al.* 2008; Henderson *et al.* 2013) the dental development of the subadults from St Botolph was generally more advanced in age comparatively to the diaphyseal length (growth).

Skeletal indices

Cranial indices are calculated based upon the ratio between the maximum width and maximum length of the head. There were only a small number of crania that were possible to measure and of the four they all fell in the classification of the dolichocephalic (long headed) range. The long head shape is often more frequently observed in post-medieval sites, comparatively to the more often round head shape (mesocephalic) of the medieval period (Miles *et al.* 2008; Henderson *et al.* 2013).

Post cranial indices for platymeria and platycnemia, in the shape and form of the long bones the femur and tibia provide information with respect to the differences in shape between populations (Brothwell 1981, 88) and the variety within the shapes of the leg bones indicating in part people's use of the legs muscle (Chase and Chase 1992) .

In the females it was possible to assess 10 femora for platymeria, the left and right was both very similar in the results of the indices but the left femur was more often broader and flatter compared to the right, which was also seen in the St Marylebone group (Miles *et al.* 2008). For the males it was possible to assess 18 femora with a similar outcome to the females and with both the males and females falling in to the index range of eurymeria which is identified in Brothwell 1981 as variability identified for an English population (Brothwell 1981, 89).

For assessing tibial platycnemia, the transverse flattening of the tibia, the left and right tibia of 20 males and 10 females were available. All of them fell in the higher index range of mesocnemia, a similar pattern found in other post-medieval collections (Miles *et al.* 2008; Henderson *et al.* 2013).

The patterns observed in the shape and form of the long bones are an indication of the biomechanics of the use of the limbs with associated muscle involvement. The temporal and geographical patterns have been found to vary amongst populations and provide information about adaptation and the environment. The individuals from St Botolph fall into the same range of post-cranial indices and long bone shapes as others in similar environments and with similar life styles (also Miles *et al.* 2008; Henderson *et al.* 2013).

Infectious disease

The rates of infectious diseases and epidemics are known to have increased in the post-medieval period in London and were a major cause of deaths amongst the population, particularly so with the increases in population and environmental changes during the post-medieval period (Roberts 2000 and Roberts and Cox 2003). Many of the infectious diseases that would have affected the people in the past are not always possible to observe macroscopically in the skeletal remains but absence of them in discernible lesions does not mean absence of them (Roberts and Manchester 1983, 7).

Non-specific infection

Non-specific bone changes are a common feature in skeletal remains and can generally be ascribed to localised trauma to soft tissue or an indication and precursor of other disease processes (Roberts and Cox 2003, 343). The non-specific infectious change most frequently recorded is periostitis, inflammation of the periosteum that covers the bone and is predominantly observed in the lower legs where the skin is thinner and there is greater likelihood of knocking and damaging the skin, enabling a low grade infection to manifest (Roberts and Manchester 1983, 172). The bone changes are observed causing an alteration to the integrity of the bone but it is not possible to identify the specific causative infectious agent. The changes may be healed by the time of death with remodelling of the bone, or the formation of woven bone indicates that the inflammation was active.

The crude prevalence rate for non-specific infections was 31% (18/58) for the adults and none was observed in subadults. 'Crude prevalence rate' is the number of individuals in a population with a specific condition, providing an overall average of those affected.

Periostitis was recorded in 12 (38.7%) males and four (26.7%) females and one adult where it was not possible to estimate sex. The predominant periosteal changes affected the leg bones, with 15 of the 17 affected individuals manifesting non-specific periostitis of the tibiae. One male adult D[1112] had healed remodelled bone on his femora and a female 26–35 years old D[905] had woven bone on her femora indicating an active inflammation at the time of her death. One male >46 years D[2051] had a demarcated lobulated area of raised bone on his left tibia that may have been indication of a long-standing low-grade infection such as an ulcer, which would more likely affect someone in the older age category.

None of the adults or subadults exhibited any bony lesions that could be ascribed to the specific infections of tuberculosis and syphilis, which for this time period would have been expected.

Rib lesions

Rib lesions have been associated as a link to identifying tuberculosis in an individual but studies have proved that this is inconclusive as a correlation of the disease as a number of other conditions can cause such bony changes in the ribs (Santos and Roberts 2006). One male in age category 36–45 years D[886] had evidence of small smooth raised areas of bone on the pleural surface of two rib shaft fragments, indicating a healed response to an inflammation, a chest infection.

Osteomyelitis

In skeletal remains the bone changes observed with osteomyelitis are of the chronic type with long term changes producing gross destruction of the bone and affecting the bone marrow. Osteomyelitis is identified as an inflammation of the bone (osteitis) and bone marrow (myelitis) caused by pus producing bacteria (Aufderheide and Rodriquez-Martin 1998, 172). None of the individuals from the group had any

bone changes that affected the bone marrow which could be diagnosed as osteomyelitis. The rate for osteomyelitis was low in the medieval period and remained low in the post-medieval period (Roberts and Cox 2003, 343) and this finding is perhaps then not to be unexpected.

Osteitis

The condition of osteitis can occur without there being an infection of the marrow (Aufderheide and Rodriquez-Martin 1998, 172) and may be identified with an expansion and thickening of the cortical bone in response to the process of the infection. Only one individual D[565] (Figure 259) a probable female in age category 26–35 years possibly manifested changes that could be attributed to osteitis, in this case affecting the right tibia (Figure 260). The female may have suffered a soft tissue injury to her leg enabling bacteria to enter her system and cause the infection to produce the bony response of the tibia.

Trauma

Trauma in skeletal remains can provide a rich source of information not only about the type of trauma impacting upon an individual but also details of the environment, social status and lifestyle of an individual. The most common type of trauma seen in skeletal remains are fractures and they are of interest for many aspects including the healing process, alignment of a fracture, and the effects of secondary joint and infectious changes.

Fractures

The crude prevalence rate of fractures was very low with only three adults (4.3%) manifesting fracture trauma. Two older males >46 years D[783] and D[1001] had possible fracture trauma with D[783] having a possible healed oblique fracture at the distal end of the left fibula where there was a pseudo facet and bony changes indicating fusion between the tibia and fibula, a secondary response to the trauma. The male >46 years D[1001] had bone change of his right 5th metacarpal that could have been a well healed and remodelled oblique fracture with the presence of a pronounced bony ridge on the palmar surface and a hook like process of bone. There were no indications in the articular head of the 5th metacarpal of secondary joint change. One other older male >46 years D[1999] had a healed rib fracture at the sternal end of a left lower rib shaft. None of the recorded fracture trauma showed



Figure 259 Skeleton D[565] (0.2m scale)



Figure 260 Skeleton D[565] right tibia showing bony lesions with porosity and remodelling possible indication of osteitis

any signs of having become infected and were all well healed. No fractures were observed in the subadults.

Subluxation

Two of the adult individuals with a crude prevalence rate of 2.9% had possible subluxation (dislocation) of joints, a male D[128] not possible to age and an older >46 years female D[505]. The male D[128] had a possible indication of dislocation at the elbow with changes observed in the right ulna. In the proximal head of the ulna filling the trochlea notch was a bony mass which may also have other materials from the burial environment mixed in to make a cohesive mass. On the medial aspect there were remnants of bone shaft that may be an indication that the radius was fused to the ulna with coalescence of the bones at the proximal articulation. The radius was damaged post-mortem with only part of the radial shaft present and it was not possible to see if any such changes corroborate in the proximal area with regard to any possible fusion. Such damage is not unusual with archaeological skeletal remains, as many factors affect bones. The right humerus was also damaged post-mortem in the area of the articulation for the ulna and radius and did not enable clear observation of changes in this area to associate with the alteration in the ulna. An alternative cause of the dislocation could be an infection. From what could be observed, the joint of the elbow would have been hindered with the flexion of the elbow hinge joint restricted and thus limiting the degree of normal movement.

The older female D[505] also had a possible indication of partial subluxation of the right shoulder. On the inferior surface of the right acromion the bone extends in the region of the attachment for the coraco-acromial ligament and has a smoothed surface similar to a pseudo facet for articulation. The right humeral head was badly damaged post-mortem with only part of the surface of the articulating head present, so it was not possible to see if there were any associated changes to ascertain if a partial subluxation. The differential diagnosis could be a rotator cuff injury.

The shoulder and elbow are vulnerable joints for dislocation and in two cases such possible trauma could have been caused by accidental injuries or were possibly related to an occupation. The male with the possible dislocation of the elbow would have limited and restricted movement. Dislocation of the left elbow was recorded in an adult male from Bow Baptist church (Henderson *et al.* 2013, 159).

Soft tissue trauma

Soft tissue trauma was observed in five adults (four males and an unsexed adult) with a crude prevalence rate of 7.2%. Two of the individuals had changes affecting the foot bones with a possible crush injury to the 3rd and 4th metatarsals for D[1020] a male in age category 36–45 years, and another possible crush injury to the left 3rd, 4th and 5th metatarsals in the older male >46years D[974] that had new bone formation producing an irregular surface and the unsexed adult had bone changes possibly caused by a crush injury of the right lower leg affecting the calcaneus and talus to partially fuse along the medial superior aspect. An older male >46 years D[1569] had on the anterior surface at the distal end of the left humerus a raised area of bone superior to the articular surface for the left radius. The elbow joint articulations on the humerus had Grade 2 osteophytic lipping and may be linked as secondary to another injury, as the proximal areas of the humerus also exhibited in the area of the lesser tubercle possible rotator cuff injury affecting the attachment of Subscapularis. Both humeri had marked muscle attachments for Teres major. An alternative diagnosis for a possible healed fracture of the 5th metacarpal of male D[1001] would be a soft tissue injury.

A similar crude prevalence rate for this type of trauma was recorded in post-medieval groups excavated at Chelsea Old Church (Cowie *et al.* 2008), Bow Baptist church and St Mary and St Michael Tower Hamlets (Henderson *et al.* 2013) with the frequency for Chelsea Old Church, Bow Baptist and St Mary and St Michael's being higher in males which was also reflected in those from St Botolph. The presence of such crush injuries provides an insight into the potential hazards of the city environment at the time, with some of the injuries to feet and legs possibly being caused by carts and horses.

Compression fracture

One male individual D[1043] in age category 36–45 years had what appeared to be a healed vertebral compression injury to the 9th thoracic vertebra (Th9) with a marked reduction in height of the body of Th9 and osteophytic lipping, which also affected the remaining lower thoracic vertebrae, as well as Schmorl's nodes affecting the vertebral bodies.

Joint trauma

An older male adult >46 years D[1569] had a deformity in his right hand where the proximal and intermediate phalanges of the 5th metacarpal were ankylosed and had the appearance of Boutonniere deformity, where the ankylosis causes a flexed deformity of the phalanges. The distal phalanx was missing post-mortem and there was post-mortem damage of the proximal head of the 5th metacarpal and the intermediate phalanx had also been broken post-mortem separating it from the area of ankylosis. The cause of the deformity can be due to an injury or a degenerative response with arthritis. This male was an older adult and so the deformity could well be linked to his age but he also had in the right hand on the 2nd metacarpal a bony extension of the articular surface with the 1st metacarpal, that had an almost hook-like appearance which could link it to trauma of his hand, possible from a blow that damaged the tendons causing the deformed shape and the bone changes to the other metacarpals.

Cranial trauma

One young adult male, 17–25 years D[186] had possible indication of a well healed blunt force trauma to his cranium, with a small depression on the ectocranial surface of the frontal bone on the left side superior to the supraorbital ridges. The area was irregular and smooth with a slight indentation. The length was 15.01mm and 4.3mm wide and a depth of 0.24mm. The area of change only affected the ectocranial surface, with no indication of any infection and there did not appear to be any change on the endocranial surface. This young man also had a chipped right central maxillary incisor that could have occurred at the same time as the blunt force trauma and been the result of an episode of interpersonal violence.

Spinal joint disease

There are numerous types of joint disease that can affect the body with some more commonly found than others and many requiring the completeness of the skeletal remains to be higher if the pathognomonic indicators are to be found, particularly if involving the extremities of the hands and feet to make a confirmed diagnosis. The more frequently identified joint diseases are those of the degenerative type which are described as '....a non-inflammatory condition characterised by the loss of joint cartilage and subsequent lesions resulting from direct interosseous contact within diarthrodial joints (Aufderheide and Rodriquez-Martin 1998, 93). Degenerative changes can be observed in any area of the body where there is an articulation between bones and can be divided into the spine and 'extra spine', the other joints of the body. Spinal joint disease is considered here first.

Spinal joint disease was only observed within the adult individuals who were predominantly affected with osteophytic lipping. The vertebral pathology for some of the individuals could be seen to be an association not only of age with wear and tear but also possibly related to an everyday activity which is part of an occupation. It is a disease observed in all archaeological populations but with varying degrees of severity and its distribution is an indicator of manual activity (Roberts and Manchester 2005, 141). Similar patterns of spinal joint disease were found at Chelsea Old Church and St Mary and St Michael's Tower Hamlets.

Osteophytosis

The pressures and stresses placed constantly on the spine cause a rupture to the annulus fibrous which causes the stimulation of new bone growth at the margins that can be slight, moderate and severe, leading in some cases to fusion with types of fusion indicative of particular disease processes (Roberts and Manchester 2005, 140). Osteophytosis was the most common spinal joint disease in the individuals and was more frequent in the males than females, increasing with age in the males but a fairly similar distribution in the females for the age categories, 26–35, 36–45 and >46 years. Osteophytic lipping was recorded for all regions of the spine but was most common in the mid to lower thoracic and lumbar vertebrae, with Grade 1 (intermittent) the most frequent level (Figure 261).

Osteoarthritis

As with the major joints the recording of osteoarthritis is the presence of eburnation (shiny surface) on the joint surfaces. When the individuals were affected with osteoarthritis in the spine it was quite a low rate and affected areas of the spine with potential for more mechanical stress in the neck, mid thoracic and lower back. More males than females had spinal osteoarthritis, with three out of the four individuals affected in the neck being male, which could be a true pattern but may also be exacerbated with more males being in the sample. Predominantly for both males and females the thoracic and lumbar were more frequently affected with increasing age (Figure 262). In the males the changes could be associated to activity and load bearing placing stress on the apophyseal joints. As at Chelsea Old Church it was also the males that were more affected in the neck than the females, with a similar pattern in St Mary and St Michael's for the mid thoracic and lumbar more frequently affected.

Intervertebral disc disease (IVD)

Intervertebral disc disease is associated with degeneration of the body surface of bones with the body becoming pitted and porous, often linked with older age (Roberts and Manchester 2005, 140). The pattern recorded in the St Botolph individuals similarly reflected an increase with age, occurred more frequently in the males, and affected predominantly the thoracic and lumbar vertebrae (Figure 263).

Schmorl's nodes

Schmorl's nodes are herniation in to the vertebral disc with varying degrees of depth and severity. The majority of them here were observed in males (Figure 264), a common pattern in the archaeological record with the thoracic vertebrae most often affected. The individuals from St Botolph followed

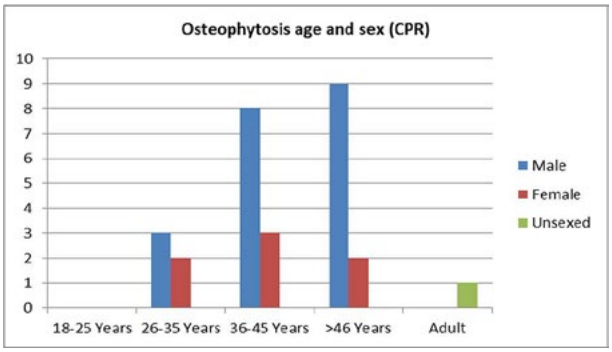

Figure 261 Osteophytosis distribution by age and sex

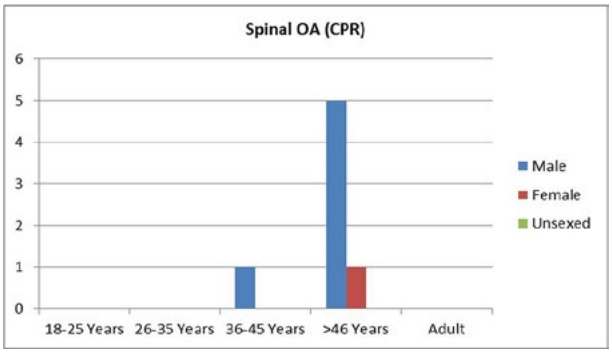

Figure 262 Spinal osteoarthritis by age and sex

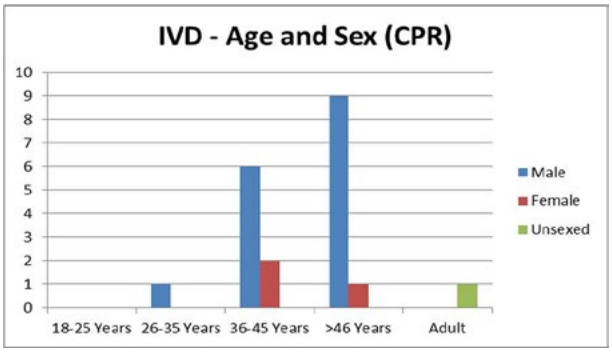

Figure 263 Intervertebral Disc Disease distribution by age and sex

the similar pattern of demographic distribution seen in other post-medieval groups including Chelsea Old Church, Bow Baptist church and St Mary and St Michael's church (Henderson *et al.* 2013, 169) with nine times more males affected than females. There was also an increase with age (Figure 265). No Schmorl's nodes were found in the subadults.

Fusion

Fusion in the vertebrae was recorded in three adult individuals: D[128] probable male age category 36–45 years, D[573] an older >46 years female and D[2051] an older >46 years probable male. The former had fusion across the zygoapophyseal joints only and the latter two across the centrum (vertebral body) only on the right side. The location and degree of fusion can be indicative of congenital variations and a precursor or identifier of other diseases. There was no vertebral fusion in the subadults.

Diffuse Idiopathic Skeletal Hyperostosis (DISH)

The manifestation of DISH are exuberant bony proliferations of the margins of the vertebral bodies known as 'candlewax effect' on the right side of the bodies that eventually fuse together producing a stiffness to the movement of the spine. Associated with it are the ossifications of the entheseal attachments for the ligaments and muscles which in some individuals can be extremely marked. It is seen more frequently in older males, over 50 years and has been linked with a high rich calorific diet but some people can be bone formers (Resnick 1988; Waldron and Rogers 2001). Research by Spencer (2010) also found links with nitrogen levels from stable isotope and ancient DNA analysis, investigating the link with diet and genetics. For an absolute diagnosis of DISH at least four of the vertebral bodies need to be fused together, and other associated features are disc space integrity,[268] the anterior ligament is ossified and there may be involvement[269] of the sacroiliac joint (Aufderheide and Rodriquez-Martin 1998, 97–8).

Four of the individuals (5.8%) from St Botolph had indicators of DISH and all were older males in the >46 year age category D[759], D[783], D[1569] and D[1999]. In the male D[783], perhaps John Reynewell (Figure 266), there was extensive osteophytic lipping of the thoracic vertebrae from Th7 to Th11 with the lipping on the right hand side, the smooth appearance of 'candlewax' and marked muscle insertions throughout his skeleton. There was some post-mortem damage and so it was difficult to observe if all of the vertebral bodies were fused or partially fused but of the four males affected he exhibited the most complete fusion in the vertebrae. The other three males D[759], D[1569] and D[1999] had early indications of DISH and most notably with the florid and exuberant osteophytic lipping of the thoracic vertebrae on the right

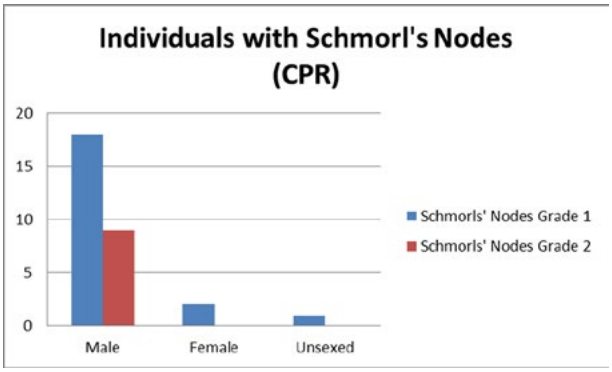

Figure 264 Schmorl's Nodes in adults by sex

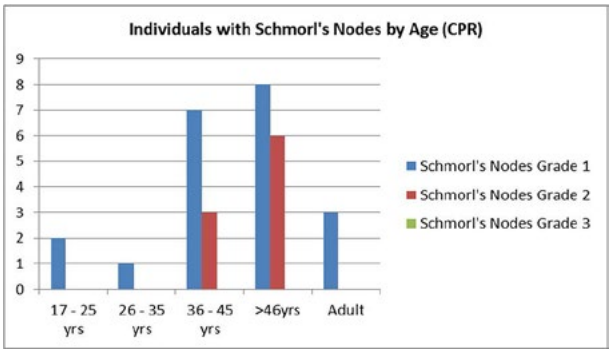

Figure 265 Schmorl's Nodes in adults by age

side. Post-mortem damage had affected them all and so it was possible that some of the fused vertebrae may have broken post-mortem. For D[1569] and D[1999] both had pronounced muscle attachments in their femora and pelves, which is a feature also associated with DISH. The pattern of individuals affected by DISH at St Botolph is only a small number but it follows the pattern of having the predisposition for older males and may be an indication of the individuals having access to a potentially richer diet, with a crude prevalence rate similar to that of the higher status sites of Chelsea Old Church (Cowie *et al.* 2008, 48) and Christ Church Spitalfields (Roberts and Cox 2003, 311).

Extra spinal joint disease

Osteoarthritis

Osteoarthritis is frequently observed in skeletal remains and is a very old disease which has affected individuals for millennia. The key diagnostic feature is the smooth shiny surface of the bones when the joint capsule is destroyed and the surfaces of the articulating bones come in to contact to create the shiny bone change. Osteoarthritis is often associated with older age from general wear and tear of the joints, can be secondary to trauma and in some instances has been tentatively linked to occupations (Roberts and Manchester 2005, 143). Its impact has varying degrees of disability dependent on the joint(s) affected, and in the modern era with an increasingly ageing population the prevalence rate has risen.

Of the main load bearing joints three adults D[505], D[974] and D[1569] with a crude prevalence rate of 4. 3% had osteoarthritic changes in the shoulder and knee joint. Two were male (2/31, 6.4%) and one was female D[505]. All were in the older age category >46 years making it a stronger

[268] Disc space integrity refers to the space between each of the vertebrae making up the spinal column, which in life will have what is called the intervertebral disc which acts a shock absorber. This space can be diminished and altered but with DISH we are still able to see this disc space even though the vertebrae have fused on the one side.

[269] Some individuals may have pathological changes in other areas of the skeleton such as the fusion (ankylosis) of the sacroiliac joint between the sacrum and the pelves (hips). Not every individual with the changes for diagnosis of DISH have the sacroiliac changes as well and hence Aufderheide and Rodriquez-Martin use the term *involvement* to mean a possible action of the process.



Figure 266 Detail of DISH on spine of skeleton D[783], possibly John Reynewell

association with being age related. The female D[505] and male D[1569] had changes in the shoulder joint, the female in the left shoulder and the male in the right, whilst the other male D[974] had bilateral osteoarthritic changes of both knees (Figure 267). The older male D[1569] also had early indications of DISH with extensive lipping of his thoracic vertebrae. The female D[505] and male D[974] suffered with osteoarthritis in their hands and feet, with D[974] possibly having changes secondary to trauma in his left foot.

Osteoarthritis of the hands and feet was observed in four adult individuals with a crude prevalence rate of 5.8%, affecting three males D[127] 26–35 years, D[974] >46 years and D[1020] 36–45 years, and one older >46 years female D[505]. The young male D[127] had osteoarthritis of the right hand, with a small area of eburnation on the rim of the palmar joint surface of the 1st metacarpal. There was no gross joint change to the metacarpal apart from the small area of eburnation on the rim of the proximal joint surface for articulation with the trapezium. The trapezium was missing post-mortem. The middle aged male D[1020] had osteoarthritis of the left and right foot, with osteophytic lipping (Grade 2) of the heads of the 1st metatarsals (big toes) and eburnation of the proximal heads and the distal articular surface of the proximal phalanges for the 1st metatarsals. The older male D[974] had osteoarthritis of the right hand with an area of eburnation on the articular head of the 1st metacarpal together with degenerative joint changes of the right hand, that is osteophytic lipping (Grade 1) of the articulating surfaces of some of the phalanges and carpals. There was also Grade 1 osteophytic lipping of the left carpals. He also had osteoarthritis of the left foot with an area of eburnation on the plantar surface of the head of the 1st metatarsal and on the articular head of the proximal phalanx. There were also degenerative joint changes of the left and right calcaneus and talus, and the left tarsal bones. The bony changes between the articulations at the base of the left 3rd, 4th and 5th metatarsal, with new bone formation, causing an irregular surface could have been secondary to a crush injury. The female D[505] had osteoarthritis of the left hand and right foot, with the right 1st metacarpal having a small line of eburnation on the palmar aspect of the proximal end articulating with the trapezium. There were gross joint changes in the right foot with osteophytic lipping of the



Figure 267 Skeleton D[974]: distal end of the left and right femur of an older male with bilateral degenerative joint changes and osteoarthritis of the knees



Figure 268 A, skeleton D[1091] (0.2m scale); B, left and right metatarsal (bone in the foot) of D[1091] with the head of the left metatarsal (bottom) showing bony destruction with scallopped lesions from the effects of gout

tarsals, destruction of the joint surfaces and eburnation of the cuboid for articulation with the 4th and 5th metatarsals and eburnation on the 3rd cuneiform for articulation with the navicular. The left foot bones had degenerative joint changes but did not have eburnation.

Osteoarthritis of the hands and feet are observed in other skeletal collections and the bones of the hand, notably the trapezium for articulation with the 1st metacarpal (thumb) is quite common and also had a relatively high frequency in the Chelsea Old Church population. Although only three individuals had osteoarthrosis of the major joints it was interesting that they followed a pattern found from other studies, notably the male with osteoarthritis of the knees D[974] fitting in well to the research that demonstrated it more commonly occurring in England in the post-medieval period. Individuals with such changes in the shoulder usually have suffered trauma. The area of change, acromioclavicular and sternoclavicular, can be more affected in older individuals, as was the case with the female D[505] and male D[1569] both affected in the acromioclavicular joint (Roberts and Manchester 2005, 138).

Gout

As a disease the complete aetiology of its cause is still not fully clear but it is linked with increased serum levels of urate producing a deposition of crystal deposits of urate crystals in joints and periarticular soft tissues (Aufderheide and Rodriquez-Martin 1998, 108). In osteological studies it is found, but the 1st metatarsal (bone in the foot) which it most frequently affects is not always retrieved and so the true prevalence of it is not fully reflected in the archaeological record. The image of those affected by it is more often linked with wealthier, older and corpulent males but it is not a disease just of the higher status and older adults (Roberts and Cox 2003). One adult male D[1091] 36–45 years, with the crude prevalence rate of 1.4% was affected in his left 1st metatarsal on the medial para articular surface that had an area of bony destruction with lytic lesions (Figure 268). The right 1st metatarsal was not similarly affected.

Similarly low prevalence rates were also recorded for the excavated samples from Chelsea Old Church, St Marylebone and St Mary and St Michael's and Bow Baptist church with males predominantly affected.

Rotator cuff disease

The changes associated with the condition of rotator cuff disease are degenerative and increase with the age of the individual (Rogers and Waldron 1995, 40). The rotator cuff muscles are in the shoulder and damage to them can occur as a result of injury more frequently in older adults. Two individuals had changes in the area of the shoulder that indicated possible rotator cuff injury; both were in the older age category of >46 years with one a female D[505] and the other a male D[1569]. The female had bone changes affecting the right side with the right scapula exhibiting changes in the acromion, with bone changes on the inferior surface of the acromion, an extension of the surface area for the coraco-acromial ligament forming osteophytic lipping with an irregular rim and a surface area that could be a pseudo

facet for articulation. The humeral head was badly damaged post-mortem and the only area present was the central part of the head, the other areas were missing to be able to fully ascertain if it was rotator cuff damage. The differential diagnosis could be partial subluxation of the right shoulder. The male D[1569] had possible indication of rotator cuff changes in the proximal area of the left humerus in the area of the Lesser tubercle for the attachment of Subscapularis. The area had a slight depression with an area of porosity and a raised smooth plaque of bone on the anterior aspect of the humeral head. There was some post-mortem damage to the Greater tubercle but there did appear to be changes in the area for the insertion of Infraspinatus and Teres minor. Both individuals were in the older age category and a similar pattern is seen in other post-medieval collections.

Joint ankylosis

Joint ankylosis is fusion between two elements and may be a response by the body to an instability in a particular area to fuse together to prevent movement and regain stability, as well as a diagnostic criterion of a particular disease when affecting specific areas of the body. Two adult individuals, a young male D[186] age category 17–25 years and an older female >46 years D[662] exhibited bony changes of the sacroiliac joint that appeared to indicate possible early stage fusion of the joint. The young male D[186] was affected on both sides with the changes more pronounced on the left side; he also had congenital changes in his vertebrae with lateral wedging that may have caused an alteration to his posture and gait, placing a different degree of stress and load bearing which could be expressed in the early ankylosis. The female had changes on the left side and both her acetabula had degenerative changes with osteophytic lipping and the change could then be associated with older age and wear and tear of the joint.

Congenital and developmental abnormalities

Cranial anomalies

Three adult individuals (4.3%) expressed cranial anomalies. An adult male D[1112] displayed developmental disruption at the articulating head of the left and right ramus of the mandible (lower jaw), indicating condylar hyperplasia (Barnes 1994). The defect created a dimple-like depression on the surfaces, which on the left side was more distinct creating two articulating areas and a bifid appearance to the head. The overall form of the tempro-mandibular joints were not compromised but affected the left and right side, with the left expressing a more distinct bifid variation. The right side was not so markedly altered but did have a small depression in the mid area of the articular surface. There were no gross joint changes.

An older female >46 years D[573] had an elongated cranium that was similar in appearance to that of the female D[905] who had frontal plagiocephaly craniosynostosis, premature closure of the suture. The adaptation of the cranial shape was not as pronounced as was seen in D[905] but could perhaps be a less extreme expression. The older female also had a slightly flattened appearance to the right side of the occipital. The young female of 26–35 years D[905] had a very noticeable elongation and reduction in height of the cranium. The elongated shape laterally of the cranium may be a consequence of the premature closure of the frontosphenoidal suture, a rare type of craniosynostosis, producing synostotic frontal plagiocephaly (Sauerhammer *et al.* 2014). The suture line was not visible for the greater sphenoid wing and the frontal brow area was markedly reduced in height, making the supra orbital ridges appear quite pronounced. The superior aspect of the cranium from frontal to occipital was elongated and flattened with a reduction in height in the area of the squamous giving an overall foreshortened appearance to the cranium.

Premature closure of cranial sutures produces a variety of different head shapes with differing consequences for the functional impact to the individual's life. The disorders can be minor or major in their severity having primarliy been caused by a disruption during the fetal development. The factors causing such alteration from normal development can be inherited, genetic, or stem from a mother's health or the environment. It is interesting that the two females reached adulthood and so the cranial anomaly did not impede them in their growth. It is difficult to say to what degree they may have been impeded in mental capabilities or had any disability from the anomaly, and particualrly so with the female D[905] where the expression of the premature closure was much more pronounced. There were no discernible changes in the rest of the bones present for them which would indicate noticeable physical disabilty.

Scoliosis

Four of the adults, a crude prevalence rate of (5.8%), had changes in their vertebrae with lateral wedging of the vertebral bodies producing the 'S'-shape lateral curvature associated with the scoliotic deformity. The alteration in the curvature of the spine can be congenital or acquired being related to other disorders and in a number of cases older age (Aufderheide and Rodriquez-Martin 1998, 66). The individuals affected were three females: D[303] an adult not possible to age, D[573] an older female >46 years and D[905] a young female 26–35 years, and one older >46 years male D[938] (Figure 269). For the male the changes observed were only slight with lateral wedging seen in the thoracic vertebrae causing a curve towards the left side. Of the females, the older female D[573] appeared to express a suite of other changes in the vertebrae as well as the vertebral lateral wedging producing the scoliosis shape when the vertebrae were articulated. There were marked changes in the vertebral body shape seen in the thoracic vertebrae and following in to the lumbar. In the upper thoracic there was also an indentation in the vertebrae on the anterior right side that could tentatively be the development of an aneurysm. There were a number of observed changes in the posterior areas of the spine, where thoracic Th6 & Th7 were fused across the apophyseal joints on the inferior aspect & Th12 had a bony extension superior to the right superior facet. There was also flattening in the superior aspect of the spinous processes of Th9 to L2 which could be linked to the abnormal alignment of the vertebrae and interlink with the ligaments and muscles. The female not possible to age D[303] had a mild expression of scoliosis with lateral wedging of the vertebrae seen but not as severe to cause a very pronounced curvature and the younger female D[905] had lateral wedging of the vertebral bodies in the lumbar vertebrae causing them to have a slightly altered normal articulation.



Figure 269 Skeleton D[938] (0.5m scale)

Spondylolysis

Spondyloysis is the ossification failure and non-union of the neural arch (*pars interarticularis*) in the vertebra. It is most commonly seen in the lumbar vertebra and more frequently affects the 4th and 5th lumbar vertebrae, being linked to both congenital variation and microtrauma from bending and lifting (Aufderheide and Rodriguez-Martin 1998, 63–4). Two adult males D[974] and D[2247] with a crude prevalence rate of 2.9% had spondylolysis of the 5th lumbar vertebra. The older male D[974] had bilateral spondylolysis of the 5th lumbar vertebra, as well as six lumbar vertebrae with sacralisation of the accessory 6th lumbar vertebra. The other male D[2247] of 36–45 years had post-mortem damage to the 5th lumbar vertebra and the area for the connection of the neural arch. The overall shape of the vertebral body and associated angle of the transverse process would suggest it was spondylolysis. The left side was missing post-mortem and so only possible to observe the one side, because of only being able to observe one side entered as unilateral but of course if preservation had been complete it could well be that it was a bilateral congenital alteration.

Vertebral congenital anomalies

One older male >46 years D[974] had an accessory lumbar vertebra.

Vertebral border shifts

Five of the adult individuals (7.2%), D[127], D[186], D[935], D[974] and D[1091], all males, had vertebral border shifts; four were lumbosacral and one was thoracolumbar.

Spina bifida occulta

Spina bifida occulta is the incomplete fusion of the posterior neural arches of the lumbosacral area, most frequently affecting the sacrum and can affect one or more of the sacral vertebrae. This fault in the spine with the failure of fusion is often seen in archaeological collections (Aufderheide and Rodriguez-Martin 1998, 61). Vertebral anomaly segments were recorded in eight adults (11.6%) D[127], D[129], D[511], D[580], D[886], D[935], D[1091], D[1112] and one subadult D[301] age estimate of 9 years, all were observed in the sacrum with the defect either a cleft or bifurcate arch on the posterior aspect, exposing at varying degrees the channel in which the spinal cord runs. The subadult D[301] with the sacral area open on the posterior aspect from S3 to S5 was scored as a major defect and identified as spina bifida occulta. Of the eight adults, seven were males and one female D[511]. The female D[511] had major defects and exhibited spina bifida occulta, while five of the males D[127], D[129], D[886], D[935], D[1112] also exhibited spina bifida occulta, two had minor defects D[580] and D[1091]. For most individuals spina bifida occulta is asymptomatic and the individual would not generally be aware of having it. The potential for more serious problems to arise would be if the spinal cord became impinged in any way.

Other vertebral congenital abnormalities

Spinal disorders are often expressed in individuals but can be difficult to place in to a particular congenital category, eight adult individuals (11.6%) had spinal variations that were observed but not able to classify further than other spinal congenital. Six males D[75], D[128], D[186], D[886], D[1112] and D[1569], were affected with four of them in the age categories 36–45 and >46 years, one not possible to age D[1112] and D[186] in the young adult category of 17–25 years. They expressed changes in the vertebrae in the thoracic and lumbar with slight changes in the shape of the vertebral bodies with lateral wedging but not pronounced enough to be classed as altering the shape to be classed as scoliosis. Male D[886] had hyperplasia of the left superior facet of the 5th lumbar vertebra. The females D[303] and D[573] had a variation in the shape of the vertebrae with D[303] having slight lateral wedging in the thoracic and lumbar vertebrae, more pronounced in the lower vertebrae causing a curved alignment. Thoracic Th12 had an extended left inferior facet and this extension of the inferior facet alternated between the right and left inferior facets in the lumbar vertebrae, more pronounced on the right side in articulation. Deflection was also apparent in the spinous processes and a flattening to them on the lumbar vertebrae.

The older female >46 years D[573] had a possible congenital developmental alteration in the vertebrae, where the thoracic vertebrae had a distorted shape to the bodies, with Th1 to Th4 having a markedly pronounced indent to the body on the right side, a similar 'pinched' appearance was present in the other thoracic vertebrae. The lumbar vertebrae in the vertebral height appeared elongated, stretched and 'pinched'

in the middle aspect and not a normal appearance. The spinous processes of the lumbar vertebrae appeared extended & the superior aspect of the processes for Th10, 11, 12, L1 & L2 had been flattened and particularly pronounced in Th10 & Th11. The ribs were also noticeably thin and appeared to have a sharper angle, causing a variant from the normal curvature and being thinner and tapered. Such a variation links in with the vertebral alteration and could be linked as evidence of possible scoliosis or possible metabolic variation, or even perhaps due to the type of clothes worn if a restrictive corset had been worn. Such rib deformities from wearing stays and corsets have been identified in other post-medieval groups including females from St Marylebone church (Miles *et al.* 2008, 157–8) and St Mary and St Michael's burial ground (Henderson *et al.* 2013, 168). Another female D[125] in the age category 17–25 years had two rib shaft fragments that had very pronounced undulating 'S' shapes in the shaft which could also be seen to be as a consequence of wearing some type of restrictive clothing.

Other congenital limb abnormality

A male D[129] 26–35 years had congenital fusion of the intermediate and distal phalanges in the right foot. Three other males D[573], D[1569] and D[2247] also had congenital anomalies in the foot bones with D[573] an older male >46 years having possible tarsal coalition of the left calcaneus and navicular with the anterior area of the calcaneus. The other older male D[1569] had bilateral bipartition of the left and right first cuneiform; the proximal part was missing post-mortem. The male 36–45years D[2247] had a calcaneal notch of the left calcaneus.

Metabolic disease

Metabolic diseases can be described as an indication of stresses on the body expressed in a variety of ways in the skeleton that are complex and multifactorial (Roberts and Manchester 1983, 222).

Cribra orbitalia

The small 'hole-like' lesions in the orbital roof (*Cribra orbitalia*) have been associated with iron deficiency anaemia caused either by a lack in the diet or from a pathological process (Roberts and Cox 2003, 42). A total of 32 individuals (46.3%) had either one or both of the orbits present to be able to assess for the presence or absence of *Cribra orbitalia*. Of those, six (8.7%) were recorded with *Cribra orbitalia*, all Grade 1 (Capillary like impressions). They consisted of two subadults D[301] 6–11 years and D[622] 1–5 years with changes in both orbits and four adults D[186] a young male 17–25 years, D[343] an adult probable male, D[505] an older >46 years female and D[783] an older >46 years male. The rate for *Cribra orbitalia* was lower than that recorded for Chelsea Old Church (Cowie *et al.* 2008, 54) and considerably lower than the other post-medieval sites of St Marylebone (Miles *et al.* 2008, 149) and St Mary and St Michael's church (Henderson *et al.* 2013, 198). There was no porotic hyperostosis observed in any of the individuals.

Rickets and scurvy

Rickets develops when a deficiency in vitamin D causes poor bone mineralisation and the resultant skeletal changes, most frequently seen in bowing deformities in the limbs (Aufderheide and Rodriquez-Martin 1998, 306). Documentary sources detail how rickets has increased over time and during urban and industrialisation development in Europe it had a terrible toll on the population, particularly the sensitive younger individuals (Lewis 2009, 121). Three subadults had changes that were attributed to rickets with a crude prevalence of 4.3%. Active rickets was recorded in one subadult D[131] estimated at 1.5 years who displayed the changes indicative of active rickets with the expansion and flaring of the metaphyseal ends of the long bones and bowing deformities (Figure 270). The other two subadults had changes that could be attributed to rickets with D[967] (Figure 271) estimated at 2.5 years having what appeared to be active rickets but with post-mortem damage to the bones and bone surface it was difficult to confirm the changes but they appeared rachitic with slight flaring of the distal ends of the long bones and possible changes at the sternal ends of the ribs. The subadult D[1230] estimated at 4 years had a bowing deformity of their right tibia but post-mortem damage to the metaphyseal ends did not allow for an assessment to be made if there was expansion and no other long bones were present. The numbers affected are small when compared to other post-medieval sites but the low number of subadults



Figure 270 Skeleton D[131]: A, medial view of left femur, tibia and fibula showing the bowing deformities of the diaphyseal shafts from rickets caused by deficiency of vitamin D; B, anterior view of left femur, tibia and fibula showing expansion and flaring of the metaphysyeal ends from active rickets caused by deficiency of vitamin D

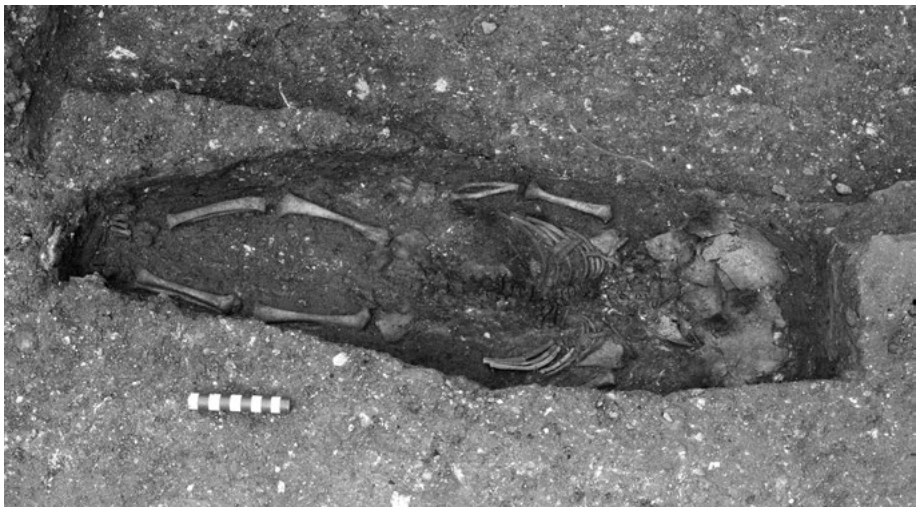

Figure 271 Skeleton D[967] (0.1m scale)

affected was more consistent with the rate found at Chelsea Old Church.

Evidence of residual rickets was apparent in nine adults with a crude prevalence rate of 13%, affecting four males D[127], D[186], D[938], D[1020], four females D[130], D[505], D[573], D[905] (Figure 272), and D[655] an unsexed adult. All had the appearance of a bowing deformity in one or more of the long bones, predominantly in the femora, with D[130] a female having mediolateral flattening of the fibulae producing a 'boomerang' shape. A similar number of adult individuals with the condition were recorded at Chelsea Old Church.

The factors affecting the rate of rickets in a population need to be considered at a number of levels access to nutrition and vitamin D sources, exposure to sunlight, social treatment and (more difficult to observe in the archaeological record) an individual's genetic and metabolic ability to absorb vitamin D (Lewis 2007, 119–20). Those affected in this group, although only a small sample, indicate that the individuals suffered from a lack of vitamin D which could have been due to a number of reasons and those dying with active rickets may have been more susceptible to the acute disease(s) that caused their death. For those with residual rickets it allows an insight into their life when younger; although having suffered from the vitamin deficiency they were resilient enough to survive to adulthood.

Bone changes associated with scurvy were not observed in any of the subadults.

Osteoporosis

The diagnosis of osteoporosis in dry bones can be problematical, as the burial environment can cause changes to the bones, making them seem light in weight as though having a loss of bone density. It is a complex condition and is most often seen as an age-related disease; many see it as a consequence of the modern era with the fragility of the bones and increased risk of fractures (Brickley and Ives 2008, 152). None of the adult individuals from St Botolph's exhibited a pattern of skeletal changes or fractures that could be identified as osteoporosis but two D[130] a female aged 26–35 years and D[303] adult female had very lightweight bones, notably the leg bones. It may be that they had osteopenia (reduction in bone density) but did not manifest any of the skeletal changes that would normally be scored for a diagnosis of osteoporosis. Radiography of the bones would aid in attaining a more conclusive diagnosis of osteoporosis and a measure of their bone density. However, the taphonomic conditions could be the overall cause.



Figure 272 Skull of female D[905]: elongated and reduced height cranium of a female expressing possibly a rare craniosynostosis, with premature closure of the frontosphenoidal sutures

Hyperostosis frontalis interna (HFI)

The aetiology of HFI is not yet fully understood but it is associated with older age and more often older post-menopausal females. Its location is predominantly in the frontal bone of the cranium on the endocranial (inner) surface with the early stages appearing like rice grains and leading to the more exuberant irregular smooth bony undulations in the later stage protruding inwardly to the cranium (Aufderheide and Martin-Rodriquez 1998, 419). Complete crania can hinder



Figure 273 Skeleton D[505] endocranial (inner) view of the frontal surface of the cranium showing early stage Hyperostosis Frontalis Interna (HFI) with small raised plaques of bone distributed over the internal frontal surface (towards bottom right)

establishing the true prevalence rates of the disorder being observed and having post-mortem damage to the cranium aids in being able to observe the endocranial surface of the frontal bone. Better access to radiography also allows X-raying complete crania for ascertaining the presence of HFI and the potentail for obtaining a more accurate rate of those individuals affected by HFI, and identify the stages of change. The opportunity to radiograph complete crania can also aid in observing other diseases that may affect individuals but which are not apparent with macrospcopic analysis. Two females (2.9%) D[505] and D[603] with post-mortem damage to their crania allowed observation of the internal surface of the frontal bones, and manifested the bony changes of HFI on the endocranial surface. Interestingly, the older female >46 years D[603] had small raised areas of bone on the endocranial surface but they were not as pronounced as that of the female D[505] aged 36–45 years, who had a raised and undulating surface either side of the crista gala (Figure 273). This female also had small endocranial defects across the frontal and parietal bones that were smooth edged and quite small and most likely arachnoid granulations, small herniations that are quite often seen in skeletal remains.

Paget's disease

Paget's is a disease with an unknown aetiology, with possible genetic and viral links suggested and is associated with an increase in age, it is generally localised to one bone with an increase in the thickness of the bone and can have secondary cancerous complications. Radiographic observation for many may be the first indication that they have the condition and although linked with older individuals can start from as early as 40 years of age (Aufderheide and Rodriquez-Martin 1998, 416). One individual from the group had changes that could be indicative of possible Paget's, a female 36–45 years D[623] that also had changes found in HFI. Another female D[505] of 36–45 years also with HFI had a thickened appearance to the frontal bone, visible in the cross-section of the post-mortem broken parietals, which could also possibly be an indication of Paget's disease. Cases of Paget's have been identified in other post-medieval sites, not in high numbers but generally in the older adults and this crude prevalence rate of 1.4% fits in with the crude rate noted from other archaeologically record individuals (Roberts and Cox 2003, 355).

Non-metric traits

Non-metric traits are variant features to the normal form of bones and teeth that have been associated with genetic and environmental factors; they are an indication of potential close population groupings (Tyrrell 2000 and Roberts 2009).

Cranial non-metric traits

A total of 40 individuals had cranial bones present that could be observed for non-metric traits. The completeness

and preservation of the crania was not very good, limiting the amount of traits that could be seen to be recorded. The pattern seen in those observed most frequently was similar with other recorded sites, notably the supra orbital foramen, posterior condylar canal and parietal foramen (Table 92).

Cranial Trait	Present	crude prevalence rate%
Metopism	1	2.5
Accessory infraorbital foramen	3	7.5
Foramen of Hushcke	2	5
Mastoid foramen	1	2.5
Parietal foramen	15	37.5
Posterior condylar canals	7	17.5
Supra orbital foramen	15	37.5
Supra orbital groove	4	10
Torus mandibularis	2	5
Torus maxilliaris	7	17.5
Torus palatinus	12	30

Table 92 Non-metric traits

Post cranial non-metric traits

The most frequently observed post-cranial trait was the double calcaneal facet with 41 (59.4%) individuals expressing the trait in one or both of the calcaneus, which also had a high prevalence in the Chelsea Old Church individuals. One individual, a subadult had a sternal foramen D[302]. Five individuals had a third trochanter of the femur. Four individuals had tibial lateral squatting facets and two had tibial medial squatting facets. Six individuals had talar facets in one or both of their talus. One adult male D[471] (Figure 274) had a bipartite right patella, Type II with the bone fragment reattached.

Dental health

Dental health is a good indicator of overall health with poor dental health having a negative effect on an individual's well-being. There have been considerable changes in diet over time and with regard personal dental hygiene, and in particular during the post-medieval period the rise in carious lesions with the introduction of sugar to the diet of the majority of people (Roberts and Cox 2003, 327).

Dental health of subadults

Of the 11 subadults, seven had dentition present that could be analysed, three had mixed dentition D[301], D[1230], D[1328] of deciduous and permanent, three had deciduous teeth only D[126], D[622], D[967] and one D[1159] (Figure 275) had only permanent teeth present.

Caries (dental decay) was recorded in the deciduous teeth of D[126] aged 1–5 years and D[1230] also aged 1–5 years, affecting three molars and a canine. Calculus was the most common dental pathology affecting four of the subadults D[126], D[301], D[1159] and D[1230] and was graded as slight (Grade 1). Two subadults had linear hypoplastic defects D[126] and D[301] aged 6–11, with D[301] having multiple teeth affected with hypoplasia and all in the permanent dentition, affecting maxillary and mandibular teeth but predominantly the mandibular (Figure 276). An indication that they were under stress in the expression of the disruption to the enamel. This individual also had in their left femur an area of expansion and flattening in the proximal third. It did not appear traumatic as there was no visible disruption to the cortical bone and the lines were contiguous with no indication of remodelling. It did not appear to be metabolic as the other part of the diaphyseal shaft appeared normal and there was no flaring of the end but there was some post-mortem damage. The right femur was not similarly affected. The tibiae and fibulae were missing post-mortem and the only arm bones present were the humeri but they appeared normal in development. The change was localised but could be an indicator of a pathological process placing them under an additional stress. Of the subadults where the maxillae and mandible were present none of them had any periodontal disease or apical lesions (abscesses).

Dental health of adults

It was possible to record the dental health of 35 of the adults. The most prevalent dental disease was calculus, seen in the mineralisation of plaque and increasing with the older age groups where there was also an increase in ante mortem tooth loss. This is a similar pattern seen in other post-medieval assemblages from London. An individual's dental health is very important to their overall health and modern studies have shown that poor dental health can have a serious affect upon susceptibility to other diseases, particularly heart disease (DeWitte and Bekvalac 2010).

Caries

Caries was recorded in 30 of the adult individuals (43.5%), 19 males (19/31, 61.3%), 10 females (10/15, 66.6%) and one unsexed adult. The majority were recorded in the age categories 36–45 years and >46 years. When caries were observed they were most frequently not gross and affected the occlusal or medial surface of the tooth with only the enamel discoloured and not affecting the pulp cavity. One adult male D[471] had multiple teeth with gross carious destruction affecting the mandibular and maxillary dentition. The high rates were similar to those found at Chelsea Old Church (Cowie *et al.* 2008, 57) but the level of decay in the St Botolph individuals was not as grossly destructive, with the majority of them having the early stage of carious lesions. Studies in dental health and caries have found that such lesions have increased over the centuries and this is certainly seen in skeletal collections in London and elsewhere, with the rates markedly increasing in the post-medieval period when refined flour and sugar became more available (Roberts 2009, 171).

Calculus

Calculus is mineralised plaque that can accumulate on different parts of the teeth affecting them above the gum line (supragingival) or below (subgingival). The presence of calculus below the gum line can be a causative agent of gum disease (periodontal) being an irritant to the gums, producing a response that can lead to recession of the gum tissue. Poor gum health has serious consequences for the dentition, potentially



Figure 274 Skeleton D[471] (0.5m scale)

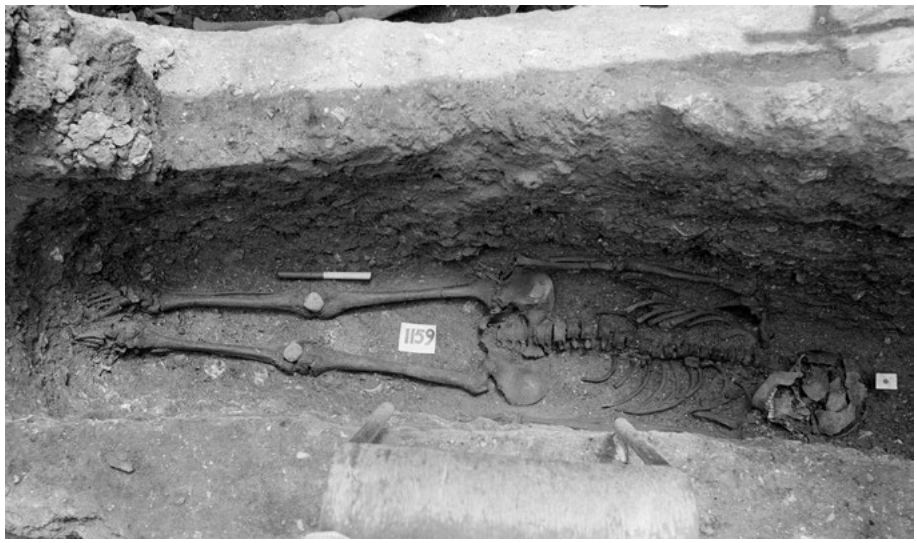

Figure 275 Skeleton D[1159] (0.2m scale)

leading to tooth loss and general bad dental health. Calculus was the most frequently observed dental disease, affecting all of the adult age categories, more frequently in the mandibular dentition and increasing in number in the 36 –45 and >46 years categories. A total of 15 males (15/31, 48.4%), 8 females (8/15, 53.3%) and one unsexed adult had calculus graded at slight (Grade 1) and supragingival in its location on the dentition, with the next highest total of seven males (7/31, 22.6%) and six females (6/15, 40%) affected by moderate (Grade 2) and subgingival. Only five individuals, three males D[580] (Figure 277), D[1092], D[1999] and two females D[573] and D[905] had heavy calculus covering the tooth. As a substance calculus can trap small pollutants, providing another means of learning about the contemporary environment and more recently it has been studied to learn more information about oral microbes, oral health and diseases the person may have been combating but which are not discernible in the bones.

Enamel hypoplasia

Enamel hypopolasia is caused by a disruption to the enamel formation of the teeth and can be caused from episodes of malnutrition or childhood diseases, indicating the individual was stressed at some stage during growth and development. Linear hypoplastic defects were recorded in 30 of the individuals (43.5%) in 19 males, 10 females and one unsexed adult. The defect affected most frequently the canine and anterior teeth in the middle and lower crown, a pattern often found in other collections linking with the age of the individual and the developmental stages of the dentition.

Periodontal disease

Periodontal disease affected 22 individuals (31.9%) with all of them either affected by one or more or all of the grades. One male D[783] >46 years (?Reynewell) only had the most severe form, Grade 3. The majority of the individuals (21), had Grade 1, 14 males (14/31, 45.2%), and seven females (7/15, 46.7%), and 14 individuals having Grade 2 and five having Grade 3. Predominantly it affected the 36–45 and >46 year age categories which is perhaps not surprising as it is linked to age (Hilson 1996, 266) and the more severe periodontal disease was seen to affect the older age category and was a pattern seen in other post-medieval groups.

Periapical lesions (dental abscesses)

External draining abscesses were recorded in four of the adults D[471] male, D[623] female 36–45 years, D[662] older female >46 years, and D[783] (?Reynewell). All of the



Figure 276 Skeleton D[301] multiple linear enamel hypoplastic defects in the mandibular canines and premolars in a subadult aged 6–11

individuals affected with abscesses had poor dental health, suffering from dental decay, calculus and peridontal disease. Dental abscesses are not only very painful but can also be a detrimental problem to overall health and well being.

Ante-mortem tooth loss

A total of 28 adult individuals (40.6%) had ante-mortem tooth loss, 20 of them males (20/31, 64.5%) and eight females (8/15, 53.3%) Ante mortem tooth loss was highest in the older age category >46 years (39.3%), which is not unexpected and a pattern seen in other post-medieval collections but also affected a high number (32.1%) as well in the 36–45 year age category. Two younger adults 26–35 years, D[162] a male and D[905] a female had each lost one tooth ante-mortem. The earlier loss of teeth is a trend that has been seen during the post-medieval period with greater access to sugar causing a higher rate of tooth loss from a younger age.

Dental wear

Heavy dental wear was recorded for two males D[1118] and D[2247] both in the molars and for D[1118] also seen in the anterior maxillary teeth. The wear pattern in the individuals could relate to the occlusion of their teeth or possibly to something that they were doing and using their teeth to cause noticeably heavier wear.

Pipe facets

One older male D[2051] had possible indications of pipe facet wear with scooped wear on the mandibular left canine and premolar, the maxillary teeth were missing post-mortem so it was not possible to see if when occluded there would have been an aperture from having clenched a pipe with the teeth. Pipe facets are often found in individuals from the post-medieval period, particularly in collections from the 18th and 19th century when tobacco was more widely used.



Figure 277 Skeleton D[580] Calculus affecting the maxillary and mandibular teeth

Four individuals D[128] a male, D[905] and D[1086] females and D[2247] a male had features affecting some of their teeth that could perhaps be related to them using the teeth in conjunction with an occupation or trade. The male D[128] had notches visible on the cutting edge of the left maxillary central and lateral incisors. The other male had marked 'stepped notches' in his maxillary premolars that were not seen in the other premolars. The females D[905] had smooth edged notches present in the enamel of the maxillary central incisors, particularly noticeable in the left central incisor. The lingual surface of the enamel of both the central incisors had heavy wear. The female D[1086] in the right lateral maxillary incisor had a smooth edged sloping wear pattern on the distal cusp; it was not scooped as in a pipe facet but it made the shape of the crown look tapered and pointed. The left side was not similarly affected. The incisors of the mandible were missing post-mortem on the right side. The changes could be due to wear from variation in bite but in appearance they looked more as if an action of doing something and using the teeth created the sloped effect. The cutting edges of the central maxillary incisors had irregular edges, with the left having what appeared to be a small notch. Such changes and alterations seen in the dentition could be linked to an alteration in occlusion or some form of use of the teeth, which for some of the individuals could have been linked to an occupation.

Dental anomalies

Eight individuals (11.6%) had dental anomalies and all of them were adults. Carabelli cusp of the 1st maxillary molar was recorded in two individuals D[128] and D[905] with D[905] expressing it in the left and right molar. The trait (an additional cusp on the tooth) is one that is often recorded in archaeological collections and is most frequently recorded amongst Europeans (Hillson, 1996, 91). Dental crowding was seen in three individuals D[162], D[580] and D[623] all with the mandibular anterior teeth affected. One individual D[662] a female had an impacted right 3rd mandibular molar. Rotation of a tooth was seen in three individuals D[162], D[1118] and D[1146] and all were in the maxillary dentition affecting one of the premolars and for D[162] they also had a rotated left lateral incisor. The crowding of dentition is something that is more frequently seen in modern populations with the advent of softer food stuffs and is a pattern that can begin to be seen amongst the archaeological post-medieval collections.

Individuals from the brick graves

Of particular interest were two individuals from the southern of the two brick graves in the 15th-century south extension of St Botolph's, as it might be possible to suggest who they were. The contexts were D[937] a female age 36–45 years and on top of her D[783] an older male >46 years. The female did not have any gross pathological processes, degenerative joint changes, vertebral pathology or *Cribra orbitalia*. The only pathology that was recorded was in her dentition suffering with carious lesions in three of her teeth, the right 1st maxillary molar, left 2nd premolar and mandibular left 1st mandibular molar and having calculus, slight to moderate on most teeth. She also did not express any of the suite of cranial and post-cranial non-metric traits that are investigated.

In contrast the older male D[783], possibly John Reynewell (see site narrative, period D15.1), had an array of pathologies affecting his skeleton including osteoarthritis in the right hand and left foot, with degenerative changes of the joints with osteophytic lipping of the shoulder joint, as well as osteoarthritis of the cervical vertebrae, and intervertebral disc disease of the lower thoracic vertebrae with Schmorl's nodes also in the lower thoracic vertebrae. Healed non-specific infection affected the tibiae and a small area of the left femur. The mid to lower thoracic vertebrae had profuse osteophytic lipping that was indicative of DISH with some of them fused but also damaged post-mortem, and marked muscle attachments in the arms, legs, pelves and feet, which is a feature of this joint disease. He also had a possible well healed oblique fracture at the distal end of the left fibula with bony changes and a pseudo facet. Only the mandible was present to assess for dental pathology but he had high ante mortem tooth loss, and with the only two teeth present to record both had calculus and one, the right lateral mandibular incisor had a small area of early stage decay and periodontal disease of the left mandibular canine. *Cribra orbitalia* was only possible to assess in the left orbit and was recorded as Grade 1 (first stage: capillary-like impressions on the bone). He also expressed a number of cranial and post-cranial non-metric traits, including a right asterionic bone, lambdoid wormians, a left supra orbital foramen, left and right parietal foramen, a patella vastus notch and double calcaneal facets in both calcaneus.

The bony changes observed in his skeleton would for the most part be linked to his older age, notably with the DISH and osteoarthritis but with a number of them including the vertebral pathology and joint degeneration in the shoulder they could be a combination of age related and occupation with load bearing placing strain and stress on his body. The dental pathology again most likely is linked with the older attained age with the high ante mortem tooth loss and possibly as well with diet having a potentially richer and higher cariogenic source. The suite of non-metric traits is interesting as they have been linked to indicating a close population and close genetic links.

Discussion

The individuals from St Botolph Billingsgate, although a relatively small number, are of interest in providing a palaeodemographic and pathological profile for a post-medieval group earlier than others which have been reported from other church sites in London, as apart from six individuals buried probably in the middle of the 15th century, the group is of the first half of the 17th century.

Diseases that were not seen in the individuals could be a combination of simply not being present and affecting the population at that time or had not reached a chronic stage to alter the integrity of the bones. Maxillary sinusitis is seen to be an indicator of the pollutants in the environment affecting the population with the inflammation of the sinuses caused by the irritants of the pollutants. There was a marked increase in the rates observed during the post-medieval period with the transition to a more industrial and polluted environment in the work place and the home, with an

increase in home fires. Bernofsky (2010) found in her research that there was a marked increase over time in respiratory disorders and in the post-medieval period there was a prevalence rate for sinusitis of 30.6%, but that the causes of respiratory diseases was a complex issue. The lack of evidence for sinusitis in this group could be a reflection of the earlier part of the post-medieval period in which these individuals lived in London; perhaps there was an overall cleaner air quality prior to the major urban and industrial changes that would later affect the capital.

There has been much research into tuberculosis and the devastating effect it has had on the population in the past centuries; it was endemic for many years before being treatable only in the 20th century. The rates of tuberculosis have varied over time and there was generally an increase through the post-medieval period with peaks in the 18th and 19th century as the population of cities dramatically increased and the living conditions of the masses were very poor with often appalling sanitary conditions and limited nutritional resources (Roberts and Cox 2003, 338). Information about the rates of the disease in London are predominantly taken from the Bills of Mortality and documentary sources. As a disease tuberculosis can often be difficult to diagnose conclusively in the skeleton (Aufderheide and Rodriquez-Martin 1998, 137) and the rates observed osteologically can often be lower than those inferred from other sources. The lack of evidence of the disease in skeletal remains does not mean, however, that it was not present within the individuals at that time, as the lesions that would be used to diagnose may not have manifested in the bone and as such a diagnosis for the disease cannot then be given. None of the individuals exhibited any lesions that could be attributed to tuberculosis but this is not to say that some of them were not affected by the disease. It would be interesting at a later stage to be able to sample some of them to investigate their pathogen load, to see how many of them may have been carrying the disease. With the advent of advances in chemical analysis of ancient DNA and the sampling of bones and teeth it is now possible to identify the pathogens of a wide spectrum of diseases, tuberculosis amongst them.

The other specific infection that was not found in the individuals was treponemal disease, which as with tuberculosis may have been expected. Treponemal disease has a clinical and geographic variation with four types of the disease with the form of venereal syphilis becoming a major problem in Europe and Britain during the post-medieval period and an increased urbanised population (Aufderheide and Rodriquez-Martin 1998, 154). The effects of the disease were devastating and seriously impacted populations as they had previously not been exposed to the disease. Roberts and Cox note that 'the rates of the disease increased enormously to the point in the time from 1493 to 1530 being at an epidemic rate in Europe' (Roberts and Cox 2003, 340). As with tuberculosis the rates for the disease were known to be high and they increased in the post-medieval period with the expansion of trade and travel but as with tuberculosis the archaeological numbers do not reflect the true rates. This again can be due to a number of factors affecting diagnosis, completeness of individuals, post-mortem damage, the stage of lesions and the possibility of social stigma.

A total of 29 of the individuals were included in the three-year project *Impact of Industrialisation on London Health*, funded by a bequest of Miss Rosemary Green to the City of London Archaeological Trust, which is investigating the changes and impact the industrial period has had on Londoners (reports on the Trust website). This will note if any other pathology not visible macroscopically is revealed radiographically, giving a deeper insight to their health status.

The demographic profile and pathologies recorded followed a similar pattern for the most part to those seen in other post-medieval assemblages, but also similar to those of skeletal groups in the later medieval period, which is perhaps not surprising. The pathological profile for the group was most similar to that of Chelsea Old Church, in date a post-medieval site and later than St Botolph, but its location further along the river and in an area known as the 'village of palaces' provided a cleaner and better living environment away from the melee of the later developing urban sprawl of London. As noted, an environment that was not so markedly exposed to the urban hazards for the people at St Botolph's perhaps reflects the earlier part of the post-medieval period prior to the later more polluted time.

The individuals were susceptible to the diseases of the time in which they lived but with the expression of the diseases observed would indicate that they were of relatively good health, were not affected by high rates of trauma or interpersonal violence and of a middle to high status. The majority of them manifested low grade chronic pathologies, with a link for many to wear and tear and age. The dental health patterns of the individuals could be viewed as a transition from the late medieval to post-medieval with the trend of increasing rates of decay and ante mortem tooth loss.

The expressions of congenital anomalies are of note in that they can be seen to be a representation of a close population as well as the pattern and frequency of non-metric traits, more so the cranial as those of the post-cranial are more affected by stages of remodelling (Roberts 2009, 146). Of note were the congenital anomalies in this group and particularly the individual with the premature closure of the sutures in the

head which caused a marked head shape change with elongation and reduction in height. The pattern in the non-metric traits was also similar to groups from other post-medieval sites and may as well be an indication of the biodistances of the populations. Bringing together such data from this site and other post-medieval sites in conjunction with other analyses has the potential to address questions of population mobility and relatedness (Roberts 2009, 148). An extension of the present research would be to carry out ancient DNA testing of some of the individuals to see if there are any familial links, particularly the man and the woman in the brick grave.

Social activity such as smoking, occupations and indications of clothing and footwear was very limited which again is more likely to be a reflection of the smaller sample size. But those that were observed, albeit in a subtle way, did reflect in part some of the social activities and interactions. Further research with other applications such as stable isotope and ancient DNA have the potential to provide an even greater insight to their lives, their health, where they came from and even what they looked like.

6.9 Detailed notes on aspects of the documentary history of the sites in 1500–1666

Tony Dyson

This section is to be found in the online supplement to the text. It gives detailed information on the documentary history of Tenements 3–8 and 11–14 in the period 1500–1666.

6.10 Wills mentioning the fabric, ornaments, fraternities, chantries or earlier burials in the church or cemetery of St Botolph Billingsgate to 1558

Stephen Freeth

This is a list of wills which ask for burial within the church building of St Botolph Billingsgate, and/or which make specific reference to altars, ornaments, earlier burials, fraternities, chantries and other features of the church or its cemetery. It is not a list of all wills of parishioners of St Botolph's. It omits general, non-specific gifts to the high altar or church fabric, and the multitude of torches given to the high altar; and omits references of wider interest, e.g. donations to churches elsewhere in the City, or outside London. I searched up to 1558. Thereafter wills seem to contain nothing about the church building.

I searched the indexes of all relevant probate courts (PCC, Commissary of London, Archdeaconry of London and Court of Husting). I did not use evidence of family connections in the texts of wills to identify further wills whose index entries contain no mention of the church or of Billingsgate. Nor did I search provincial jurisdictions. The published calendar of the Husting wills omits useful detail in the originals, and the originals were therefore examined. The full texts of some of these Husting wills are also copied into the St Botolph Billingsgate parish cartulary, commenced in 1418. Many medieval wills of the Archdeaconry of London are lost. There is one single surviving early will register, covering the years 1393–1415. After that there is a huge gap until the next surviving will register, commencing in 1549, though a few loose original wills survive from 1524. The data here are therefore incomplete. I found one will (John Lion, 1528) in the first surviving London Diocese Vicar-General's book. A search of the will registers of the Consistory Court of London failed to reveal any relevant wills at all. A search of the wills proved before the bishop personally and entered in the Bishop's Registers revealed just one will for St Botolph Billingsgate (Walter Freeman, 1545). This contained no useful information, and has been omitted here.

Generally, wills were made not long before death and probate. However practice in the Court of Husting was sometimes different. William Stafford (d 1467) made at least five wills at different dates from 1456 onwards, each covering a particular separate part of his estate. Four of these, made in 1456, 1458 (two) and 1463, were proved and enrolled in the Husting in apparently random order in the years after his death in 1467, viz in 1470, 1478, 1480 and 1481. His final will, made soon before his death, and stipulating where he wanted to be buried, was proved in the Commissary Court. The number and importance of Stafford's various Husting wills suggest that they were put into effect at the time they were made, in the manner of freehold conveyances, and merely registered for an official record after his death. They are entered here under the date they were made, so as to provide a continuing chronological story for St Botolph's. Full date information is also given for all other Husting wills in the list below.

Stow says that this church 'hath had many fair monuments therein, now defaced and gone', and that '[The] monuments are all destroyed by bad and greedy men of spoil'. He mentions various individuals buried in the church which he knew of 'by testimonies abroad'.[270] These individuals are identified in the list.

Abbreviations:

BVM and SJB:Blessed Virgin Mary and St John the Baptist
HR: Husting roll, within the series CLA/023/DW/01/001 onwards

[270] Stow i, 207–8.

MS 59: St Botolph Billingsgate parish cartulary, commenced in 1418. GL MS 59, now P69/BOT3/D/001/MS00059
MS 9051: Archdeaconry Court of London, will registers, now DL/AL/C/002/MS09051/001 onwards, formerly Guildhall Library MS 9051/1 onwards
MS 9171: Commissary Court of London, will registers, now DL/C/B/004/MS09171/001 onwards, formerly Guildhall Library MS 9171/1 onwards
PROB 11: Prerogative Court of Canterbury (PCC), will registers
SB, SBB: St Botolph, St Botolph Billingsgate

William PIKEMAN, will undated, but proved and enrolled in the Husting 12 November 1313. (HR 42 (44); *Cal Wills* i, 243–4.) 6-year chantry in SBB.
Oliver de KENT, fishmonger, dated 27 July 1321, proved and enrolled 28 Feb 1323. (HR 51 (108); *Cal Wills* i, 300–1.) An extract is in MS 59, with 'St Matthew' in the dating clause for when the will was proved and enrolled; *Cal Wills* correctly reads 'St Mathias'. For a perpetual light in honour of Our Lady and all saints, for his soul, his parents etc, an annual quitrent of 40d from property in SBB parish.
Henry STERRE de Halibourne, fishmonger, dated 23 April 1349, proved and enrolled 24 May 1350. (HR 78 (111); *Cal Wills* i, 633–4; extract in MS 59.) Perpetual chantry in SBB.
John de HASTYNG, baker, dated 2 April 1353, proved and enrolled 20 May 1353. (HR 81 (35); *Cal Wills* i, 668–9.) To be buried in the churchyard of St Peter Cornhill. Bequest to the chaplain of St Mary established by the brethren of the Guild of the Assumption in SBB.
Thomas de SNOWDYLONDE, rector of SBB, dated 23 May 1361, proved and enrolled 31 May 1361. (HR 89 (84); *Cal Wills* ii, 22, where the image of St Botolph is wrongly stated to be on the south side of the high altar; also full text in MS 59.) To be buried before the image of St Botolph, on the north side of the high altar. To the fabric of St Mary's chapel, 60s, a missal, a consecrated chalice, a white vestment, consecrated, a Legenda Sanctorum and a cup neither gilt nor consecrated. Also a perpetual chantry for his soul and for the welfare of the brethren of St Mary's fraternity in the same chapel. To his funeral, and for a stone to be placed over his body, £6.
Roger COGGER, 1377. (MS 9171/1, fo. 48.) To be buried in SBB, in St Mary's chapel. Stow mentions a monument to 'Roger Cogger, 1384', which was the date of death of his wife. (See Christine Cogger, 1384, below.) Presumably they had a joint monument.
Richard ELME, baker, 1382. (MS 9171/1, fo. 91.) To be buried in the cemetery of St Mary Graces. To Sir Richard, serving the Fraternity of the BVM in SBB, 6s 8d. Also 6s 8d to Sir John Witeney, chaplain of St Mary, and to Sir William, chaplain of the altar of St Katherine.
William STACHESDEN, fishmonger, 1383. (MS 9171/1, fo. 102v.) To be buried in St Margaret Bridge Street if he dies in London. To the Fraternity of St Katherine in SBB, 20s.
Christine COGGER, widow, dated 21 Nov 1384, proved in the Commissary Court in Dec 1384 and proved and enrolled in the Husting on 12 Dec 1384. (MS 9171/1, fo. 125; HR 113 (58); *Cal Wills* ii, 247.) To be buried in SBB, 'in the grave of Roger Cogger formerly my husband' (in sepultura Rogeri Cogger quondam mariti mei). 40s each to the fraternities of the BVM and St Katherine. 3–year chantry. [She appears to have had a joint monument with her husband. See Roger Cogger, 1377, above.]
Thomas MORDON, chandler, dated 26 April 1385, proved and enrolled 4 June 1386. (HR 114 (150); *Cal Wills* ii, 258.) To be buried in Faversham Abbey. To the Fraternity of St Katherine in SBB, 40s.
William ANCROFT, mercer, dated 24 June 1390, proved in the PCC on 27 July 1390, and proved and enrolled in the Husting on 6 March 1391. The codicil is dated '20 June 14 Richard' [which indicates 1391], which *Cal Wills* queried. The true date of the codicil must have been 20 July 14R2, i.e. 1390. (PROB 11/1/19; HR 119 (96); *Cal Wills* ii, 285–6.) To be buried in SBB under the stone where his father Robert lies buried. To the Fraternity of the BVM, 60s. To the Fraternity of St Katherine, 20s. 10-year chantry in SBB.
Andrew PYKEMAN, fishmonger, dated 24 Dec 1391, proved in the PCC on 27 Dec 1391, and proved and enrolled in the Husting on 11 Feb 1392. (PROB 11/1/41; HR 120 (71); *Cal Wills* ii, 293; also extract in MS 59.) To be buried in St Mary's chapel in SBB. There to be a perpetual chantry in the same chapel. The parish to provide tapers on his candelabrum (super candelabrum meum) in the chapel on particular feast days. Stow mentions a monument.
Richard TYKENORE, draper, dated 17 July, proved and enrolled 22 October 1397. (HR 126 (51); *Cal Wills* ii, 329–30.) To be buried in SBB. To the Fraternity of St Mary, 40s. 1-year chantry in SBB.
John LYTON, cooper, 1399. (MS 9051/1, fo. 80.) To be buried in the cemetery of SBB. 1-year chantry.
Adam COLE alias atte LYON, brewer, 1402. (MS 9171/2, fo. 18.) To be buried in SBB. 6-year chantry.
William RAINWELL (REYNEWELLE), merchant (mercator), 1404. (PROB 11/2A/84.) To be buried in SBB where his wife Isabella lies. To the Fraternity of the BVM, 10 marks. To the light of the Holy Cross on the High Beam, 6s 8d. 6-year chantry in SBB. Stow mentions a monument. Father of John Reynewell according to Stow, who calls both Reynewells fishmongers.
Thomas REYGATE, chandler, dated 1 Jan 1405, proved PCC 25 Feb 1405 and proved and enrolled in the Husting in May 1405. (PROB 11/2A/172; HR 133 (63); *Cal Wills* ii, 361; also MS 9051/1, fo. 131v.) To be buried in SBB. 5-year chantry in SBB. Mentions the two chaplains of the Fraternity of the BVM in SBB.
John COLYN, pewterer, 1405. (MS 9171/2, fo. 71.) To be buried in the cemetery of SBB. 'To maintain the light on the beam [ie Rood beam] in the said church' (ad sustentationem luminis trabe in dicta ecclesia), 3s 4d.
John WITTENEYE, chaplain, 1406. (MS 9051/1, fo. 159v.) To be buried in SBB. To SBB, his best vestment of ?red embroidered silk, his best chalice of silver, a missal and portable breviary, and a book of divinity, to remain there for ever in the service of God (vestimentum suum optimum de serico blodio & brouderizato et suam optimam calicem argenti unum missale & unum portiphorium ac unum librum divinitatis ibidem in dei servicio imperpetuum permansur'). [Also, to John Flamstede, master of the school of St Dunstan-in-the-East, a book called Esse.]
John WAKELE senior, vintner, 1407. (MS 9051/1, fo. 173.) To be buried in SBB. 7-year chantry. A black cloth with a white cross to be over the bier (feretrum) at his funeral, and thereafter to be kept for the funerals of the poor.
Thomas REYGATE, son of Thomas, lately chandler, 1407. (MS 9051/1, fo. 178.) 5 marks to the Fraternity of the BVM in SBB.
Marion WEREHORN, 1407. (MS 9051/1, fo. 189v.) To be buried in SBB or its cemetery.
Geoffrey MAUGHFELD, 1407. (MS 9171/2, fo. 104.) To be buried in SBB. To the fabric of the body of the church, 40s. To the Fraternity of the BVM, 40s. 1-year chantry. Two candles

(cereos) of 20lbs each to burn around his body at his funeral, and afterwards one of them to be given to the light on the high beam in SBB (lumini super altam trabem in predicta ecclesia sancti Botulphi), and the other to the light of the Fraternity of the BVM (lumini fraternitatis beate marie in eadem ecclesia).

Christine REYNEWELLE, widow of William, Alderman, 1408. (MS 9051/1, fo. 203.) To be buried in SBB beside her husband.

Roger WADE, fishmonger, 1408. (MS 9171/2, fo. 125.) To be buried in SBB if he dies in London. 1 torch to St Mary's altar. 4 candles (cereos) 'to maintain the light on the beam [ie Rood beam] before the Cross of the same church' (ad sustentationem luminis Trab' coram cruce eiusdem ecclesie).

John WAKELE junior, son of John, formerly citizen and Alderman, 1409. (MS 9051/1, fo. 210.) To be buried in SBB, next to the marble stone where John Wakele my father is buried.

Alice de SAME, widow of Thomas, draper, 1409. (MS 9051/1, fo. 217v.) To be buried in SBB beside her sister Christine Cogger (iuxta latus Cristine Cogger sororis mee).

Juliana WYNTRYNGHAM, widow of Thomas Blakelofte, 1410. (MS 9051/1, fo. 225.) To be buried in SBB, near her husband (prope Corpus Thome Blakelofte quondam viri mei). To the fabric of the new work (novi operis), 20s.

William STROTHIR, 1410. (MS 9051/1, fo. 234.) To be buried in the chancel of SBB. 1-year chantry at St Mary's altar.

John WOLDE, rector of SBB, 1412. (PROB 11/2A/417.) To be buried in Pardon Church Haw. £3 to the fabric of SBB, and also 40s which Cristina wife of William Reynewell left him in her will. To the torches in SBB, 6s 8d.

Agnes atte WELLE, 1412. (MS 9051/1, fo. 254v.) To be buried wherever. To SBB, a ?cloth with a towel (unam mappam cum manutergio). Also another of the same to St Mary's altar.

John STILE, 1412. (MS 9051/1, fo. 263v.) To be buried in SBB. To maintain the light before the cross (coram cruce), 6s 8d.

John PARK, pewterer, 1413. (MS 9051/1, fo. 283v.) To be buried in SBB. His will mentions a candle to burn before the image of St Mary on the south side of the said church (ex parte australi dicte ecclesie), and another to burn before the image of the small Cross [crucifix] which not long ago used to be at the altar of St John the Baptist (coram ymagine parvi Crucis que dudum solebat esse ad altare[m] sancti Johannis Baptiste).

Isabel PARKE, widow of John, pewterer, 1415. (MS 9051/1, fo. 334v.) To be buried in SBB, where her husband lies buried. 1-year chantry.

Thomas BRONYNG, fishmonger, 1418. (PROB 11/2B/206.) To be buried in the cemetery of St Margaret Bridge Street. 3-year chantry there, and 1-year chantry in SBB.

William BELL, pewterer, 1420. (PROB 11/2B/307.) To be buried in SBB, under the stone where Margaret his wife lies.

Robert MUSTON, apprentice of John Aylsham, 1420. (PROB 11/2B/349.) To be buried in SBB. For ornaments for St Mary's altar, 4 marks.

Geoffrey CLERKE or KYK, fishmonger, 1422. (PROB 11/2B/437.) To be buried in SBB in the chapel on the north side of the church, where his son Thomas lies.

Baldwin BELESSON, baker (pistor**)**, 1425. (MS 9171/3, fo. 129v.) To be buried in the cemetery of SBB, where his wife Agnes lies. 1-year chantry.

John BAKER, pewterer, 1426. (MS 9171/3, fo. 155.) To be buried in SBB, next Cristina his wife, if he dies in London. To Sir Thomas Crofton, chaplain, celebrating in the said church (in dicta ecclesia celebranti), 6s 8d. [See Thomas Crofton, 1439, below.] 1-year chantry.

William SEMAN, horner, 1431. (MS 9171/3, fo. 273v.) To be buried in the cemetery of SBB, 'viz to the west of the cross in the same cemetery' (videlicet ex parte occidentali crucis in eodem cimiterio).

Nicholas JAMES, ironmonger [Sheriff 1423], 1434. (PROB 11/3/348.) To be buried in SBB where his children (parvi) lie, before the pulpitum [chancel step]. Stow mentions a monument.

Henry REYLE, tailor, 1438. (MS 9171/3, fo. 504v.) To be buried in the cemetery of SBB. To the high altar, 20d, and a torch, 'on condition that my soul, inscribed and remembered among the other souls of the faithful in a certain Roll of the rector of the said church, may be devoutly commended as he is moved so to do in the common prayers of Christians every Sunday' (sub condicione quod anima mea inter ceteras fidelium animas script' et memorat' in quodam Rotulo Rectoris dicte ecclesie communibus suffragiis christianorum singulis diebus dominicis prout motus est sit devote recommendat').

Margaret HACKNEY, widow, 1439. (MS 9171/4, fo. 34.) To be buried in SBB, next the body of William her late husband.

William SYMMES, grocer, 1439. (PROB 11/3/443.) To be buried in the Carmelites' church. 3-year chantry in SBB. To the Fraternity of the BVM and SJB in SBB, 10s. 10 marks 'to paint the Sepulchre ordained by him' in SBB (ad pictand' sepulcrum eiusdem ecclesie sancti Both'i per me nuper ordinat' & non in alio usu, x marc'). This is the earliest mention of the Fraternity of the 'BVM & SJB' found so far.

Thomas CROFTON, priest and freeman of the Vintners' Company, 1439. (Vintners' Company Wills Book, CLC/L/VA/G/001A/MS15364, formerly Guildhall Library MS 15364, fo. 32.) To be buried in SBB. An annual [perpetual] obit to be celebrated for the souls of John Wakell [Wakele] and others, 'with ringing of bells and other services in the vigil of dead men, after the use of Salisbury'. This suggests that the church had bells to ring. [NB this will is entered in the Company Wills Book without probate. It has not yet been possible to trace where it was proved. The transcript in the Wills Book is of the second half of the 16th century.]

Robert SCHELLE, draper (pannarius**)**, 1442. (MS 9171/4, fo. 95.) To be buried in SBB. 2-year chantry.

John RAINWELL (REYNEWELL, REYNEWELLE), fishmonger [Mayor 1426], 1445. Son of William Rainwell/Reynewelle, d.1404, above. We know that he was buried in SBB from William Stafford's will of 1467, below. We also know that he died intestate: an entry dated 9 November 1446 in Archbishop Stafford's register (Lambeth Palace Library) records that on that day the archbishop released the two administrators of Reynewell's estate, John Colston and John Newerk, from their duties. Stow (i, 207) mentions a monument, and quotes its inscription in 14 English verses.

William WHYTE, 1447. (MS 9171/4, fo. 205v.) To be buried in the east part of the cemetery of SBB. To the Fraternity of the BVM & SJB, 3s 4d.

John KNOTTE, tailor, 1448. (MS 9171/4, fo. 227.) To be buried in SBB, infra porticum, where his wife Katherine lies buried. [Porticus probably means lobby or entrance, rather than porch.] To the Fraternity of the BVM and SJB, 20s. 'To the painting and making of the door of the said church of St Botolph, so that it may be attempted in the best manner possible' (versus picturam & fabricacionem ostii dicte ecclesie sancti Botulphi, ita quod conetur meliori modo quo poterit), 20s. His funeral to be modest, 'without ringing of bells'

(absque pulsacione campanarum). Like Crofton's will of 1439 above, this suggests that the church already had bells.

Peter WELLES, pewterer, 1450. (PROB 11/1/192.) To be buried in SBB. 5-year chantry with 2 chaplains. For a marble stone to lie on his grave, 26s 8d.

William WEDYR, [pattenmaker], 1454. (MS 9171/5, fo. 135.) To be buried in the cemetery of SBB. To the light of the BVM and SJB, 8d.

William STAFFORD, dated 20 August 1456, proved and enrolled 19 March 1481. (HR 211 (1); *Cal Wills* ii, 581.) [NB William Stafford has five wills in this list. See also under 1458 (twice), 1463 and 1467 below.] This will contains a crucial text about the grant of Reynewell's former domus (warehouse) to enlarge the church. The published Calendar of Husting wills treats it very briefly. It is therefore worth quoting here in full both in translation and in the original Latin, for greater understanding, and so as to distinguish it from another of Stafford's wills, of 30 December 1458, which gave a separate, stone, house to the parish to serve as a vestry:

> I compose, make and ordain my present will for the disposition of that land or soil of mine now parcel of the church of SBB, situated in the south part of the same, which was formerly a house [ie warehouse], part of the quay or wharf called Botolph's Wharf in the parish of St Botolph aforesaid, in this manner which follows...
>
> Item I give and bequeath by my present will to Sir Thomas Pulter, rector of the said church of St Botolph and his successors as rector... and to John Parys and Thomas Page, citizens of London, keepers or wardens of the goods, rents and fabric of the same church, and their successors... and to the other parishioners of the same church, all the aforesaid parcel of the said church situated in the south part of the same, which parcel when it was formerly a *domus* as mentioned earlier was then situated, viz between the church of St Botolph to the north, the land of the commonalty [ie the rest of the wharf] to the south and east, and the land once of John Wakele to the west; and measured 17ft 2 in in width on the east side and 17ft 8 in on the west, and was 53ft 4 in in length.
>
> I the said William Stafford together with William Abraham vintner and John Walden grocer, citizens of London (who by their deed lately made released [etc] and quitclaimed utterly to me and my heirs and assigns for themselves and their heirs their entire right and claim therein), and with Thomas Crofton chaplain and John Bideford clerk, late citizen of London, now deceased, lately received the said parcel of the said church by the release, feoffment, handover [etc] of John Reynewell late citizen and merchant of London deceased, by the name of a *domus*, formerly part of the quay or wharf aforesaid, as in a deed prepared for that purpose and enrolled in the Husting of pleas of land held on Monday before the feast of St Leonard, abbot, 22 Henry VI [ie 4 November 1443] more fully appears.
>
> To have and to hold the aforesaid parcel of the said church containing the width and length as previously mentioned to the aforesaid rector, keepers and parishioners of the said church and their successors... for ever, to enlarge the said church for ever, to the intent that the soul of the said John Reynewell, and my own soul when I shall have left this light, and those of Abraham, Walden, Crofton and Bydeford and of other parishioner benefactors of the said church should be specially remembered in the devout prayers of the said rector, keepers and parishioners of the said church and their successors in future times, and devoutly prayed for.
>
> *Condo facio et ordino presens testamentum meum ad disposicionem illius terre mee sive soli iam parcelle ecclesie Sancti Botulphi iuxta Billyngesgate London situat' in parte australi eiusdem que olim erat quedam domus que fuit parcella kaii sive wharvi vocat' Botulphiswharf in parochia Sancti Botulphi predict' in hunc qui sequitur modum. ...*
>
> *Item do et lego per presens testamentum meum Domino Thome Pulter Rectori dicte ecclesie sancti Botulphi et successoribus suis Rector' eiusdem ecclesie pro tempore existen' ac Johanni Parys et Thome Page civibus London' Custodibus sive Gardianis bonorum Reddituum et operis eiusdem ecclesie et successoribus eorum pro tempore existen' et ceteris parochianis eiusdem ecclesie totam predictam parcellam dicte ecclesie situat' in parte australi eiusdem ecclesie, que quidem parcella tempore quo dudum erat domus ut prefertur adtunc fuit situat' videlicet inter dictam ecclesiam Sancti Botulphi versus Boriam et terr' Communitatis Civitatis predicte versus austrum et orientem et terram olim Johannis Wakele versus occidentem, continebatque in latitudine in capite orientali septemdecim pedes et duos pollices, et in capite occidentali septemdecim pedes et octo pollices, et in longitudine quinquaginta tres pedes et quatuor pollices,*
>
> *et quam quidem parcellam ecclesie ego predictus Willelmus Stafford simul cum Willelmo Abraham vinetario et Johanne Walden Grocero civibus London' qui totum ius eorum et clamen' inde michi heredibus et assignatis meis per eorum scriptum inde nuper confect' remiserunt relaxaverunt et omnino de se et heredibus eorum imperpetuum quietum clamaverunt ac una cum Thoma Crofton capellano et Johanne Bideford clerico nuper cive London' iam defunct' nuper habui ex dimissione feoffamento tradicione liberacione et confirmacione Johannis Reynewell' defuncti nuper civis et mercatoris London' per nomen unius domus que quondam fuit parcella kaii sive wharvi predict' prout in quadam carta inde confect' et in hustengo London de placitis terre tent' die Lune prox' ante festum Sancti Leonardi abbatis anno regni Regis Henrici sexti post conquestum vicesimo secondo irrotulat' plenius apparet.*
>
> *Habend' et tenend' predictam parcellam dicte ecclesie continent' latitudinem et longitudinem predict' ut prefertur prefatis Rectori Custodibus et parochianis dicte ecclesie et eorum successoribus Rectoribus Custodibus et parochianis eiusdem ecclesie pro tempore existen' imperpetuum pro et in elargacione dicte ecclesie perpetuis temporibus servitur', et ad intencionem ad animam dicti Johannis Reynewell et animam meam cum ab hac luce migravero et animas dictorum Willelmi Abraham Johannis Walden Thome Crofton et Johannis Bydeford et animas aliorum parochianorum benefactorum dicte ecclesie in devotis oracionibus dictorum Rectoris Custodum et parochianorum dicte ecclesie et eorum successorum temporibus futuris specialiter in memoria habend' et pro eisdem devote exorand'*

Stephen FORSTER, fishmonger [Mayor 1454], 1458. (PROB 11/4/294.) To be buried in SBB. To the Fraternity of the BVM and SJB, 40s. Stow mentions a monument.

William ROSE, grocer, 1458. (MS 9171/5, fo. 247.) To be buried in St Stephen Walbrook. To the Fraternity of the BVM and SJB in SBB, 6s 8d.

William STAFFORD, 25 October 1458, proved and enrolled 2 March 1478. (HR 207 (31); *Cal Wills*, ii, 576–7; virtually complete text in MS 59; Latin text printed in full on p22–7 of Appendix C of C P Cooper's Report of 1837 on Rymer's Foedera. This report,

left unpublished at the time, was eventually printed by the Public Record Office in 1869. Appendix C can be seen online at http://dbooks.bodleian.ox.ac.uk/books/PDFs/300078953.pdf. Cooper took the text of Stafford's will from a 15th-century certified copy preserved in the archives of Hamburg.) As sole surviving trustee, Stafford devises to the City of London under the will dated 18 September 1443 of John Reynewell, late Alderman, 20s pa issuing from a stone house used as a vestry by SBB; also extensive other property; on condition they pay the churchwardens of SBB 13s 4d pa for a perpetual obit for John Reynewell.

William STAFFORD, dated 30 December 1458, proved and enrolled 9 October 1480. (HR 210 (15); *Cal Wills*, ii, 581) . To the rector and churchwardens of SBB, a stone house with vault beneath, to serve as a vestry. This text too is crucial, and only treated very briefly in the published Calendar of Husting wills. It is therefore transcribed and translated here in full:

> I compose, make and ordain my present will as to the disposition of that stone *domus* with stone vault and stone walls under the same *domus* situated in the parish of SBB, which I lately had by gift and feoffment of Geoffrey Boleyn, formerly Mayor, and of the aldermen and commonalty of the city of London, in this manner, viz,
>
> I give to Thomas Pulter, rector of the parish church of SB aforesaid and to Walter Culpitte and Thomas Page keepers of the fabric and ornaments of the same church, and to all the parishioners of the said church, the aforesaid stone *domus* with stone vault and stone walls aforesaid.
>
> Which *domus* with the rest of the premises is situated in the said parish of SB between the said church on the north and the [City's] landholding to the south and west, and measures 16ft in length from east to west and 12ft in width from north to south.
>
> To have and to hold the said stone house with vault and walls aforesaid to the aforesaid rector, keepers and parishioners and their successors, for a vestry to serve the said church for ever.
>
> *Condo facio et ordino presens testamentum meum quo ad disposicionem illius domus petrine cum volta petrina et parietibus petrinis sub eandem domum situat' in parochia sancti Botulphi iuxta Billyngesgate London', quas nuper habui ex dono et feoffamento Galfridi Boleyn dudum Maioris Aldermannorumque et Communitatis dicte Civitatis London' in hunc modum, videlicet,*
>
> *Lego Thome Pulter Rectori ecclesie parochialis sancti Botulphi predict' ac Waltero Culpitte et Thome Page custodibus operis et ornamentorum eiusdem ecclesie, omnibusque parochianis ecclesie predicte, predictam domum petrinam cum volta petrina et parietibus petrinis predictis.*
>
> *Que quidem domus cum ceteris premissis situatur in dicta parochia sancti Botulphi inter dictam ecclesiam ex parte boriali et ten' maioris aldermannorum et Communitatis Civitatis predicte ex partibus australi et occidentali et continet in longitudine inter orientem et occidentem sexdecim pedes assise et in latitudine inter boriam et austrum duodecim pedes assise.*
>
> *Habend' et tenend' predictam domum petrinam cum volta et parietibus antedictis supradictis Rectori Custodibusqe et parochianis et successoribus suis tanquam pro uno vestibulo eidem ecclesie servitur' imperpetuum.*

John LONGE, cooper, 1460. (PROB 11/4/421.) To be buried at the east end of SBB churchyard. To the new vestry, 10s.

William ABRAHAM, vintner, 1462. (MS 9171/5, fo. 326v.) To be buried in SBB. To the Fraternity of the BVM & SJB, £3 6s 8d.

William PYNSON, baker (pistor**)**, 1462. (MS 9171/5, fo. 329v.) To be buried in the cemetery of SBB. 2 torches to the Fraternity of the BVM & SJB.

[William STAFFORD, vintner, dated 24 December 1463, proved and enrolled 16 July 1470. (HR 200 (13); *Cal Wills* ii, 566; Stafford's original will, sealed twice with his seal, survives in the St Paul's Cathedral archives, CLC/313/P/008/MS25271/068, formerly GL MS 25271/68.) This will is entirely concerned with granting to the cathedral his property in Botolph Lane in the parish of St George Botolph Lane [the parish immediately north of SBB], at the end of the current term of 37 years. This is surely the same William Stafford. It does not mention the interior or ornaments of SBB, but is included here as yet another of Stafford's wills, and because it shows that Stafford was armigerous. There are two impressions of his seal, one pendent on a tag, and the other applied to the left–hand margin. The circular design, very pretty and beautifully cut, shows a shield bearing Per chevron, in chief 2 escallops, in base ermine, surrounded by an inscription in black letter, Sigillum willelmi Stafford.]

Thomas CLERK, stockfishmonger, 1464. (MS 9171/5, fo. 351.) To be buried wherever. To the Fraternity of the BVM & SJB in SBB, 3s 4d.

Alice ABRAHAM, widow, 1465. (MS 9171/5, fo. 374v.) To be buried in SBB, next the body of her husband. Refers to the altar of the BVM & SJB as well as to the high altar. To the Fraternity of the BVM & SJB, 40s. 3-year chantry.

Agnes CLERKE, widow, 1466. (MS 9171/5, fo. 381v.) To be buried in SBB near her husband Thomas [presumably Thomas Clerk 1464 above, who left a widow Agnes]. To the Fraternity of the BVM & SJB, a vestment and altar cloth, both worth £3.

John WARYN, goldsmith, 1466. (MS 9171/5, fo. 390v.) To be buried wherever. To 'the Fraternity' in SBB, 20d.

John PAYN, grocer, dated 12 April 1466, [proved ?1467]. (Full text in MS 59, fos 26v–28v, red foliation.) To be buried in SBB. To the parish priest and the wardens of the Fraternity of the BVM & SJB, a yearly rent of 40s. Of this, 6s 8d is for a perpetual obit, and so that his name and that of his wife Joan shall be added to the list of benefactors of the fraternity; the balance for a priest to sing for the fraternity every day. No note of probate. HR 197(18) (*Cal Wills* ii, 558–9) is a different will of the same man dated 16 April 1467 and proved and enrolled 2 Nov 1467. This, in passing, confirms the document of 12 April 1466. The 1466 document is omitted from the HR and published calendar.

Alice KYRKEBY, widow, 1467. (MS 9171/6, fo. 24.) To be buried in SBB next her husband. To the Fraternity of the BVM & SJB, 3s 4d and a torch of wax.

William STAFFORD, vintner, 1467. (MS 9171/6, fo. 45v.) To be buried in SBB, to the west of the grave of Alderman John Reynewell. To the Fraternity of the BVM & SJB, 6s 8d. [NB this will was dated 22 May 1466, and proved 10 June 1467. It is not the same as the will entered in the Vintners' Company Wills Book, CLC/L/VA/G/001A/MS15364, formerly Guildhall Library MS 15364. This other will is dated 21 May 1466, and concerned with real property only, which Stafford bequeaths to the Vintners' Company; no probate is given. This other will does however refer to his separate testament of his moveable goods, presumably this text of 22 May, despite the respective dates of each text.]

Elizabeth BOLDE, singlewoman, 1469. (MS 9171/6, fo. 45v.) To be buried in the Pardon churchyard at St Paul's. To the Fraternity of the BVM & SJB in SBB, 3s 4d.

Richard PHIPPES, stockfishmonger, 1471. (PROB 11/6/40.) To be buried in SBB near his wife Agnes. To the Fraternity of the BVM and SJB, 20s. £67 6s 8d to a 10-year chantry at the Trinity altar. If his children die young, then the chantry to last for 20 years. [This is the earliest mention that I found of the Trinity altar.]

Richard RAWLYN, grocer, 1471. (PROB 11/6/61.) To be buried in the body of SBB, before the Crucifix. For a canopy for the high altar, 40s.

Thomas PAGE, pewterer, 1471. (MS 9171/6, fo. 99.) To be buried wherever. To the Fraternity of the BVM & SJB in SBB, 3s 4d.

John LONG, cooper, 1471. (MS 9171/6, fo. 155v.) To be buried in the churchyard of SBB, 'in the holy [ground] on [the] south side of the same churchyard towards the east end'. To the Fraternity of the BVM & SJB, 3s 4d.

Katherine LONG, widow, 1474. (PROB 11/6/260.) To be buried in the church haw of SBB, at the east end on the south side. To the Fraternity of the BVM & SJB, where I am a sister, 10s.

Richard AWBREY, haberdasher, 1474. (PROB 11/6/266.) To be buried in SBB. For a suit of vestments, to pray for his soul, £10. 1-year chantry, in which a trental of Masses of St Gregory is to be sung and said.

William LAURENCE, grocer, 1477. (PROB 11/6/390.) To be buried in the Charterhouse, whereof I am a brother of their chapter house. Eight grocers to carry my coffin to SBB, where I am a parishioner, and then on to Charterhouse. 4 torches to the Fraternity of the BVM & SJB, to burn at the altar of Our Lady and St John; others to the high altar and 'the altar in the north aisle'. To the works of the body of the church, and to its ornaments, £10. 5-year chantry at the altar of Our Lady & St John. £13 6s 8d for 2 vestments with apparels, to pass to the fraternity at the end of the 5 years, for the fraternity's priest at the same altar. One vestment to be for Holy Days and the other for work days. £13 6s 8d for a 'special thing' or things for the fraternity, to be agreed with the Wardens and members.

Philip GOWER, linen draper, 1479. (MS 9171/6, fo. 250v.) To be buried in St Katherine by the Tower. To the Fraternity of the BVM in SBB, 6s 8d.

Marmaduke CHAPLIN, scrivener, 1479. (MS 9171/6, fo. 293.) To be buried in SBB. To Our Lady's Brotherhood, 3s 4d.

William BARTLOT, fishmonger, 1479. (MS 9171/6, fo. 307v.) To be buried in SBB. To the Fraternity of the BVM & SJB, 'whereof I am brother', 2 torches.

Sir John YONG, knight, late Alderman and Mayor of London [Mayor 1466], and late Mayor of the Staple of Calais, 1482. (PROB 11/7/54; transcribed in Boatwright *et al.* (eds) i, 122–8) .To be buried in St Michael [Paternoster]. To the chapel of Our Lady in SBB, his best mass book, his best chasuble with the alb...belonging to it, two silver–gilt cruets and his best paxbread [ie osculatory], garnished with stones.

John TOBY, haberdasher, 1484. (MS 9171/6, fo. 373.) To be buried in the churchyard of SBB, [?near] the cross there where his wives lie. To the Fraternity of the BVM & SJB, 10s.

John PARIS, pewterer, 1485. (PROB 11/7/194; transcribed in Boatwright *et al.* (eds) i, 179–83; also extract in MS 59). To be buried in SBB, beside his first wife Agnes, and under the stone lying upon her grave. There to be daily masses for a month after his death. To the Fraternity of the BVM & SJB, 40s. 10-year chantry. To the Fraternity of the BVM & SJB, all his property in St Nicholas Lane, so that his soul and those of his family are prayed for evermore, and are entered on the Bede Roll of the brotherhood. Also various lands to found a perpetual chantry, and if done within ten years, then the ten-year chantry to cease; and a perpetual obit.

Agnes LYTTON, wife of Robert Lytton, gent, 1486 (PROB 11/7/304; transcribed in Boatwright *et al.* (eds) i, 264–6.) To be buried in SBB by her first husband John Paris.

John LUCE, grocer, 1487. (PROB 11/8/49.) To be buried in SBB. 1-year chantry. To the Fraternity of the BVM & SJB, two torches.

Joan KERVILE, widow, 1487. (PROB 11/8/112.) To be buried in SBB, where her former husband John Payne lies buried. 20-year obit.

Richard JOHNSON, priest, 1487. (MS 9171/7, fo. 66v.) To be buried in the Trinity chapel of SBB. For his grave, for church repairs and for ringing the 'Great Bell', 20s. To the Brotherhood of the BVM & SJB, 3s 4d. To the church, a Processionary (processional). 8-year obit; also 2-year chantry in the Trinity chapel.

David CLERKE, corn meter, 1488. (MS 9171/7, fo. 111.) To be buried in the churchyard of SBB, near his first wife. A torch to burn before the altar of the Fraternity of the BVM & SJB. To the fraternity, 6s 8d.

William DOBBIS, grocer, 1490. (MS 9171/7, fo. 154.) To be buried in the churchyard of SBB. To the Fraternity of the BVM, 3s 4d.

Richard BODLEY, grocer, 1491. (PROB 11/9/28.) To be buried in the Trinity chapel of SBB, 'where Richard Philippis is buried'.

John SPAROW, grocer, 1491. (PROB 11/9/33.) To be buried in SBB. 5-year chantry.

Dame Alice VAUGHAN, widow, 1491. (PROB 11/9/65.) To be buried in SBB, in the body of the church, where her first husband Richard Rawlyn, grocer, lies buried.

William BACON, haberdasher [Sheriff 1480], 1492. (PROB 11/9/228.) To be buried in SBB where his wife Elizabeth lies, over which he has provided a marble stone. Two trentals in SBB, one as soon as possible after his death, and the other at his month's mind. Also Dirige and Mass of Requiem daily during the month. Four torches to the Fraternity of the BVM in SBB. The daily singing (ie chantry) which for years past has been performed by Sir Thomas Knight at 10 marks pa to be continued for 10 years. Stow mentions a monument.

Thomas BODLEY, tailor, 1493. (PROB 11/9/374.) To be buried in the Trinity chapel of SBB. 2 torches to the high altar, and another 2 to the 'high altar of Our Lady'.

John GYSE of Antwerp, merchant, 1494. (MS 9171/8, fo. 79.) To be buried in the churchyard of SBB, where he is a parishioner. To the sustentation of the Mass of Jesus kept in SBB, 8d. A trental on the day of his death.

Pernell SMYTH, widow, 1494. (MS 9171/8, fo. 81v.) To be buried in the churchyard of SBB, near her husband. To the Fraternity of the BVM & SJB, 20d. Also 'to the continuance of Jesus Mass', 20d.

Richard SEGRYM, 'clerk' [ie priest; referred to as a priest and chaplain in other wills], 1495. (MS 9171/8, fo. 85v.) To be buried in the chancel of SBB, 'before the image of St Botolph there'. 2-year chantry. 10-year obit.

John MARSHAM, salter, 1496. (PROB 11/11/56.) To be buried in SBB. 3 torches to the Fraternity of the BVM & SJB. Trental. 1-year chantry.

Thomas AWBERY, draper, 1500. (Full text in MS 59, fo. 29r, v in red foliation.) To be buried in SBB before Our Lady's altar, near the place where his father lies buried. Property to his

son for an obit, and after his son's death to SBB for a perpetual chantry.

William PAIGE, haberdasher, 1501. (PROB 11/13/29.) To be buried in the body of the church of SBB, near his wife Joan. To the Fraternity of Our Lady, 20s.

Henry SOMER, merchant haberdasher, 1502. (PROB 11/13/313.) To be buried in SBB. 2 torches to the Fraternity of the BVM. 7-year obit. 1-year chantry. 'A stone of marble with images of me and my wife and of our son and daughters.' [It is not clear whether this is to be in SBB, or in St Mary Staining where he wishes the Haberdashers to fund an obit.]

William PRATE, grocer, 1504. (PROB 11/14/384.) To be buried in the Trinity chapel of SBB. To the Fraternity of the BVM & SJB, 6s 8d. Two trentals. 3-year chantry in Austin Friars (year 1), Crutched Friars (year 2) and White Friars (year 3), but every Friday the friar to come to SBB to say a Mass of the Five Wounds.

William HOLYBRANDE, tailor, 1506. (PROB 11/15/21.) To be buried in the Trinity chapel of SBB, where Richard Bodley lies buried. To the Fraternity of the BVM & SJB, 6s 8d. 1-year chantry.

Richard ROGERS, baker, 1506. (PROB 11/15/239; also extracts in MS 59.) To be buried in SBB. 2-year chantry at the altar of the Fraternity of the BVM & SJB.

Thomas YOGGE, vintner, 1509. (PROB 11/16/484.) To be buried in SBB if he dies in London. To the Fraternity of the BVM & SJB, 40s.

Nicholas MUM, 1516. (MS 9171/9, fo. 5.) To be buried wherever. To the Fraternity of the BVM & SJB in SBB, 3s 4d.

Thomas MARMEON of 'Thurlbe' [Thirlby, Lincs], esq, 1517. (PROB 11/18/460.) To be buried in the chancel of SBB. [One witness to the will is Sir Edward Marmeon, sometimes spelt Marmyon, parson of SBB. Did Thomas die on a family visit?]

Thomas LANGEFORDE, baker, 1517. (PROB 11/18/462.) To be buried at the church door of SBB, 'under the holy water stock'. 2 torches to the Fraternity of the BVM & SJB, whereof I am a brother.

William BULLEE, mercer, 1518. (PROB 11/19/64.) To be buried in SBB, 'afore the Rood in the body of the church'. To the Fraternity of the BVM & SJB, 6s 8d. Cardinal Wolsey to be overseer of his will.

Nicholas ALDAY, grocer, 1518. (PROB 11/19/146.) To be buried in SBB, 'in the chapel on the south side of the same'. 20-year obit. Two copes of red damask to be made, 'with Tonnes and Burres' ... like the suit of copes that be at St Clement's Sandwich.

John BOYS, fishmonger, 1519. (PROB 11/19/345.) To be buried in the churchyard of SBB. Refers to the Fraternity of St Mary.

Thomas BRYGHT, grocer, 1519. (MS 9171/9, fo. 116.) To be buried in the churchyard of SBB, 'before the cross there'.

Henry RIGBY, grocer, 1521. (MS 9171/9, fo. 179v.) To be buried 'within the midst of the church' of SBB. 2 torches to the Fraternity of the BVM & SJB.

Joan CHICHELEY, widow, 1521. (MS 9171/9, fo. 193v.) To be buried in SBB, near the tomb or grave of her late husband John Chicheley. Trental requested. To the Fraternity of the BVM & SJB, 20d. To the churchwardens, and the wardens of the fraternity, a diaper tablecloth, to be divided between them, for the high altar and Our Lady's altar.

Robert FULLER, grocer, 1524. (PROB 11/21/360.) To be buried in SBB. Trental requested.

Robert DURWARD, [either an apprentice, or recently such], 1526. (MS 9171/10, fo. 76v.) To be buried in the churchyard of SBB. 2 torches to Our Lady altar.

Henry HICHECOK, baker, 1527. (PROB 11/22/340.) To be buried in SBB near his wife Agnes. To the Fraternity of the BVM & SJB, 3s 4d.

John LION, chaplain and priest within the parish church of SBB, 1528. (First surviving London Diocese Vicar–General's Book, DL/C/0330, fo. 253.) To be buried in the churchyard. Trental requested; also 10-year obits in SBB and in Walden, Essex. To the Fraternity of the BVM, 10s.

Nicholas MORETON, barber–surgeon, 1530. (MS 9171/10, fo. 150v.) To be buried in the churchyard of SBB, 'under the green hawthorn there'. To the Fraternity of SJB [sic], 3s 4d.

Robert ATKINSON, skinner, 1531. (PROB 11/24/151.) To be buried in SBB 'by the Trinity altar, under Our Lady of Pity'. £50 to the Skinners for a perpetual obit, including 2d to the Beadle for 'bringing the cloth'.

Clasken MOUME [MUM, MUMM]. Widow, 1533. (MS 9171/10, fo. 201.) To be buried in the churchyard of SBB, 'onther [under] the tree' by the grave of her late husband Nicholas. To the Fraternity of the BVM [sic], 20d.

William STODERD, fishmonger, 1537. (PROB 11/27/25.) To be buried in SBB, 'before the picture [ie statue] of Our Lady of Pity in the Trinity chapel on the north side of the church'. To the Fraternity of the BVM and SJB, a torch.

Thomas BODLEY, vicar of South Weald, Essex, 1537. (PROB 11/26/118 and /27/81.) To be buried in SBB, the parish where he was born, in the [Trinity] chapel where his father and mother lie. 2 trentals on the day of his burial. Trental in SBB for 20 years.

William BODLEY, grocer, 1540. (PROB 11/28/311.) To be buried in SBB, 'under the door as they go into the Trinity chapel where my father and my mother and Elizabeth my wife lie on the left hand of my father's tomb'. To the Fraternity of the BVM & SJB, 6s 8d.

Edward MARMYON, 'clerk and parson' of SBB, 1541. (PROB 11/28/534.) To be buried in holy ground wherever he shall depart this life. To Sir William Ruffurth or Ruffurthe, 'my parish priest', his 'great book called Distructionum Viciorum'. [This may be a garbled rendering of Alexander Carpenter's *Destructorium Vitiorum*. Marmyon's will is included here in case this bequest was intended for the parish, and not for Ruffurth personally.]

Humphrey KNIGHT, fishmonger, 'steadfast in the Catholic faith', 1549. (PROB 11/32/494.) To be buried in the choir of SBB.

John TOWELL, lighterman, 1552. (MS 9051/2, fo. 61v.) To be buried in the churchyard of SBB, 'within the green'.

Thomas JOHNSON, draper, 1556. (MS 9051/2, fo. 163.) To be buried in the churchyard of SBB, near his child.

Em STODDARDE, widow of William, fishmonger, 1557. (MS 9051/2, fo. 203v.) To be buried in the Trinity chapel of SBB, near her late husband, William.

Beatrice BODLEY, widow of William Bodley, grocer, 1558. (PROB 11/42A/149.) To be buried in SBB next to her late husband.

6.11 Moulded stones from St Botolph Billingsgate

John Schofield

At the time of completion of the first edition of this report in late 2016, the moulded or carved stones recovered from the Billingsgate (BIG82) excavation and assigned to the demolished church of St Botolph were inaccessible in Museum of London stores, so they remain unstudied. An archive list of them (693 lines) extracted from the standard DUA/MoLAS documentation files in 2002 is given in the online supplement, to assist the future assessment of the stones. They constitute the largest group of such architectural pieces from a pre-Fire parish church in London, and from their analysis and publication much could be said about the internal architecture of the church and possibly its monuments. Such a study would place St Botolph's with other parish churches of London from which smaller groups of fragments have been studied, such as St Bride's and St Nicholas Shambles, or larger groups such as those from all of London's medieval monasteries which have been published since 1997. The study of the fragments from St Nicholas Shambles by Richard Lea in 1997 is a model for the analysis required.[271]

6.12 The Billingsgate waterfronts: conservation and display

Helen Ganiaris and Suzanne Keene

Introduction

The waterfront of the Thames and its tributaries provide ideal burial conditions for the preservation of organic materials; the consistently wet layers found on these sites provide sealed anaerobic conditions that limit deterioration. Conservation of waterlogged organic material however requires particular expertise, equipment and resources to ensure that this material survives in good condition.

When the Museum of London was established at London Wall in 1976, its Conservation Department's strengths were in the conservation of the social history and costume collections. In 1980 an archaeological conservation team was formed to deal with the large volume of incoming finds from the Museum's then Department of Urban Archaeology (DUA) and a backlog from sites excavated in the 1970s. Excavation projects were largely funded externally to the Museum's budget by developers of the sites and grants from the Department of the Environment (DoE); a financial contribution from the DUA to the Museum was negotiated to cover some of the costs of conservation equipment and materials.

The 1980s saw the volume of archaeological excavation increase exponentially with the construction boom in the City of London. This threatened to obliterate much of the evidence of London's history, but also offered an unprecedented opportunity to recover structural evidence and finds (Keene 1982). The research design of the Billingsgate excavation of 1982 was informed by experience of previous waterfront excavations such as Swan Lane (site A, 1981). The excavation had substantial external funding and the team included a conservator to deal with the anticipated quantity of waterlogged organic items, with a budget for conservation equipment and materials. This is the one of few excavations in London that has had a dedicated conservator based with the finds processing team on site.

The Billingsgate excavation (site D) exposed a series of waterfronts that had been built on the banks of the Thames from Roman to medieval times. These were substantial engineering structures. The medieval wooden revetments were constructed on the Thames foreshore at low tide, backfilled with debris and contemporary rubbish to form an artificial surface at ground level. A landfill site is always an opportunity, then as today. Londoners of the time took advantage of the construction sites to dispose of waste from the city, largely domestic and industrial rubbish. This included a vast quantity of objects in organic materials (wood, leather and textile) as well as inorganic materials such as metal and ceramic.

Waterfront revetments had been constructed in various periods to modify the sloping river foreshore to form quays where at high tide ships and boats could be loaded and boarded. Particularly spectacular were Roman waterfronts of enormous baulks of oak and the revetments from the 13th century of carefully worked wooden uprights and planks. These waterfront revetments were important survivals from such early dates. It is ironic that generally no effort is spared in recovering and preserving boats and ships from waterlogged excavations, but little attention is paid to landward structures. At that time, in the 1980s, there were no precedents in the UK for preserving early buildings and structural remains (apart perhaps from some timber linings from wells). It was also not known whether the opportunity to preserve similar waterfront structures would arise in the future.

Care and preparation of the timbers

During the excavation all wood structures had to be sprayed regularly with water to prevent them from drying out and were covered continuously with polyethylene sheeting until recording and labelling was completed (Figure 278). The timbers were disassembled carefully, and supported during their removal and transfer to temporary storage on site.

[271] In Schofield 1997, 111–22.

Initial cleaning of the timbers took place on site and further cleaning was done at the Museum. Cleaning of waterlogged wood is done carefully to avoid disturbing any original material; paint, pitch and traces of caulking have been found on some large timbers. Inscribed carpenters' marks were found on some of the horizontal planks of these revetment timbers (Figure 93 above).



Figure 278 Rose Johnson spraying the timbers of D:Waterfront 14 (under the polythene) during the excavation of site D, 1982 (© Museum of London)

On site the wood was stored in shallow PVC-lined ponds and then stored completely immersed in water at the Museum in large wooden tanks with PVC linings. The wood was held in the tanks at the Museum until funding could be confirmed for treatment. Because of the significance of the revetments and the opportunity for large-scale display, the Museum funded the cost of the treatment and subsequent reconstruction. The early 13th century D:Waterfront 14 was chosen for conservation. A special appeal for the cost of the conservation was launched by the Museum and the City of London Archaeological Trust, and was successful in raising the money. The case was made that these structures were very rare survivals and that when constructed they embodied the historic use of the Thames for London trading. After treatment they would be re-erected in the Museum as spectacular displays.

It was decided to treat the timbers by immersion in polyethylene glycol (PEG) followed by freeze drying. D:Waterfront 14 was the first group of timbers from a London excavation treated by this method. The Museum did not have the facilities to treat such large items so the waterfronts were treated using contractors with off-site facilities. The timbers were shipped first to a newly-formed company in Dundee. That company subsequently went out of business so the timbers were transferred to Portsmouth where similar facilities were available as part of the *Mary Rose* project. When the timbers were returned to the Museum after freeze drying, further work was required to clean excess PEG and, for those elements to be displayed, loose fragments or sections were joined. Fills for gaps were kept to a minimum and used only where required to support the structure.

Treatment of waterlogged wood

Waterlogged wood cannot be allowed to dry – immediate changes (e.g. splitting, shrinking, warping) will occur unless positive action is taken. During burial, cellulose in the cell walls disintegrates leaving a lignin network which may also break down over a long period of time. As a result, the wood becomes more porous and permeable to water. The remaining lignin structure of the wood cells and the absorbed water preserve the shape of the wood.

If waterlogged wood is exposed to air, the excess water evaporates, and the resulting forces of surface tension of the evaporating water cause the weakened cell walls to collapse, creating considerable shrinkage and distortion. The amount of shrinkage is dependent upon the degree of degradation and the amount of water present.

By the early 1980s, treatment of wet wood with PEG was established as the main method for small finds and large timbers. PEG is a water soluble wax that replaces the water in the wood which has provided structural support for the wood cells during burial. Various grades of PEG can be used; the science and application of this method continues to be an area of research for waterlogged wood specialists. The wood is immersed in a solution of the chemical in water, gradually building up the concentration of PEG. This is followed by freeze drying, now common practice. In the early 1980s, this was a relatively new technique adapted from industry. Prior to the introduction of freeze drying, wood was immersed in the PEG solution until it reached 100% concentration. This could result in very heavy, fragile wood with dark, waxy surfaces that then needed additional surface cleaning to lessen the waxy appearance.

PEG consolidates and confers mechanical strength to the wood for the freeze drying stage. In the freeze drying process, the material to be treated is first



Figure 279 D:Waterfront 14, on display in the medieval gallery of the Museum of London, 2016 (© Museum of London)



Figure 280 The upper part of D:Waterfront 14 in 2016 (© Museum of London)

frozen so that degraded cells are supported by solid ice. The material is then placed in a vacuum chamber, which causes the ice to change directly from solid to vapour without passing through a liquid phase. Forces of surface tension from evaporation are thus avoided. Freeze drying allowed for lower concentrations of PEG to be used so that the resulting surfaces are lighter coloured, closer to the original colour of the wood. The concentration of PEG in the immersion liquid must be raised slowly so that the chemical diffuses evenly into wood cells and spaces. For large timbers this process can take up to two years. The following freeze drying process can take many months. Very large structures (such as the *Mary Rose*) cannot be freeze dried: instead they have to be sprayed with the solution followed by controlled air drying which takes decades (English Heritage, 2010).

Display

The Billingsgate revetment D:Waterfront 14 was first displayed in the Museum's first major exhibition of recent archaeological finds (*Capital Gains* in 1986). The 13th-century revetment and two others from Billingsgate (Roman and Saxon) were also displayed at the Tower Hill Pageant Museum from 1991 to its closure in 1997 (Barnard *et al.* 1994). There was one further opportunity for display of revetment timbers: the loan of sections of the 14th-century revetment excavated at Trig Lane in 1974 to the Edo Tokyo museum in Tokyo in

1996 for their exhibition *Unearthed Cities*. The timbers of D:Waterfront 14 have been on display in the Museum's medieval gallery since 2005 (Figure 279).

Although conserved, the timbers are still fragile and vulnerable to breakage. Because this revetment is freestanding in the gallery, a metal armature (resembling a goal post) was constructed and individual tailored steel uprights and brackets were fabricated to support each element. For the front braces with their curves and numerous breaks, this required adjustments to ensure that the timbers were supported throughout their length. The metal supports are lined with a cushioning material (Plastazote®, a polyethylene foam).

The revetment is on open display in the gallery behind a fragment of a 13th-century galley boat (found at the More London site on the Southwark bank, TYT98); the galleries are air conditioned and maintain a stable environment so that a display case is not required. The base of the display has been made to resemble the Thames foreshore. In front is a small case displaying organic artefacts.

The timbers have some surface cracking which is normal for timbers even after treatment; some of this damage occurs during burial. Gaps where fragments are missing were left unless the timbers required support. One missing horizontal plank was replaced with a modern timber, painted but deliberately obvious as not being original to the structure. There are also gaps between each horizontal plank to allow for the supporting brackets; because of this the appearance of the waterfront cannot exactly replicate how it was found on site (Figure 280). The design allows the revetment to be on open display while protecting it from handling. The timbers do require occasional dusting but the display has been very successful and is a highlight of the gallery.

Acknowledgements

Helen Ganiaris and Suzanne Keene would like to thank Jill Barnard and Liz Goodman for help with details of the treatment and mounting of the revetment timbers.

7. Dating Tables and Artefact Tables

John Schofield with Carolyn Carlson, Lyn Blackmore and Jacqui Pearce

Here are the dating tables, Table 95 to Table 169; and Artefact Tables 1–38. they are preceded by two tables which explain the numbering of excavated buildings on sites B and C, with their archive references: Table 93 for site B (Seal House) and Table 94 for site C (New Fresh Wharf). The labelling of buildings used in the archive reports for the sites is also to be found in the sections in this volume, Figure 282 to Figure 292.

Present report	**Archive plans and sections**
B:Building 1	Building A
B:Building 2	Building B
B:Building 3	Building C
B:Building 4	Building D
B:Building 5	Building E
B:Building 6	Building F
B:Building 7	Building G
B:Building 8	formerly labelled part of Building E
B:Building 9	Building H
B:Building 10	Building N
B:Building 11	Building J
B:Building 12	Building K
B:Building 13	Building L
B:Building 14	Building M
B:Building 15	Building O
B:Building 16	Building P
B:Building 17	Building Q

Table 93 Site B (Seal House): correspondence between building numbers used in this report, and the original building letters on plans and sections

Present report	**Archive plans and sections; and in Steedman *et al.* 1992 for Buildings A to E**
C:Building 1	Building A
C:Building 2	Building B
C:Building 3	Building E
C:Building 4	Building D
C:Building 5	Building C
C:Building 6	Building F
C:Building 7	Building G
C:Building 8	Building K
C:Building 9	Building L
C:Building 10	Building H
C:Building 11	Building J

Table 94 Site C (New Fresh Wharf): correspondence between building numbers used in this report, and original building letters on plans and sections and in Steedman *et al.* 1992 on Buildings A to E

Period M1 1100–1200/20

Landuse	**Group**	**Context**	**Evidence**	**Description**	**Date**
W A8			DEND		1042+
Dumps behind W A8 and W A9	34	332	MPOT	332: LOAR JUG ERND	1150–1200
OA A2	46.15	dumps with fuller's earth 2180, 2229–2231	COIN	no pottery; coin not identified	not databale
OA A2	46.18	Dumping 344	MPOT	344: ESUR CP; LCALC JUG ERND; LOND EAS JUG ERND; REDP JAR, SSW CP	1140–1150
OA A2	46.19	Dumping 417, 423, 510	MPOT	417: LCALC JUG ERND; LCOAR CP; LOND EAS JUG ERND; LOND JUG;423: LCOAR JUG; LOND EAS JUG ERND; SSW CP	1140–1200 1140–1180
OA A2	46.20	327, 334	MPOT	327: LCOAR JUG ERND; LOND EAS JUG; LOND NFR JUG	1180–1200
OA A2	46.22	Dumping 426A-C		426: SSW CP	1140–1220
OA A2	46.23	Dumping 389, 395, 405	MPOT	389: LOND EAS JUG ERND 395: LCALC JUG ERND 405: LOND EAS JUG ERND	1140–1200 1140–1200 1140–1200

OA A2	46.24	Pit 266, 266A	MPOT	266: EMSH CP; LCOAR CALC CP; MISC; SSW CP; STAM SPP?	1140–1150
OA A2	46.34	379, 381	MPOT	379: LSS CP	900–1050
OA A2	46.35	311, 363, 364, 365	DEND		1154+
OA A2	46.38	339	MPOT	339: EMSH CP; LCOAR SHEL CP; SSW CP	1140–1150+

Table 95 Site A: dating evidence for period A1

Landuse	Group	Context	Evidence	Description	Date
W A10 foreshore	24.0	2188	MPOT	ESUR CP; LCOAR JUG ERND; LOND EAS JUG	1140–1180
	26.0	2157, 3015	MPOT	2157: MG CON JUG CON 3015: ANDE SPP?; EMSH CP; EMSS CP; ESUR CP; LCOAR JUG ERND; LCOAR CP, JUG; LCOAR CALC CP; CP;LOGR BOWL; LOGR CP, LAMP; LOGR? JAR?; LOND JUG ERND; LSS CP; MISC CP; SHER CP; SSW CAUL?, CP; STAM SPP?	1270–1350 (intrusive?) 1170–1180/1200

Table 96 Site A: dating evidence, Gp 24, Gp 26

Landuse	Group	Context	Evidence	Description	Date
W A10 foreshore	28	2211, 2254	MPOT	2211: EMIS CP; EMSH CP; ESHER ? JAR; ESUR CP; LCALC JUG; LCOAR CP, JUG ERND; LOND EAS JUG; SSW CP; 2254: LCOAR JUG ERND, JUG EBAL; LOND EAS JUG ERND; LOND ROU JUG BAL; NFM JUG; SSW CP	1140–1150 1180–1200

Table 97 Site A: dating evidence, Gp 28

Landuse	Group	Context	Evidence	Description	Date
reclamation	30	2259	MPOT	ESUR CP; LCOAR? CP; LOND EAS JUG ERND; SHER? JAR ST	1170–1200+
	30	2259	COIN	<2262> Henry II	1158–1180

Table 98 Site A: dating evidence, Gp 30 (1170–1200+; later than Gp 28)

Stratigraphic group	number of tokens	date of deposition
A28	1	1180–1200
A61	3	1270–1350
A55	2	1180–1240
A74	85	1270–1350
A67	1	1270–1350
A47	1	13th century
A85	23	1350–1400
A100	3	15th century, perhaps second half
A93	8	15th century
A95	18	15th century
A102	32	15th century

Table 99 Occurrence and dates of medieval lead tokens in Swan Lane deposits

Landuse	Group	Context	Evidence	Description	Date
reclamation	42	2266, 2279, 2280	MPOT	2266: ESUR CP; LCALC CP; LOGR CP; LOND JUG EBAL; LOND EAS JUG ERND; SHER CP; SSW CP;2279: ANDE SPP; BLGR KUGL; EMSH CP; EMSS CP; EMS CP; ESUR CP; LCALC JUG ERND, JUG; LCOAR CP, JUG; LCOAR CALC BOWL DISH; LOND EAS JUG ERND; LOND JUG, JUG MINI, PIP; LOGR? CP; NFM JUG; ROUE JUG; SSW CP;2280: ESUR CP; LOND EAS JUG; SHER CP	1170–1200 1170–1200 1170–1200

Table 100 Site A: dating evidence, Gp 42 (1170–1200)

Landuse	Group	Context	Evidence	Description	Date
A:Building 6	45.20	makeup dump: 735, 736, 842	MPOT	736: SSW CP	1140–1220

Table 101 Site A: dating evidence for period A2 on Tenement 2

Landuse	Group	Context	Evidence	Description	Date
Tenement 3, east wall	47.23	foundation trench: 246	MPOT	LOND BAL JUG; LOND EAS JUG; LOND ROU JUG BAL; ROUE JUG BAL	1180–1225
	47.28	timber shuttering for wall	DEND		1145–1189
	47.30	341	MPOT	ANDE SPP; EMCH? CP; EMGR CP; EMS BOWL, CP, DISH; EMSH CP; EMSS CP; ESUR CP; KING? CHAF?; KING? JUG; LCALC JUG ERND, JUG; LCOAR CALC CP?; LOGR? CP; LOND EAS JUG ERND; LSS CP; REDP BUF JAR; REDP OLV JAR; SHER? BOWLDISH, CP; SSW CAUL ?, CP; STAM SPP	1180–1240 (KING intrusive?)
A:Building 7	45.14	clay surfaces: 1515	MPOT	SSW CP	1140–1220
A:Building 11	46.21	403	MPOT	LOND NFR JUG	1180–1270
	48.1	242	MPOT	LCOAR? CP	1080–1200
	48.6	224	MPOT	LOND JUG	1180–1220
	48.8	202	MPOT	LOND JUG	1140–1200
	48.9	225	MPOT	LCOAR JAR; LOND CP; LOND EAS JUG ERND; SHER CP	1170–1200
	48.13	421	MPOT	EMSH JAR; LCOAR JUG, JUG BAL; LCOAR CALC JUG EBAL; LCOAR SHEL CP; LOND EAS JUG ERND; SSW CP	
	48.15	360, 386A, 386C, 419, 425A	MPOT	360: SSW CP;386A: ANDE SPP; EMSS CP; ESUR CP; LCOAR JUG ERND; SSW CP;386C: LCOAR JUG ERND; 419A: LOND EAS JUG ERND; SSW CP, JAR 419B: LOND EAS JUG ERND; SSW CP;419C: NEOT JAR 425A: LOND JUG; SHER CP	1140–1220 1140–1180 1140–1200 1140–1200 970–1100 1170–1350
	48.18	305	MPOT	305: EMS CP; ESUR CP; LCOAR CALC JAR, SPP; LCOAR CP; LOND EAS JUG; LOND NFR JUG; SSW CP	1180–1200
	48.19	396	MPOT	EMSH JAR; ESUR JAR	1050–1150
	48.20	391	MPOT	EMSH CP; REDP BUF JAR	1050–1150
	48.21	392F	MPOT	LCOAR CALC JUG; SSW CP	1180–1200
	48.22	378	MPOT	SSW CP	1140–1220
	48.23	355, 361	MPOT	355: LOND EAS JUG ERND; LOND PELL JUG; REDP BUF JAR; SSW JAR 361: LCOAR CALC; LCOAR SHEL; LCOAR JUG EBAL?; LOND CP, JUG; LONDNFR JUG BAL; LOND PELL JUG; SSW CP	1140–1200 1180–1220

Landuse	Group	Context	Evidence	Description	Date
	48.26	252, 302, 303, 304, 372?, 400B	MPOT	372: LCOAR GRIT? JAR 400B: LCALC JUG; LCOAR CP; REDP JAR; SSW JAR	1080–1200 1140–1200
	48.27	279	MPOT	SSW CP, JAR	1140–1200
	48.28	290	MPOT	ESUR CP; LOND EAS JUG ERND; KING JUG/ CRUC?	
	48.29	377	MPOT	EMSH JAR; LOND EAS JUG ERND; SSW CURF	1140–1200
	48.30	331, 359	MPOT	331: SSW JAR 359: EMSH CP; LCOAR CALC CP; LCOAR JUG; LOND PELL JUG ERND; LOND JUG; SSW CP	1140–1220 1140–1200
	48.33	244	MPOT	SHER CP; SSW CP	1170–1220
	48.34	322, 326	MPOT	322: ESUR CP; LOND EAS JUG ERND 326: ESUR CP	1140–1200 1050–1150
	48.35	319	MPOT	EMSH JAR; LOND EAS JUG ERND	1140–1200
	48.36	238, 238C, 281	MPOT	238: LOND JNFR JUG BAL; SSW CP;283C; LOND PELL JUG ERND; SSW CP 281: EMSH CP; EMSS JAR; LCOAR JUG; LCOAR NFR JUG; LCOAR SHEL CP; LOND CP; LOND PELL JUG ERND	1180–1220 1140–1200 1180–1200
	48.38	220	MPOT	LOND CP	1140–1350
	48.39	342	MPOT	LOND EAS JUG ERND	1140–1200
	48.41	362	MPOT	LOND JUG/PIP	1140–1200
	48.43	241	MPOT	ESUR CP	1050–1150
	48.45	267	MPOT	LOND EAS JUG	1140–1200
	48.46	208, 264, 289	MPOT	208: SSW CP;264: EMS CP;289: LOND NFR JUG BAL; LCOAR SHEL JAR; REDP JAR; SSW CP	1140–1220 970–1100 1180–1200
	48.48	199	MPOT	EMSH CP; LCALC JUG; LOND EAS JUG ERND; LOND NFR JUG	1180–1200
	48.50	170, 213	MPOT	170: EMSH CP; LCOAR JUG; LOND CP, JUG; LOND EAS JUG ERND; LOND NFR JUG BAL; SHER CP;213: SSW CP	1180–1200 1140–1220
	48.51?	153, 155 could be from several groups	MPOT	153: LOND JUG ERND 155: LOND JUG ERND?	1140–1200 1140–1200
	48.52	147	MPOT	SHER BOWL	1170–1350
	48.54	north hearth: 126	MPOT	LOND NFR JUG LGRND; SHER CP	1170–1270
	48.55	125	MPOT	LOND PELL JUG ERND	1140–1200
	48.56	hearth 329, 383	MPOT	383: ESUR CP; LCALC JUG ERND; LCOAR CP; LOND EAS JUG ERND; SSW CP	1140–1180
	48.58	287, 387	MPOT	EMFL JAR; ESUR CP; LCOAR SHEL CP; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; SHER CP; SHER JAR 387: LOND ROU JUG BAL	1180–1200 1180–1270
	48.61	260	MPOT	LCOAR? JAR (odd fabric)	1080–1100
	48.62	179	MPOT	KING JUG	1240–1350 intrusive
	48.63	178	MPOT	LOND EAS JUG ERND	1140–1200
	48.66	300	MPOT	SHER CP/JAR	1170–1350

Table 102 Site A: dating evidence for period A2 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
A: Open Area 5	46.26–32, 46.49	46.26: 346	MPOT	LOND JAR	1150–1350
A:Building 13	47.43	dumps: 1334	MPOT	LOND EAS JUG; LOND NFR JUG	1180–1200

Landuse	Group	Context	Evidence	Description	Date
	47.50	dump: 3012	MPOT	EMSH? CP	1050–1150
	55.19	later feature: 935, 2007	MPOT PPOT PIPE	935: ANDE SPP; ESUR CP;2007: ESUR CP; DUTR CAULPIP; PMRE JUG	1050–1150 1480–1600 intrusive PPOT and pipes
	50.7–8	surface and destruction debris: 1939	MPOT	SSW CP	1140–1220
	47.54	trample: 3009	MPOT	LOND EAS JUG; MG JUG	1270–1350 intrusive or a later layer

Table 103 Site A: dating evidence for period A2 on Tenement 4

Landuse	Group	Context	Evidence	Description	Date
B4.1	20	483	MPOT	BLGR CP; DEVS JUG; EMCR CRUC; EMFL CP; EMS BOWL, CP; EMSH CP, CURF; ESUR CP; KING NFR JUG BAL; LCALC JUG, TPTCH; LCOAR BOWL FLAR, CP, DISH DRIP, JUG BAL, JUG, SPP; LCOAR EAS JUG ERND; LCOAR NFR JUG; LCOAR SHEL JAR, JUG; LOGR CP; LOND CHAF, CP, DISH DRIP, JUG BAL, JUG EBAL, JUG LGSQU; LOND EAS JUG ERND; LOND NFR JUG EBAL, JUG; LOND PELL JUG EBAL; LOND ROU JUG; NFM JUG; REDP CP; REDP BUF PTCH; REDP OLV PTCH; SSW BOWL, CP, FRYP, JAR; THET JAR; WINC? JUG	1180–1200 (KING intrusive)
B4.1	20	536	MPOT	ANDE SPP; BLGR CP; DEVS JUG; EMGR CP; EMS CP; EMSH CP, DISH; EMSS CP; ESUR CP; LCALC JUG ERND; LCOAR CP, JUG ERND, SPP; LCOAR CALC CP; LCOAR EAS JUG ERND; LCOAR NFR JUG; LOGR CP, PIP, SPP; LOND JUG LG SQU; LOND EAS JUG ERND; LOND NFR JUG; LOND ROU JUG; LSS CP; MISC CRUC; REDP BUF CP, SPP; RHGR? JAR; SHER CP, JUG; SSW CP, DISH; THET JAR, SPP	1180–1200
B4.1	20	552	MPOT	SSW CP	1140–1150
B4.1	20	553	MPOT	BLGR CP; EMS? CP; EMSH CP; EMSS CP; ESUR CP; LCALC JUG ERND; LCOAR CP; LCOAR CALC CP; LCOAR EAS JUG ERND; LCOAR GRIT CP; LCOAR NFR JUG; LOND CP, JUG, TPTCH; LOND JUG; LOND EAS JUG, JUG ERND; LSS CP; NFRE CP; REDP JAR; RHGR JAR; SSW CP	1170–1200
B4.2	26	W2 timber 469	DEND		1163–92
B4.2	30	519	MPOT	EMGR CP; EMS CP, JAR; EMSH CP, JAR ST; ESUR CP; LCOAR JAR; LOND EAS JUG; LSS CP; REDP JAR	1140–1150

Table 104 Site B: dating table for period B4 (1180–1200)

Landuse	Group	Context	Evidence	Description	Date
SM75	3.3	river silt on site of Tenement 9 192	MPOT	192: ANDE SPP; EMCH CP; EMS CP; EMSH CP; EMSS CP, BOWL; ESUR CP; LOGR CP; REDP SPP, MISC; SSW CP; STAM SPP; THET JAR ST	1050–80

Table 105 Site C: dating table for silting in area of Tenement 9 in period M1

Landuse	Group	Context	Evidence	Description	Date
SM75	3.2	silting/ embankment 101	MPOT	101: ANDE SPP; EMCH SPP, CP; EMFL CP; EMS CP; EMSH CP, SPP; EMSS CP; ESUR CP; LCOAR JUG; LCOAR CALC CP; LOND JUG; LSS CP; NORG SPP, CP; REDP SPP; THET SPP, JAR	1080–1150
FRE78	3.2	embankment	DEND	592 plank floor timber	AD 833–961 with a felling date of AD 993±9
SM75	3.4	embankment Tenement 10 49, 55, 95	MPOT	49: LOGR CP; LSS CP; REDP SPP 55: EMCH CP; EMFL CP; EMS CP; EMSH CP; EMSS CP; ESUR CP; THET JAR 95: EMCH CP; EMS CP; EMSS CP; THET JAR	1050–1150 1050–1150 1050–1150
SM75	3.4	inlet and stairs? 109	MPOT	109: ANDE SPP; EMCH CP; EMS CP; EMSH CP; EMSS CP; ESUR CP; LSS CP; REDP SPP; STAM SPP; THET JAR	1050–1150

Table 106 Dating summary for Tenements 10 and inlet in period M1

Landuse	Group	Context	Evidence	Description	Date
SM75	3.2	embankment & revetment 37, 51, 85, 103, 108	MPOT	37: EMCH CP; EMS CP; EMSH CP; EMSS CP; ESUR CP; LCOAR CALC CP; LOND JUG; LSS CP, SPP; REDP SPP; SHER CP; SSW CP; THET JAR 51: EMS CP; REDP SPP 85: EMFL CP; EMS DISH, CP 103: EMCH CP; EMFL SPP; EMS CP; EMSS CP; ESUR CP; LSS CP, DISH; REDP SPP; STAM SPP 108: EMS CP; EMSH CP; EMSS CP; LSS DISH, CP; THET JAR	1170–1220 970–1100 970–1100 1050–1150 1050–1150
FRE78	3.2	embankment	DEND	596	1055+
FRE78	3.4	C:Building 1 620	MPOT	620: EMFL CP; EMSH CP, SPP	1050–1150
FRE78	3.4	embankment	DEND	597	1084+

Table 107 Site C: dating summary for Tenement 11 in period M1

Landuse	Group	Context	Evidence	Description	Date
NFW74	3.2	silting & embankment 45, 48, 59, 89, 106, 108, 124, 128, 129, 199	MPOT	45: ANDE SPP; EMCH CP; EMFL CP; EMSH CP; EMSS CP, NEOT CP; THET CP 48: EMCH CP; EMS CP; EMSH BOWL, SPP; EMSS CP; ESUR CP; LOGR CP; LSS CP; REDP SPP; THET SPP 59: EMCH CP; EMSH CP; EMSS CP; ESUR CP; LOGR CP; NORG SPP; REDP SPP, CP BEAK; STAM SPP; THET CP JAR 89: EMSH CP; EMSS CP; LOGR CP 106: EMCH CP; EMFL CP; EMSS CP; REDP SPP; STAM SPP 108: EMSS CP 124: ANDE SPP; BLGR CP; EMCH CP; EMS CP; EMSH SPP, CP; EMSS CP; ESUR CP; LOND PELL JUG; NFRE SPP; REDP SPP; STAM SPP; THET JAR SPP 128: LSS CP 129: ANDE SPP; EMCH CP; EMFL CP; EMS CP, SPP; EMSH CP, SPP, BOWL; EMSS CP, BOWL; ESUR CP; LOGR SPP; LOND JUG; LOND ROU JUG; LSS CP; NFRY JUG; REDP SPP; SHER CP; THET JAR 199: REDP SPP	1050-80 1050-80 1050-80 1050–1150 1050–1150 1000–1150 1140–1200 900–1050 1170–1200 900–1250

Table 108 Site C: dating summary for Tenement 12 in period M1

Landuse	Group	Context	Evidence	Description	Date
FRE78	3.2	Silting 186	MPOT	186: LSS CP; SATH SPP	1000–1150
NFW74	3.4	2nd revetment & dumping 71	MPOT	71: EMSS CP	1000–1150
FRE78	3.4	2nd revetment & dumping 328	MPOT	328: ESUR CP; LCOAR JUG; LOND EAS JUG ERND; LOND CP; SHER CP; SSW CP	1140–1220
NFW74	3.4	C:Building 4 104, 132	MPOT	104: EMCH CP; EMS CP; EMSS CP; THET CP 132: EMCH CP; EMSH CP; ESUR CP; LCOAR JUG; LOGR CP; LSS CP; SHER CP	1050–1150 1170–1200

Table 109 Dating summary for Tenement 13 in period M1

Landuse	Group	Context	Evidence	Description	Date
NFW74	3.4	silting 18, 77, 105, 115, 123	MPOT	18: LOND JUG; MG JUG CON; SCAR JUG 77: BLGR CP; EMS CP; EMSS CP; LSS CP; REDP SPP 105: EMSS CP 115: LSS CP, DISH 123: EMSS BOWL	1270–1350 1000–1050 1000–1150 900–1050 1000–1150
NFW74	3.4	C: Building 5 61, 62	MPOT	61: EMSS BOWL 62: ROUE JUG; SAIU JUG; STAM SPP	1000–1150 1250–1300
NFW74	3.4	dumping layers 85, 88, 92, 95	MPOT	85: LCOAR JUG 88: EMS CP; EMSH CP; LOND PELL JUG 92: EMCH CP; LCOAR JUG; LOND JUG ERND, JUG; SHER CP, JUG; SHER FL CP, JUG; SSW CP 95: LOND JUG ERND	1080–1200 1140–1220 1170–1220 1140–1200

Table 110 Dating summary for Tenement 14 in period M1

Period M2 1200/20–1350

Landuse	Group	Context	Evidence	Description	Date
reclamation	35	2124	MPOT	LOND JUG BAL, PIP: LOND ROU JUG BAL	1180–1270
	35	2124	IRON	A<1641> horseshoe (Clark 1995, cat no. 145)	

Table 111 Site A: dating evidence from Gp 35

Landuse	Group	Context	Evidence	Description	Date
reclamation	49	2130	MPOT	LOND NFR JUG BAL	1180–1270
reclamation	58	2052	MPOT	KING CP, JUG; LOND JUG BAL, JUG; LOND NFR JUG; LOND ROU JUG; SHER CP	1240–1270
	58	2052	R COIN	ROM, Radius 13	250–300

Table 112 Site A: dating evidence, Gps 49 and 58

Landuse	Group	Context	Evidence	Description	Date
reclamation	70	888	MPOT	888: EGS? JUG; KING HD JUG; KING CP, JUG; LCOAR? CP; LOND BAL JUG BAL; LOND NFR JUG; LOND JUG, PIP?	1250–1270
		2000	MPOT	KING CP, JUG; KING HD JUG; LOND DISH DRIP; LOND BAL JUG; LOND HD JUG; LOND NFR JUG; LOND ROU JUG; MG JUG; SHER CP	1270–1300
	70	2000	R COIN	<1751> Roman, radius (copy)	M-L 3rd cent

Landuse	Group	Context	Evidence	Description	Date
A:Building 25	54.7	1163	MPOT	KING NFR JUG; KING JUG; SCAR JUG; SHER CP	1240–1300
	54.7	1189	MPOT	KING NFR JUG; KING JUG	1240–1300
	54.7	2077	MPOT	CBW CP; LOND JUG BAL; LOND DJ BAL; MG CP; SHER CP	1270–1350
	54.10	953, 2076	MPOT	2076: SCAR? JUG	1200–1350

Table 113 Site A: dating evidence, reclamation Gp 70 and Gp 54, A:Building 25 on Tenement 1

Landuse	Group	Context	Evidence	Description	Date
Reclamation	38	2252	MPOT	ESUR CP; LCOAR SHEL CP; LOND JUG EBAL?; LOND EAS JUG ERND; LOND ROU JUG BAL; SHER CP; SSW CP; STAM? SPP?	1180–1200
	38	2252	M COIN	HEN2, TEALBY TYPE	1158–1180
	38	2255	MPOT	KING JUG RND; LIMP CP; LOND PIP; LOND ROU JUG BAL	1180–1270 1240–1400 intrusive?
	38	2257	MPOT	EMSH CP; EMSS CP; ESUR CP; LCOAR EAS JUG ERND; LCOAR CALC CP; LOGR CP; LOND JUG BAL; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; MISC CP; NORM JUG; SHER CP; SSW CP	1180–1200
	38.34	32	MPOT	CBW CP?, JUG/CIST	1340–1500, intrusive
reclamation	52	2277	MPOT	EMCH JAR; ESUR CP; LIMP JUG; LOND JUG BAL; LOND EAS JUG, JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; REDP BUF JAR	1180–1270

Table 114 Site A: dating evidence, Gp 38 and Gp 52

Landuse	Group	Context	Evidence	Description	Date
reclamation	61	2136	MPOT	CBW CAUL, CP, JUG; EARL JUG; EGS BEAK; LOND JUG BAL; LOND NFR JUG; LOND TUL JUG TULBAL; MG JUG; SHER JUG	1280–1350
	61	2139	MPOT	ANDE JUG; EMGR? CP; KING JUG; LOND CP, JUG EBAL, JUG RND, PIP; LOND BAL JUG BAL; LOND EAS JUG ERND; LOND NFR JUG; LOND ROU JUG; MG JUG; SHER CP	1270–1300
	61	2140	MPOT	EGS JUG; KING JUG; LIMP? CP; LOND JUG BAL, DISH DRIP, JUG; LOND ROU JUG; MG JUG CON; RPOT	1270–1350
	61	2142	MPOT	ANDA JUG; KING JUG; KING POLY JUG; LOND CP, DISH DRIP, PIP; LOND BAL JUG; LOND EAS? JUG; LOND NFR JUG; LOND NFR JUG LGRND; LOND ROU JUG BAL; SHER CP, JUG; SSW CP	1250–1270
	61	2145	MPOT	KING JUG; KING HD JUG; LOND JUG, PIP; LOND BAL JUG; LOND NFR JUG BAL; LOND NFR JUG; LOND ROU JUG; MG JUG; SHER CP, DISH; PIP	1270–1350
	61	2147	MPOT	EGS JUG; KING JUG; LIMP? BOWL; LOND JUG BAL; LOND NFR JUG; LOND ROU JUG MG JUG CON; SHER CP	1270–1350
	61	2150	MPOT	EGS JUG; KING CP; LOND JUG; LOND ROU JUG; LOND NFR JUG; LOND NFR JUG; MG JUG; SHER JAR ST	1270–1300

Landuse	Group	Context	Evidence	Description	Date
	61	2212	MPOT	NFM JUG; ROUE JUG; SHER JAR	1180–1270
	61	2256	MPOT	ESUR? CP; LCOAR CALC JUG; LOGR? CP; LOND EAS JUG, JUG ERND; MG JUG RND; SSW CP	1270–1350
	61	2270	MPOT	LOND JUG, PIP; LOND BAL JUG; LOND NFR JUG BAL; LOND ROU? JUG RND, JUG BAL; SAIP? JUG; SHER CP; SSW CP	1280–1350
	61	2270	COIN	A<2258> Silver, John; Ireland	1199–1216

Table 115 Site A: dating evidence, Gp 61

Landuse	Group	Context	Evidence	Description	Date
A:OA7	52.2	720	MPOT	EMSH CP	1050–1150
A:Building 20	52.5	729	MPOT	EMFL? CP; LCOAR CP	1080–1150
A:Building 20	52.4	732	MPOT	NFM JUG; SSW CP	1170–1220

Table 116 Site A: dating evidence for period A4 on Tenement 2

Landuse	Group	Context	Evidence	Description	Date
reclamation	74	2017	MPOT	KING JUG RND; LOND DISH DRIP; LOND JUG, JUG BAL; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG; LOND TUL JUG TULBAL; MG JUG CON; MG WSD JUG; NFM? JUG; SHER CP	1290–1350
	74	2018	MPOT	CBW BOWL, CP; EARL JUG BAL; EGS DJ; KING BOWL, CP, CRUC, DISH DRIP, FRYP, JUG ANT, JUG BAL, JUG MINI, JUG LGRND, JUG RND, JUG WPEAR, PIP; KING HD JUG; KING POLY JUG BAL; KINGSL JUG, JUG TULBAL; LANG JUG; LCOAR SHEL? CP; LOND CP, DISH DRIP, DJ, JUG BAL, JUG MINI, LOUV; LOND HD JUG, JUG BAL; LOND NFR JUG, JUG CON; LOND TUL JUG TULBAL; MG JUG BAL, JUG CON, JUG LGRND, JUG RND; MG WSD JUG; MGCOAR CP; NFM JUG; SAIM JUG; SCAR JUG, JUG HD; SHER CP; SPOA AMPH missing KING x2	1350–1400 (1340–1360)
	74	2018	PPOT	RAER? DJ	1480–1550
	74	2020	MPOT	LOND JUG BAL missing	1180–1350
	74	2022	MPOT	CHEA JUG; KING CP, JUG; LOND TUL JUG TULBAL; MG JUG; SHER CP; SIEG DJ	1350–1400
	74	2025	MPOT	LOND BAL JUG; LOND DISH DRIP; MG JUG; SAIM JUG	1270–1350
	74	2028	MPOT	CBW BOWL; KING JUG; LCOAR? CP; LOND JUG; LOND BAL JUG BAL; LOND NFR JUG; MG CP, JUG; SAIM JUG	1270–1350
	74	2030	MPOT	CBW CP, JUG; EARL JUG; KING CP, JUG, TPIP; LOND CAUL, JUG BAL; MAGR ALB; MG JUG RND; MG COAR CP; MG JUG CON; SAIM? JUG BAL; SHER CP; missing poss SPAM, MG jug con	1270–1350
	74	2031	MPOT	KING JUG; KING HD JUG; KING SBOSS JUG; KINGSL JUG; LOND JUG, JUG BAL; MG JUG CON, JUG RND; NFM JUG	1270–1350
	74	2033	MPOT	CBW CP, FRYP, JUG; KING JUG; MG JUG RND	1270–1350
	74	2038	MPOT	KING JUG; LOND JUG, JUG BAL, JUG CON; MG JUG	1270–1350
	74	2039	MPOT	KING JUG, PIP; LOND JUG BAL; MG JUG RND; MG JUG CON; MG COAR CP; SHER CP	1270–1350
	74	2040	MPOT	KING JUG; KING HD JUG; KING POLY JUG; LOND BAL JUG; LOND NFR JUG; MG CON JUG; SHER CP	1240–1350

Landuse	Group	Context	Evidence	Description	Date
	74	2046	MPOT	KING JUG; KING METCOP JUG; KING NFR JUG; LOND JUG, JUG SQU; LOND NFR JUG; LOND TUL JUG TULBAL; MG CON JUG; SAIG JUG	1270–1350
	74	2050	MPOT	CBW JUG CIST; KING JUG; KING HD JUG; LOND JUG BAL, JUG LRGND; MG JUG CON	1340–1360
	74	2051	MPOT	CBW JUG CON; KING JUG, JUG CON; LOND CP, JUG ANT, JUG BAL; LOND CON? JUG; LOND HD JUG; LOND NFR JUG BAL; MAGR ALB; MG JUG CON	1270–1350
	74	2057	MPOT	LOND CAUL; MG JUG	1270–1350
	74	2061	MPOT	CBW CP; DUTR FRYP; KING CRUC, DJ, JUG BAL, JUG; KING HD JUG; LOND JUG BAL; LOND HD JUG; LOND NFR JUG; LOND TUL JUG TULBAL; MAGR ALB; MG JUG BAL, JUG RND, JUG; MG COAR CP; MG JUG CON; NFM JUG; SCAR JUG missing KING cruc	1350–1400 (1340–1360)
	74	2062	MPOT	KING JUG, TPIP; LOND JUG BAL; LOND NFR JUG; MG JUG	1270–1350
	74	2063	MPOT	EGS JUG; KING CP, JUG RND, JUG; KING HD JUG; KING SBOSS JUG; KINGSL JUG; LOND DISH COND, DJ, DJ BAL, JUG BAL, JUG CON, JUG; LOND NFR JUG; LOND TUL JUG TULBAL; MG JAR, JUG CON, JUG RND; MG SQU JUG; SAIM JUG BAL; SHER CP missing SAIM	1290–1350
	74	2066	MPOT	ARCH JUG; CBW CP; EARL? JUG; KING JUG RND, JUG; KING SBOSS JUG; LOND CP, DJ, JUG BAL, JUG SMR; LOND TUL JUG TULBAL; MAGR ALB; MG JUG RND, JUG; MG CON JUG; MG COAR CP; SAIM JUG BAL; SHER CP; SPAM AMPH missing MAGR and SPAM	1270–1350
	74	2070	MPOT	KING JUG RND; LOND NFR JUG BAL; MAGR ALB; MG JUG, JUG CON	1270–1350
	74	2071	MPOT	KING JUG; KING SBOSS JUG; LOND DISH DRIP; LOND NFR JUG BAL; MG JUG, JUG CON	1270–1350
	74	2072	MPOT	KING JUG; KING NFR JUG; LOND DISH DRIP, JUG BAL; MG JUG; MG CON JUG; SAIU JUG	1270–1350
	74	2075	MPOT	KING CP, JUG; LOND JUG BAL; LOND NFR JUG; LOND ROU JUG BAL; MG JUG RND; NFM JUG; SHER CP	1270–1350
	74	2079	MPOT	KING JUG; LOND JUG	1240–1350
	74	2078	MPOT	EGS JUG; KING JUG; LOND JUG BAL; LOND EAS JUG; LOND NFR JUG BAL; MG JUG, JUG CON, JUG RND; MG CON; NFM JUG; SAIM JUG BAL; SHER CP	1270–1350
	74	2081	MPOT	CBW CP; KING JUG; LOND JUG BAL; LOND EAS JUG; LOND NFR JUG BAL; MG JUG	1270–1350
	74	2127	MPOT	SAIM JUG BAL	
	74	2132	MPOT	KING CP, JUG BAL; LOND JUG BAL; LOND JUG SQU; SAIM PEG	1280–1300
	74	2134	MPOT	EARL JUG; KING JUG; KING HD JUG; LOND JUG BAL; LOND JUG LGRND; LOND NFR JUG; LOND TUL JUG TULBAL; MG JUG	1270–1350
	74	2137	MPOT	ANDA BOWL; CBW CP, JUG; DUTR FRYP; EARL JUG; KING JUG BAL, JUG; KING HD JUG; KING METCOP JUG; LOND DJ BAL, DISH DRIP; LOND BAL JUG; LOND NFR JUG; LOND TUL JUG TULBAL; MAGR ALB; MG JAR, JUG; MG CON JUG; NFM JUG BAL; SAIC JUG; SAIG JUG; SAIM JUG; SHER CP, JUG missing ANDA	1350–1400 (1340–1360)

Landuse	Group	Context	Evidence	Description	Date
	74	2141	MPOT	CBW CP; DUTR? FRYP; KING CP, DISH, DISH DRIP, JUG; KING SBOSS JUG; LOND JUG BAL; LOND NFR JUG BAL; MAGR ALB; MG CON JUG; MG JUG; MG JUG RND; SAIM JUG; SHER JUG SAIM, SHER	1300–1350 (1340–1360)
	74	2144	MPOT	RPOT; KING JUG BAL, JUG TULBAL; LOND JUG BAL; MAGR ALB; MG JUG; SAIM JUG BAL	1270–1350
	74	2146	MPOT	KING JUG BAL, SKIL; LOND JUG BAL, JUG; LOND NFR JUG; LOND TUL JUG TULBAL; MG JUG; MG CON JUG; SAIN JUG	1270–1350
	74	2149	MPOT	CBW CP; LOND NFR JUG BAL; LOND DISH DRIP; LOND JUG BAL; MAGR ALB; MG JUG	1300–1350 (1340–1360)

Table 117 Site A: dating evidence, Gp 74

Landuse	Group	Context	Evidence	Description	Date
A:Building 16	55.4	187: clay floors and charcoal	MPOT	LCOAR CP; LOND ROU JUG, JUG BAL	1180–1200
	55.5	171: as 187	MPOT	EMSH CP; LOND ROU JUG BAL	1180–1270
	55.7	122: pits	MPOT	122: LOND EAS JUG ERND; SSW CP;	1140–1150
		124: pits	MPOT	124: EMFL JAR	970–1100
	55.9	168: clay patches	MPOT	ESUR CP; LCOAR CP; LOGR CP; LOND PIP; LOND NFR JUG, JUG BAL; SHER CP; SSW CP	1180–1200
	55.10	38: ragstones	MPOT	EMSH JAR; ESUR CP; LCOAR GRIT CP; LOND CP, JUG; LOND EAS JUG ERND, SHER, LOND NFR JUG BAL; LOND ROU JUG BAL	1180–1200
	55.13	64: destruction debris	MPOT	EMFL JAR; LCOAR JAR; LOND EAS JUG ERND; LOND ROU JUG BAL; SHER CP	1180–1200
	55.14	245: cuts and structural element	MPOT	ESUR CP; LCOAR CALC CP; LOND JUG	1140–1150
	55.15–16	196: as 245	MPOT	EMSH CP; ESUR CP; LCOAR SHEL CP	1080–1150
A:Building 17	56.1	189: construction cut	MPOT PPOT	LCOAR CP; METS JUG; PMFR BOWL; RBOR DISH	1080–1200; 1630–1700 PPOT is probably from 789
	56.1	228: construction cut	MPOT	ESUR CP	1050–1150
	56.6	221: tile floor	MPOT	LOND JUG LG SQU	1200–1220
	56.3	325: makeup dumps	MPOT	ANDE SPP; EMSH CP; EMSS CP; ESUR CP; LCALC JUG; LOND EAS JUG ERND; NFM JUG; SHER CAUL?, CP	1170–1200
	56.3	333: makeup dumps	MPOT	ANDE SPP; LCOAR CP; LCOAR CALC CP, JUG; LCOAR SHEL CP; LOND EAS JUG, JUG ERND; REDP JAR	1140–1200
	56.7	296: dumps	MPOT	ESUR CP; LOND ROU JUG BAL	1180–1270
	56.7	306: dumps	MPOT	ESUR CP; EMSS CP; LOND EAS JUG ERND	1150–1180
	56.7	307: dumps	MPOT	LOND EAS JUG ERND	1140–1200
	56.7	313: dumps	MPOT	LOND EAS JUG ERND; LOND PELL JUG EBAL	1150–1200
	56.8	192: floors	MPOT	192: ANDE SPP; EMFL CP; EMSH CP; EMSS CP; ESUR CP, JAR; LCALC JUG ERND; LCOAR CALC JAR; LOGR CP; LOND JUG LG SQU, PIP; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; NFRE CP; SHER CP; SSW CP	1180–1200
	56.8	227: floors	MPOT	ESUR CP; LCOAR CALC CP; LCOAR SHEL CP; LSS CP; SSW CP; THET SPP	1140–1200

Table 118 Site A: dating evidence for period A3 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
Open Area A8	57.1	101 destruction debris of A:Building 17	MPOT	SHER ? CP	1170–1400
	57.2	158	MPOT	LOND EAS JUG	1140–1200
		159	MPOT	KING JUG; LOND NFR JUG LGRND; SHER CP	1240–1270
		161	MPOT	ANDE SPP?; LOND NFR JUG; LOND ROU? JUG BAL; NMDX? CP; SSW CP	1180–1200
		163	MPOT	ESUR CP; LOND CP; LOND EAS JUG, JUG ERND; LOND NFR JUG; LCOAR CP; LOGR CP; SSW CP	1180–1200
	57.4	167	MPOT	LCOAR CP	1140–1200
	57.4–5	164	MPOT	EMSS? CP; ESUR CP; LCOAR CALC BOWL, CP; LOND CP; LOND EAS JUG; LOND NFR JUG; SSW CP	1180–1200
	57.5	100	MPOT	EMS JAR; LOGR CP; LOND EAS JUG, JUG ERND; SSW CP	1140–1200
	57.5	139	MPOT	LOND JUG	1180–1350
	57.5	157	MPOT	LOND ROU JUG BAL	1180–1270
	57.5	181	MPOT	LOND EAS JUG; SSW CP	1140–1200
	57.6	44: ?pit	MPOT	ESUR? CP; LOND JUG; LOND EAS JUG, JUG MINI ?; LOND NFR JUG; LOND ROU JUG; LSS CP	1180–1200
	57.6	112: ?pit	MPOT	LOND JUG ERND	1140–1200
	57.6	113: ?pit	MPOT	EMSS CP; LOND NFR FINI?	1180–1270
A:Building 21	58.3	247: foundations	MPOT	SSW CP	1140–1220
Open Area A9	58.6	132	MPOT	KING JUG; LOND NFR JUG;	1240–1270
	58.6	149	MPOT	LOND PIP	1140–1350
	58.7	176	MPOT	LOND EAS JUG	1140–1200
A:Building 22	58.22	110	MPOT	KING JAR; LOND JAR	1240–1350
	58.22	111	MPOT	LOND NFR JUG	1180–1270
Open Area 10	58.8	151: drain	MPOT	LOND NFR JUG BAL ?; SSW CP	1180–1240
	58.11	166: ?drain	MPOT	SHER CP	1170–1350
	58.12	137: drain	MPOT	LOND NFR JUG BAL?; SHER CP	1180–1270
	58.26	127	MPOT	CBW CP	1270–1350
Not certain	57.9	9	MPOT	LOND EAS JUG; LOND ROU JUG BAL	1180–1240
	57.9	43	MPOT	ANDE? SPP; KING HD/ROUL? JUG; SSW CP	1240–1300
	57.9	91	MPOT	EMSS CP; LCOAR CP; LOND NFR JUG BAL, JUG LGRND?; LOND JUG BAL, PIP	1180–1200
	57.9	99	MPOT	EMSH CP; LOND EAS JUG RND; LOND JAR	1140–1180

Table 119 Site A: dating evidence for period A4 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
A:Building 27	58.13	30	MPOT	CBW CAUL; LOND NFR JUG LGRND	1270–1350
	58.13	117	MPOT	DEVS JUG; LOND EAS JUG	1150–1200
	58.14	141	MPOT	LOND EAS JUG ERND	1140–1200
	58.16	47	MPOT	EMSS CP; LCOAR CALC JUG ?; LCOAR CP; LOND CP; LOND BAL JUG; LOND EAS JUG ERND; LOND NFR JUG LGRND; LOND NFR JUG; LOND ROU JUG BAL; LOND JUG EBAL?; LOND JUG LGRND; NFRE ? JUG; SSW CP	1180–1200
	58.24	94	MPOT	CBW CP; LMHG JUG	1350–1450
	58.24	104	MPOT	CBW CP	1270–1500
OA10	58.27	115	MPOT	EARL JUG; KING METCOP JUG; KING JUG LGRND; KING JUG; LOND BAL JUG; LOND EAS JUG ERND; LOND NFR JUG; LOND JUG?; MG JUG	1270–1350

Table 120 Site A: dating evidence for period A5 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
reclamation	45	2267	MPOT	EMSH CP; LCALC JUG ERND; LOND PIP; LOND EAS JUG ERND; LOND ROU JUG BAL; REDP OLV JUG	1170–1200

Table 121 Site A: dating evidence, Gp 45 [Egan]

Landuse	Group	Context	Evidence	Description	Date
Reclamation	55	2273	MPOT	LCOAR JUG ERND; LOND JUG LGRND; LOND EAS JUG; LOND NFR JUG BAL, JUG; REDP BUF PTCH	1180–1240
	55	2007	M COIN	<372> copper	

Table 122 Site A: dating evidence, Gp 55

Landuse	Group	Context	Evidence	Description	Date
reclamation	67	2133	MPOT	CBW CAULPIP?; EARL JUG; KING SLIP? JUG; LOND BAL JUG; MG JUG RND ?; MG CON JUG	1270–1350
	67	2274	MPOT	CBW CP, JUG; KING CP, JUG, JUG BAL; KING NFR JUG; LOND BAL JUG; MG CON JUG; MG WSD JUG; SHER JUG	1290–1350

Table 123 Site A: dating evidence, Gp 67

Landuse	Group	Context	Evidence	Description	Date
B5.1	29	457	MPOT	ANDE SPP; EMGR JAR; EMS? JAR; EMSH BOWL, CP; ESUR CP; LCALC JUG ERND; LCOAR CP, JUG; LCOAR EAS JUG; LCOAR SHEL JAR; LOGR CP, JAR; LOND JUG, JUG BAL; LOND EAS JUG ERND; LOND ROU JUG BAL; LOND ROU JUG SP; REDP BUF JAR; RHGR? JAR; SSW JAR; STAM? JUG?	1180–1200
	31B	394	MPOT	ANDE JUG; BLGR MISC EMSH CP; EMSS CP; ESUR CP; KING JUG RND; KING HD JUG; KING POLY JUG; LCOAR CP, DISH, JAR ST, JUG; LCOAR SPP?; LIMP CP; LOGR CP; LOND CP; DJ, LID, JUG BAL, JUG LGRND?, JUG SQU, PIP; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG, JUG BAL, TPTCH; LOND PELL JUG LGSQU?; LOND ROU JUG, JUG BAL, JUG RND; LOND WSD JUG; NFM JUG; ROUE JUG; SHER BOWL, CP, JUG; SPOA AMPH; SSW BOWL, CP; WINC? JUG	1240–1270
	31B	467	MPOT	ANDE SPP?; EMGR? DISH STR; ESUR CP; KING HD JUG; KING NFR JUG; LCOAR CP, CURF?, DISH DRIP; LCOAR CALC CP; LIMP CP; LOGR? CP; LOND CP, DISH DRIP, JUG BAL, PIP, TPIP; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU? JUG BAL; LOND WSD JUG BAL; LSS CP; RHGR JAR; SHER CP, JUG, JUG RND; SHER COAR CP; SHER FINE CP; SHER FL CP; SSW CP, DISH FLAR	1240–1270
	31B	484	MPOT	BLGR CP; EMSH CP; ESUR CP; KING CP; KINGSL JUG; LCOAR CP, LOUV; LCOAR CALC PIP; LCOAR NFR JUG; LOGR DISH SP; LOND CHAF, DISH DRIP, JUG BAL, JUG SQU, PIP; LOND EAS JUG ERND; LOND HD? JUG; LOND NFR AQUA, JUG; LOND PELL JUG ERND?; LOND ROU JUG BAL; LOND WSD? JUG BAL; LSS CP; NFM JUG; REDP PTCH; SHER CP, DISH FLAR, JUG, JUG RND; SHER FINE CP; SSW CP	1240–1270

Landuse	Group	Context	Evidence	Description	Date
	31B	394	PPOT	BORDG? PIP?; BORDG JUG	1550–1700 intrusive
B:Waterfront 3	32	387E-F, 433, 479, 555, 558, 568	DEND		1195–1215
	32	510	MPOT	KING JUG; LOND JUG BAL, JUG LGRND	1240–1250/70
	35	403	MPOT	LCOAR JAR; LCOAR CALC CP, JUG ERND; LOND EAS JUG ERND; LOND PELL JUG; SHER PIP; SSW CP, JAR	1140–1200
	35	414	MPOT	EMSS CP; KING JUG; LCOAR CP; LOND DISH DRIP, JUG, JUG BAL, PIP; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; LOND WSD JUG; SHER JAR	1240–1250/70
	35	433	MPOT	EMSH CP; ESUR CP; LCOAR CP; LOGR? CP; LOND JUG BAL; LOND EAS JUG ERND; NFM JUG; SSW CP	1180–1200
	35	434	MPOT	LOND ROU JUG BAL	1180–1270
	37	402	MPOT	LCOAR JAR; LCOAR CALC JAR; LCOAR EAS JUG ERND; LOGR CP; LOND JUG BAL; LOND EAS JUG ERND; LOND ROU JUG BAL; REDP OLV JAR; SSW CP;	1180–1200
	37	411	MPOT	SHER? JAR;	1170–1350
	37	416	MPOT	LOND EAS JUG ERND; SSW JAR	1140–1200
	38, drain	441, 455, 478	DEND		after 1203
	38	476	MPOT	LCOAR CP; LCOAR CALC CP; LOND JUG; LOND NFR JUG	1180–1200

Table 124 Site B: dating evidence for period B5.1 (Gps 29, 31b, 32–8)

Landuse	Group	Context	Evidence	Description	Date
B5.2	39	392	MPOT	LCOAR JUG	1180–1200
	39	392	MPOT	KING JUG; LOGR CP; LOND JUG, JUG BAL, PIP; LOND EAS JUG; LOND NFR JUG BAL; LOND PELL JUG EBAL?; LOND POLY JUG; LSS CP; NFM JUG; SHER CP; SSW CP	1240–1270
	41	315	MPOT	KING HD JUG BAL; LIMP? JAR; LOND NFR JUG BAL; LOND WSD JUG	1240–1270
	41	404	MPOT	LOND ROU JUG BAL; LSS CP; SHER COAR JAR; SSW JAR	1180–1240
	41	405	MPOT	SSW JAR	1140–1220
	41	406	MPOT	LOND EAS JUG ERND; SSW JAR	1180–1200
	41	410	MPOT	SSW JAR	1140–1220
	41	426	MPOT	SSW CP	1140–1220
	41	427	MPOT	EMSH CP; SSW CP	1140–1150
	41	453	MPOT	LCOAR CALC JAR; LOND JUG; LOND EAS JUG ERND; SHER? JAR; SSW CP	1170–1200
	41	424	MPOT	LOND JUG	1140–1350
	53	509	MPOT	KING JUG; LCOAR CALC JAR; LOND CP, JUG PEAR; LOND HD JUG; LOND NFR JUG; LOND ROU JUG BAL; LOND WSD JUG; NFM JUG; SHER CP; SSW CP	1240–1270 (one sherd possibly 1270)

Table 125 Site B: dating evidence for period B5.2 (Gps 39, 41, 53)

Landuse	Group	Context	Evidence	Description	Date
B6.1	42	345	MPOT	LOND NFR JUG BAL, JUG ERND; SHER CP; SSW CP	1180–1220
		356	MPOT	EGS? JAR; EMCR CRUC; EMS CP; EMSS JAR; ESUR CP; KING CP; LCOAR JAR; LCOAR CALC CP, SPP; LCOAR GRIT JAR; LOGR CP; LOND CP, FINI, JUG, JUG BAL, JUG EBAL, LOUV, PIP; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG, JUG BAL, JUG RND, JUG SP; LOND PELL JUG EBAL; LOND ROU JUG BAL; LOND WSD JUG; NFM JUG, JUG BAL; SHER CP, JAR ST; SHER COAR CP; SSW CP, DISH FLAR, JAR; THET JAR?	1240–1270 (mostly pre-*c* 1240)
		362	MPOT	LCOAR SHEL CP; LMCR CRUC; LOGR CP; LOND JUG, JUG BAL, JUG LGSQU, PIP; LOND NFR JUG, JUG BAL, JUG LGRND?; LOND ROU JUG BAL; SHER CP; SSW CP	1180–1240
		401	MPOT	LOND JUG; LOND NFR JUG BAL	1180–1270

Table 126 Site B: dating evidence for Gp 42, destruction of B:Building 2

Landuse	Group	Context	Evidence	Description	Date
B6.2	40	325	MPOT	EMSH JAR; EMSS JAR; ESUR JAR; KING JAR, JUG; KING POLY JUG; LCOAR JAR; LCOAR CALC JAR, JUG BAL; LOND JUG BAL, JAR, PIP; LOND NFR JUG BAL, JUG SP; LOND ROU JUG BAL; MG JUG; SHER CP; SSW DISH FLAR, JAR	1240–1270 (one later than *c* 1270)
	40	375	MPOT	LCOAR CP; LOND BAL JUG BAL; LOND NFR JUG BAL; LOND ROU JUG BAL; LOND WSD JUG; SSW DISH	1240–1270
		376	MPOT	LOND NFR JUG BAL; LOND ROU JUG BAL	1180–1240
		385	MPOT	LCOAR JAR; LOND JUG; LOND JUG BAL; NFM JUG	1180–1240
		388	MPOT	LOND NFR JUG	1180–1270
		389	MPOT	EMS JAR; LOGR CP; LOND JUG LOND JUG BAL; LOND NFR JUG; SHER CP	1180–1270
	43	342	MPOT	ESUR JAR; SHER CP (missing)	1050–1350
	43	358	MPOT	LOND EAS JUG; SSW CP	1140–1200
	50	331	MPOT	EMSS JAR; KING JUG; KING HD JUG BAL; LOND JAR, LOND JUG BAL; LOND HD; JUG BAL; LOND NFR JUG BAL; LOND POLY JUG BAL; LOND ROU JUG BAL; LOND WSD JUG SQU; SHER JAR	1240–1270

Table 127 Site B: dating evidence for Gps 40, 43 and 50

Landuse	Group	Context	Evidence	Description	Date
B6.3	44	310	MPOT	ESUR JAR; KING JAR; KING HD JUG; LOND DISH DRIP, JAR, JUG, JUG BAL, PIP; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG BAL; LOND ROU JUG BAL; LOND WSD JUG; SHER JAR; SSW JAR	1240–1270
	44	319	MPOT	LOGR JAR; LOND JUG, JUG BAL, PIP; LOND EAS JUG; LOND NFR JUG; LOND PEL JUG; LOND ROU JUG BAL; SHER CP	1170–1270
	45	293	MPOT	KING JUG, JUG BAL; LOND DISH DRIP; SHER JAR, JUG; SAIM JUG	1250–1350
	45	306	MPOT	EMSS JAR; KING JUG, JUG BAL; SSW JAR	1240–1270
	45	317	MPOT	LOND JUG	1140–1350
	45	320	MPOT	EGS JAR; LOND JUG; LOND EAS JUG; LOND NFR JUG BAL; SHER JAR	1180–1270

Landuse	Group	Context	Evidence	Description	Date
	45	326	MPOT	EMGR JAR; EMS JAR; EMSH JAR; LCOAR JAR; LOND JAR; LOND JUG; LOND JUG BAL; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND ROU JUG BAL; ROUL JUG BAL; SHER JAR; SSW JAR; THET JAR	1180–1240
	45	327	MPOT	LOND ROU JUG BAL; LOND NFR JUG BAL	1180–1270
	45	349	MPOT	KING JUG; LCOAR JAR, JUG; LOND JUG EBAL, JUG BAL; LOND NFR JUG BAL; LOND ROU JUG BAL; LOND WSD JUG EBAL; SSW JAR	1240–1270
	45	351	MPOT	KING JUG; LCOAR JAR; LCOAR CALC JAR; LOND DISH DRIP, DJ BAL, JUG, JUG BAL; LOND EAS JUG; LOND NFR JUG BAL LOND ROU JUG BAL LOND WSD JUG; MG JUG BAL	1240–1270 or 1270–1300 latest sherds intrusive?
	45	363	MPOT	ESUR CP; LCOAR JAR; LCOAR CALC JAR; LOND JUG, JUG BAL, PIP; LOND EAS JUG; LOND HD JUG LGRND; LOND NFR JUG BAL, JUG LGRND; LOND ROU JUG BAL; SHER JAR	1240–1270
	45	374	MPOT	ESUR JAR; LOGR JAR; LOND JUG BAL, LID, PIP; LOND NFR JUG BAL; LOND ROU JUG BAL; LSS JAR; SHER JAR; SSW JAR	1180–1240/1270
	45	431	MPOT	KINGSL JUG; LCOAR CP; LOND JUG BAL LOND EAS JUG; LOND NFR JUG, JUG BAL; LOND ROU JUG BAL; NFM JUG; SHER CP	

Table 128 Site B: dating evidence from Gps 44 and 45 (period 6.3) (1240–70)

Landuse	Group	Context	Evidence	Description	Date
B7.1	47	196	MPOT	KING JUG; TUDG MBOX	1350–1400 (intrusive)
	47	282	MPOT	KING JUG; KINGSL JUG BAL; LOND JUG, JUG BAL; LOND NFR JUG BAL; MG JUG; SHER JAR	1270–1350 (2 sherds 1270+)
	47	296	MPOT	KING JUG; KING HD JUG BAL; LOND EAS JUG; SHER JAR	1240–1350
	47	297	MPOT	EMSS JAR; KING JUG; LOND DISH DRIP, JUG BAL; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND PELL JUG ERND; LOND ROU JUG BAL; MG JUG; SHER JUG	1270–1350 (1 sherd 1270+)
	47	298	MPOT	KING JUG; LOND JUG EBAL; LOND NFR JUG BAL; SHER JAR	1240–1350
B7.1	48	253	MPOT	EGS JAR; KING JUG, JUG BAL; KING HD JUG; LOND DISH DRIP, JUG BAL; LOND NFR JUG BAL; MG JUG; SHER JAR; SPOA AMPH	1240/1270–1300 (1 or 2 sherds 1270+)
B7.1	48	263	MPOT	LCOAR JUG	1140–1200
B7.1	49	59	MPOT	CBW BOWL; KING BOWL SP, JAR?, JUG; LCOAR BOWL FLAR, BOWL RND, JAR; LOGR JAR; LOND BOWL, CP, DISH DRIP, DJ, JAR, JUG BAL; LOND HD JUG; LOND NFR JUG BAL; LOND ROU JUG BAL; MG JUG CON; NFM JUG; SHER CP; SHER FINE CP SM; SSW CP; WINC JUG	1240/1270–1300 (2 sherds 1270+)

Landuse	Group	Context	Evidence	Description	Date
	54	386	MPOT	CBW BOWL, CP; EARL JUG. EGS JAR. ESUR CP;KING CP; DISH DRIP; JUG RND, JUG SP; KING HD JUG; KING NFR JUG; KING POLY JUG, JUG SP; KINGSL JUG LGRND; LCOAR CP, DISH, PIP, JUG; LCOAR CALC CP; LOGR CP, JAR; LOND CP, DISH DRIP; JUG EBAL, JUG BAL, JUG LGRND, JUG, JUG MINI, LAMP, PIP; LOND EAS JUG, JUG ERND; LOND HD JUG; LOND NFR JUG, JUG BAL, JUG LGRND, PEAR LOND NFR JUG LGRND; LOND ROU JUG BAL; MG JUG; MISC CP, JUG; NFM JUG, JUG ANTH, JUG HD, JUG SP; ROUE JUG; SHER BOWL, BOWL RND, CP, CP SM, CURF, DISH, JAR, JAR RND, JUG, JUG RND, PIP; SHER COAR JUG; SPOA AMPH; SSW CP, DISH DRIP	1250/1270–1300 (40 sherds 1270+)
	54	468	MPOT	KING JUG, JUG LGRND; KING NFR JUG, JUG BAL; KING POLY JUG; KINGSL JUG; LCOAR JAR, JUG; LOGR CP; LOND CP, DISH DRIP, FINI, JUG BAL, JUG SMR; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG; LOND POLY JUG BAL; LOND ROU JUG; LOND WSD JUG; NFM JUG; SAIM JUG; SHER CP, JAR RND, JUG; SSW CP	1250–1300
	54	505	MPOT	KING CP, JUG, JUG BAL; LOND DISH DRIP, JUG, JUG BAL, PIP; LOND NFR JUG BAL; LOND WSD JUG; SHER CP, JUG; SHER COAR JAR RND; SSW CP	1240–1300
	81	231	MPOT	LCOAR BOT?	1140–1200

Table 129 Site B: dating evidence for Gps 49, 51, 54, 81 and 88 (period B7.1) (1270–1300)

Landuse	Group	Context	Evidence	Description	Date
B7.2	52a	312	MPOT	KING CP; LCOAR MISC; LOND JUG; SHER CP	1240–1350
	52a	435	MPOT	ANDE SPP; KING CP, JUG, JUG LGBAL, JUG MINI, KINGSL JUG; LOND AQUA, DISH DRIP, DJ, JUG BAL; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG, JUG BAL; LOND NFR JUG PEAR; LOND POLY JUG BAL; NFM JUG; SHER CP, CP SM, JUG; SSW CP	1240–1270
	52a	436	MPOT	CBW CP; KING JUG; KING HD JUG; LCOAR JAR; LOND DISH DRIP, JUG, JUG BAL; LOND NFR JUG; LOND PELL; JUG; LOND ROU JUG; NFM JUG; SHER CP, JUG RND; SHER COAR CP	1240–1270
	52a	456	MPOT	KING NFR JUG; LOND NFR JUG; LOND ROU JUG; NFM JUG; SHER CP	1240–1270
	52a	470?	MPOT	KING JUG; KING NFR JUG; LCOAR CP; LOGR CP; LOND JUG, JUG BAL LOND HD JUG ANT; LOND NFR JUG BAL; LOND WSD JUG; NFM JUG; SAIM JUG; SHER CP, JUG; SSW CP	1250–1270
	52b	291	MPOT	KING CAUL, JUG, JUG BAL; LCOAR JAR; LOGR JAR; LOND JUG, JUG BAL, JUG CON; LOND NFR JUG BAL; LOND ROU JUG BAL; MG COAR JUG; SHER CP, CURF RND	1270–1300/1350
	52b	301	MPOT	AARD JUG; KING CP, JUG; KING NFR JUG, JUG BAL; KING POLY JUG, JUG BAL; LCOAR LOUV; LCOAR NFR JUG; LOND CAUL, CP, DJ, JUG BAL; LOND EAS JUG; LOND HD JUG; LOND NFR JUG, JUG BAL; LOND NFR JUG PEAR; LOND NFR JUG SQU; LOND POLY JUG; LOND ROU JUG, JUG BAL; MISC JUG; NFM JUG; ROUL JUG; SHER CP; SSW CP	1240–1270
	52b	301	PPOT	RAER DJ	1480–1550

Landuse	Group	Context	Evidence	Description	Date
	55	248	MPOT	LOND EAS JUG	1140–1200
	55	249	MPOT	KING JUG; LOND JUG, JUG BAL, JUG TULBAL; LOND NFR JUG BAL; LOND ROU JUG BAL; MG JUG; SHER JAR	1270–1300/1350
	55	273	MPOT	MG JUG	1270–1350
	56	221	MPOT	EGS JUG; LOND DISH DRIP; LOND EAS JUG; LOND NFR JUG BAL; MG JUG, JUG CON	1270–1350
	56	224	MPOT	KING JUG; LOND BAL JUG BAL; MG JUG, JUG CON; SIEB DJ	1300–1350 one sherd 1450+
	56	233	MPOT	CBW DISH; LANG CUP, JUG; LOND JAR, JUG, JUG BAL; LOND HD JUG; LOND NFR JUG; MG JUG, JUG CON; SAIM JUG; SHER JAR; SIEG DJ	1350–1400
	56	250	MPOT	CBW CP, JAR; KING JUG, PIP; LOND JUG BAL; LOND NFR JUG BAL; MG JUG; SAIM JUG; SIEG JUG	1350–1400
	56	256	MPOT	LOND DISH DRIP; JUG; LOND NFR JUG; MG JUG	1270/1350
	56	267	MPOT	SHER JAR	1170–1350
	56	268	MPOT	LOND DISH DRIP, JUG; LOND HD JUG BAL; LOND NFR JUG	1240–1270
	57	304	MPOT	KING CP, JUG; LOND JUG BAL; MG JUG CON	1270–1350
	58	303	MPOT	KING JAR, JUG; LCOAR JAR; LOGR JAR; LOND BOT, JUG BAL; LOND EAS JUG ERND; LOND NFR JUG BAL; LOND POLY JUG; LOND WSD JUG; MG COAR JUG; NFRY JUG; SHER BOWL FLAR, CP, JUG; SSW CP	1270–1300/1350
	59	330	MPOT	BLGR CP; ESUR CP; KING CP, JUG; LCOAR JUG; LOND JUG, JUG BAL, JUG ERND; LOND NFR JUG; LOND ROU JUG; SHER CP; SSW CP	1240–1270
	59	352	MPOT	EMCH JAR; KING JAR, JUG, JUG BAL; KING HD JUG BAL; KING POLY JUG BAL; LCOAR JAR; LOND DISH DRIP, JAR, JUG BAL, PIP; LOND HD JUG BAL; LOND NFR JUG BAL; LOND ROU JUG BAL; LOND WSD JUG BAL; MEDM COST; NFM JUG; SHER CURF, JAR; SSW JAR	1240–1270
	59	355	MPOT	EMSH CP; KING CP, JAR, JUG; KING NFR JUG; KING PELL JUG; KING POLY JUG; KINGSL JUG; LCOAR CALC JAR; LCOAR CP; LOGR CP; LOND CP, DISH DRIP, JUG ANTH, JUG BAL, JUG LGRND; LOND HD JUG; LOND POLY JUG; LOND NFR JUG BAL, JUG PEAR; LOND ROU JUG BAL; LSS JAR; MEDM COST; NFM JUG; SHER BOWL, CP, CP SM, JAR ST, JUG RND; SSW CP	1250–1270
	59	382	MPOT	EMS CP; ESUR BOWL RND, CP; KING CP; KING NFR JUG; KINGSL JUG; LCOAR CP; LCOAR CALC CP; LOGR CP, JUG; LOND CP, DISH DRIP, JUG, JUG BAL; LOND NFR JUG; LOND ROU JUG; NFM JUG; ROUE JUG; SHER CP, CP SM, CURF, JUG; SHER FINE CP; SSW CP	1240–1270
	62	260	MPOT	KING JUG METCOP; LOND JUG BAL, LOUV; MG JUG CON; SIEG DBOWL	1270–1350 1450–1550
	62	278	MPOT	KING CP	1240–1400
	63	348	MPOT	LCOAR CP, JAR; LOND JUG; LOND NFR JUG; SHER CP, JUG	1180–1270
	64	259	MPOT	CBW JAR, JUG; KING JAR, JUG; KING NFR JUG BAL; KING WSBOSS JUG; LOND JUG BAL; LOND NFR JUG BAL; MG JUG CON; SPAM COST	1270–1350

Landuse	Group	Context	Evidence	Description	Date
	65	271	MPOT	CBW JAR, JUG; KING JAR, JUG; KING NFR JUG BAL; KING WSBOSS JUG; LOND JUG BAL; LOND NFR JUG BAL; MG JUG CON; SPAM COST	1180–1270
	71	236	MPOT		1270–1350 2 sherds 1380–1500
	76	354	MPOT	KING DISH DRIP, JAR, JUG; KING HD JUG BAL; KING POLY JUG BAL; LCOAR CAUL, JAR; LOND DISH DRIP, JAR, JUG BAL, JUG SQU, PIP; LOND NFR JUG; LOND POLY JUG; LOND ROU JUG BAL; LOND WSD JUG LGRND; MEDM BOWL; SHER CP; SSW JAR	1250–1270
	77	332	MPOT	KING JAR, JUG; KING HD JUG; LOGR CP; LOND JUG, JUG BAL; LOND HD JUG BAL; LOND NFR JUG BAL; LOND POLY JUG BAL; LOND WSD JUG; SAIG JUG; SHER CP; SSW JAR	1240–1270
	77	378	MPOT	CBW JAR; EMS JAR; LOND JUG, JUG BAL; LOND HD JUG BAL, JUG SP; LOND WSD JUG, JUG SQU; SAIM JUG; SHER CP; SSW CP;	1270–1370
	82	246	MPOT	ESUR JAR; LCOAR CALC JAR; LOND JUG BAL; LOND EAS JUG	1180–1200?
	89	237	MPOT	ANDE SPP; EGS JAR; EMCH CP; EMCR CRUC; EMS CP, JAR; EMSH BOWL, JAR; EMSS CP, JAR; ESUR CP; KING CP, JUG SMR; KING JUG ANTH; KING JUG BAL; KING HD JUG; KING NFR JUG; KING POLY JUG; LCOAR JAR; LCOAR CALC JAR, JUG; LCOAR EAS JUG ERND; LCOAR SHEL JAR; LOGR JAR; LOND DISH DRIP, JUG, JUG BAL, JUG CON, JUG SQU, PIP; LOND EAS JUG ERND; LOND HD JUG; LOND NFR JUG, JUG BAL; LOND PELL JUG; LOND ROU JUG BAL; LOND WSD JUG BAL; NFM JUG; REDP BUF JAR; REDP OLV JAR; ROUL JUG; SAIG JUG; SHER JAR, JAR ST; SPOA AMPH; SSW CP, JAR	1250–1300

Table 130 Site B: dating evidence, Gps 52a-b, 55–9, 62–5, 76–7, 82, 89 (period B7.2) (general date 1300–50, with intrusions)

Landuse	Group	Context	Evidence	Description	Date
SM75	4.1	dumping layers 91, 99, 163	MPOT	91: CBW CP, JUG; EGS JUG; KING JUG; KING HD JUG; KINGSL JUG; LCOAR JUG; LOND JUG, CP, DISH DRIP; LOND TUL JUG TULBAL; LOND WSD JUG; MG JUG, MG COAR CP; MG WSD JUG; SAIM JUG; SHER CP; SSW CP 99: ANDE SPP; EMSH CP; LCOAR JUG ERND; LOND JUG, DISH DRIP; LOND ROU JUG BAL; MG JUG SQU; MG WSD JUG; MG COAR CP; SCAR JUG ANTH; SSW CP 163: EMSS CP; KING JUG; KING METCOP JUG BAL; KING SBOSS JUG BAL; KINGSL JUG; LOND JUG; LOND EAS JUG; LOND HD JUG; LOND ROU JUG; MG JUG; MG WSD JUG; SCAR JUG ANTH; SHER CP	1270–1350 1270–1350 1270–1350

Table 131 Site C: dating evidence for dumping on Tenement 9, period M2

Landuse	Group	Context	Evidence	Description	Date
SM75	3.6	dumping layers 62	MPOT	62: ANDE SPP; EGS JUG; EMCH CP; EMFL CP; EMGR CP; EMS CP; EMSH CP; EMSS CP; ESUR CP; KING BOWL, JUG; KING HD JUG; KING METCOP JUG BAL; KINGSL JUG; LCALC JUG; LCOAR JUG; LMHG JUG BAL; LOGR CP; LOND JUG, CP, FINI; LOND FLAR JUG FLBAL; LOND HD JUG; LOND TUL JUG TULBAL; MG JUG; REDP SPP, BEAK; SAIM JUG RND; SAIN MISC; SHER CP; SSW CP; STAM SPP; THET JAR	1340–1400
FRE78	3.6	dumping layers 590	MPOT	590: SAIM JUG	1250–1400
SM75	4.1	dumping layers 4	MPOT	4: BLGR CP; EMFL CP; EMS CP; EMSH CP; EMSS CP; ESUR CP, SPP; KING JUG, JAR; LMHG JUG BAL, CP; LOND JUG BAL, DISH DRIP; LOND FLAR JUG FLBAL; LOND NFR JUG; LOND TUL JUG TULBAL; LSS CP; MG JUG; MG COAR CP; PMAR MISC (INTRUSIVE); REDP SPP; SHER JUG; SSW CP; STAM SPP	1340–1400
FRE78	4.1	dumping layers 583, 584, 589, 608	MPOT	583: LOND JUG; MG JUG; SHER CP 584: MG JUG 589: LOND JUG BAL 608: LOND JUG BAL	1270–1350 1270–1350 1240–1350 1240–1350
SM75		C:Buildings 6 and 7 2, 65, 100	MPOT	2: KING JUG; LOND JUG BAL; LOND NFR JUG 65: KING JUG; LOND JUG BAL; MG JUG; STGW BOWL (INTRUSIVE?) 100: EMSS CP; ESUR CP; LCOAR BOWL, JUG; LOND JUG BAL; LOND ROU JUG; SHER JAR; SSW CP	1240–1350 1270–1400 1170–1240
FRE78		C:Buildings 6 and 7 591, 625	MPOT	591: KING METCOP JUG BAL 625: LOND JUG BAL; CBW CP	1270–1350 1270–1500

Table 132 Site C: dating evidence for dumping on Tenements 10–11 and C:Buildings 6–7

Landuse	Group	Context	Evidence	Description	Date
FRE78	3.6	dumping layers 544, 564	MPOT	544: LCOAR CALC CP; LOND NFR JUG; LOND ROU JUG BAL 564: LOND PELL JUG	1180–1270 1140–1220
FRE78	4.1	dumping layers 580	MPOT	580: LOND JUG; LOND HD JUG; LOND NFR JUG; LOND TUL JUG TULBAL	1270–1350

Table 133 Site C: dating evidence for dumping associated with C:Waterfront 4 on Tenement 11 in period M2

Landuse	Group	Context	Evidence	Description	Date
FRE78		C:Building 8 550	MPOT	550: KING WSBOSS JUG; MISC JUG; KING JUG BAL	1340–1400

Table 134 Site C: dating evience for C:Building 8 in period M2

Landuse	Group	Context	Evidence	Description	Date
NFW74	3.6	C:Building 9 131 construction level	MPOT	131: ANDE PTCH; LOND JUG; LOND EAS JUG; LOND PELL JUG; SSW CP	1140–1220
FRE78	4.2	C:Building 9 8 floor	MPOT	8: LOND FLAR JUG FLBAL	1240–1350

Table 135 Site C: dating evidence for C:Building 9 in period M2

Landuse	Group	Context	Evidence	Description	Date
NFW74	3.6	dumping layers and internal floors in C:Building 3 49, 50, 53, 69, 72, 83, 86	MPOT	49: EMSS CP; SSW CP 50: ESUR CP; SSW CP 53: LOND JUG ERND, JUG BAL; SSW CP 69: ANDE SPP; EMCH CP; EMSS CP; ESUR CP; LOND JUG; LSS CP; REDP SPP 72: EMFL CP; LOND NFR JUG; LSS CP; SSW CP 83: EMS CP; EMSS CP, JAR ST; ESUR CP; KING JUG; LOGR CP; LOND JUG; LOND PELL JUG; SHER CP 86: ANDE SPP; LOND JUG	1140–1220 1140–1220 1140–1220 1140–1200 1180–1270 1240–1300 1140–1200
FRE78	4.1	dumping layers 348	MPOT	348: ANDE SPP; LOND JUG; LOND HD JUG	1240–1350

Table 136 Site C: dating evidence for dumping on Tenement 13 in period M2

Landuse	Group	Context	Evidence	Description	Date
NFW74	4.1	dumping layers or floor levels in C:Building 5 75, 81, 118	MPOT	75: SHER CP; SSW CP; STAM SPRINK 81: LOND TUL JUG TULBAL 118: LOND JUG CON; LOND TUL JUG TULBAL	1170–1220 1270–1350 1270–1350

Table 137 Site C: dating evidence for dumping on Tenement 14 in period M2

Phase	Construction	Dating evidence	Date
D11.1	new revetment, D:Waterfront 16	DEND [2883B], [4999], [2651], [3408], [6039], [3875], [3301], [4895], [4896], [2683A], [4897], [4978]; later [3338] with sapwood 1243–69	proposed date *c* 1270
		LOND: 3284, 3791, 3817; SHER: 3591, 3815; SSW: 3593, 3808	1170–1350

Table 138 Site D: period D11.1 (late 13th century), dating evidence

Period M3 1350–1500

Landuse	Group	Feature	Evidence	Description	Date
W14	42.17	1131	MPOT PPOT	MG CON JUG; BORDY TPIP; FREC JUG	1270–1350 1550–1700

Table 139 Dating table for A:Waterfront 14 and associated features

Landuse	Group	Context	Evidence	Description	Date
reclamation	77	2126	MPOT	CBW BIF CP BIF; CBW CUP LOB; CBW JUG PUZZ; CBW JUG RND?; CBW JUG CIST; CHEA PIP; LCOAR JUG LGRND; LOND TUL JUG TUL BAL; MG JUG; SHER CP	1380–1400

Table 140 Site A: dating evidence, Gp 77

Landuse	Group	Context	Evidence	Description	Date
reclamation	80	2016	MPOT	2016: EARL JUG; KING JUG BAL; KING JUG; LMHG BOWL; LOND JUG BAL; LOND PIP; MG JUG; MG COAR JUG	1370–1400+
	80	2016	M COIN	A<385> lead coin	
	80	2016	M COIN	A<386> copper jetton, English	

Table 141 Site A: dating evidence, Gp 80

Landuse	Group	Context	Evidence	Description	Date
reclamation	85	2004	MPOT	CBW CP; EARL JUG; LCOAR JUG BAL; LOND JUG BAL; LOND NFR JUG; MG CON JUG; MG JUG RND; SAIM PEG; SHER CP	1270–1350
		2004	M COIN	A<373> Henry III, silver penny	1253–1272
		2004	M COIN	A<710> Henry III, silver penny	1248–1248
	85	2042	MPOT	KING HD JUG; KING SBOSS JUG; KING CP, JAR, JUG CON, JUG; LCOAR CP; LMHG JUG; LOND BAL JUG; LOND NFR JUG; MG CON JUG CON; MG JAR, JUG; NFM JUG; VALE BOWL (missing)	1380–1400
	85	2055	MPOT	CBW CP; DUTR? BOWL, CP, LAVA?; EARL JUG; EGS BEAK, JUG; KING DISH DRIP, FRYP, JUG; KING HD JUG BAL; LCGR BOWL ?; LOND DISH DRIP, FINI; LOND BAL JUG; LOND NFR JUG BAL; LOND ROU? JUG BAL; MAGR JAR; MG JUG; MG COAR CP; NFM JUG BAL; SAIC JUG; SAIM JUG; SHER CP	1350–1400
	85	2055	M COIN	<711> Henry III/Edward I	1247–1278
	85	2065	MPOT	ANDA BOWL (missing); CBW CP, JUG; DUTR CP, FRYP; EARL JUG BAL; KING CP, JUG BAL, JUG MINI, PIP; KING HD JUG; KING METCOP JUG; KING SBOSS JUG; LOND BAL JUG; LOND DISH DRIP, JUG; LOND EAS JUG; LOND NFR JUG BAL; MG JUG BAL; MG JUG, JUG RND; MG COAR? CP; MG CON JUG; SPAM AMPH (missing)	1350–1400
	85	2065	M COIN	A<612> Henry III silver penny	1248–1250
	85	2065	M COIN	A<615> Henry III cut farthing	1251–1272
	85	2065	M COIN	A<616> Henry III cut halfpenny	1251–1258
	85	2065	M COIN	A<617> Continental gros	1250–1300
	85	2065	M COIN	A<618> Henry III silver penny	1248–1250
	85.13	2056	MPOT	CBW CP, JUG; KING CP (missing), JUG SQU?; KING METCOP? JUG; LCOAR DISH DRIP; LOND DISH DRIP, JUG?; LOND NFR JUG BAL; MG JUG, JUG RND ?; MG CON JUG; STAM PTCH	1270–1350

Table 142 Site A: dating evidence, Gp 85

Landuse	Group	Context	Evidence	Description	Date
reclamation	100	994	MPOT, PPOT	CBW CP, CBW JUG; CIST, JUG BICON, JUG, LID, TPIP, WHIS; CBW BIF CP; CHEA BIF CP; CHEA CP, JUG RND, JUG BAR, JUG; DUTR CP?; LANG CUP, DJ; LOND BAL JUG; LOND CP; LLSL CP; LMHG PIP; MGCOAR JAR; MG CP?; SAIN PEG?; SIEG DJ; RAER ? DJ;	1400–1450
	100	2023	MPOT	CBW BOWL, CP, CUP LOB, JUG; CIST, JUG RND; DUTR CP; EARL? JUG; KING CP; LLON DISH DRIP; LOGR? CP; LOND BAL JUG; LOND NFR JUG; LOND CP, DJ; MG COAR CP; MG CON JUG CON; MG JUG RND?; SAIM? JUG; SHER CP	1400–1500
	100	2032	MPOT	CBW BIF CP; CBW CP, JUG, JUG; CIST; CHEA CP, DISH, DJ BICON; KING CP, DISH DRIP, JUG; LCHD JUG; LMHG PIP; LOND JUG; MG? CP; SIEG JAKO DJ; SIEG DJ	1380–1450
	100	2054	MPOT	CBW CP, JUG, JUG CIST; KING TUL JUG TULBAL; LMHG JUG; LOND BAL JUG; MG JAR; SHER JAR BUNG?	1340–1350
	100	2069	MPOT	CBW CP, CUP LOB, JUG, JUG; CIST; CBW BIF CP; CHEA DJ BICON, JUG; SIEG DBOWL, DJ; SIEG JAKO DJ JAKO	1450–1500
	100	2069	M COIN	A<1991> copper jetton, French	1370–1390
	100	2069	M COIN	A<3086> copper jetton, French	1375–1390

Table 143 Site A: dating evidence, Gp 100

Landuse	Group	Context	Evidence	Description	Date
foreshore	93	1031	MPOT	EARL JUG; KING CP; KING JUG; LANG DJ; LOND BAL JUG BAL; LOND NFR JUG; MG CON JUG CON; SHER CAUL; SHER CP; SHER DISH?	1350–1400
		2012	MPOT	CBW BIF CP BIF; CBW CAUL; CBW CP; CBW JUG CIST; CBW? JUG BICON; CHEA JUG; CHEA? JUG; LANG DJ; MG JUG RND? SHER JUG BAL; SIEG DJ	1380–1400

Table 144 Site A: dating evidence, Gp 93

Landuse	Group	Context	Evidence	Description	Date
reclamation	95	2105	MPOT	CBW JUG RND; CBW JUG CIST	1340–1500
	95	2105	M COIN	A<1422> copper jetton, French (CL XI, North 1069)	1370–1390
	95	2105	M COIN	A<1425> silver, Edw II halfpenny (North 1069)	1310–1314
	95	2105	M COIN	A<1447> silver, Edw II halfpenny	1307–1327

Table 145 Site A: dating evidence, Gp 95

Landuse	Group	Context	Evidence	Description	Date
foreshore	102	2085	MPOT, PPOT	2085: CHEA CP, LID; CHEA BAR JUG; EBORD CUP; SIEG TRIC BEAK	1480–1500
		2102	MPOT	2102: CBW BOWL, CP, JUG, JUG; CIST, PIP; CHEA CP, CP BIF, DISH, DJ, JUG; COLS CP; DUTR CAUL; LLON JUG; SIEG DJ; SIEG DBOWL	1450–1500
		2102	M COIN	A<927> copper jetton, French	1370–1390
		2102	M COIN	A<932> silver, Edw III halfpenny, 3rd coinage	1344–1351
		2102	M COIN	A<937> copper, Portugal	1400–1500
		2102	M COIN	A<3219> copper jetton, France (Barnard 1328–64)	1370–1390
		2107	MPOT	CBW BOWL, JUG BUNG, JUG CON, JUG; CIST, JUG RND; COLS JUG; DUTR CAUL; LLSL CP	1400–1500
		2109	MPOT	ANDA ALB; CBW BOWL, CP, DISH, JUG; CIST, JUG RND; CHEA BOWL, CP, JUG; LANG DJ; LLON BOWL; SIEG DJ; SIEG TRIC BEAK; TUDG LCUP	1400–1500
		2109	M COIN	A<2055> silver, English halfpenny (North 1353)	1402–1412
		2115	MPOT	CBW BOWL, CAUL, CP, JUG; CIST, JUG LGRND?; CBW JUG; CBW BIF CP; CHEA CUCU, DJ BICON, PIP, TROU; DUTR CAUL; LLON JUG BUNG; SIEG BEAK; VALE BOWL	1400–1480
		2115	M COIN	A<2153> silver, Henry V halfpenny (CL D)	1413–1422
		2115	M COIN	A<2389> copper jetton, French	
		2269	MPOT	2269: CBW JUG ?, JUG; CIST; KING JUG BAL	1270–1400

Table 146 Site A: dating evidence, Gp 102

Landuse	Group	Context	Evidence	Description	Date
reclamation	103	2082	MPOT	CBW BOWL FLAR, JUG; CIST, JUG RND; CHEA DISH; DUTR CAUL; SIEG DBOWL; SIEG TRIC BEAK	1450–1500
		2083	MPOT PPOT	CBW JUG; CIST; CHEA JUG; CHEA BAR JUG ; PMRE JUG	1430–1500 1480–1600
		2084	MPOT	2084: CBW JUG; CIST	1340–1500
		2084	M COIN	<2207> Silver coin, HEN5 penny	1413–1422
		2097	MPOT PPOT	CBW BOWL, CP, JUGCIST, JUG RND?, LID; CBW BIF BOWL RND, CAUL, CP; CHEA JUG BAR; CHEA CP, DJ BICON, PIP; CHEA BIF BOWL; LANG JAR; LLON JUG; LMHG ? CP; MG JUG; SIEB DJ; SIEG JAKO DJ; SIEG BEAK TBEC; SSW CP; TUDG JUG, CUP LOB PMRE JAR ?	1450–1500 1480–1600
		2097	M COIN	<763> Silver coin, RIC2 halfpenny	1377–1399
		2100	MPOT PPOT	CBW BOWL FLAR, CAUL, CP; CUP LOB?, JUG; CIST; CHEA JUG BAR; CHEA BOWL, CP, JUG; CHEA BIF CP; DUTR DRIP; LLON JAR?, JUG; LMHG CP, JUG; SIEG BEAK, DJ; SIEG TRIC DJ; TUDG CUP EBORD CUP?; PMRE JUG;	1400–1500 1480–1550

Landuse	Group	Context	Evidence	Description	Date
		2103	MPOT PPOT	CBW BIF CP; CBW CP, JUG RND; CHEA CP, JUG BAR?, MEAS; DUTR CAULPIP, FRYP; LLON CAUL, JUG; SIEG TRIC DJ; TUDG CUP EBORD GOB; PMRE? JUG	1400–1500 1480–1550
		2106	MPOT	CBW JUG; CIST, JUG RND; CBW BIF JAR HAND; CHEA JUG BAR; CHEA CP, DJ, JUG; COLS? JUG BUNG; LLON JUG; SIEG DJ	1400–1500
		2108	MPOT PPOT	CBW CAUL?, CP, JUGCIST, JUG RND?; CHEA BAR JUG; CHEA DISH, LID, PIP; DUTR CAUL; DUTSL JUG; LLON BOWL, JUG; SIEG DJ; SIEG TRIC BEAK; TUDG CUP, JUG;EBORD? CUP CORR; PMRE DISH FLNG	1430–1500 1480–1550
		2111	MPOT, PPOT	CBW CP?, JUG; CIST; CHEA BAR JUG; LLON BOWL; SIEG TRIC BEAK; TUDG CUP, CUP LOB PMRE? JUG;	1430–1500 1480–1600
		2112	MPOT	CBW BOWL, CP, JUG; CIST, JUG BUNG, JUG, JUG RND; CHEA DISH, JUG; COLS JUG; DUTR CAULPIP, FRYP, SKIL; LANG JAR ST; LLON JAR, JUG; LMHG JUG; SIEB DJ; SIEG DJ; SIEG TRIC BEAK; TUDG CUP LOB	1400–1500
		2113	MPOT	CBW BIF CP, JAR HAND; CBW BOWL FLAR, CAUL, CP, JUG; CIST, JUG; CHEA BAR JUG; CHEA DISH, JUG; DUTR FRYP; COLS JUG?; LLON JAR, JUG BUNG, JUG; OLIV JAR; SIEG BEAK, DJ; TUDG CUP LOB	1430–1500
		2114	MPOT PPOT	CBW CUP LOB, JUG; CIST, JUG?, LID; CHEA CP, JUG; LMHG JUG RND; SHER? DJ ?; SIEG DJ JAKO? EBORD CUP	1370–1450 1480–1550
		2117	MPOT	CBW BOWL FLAR, CAUL, CP, JUG; CIST, JUG RND, LID; CBW BIF BOWL; LLON JUG; SIEG DJ	1400–1500

Table 147 Site A: dating evidence, Gp 103

Landuse	Group	Context	Evidence	Description	Date
foreshore	104	2006	MPOT	2006: CBW JUG; DUTR CAUL PIP; KING CP; KING JUG; SIEG DJ; RPOT	1350–1450

Table 148 Site A: dating evidence, Gp 104

Landuse	Group	Context	Evidence	Description	Date
A:Building 28	54.8	2059	MPOT	CBW CP; CHEA JUG ?; LOND BAL JUG; LOND EAS JUG; LOND NFR JUG; LOND JUG; MG CON JUG CON; SHER CP	1350–1500
	54.13	2058	MPOT	LOND BAL JUG; LOND FRYP, JUG; KING JUG BAL	1240–1350

Table 149 Site A: dating evidence, period A6 on Tenement 1

Landuse	Group	Context	Evidence	Description	Date
OA A10	58.10	50	MPOT	CBW BOWLDISH?, JUG; LOND BAL JUG BAL	1270–1350
	58.32	58	MPOT	CBW JUG; LMHG JUG	1340–1450
	58.32	61	MPOT	CBW JUG; CHEA DJ; LANG JUG; LMHG JUG	1350–1450
A:Building 22	58.25	85	MPOT	KING CP; LOND NFR JUG; SIEG JUG	1300–1400
	58.34	48	MPOT	CBW BOWL DISH, CP; LOND BAL JUG	1270–1350

Table 150 Site A: dating evidence, A period 6 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
Building A 27	58.17	68	MPOT	TUDG? CUP	1480–1500
	58.17	78	MPOT	KING CP, JUG	1240–1400
	58.17	79	MPOT	CHEA DJ	1350–1500
	58.17	87	MPOT	CBW JUG	1270–1500
	58.17	89	MPOT	SSW CP	1140–1220
	58.17	102	MPOT	KING JUG RND; LARA DJ; LOND EAS JUG ERND; SIEG DJ	1450–1550
	58.18	24	*MPOT*	KING SBOSS JUG; LOND? JUG	1270–1350

Landuse	Group	Context	Evidence	Description	Date
OA A12	58.36	46	MPOT	CBW JUG; LANG DJ; LOND EAS JUG ERND	1350–1500
	59.39	76	MPOT, PPOT	CHEA CP?; DUTR PIP; KING CP, JUG; LMHG PIP?; PMR? JAR	1350–1500 1580–1900
	58.40	42	MPOT, PPOT	CBW CP, JUG; CBW LCUP; CHEA JUG; KING DISH COND; LMHG JUG? PMRE CAULPIP	1350–1450 1480–1600
	58.42	40	MPOT	CBW BIF CP; LANG DJ	1380–1500
	58.43	66	MPOT	LOND CP	1140–1350

Table 151 Site A: dating evidence, period A7 on Tenement 3

Landuse	Group	Context	Evidence	Description	Date
B:Building 29	54.31	1302	MPOT	KING HD JUG; KING CP?; KING JUG; LCOAR JUG; LOND BAL JUG BAL; LOND JUG	1240–1300

Table 152 Site A: dating evidence for Tenement 4 in period M3

Landuse	Group	Context	Evidence	Number of sherds/ weight (gm)	Description	Date
B7.3	61	265	MPOT	1/1	SIEG DJ	1350–1500
	61	280	MPOT	68/24	KING JAR, JUG BAL, JUG NFR; KING METCOP JUG METCOP; LMHG PIP; LOND PIP, JUG BAL, JUG CON, PIP; LOND NFR JUG BAL; MG JUG CON, JUG SQU; SPAM COST	1340–1450
	72	258	MPOT	15/220	KING JAR, JUG, LID; KING NFR JUG; LOND DJ, JUG BAL; LOND NFR JUG BAL; NFM JUG; SAIM JUG; SHER JAR	1250–1350

Table 153 Site B: dating evidence Gps 61 and 72 (period B7.3–5)

Landuse	Group	Context	Evidence	Description	Date
B8.1	74	177	MCBM	decorated floor tiles	1250s–1260s
	74	187	MPOT	CBW JUG; LCOAR CALC JAR; LOND HD JUG; LOND NFR JUG BAL	1270–1350/1500
	74	241	MPOT	KING JUG; LCOAR JUG; LOND DISH, JUG, JUG BAL; LOND NFR JUG BAL; LOND POLY JUG BAL; SHERJAR	1240–1270
	74	269	MPOT	KING JUG; LOND BALJUG BAL; LOND HDJUG; LOND NFR JUG BAL; SHER JAR, JUG; SSW JAR	1240–1270
B8.1	79	115	MPOT	CBW DISH, JAR FT;	1270–1500
	79	120	MPOT	LOND HD JUG; SHER JUG	1240–1270
	79	198	MPOT	CBW DISH, JAR; KINGJUG RND; LANG CUP; LOND PIP	1350–1400/1500
	79	217	MPOT	CBW JUG; CIST; KINGJUG; SIEG DJ; TUDGJUG	1350–1500
	79	218	MPOT	CBW JAR, JUG; LLSLJUG; SIEG JUG STR	1400–1500
B8.1	83	197	MPOT	LCOAR CALC JAR; LCOAR GRIT JAR; LOND JAR, JUG, PIP; NFM JUG; SAIM JUG; SHER JAR; SSW JAR	1250–1350
	83	197	M/PPOT	RAER DJ	1480–1550
B8.1	84	179	MPOT	MG JUG; SIEG DJ	1300–1400
	84	188	MPOT	CBW JAR, JUG; LANGDJ	1350–1500
	84	216	MPOT	LANG JAR	1350–1500
	84	222	MPOT	CBW JUG; CIST; CHEA JUG; KING CP; LANGCUP; LOND NFR JUG; MG CON JUG; SHERJUG; SIEG DJ	1350–1500
B8.1	85	129	MPOT	LOND NFR JUG BAL	1180–1270
B8.1	116	102	MPOT	CBW DISH	1380–1500
	116	102	PPOT	PMRE JAR BUNG	1480–1600 intrusive?

Landuse	Group	Context	Evidence	Description	Date
	116	193	MPOT	KING JUG; LCOAR JAR; LOND JUG; LOND EAS JUG ERND; LOND NFRJUG; LOND ROUJUG BAL	1240–1270
	116	195	MPOT	EMSH JAR; EMSS JAR; KING CP; LCOARJAR; LOND JUG; LOND EAS JUG; LOND NFR JUG; LOND ROU JUG; SHER JAR; SSW JAR	1240–1270
B8.1	66	203	MPOT	CBW JAR; KING JUG; LLON CP; LMHG DRIP; LOND JUG; MG JUG: SIEG DJ	1400–1450
	66	203	PPOT	RAER DJ	1480–1550
	66	220	MPOT	CBW JUG; CIST; DUTR DISH; EGS JUG; KING CP; LMHG CP; MG JUG	1340–1400/1500
B8.1	46	283		KING JUG BAL, LID; LND NFR JUG BAL; LOND ROU JUG BAL; LCHD JUG; SHER JAR; SHER FL JUG; SSW JAR EV	1240–1350

Table 154 Site B: dating evidence for period D8.1

Landuse	Period	Context	Evidence	Description	Date
NFW74	C4.1	C:Building 10 construction	MPOT	33: LCOAR JUG; LOND JUG; SSW DISH FLAR, CP	1140–1220
NFW74	C4.2	C:Building 10 construction	MPOT	36: LOND JUG; JUG BAL; SCAR JUG; SHER CP 65: BLGR CP; EMSS CP; SSW CP	1200–1350 1140–1220
NFW74	C4.3	C:Building 10 construction	MPOT	9: CBW JUG RBD; CHEA JUG, JUG RND; LOND TUL JUG TULBAL; MG COAR JUG 32: KING JUG; LOND JUG; LOND TUL JUG TULBAL; MG JUG, JUG CON 47: CHEA DJ BICON; EMS SPP; EMSH CP; ESUR CP; KING JUG, CP; LOND NFR JUG; REDP SPP; SSW CP	1350–1500 1270–1350 1350–1450
NFW74	C4.4	C:Building 10 occupation and use	MPOT	4: CBW JUG RNBG; CHEA JUG; KING JUG BAL 7: CBW JUG RND, DJ BICON; SCAR JUG 8: CBW JUG RND; CHEA DJ BICON; KING DJ BICON 11: LMHG JUG; SCAR JUG 24: KING SB JUG; MG JUG, JUG SQU; SHER CP 44: CBW JUG RNBG, BOWL, JUG, CP; KING CP, JUG, JUG BICON; LOND JUG	1350–1500 1350–1500 1350–1500 1350–1450 1270–1350 1350–1500

Table 155 Site C: dating evidence for C:Building 10

Period P1 (1500–1666)

Landuse	Group	Context	Evidence	Description	Date
A:Waterfront 18	43.36	1555	MPOT	CBW CP, JUG	1270–1500
	43.39	1215	MPOT PPOT	CBW JAR, JUG; CBW CIST JUG; CIST; SAIU EBORD DJ RND; PMRE DISH	1350–1500 1480–1550

Table 156 Site A: dating table for Waterfront A18

Landuse	Group	Context	Evidence	Description	Date
B8.2	52c	225	MPOT	CBW BOWL	1270–1500
B8.2	60	208	PPOT	PMRE JAR	1480–1600
	60	210	MPOT	CBW CP; CHEA JAR BIF; SIEG JAKO DJ	1380–1500
B8.2	69	151	MPOT	EMFL JAR; KING JUG; LOND NFR JUG BAL; SSW JAR	1240–1270
	69	223	MPOT	CBW DISH, JUG; CIST; LOND JUG BAL; LOND NFR JUG BAL	1340–1500

Landuse	Group	Context	Evidence	Description	Date
B8.2	75	176	MPOT	CBW JAR, JUG; DUTR? JUG?; KING JUG, PIP?; LCOAR CALC JUG; LOND JUG; SIEG DJ	1350–1500
	75	176	PPOT	EBORD? DJ?	1480–1550
		176	COIN	Jetton, French	1300–1400
		176	COIN	Jetton, English	1300–1350
B8.2	91	166	MPOT	ALKG JAR, CBW CUP?, DISH?, JAR, JUG, LID; KING JUG RND?, JUG SBOSS; LANG CUP; LOND JUG BAL; LOND NFR JUG	1350–1400/1500
	91	167	MPOT	LOND NFR JUG	1180–1270
B8.2	87	243	MPOT	CBW JAR; CHEA JUG	1350–1500
	92	116	MPOT	CBW JAR	1270–150
	92	170	MPOT	EGS JUG; LOND JUG BAL	1250–1350
B8.2	93	125	PPOT	TGW D	1630–1680
	93	207	MPOT	KING JUG; KING SBOSS JUG; KINGSL JUG; LOND JAR, JUG BAL; LOND NFR JUG; LOND ROU JUG BAL; MG CON JUG CON; SAIU PEG	1270–1350
	93	227	MPOT	EARL JUG; KING CP, JUG; KING NFR JUG; KING POLY JUG; KING SBOSS JUG SBOSS; LOND JUG, JUG BAL; MG JUG; MG COAR JUG; SHER CP	1270–1350
	93	228	MPOT	KING JUG; KING NFR JUG; LOND DRIP, JUG BAL; LOND HD JUG BAL; LOND NFR JUG BAL; LOND WSD JUG; MG JUG	1270–1350
	93	234	PPOT	BORDG PIP; MART3 COST	1600–1650
	93	235	MPOT	LOND LOUV; SHER JUG BAL	1170–1350
	95	219	MPOT	CBW JAR	1270–1500
B8.2	96	138	MPOT	CBW JAR, JUG; CHEA CP BIF; SIEG COST	1380–1500
	96	143	MPOT	CBW JUG, JAR; CHEA JAR; LLSL JUG; LMCR CRUC; LOND DJ	1400–1500
	96	180	MPOT	CBW JAR, JUG; KING JUG BAL; LANG JUG; LLON CAUL; LOND NFR JUG; SAIM PEG; SHER JUG; SIEG JUG CBW JAR, JUG; KING JUG BAL; LANG JUG; LLON CAUL; LOND NFR JUG; SAIM PEG; SHER JUG; SIEG JUG	1400–1500
	96	190	MPOT	KING JUG	1240–1400
B8.2	97	239	MPOT	LOND CP, JUG BAL; LOND NFR JUG BAL	1180–1270

Table 157 Site B: dating evidence from Gps 75, 91, 87, 92–7, 104–6, 116, 52c and 60 (period 8.2)

Landuse	Group	Context	Evidence	Description	Date
B8.3	86	118	MPOT	SHER JUG	1170–1350
	86	130	MPOT	CBW JUG	1270–1500
B8.3	98	158	MPOT	CBW JUG, JAR; CHEA JAR	1350–1500
	98	174	MPOT	CBW JAR; LOND DISH DRIP, BAL JUG	1270–1350
B8.3	101	134	MPOT	CBW JUG, CHEA JAR, KING JUG	1350–1500
	101	135	MPOT	CBW JAR, KING DISH	1270–1400
B8.3	103	15	MPOT	CBW DJ; LOND JUG BAL	1270–1350
	103	15	PPOT	SPGR JAR	1550–1700
	103	15	PIPE		1580+
	103	17	MPOT	BLGR JAR; CBW JAR, JAR BIF; EMS JAR; LCOAR? JAR; LCOAR GRIT JAR; LOGR JAR; LOND JUG BAL	1380–1500
	103	17	PIPE		1580+
	103	114	MPOT	CBW JAR, JUG, JUG; CIST, CBW LID; CHEA JUG BAR; EMCH JAR; EMSH BOWL, JAR; EMSS? JAR; KING JUG BAL, JUG LGRND?; KINGSL JUG BAL; LANG JUG; LOND BRAZ, JUG BAL; LOND EAS JUG; LOND NFR JUG BAL; LOND ROU JUG BAL; MG JUG; REDP JAR; SAIM JUG; SHER JAR	1430–1500

Landuse	Group	Context	Evidence	Description	Date
B8.3	70	137	MPOT	CBW JAR, JUG; LLON DISH?, JAR; LMHG JUG? LOND JUG, JUG BAL, JUG TULBAL; ITALS ALB	1400–1500
	70	137	PPOT	PMRE DISH, JAR	1480–1600
B8.4	102	62	MPOT	CBW JAR, J UG; EARL? JUG; KING DISH; LOND JUG BAL	1270–1400
	102	65	MPOT	LOND JUG BAL, SHER JAR	1180–1350
	102	70	MPOT	CBW CUP LOB, DISH, JAR BIF, JUG; LOND JUG BAL; SIEG DJ; TUDG JUG	1380–1500
	102	70	PPOT	PMRE JAR	1480–1600
	102	140	MPOT	CBW JAR	1270–1500
	102	140	PPOT	RAER DJ	1480–1550
	102	140	PIPE		1580+

Table 158 Site B: dating evidence for Gps 86, 98, 100, 103, 101 and 70 (period 8.3) and Gp 102 (period 8.4)

Landuse	Group	Context	Evidence	Description	Date
FRE78		C: Building 8, context 628	PPOT	628: TGW D DISH LOB	1630–1680
FRE78	4.5	C: Building 8 599	PPOT	599: RAER DJ	1480–1610

Table 159 Site C: dating evidence for C:Building 8 in period P1

C4.6	C: Building 10: [nfw] 55	PPOT MPOT	55: BORDG TPIP3; BORDY PORR, DISH FLNG, TPIP3; FREC JUG; PMRE CAUL, CAULPIP, FLP; PMSRG CAULPIP, CHP, BOWLDISH; PMSRY CAULPIP 55 (residual MPOT): EMSS CP	1580–1600 (1000–1150)
C4.7	C: Building 10: 54, 107	PPOT (MPOT)	54: BORDY TPIP3; TGW A DISH 107: BORDG TPIP; TGW D JAR CYL 107 (residual MPOT): EMS CP; EMSS CP; LOGR MISC	1570–1650 1630–1680 (1050–1150)
C4.8	C: Building 10: 1, 2	PPOT	1: BORDY PORR; BORDO CHP; BORDY TPIP, BOWLDISH, DISH FLNG, PORR; PMR MISC 2: BORDB CUP CAUD; PMFR CHP	1580–1700 1580–1700
	C: Building 10: 6, 38, 52, 195	MPOT PPOT	6: MG JUG CON 38: EMSH CP, LCOAR JUGPTCH, JUG; LOND JUG; LSS CP; SSW CP 38 (PPOT): PMR JAR 52: CBW BOWLDISH, DISH FLAR; EMSS CP; SAIM JUG BAL; SIEG DJ 195: EMS CP; LSS CP	1270–1350 1200–1350 1580–1700 1350–1500 970–1050
	C: Building 10: [fre] 397, 453	MPOT PPOT	397: LOND TUL JUG TULBAL 453: LOND JUG; LOND WSD JUG	1270–1350 1240–1350

Table 160 Site C: dating evidence for C:Building 10, occupation levels

Landuse	Group	Context	Evidence	Description	Date
NFW74	4.5	C: Building 11: 63, 73, 76, 121, 122	MPOT PPOT	63: LOND JUG 73: CBW CUP; CHEA DJ BICON; LOND JUG; MG JUG; MG COAR JUG 73 (PPOT): RBOR BOWL DISH 76: BORDY MISC 76 (MPOT): EMSS CP 121: PMFR JAR CYL; PMR MISC; PMRE CAUL, JUG; RBOR TPIP3 122: MPUR BUTP; PMRE CAULPIP; PMSRG CAULPIP	1140–1350 1350–1500 1580–1630 1550–1700 (1000–1150) 1580–1630 1480–1700
NFW74	4.6	C: Building 11: 74	PPOT (MPOT)	74: MART 1 FLAS; MART 2 FLAS; MART 3 FLAS 74 (residual MPOT): ESUR CP	1600–1650 (1050–1150)

Landuse	Group	Context	Evidence	Description	Date
NFW74	4.7	C: Building 11: 58, 68	PPOT	58: BORDB MUG; BORDY MISC; FREC JUG, JUG BART 68: BORDY TPIP; FREC JUG; KOLS JUG; MART 1 FLAS; MART 2 FLAS; MART 3 FLAS	1580–1700 1600–1650
NFW74	4.8	C: Building 11: 39, 40, 41	PPOT	39: FREC JUG; PMR JAR, JAR BUNG 40: PMR JAR SHL; TGW C MISC 41: NISG DISH; PMR JAR SHL	1580–1700 1630–1680 1580–1700
NFW74		C: Building 11: 17	MPOT	17: LOND JUG	1170–1350
FRE78		C: Building 11: 640, 511	MPOT PPOT	640: DUTR FRYP 511: BORDB BOWL FLAR; BORDG BOWLDISH, CHP, COL, DISH FLNG, DJ RND, PORR, SKIL; BORDO TPIP1; BORDY BOWL CARN, CUP, DISH FLNG, PORR, SALT PED, SKIL, TPIP1; DUTR CAULPIP, CHAF; FREC JUG BART, JUG RND; PMBL MUG BAR; PMFR BOWL DFRL, CHP, DISH FLNG, JAR CYL, JUG, TPIP; PMFRB MUG CYL; PMR CAUL, TPIP; PMSRG CAUL, CHP; POTG DISH; TGW A DISH; VALL BOWL HAND, BOWL; WERR BOWL RND	1300–1500 1612–1630

Table 161 Site C: dating evidence for C:Building 11 in period P1

7.2 Artefact tables

Object	Finds vol	Cat no.	Context	Acc no.
mount	Dress Acc	819	2209	1581
mount	Dress Acc	874	2182	1596
comb	Dress Acc	1722	2187	1417
mount	Household	233	2185	1395
lighting	Household	365	2187	1576
spatula	Household	430	2187	1415
?strainer	Household	440	2187	3231
mount for handle	Household	495	2185	1632
metal hollow ware	Household	519	2198	1232
turned wood lid	Household	621	2209	1341
turning waste	Household	642	2209	1340
lead plug	Household	734	2187	5097
thread reel	Household	890	2209	1342
weight	Household	975	2188	1389
knife	Knives & Scabbards	8	2187	1535
buckle	Med Horse	17	2188	1160
horseshoe	Med Horse	125	2187	1512

Artefact Table 1 Site A (Swan Lane): artefacts from Gp A24 (1140–80)

Object	Finds vol	Cat no.	Context	Acc no.
comb	Dress Acc	1723	2207	1355
strap mt with hasp	Household	212	2157	1183
lock equip	Household	267	1595	1381
house equip	Household	733	2157	1184
misc obj	Household	876	3015	4107
weight/meas	Household	1051	3015	3662

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Med Horse	14	2157	1175
shoe	Shoes	111	3015	4369
shoe	Shoes	112g	3015	4372

Artefact Table 2 Site A (Swan Lane): artefacts from Gp A26 (1140–50 with intrusions of 1270–1350)

Object	Finds vol	Cat no.	Context	Acc no.
hinge	Household	2	2211	3510
weight/meas	Household	984	2254	2528
weight/meas	Household	1017	2254	2529

Artefact Table 3 Site A (Swan Lane): artefacts from Gp A28 (1180–1200)

Object	Finds vol	Cat no.	Context	Acc no.
horseshoe	Med Horse	126	2259	2622

Artefact Table 4 Site A (Swan Lane): artefact from Gp A30 (1170–1200+)

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	482	2279	2261
brooch	Dress Acc	1321	2266	2354
cosmetic set	Dress Acc	1763	2279	2262
hinge	Household	4	2266	2251
strap-type mount	Household	143	2266	2352
lock equip	Household	248	2279	2406
lock equip	Household	264	2279	2408
lock equip	Household	284	2266	2254* <S1>
ash bowl	Household	553	2266	2640* <S2>

Object	Finds vol	Cat no.	Context	Acc no.
misc obj	Household	895	2279	2417
weight/meas	Household	1033	2266	2439
knife	Knives & Scabbards	2	2266	2248
knife	Knives & Scabbards	7	2266	2256
shears	Knives & Scabbards	311	2266	1924
horseshoe	Med Horse	127	2266	2441
horseshoe	Med Horse	128	2280	3228
horseshoe	Med Horse	139	2266	2442
spur buckle	Med Horse	372	2279	2261

Artefact Table 5 Site A (Swan Lane): artefacts from Gp A42 (1170–1200). Those marked * are illustrated

Group	Object	Finds vol	Cat no.	Context	Acc no.
period B3 (1140–80 with intrusions)					
B5	horseshoe	Med Horse	105	578	269
	knife	Knives & Scabbards	3	578	688
B11	shoe	Shoes	5	513	635
B9	horseshoe	Med Horse	106	620	328
	horseshoe	Med Horse	107	620	454
	prickspur	Med Horse	318	627	393
B19	pricket candlestick	Household	379	483	266
	shoe	Shoes	6	451	184
	shoe	Shoes	8	483	640
	shoe	Shoes	10	451	903
	shoe	Shoes	16	483	188
	shoe	Shoes	114	451	207
period B4 (1180–1200)					
B20	hinge	Household	1	536	278
	hinge	Household	43	553	329
	strap-type mount	Household	141	536	253
	padlock key	Household	263	536	265
	pricket candlestick	Household	377	536	271
	knife	Knives & Scabbards	1	536	224
	buckle	Med Horse	15	536	270

Artefact Table 6 Site B (Seal House): artefacts from period M1 (Gps B5, B11, B9, B19, B20) (1100–1200)

Period	Object	Finds vol	Cat no.	Context	Acc No.
6.1	loop hasp	Household	75	5992	4992
6.1	knife	Kniv&Scab	4	4584	2899
6.1	knife	Kniv&Scab	5	4584	3091
6.2	pin	Dress Acc	1469	6974	3405
7.3	key, angled bit	Household	261	6759	3429
7.3	key, angled bit	Household	262	6759	3431
7.3	needle	Household	835	5560	3048
7.3	needle	Household	834	4368	2733
7.7	pin	Dress Acc	1468	4761	2867
7.7	finger ring	Dress Acc	1615	6507	3284
7.7	needle	Household	832	4761	2833
7.7	horseshoe	Med Horse	123	4420	2976
7.10	mount	Household	140	4714	2886
7.13	needle	Household	836	4766	3046

Artefact Table 7 Site D (Billingsgate): artefacts periods D6.1, 7.3, 7.7, 7.10, 7.13

Object	Finds vol	Cat no.	Context	Acc no.
lock equip	Household	246	2130	1819
candlestick	Household	366	2130	1121*<S3>
house equip	Household	470	2130	1127
house equip	Household	749	2130	1126
horseshoe	Med Horse	138	2130	1123
horseshoe	Med Horse	144	2130	1122

Artefact Table 8 Site A (Swan Lane): artefacts from Gp A49. The object marked * is illustrated

Object	Finds vol	Cat no.	Context	Acc no.
weight/meas	Household	976	2252	2556
horseshoe	Med Horse	140	2255	3618
horseshoe	Med Horse	146	2255	3617
badge	Pilg Souv	4	2252	2550

Artefact Table 9 Site A (Swan Lane): artefacts from Gp A38 (1180–1200 with intrusions)

Object	Finds vol	Cat no.	Context	Acc no.
brooch	Dress Acc	1340	720	363
lock equip	Household	243	2277	3563
knife	Knives & Scabbards	10	2277	3517

Artefact Table 10 Site A (Swan Lane): artefacts from Gp A52 (1230–70)

Finds vol	Object	Cat no.	Context	Acc no.
Dress Acc	buckle	274	2145	1156
	strap-end	727	2139	3380
	mount	1193	2139	3382
	mount	1280	2139	3378
	brooch	1305	2270	3935* <S4>
	brooch	1326	2142	1876* <S5>
	brooch	1344	2139	3377* <S6>
	brooch	1352	2150	1265
	cosmetic set	1775	2139	3379
Household	window came	49	2142	1873
	lock equip	259	2139	1878
	lock equip	274	2136	1923
	lock equip	275	2145	1154
	lighting	388	1581	2543
	handle mount	498	2270	2313
	lead plug	737	2256	2657
	needle	841	2147	1244
	chess piece	960	2145	1338* <S7>
	weight/meas	1019	2140	1053

Finds vol	Object	Cat no.	Context	Acc no.
Knives & Scabbards	knife	11	2140	3098
	knife	12	2139	1879
	knife	15	2150	1243
	knife	24	2150	4683
	shears	315	2270	2253
Med Horse	pendant	60	2270	3934
	horseshoe	113	2212	3503
	horseshoe	143	2270	3630
	horseshoe	160	2150	1275
Pilg Souv	badge	2	2256	2247* <S8>
	badge	239	2270	2255

Artefact Table 11 Site A (Swan Lane): artefacts from Gp A61. Those marked * are illustrated. This shows an alternative method of presenting a table, which could easily be applied to the other tables by a researcher

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	27	2061	3046
buckle	Dress Acc	28	2018	505
buckle	Dress Acc	29	2020	516
buckle	Dress Acc	115	2057	1759
buckle	Dress Acc	116	2057	1760
buckle	Dress Acc	117	2081	1813
buckle	Dress Acc	278	2017	468
buckle	Dress Acc	295	2061	2200
buckle	Dress Acc	305	2030	4796* <S9>
buckle	Dress Acc	314	2040	530* <S10>
buckle	Dress Acc	317	2031	2091
buckle	Dress Acc	319	2018	3921* <S11>
buckle	Dress Acc	366	2081	1814
buckle	Dress Acc	378	2030	2129
buckle	Dress Acc	380	2051	622* <S12>
buckle	Dress Acc	381	2050	2960* <S13>
buckle	Dress Acc	396	2018	463
buckle	Dress Acc	397	2040	3943* <S14>
buckle	Dress Acc	422	2050	2239* <S15>
buckle	Dress Acc	441	2018	506
buckle	Dress Acc	443	2081	1809* <S16>
buckle	Dress Acc	483	2141	3393
buckle	Dress Acc	484	2051	626
buckle	Dress Acc	485	2051	780
buckle	Dress Acc	486	2070	2874* <S17>
buckle	Dress Acc	492	2065	600* <S18>
buckle	Dress Acc	493	2031	2090
buckle	Dress Acc	494	2025	3079
buckle	Dress Acc	508	2141	3265
buckle	Dress Acc	509	2146	1240
buckle	Dress Acc	532	2039	3070
buckle	Dress Acc	533	2030	3959
strap-end	Dress Acc	574	2051	629
strap-end	Dress Acc	575	2141	3263* <S19>
strap-end	Dress Acc	589	2018	5029
strap-end	Dress Acc	590	2072	4854
strap-end	Dress Acc	591	2079	4872
strap-end	Dress Acc	598	2141	3266* <S20>

Object	Finds vol	Cat no.	Context	Acc no.
strap-end	Dress Acc	609	2134	3373
strap-end	Dress Acc	624	2134	3308
strap-end	Dress Acc	625	2018	423
strap-end	Dress Acc	631	2030	2127
strap-end	Dress Acc	632	2051	782
strap-end	Dress Acc	646	2051	4986
strap-end	Dress Acc	728	2025	2106
strap-end	Dress Acc	729	2137	1904
strap-end	Dress Acc	747	2141	3264
strap-end	Dress Acc	748	2061	4824
strap-end	Dress Acc	750	2030	3958
strap-end	Dress Acc	763	2127	1031
mount	Dress Acc	771	2018	434
mount	Dress Acc	772	2141	3250
mount	Dress Acc	774	2046	1496
mount	Dress Acc	792	2030	2155
mount	Dress Acc	794	2040	519
mount	Dress Acc	821	2149	1256
mount	Dress Acc	823	2031	2969
mount	Dress Acc	824	2078	636
mount	Dress Acc	825	2046	1505
mount	Dress Acc	889	2132	1105
mount	Dress Acc	890	2018	472
mount	Dress Acc	939	2075	2242
mount	Dress Acc	949	2018	429
mount	Dress Acc	951	2018	425
mount	Dress Acc	1034	2030	2134
mount	Dress Acc	1035	2061	3045
mount	Dress Acc	1036	2018	420
mount	Dress Acc	1047	2031	2965
mount	Dress Acc	1066	2018	458
mount	Dress Acc	1077	2081	2136* <S21>
mount	Dress Acc	1093	2144	1138
mount	Dress Acc	1100	2051	623
mount	Dress Acc	1129	2062	4954
mount	Dress Acc	1136	2141	3428
mount	Dress Acc	1137	2051	5095
mount	Dress Acc	1139	2050	925
mount	Dress Acc	1140	2018	416
mount	Dress Acc	1141	2018	430
mount	Dress Acc	1142	2030	2128
mount	Dress Acc	1148	2141	3429
mount	Dress Acc	1149	2018	426
mount	Dress Acc	1150	2141	3427
mount	Dress Acc	1152	2018	431
mount	Dress Acc	1153	2030	3076
mount	Dress Acc	1156	2018	422
mount	Dress Acc	1157	2018	424
mount	Dress Acc	1158	2063	1942
mount	Dress Acc	1194	2137	4096
mount	Dress Acc	1199	2081	1810
mount	Dress Acc	1218	2079	901
mount	Dress Acc	1230	2141	3262
mount	Dress Acc	1231	2063	2114
mount	Dress Acc	1236	2149	1255
mount	Dress Acc	1293	2018	438
mount	Dress Acc	1302	2031	2968

Object	Finds vol	Cat no.	Context	Acc no.
brooch	Dress Acc	1312	2072	682
brooch	Dress Acc	1314	2050	2141* <S22>
brooch	Dress Acc	1328	2018	551
brooch	Dress Acc	1335	2030	2139
brooch	Dress Acc	1350	2018	442* <S23>
button	Dress Acc	1387	2141	3432
button	Dress Acc	1389	2146	1225
button	Dress Acc	1390	2018	1311
button	Dress Acc	1391	2030	2167
button	Dress Acc	1397	2030	2167
button	Dress Acc	1399	2018	1312
button	Dress Acc	1400	2072	685
button	Dress Acc	1402	2081	1808* <S24>
lace chape	Dress Acc	1438	2134	3371
lace chape	Dress Acc	1439	2137	1893
lace chape	Dress Acc	1440	2051	625
lace chape	Dress Acc	1441	2149	1187
hair accessory	Dress Acc	1451	2081	1696
bead	Dress Acc	1507	2028	1310
finger ring	Dress Acc	1616	2027	512
finger ring	Dress Acc	1618	2020	2092* <S25>
finger ring	Dress Acc	1633	2040	522* <S26>
finger ring	Dress Acc	1637	2018	457
finger ring	Dress Acc	1638	2051	624
bell	Dress Acc	1672	2018	396
bell	Dress Acc	1673	2040	528
cased mirror	Dress Acc	1711	2057	2123
cosmetic set	Dress Acc	1770	2018	427
cosmetic set	Dress Acc	1771	2018	428
hinge	Household	10	2144	1129
hinge	Household	13	2061	1957
hinge	Household	22	2018	3887
window came	Household	50	2030	2244* <S56>
fixed iron hook	Household	64	2134	1936
fixed iron hook	Household	77	2018	3889
robust iron handle	Household	87	2030	3926
strap-type mount	Household	165	2018	1822
strap-type mount	Household	166	2057	4997
strap-type mount	Household	168	2070	3091
strap-type mount	Household	170	2070	726
strap-type mount	Household	171	2134	1882
strap mt with hasp	Household	213	2031	2088
strap mt with hasp	Household	214	2061	657
strap mt with hasp	Household	215	2061	656
mount	Household	235	2070	730
mount	Household	236	2062	2729

Object	Finds vol	Cat no.	Context	Acc no.
mount	Household	238	2031	2087
drop handle	Household	240	2050	2956
lock case	Household	249	2057	1762
lock case	Household	250	2061	2104
key	Household	273	2030	480* <S27>
lock bolt	Household	287	2051	2109
key	Household	300	2141	3273* <S28>
key	Household	301	2070	3068
key	Household	302	2040	3942
key	Household	313	2033	2096
key	Household	314	2018	418
key	Household	333	2018	436
strike-a-light	Household	337	2137	1897* <S29>
pricket	Household	382	2137	1387* <S30>
pricket	Household	387	2061	2112
pricket	Household	391	2141	3507
pricket	Household	392	2141	3267
pricket	Household	393	2063	2110
pricket	Household	396	2030	3928
pricket	Household	402	2081	2137
pricket	Household	403	2061	2231
pricket	Household	416	2070	2201
rushlight holder	Household	421	2018	3910
spatula	Household	432	2050	1731
flesh hook	Household	435	2057	2105* <S31>
seal matrix	Household	fig 211	2018	446* <S55>
copper vessel foot	Household	454	2062	2591
copper rivet	Household	488	2141	3252
copper rivet	Household	489	2134	3375
flagon lid	Household	529	2081	2111* <S32>
wooden bowl	Household	571	2134	2644* <S33>
wooden bowl	Household	572	2134	4737
wooden bowl	Household	577	2018	1732* <S34>
stave	Household	629	2134	4815* <S35>
stave	Household	630	2018	1728
glass jug fragment	Household	653	2018	376
drinking glass fragment	Household	658	2030	2132
Near Eastern enamelled glass fragment	Household	695	2051	563
glass vessel	Household	698	2022	5011
spoon	Household	750	2018	437* <S36>
spoon	Household	751	2050	1976
spoon	Household	755	2061	659
spoon	Household	756	2062	2592
urinal	Household	782	2078	5012
whistle	Household	947	2061	662
weight/meas	Household	987	2061	2917
weight/meas	Household	1020	2025	3078
weight/meas	Household	1053	2020	2093
knife	Knives & Scabbards	25	2062	2240* <S37>

Object	Finds vol	Cat no.	Context	Acc no.
knife	Knives & Scabbards	26	2144	1130* <S38>
knife	Knives & Scabbards	27	2018	464* <S39>
knife	Knives & Scabbards	28	2141	3399* <S40>
knife	Knives & Scabbards	29	2051	676* <S41>
knife	Knives & Scabbards	30	2018	3909
knife	Knives & Scabbards	31	2039	2306
knife	Knives & Scabbards	32	2018	3890
knife	Knives & Scabbards	33	2070	3069
knife	Knives & Scabbards	35	2018	460
knife	Knives & Scabbards	36	2141	3274
knife	Knives & Scabbards	37	2051	1171
knife	Knives & Scabbards	38	2057	543a
knife	Knives & Scabbards	40	2018	2329
knife	Knives & Scabbards	41	2030	3982
knife	Knives & Scabbards	42	2137	3423
knife	Knives & Scabbards	309	2018	414
shears	Knives & Scabbards	316	2061	2230* <S42>
shears	Knives & Scabbards	317	2061	1953* <S43>
scabbard	Knives & Scabbards	391	2057	543b* <S44>
scabbard	Knives & Scabbards	392	2061	4935
scabbard	Knives & Scabbards	393	2018	4566
scabbard	Knives & Scabbards	395	2018	413* <S45>
scabbard	Knives & Scabbards	396	2050	534
scabbard	Knives & Scabbards	399	2134	4709
scabbard	Knives & Scabbards	400	2057	885* <S46>
scabbard	Knives & Scabbards	401	2046	4921
scabbard	Knives & Scabbards	402	2134	1027
scabbard	Knives & Scabbards	404	2078	4720
buckle	Med Horse	25	2046	720
buckle	Med Horse	30	2018	462
buckle	Med Horse	35	2141	3508
buckle	Med Horse	36	2137	1889
buckle	Med Horse	37	2071	736
buckle	Med Horse	39	2046	1362
pendant	Med Horse	62	2079	693
pendant	Med Horse	69	2018	441
horseshoe	Med Horse	141	2075	2708
horseshoe	Med Horse	142	2134	3376
horseshoe	Med Horse	157	2127	1030
horseshoe	Med Horse	158	2144	1133
horseshoe	Med Horse	159	2149	1186
horseshoe	Med Horse	162	2046	1495
horseshoe	Med Horse	164	2038	1757
horseshoe	Med Horse	165	2137	1896* <S47>
horseshoe	Med Horse	167	2061	2572
horseshoe	Med Horse	168	2137	2608
horseshoe	Med Horse	169	2061	2981
horseshoe	Med Horse	170	2141	3272
horseshoe	Med Horse	171	2071	3556
horseshoe	Med Horse	173	2031	3779
horseshoe	Med Horse	174	2018	3891
horseshoe	Med Horse	175	2018	3908
horseshoe	Med Horse	176	2040	3944
horseshoe	Med Horse	177	2018	466
horseshoe	Med Horse	178	2017	467
horseshoe	Med Horse	180	2051	722
rowel spur	Med Horse	324	2066	725* <S48>
rowel spur	Med Horse	325	2051	785
rowel spur	Med Horse	326	2141	891* <S49>
rowel spur	Med Horse	327	2070	2120
rowel spur	Med Horse	328	2070	2119
spur buckle	Med Horse	373	2141	3393
spur buckle	Med Horse	374	2051	626
spur buckle	Med Horse	375	2051	780
spur buckle	Med Horse	376	2070	2874
spur strap	Med Horse	399	2051	4986
curry comb	Med Horse	400	2051	717
curry comb	Med Horse	401	2146	1302
badge	Pilg Souv	11	2027	511* <S50>
badge	Pilg Souv	21	2018	443* <S51>
badge	Pilg Souv	98	2079	692* <S52>
badge	Pilg Souv	112	2070	691* <S53>
badge	Pilg Souv	247	2030	2150* <S54>
badge	Pilg Souv	259	2031	2966
badge	Pilg Souv	300	2030	2871
shoe	Shoes	29	2056	4537
shoe	Shoes	30	2022	4910
shoe	Shoes	31	2018	393
shoe	Shoes	34	2137	4813
tablet woven braid	Textiles	420	2061	4668
plaited braid	Textiles	421	2137	4655

Artefact Table 12 Site A (Swan Lane): artefacts from Gp A74. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
hinge	Household	8	2267	2536
horseshoe	Med Horse	300	2267	2539

Artefact Table 13 Site A (Swan Lane): artefacts from Gp A45[Egan]



Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	367	212	3360
cased mirror	Dress Acc	1708	2273	3445* <S57>
finger ring	Dress Acc	1620	935	383

Artefact Table 14 Site A (Swan Lane): artefacts from Gp A55[Egan]. The object marked * is illustrated

Object	Finds vol	Cat no.	Context	Acc no.
mount	Dress Acc	775	2135	1925
mount	Dress Acc	1105	2274	3223
mount	Dress Acc	1151	2133	1881
bell	Dress Acc	1646	2135	1927
strap mount with hasp	Household	216	2133	2481
horseshoe	Med Horse	166	2133	2479

Artefact Table 15 Site A (Swan Lane): artefacts from Gp A67

Object	Finds vol	Cat no.	Context	Acc no.
hinge	Household	7	394	165
iron handle	Household	86	394	343* <S58>
hinge	Household	3	484	267
fixed iron hook	Household	83	484	231* <S59>
padlock	Household	247	484	234* <S60>
wooden bowl	Household	561	484	204* <S61>
household equip	Household	595	484	726
knife	Knives & Scabbards	13	484	222
knife	Knives & Scabbards	18	484	232
shears	Knives & Scabbards	312	484	230
shears	Knives & Scabbards	314	484	226* <S62>
scabbard	Knives & Scabbards	373	467	161* <S63>
scabbard	Knives & Scabbards	376	467	163* <S64>
scabbard	Knives & Scabbards	378	394	139* <S65>
scabbard	Knives & Scabbards	386	484	248
curb bit	Med Horse	6	467	320* <S66>
shoe	Shoes	19	467	166
shoe	Shoes	21	484	457
shoe	Shoes	22	484	208
shoe	Shoes	26	467	159
shoe	Shoes	27	484	245
shoe	Shoes	28	484	246
patten	Shoes	125–6	467	362
tabby silk	Textiles	426	467	721
fingerloop braid	Textiles	427	467	508

Artefact Table 16 Site B (Seal House): artefacts from Group B31b, dumping behind B:Waterfront 3 (c 1240). Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
cased mirror	Dress Acc	1709	386	134* <S67>
strap-type mount	Household	164	386	143
pricket candlestick	Household	381	386	364
pricket candlestick	Household	385	386	150
wooden bowl	Household	599	386	141
turned wood box	Household	613	386	95
needle	Household	878	386	135
knife	Knives & Scabbards	16	386	149
knife	Knives & Scabbards	17	386	152
knife handle	Knives & Scabbards	19	386	192* <S68>
knife	Knives & Scabbards	22	386	140
knife	Knives & Scabbards	23	386	371
scabbard	Knives & Scabbards	374	386	86
scabbard	Knives & Scabbards	375	386	88* <S69>
scabbard	Knives & Scabbards	377	386	90* <S70>
scabbard	Knives & Scabbards	380	386	108* <S71>
horseshoe	Med Horse	129	386	151
shoe	Shoes	18	386	114
shoe	Shoes	23	386	138
shoe	Shoes	33	386	113

Artefact Table 17 Site B (Seal House): artefacts from Group B54, period B7.1. Those marked * are illustrated

Group	Object	Finds vol	Cat no.	Context	Acc no.
52a	scabbard	Knives & Scabbards	481	436	137* <S72>
52b	strap-type mount	Household	145	291	33
	casket mount	Household	147	291	32* <S73>
	stirrup	Med Horse	83	291	48* <S74>
	rowelspur	Med Horse	332	291	482

Artefact Table 18 Site B (Seal House): artefacts from Gps B52a and B52b. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
brooch	Dress Acc	1320	4178	2746
pin	Dress Acc	1470	6219	3259* <S138>
pin	Pilg Souv	254	6219	3259* <S138>
glass bead	Dress Acc	1586	4533	3282
finger ring	Dress Acc	1623	4064	2828
mounts on strap	Dress Acc	1064	6220	5958* <S139>
casket mount	Household	139	4064	2842

Object	Finds vol	Cat no.	Context	Acc no.
locking equip	Household	258	3562	2701
locking equip	Household	260	4016	2756
lighting equip	Household	343	3620	not given
household obj	Household	792	5229	3149
household obj	Household	833	3918	2880
household obj	Household	837	4030	2692
household obj	Household	838	6279	3240
household obj	Household	839	4064	2888
lead stylus	Household	892	4178	5131
weight or measure	Household	980	4178	2846
scabbard	Knives & Scabbards	471	4177	2964
horseshoe	Med Horse	124	5593	3677
shoe	Shoes	12	6279	6018
shoe	Shoes	13	6332	5858

Artefact Table 19 Site D (Billingsgate): objects from period D8.1 (those marked * are illustrated) (<S138> has been published twice)

Period	Object	Finds vol	Cat no.	Context	Acc No.
8.2	buckle	Dress Acc	270	5364	3077
8.2	buckle	Dress Acc	287	5364	3085
8.2	buckle	Dress Acc	303	5113	2827
8.2	buckle	Dress Acc	312	5020	2851
8.2	mount	Dress Acc	1254	5066	2859
8.2	brooch	Dress Acc	1308	5363	2812
8.2	brooch	Dress Acc	1339	5400	3068
8.2	hinge	Household	5	5020	3735
8.2	mount	Household	230	5364	3086
8.2	security equip	Household	242	5398	3071
8.2	security equip	Household	294	5364	3088
8.2	spindle whorl	Household	790	5400	5372
8.2	badge	Pilg Souv	1	5364	3084
8.8	pewter vessel base	Household	539	4659	2872* <S140>
8.9	spindle whorl	Household	791	4209	2656
9.2	buckle	Dress Acc	272	5222	7873
9.2	strap-end	Dress Acc	612	5224	3183
9.2	strap-end	Dress Acc	767	5222	2844
9.2	mount	Dress Acc	1273	4012	2727
9.2	brooch	Dress Acc	1303	3506	2443
9.2	brooch	Dress Acc	1323	5277	3053* <S141>

Period	Object	Finds vol	Cat no.	Context	Acc No.
9.2	finger ring	Dress Acc	1632	5277	3037
9.2	bell	Dress Acc	1670	5277	3070
9.2	cosmetic set	Dress Acc	1778	3212	2446
9.2	balance	Household	1052	5511	2947* <S142>
9.2	shears	Knives & Scabbards	313	5221	2811
9.2	scabbard	Knives & Scabbards	383	5221	2806* <S143>
9.2	scabbard	Knives & Scabbards	384	3211	2426* <S144>
9.2	buckle	Med Horse	24	5221	2800
9.2	stirrup	Med Horse	82	5221	2800* <S145>
9.2	badge	Pilg Souv	236	5277	3050
9.2	goat hair cloth	Textiles	431	5999	3081
9.3	goat hair cloth	Textiles	432	3363	2414
9.3	goat hair cloth	Textiles	433	3984	2481

Artefact Table 20 Site D (Billingsgate): objects from period D8.2, D9.2 and D9.3. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc No.
buckle	Dress Acc	313	3511	2431* <S146>
buckle	Dress Acc	499	4105	2840
mount	Dress Acc	1167	4103	2926
mount	Dress Acc	1295	4100	2804
brooch	Dress Acc	1334	3512	2705
bell	Dress Acc	1669	3512	2702
comb	Dress Acc	1719	4449	2729* <S147>
strap-type mount	Household	142	4103	2926
strap-type mount	Household	144	4100	2804
locking equip	Household	265	4371	2697
glass vessel fragment	Household	697	4339	3283
wooden chess piece (king)	Household	955	4342	2891
scabbard	Knives & Scabbards	385	4538	2745
horseshoe	Med Horse	195	4372	2941
spurrowel	Med Horse	357	4100	2803

Artefact Table 21 Site D (Billingsgate): objects from period D10.1. Those marked * are illustrated

Period	Object	Finds vol	Cat no.	Context	Acc No.
10.14	mount	Dress Acc	1286	3919	2753
10.14	pendant	Dress Acc	1600	3347	3047
10.15	buckle	Dress Acc	500	4086	2719* <S148>

Period	Object	Finds vol	Cat no.	Context	Acc No.
10.15	strap-end	Dress Acc	743	4201	3159
10.15	hinge	Household	6	4125	3720
10.15	turned wooden lid	Household	627	4045	2583
10.15	tabby	Textiles	430	4080	6008
10.15	goat hair cloth	Textiles	434	4010	5876

Artefact Table 22 Site D (Billingsgate): objects from period D10.14 and D10.15. That marked * is illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	395	3807	2906
key	Household	305	3882	2715
lead stylus	Household	893	3803	2857
lead stylus	Household	894	3682	2950
knife	Knives & Scabbards	289	3807	2910
badge	Pilg Souv	235	3807	2698

Artefact Table 23 Site D (Billingsgate): objects from period D11.1

Phase	Object	Finds vol	Cat no.	Context	Acc no.
11.3	mount	Dress Acc	1257	2636	3168
11.3	mount	Dress Acc	1271	2972	2442
11.3	mount	Dress Acc	1272	2506	2444
11.3	brooch	Dress Acc	1322	2580	2328
11.3	brooch	Dress Acc	1324	2939	2718
11.3	button	Dress Acc	1376	3204	3403
11.3	chain	Dress Acc	1597	3204	3731
11.3	bell	Dress Acc	1668	3232	3400
11.3	key	Household	296	3204	3406
11.3	spatula	Household	431	2152	2179
11.3	part of ornate bronze vessel	Household	469	3204	2096
11.3	wooden bowl	Household	594	2505	2340
11.3	needle	Household	877	3150	3740
11.3	weight or measure	Household	983	3204	3799
11.3	knife	Knives & Scabbards	20	3135	2640
11.3	knife	Knives & Scabbards	21	3204	3411
11.3	knife	Knives & Scabbards	288	2635	2341
11.3	scabbard	Knives & Scabbards	390	3136	2435
11.3	scabbard	Knives & Scabbards	467	3134	2394
11.3	pendant	Med Horse	54	3135	2436* <S149>
11.3	spur rowel	Med Horse	358	3204	3659
11.3	badge	Pilg Souv	251	3137	2700* <S150>
11.3	badge	Pilg Souv	275	3135	2432
11.4	mount	Dress Acc	1256	3071	2522
11.7	buckle	Dress Acc	288	2898	2439

Artefact Table 24 Site D (Billingsgate): objects from period D11.3–4 and D11.7. <S149> is not illustrated

Object	Finds vol	Cat no.	Context	Acc no.
strap-end	Dress Acc	630	1668	2324
goat hair cloth	Textiles	435	1668	2334
brooch	Dress Acc	1336	1806	1938* <S154>
scabbard	Knives & Scabbards	484	1914	2046
goat hair cloth	Textiles	436	1914	2055
wooden bowl	Household	555	2012	2151
wooden lid	Household	622	2053	2148
buckle	Dress Acc	292	2171	2302
buckle	Dress Acc	260	2196	2483
wooden bowl	Household	565	2242	2194
buckle	Dress Acc	502	2243	2252
curfew	Household	338	2246	unstratified
curfew	Household	339	2246	unstratified
locking equip	Household	244	2277	2472
brooch	Dress Acc	1343	2278	2287* <S155>
wooden chess piece: bishop	Household	957	2278	2288
strap-end	Dress Acc	629	2278	2315
mount	Dress Acc	1274	2284	2242
strap-end	Dress Acc	623	2514	2305* <S152>
mount	Dress Acc	901	2514	2307
buckle	Dress Acc	501	2514	2433
button	Dress Acc	1385	2544	2359
scabbard	Knives & Scabbards	379	2545	2255
buckle	Dress Acc	293	2591	2336* S<151>
brooch	Dress Acc	1309	2591	2317* S<153>
finger ring	Dress Acc	1608	2591	2301
buckle	Dress Acc	291	2591	2321
button	Dress Acc	1384	2591	2322
mount	Dress Acc	1276	2591	2464
mount	Dress Acc	1275	2591	2470
weight or measure	Household	985	2591	2521
bronze foot of cauldron	Household	453	2591	2639
button	Dress Acc	1377	2591	2649
mount	Dress Acc	1278	2591	2673
mount	Dress Acc	1279	2591	2673

Object	Finds vol	Cat no.	Context	Acc no.
brooch	Dress Acc	1345	2591	3141
button	Dress Acc	1386	2591	5734
scabbard	Knives & Scabbards	470	2595	2296
scabbard	Knives & Scabbards	483	2595	2335
buckle	Dress Acc	503	2596	2494
pendant	Med Horse	53	2596	2496
horseshoe	Med Horse	97	2596	2565
pendant	Med Horse	55	2718	2356
cased mirror	Dress Acc	1710	2745	2339* <S156>
button	Dress Acc	1379	2745	2338
mount	Dress Acc	1277	2831	2353
mount	Dress Acc	1259	2831	2355
buckle	Dress Acc	290	2853	2401
button	Dress Acc	1378	2853	2508
mount	Dress Acc	1147	2853	2511
buckle	Dress Acc	289	2853	2523
scabbard	Knives & Scabbards	474	2854	2376
mount	Dress Acc	1063	2888	153
brooch	Dress Acc	1351	2909	2475
knife	Knives & Scabbards	14	2913	2398
hinge	Household	9	2913	3734
buckle	Dress Acc	320	2914	2453
scabbard	Knives & Scabbards	387	2915	2363
badge	Pilg Souv	179	2916	2612
wood stopper	Household	641	2938	2413

Artefact Table 25 Site D (Billingsgate): objects from period D12.1. Those marked * are illustrated.

Phase	Object	Finds vol	Cat no.	Context	Acc no.
12.3	brooch	Dress Acc	1310	3216	2429
12.3	weight or measure	Household	1027	3176	2440
12.5	knife	Knives & Scabbards	287	1823	2050

Artefact Table 26 Site D (Billingsgate): objects from period D12.3 and D12.5

Period M3

Object	Finds vol	Cat no.	Context	Acc no.
mount	Dress Acc	770	2126	1101
horseshoe	Med Horse	156	2126	1028

Artefact Table 27 Site A (Swan Lane): objects from Gp A77

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	420	2016	554
mount	Dress Acc	1104	2016	549

Artefact Table 28 Site A (Swan Lane): objects from Gp A80

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	491	2065	2205* <S75>
buckle	Dress Acc	492	2065	600* <S76>
buckle	Dress Acc	561	2065	2744
buckle	Dress Acc	571	2065	2108
mount	Dress Acc	773	2055	587
mount	Dress Acc	791	2065	619
mount	Dress Acc	826	2065	2741
mount	Dress Acc	856	2065	2741
mount	Dress Acc	1065	2055	596
mount	Dress Acc	1086	2065	1970
mount	Dress Acc	1138	2065	603
mount	Dress Acc	1155	2055	597
mount	Dress Acc	1229	2065	2743
mount	Dress Acc	1284	2065	2107
brooch	Dress Acc	1311	2055	2186
brooch	Dress Acc	1327	2055	582* <S77>
button	Dress Acc	1388	2004	1831
button	Dress Acc	1398	2065	2740
button	Dress Acc	1401	2055	581
lace chape	Dress Acc	1443	2065	1967
bell	Dress Acc	1674	2065	2116
fixed iron hook	Household	56	2055	568* <S78>
fixed iron hook	Household	76	2065	2206
fixed iron hook	Household	79	2055	569
strap-type mount	Household	167	2055	579
strap-type mount	Household	172	2065	2904
mount	Household	237	2065	604
turned wood box	Household	615	2065	4721
turned wood box	Household	616	2065	4723
turned wood lid	Household	618	2055	1704
glass flask	Household	644	2055	838
weight	Household	1028	2055	575
knife	Knives & Scabbards	39	2065	786
knife	Knives & Scabbards	53	2042	4991
scabbard	Knives & Scabbards	397	2065	786
scabbard	Knives & Scabbards	398	2065	786
scabbard	Knives & Scabbards	403	2055	1339* <S79>
buckle	Med Horse	28	2055	565
buckle	Med Horse	31	2131	1045* <S80>
hasp	Med Horse	48	2055	571
pendant	Med Horse	70	2055	585* <S81>
horseshoe	Med Horse	131	2055	3804
horseshoe	Med Horse	161	2056	1357
horseshoe	Med Horse	172	2042	3763* <S82>
horseshoe	Med Horse	179	2055	566
badge	Pilg Souv	12	2055	573* <S83>

Object	Finds vol	Cat no.	Context	Acc no.
badge	Pilg Souv	14	2055	731
badge	Pilg Souv	299	2055	813* <S84>
shoe	Shoes	29	2056	4537
tabby	Textiles	417	2042	742
tabby	Textiles	418	2042	744
tabby	Textiles	419	2056	1034

Artefact Table 29 Site A (Swan Lane): artefacts from Gp 85. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	168	2069	3088
buckle	Dress Acc	169	2069	3089
buckle pin	Dress Acc	536	2032	1756
strap-end	Dress Acc	702	2023	3769
mounts	Dress Acc	858	2032	4386* <S85>
mount	Dress Acc	1074	2032	2779
hair accessory	Dress Acc	1453	2069	4998
? drape rings	Household	99	2069	3087
thimble	Household	827	994	2102
ceramic whistle	Household	952	994	3741* <S86>
weight	Household	1001	2032	1755

Artefact Table 30 Site A (Swan Lane): artefacts from Gp A100. The objects marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	526	1031	389
mount	Dress Acc	1024	2110	2125
brooch	Dress Acc	1354	2012	542* <S87>
cloth seal	Household	812	966	380* <S88>
gaming counter	Household	963	1031	1707* <S89>
weight	Household	1003	966	394

Artefact Table 31 Site A (Swan Lane): artefacts from Gp A93. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	111	2105	2775
buckle	Dress Acc	215	2105	1446
strap-end	Dress Acc	648	2105	1445* <S90>
strap-end	Dress Acc	684	2102	941* <S91>
bell	Dress Acc	1661	2101	940
key	Household	272	2105	1114* <S92>
lock bolt	Household	292	2105	1147
knife	Knives & Scabbards	138	2105	798* <S93>
knife	Knives & Scabbards	248	2105	1115
shoe buckle	Shoes	110c	2102	800
shoe buckle	Shoes	110h	2102	850
shoe	Shoes	60	2105	4620

Artefact Table 32 Site A (Swan Lane): artefacts from Gp A95 (excavated under salvage conditions). The objects marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	100	2102	799
buckle	Dress Acc	102	2102	2350
buckle	Dress Acc	103	2102	3434
buckle	Dress Acc	104	2102	949
buckle	Dress Acc	105	2102	800
buckle	Dress Acc	107	2102	2774
buckle	Dress Acc	136	2085	792
buckle	Dress Acc	156	2269	2489
buckle	Dress Acc	157	2269	2490
buckle	Dress Acc	164	2109	2943
buckle	Dress Acc	165	2109	2944
buckle	Dress Acc	201	2115	2395
buckle	Dress Acc	202	2269	2491
buckle	Dress Acc	265	2102	894
buckle	Dress Acc	355	2269	2491
buckle	Dress Acc	373	2107	835
buckle	Dress Acc	375	2102	850
buckle	Dress Acc	393	2109	2942
buckle	Dress Acc	433	2102	923
buckle	Dress Acc	530	2102	941
strap-end	Dress Acc	587	2102	2510
strap-end	Dress Acc	684	2102	941
mount	Dress Acc	932	2102	946
mount	Dress Acc	935	2109	2068
mount	Dress Acc	983	2102	1950
mount	Dress Acc	1001	2102	2100
mount	Dress Acc	1002	2102	2509
mount	Dress Acc	1040	2102	947
mount	Dress Acc	1041	2102	948
mount	Dress Acc	1042	2102	1789
mount	Dress Acc	1054	2102	1792
mount	Dress Acc	1083	2102	1790
mount	Dress Acc	1091	2107	2101* <S94>
mount	Dress Acc	1206	2102	2349
mount	Dress Acc	1207	2102	917
mount	Dress Acc	1285	2107	3066
brooch	Dress Acc	1359	2109	2075* <S95>
brooch	Dress Acc	1360	2107	1998* <S96>
brooch	Dress Acc	1364	2107	830
brooch	Dress Acc	1367	2115	2235
brooch	Dress Acc	1371	2102	939
brooch	Dress Acc	1373	2109	2078
lace chape	Dress Acc	1428	2115	2236
hair accessory	Dress Acc	1454	2102	2166
chain	Dress Acc	1590	2115	2397
bell	Dress Acc	1661	2102	940
bell	Dress Acc	1662	2102	955
comb	Dress Acc	1744	2102	1713
cosmetic set	Dress Acc	1769	2115	2164
? drape rings	Household	116	2107	4650
? drape rings	Household	125	2109	2949
flat lead vessel	Household	516	2109	2946
flat lead vessel	Household	518	2085	733
hollow lead vessel	Household	526	2109	2946
lead vessel	Household	543	2115	2605
white glass vessel	Household	689	2107	5009

Object	Finds vol	Cat no.	Context	Acc no.
spoon	Household	769	2109	1971* <S97>
thimble	Household	830	2107	1996* <S98>
weight	Household	1025	2109	2941
knife	Knives & Scabbards	247	2102	2648
knife	Knives & Scabbards	259	2107	805
rowel spur	Med Horse	342	2102	4262
badge	Pilg Souv	69	2102	1915* <S99>
badge	Pilg Souv	97	2109	2074
badge	Pilg Souv	118	2107	1120* <S100>
badge	Pilg Souv	139	2109	2076
badge	Pilg Souv	151	2102	989* <S101>
badge	Pilg Souv	161	2109	2077
badge	Pilg Souv	268	2102	916
badge	Pilg Souv	285	2102	2203* <S102>
badge	Pilg Souv	304	2115	808
badge	Pilg Souv	309	2109	2078
badge	Pilg Souv	316	2102	939
badge	Pilg Souv	327	2107	830
badge	Pilg Souv	329	2115	2235
badge	Pilg Souv	331	2102	1951

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rtefact Table 33 Site A (Swan Lane): artefacts from Gp A102. Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
girdle	Dress Acc	21	2106	4260* <S103>
buckle	Dress Acc	101	2113	1453
buckle	Dress Acc	108	2103	5050
buckle	Dress Acc	109	2103	3030
buckle	Dress Acc	110	2097	774
buckle	Dress Acc	123	2106	2880
buckle	Dress Acc	126	2103	998
buckle	Dress Acc	129	2103	4718
buckle	Dress Acc	133	2084	649
buckle	Dress Acc	134	2097	775
buckle	Dress Acc	135	2097	776
buckle	Dress Acc	137	2097	811
buckle	Dress Acc	138	2097	812
buckle	Dress Acc	139	2097	813
buckle	Dress Acc	141	2111	895
buckle	Dress Acc	142	2111	896
buckle	Dress Acc	143	2106	897
buckle	Dress Acc	146	2103	993
buckle	Dress Acc	147	2103	995
buckle	Dress Acc	148	2103	1025
buckle	Dress Acc	149	2100	1056
buckle	Dress Acc	150	2100	1058
buckle	Dress Acc	152	2100	1074
buckle	Dress Acc	153	2100	1075
buckle	Dress Acc	154	2113	1474
buckle	Dress Acc	155	2113	1478
buckle	Dress Acc	158	2108	2783
buckle	Dress Acc	159	2108	2784
buckle	Dress Acc	160	2108	2785
buckle	Dress Acc	161	2106	2876
buckle	Dress Acc	162	2106	2878
buckle	Dress Acc	163	2108	2928
buckle	Dress Acc	166	2084	2980
buckle	Dress Acc	167	2103	3029
buckle	Dress Acc	170	2082	3406
buckle	Dress Acc	171	2103	4550
buckle	Dress Acc	188	2103	997
buckle	Dress Acc	189	2114	2753
buckle	Dress Acc	193	2113	2574
buckle	Dress Acc	194	2108	2929
buckle	Dress Acc	195	2112	3298
buckle	Dress Acc	197	2097	752
buckle	Dress Acc	199	2100	887
buckle	Dress Acc	200	2113	1479
buckle	Dress Acc	203	2108	2784
buckle	Dress Acc	204	2106	2888
buckle	Dress Acc	205	2106	2889
buckle	Dress Acc	207	2103	3030
buckle	Dress Acc	208	2106	4207
buckle	Dress Acc	209	2103	4693
buckle	Dress Acc	216	2106	2881
buckle	Dress Acc	217	2103	3031
buckle	Dress Acc	218	2084	652
buckle	Dress Acc	219	2112	980
buckle	Dress Acc	221	2103	994
buckle	Dress Acc	222	2106	2023
buckle	Dress Acc	223	2112	3302
buckle	Dress Acc	224	2112	3359
buckle	Dress Acc	226	2100	889
buckle	Dress Acc	227	2112	977
buckle	Dress Acc	228	2100	1093
buckle	Dress Acc	229	2113	1488
buckle	Dress Acc	230	2106	2051
buckle	Dress Acc	231	2106	2211
buckle	Dress Acc	232	2112	3292
buckle	Dress Acc	233	2112	3300
buckle	Dress Acc	234	2103	4547
buckle	Dress Acc	235	2103	4692
buckle	Dress Acc	238	2106	998
buckle	Dress Acc	239	2103	999
buckle	Dress Acc	241	2106	899
buckle	Dress Acc	242	2100	1077
buckle	Dress Acc	244	2097	749
buckle	Dress Acc	245	2113	844
buckle	Dress Acc	246	2082	972
buckle	Dress Acc	247	2112	978
buckle	Dress Acc	248	2112	982
buckle	Dress Acc	249	2103	996
buckle	Dress Acc	250	2100	1213
buckle	Dress Acc	251	2108	1999
buckle	Dress Acc	255	2112	3291
buckle	Dress Acc	256	2112	881
buckle	Dress Acc	256	2112	3303
buckle	Dress Acc	257	2082	5017
buckle	Dress Acc	257	2108	2927

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	258	2108	3533
buckle	Dress Acc	259	2112	3301
buckle	Dress Acc	261	2106	2877
buckle	Dress Acc	263	2084	978
buckle	Dress Acc	283	2117	1959
buckle	Dress Acc	330	2097	751
buckle	Dress Acc	342	2113	1482* <S104>
buckle	Dress Acc	343	2103	806* <S105>
buckle	Dress Acc	354	2113	845
buckle	Dress Acc	368	2112	3299
buckle	Dress Acc	370	2113	1475
buckle	Dress Acc	371	2112	981
buckle	Dress Acc	374	2112	976
buckle	Dress Acc	387	2106	2052* <S106>
buckle	Dress Acc	452	2117	1837
buckle	Dress Acc	453	2103	1995
buckle	Dress Acc	458	2113	1490
buckle	Dress Acc	459	2106	3338
buckle	Dress Acc	460	2082	4354
buckle	Dress Acc	469	2103	3208
buckle	Dress Acc	474	2100	1212
buckle	Dress Acc	475	2100	1094* <S107>
buckle	Dress Acc	476	2113	846
buckle	Dress Acc	477	2112	3297
buckle	Dress Acc	478	2100	1072
buckle	Dress Acc	479	2117	1960
buckle	Dress Acc	528	2103	1785
strap-end	Dress Acc	597	2084	4855
strap-end	Dress Acc	618	2084	2971
strap-end	Dress Acc	619	2103	3023
strap-end	Dress Acc	670	2112	1912* <S108>
strap-end	Dress Acc	707	2084	653
strap-end	Dress Acc	708	2082	3405* <S109>
strap-end	Dress Acc	709	2082	3404
strap-end	Dress Acc	710	2100	1167* <S110>
strap-end	Dress Acc	711	2108	1954
strap-end	Dress Acc	712	2082	3403* <S111>
strap-end	Dress Acc	722	2106	2027
strap-end	Dress Acc	724	2100	1202
mount	Dress Acc	811	2112	884* <S112>
mount	Dress Acc	812	2103	1962
mount	Dress Acc	815	2084	2977
mount	Dress Acc	818	2112	3289
mount	Dress Acc	847	2112	883
mount	Dress Acc	848	2108	2787
mount	Dress Acc	852	2100	847* <S113>
mount	Dress Acc	853	2100	890
mount	Dress Acc	855	2100	1078* <S114>
mount	Dress Acc	865	2097	757
mount	Dress Acc	866	2114	2219
mount	Dress Acc	869	2100	1088
mount	Dress Acc	870	2100	1089
mount	Dress Acc	871	2097	758
mount	Dress Acc	900	2103	1783
armorial mounts	Dress Acc	933	2112	893* <S115>
mount	Dress Acc	946	2112	1672

Object	Finds vol	Cat no.	Context	Acc no.
mount	Dress Acc	984	2112	3363
mount	Dress Acc	1025	2106	2026
mount	Dress Acc	1052	2103	806
mount	Dress Acc	1080	2114	2751
mount	Dress Acc	1081	2100	1095* <S116>
mount	Dress Acc	1082	2114	2220
mount	Dress Acc	1088	2113	1480* <S117>
mount	Dress Acc	1090	2106	2885
mount	Dress Acc	1092	2112	1668* <S118>
mount	Dress Acc	1095	2112	1667
mount	Dress Acc	1097	2097	814
mount	Dress Acc	1109	2112	3286
mount	Dress Acc	1110	2103	1963
mount	Dress Acc	1112	2113	1486
mount	Dress Acc	1113	2112	3295
mount	Dress Acc	1122	2100	1082
mount	Dress Acc	1123	2100	1082
mount	Dress Acc	1200	2106	1845
mount	Dress Acc	1201	2100	888
mount	Dress Acc	1220	2112	4769
mount	Dress Acc	1221	2112	880
mount	Dress Acc	1222	2106	801
mount	Dress Acc	1223	2103	807
mount	Dress Acc	1224	2103	991
mount	Dress Acc	1225	2103	992
mount	Dress Acc	1226	2112	3290
mount	Dress Acc	1228	2103	2117
brooch	Dress Acc	1338	2113	1493
brooch	Dress Acc	1358	2097	753
brooch	Dress Acc	1361	2113	1477
brooch	Dress Acc	1362	2108	2146
brooch	Dress Acc	1365	2113	1494
brooch	Dress Acc	1366	2112	1671
brooch	Dress Acc	1370	2112	1666
brooch	Dress Acc	1372	2112	1665
button	Dress Acc	1381	2103	1782* <S119>
button	Dress Acc	1382	2100	1090
lace chape	Dress Acc	1429	2100	1098
lace chape	Dress Acc	1430	2106	2035
lace chape	Dress Acc	1435	2082	4989
bead	Dress Acc	1584	2108	2788
bead	Dress Acc	1585	2112	3294
chain	Dress Acc	1596	2111	2157
pendant	Dress Acc	1602	2082	3400
pendant	Dress Acc	1603	2106	2033* <S120>
pendant	Dress Acc	1604	2097	760
pendant	Dress Acc	1605	2112	3285
pendant	Dress Acc	1607	2112	1679
finger ring	Dress Acc	1626	2108	1997
finger ring	Dress Acc	1627	2106	2887
finger ring	Dress Acc	1628	2108	2926
finger ring	Dress Acc	1629	2106	2025
bell	Dress Acc	1686	2108	1977
bell	Dress Acc	1689	2112	1682
comb	Dress Acc	1745	2103	1780* <S121>
comb	Dress Acc	1753	2112	1169
cosmetic set	Dress Acc	1768	2097	761

Object	Finds vol	Cat no.	Context	Acc no.
fixed iron hook	Household	55	2082	3407
decorative mount	Household	89	2084	2208
decorative mount	Household	90	2117	1958
? drape rings	Household	117	2117	2580
? drape rings	Household	118	2082	3412
? drape rings	Household	119	2097	809
? drape rings	Household	120	2112	876
? drape rings	Household	124	2103	3027
? drape rings	Household	126	2112	3362
? drape rings	Household	127	2082	3411
strap-type mount	Household	208	2113	1864
mount	Household	239	2112	2122
padlock	Household	255	2097	1851
padlock	Household	282	2100	1208
tin flatware	Household	513	2082	3409
tin flatware	Household	514	2103	2893
tin flatware	Household	517	2113	1471
vessel decoration	Household	545	2082	3402* <S122>
turned wood box	Household	617	2112	1173* <S123>
urinal	Household	649	2117	839
glass drinking vessel	Household	671	2082	5015
glass drinking vessel	Household	673	2082	842
glass drinking vessel	Household	674	2112	4698
glass drinking vessel	Household	675	2084	787
glass drinking vessel	Household	676	2082	841* <S124>
spoon	Household	770	2082	914* <S125>
spoon	Household	773	2097	750
spoon	Household	774	2106	2049
spoon	Household	775	2106	2048
spindle whorl	Household	804	2114	2218
cloth seal	Household	808	2112	975* <S126>
cloth seal	Household	809	2112	3323
cloth seal	Household	810	2106	4448
cloth seal	Household	811	2106	4690
cloth seal	Household	813	2082	913* <S127>
thimble	Household	829	2112	973
thimble	Household	831	2112	3281* <S128>
needle	Household	872	2108	3532
stylus	Household	911	2108	802* <S129>
book clasp	Household	921	2106	2027
book clasp	Household	923	2100	1202
weight	Household	1010	2082	1939
weight	Household	1011	2106	2050
weight	Household	1012	2112	3324
weight	Household	1015	2114	2158
weight	Household	1023	2106	2884
weight	Household	1024	2117	2583
weight	Household	1026	2108	2931
weight	Household	1047	2106	2879
horseshoe	Med Horse	163	2000	1747
knife	Knives & Scabbards	256	2097	754
knife	Knives & Scabbards	257	2113	1857
knife	Knives & Scabbards	260	2112	1168
knife	Knives & Scabbards	261	2112	892
knife	Knives & Scabbards	262	2112	1172* <S130>
knife	Knives & Scabbards	263	2100	848
knife	Knives & Scabbards	264	2106	796
knife	Knives & Scabbards	272	2082	967
knife	Knives & Scabbards	273	2113	1855
knife	Knives & Scabbards	274	2113	1855
knife	Knives & Scabbards	275	2113	1858
knife	Knives & Scabbards	276	2113	1859
horseshoe	Med Horse	297	2114	4651
Rowel spur	Med Horse	343	2117	2707
badge	Pilg Souv	89	2084	650
badge	Pilg Souv	90	2103	3056
badge	Pilg Souv	96	2108	2168
badge	Pilg Souv	103	2112	1670* <S131>
badge	Pilg Souv	113	2108	1955* <S132>
badge	Pilg Souv	116	2113	1483
badge	Pilg Souv	135	2106/7	2028
badge	Pilg Souv	152	2097	2033
badge	Pilg Souv	170	2113	1481* <S133>
badge	Pilg Souv	171	2103	1786
badge	Pilg Souv	172	2082	3414
badge	Pilg Souv	174	2112	1677* <S134>
badge	Pilg Souv	182	2082	968
badge	Pilg Souv	202	2106/7	2031
badge	Pilg Souv	203	2112	3296
badge	Pilg Souv	204	2113	1487
badge	Pilg Souv	205	2106?	3824
badge	Pilg Souv	209	2106/7	2029* <S135>
badge	Pilg Souv	214	2100	1209
secular badge	Pilg Souv	272	2112	1669
secular badge	Pilg Souv	282	2114	2204* <S136>
secular badge	Pilg Souv	288	2103	2892
secular badge	Pilg Souv	297	2113	1484
secular badge	Pilg Souv	305	2106/7	2030
secular badge	Pilg Souv	317	2112	1666
secular badge	Pilg Souv	326	2084	651

Object	Finds vol	Cat no.	Context	Acc no.
secular badge	Pilg Souv	328	2112	1672
secular badge	Pilg Souv	330	2113	1494
shoe	Shoes	59	2097	4902
shoe	Shoes	65	2112	4247
patten	Shoes	140	2100	4608
tablet-woven braid	Textiles	423	2084	2971

Artefact Table 34 Site A (Swan Lane): artefacts from Gp A103 (15th century, with some contamination of sherds to 1600). Those marked * are illustrated

Object	Finds vol	Cat no.	Context	Acc no.
buckle	Dress Acc	558	2006	3972
strap-end	Dress Acc	683	2006	3971
weight/meas	Household	1013	2006	2196

Artefact Table 35 Site A (Swan Lane): artefacts from Gp A104

Group	Object	Finds vol	Cat no.	Context	Acc no.
61	knife	Knives & Scabbards	74	280	56* <S137>
	rowel spur	Med Horse	331	280	75

Artefact Table 36 Site B (Seal House): artefacts from Gp B61. That marked * is illustrated

Period	Object	Finds vol	Cat no.	Context	Acc no.
13.1	goathair cloth	Textiles	437	3089	2085
13.2	household equip	Household	699	2424	4017
13.3	cased mirror	Dress Acc	1714	2570	2188
13.4	brooch	Dress Acc	1304	1928	2053

Artefact Table 37 Site D (Billingsgate): artefacts from period D13.1–4 and D13.7

Number	Object	Site, accession number, context
<S1>	rectangular mounted lock	A<2254> [284]
<S2>	ash bowl	A<2640> [553]
<S3>	candlestick	A<1121> [2130]
<S4>	dress accessory	A<3935> [1305]
<S5>	dress accessory	A<1876> [1326]
<S6>	dress accessory	A<3377> [1344]
<S7>	bone chess piece, a pawn	A<1338> [2145]
<S8>	pilgrim souvenir	A<2247> [2]
<S9>	dress accessory	A<4796> [305]
<S10>	dress accessory	A<530> [314]
<S11>	dress accessory	A<3921> [319]
<S12>	dress accessory	A<622> [380]
<S13>	dress accessory	A<2960> [381]
<S14>	dress accessory	A<3943> [397]
<S15>	dress accessory	A<2239> [422]
<S16>	dress accessory	A<1809> [443]
<S17>	dress accessory	A<2874> [486]
<S18>	dress accessory	A<470> [490]
<S19>	dress accessory	A<3263> [575]
<S20>	dress accessory	A<3266> [598]
<S21>	dress accessory	A<2136> [1077]
<S22>	dress accessory	A<2141> [1314]
<S23>	dress accessory	A<442> [1350]
<S24>	dress accessory	A<1808> [1402]
<S25>	dress accessory	A<2092> [1618]
<S26>	dress accessory	A<522> [1633]
<S27>	key	A<480> [273]
<S28>	key	A<3273> [300]
<S29>	strike-a-light	A<1897> [337]
<S30>	pricket	A<1387> [382]
<S31>	flesh-hook	A<2105> [435]
<S32>	flagon lid	A<2111> [529]
<S33>	wooden bowl	A<2644> [571]
<S34>	wooden bowl	A<1732> [577]
<S35>	stave	A<4815> [629]
<S36>	spoon	A<437> [750]
<S37>	knife	A<2240> [25]
<S38>	knife	A<1130> [26]
<S39>	knife	A<464> [27]
<S40>	knife	A<3399> [28]
<S41>	knife	A<676> [29]
<S42>	shears	A<2230 [316]
<S43>	shears	A<1953> [317]
<S44>	knife and scabbard	A<543a–b> [391]
<S45>	scabbard	A<413> [395]
<S46>	scabbard	A<885> [400]
<S47>	horseshoe	A<1896> [165]
<S48>	rowel spur	A<725> [324]
<S49>	rowel spur	A<891> [326]
<S50>	pilgrim souvenir	A<511> [11]
<S51>	pilgrim souvenir	A<443> [21]
<S52>	pilgrim souvenir	A<692> [98]
<S53>	pilgrim souvenir	A<691> [112]
<S54>	pilgrim souvenir	A<2150> [247]
<S55>	seal matrix	A<446> [2018]
<S56>	window came with glass	A<2244> [2030]
<S57>	cased mirror	A<3445> [1708]
<S58>	iron handle	B<343> [394]
<S59>	fixed iron hook	B<231> [484]
<S60>	padlock	B<234> [484]
<S61>	wooden bowl	B<204> [484]
<S62>	shears	B<226> [484]
<S63>	scabbard	B<161> [467]
<S64>	scabbard	B<163> [467]
<S65>	scabbard	B<139> [394]
<S66>	curb bit	B<320> [467]
<S67>	cased mirror	B<134> [386]
<S68>	knife handle	B<192> [386]
<S69>	scabbard	B<88> [386]
<S70>	scabbard	B<90> [386]

Number	Object	Site, accession number, context
<S71>	scabbard	B<108> [386]
<S72>	scabbard	B<137> [436]
<S73>	casket mount	B<32> [291]
<S74>	stirrup	B<48> [291]
<S75>	buckle	A<2205> [491]
<S76>	buckle	A<600> [492]
<S77>	brooch	A<582> [1327]
<S78>	hook	A<568> [56]
<S79>	scabbard	A<1339> [403]
<S80>	horse buckle	A<1045> [31]
<S81>	horse pendant	A<585> [70]
<S82>	horseshoe	A<3763> [172]
<S83>	pilgrim badge	A<573> [12]
<S84>	secular badge	A<813> [299]
<S85>	two mounts on a piece of belt	A<4386> [858]
<S86>	ceramic whistle	A<3741> [952]
<S87>	brooch	A<542> [1354]
<S88>	cloth seal	A<380> [812]
<S89>	gaming counter	A<1707> [963]
<S90>	strap-end	A<1445> [648]
<S91>	strap-end with knop decoration	A<941> [684]
<S92>	key	A<1114> [272]
<S93>	knife	A<798> [138]
<S94>	mount from a belt	A<2101> [1091, unphased]
<S95>	brooch	A<2075> [1359]
<S96>	brooch	A<1998> [1360]
<S97>	spoon with an acorn knop	A<1971> [769]
<S98>	thimble	A<1996> [830]
<S99>	pilgrim souvenir	A<1915> [69]
<S100>	pilgrim souvenir	A<1120> [118]
<S101>	pilgrim souvenir	A<989> [151]
<S102>	secular badge	A<2203> [285]
<S103>	girdle	A<4260> [21]
<S104>	buckle	A<1482> [342]
<S105>	buckle	A<806> [343]
<S106>	buckle	A<2052> [387]
<S107>	buckle	A<1094> [475]
<S108>	strap-end	A<1912> [670]
<S109>	strap-end	A<3405> [708]
<S110>	strap-end	A<1167> [710]
<S111>	strap-end	A<3403> [712]
<S112>	mount	A<884> [811]
<S113>	mount	A<847> [852]
<S114>	mount	A<1078> [855]
<S115>	three armorial mounts	A<839A–C> [933]
<S116>	mount	A<1095> [1081]
<S117>	mount	A<1480> [1088]
<S118>	mount	A<1668> [1092]
<S119>	mount	A<1782> [1381]
<S120>	pendant	A<2033> [1603}
<S121>	comb	A<1780> [1745]
<S122>	vessel decoration	A<3402> [545]
<S123>	turned wood box	A<1173> [617]
<S124>	glass drinking vessel	A<841> [676]
<S125>	spoon	A<914> [770]
<S126>	cloth seal	A<975> [808]
<S127>	cloth seal	A<913> [813]
<S128>	thimble	A<3281> [831]
<S129>	stylus	A<802> [911]
<S130>	knife	A<1172> [262]
<S131>	pilgrim souvenir	A<1670> [103]
<S132>	pilgrim souvenir	A<1955> [113]
<S133>	pilgrim souvenir	A<1481> [170]
<S134>	pilgrim souvenir	A<1677> [174]
<S135>	pilgrim souvenir	A<2029> [209]
<S136>	pilgrim souvenir	A<2204 [282]
<S137>	knife	B<56> [280]
<S138>	pewter/brass pin with head of Christ	D<3259> [6219]
<S139>	leather strap with mounts	D<5958> [6220]
<S140>	pewter vessel base	D<2872> [4659]
<S141>	brooch	D<3053> [5277]
<S142>	balance	D<2947> [5511]
<S143>	scabbard	D<2806> [5221]
<S144>	scabbard	D<2426> [3211]
<S145>	stirrup	D<2800> [5221]
<S146>	strap-end buckle	D<2431> [3511]
<S147>	antler comb	D<2729> [4449]
<S148>	copper buckle	D<2719> [4086]
<S149>	horse pendant	D<2436> [3135]
<S150>	pilgrim souvenir	D<2700> [3137]
<S151>	buckle	D<2336> [2591]
<S152>	strap-end	D<2305> [2514]
<S153>	brooch	D<2317> [2591]
<S154>	brooch	D<1938> [1806]
<S155>	brooch	D<2287> [2278]
<S156>	cased mirror	D<2339> [2745]

Artefact Table 38 List of all illustrated small finds <S1> to <S156> with their site contextual information (site, accession number, context number)

8. Section drawings and supporting files online

John Schofield

8.1 Section drawings and elevations, sites B and C

On the following pages are section drawings and elevations from sites B (Seal House) and C (New Fresh Wharf), drawn in 1975–8. They are listed in Table 162, and the approximate positions of several are shown in Figure 281.

Figure number	Drawing
Figure 282	Site B: section on west side of the excavation, north half (archive Section A); parts 1–3
Figure 283	Site B: section on the west side of the excavation, south half (archive Section C); parts 1–5
Figure 284	Site B: second on the east side of the excavation (archive Section B); parts 1–3
Figure 285	Site C: Elevation 1, the north side of foundation C[262], the south wall of C:Building 3
Figure 286	Site C: Elevation 2, walls comprising the east side of Area I, looking east. This shows various parts of C:Building 5 (12th century) and C:Building 11 [J] of the 16th century. The [un-numbered] foundation containing plank [457] on the left is the W end of St Botolph
Figure 287	Site C: Section 9, west side of Area II, showing the full depth of stratigraphy above the Roman waterfront
Figure 288	Site C: Section 10, east side of Area II, also showing the full depth of stratigraphy above the Roman waterfront
Figure 289	Site C: Section 11, north side of Area II
Figure 290	Site C: Section 12, along the west side of wall [227] forming the west side of the alley down the east side of Area I, part of C:Building 11
Figure 291	Site C: Sections 13 (south side of Area I, drawn in mirror) and 14 (north side of Area I)
Figure 292	Site C: Section 8, north side of Area III

Table 162 Section drawings, elevations and plans for medieval and later buildings at Sites B and C

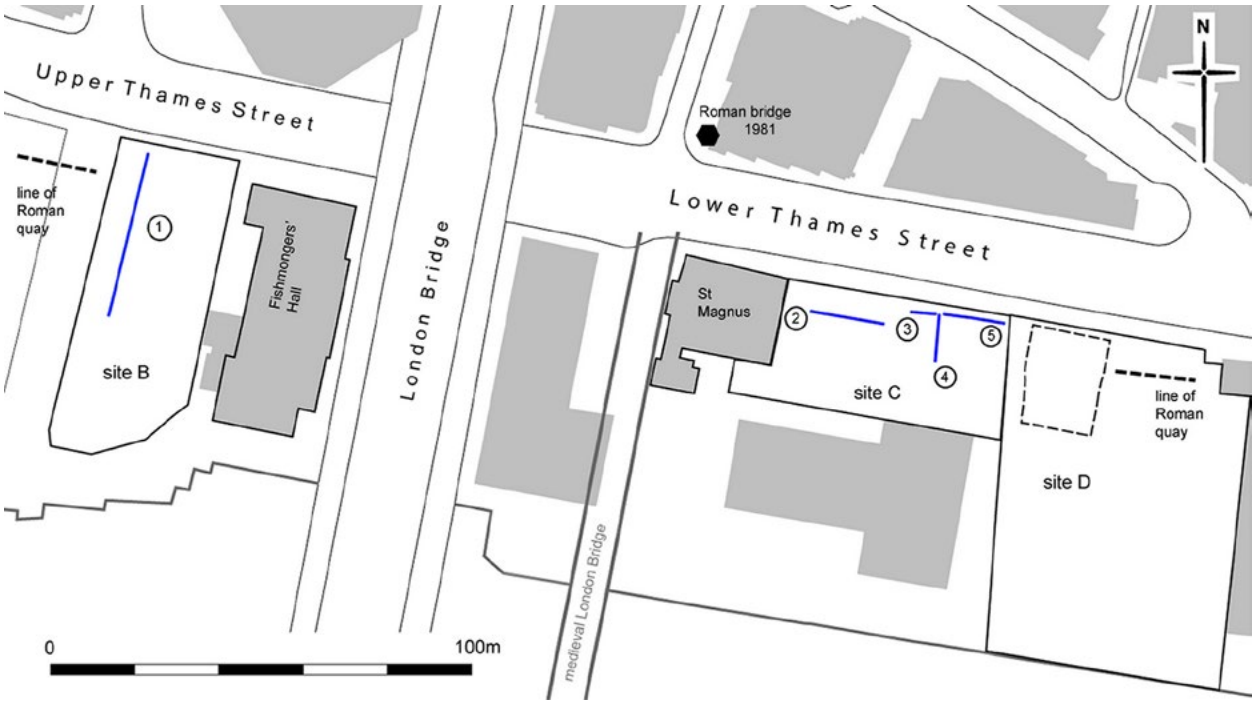


Figure 281 Sites B, C and D on the modern map of Thames Street, showing the line of the early 3rd-century Roman quay, which was found on all of them, and the positions of the main sections through strata of all periods: 1, site B archive Sections A and C (Figure 282–Figure 283); 2, site C Section 8 (Figure 292); 3, site C Section 11 (Figure 289); 4, site C Section 10 (Figure 287) (and Section 9 to its west); 5, site C Section 14 (Figure 291). Also shown is the position of the fragment of the 1st- or 2nd-centuty Roman bridge found north of Lower Thames Street in 1981

Figure 281 outlines the extent of archaeological strata and structures, from the Roman period onwards, which these sites have revealed in their excavation in 1974–84. Beneath Upper and Lower Thames Street, and south of both streets, the strata comprising 2000 years of London's history remain in parts, between and beneath the many intrusions of later buildings and incarnations of London Bridge. The present street surface outside St Magnus's church is at 6.5m OD. A few metres away, in the excavation at site C, the earliest Roman silts recorded were at -3m OD (Figure 292). Further river silts lay below. The full depth of stratigraphy beneath and south of the street is therefore at least 9.5m (31ft). In the study area south of Thames Street, there may not be much of this resource left; but a substantial block of strata probably survives beneath the north end of the present London Bridge. South of Thames Street, the cavity formed by the underside of the Bridge is considerable in extent, and it may be a precious reservoir of historic remains.

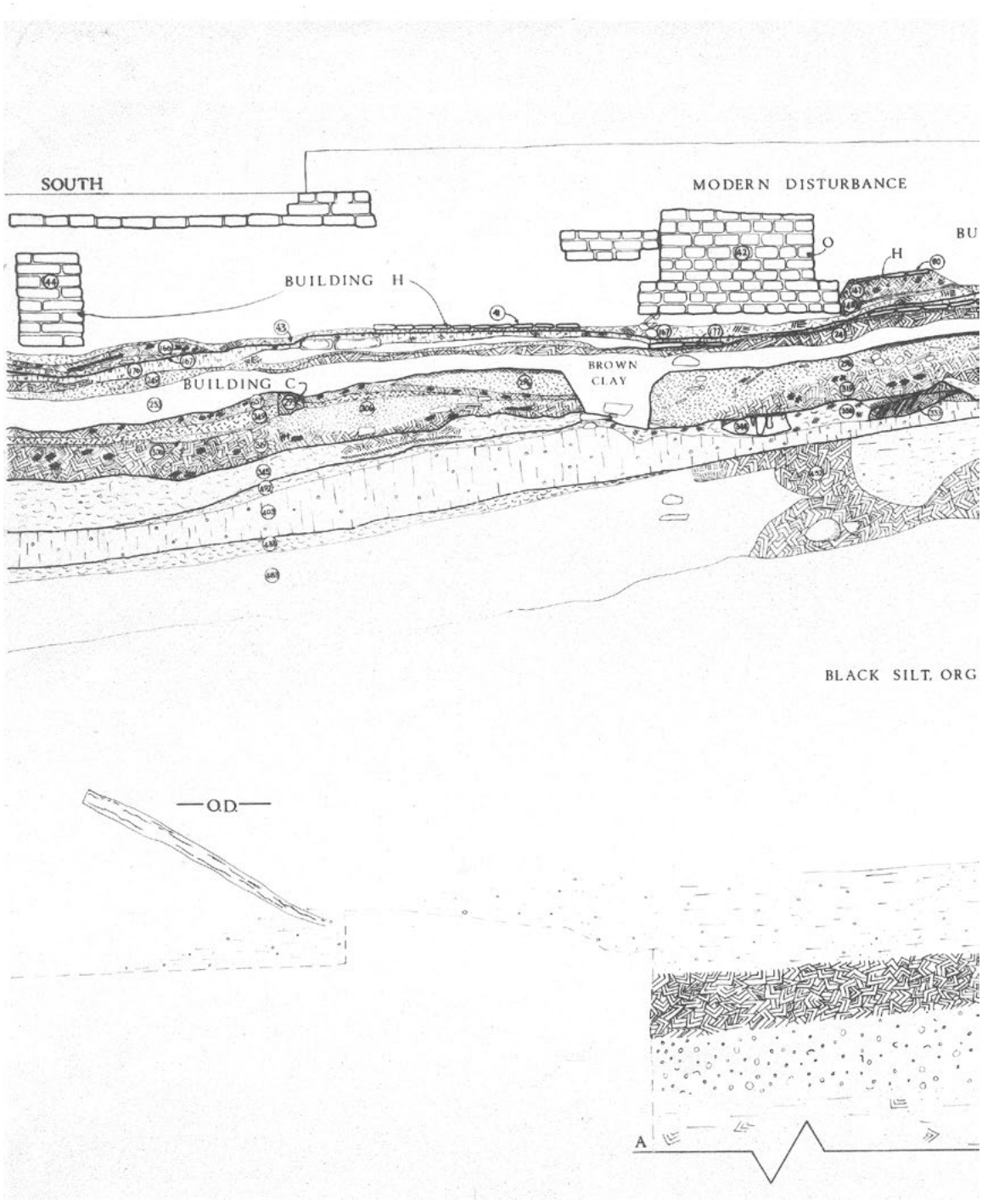
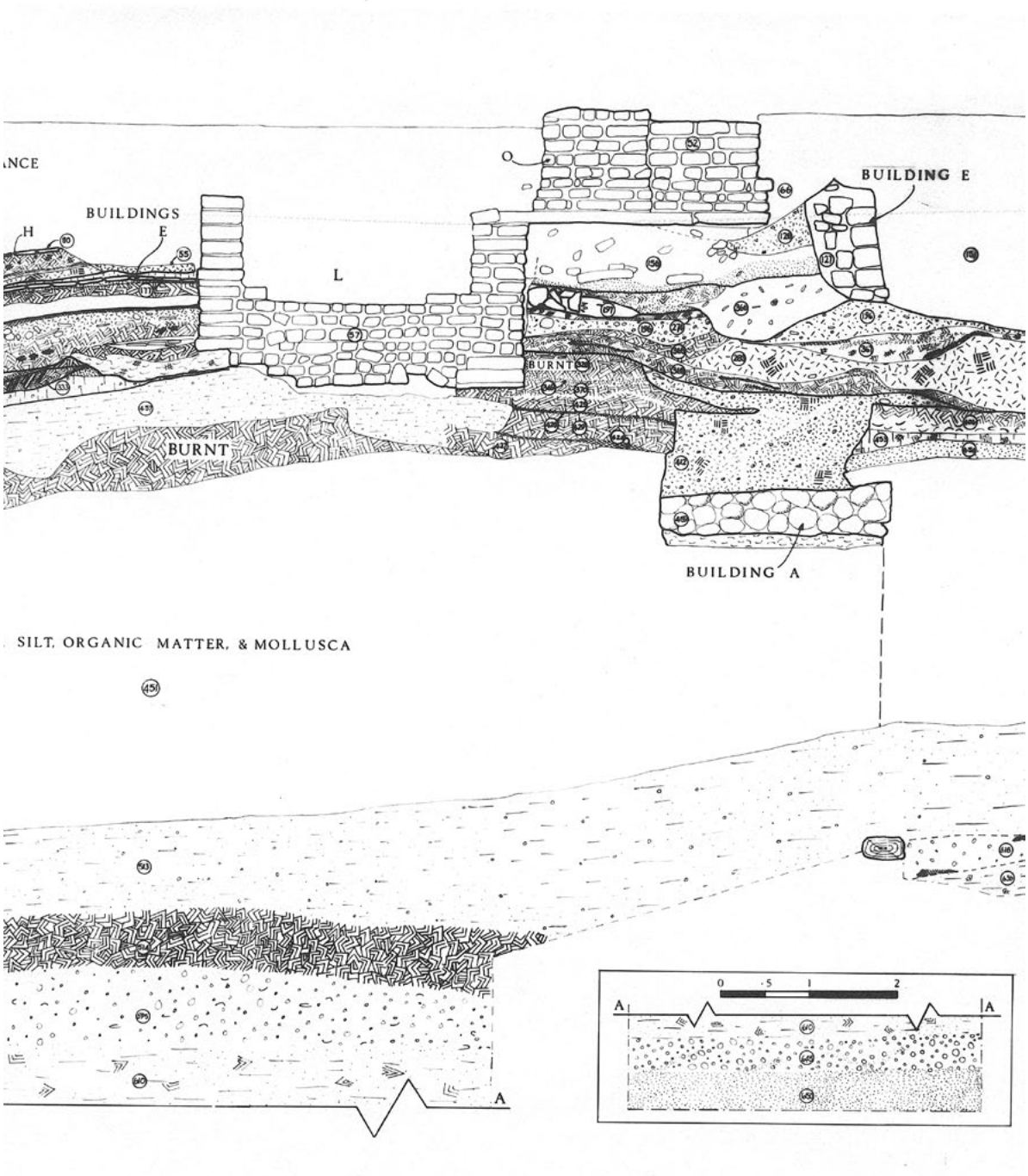
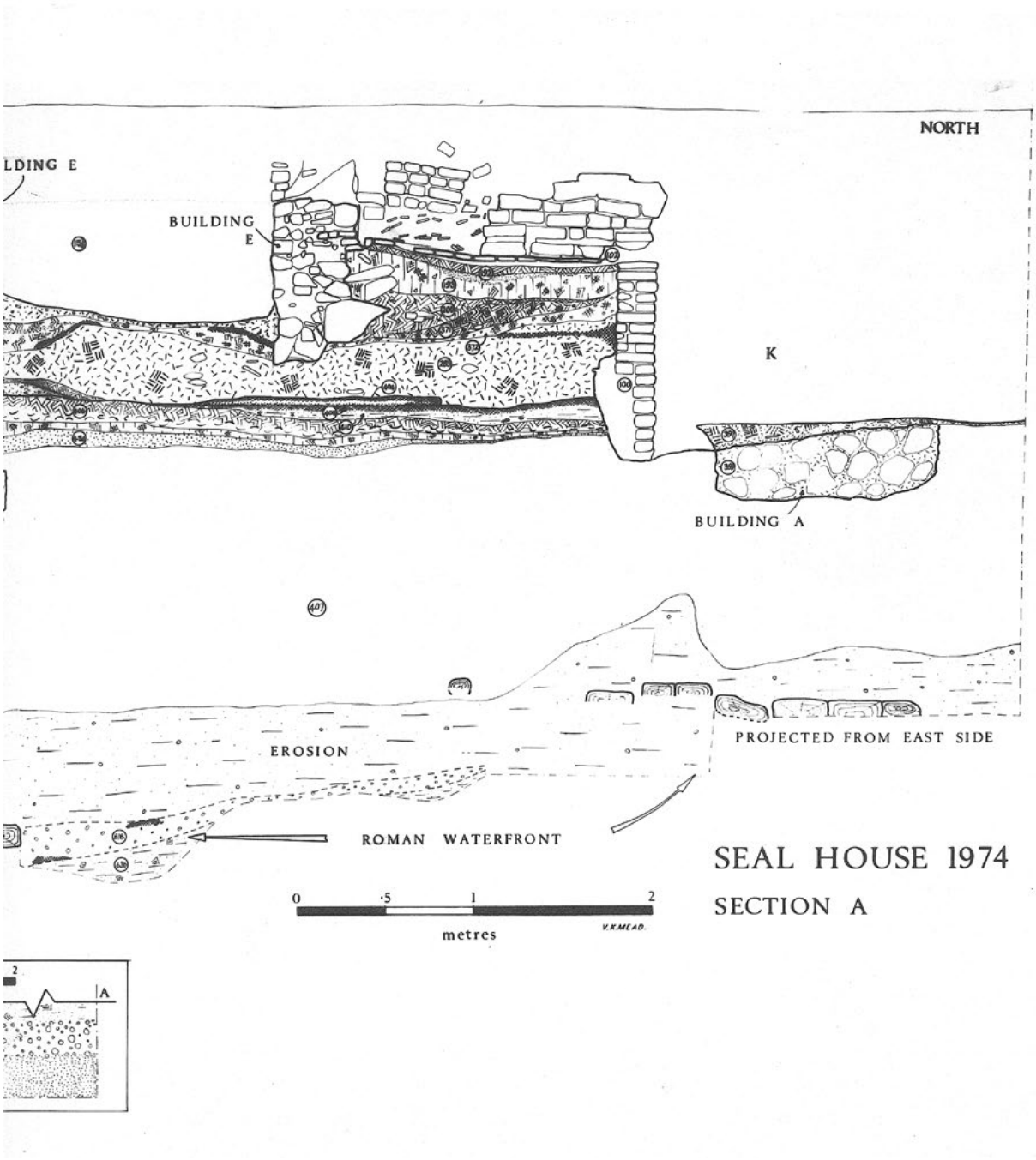


Figure 282 Site B: section on west side of the excavation, north half (Section A) (V Mead and H Kent); parts 1–3


BUILDINGS
E
BUILDING E
BURNT
BURNT
BUILDING A
SILT, ORGANIC MATTER, & MOLLUSCA
A
A
A
0
·5
1
2


NORTH
LDING E
BUILDING E
K
BUILDING A
PROJECTED FROM EAST SIDE
EROSION
ROMAN WATERFRONT
SEAL HOUSE 1974
SECTION A
0 ·5 1 2
metres
V.K.MEAD.
A

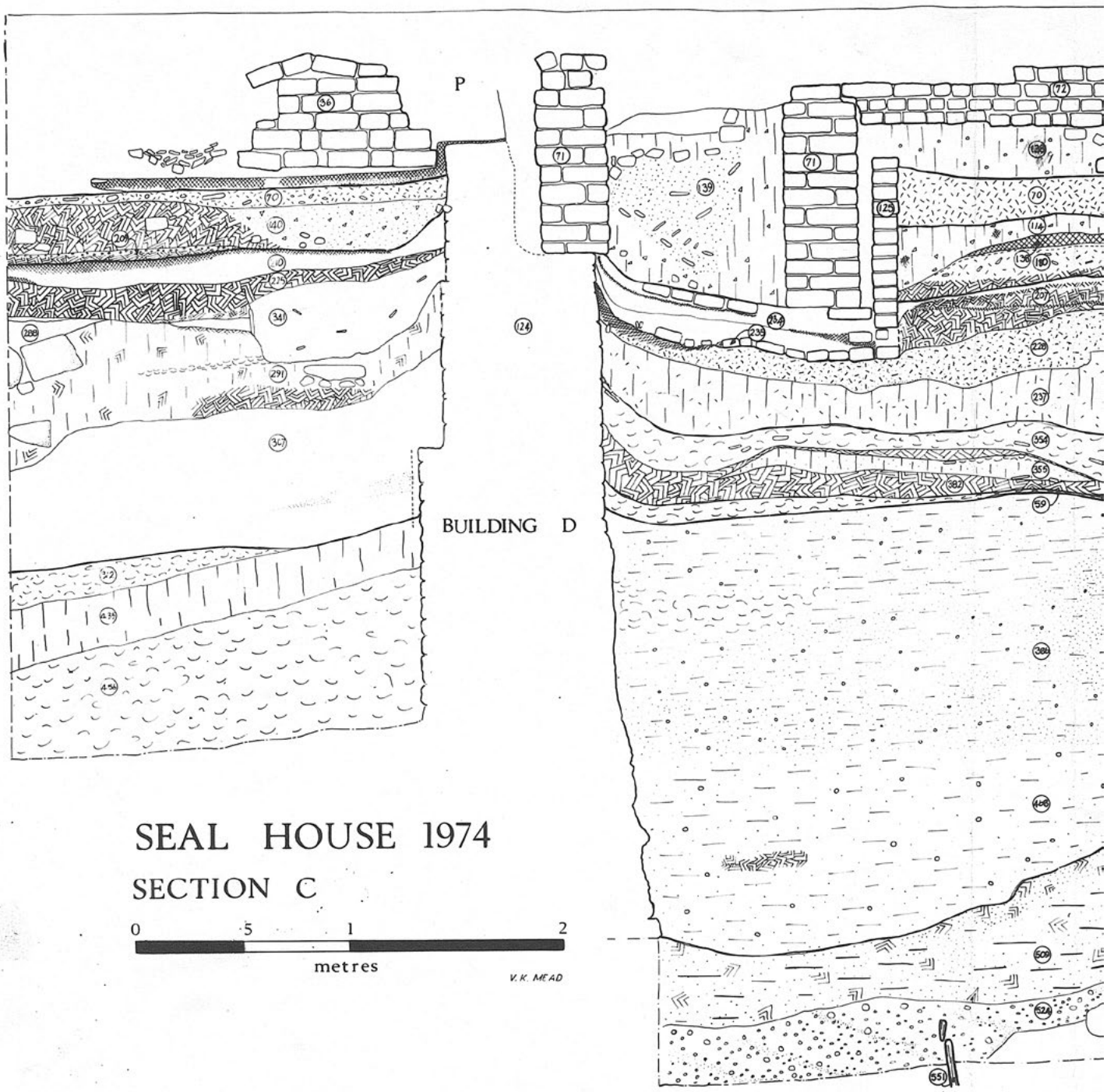
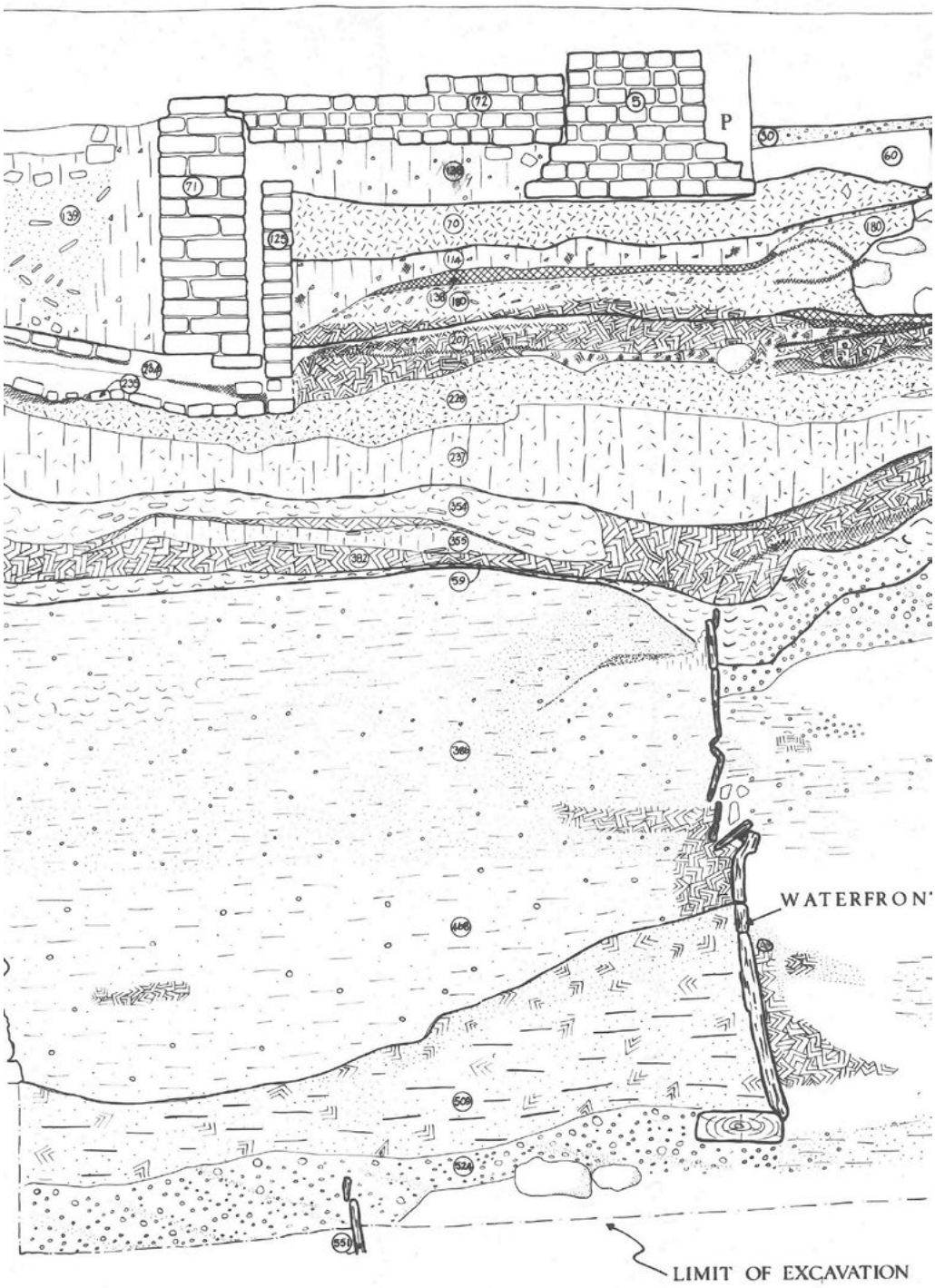
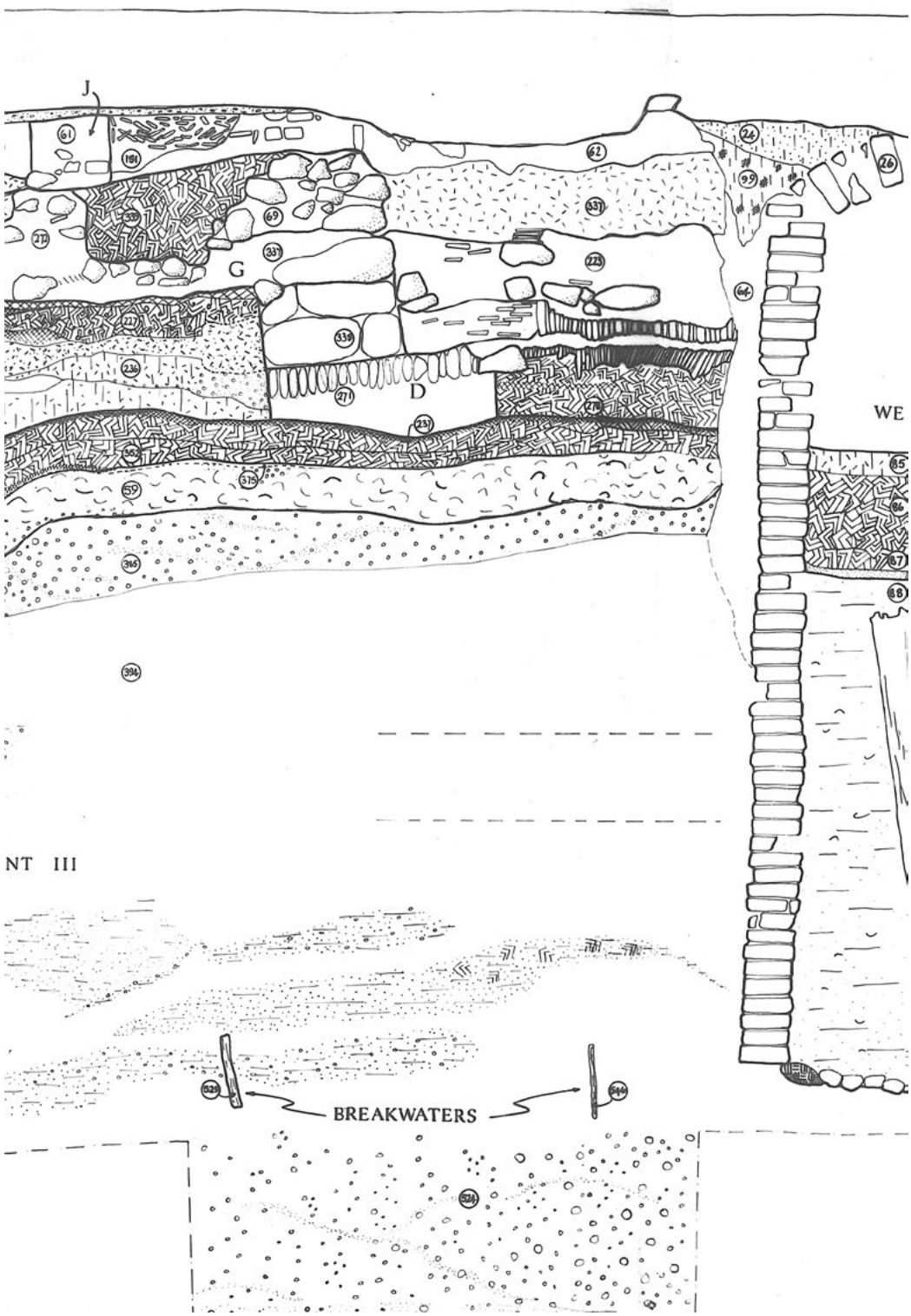
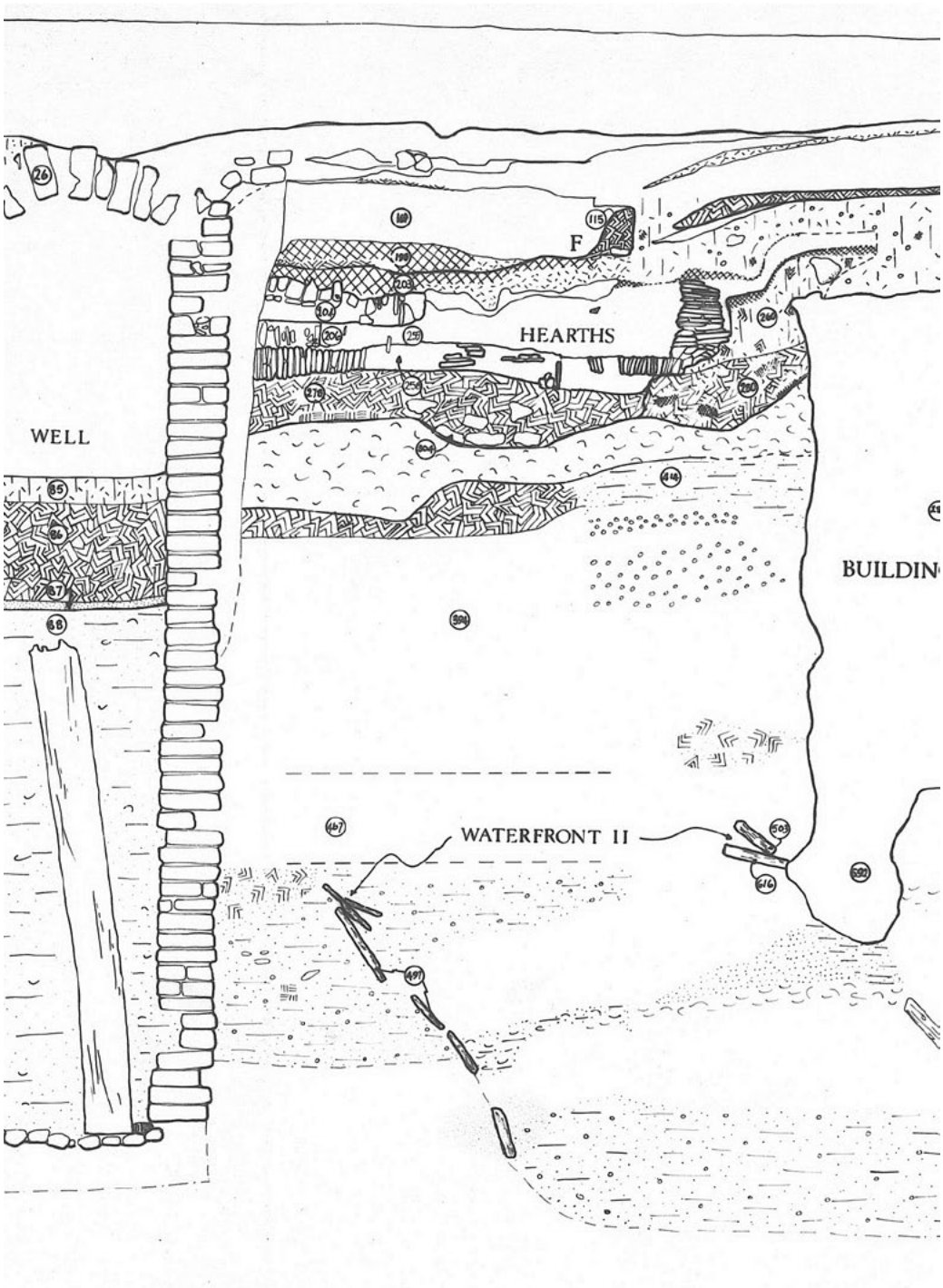
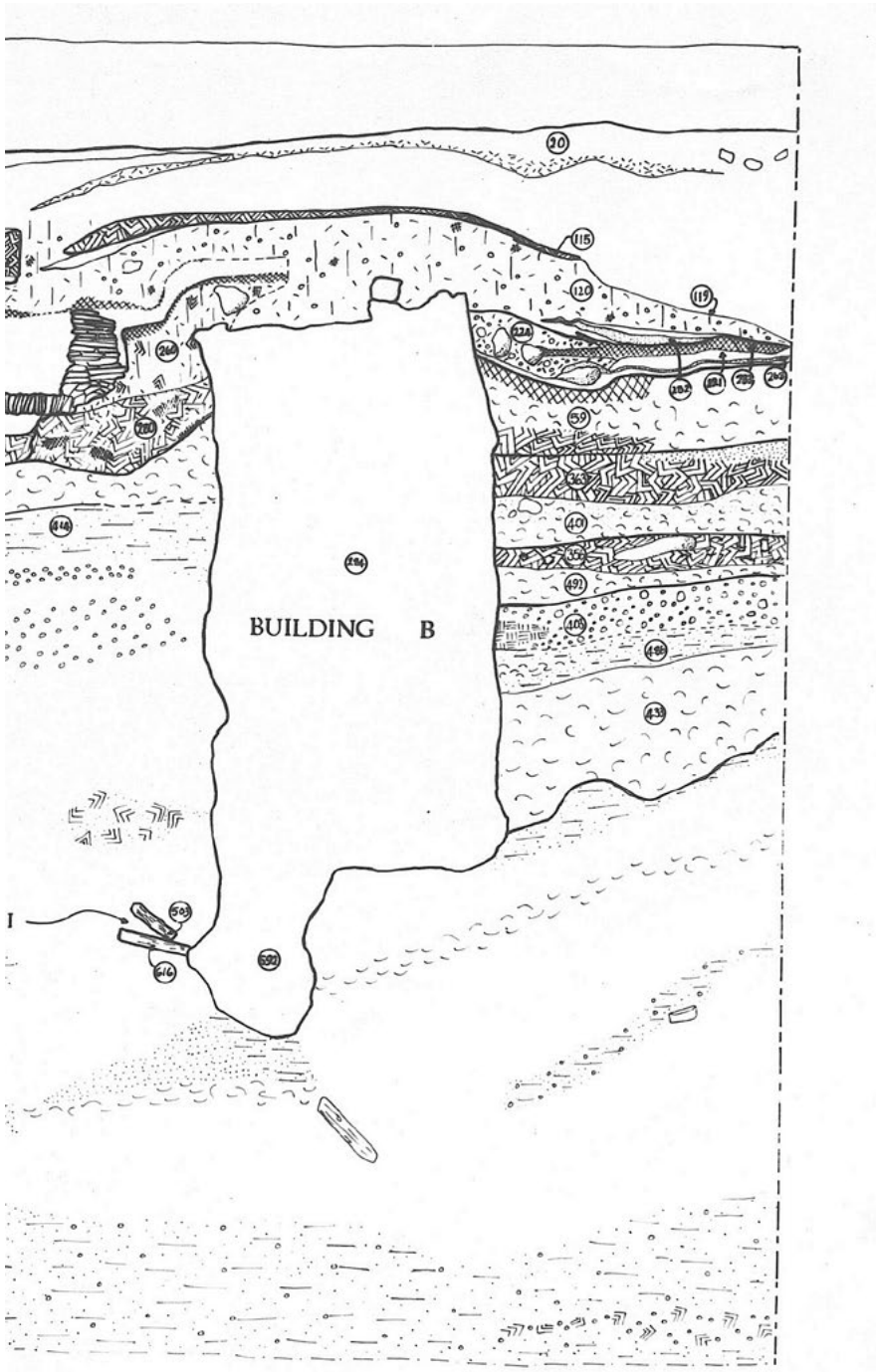


Figure 283 Site B: section on the west side of the excavation, south half (Section C) (V Mead and H Kent); parts 1–5


P
WATERFRON
LIMIT OF EXCAVATION


J
G
D
WE
NT III
BREAKWATERS


WELL
F
HEARTHS
BUILDIN
WATERFRONT II


BUILDING B

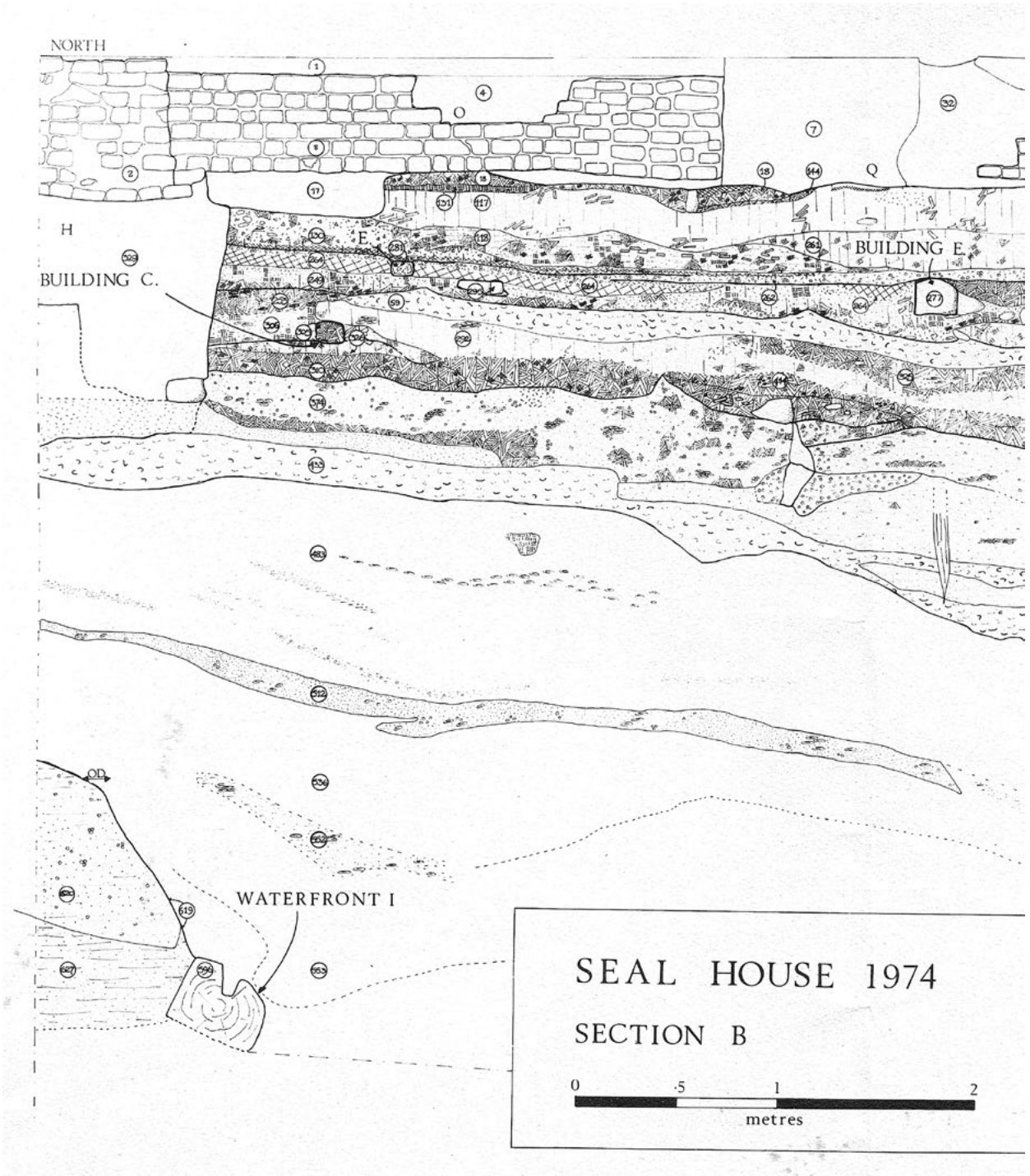
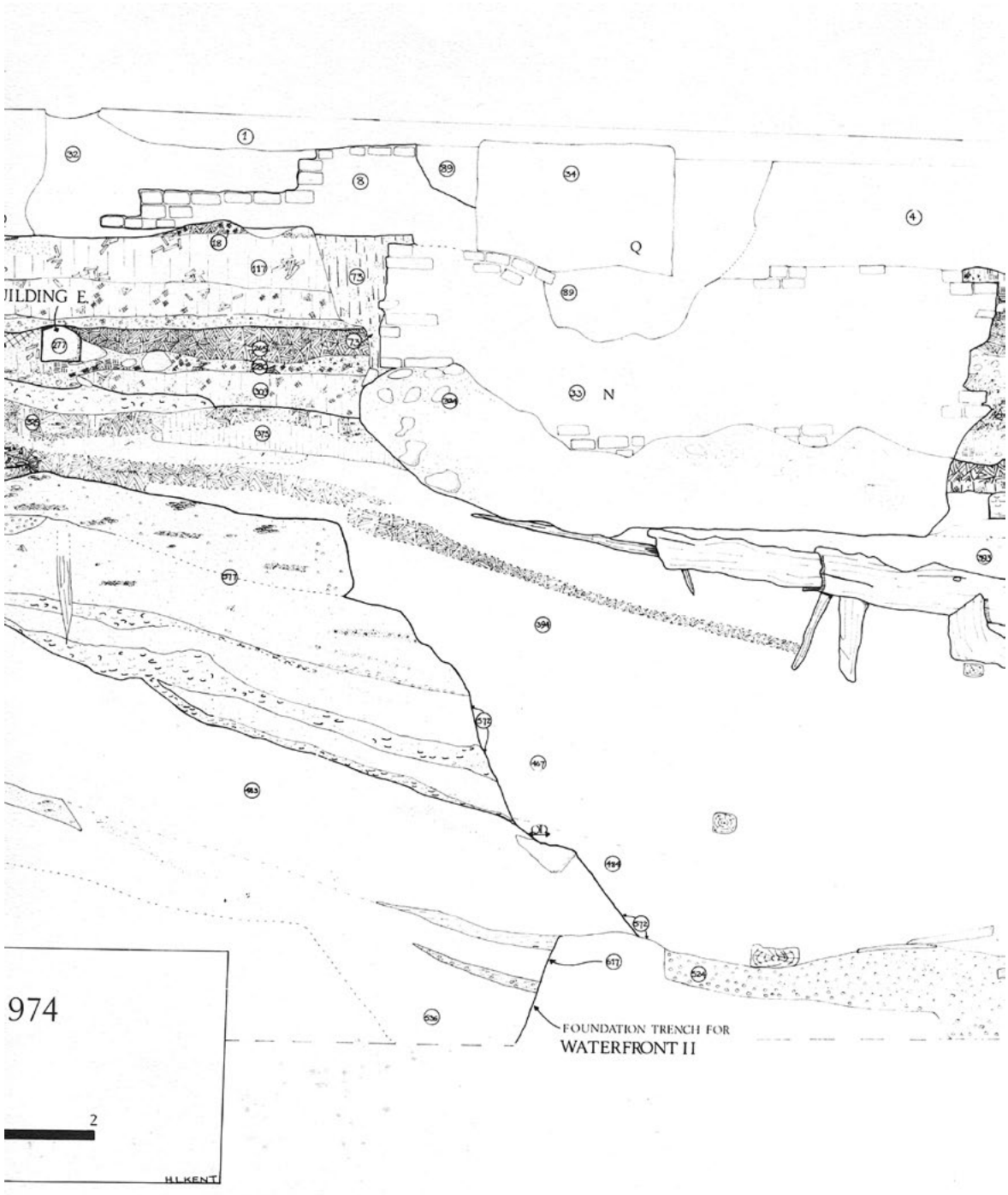
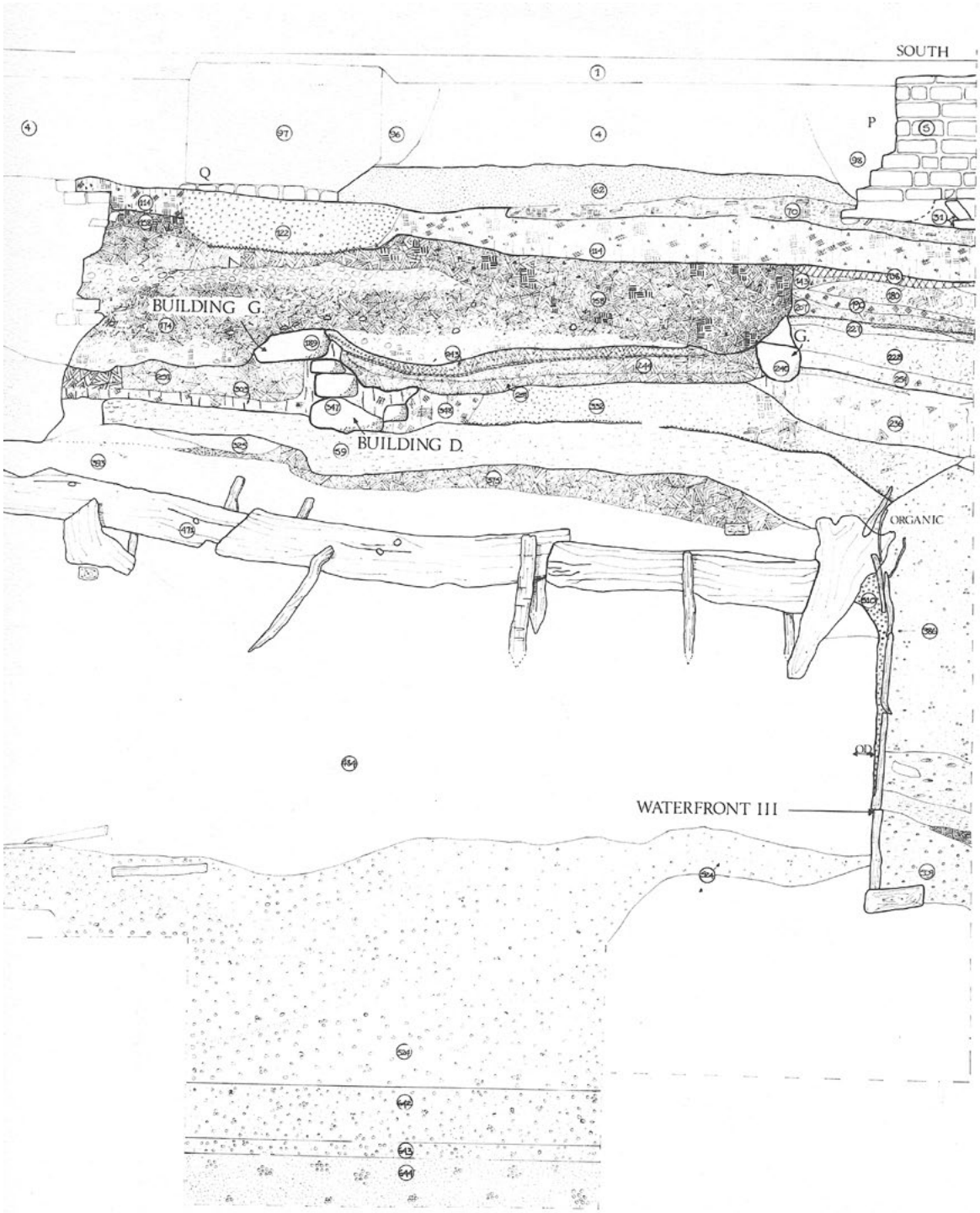


Figure 284 Site B: section on the east side of the excavation (Section B) (V Mead and H Kent); parts 1–3


ILDING E
Q
N
974
2
HILKENT
FOUNDATION TRENCH FOR
WATERFRONT II


SOUTH
P
Q
BUILDING G.
BUILDING D.
G.
ORGANIC
OD
WATERFRONT III

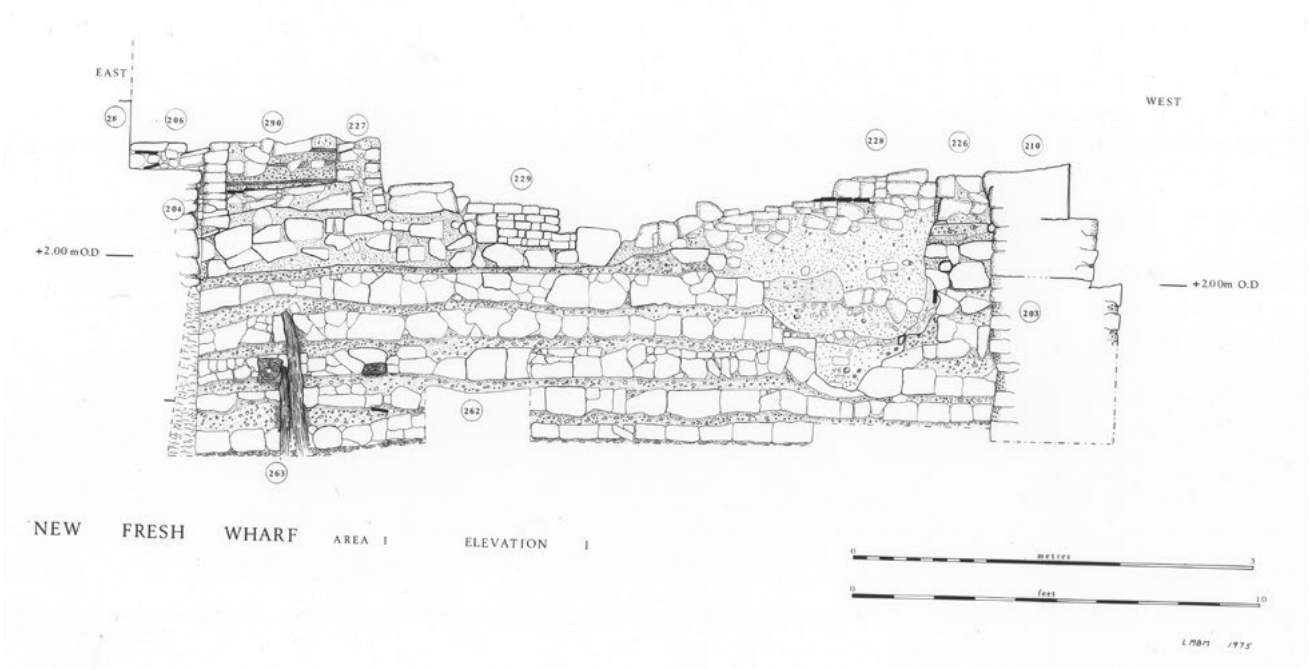


Figure 285 Site C: Elevation 1, the north side of foundation C[262], the south wall of C:Building 3 (L Miller)

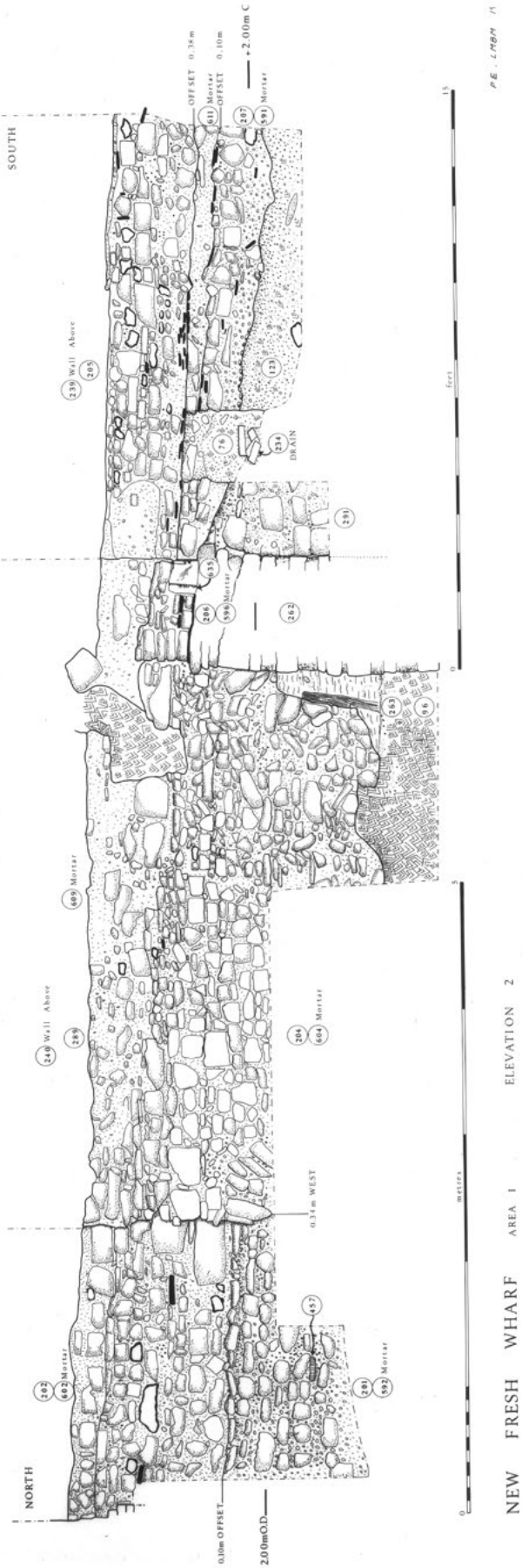


Figure 286 Site C: Elevation 2, walls comprising the east side of Area I, looking east (P Ellis and L Miller). This shows various parts of C:Building 5 of the 12th century and C:Building 11 [J] of the 16th century. The foundation nfw[201] containing plank nfw[457] on the left is intepreted as the west end of St Botolph's church

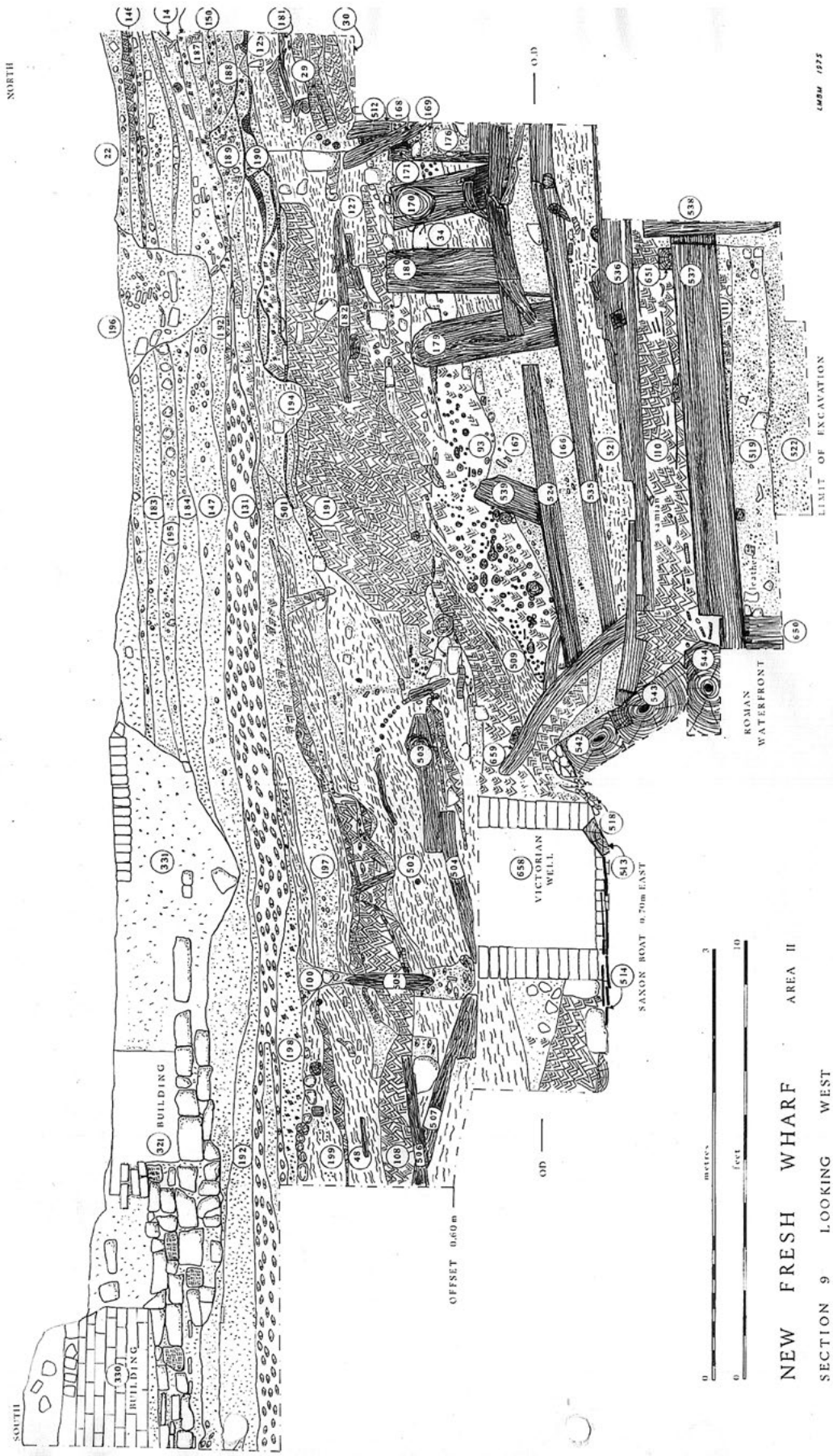


Figure 287 Site C: Section 9, west side of Area II, showing the full depth of stratigraphy above the Roman waterfront (L Miller)

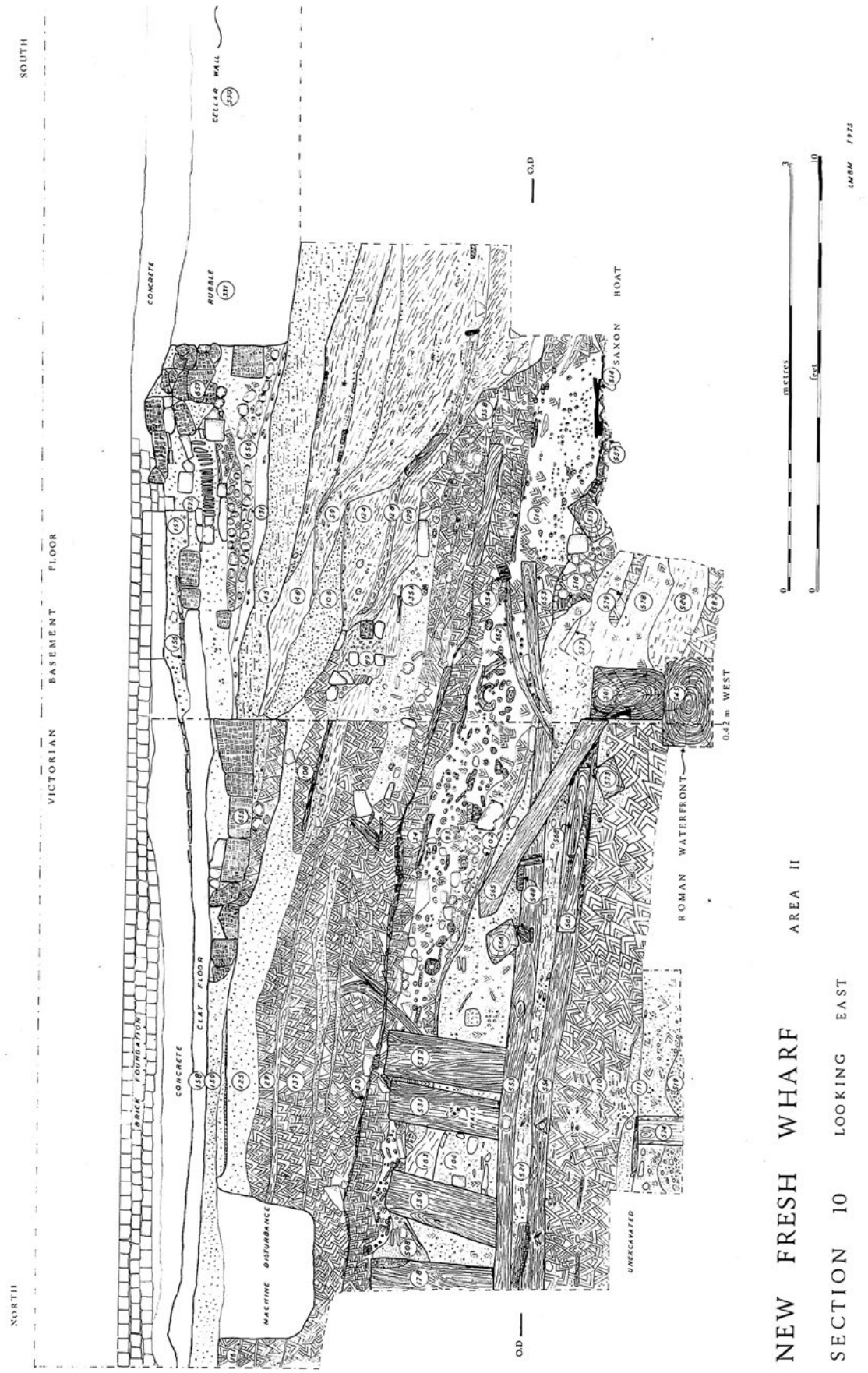


Figure 288 Site C: Section 10, east side of Area II, also showing the full depth of stratigraphy above the Roman waterfront (L Miller)

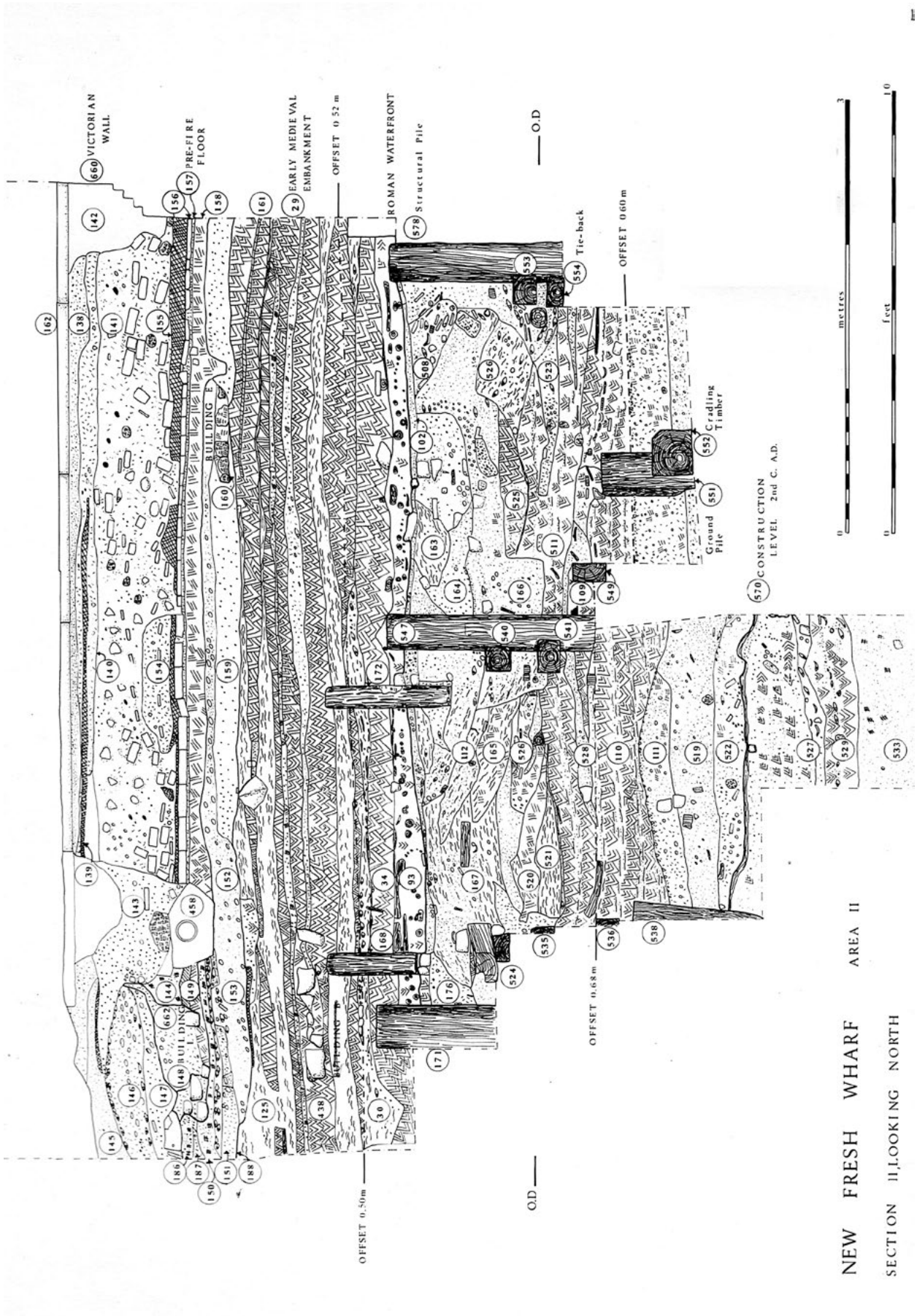


Figure 289 Site C: Section 11, north side of Area II (L Miller)

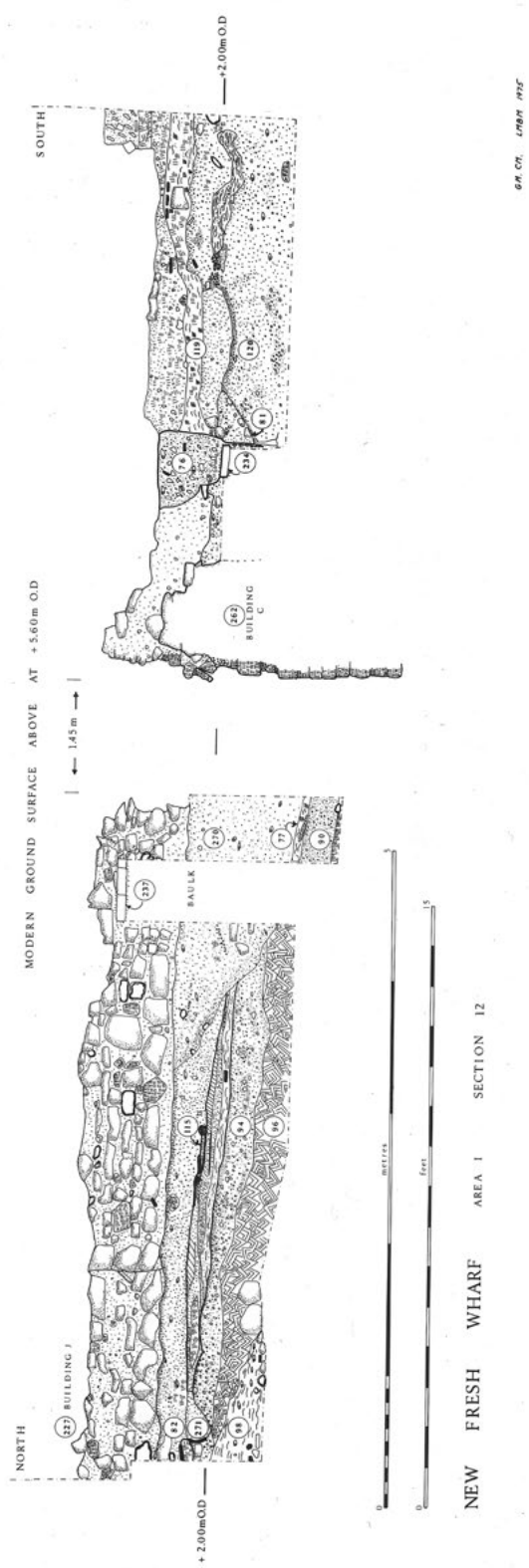


Figure 290 Site C: Section 12, along the west side of wall nfw[227] forming the west side of the alley down the east side of Area I, part of C:Building 11 (L Miller)

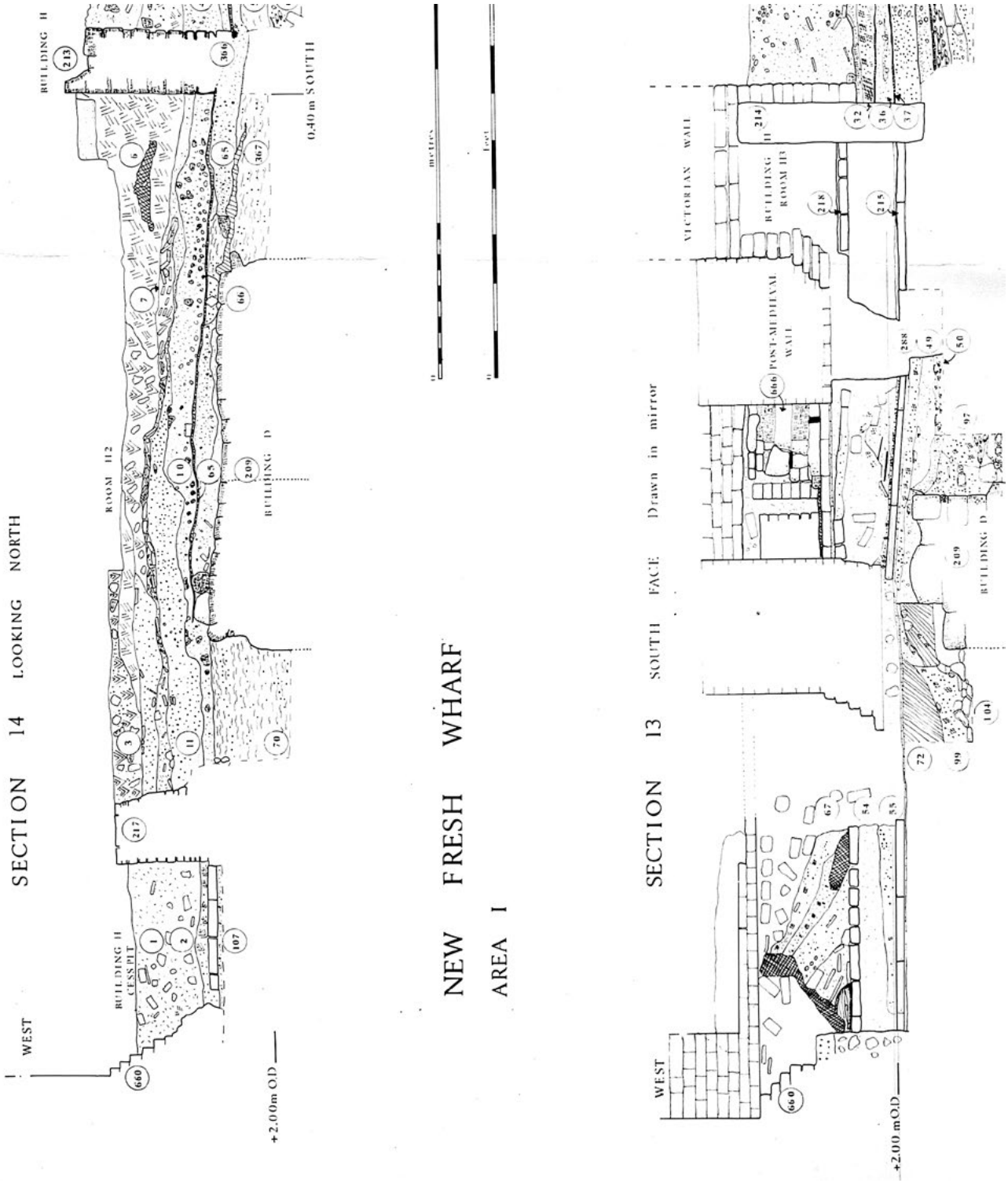
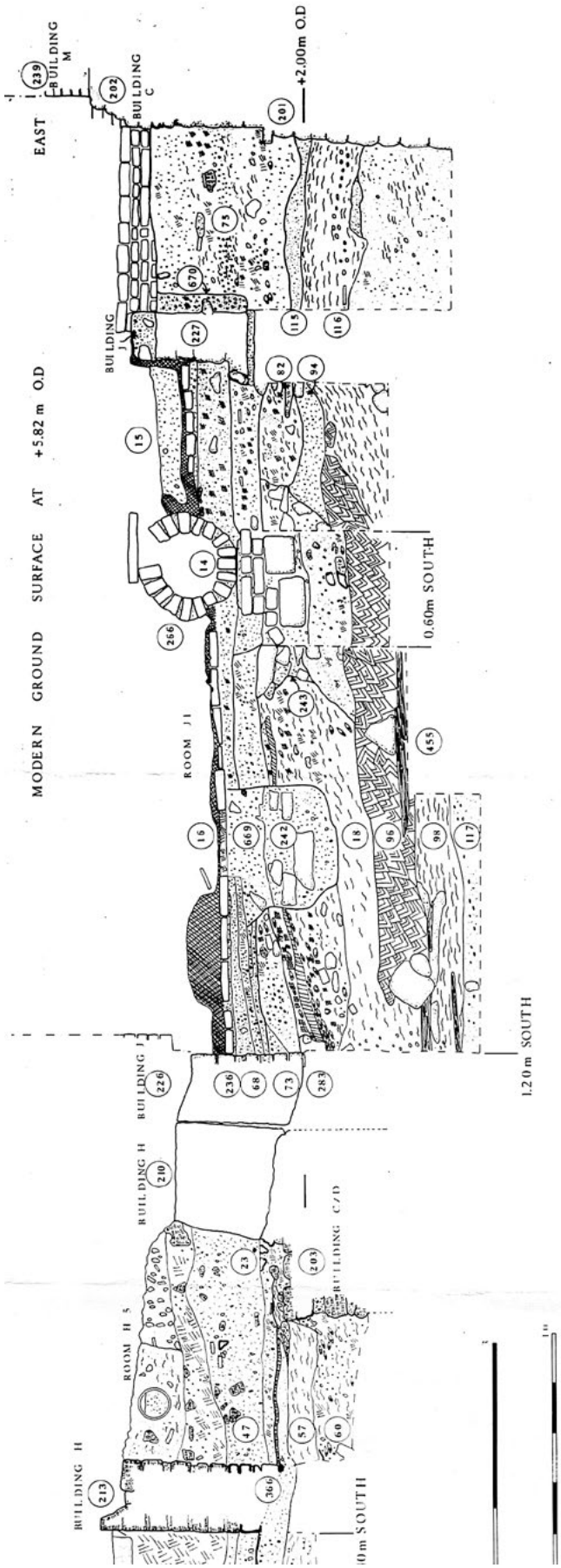
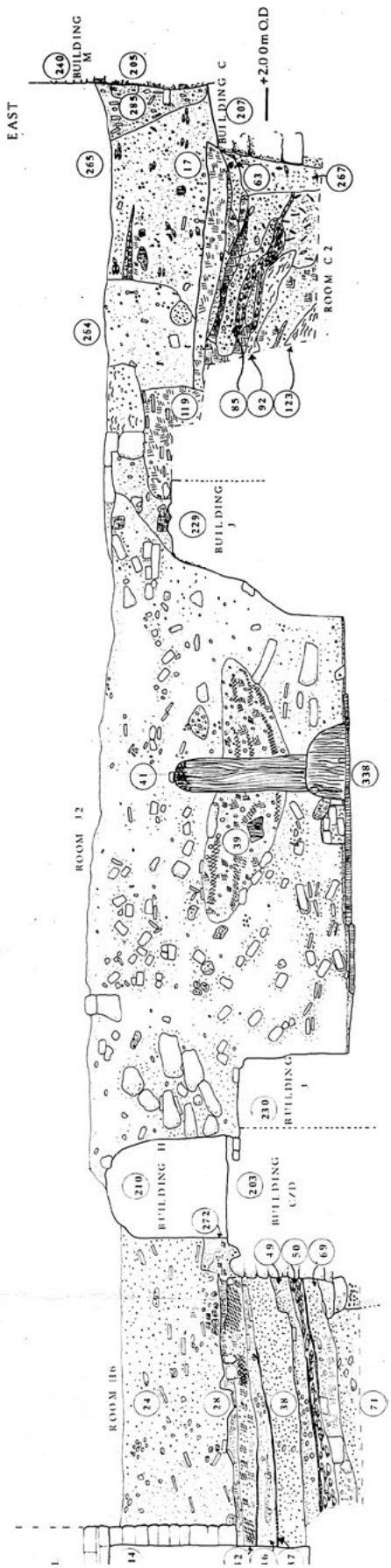


Figure 291 Site C: Sections 13 (south side of Area I, drawn in mirror) and 14 (north side of Area I) (L Miller)


EAST
BUILDING M
BUILDING C
+2.00m O.D
MODERN GROUND SURFACE AT +5.82 m O.D
BUILDING J
ROOM J1
0.60m SOUTH
1.20 m SOUTH
BUILDING I
BUILDING H
BUILDING C/D
ROOM H 5
BUILDING H
0m SOUTH


EAST
BUILDING M
+2.00m O.D
BUILDING C
ROOM C 2
BUILDING J
ROOM J2
BUILDING I
BUILDING H
BUILDING C/D
ROOM H6

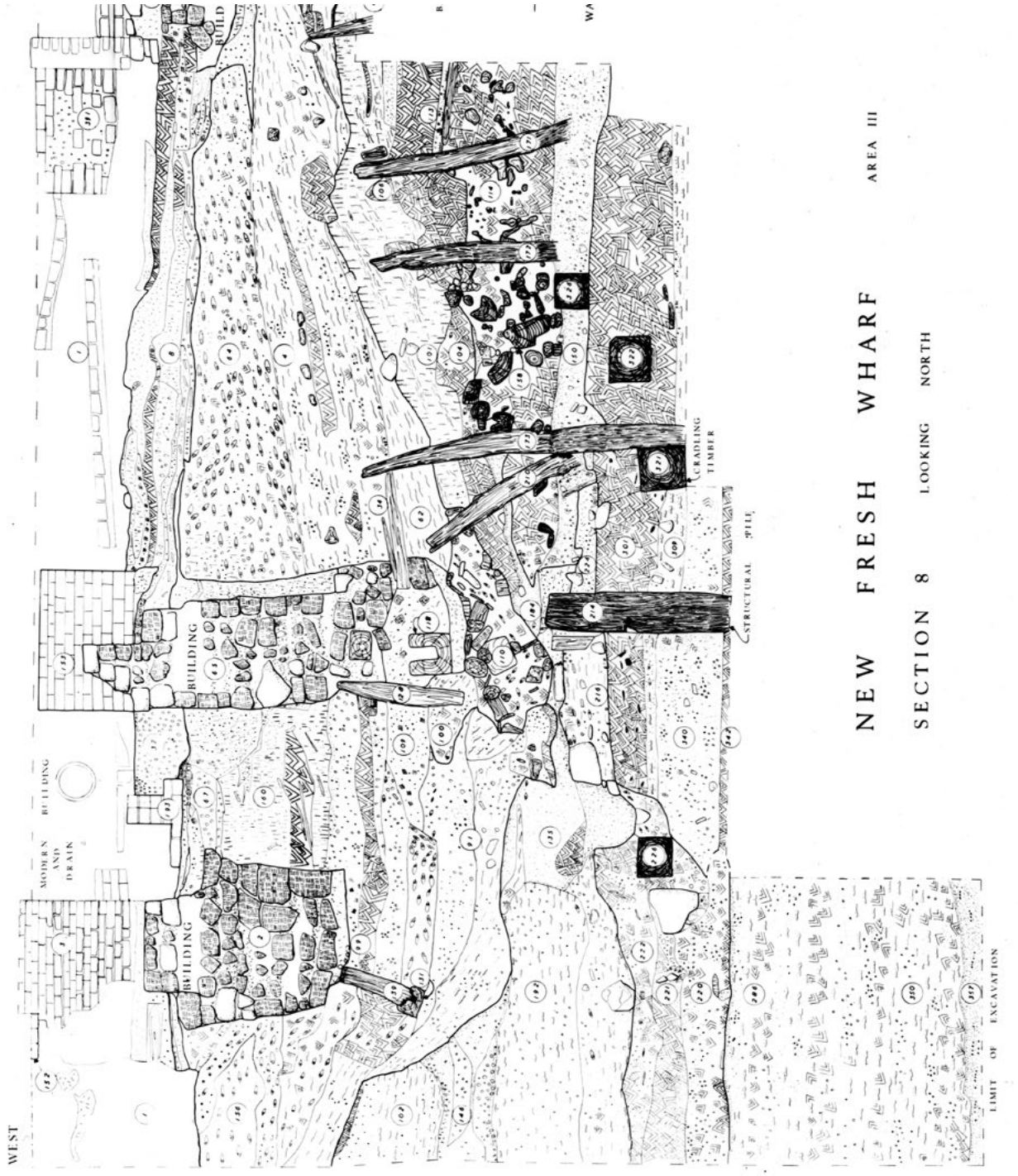
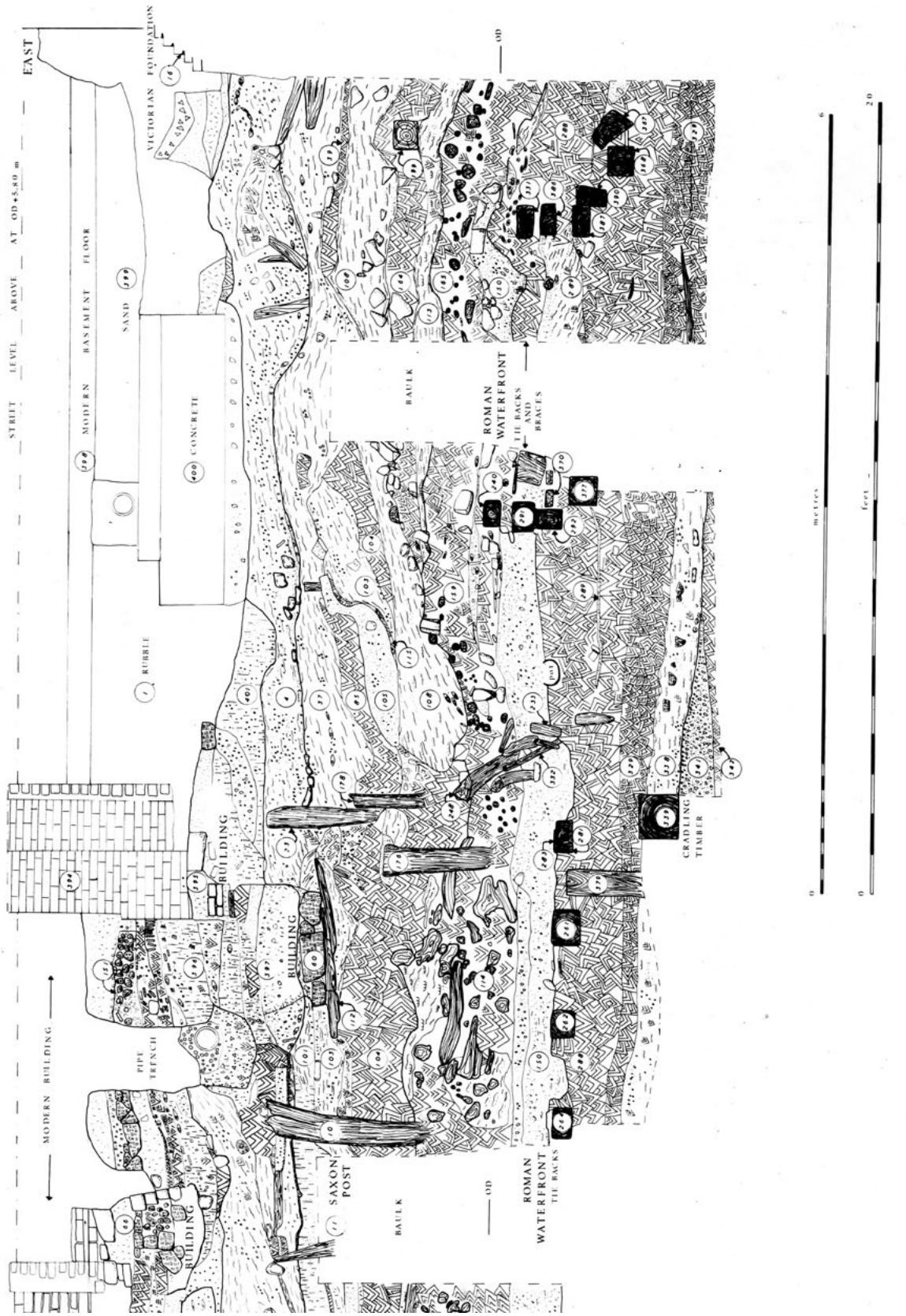


Figure 292 Site C: Section 8, north side of Area III (R Blurton and L Miller)


EAST
STREET LEVEL ABOVE AT OD +5.80 m
VICTORIAN FOUNDATION
MODERN BASEMENT FLOOR
SAND
CONCRETE
RUBBLE
MODERN BUILDING
PIPE TRENCH
BUILDING
BUILDING
BUILDING
SAXON POST
BAULK
OD
ROMAN WATERFRONT
TIE BACKS
BAULK
OD
ROMAN WATERFRONT
TIE BACKS AND BRACES
CRADLING TIMBER
metres
Feet

8.2 Supporting files in the archive and online

Many pieces of individual research or topic review have been undertaken on the material from the four study sites since the 1970s. Those by Museum of London personnel, with a few by others, are housed in the Museum of London Archaeological Archive. The majority have been catalogued in Schofield with Maloney 1998, under the site codes NFW74 (incorporating SM75 and FRE78) for New Fresh Wharf (p 135–6), SH74 for Seal House (p 137), SWA81 for Swan Lane (p 176–7), BIG82 for Billingsgate Lorry Park (p 177–80 and BWB83 for the Billingsgate watching brief (earth moving) (p 190–1). These site codes are also the principal means of organising the archive of pottery, artefacts and environmental material. The Museum of London Archaeological Archive is presently [2018] held at Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED. It can be visited by prior arrangement.

A range of archive material (reports and lists of artefacts) can be found on the website of the City of London Archaeological Trust (CoLAT): www.colat.org.uk/london-waterfront. The authors intend to add to this online resource as further research is undertaken. Here will also be found corrections and revisions to the text when they are made. The sections of this monograph which have further parts in the online supplement are:

2.2, 3.2 Supplementary reporting on strata from site A

6.6 Discussion of pottery from sites A and B

6.9 Documentary histories in the period 1500–1666 for Tenements 3–6 and 11–14

6.11 List of moulded stones from the church of St Botolph Billingsgate.

9. Summaries in French and German

Madeleine Hummler

Résumé

Cette publication rassemble les documents archéologiques et historiques concernant une série de propriétés médiévales et postmédiévales d'ordre séculaire ainsi qu'une église paroissiale sur quatre sites riverains de la Tamise à Thames Street dans la cité de Londres. Ils se situent, en procédant d'ouest en est, à Swan Lane (site A), Seal House (site B), New Fresh Wharf (site C) et Billingsgate Lorry Park (parking des camions, site D). Ils firent l'objet de fouilles entreprises par le Musée de Londres entre 1974 et 1984. Ici, nous présentons les découvertes allant de 1100 à 1666 apr. J.-C. (date du grand incendie de Londres).

Les fouilles de la zone des berges de Londres, initiées en 1972, ont beaucoup fait progresser nos connaissances sur la nature de l'assainissement des rives de la Tamise et sur l'expansion des propriétés en zone riveraine. La présence de milliers d'objets et de tessons de céramique dans les gisements littoraux et sur le terrain gagné sur la rivière constitue un ensemble unique de culture matérielle concernant Londres à l'époque médiévale, tandis que la charpenterie des revêtements en bois nous renseigne sur la structure des bâtiments médiévaux qui n'auraient pas autrement survécu à Londres (et certains exemples sont antérieurs aux plus anciens bâtiments encore sur pied dans d'autres villes médiévales). Le récit résultant des fouilles est agencé ici en quatre périodes allant de 1100 à 1666 apr. J.-C. Pour chaque période on prendra en considération le caractère de la zone des berges, y compris ses bâtiments publics et Thames Street elle-même, ainsi que l'évolution des rapports entre la zone riveraine et le reste de la cité de Londres au Moyen Âge et à l'époque Tudor.

L'aire d'étude au sens plus large comprend la zone des berges au sud de Thames Street entre le site de l'église du XIe siècle d'All Hallows the Great à l'ouest (actuellement immédiatement à l'est du viaduc de la gare de Cannon Street) et le lieu de débarquement de Billingsgate (qui date probablement du Xe siècle) à l'est, c'est-à-dire une longueur d'environ 475 m (1550 pieds). A peu près à mi-chemin, l'extrémité nord du pont médiéval de Londres (London Bridge) aboutissait sur les berges de la rivière et Thames Street. Nos recherches concernent deux îlots de propriétés, comprenant huit parcelles contiguës an amont du pont (appelées parcelles 1 à 8 ici) et un second bloc de parcelles (les parcelles 9 à 16) en aval. En général ce n'était que les espaces les plus proches de Thames Street, où se situaient les bâtiments les plus importants, qui ont été fouillés ; une série de cartes, de vues anciennes et de documents écrits nous renseigne sur leur contexte et leur milieu. Les fouilles entreprises entre 1974 et 1984 font l'objet principal de notre étude mais les résultats de fouilles plus récentes effectuées entre 2003 et 2006 sur certaines des mêmes propriétés et aux alentours complètent en partie notre récit.

Entre 1100 et 1666 la zone riveraine de la cité de Londres entre Thames Street et la Tamise s'agrandit effectivement en gagnant du terrain sur la rivière jusqu'à ce que la construction de murs de revêtement en pierre la fixât définitivement. A la fin de la principale période d'expansion, autour de 1450 apr. J.-C., les nouvelles terres au sud de la rue auraient pu gagner jusqu'à 100m de largeur par suite de l'agrandissement de nombreuses propriétés privées, ce qui créa des criques ou points d'amarrage de bateaux à Queenhithe et à Billingsgate. Des terres de remblai et de dépotoirs furent utilisées pour gagner ces terrains, et il est souvent possible de dater les vestiges en bois employés dans les structures de revêtement au moyen de méthodes dendrochronologiques.

Les documents historiques concernant ces parcelles constituent un des plus riches ensembles de sources qui puissent nous éclairer sur toute propriété séculaire dans la cité. Elles nous permettent ainsi de reconstruire l'histoire de leurs propriétaires et locataires et de comparer les sources écrites aux données archéologiques dans le but d'examiner le domaine public et privé, le réseau des ruelles riveraines, les différentes composantes des parcelles, le processus régissant leur subdivision, les bâtiments spécialisés et leur équipement, les entrepôts ou encore les grues. On discerne des différences dans l'exploitation du terrain en amont et en aval de London Bridge, en particulier à partir du XVe siècle. L'établissement des Legal Quays (quais légaux) sous le gouvernement de le reine Elizabeth I en 1559 a probablement été la cause du transfert des lieux de débarquement de produits étrangers en aval du pont. Cette loi a donc modifié la topographie de Londres.

Notre étude s'attache à plusieurs questions essentielles. Les parcelles de terrain gagné contenaient des milliers d'objets d'époque médiévale et Tudor et des centaines de kilos de céramique indigène et importée. D'où provenaient tous ces objets et toute cette poterie ? Leur

provenance derrière le revêtement des berges ou sur le rivage a-t-elle une signification particulière ou sont-ils irrémédiablement brouillés parce qu'ils ont été mélangé avant de parvenir à leur destination ? Sur deux sites, Swan Lane et Seal House (sites A et B), nos analyses se sont avérées particulièrement fructueuses ; de même, les principales zones de remblai ont pu être datées par la dendrochronologie. Les monnaies étaient présentes mais, comme toutes étaient en position secondaire, elles n'avaient pas grande utilité pour dater les strates. Aucune concentration de types d'objets spécifiques n'a été identifiée. La terre utilisée dans les remblais a probablement été récoltée dans les dépotoirs de propriétés dispersées dans toute la cité ; on ne peut plus remonter à leur source, sauf dans le cas des décharges à Baynard's Castle qui représentent un dépotoir d'origine peut-être royale à l'ouest des quais de la cité.

La récupération de terrains le long du rivage de la Tamise impliquait le dépôt d'un très grand nombre de tessons de poterie datant de la seconde moitié du XIe siècle. Ce matériel céramique nous mène à conclure que les remblais étaient composés d'éléments datant d'époques légèrement diverses, alors que les rivages-mêmes étaient plutôt composés de matériel d'une seule époque. Il est impossible de dater un dépôt spécifique uniquement sur la base du matériel retrouvé, tout comme il est impossible d'en déduire le genre d'activité pratiquée sur une parcelle particulière, vu que le matériel avait presque certainement été apporté d'ailleurs. Les rivages ne sont pas plus informatifs, leurs strates s'avérant plus fluides au cours de leur longue existence.

Les objets sont cependant capables de parler. Les milliers d'objets médiévaux et postmédiévaux nous renseignent sur certains aspects de la culture, de la mode et des croyances religieuses. L'éventail des objets d'usage quotidien, les données relatives à une production en masse de boucles, de plaques de ceintures et d'accessoires de costume, par exemple, et le nombre impressionnant d'objets presque identiques témoignent du marché prospère de produits de consommation dont les sources écrites font état. Maints objets ont probablement été importés mais leur analyse détaillée reste encore à faire. Nous pouvons examiner comment le matériel qui finit dans la zone riveraine de Londres contribue en général à suggérer que la révolution dans la consommation et le consumérisme des débuts de l'époque moderne débuta non au XVIIIe siècle mais bien à la fin du Moyen Âge. Avec la société de consommation venait la mode, que nous pouvons détecter dans les objets.

Les objets nous permettent d'acquérir une connaissance approfondie des croyances des Londoniens, qu'il s'agisse d'un souvenir raffiné d'un pèlerinage à Canterbury ou de sceaux de concessions d'indulgences ensevelis avec les défunts. Au début du XVIe siècle l'Angleterre était apparemment un des pays les plus catholiques d'Europe. Une étude des insignes de pèlerins provenant en grande partie de sites riverains a démontré que des insignes provenant de 39 sites britanniques et 109 sites sur le continent européen (de Vadstena en Suède jusqu'à Bari en Italie) ont été retrouvés à Londres ; beaucoup d'entre eux proviennent des sites figurant dans notre volume. Les limons des berges médiévales ont également produit la « trompette de Billingsgate » (d'après le site sur lequel elle a été retrouvée), un des plus anciens exemples d'un instrument de musique médiéval qui ait survécu en Europe et le seul exemple de trompette droite médiévale connu en Europe.

Ensuite, nous cherchons à étudier la fonction des bâtiments et espaces ouverts sur les sites fouillés : quelle apparence avait l'intérieur des bâtiments ? Comment ont-ils changés au cours des temps ? De quelle manière le matériel retrouvé en est-il le reflet ? Comment peut-on associer chaque propriété et chaque nouvel aménagement à certains propriétaires ou occupants mentionnés dans les sources écrites ?

A cause de la profondeur des dépôts de terre le long de quais de Londres, la structure des bâtiments a bien survécu le passage du temps par rapport au reste de la cité, bien que ces bâtiments aient été modifiés à maintes reprises et inévitablement remplacés au cours des siècles. Des bâtiments en pierre, peut-être avec des sous-sols voûtés, furent construits déjà avant 1200 apr. J.-C sur le terrain récupéré ; à Swan Lane ils comprenaient une grande teinturerie qui fonctionna pendent longtemps. Le bois réutilisé dans les structures littorales nous donne de précieuses indications sur les bâtiments anciens sur la terre ferme, surtout sur les techniques de construction sur cadre de bois faits de poutres équarries et sur leur assemblage, qui se développèrent à la fin du XIIe siècle. Des exemples importants ont été retrouvés sur deux sites étudiés ici ; il s'agit de bâtiments de la seconde moitié du XIIIe siècle avec des murets en pierre ou en argile sur lesquels on posait une ossature en bois, un développement majeur dans les techniques de construction. Notre étude présente une synthèse de ce que les fouilles des sites des berges de la Tamise ont contribué depuis 1972 à l'histoire des bâtiments domestiques à Londres et en Grande-Bretagne entre 1100 et 1666. Des sous-sols voûtés, des grandes salles, des dépendances et des cours figurent parmi ces espaces et ces pièces ; des indications plus précises ont pu être recueillies sur les portes, les fenêtres, les escaliers, les sols carrelés, l'installation et l'équipement des maisons. Vus dans l'ensemble, les bâtiments retrouvés en fouille constituent un ensemble important d'exemplaires datés provenant de la zone riveraine de Londres, que d'autres structures relevées dans les grands projets de fouilles entrepris dans la cité viennent maintenant compléter, par exemples dans

les recherches sur la partie orientale de Cheapside et de Poultry publiées en 2011. Nous sommes maintenant en état de comparer les différents quartiers de la cité à travers le prisme de leurs bâtiments d'époque médiévale et Tudor, ce qui constitue une étude de l'ancien paysage urbain de Londres à un niveau qui n'aurait pas été envisageable il y a quelques décennies.

La céramique retrouvée dans et autour des bâtiments est largement homogène ; il nous reste encore à trouver un moyen d'analyser la poterie qui puisse illustrer les activités pratiquées ou les fonctions remplies par les bâtiments à un moment précis ou au cours du temps, à l'exception notable de deux études concernant la céramique et les objets du XVIIe siècle récupérés dans une canalisation à New Fresh Wharf (site C) et répandus sur plusieurs bâtiments et une autre canalisation à Billingsgate (site D). Les témoignages abondants provenant du site de Billingsgate nous permettent d'amorcer le déchiffrement – en combinant l'analyse des bâtiments, des objets qui y ont été relevés et des documents écrits – des fonctions des pièces et autres espaces à un niveau rarement atteignable sur d'autres sites à Londres et ailleurs. L'examen de la céramique révèle les liens culturels et commerciaux qui existaient entre Londres et maintes localités autour de la Mer du Nord et en Rhénanie, tandis qu'on retrouve de la poterie fabriquée dans la zone de Londres au XIIe et au XIIIe siècle dans des villes de Grande-Bretagne (jusqu'au nord de l'Ecosse) et en Scandinavie (en Norvège, en Suède et au Danemark). Notre monographie contient une étude détaillée de la céramique indigène et étrangère découverte sur deux sites, Swan Lane et Seal House, datant d'époques allant de 1100 à 1666.

Les parcelles étaient dès le début de leur occupation un mélange de bâtiments à usage domestique, artisanal et industriel. L'industrie et l'artisanat qui manufacturait ou transformait des matières se manifeste dans les teintureries du XIIe siècle sur le site de Swan Lane, peut-être une sécherie de poisson à Seal House et d'autre établissements encore à identifier sur la base des vestiges retrouvés. Ici nous publions un inventaire de 1602 donnant pièce par pièce le contenu de Dyers' Hall (« hall » des teinturiers) sur le site de Swan Lane. En 1647 Wenceslas Hollar illustra ce qui est probablement une autre teinturerie le long de la Tanise, plus au sud du site. On peut corréler ce complexe avec la reconstruction en 1638, attestée dans les sources écrites, d'une partie de cette propriété pour servir de teinturerie.

L'industrie des teinturiers qui requiert une grande quantité d'eau de rivière, caractérisait la zone en amont de l'extrémité nord de London Bridge à partir du XIIe siècle et continua à occuper les lieux jusqu'au grand incendie de Londres en 1666. Au XIVe siècle elle partageait cet espace avec des brasseries qui étaient devenues des établissements de taille semblable vers 1600. Entre le XIVe et le XVIIe siècle, les propriétés au sud de Thames Street avaient probablement un caractère industriel, ce qui influença le type d'exploitation et la forme des bâtiments d'entreprise et privés. Certains bâtiments du site D, détruits dans le grand incendie de 1666, avaient cependant des pièces carrelées de tomettes provenant des Pays-Bas, peut-être donnant un ton européen à la mode aux foyers plus riches parmi les bâtisses utilitaires de la zone des quais.

L'église de Saint-Botolph Billingsgate, que les sources mentionnent pour la première fois en 1140, fut agrandie vers le sud au milieu du XVe siècle grâce à une allocation reçue par la paroisse en 1456 ou avant octroyée par John Reynewell, qui fut maire en 1426–27, ou par ses administrateurs fiduciaires ; une sépulture à l'intérieur de ce nouvel espace contenait deux squelettes, dont l'un pourrait être Reynewell lui-même. Les additions à l'église englobèrent un bâtiment en pierre déjà présent à quelques mètres au sud. Il est difficile d'établir la fonction que remplissait ce bâtiment (maintenant la partie la plus méridionale de l'église) mais il est possible qu'il ait servi de salle de fraternité. Maints éléments de l'intérieur et de la décoration de l'église peuvent être reconstruits sur la base des comptes qui ont survécu pour la période allant de la fin du XVIe siècle jusqu'au grand incendie de 1666. Un objet intrigant fut mis à jour pendant les travaux de terrassement de 1983–84 à Billingsgate : un morceau d'encorbellement impressionnant en pierre gravée d'un ange tenant un bouclier avec une marque de marchand provenant probablement de l'église, peut-être du toit de l'église agrandie par Reynewell.

Soixante-neuf personnes étaient ensevelies dans partie sud de l'église paroissiale de Saint-Botolph sur le chantier de fouilles de Billingsgate. Elles datent probablement du milieu du XVe siècle au XVIIe siècle. Vu leur bon état de conservation, ces restes humains forment un groupe d'inhumations paroissiales de grande valeur. En général, l'éventail des pathologies et maladies que l'on rencontre dans les populations londoniennes de ces époques est représenté dans ces squelettes, à l'exception de la tuberculose et de la syphilis qui ne semblent pas présentes, alors qu'on aurait pu s'y attendre. On a relevé peu de fractures mais un jeune individu avait survécu un coup à la tête avec un objet contendant et un homme plus âgé avait une difformité à la main droite causée peut-être par une blessure aux tendons. Divers types d'arthrose et un cas de goutte ont également été relevés.

Les résultats des fouilles présentés ici sont ensuite confrontés à ceux obtenus ailleurs à Londres et dans d'autres localités. Les grandes campagnes de fouilles urbaines des années 1970 et plus tard ont maintenant été publiées pour un nombre de sites. On peut ainsi comparer l'histoire de la zone des berges de la cité avec

celle des sites du centre, autour de Cheapside, pour en déduire comment les deux zones différaient dans leur type de constructions, leur culture matérielle et leur évolution. On comparera également les résultats provenant de Londres avec les données archéologiques obtenues dans les zones riveraines d'autres villes et cités de la même époque an Grande-Bretagne et à l'étranger.

Malgré le grand nombre de chantiers de fouilles le long de Thames Street, il reste encore d'importants gisements archéologiques qu'il faut protéger. Nous espérons que notre étude contribue à formuler un programme de conservation de cette longue et profonde réserve de couches archéologiques qui gît, depuis l'époque romaine, sous la plus grande partie du tracé actuel des rues de Lower et Upper Thames Street. Un dernier volet de notre monographie présente une série de coupes stratigraphiques et d'élévations des couches profondes fouillées sur deux sites, Seal House et New Fresh Wharf. Ces relevés, illustrant des couches qui documentent toutes les périodes d'occupation à partir de l'époque romaine (IIe siècle apr. J.-C.), servent à démontrer qu'ici la profondeur des strates archéologiques est unique à Londres. De plus, ils font partie des archives de fouilles effectuées sur ces sites et publiées antérieurement sur les temps des Romains et des Anglo-Saxons dont les abondantes collections d'objets et de documentation sont conservées au Musée de Londres.

Essentiellement, notre monographie concerne quatre chantiers de fouilles ouverts à une époque clef, c'est-à-dire la première décennie dans laquelle on se soucia de manière rationnelle des sites archéologiques dans la cité de Londres ; elle présente aussi le matériel découvert, dont l'étude a été à la base de toutes sortes de recherches à Londres et par extension ailleurs dans les décennies qui suivirent et qui continuent à se faire quarante ans plus tard. Les quatre sites présentés ici sont le point de départ d'un examen plus poussé de la culture matérielle dans toute la cité de Londres, vu la richesse des données et la longueur de la séquence relevée. On peut accéder aux fichiers du projet sur le site web du City of London Archaeological Trust (CoLAT) (www.colat.org.uk/london-waterfront/). Les analyses à venir sur le matériel et sur le bâti y seront également déposées.

Zusammenfassung

Dieser Bericht betrifft die archäologischen und schriftlichen Quellen aus mehreren mittelalterlichen und nachmittelalterlichen profanen Liegenschaften und einer Pfarrkirche, die zwischen 1974 und 1984 in vier Uferanlagen in Thames Street in der City of London durch das Museum of London ausgegraben wurden; von Westen nach Osten sind es die Fundstätten von Swan Lane (Site A), Seal House (Site B), New Fresh Wharf (Site C) und Billingsgate Lorry Park (LKW-Parkplatz, Site D). Hier werden die Ergebnisse, die das Zeitalter zwischen 1100 und 1666 n. Chr. (der große Brand von London) beleuchten, vorgestellt.

Die im Jahre 1972 begonnenen Ausgrabungen der Uferanlagen in London haben dazu beigetragen, unsere Kenntnisse über die Umgestaltung der Uferzone und die Erweiterung der Grundstücke im Flussbereich maßgeblich zu ergänzen. Der Einschluss von Tausenden von archäologischen Gegenständen und Keramikscherben in der Landgewinnung am Flussrand und in den Uferdeponierungen bildet eine einmalige Sammlung für die materielle Kultur des Mittelalters in London; dazu liefert das Zimmerhandwerk der Holzauskleidung der Ufer Hinweise über mittelalterliche Bauten, die sonst in London nicht erhalten sind (und einige Beispiele sind älter als die ältesten noch vorhandenen Gebäude in anderen mittelalterlichen Städten). Die Geschichte, die man aus den Ausgrabungen herleiten kann, wird hier in vier aufeinanderfolgenden Zeitabschnitten von 1100 bis 1666 gegliedert. Der Charakter des Uferbereiches, mit öffentlichen Gebäuden in Thames Street selbst, wird für jeden Zeitabschnitt behandelt und die Entwicklung der Beziehungen zwischen der Uferzone und der übrigen City im Mittelalter und zur Zeit der Tudors wird auch betrachtet.

Der weitere Studienbereich umfasst das Ufer der Themse südlich von Thames Street zwischen All Hallows the Great, eine Kirche des 11. Jahrhunderts im Westen (heute liegt sie unmittelbar östlich des Bahnviadukts des Bahnhofs Cannon Street) und die Uferanlage von Billingsgate (die wahrscheinlich ins 10. Jahrhundert datierbar ist) im Osten, also eine Strecke von ca. 475 m (rund 1550 Füße). Etwas mehr als halbwegs entlang dem Ufer kamen das Nordende der mittelalterlichen Brücke von London (London Bridge), das Ufer und die Straße zusammen. Zwei Komplexe bilden den Schwerpunkt unserer Untersuchungen: es handelt sich um acht angrenzende Grundstücke flussaufwärts der Brücke im ersten Komplex (hier Grundstücke 1 bis 8 genannt) und einen zweiten Komplex flussabwärts (Grundstücke 9 bis 16). Im Allgemeinen wurden nur die Teile, die am nächsten zu Thames Street lagen, und welche einst sicherlich die wichtigsten Gebäude enthielten, ausgegraben. Darüber hinaus liefern schriftliche

Quellen, alte Ansichten und Karten Angaben über Lage und Kontext. Die Ausgrabungen, die zwischen 1974 und 1984 hier durchgeführt worden sind, stehen im Mittelpunkt des Berichtes aber neuere Ausgrabungen von 2003 bis 2006 in einigen der gleichen Grundstücke und deren Umgebung tragen ergänzende Ergebnisse bei.

Zwischen 1100 und 1666 wuchs das Ufergebiet in der City zwischen Thames Street und der Themse effektiv durch die Landgewinnung im Fluss, bis das Gelände von Ufermauern aus Stein abgegrenzt wurde. Am Ende der Hauptzeit der Landgewinnung um 1450 war das Gelände südlich der Straße bis 100 m breit; es entstand aus der Erweiterung von vielen privaten Grundstücken, welche eingezogene Buchten für Schiffe in Queenhithe und Billingsgate bildete. Erde und Abfall wurden dabei benutzt, und diese Landgewinnung kann oft mit Hilfe der dendrochronologischen Datierung der Holzstrukturen am Ufer datieret werden.

Die historischen Quellen über diese Grundstücke gehören zu den reichsten Sammlungen solcher historischen Dokumente, die Hinweise auf irgendeine profane Liegenschaft in der City liefern können. Demnach kann die Geschichte der Besitzer und Mieter nachvollzogen werden und die Aussagen mit den archäologischen Angaben verglichen; in solcher Weise können wir die öffentlichen und privaten Räume, das Netzwerk der Gassen am Ufer, die verschiedenen Elemente der Grundstücke und den Unterteilungsprozess, die spezialisierten Gebäude und deren Ausrüstung, die Lager und die Kräne studieren. Unterschiede in der Landnutzung flussaufwärts und flussabwärts der Brücke sind auch erkennbar, vor allem ab dem 16. Jahrhundert. Die Gründung der Legal Quays (gesetzliche Hafenanlagen) unter Elizabeth I in 1559 war wahrscheinlich der Grund, warum die Landestellen für ausländische Güter flussabwärts der Brücke versetzt worden sind. Mit diesem Gesetz hat die Regierung also die Topografie von London verändert.

Mehrere Hauptfragen werden in unserer Untersuchung behandelt. Die verschiedenen Landgewinnungseinheiten enthielten Tausende von Gegenständen aus dem Mittelalter und der Zeit der Tudors sowie Hunderte von Kilos einheimischer und importierter Keramik. Woher kamen alle diese Artefakte und Scherben? Was bedeutet ihre Lage hinter der Holzauskleidung der Ufer oder am Ufer selbst? Sind diese Funde hoffnungslos vermischt, weil sie schon vor Deponierung durchmischt waren? Zwei der untersuchten Stätten, Swan Lane und Seal House (Site A und Site B), waren in dieser Hinsicht besonders ertragreich; dazu konnten auch viele Landgewinnungseinheiten dendrochronologisch datiert werden. Münzen waren vorhanden, aber, weil sie alle in sekundärer Lage gefunden worden sind, sind sie für die Datierung der Schichten nicht geeignet. Es wurden keine Ansammlungen von einzelnen Artefakttypen hervorgehoben. Die Erde in den Aufschüttungen kam wahrscheinlich aus Müllhalden von Liegenschaften in der ganzen Stadt; heute können wir ihren Ursprung nicht mehr herausfinden, außer in einem Fall, wo die Ablagerungen wahrscheinlich von einer königlichen Müllhalde in Baynard's Castle am westlichen Ende des Ufers der City stammten. Die Landgewinnung entlang dem Ufer bestand aus Aufschüttungen, die sehr große Mengen von Keramikscherben des 11. Jahrhunderts enthielten. Auf der Basis dieser Keramik kommen wir zum Schluss, dass die Deponierungen in der Regel aus Material von leicht verschiedenen Zeitabschnitten stammten, während die Ufer selbst eher gleichzeitiges Material enthielten. Man kann die Funde aus spezifischen Deponierungen nicht zu deren Datierung verwenden. Ebenso können sie uns nicht Hinweise über die verschiedenen Tätigkeiten, die an einer gewissen Uferstelle betrieben worden sind, geben, da sie fast immer aus dem weiteren Umkreis stammten. Die Uferlinie ist auch nicht aufschlussreicher, weil die Schichtenbildung über solch eine lange Zeit dort flüssiger war.

Das Material kann aber sehr aufschlussreich sein. Die Tausende von mittelalterlichen und nachmittelalterlichen Artefakten können uns wertvolle Angaben über spezifische Aspekte der Kultur, der Mode und des Glaubens liefern. Die Vielfalt von Alltagsgegenständen, die Hinweise auf eine Massenproduktion von, zum Beispiel, Schnallen, Gürtelzubehör und Trachtbestandteilen, sowie die Vielzahl von nahezu identischen Stücken belegen einen blühenden Gütermarkt, wie es die schriftlichen Quellen nachweisen. Manche Artefakte waren wahrscheinlich importiert, aber diese Frage muss noch erforscht werden. Wir können herausfinden, wie die Funde aus den Uferstätten in London allgemein zur Frage des Anfangs der neuzeitlichen Konsumrevolution und des Konsumerismus (der nicht im 18. Jahrhundert, sondern im Spätmittelalter begann) beitragen können. Zusammen mit der Konsumgesellschaft kam auch die Mode, die wir in den Artefakten erkennen können.

Das geborgene Material gibt uns die Möglichkeit, die Gläubigkeit der Londoner zu erfassen; es kann sich um ein kunstvolles Pilgerandenken aus Canterbury handeln, oder vielleicht einen Siegel von einem kirchlichen Ablass, der dem Toten ins Grab beigegeben wurde. England war scheinbar am Anfang des 16. Jahrhunderts eines der katholischsten Länder in ganz Europa. Eine Untersuchung der Pilgerabzeichen, die meistens von Uferzonen stammen, zeigt, dass Abzeichen aus 39 Orten in Großbritannien und 109 Stellen auf dem europäischen Festland (von Valdstena in Schweden bis Bari in Italien) in London gefunden worden sind. Manche stammen von den Stätten, die

wir in diesem Band behandeln. In den mittelalterlichen Uferschlammschichten wurde auch die „Billingsgate Trompete" gefunden; sie ist nach dem Fundort genannt und ist eines der ältesten Exemplare eines mittelalterlichen Musikinstrumentes in Europa sowie das einzige bekannte Beispiel einer geraden Trompete des europäischen Mittelalters.

Weiter liegt uns die Erforschung der Funktion der Gebäude und der offenen Flächen in den untersuchten Stätten nahe. Wie sahen die Innenräume aus? Wie veränderten sie sich mit der Zeit? In welchem Ausmaß verdeutlichen das die Artefakte? In welchem Umfang kann man jedes einzelne Grundstück oder jeden Neubau mit denen Besitzer oder Mieter verbinden, wie es die Quellen vermerken?

Im Vergleich mit dem übrigen Areal der City bedeutet die Anwesenheit von tiefen Schichten im Uferbereich von London, dass die Bauten relativ gut erhalten sind, obschon sie sehr oft umgebaut und notwendigerweise im Verlaufe der Jahrhunderte ersetzt wurden. Steinbauten, vielleicht mit gewölbten Untergeschossen, wurden um 1200 auf dem zurückgewonnenen Land errichtet; dazu gehörte eine große Färberei in Swan Lane, die lange tätig war. Das Holz, das in den Uferstrukturen wiederverwendet war, gibt uns Aufschluss über frühe Bauten auf dem festen Land, vor allem, dass die Bautechnik mit Holzrahmen aus Kanthölzern und mit vielen verschiedenen Fugen sich im späten 12. Jahrhundert in London entwickelte. Zwei unserer Fundstätten enthielten wichtige Beispiele von Gebäuden mit niedrigen Stein- oder Lehmmauern, auf welchen man die Holzrahmen setzte; sie werden in die zweite Hälfte des 13. Jahrhunderts datiert und kennzeichnen eine wesentliche Entwicklung in der mittelalterlichen Bautechnik. Unser Band behandelt was die Ausgrabungen seit 1972 in der London Uferzone zur Geschichte der Wohnhäuser in London und Großbritannien zwischen 1100 und 1666 beitragen können. Ihre Zimmer und Räume umfassen gewölbte Untergeschosse, Säle, Nebengebäude und Höfe; Türen, Fenster, Treppen, Fußbodenbeläge aus Fliesen, Haushaltausstattungen und Einrichtungen sind auch im Detail nachgewiesen. Als Ganzes betrachtet, stellen die ausgegrabenen Gebäude eine wichtige Sammlung von datierten Beispielen aus dem Ufergebiet dar und man kann sie den anderen großen archäologischen Ausgrabungsprojekten in der City gegenüberstellen, zum Beispiel der östliche Teil von Cheapside und Poultry, der in 2011 veröffentlicht wurde. Es ist jetzt möglich verschiedene Viertel der City anhand des mittelalterlichen und Tudor Gebäudebestands zu vergleichen. Solch eine gezielte Analyse des ehemaligen Stadtbildes von London wäre vor wenigen Jahrzehntem nie denkbar gewesen.

Die Keramik, die in und rund um die Gebäude geborgen wurde, ist meistens homogen, aber wir müssen noch Methoden der Analyse dieser Keramik entwickeln, sodass die verschiedenen Tätigkeiten in diesen Gebäuden und ihre Funktion zu einem bestimmten Zeitpunkt oder im Laufe der Zeit belegt werden können. Es gibt bemerkenswerte und aussichtsreiche Ausnahmen, wie zwei spezifische Untersuchungen von Keramik und anderen Funden des 17. Jahrhunderts in einem Abwasserkanal in New Fresh Wharf (Site C) sowie eine Verstreuung über mehreren Bauten und einem anderen Entwässerungskanal in Billingsgate (Site D). Die vielfältigen Belege aus der Billingsgate Fundstelle ermöglichen es, die Funktion der verschiedenen Räume und Flächen auf einer in London und anderswo oft nicht erreichbare Ebene zu verdeutlichen; dies kann durch die kombinierte Untersuchung der Bauten, der dort geborgenen Artefakten und der historischen Quellen erreicht werden. Die Analyse der Keramik zeigt, dass der Handel und die kulturellen Beziehungen zu mehreren Orten rund um die Nordsee und tief ins Rheinland lebhaft waren; man findet Keramik, die in London und Umgebung im 12. und 13. Jahrhundert produziert wurde, in britischen Städten bis nach Nordschottland und Skandinavien (heute Norwegen, Schweden und Dänemark). Unsere Monografie enthält eine detaillierte Untersuchung der einheimischen und ausländischen Keramik, die zwischen 1100 und 1666 auf zwei von unseren Stätten (Swan Lane und Seal House) vorkam.

Die angrenzenden Grundstücke waren von Anfang an eine Mischung von Wohnhäusern und Arbeitsgebäuden. Es gibt klare Hinweise auf Handwerk oder Industrie, die etwas erzeugten oder verarbeiteten, wie zum Beispiel die Färberei des 12. Jahrhunderts in Swan Lane, möglicherweise das Trocknen von Fisch in einem Gebäude in Seal House und noch andere gewerbliche Aktivitäten in Arbeitsgebäuden, die noch anhand der dort gefundenen Überreste erforscht werden müssen. Hier veröffentlichen wir ein Inventar für jeden einzelnen Raum, der im Jahre 1602 zum Dyers' Hall (Färberhaus) auf der Fundstätte von Swan Lane gehörte. Eine vermutete andere Färberei am Ufer südlich davon wurde in 1647 in einer Ansicht von Wenceslas Hollar illustriert und stellt wahrscheinlich die in 1638 angefangenen Bauarbeiten, die an dieser Stelle in den Swan Lane Ausgrabungen angetroffen wurden, dar.

Die Färbereien, die sehr viel Flusswasser benötigen, bildeten einen wesentlichen Bestandteil in der Zone flussaufwärts vom nördlichen Ende der Brücke (London Bridge) ab dem 12. Jahrhundert und dieses Gewerbe wurde dort bis zum großen Brand von London weitergeführt. Ab dem 14. Jahrhundert teilten sie sich die Anlagen mit Brauereien, die sich um 1600 zu gleich großen Komplexen entwickelt hatten. Im 14. bis 17. Jahrhundert war der Charakter der Grundstücke südlich

von Thames Street wahrscheinlich recht industriell, was die Landnutzung und Form der Liegenschaften als private und geschäftliche Gebäude beeinflusste. Einige Gebäude, die im großen Brand von 1666 niederbrannten, hatten aber Räume mit holländischen Bodenfliesen, was vielleicht einen modischen europäischen Ton in den reicheren Häusern inmitten der Nutzbauten im Uferbereich veranschaulicht.

St Botolph Billingsgate, um 1140 erstmals erwähnt, ist eine Kirche, die in der Mitte des 15. Jahrhunderts (spätestens in 1456) nach Süden erweitert wurde dank Finanzierung der Kirchengemeinde durch John Reynewell (Bürgermeister in 1426–1427) oder seine Treuhänder. Ein Grab mit zwei Bestattungen wurde in dieser Erweiterung entdeckt, und eine davon ist vielleicht die Leiche von Reynewell. Die Erweiterung umfasste ein bestehendes Steingebäude, das einige Meter südlich lag und dann in den neuen Baukörper integriert wurde. Der Zweck dieses Neubaus, also jetzt der südlichste Teil der Kirche, ist nicht klar aber vielleicht diente er als Bruderschaftshaus. Man kann manche Aspekte der Inneneinrichtung und Verzierung dank der überlieferten Buchhaltung des späten 16. Jahrhunderts bis zum großen Brand von 1666 rekonstruieren. Bemerkenswert war der Fund, während der Erdarbeiten auf der Billingsgate Baustelle in 1983–1984 entdeckt, einer eindrucksvollen Konsole aus Stein mit einem eingemeißelten Engel mit Schild und Handelszeichen, die wahrscheinlich ursprünglich zur Kirche gehörte, vielleicht zum Dach der Erweiterung von John Reynewell.

Neunundsechzig Bestattungen wurden im südlichen Teil der Pfarrkirche St Botolph auf der Fundstätte von Billingsgate ausgegraben. Man kann sie wohl von der Mitte des 15. Jahrhunderts bis zur Mitte des 17. Jahrhunderts datieren. Die menschlichen Überreste waren gut konserviert und deswegen bilden sie eine wertvolle Sammlung von Bestattungen in einer spezifischen Kirchengemeinde. Meistens zeigten die Toten das normale Spektrum von pathologischen Zuständen und Krankheiten, wie man es in anderen gleichzeitigen Bevölkerungen in London erwarten kann, aber ohne Beweise für Tuberkulose oder Syphilis, was auch zu erwarten war. Nur wenige Knochenbrüche sind nachgewiesen, aber ein junger Mann hatte ein stumpfes Schädeltrauma überlebt und ein anderer, älterer Mann hatte eine deformierte rechte Hand, vielleicht infolge eines Sehnenschadens. Verschiedene Arten von Osteoarthritis und ein Fall von Gicht wurden auch vermerkt.

Die Ergebnisse der Ausgrabungen werden dann mit anderen Ausgrabungen in London und anderswo verglichen. Wir verfügen jetzt über eine Reihe von Veröffentlichungen über manche Fundstellen, die in den großen Ausgrabungskampagnen in der Stadt London seit den 1970er Jahren untersucht worden sind. Die Geschichte der Uferzone in der City kann mit anderen Fundstätten im Zentrum, um Cheapside, verglichen werden, um zu verstehen, wie die beiden Viertel in ihren Gebäuden, materieller Kultur und Entwicklung sich unterschieden. Die Angaben von London werden dann auch mit den Daten von archäologischen Untersuchungen in Uferbereiche in anderen Städten dieser Zeit in Großbritannien und im Ausland gegenübergestellt.

Obschon es viele archäologische Ausgrabungen entlang Thames Street gegeben hat, bleibt noch viel im Boden und wir müssen diese Quellen schützen. Unsere Studie beabsichtigt, dass man sich überlegt, wie man diese umfangreichen und tiefen Reserven von Schichten erhalten kann; die Bildung dieser Straten geht bis in die Römerzeit zurück und diese Schichten liegen unter dem größten Teil der aktuellen Straßen von Upper und Lower Thames Street. Unsere Monografie endet mit einer Reihe von Profilzeichnungen und Aufrisse, welche die tiefen Schichten von zwei der ausgegrabenen Stätten (Seal House und New Fresh Wharf) illustrieren. Sie zeigen die Schichtenfolge aller Epochen ab der Römerzeit im 2. Jahrhundert n. Chr. und dienen dazu, die Tiefe der archäologischen Ressource an dieser Stelle (was für London einmalig ist) zu beweisen. Diese Dokumentation ist auch Teil des Archivs von anderen bereits veröffentlichten Untersuchungen unserer Stätten in der Zeit der Römer und Angelsachsen und gehört zu den bedeutenden Sammlungen von Artfakten und Dokumentierung im Museum of London.

Im Wesentlichen beschreibt diese Monografie vier Ausgrabungen, die an einem entscheidenden Zeitpunkt unternommen wurden; das war in den ersten Jahrzehnten einer vernünftigen archäologischen Vorgehensweise in der City von London und eines rationellen Umgangs mit dem geborgenen Material, dessen Erforschung die Basis von manchen archäologischen Untersuchungen in London und anderswo in den folgenden Jahrzehnten und auch noch heute, vierzig Jahre später, bildete. Die vorliegenden Ausgrabungen sind der Ausgangspunkt einer weiteren Analyse der materiellen Kultur in der ganzen City, dank der Fülle an Angaben und der Länge der archäologischen Folge. Unterstützende Dateien für die ausgeführten Projekte sind auf der Webseite des City of London Archaeological Trusts (CoLAT) zugänglich: www.colat.org.uk/london-waterfront/. Dort werden auch künftige Analysen des Materials und der Bauten zugänglich gemacht werden.

10. Bibliography and abbreviations

Documentary references beginning with the following sets of letters and numbers are all in London Metropolitan Archives: CLA, CLC, DL, P69 (though some collections, in particular the archives deposited by the livery companies, are stored at Guildhall Library). The designation CLA indicates documents which came from the Corporation of London Record Office, so they were usually Corporation records; CLC indicates documents which came from Guildhall Library, usually documents of private citizens, livery companies, parishes and St Paul's Cathedral, or of institutions from outside London which owned property or quit-rents in the City.

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